

**T.C.  
SAKARYA UNIVERSITY  
INSTITUTE OF SOCIAL SCIENCES**

**COMPARING THE PERFORMANCES OF MAJOR  
AIRLINE COMPANIES BY TRADITIONAL AND  
AIRLINE-SPECIFIC RATIOS AND MEASURES**

**MASTER THESIS**

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Field of Science : Accounting and Finance**

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**JUNE-2015**

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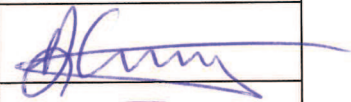

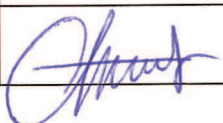
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**This thesis approved by consensus of the examining committee on June 23<sup>rd</sup>, 2015.**

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## **DECLARATION**

This thesis is a presentation of my original work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.

**Hatem YAGHI**

**June 23<sup>rd</sup>, 2015**

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**Hatem YAGHI**

**June 23<sup>rd</sup>, 2015**

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## **LIST OF ABBREVIATIONS**

<b>ANA</b>	: All Nippon Airways
<b>ASK</b>	: Available Seats Kilometers
<b>D/E</b>	: Debt to Equity Ratio
<b>IAG</b>	: International Airlines Group
<b>IATA</b>	: International Aviation Transport Association
<b>ICAO</b>	: International Civil Aviation Organization
<b>LCCs</b>	: Low Cost Carriers
<b>LF</b>	: Load Factor
<b>M\$</b>	: Millions of United States Dollars
<b>M€</b>	: Millions of Euros
<b>NWC</b>	: Net Working Capital
<b>ROA</b>	: Return on Assets
<b>ROE</b>	: Return on Equity
<b>RPK</b>	: Revenue Passengers Kilometers
<b>RRPK</b>	: Revenue per Revenue Passengers Kilometers



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**Tezin Başlığı:** Büyük Havayolu Şirketlerinin Performanslarının Geleneksel Oranlar ve Özel Havayolu Oranları ve Ölçüleri Yoluyla Karşılaştırılması

**Tezin Yazarı:** Hatem YAGHI **Danışman:** Yrd.Doç.Dr. Ahmet Selçuk DİZKIRICI

**Kabul Tarihi:** 23 Haziran 2015 **Sayfa Sayısı:** x (ön kısım) + 71 (tez) +3(ek)

**Anabilimdalı:** İşletme

**Bilimdalı:** Muhasebe ve Finansman

Bu çalışma havayolu endüstrisindeki büyük işletmelerin geleneksel oranlar ile birlikte sektöre özel oran ve ölçülerle analizini içermektedir. Sözü edilen oranlar beraber kullanılarak dünyanın en büyük ve en rekabetçi pazarlarından olan havayolu endüstrisindeki işletmeler finansal performansları bağlamında incelenmekte ve karşılaştırılmaktadır.

Oran analizi yöntemi, mali tabloların incelenmesinde kullanılan temel unsur olarak görülmektedir. Bu yöntem şirketlerin finansal beyanlarında halka açıkladıkları bilgilerin kantitatif analizini içermektedir. İşletmelerin bilanço, gelir ve gider tablosu ile nakit akım tablosu gibi temel ve ek mali tablolarında yer alan farklı öğeler arasındaki ilişkileri gösteren söz konusu oranlar şirketlerin performansını değerlendirmek amacıyla kullanılan önemli bilgilerdir. Dolayısıyla oran analizinde bir şirketin likidite, finansal yapı, etkinlik ve karlılık açısından incelenmesi için net işletme sermayesi, cari oran, asit-test oranı, toplam varlık devir hızı, öz kaynak karlılığı, toplam varlık karlılığı, kar marjı, faaliyet karı, borç/öz sermaye oranı ve kaldıraç oranı gibi finansal oranların hesaplanmakta ve karşılaştırılmaktadır.

Buna ek olarak, her sektör kendi özelliklerini taşıdığı için sektöre özel oranlar, sektör ile ilgili daha derin analiz yapılmasına ve sektörün anlaşılmasına yardımcı olmak için geliştirilmiştir. Bu nedenle çalışma; geleneksel oran analizinde kullanılan oranlar dışında havayolu endüstrisi ile ilgili arz edilen koltuk mesafesi (ASK), ücretli yolcu mesafesi (RPK), ortalama yük faktörü (LF) ve ücretli yolcu için mesafe başına gelir (RRPM) ya da hâsıla gibi diğer bazı ölçü ve oranları da içermektedir.

Burada sözü edilen ASK ölçüsü, uçuş sırasındaki mevcut koltuk sayısının, koltuklar dolu olsun ya da olmasın, mesafeyle çarpımını ifade eder.

$ASK = \text{Uçak başına koltuk sayısı} \times \text{Uçuş Mesafesi (km)}$

RPK ise uçaktaki ücretli yolcuların mesafeyle çarpımını temsil etmektedir. ASK hesaplamasında yolcuların uçakta olması ya da olmaması önemli değilken; RPK hesaplamasında sadece ücretli yolcuların bulunduğu koltuklar hesaplamaya dâhil edilmektedir.

$RPK = \text{Ücretli Yolcu Sayısı} \times \text{Uçuş Mesafesi (km)}$

Yük faktörü (LF) oranı kapasite kullanımı için kullanılan, RPK ve ASK değerlerini karşılaştırarak ücretli yolcular tarafından doldurulan koltuk miktarını ortaya koymaktadır.

$LF = RPK / ASK$

Ücretli yolcu için mesafe başına gelir (RRPM) veya hâsıla bir yolcunun bir kilometre uçmak için ödediği tutar olarak karşımıza çıkmaktadır.

$RRPM = \text{Yolculardan Elde Edilen Toplam Geliri} / RPK$  şeklinde hesaplanmaktadır.

Yukarıda sözü edilen havayolu işletmelerine özel oran ve değerlendirmeler havayolunun faaliyet kapsamını ifade etmektedir. ASK ve RPK değerleri faaliyetlerin büyüklüğünü ifade etmekte; LF ve hâsıla oranları hesaplanarak karşılaştırmalar yapılmaktadır.

Bu çalışma Kuzey Amerika, Asya, Avustralya ve Avrupa'dan seçilen ve dünya çapında faaliyet gösteren büyük havayolu şirketlerinden farklı havayolu sınıflarını (tam hizmet ya da

düşük maliyetli taşıyıcılar) ve farklı işletim stratejilerini (uzun, orta ve kısa mesafeli uçuşlar) içermektedir. İşletmelerin kriz sonrası yılları ifade eden 2011-2013 dönemindeki performansları geleneksel oran analizi ve sektör oranları ile incelenmekte ve karşılaştırılmaktadır.

Tam hizmet taşıyıcılarından kasıt; düşük maliyetli taşıyıcılara göre daha yüksek bir ücret karşılığında birinci sınıf ve business class oturma, daha iyi kabin hizmeti, daha iyi yemekler, eğlence hizmetleri ve özel havaalanı bekleme salonları vb. hizmetler sağlayan havayollarıdır. Havayollarının işletim stratejileri ise varılacak yerin mesafesi ile ilgili olup kısa mesafeli uçuş en çok üç saat süren yurt içi veya yurtdışı uçuşlardır. Orta mesafeli uçuşlar üç ila altı saat süren uçuşlar ve son olarak uzun mesafeli uçuşlar da altı saatten fazla süren genellikle non-stop olan uçuşları ifade eder.

Havayolu taşımacılığının kendine özgü bir özelliği de işin doğasının uluslararası olmasıdır. Bunun temel nedeni, uçakların uzun mesafeler alıyor olması ve uçaklarla, hız avantajını kullanarak rekabet edebilecek herhangi bir ulaşım aracının olmamasıdır. Havayolları, dünyanın farklı uluslarının yük ve yolcularını taşımaktadır. Aynı zamanda ekonomik büyüme ve havayollarının liberalleşmesi havayolu taşımacılığı ve trafiğinin talebini de oldukça etkilemektedir. Öte yandan havayolu endüstrisi verimliliğini korumak için rekabet edebilirlik, yakıt fiyat değişkenliği, küresel ekonomi, havayolu güvenliği, yenilik, düşük maliyetli taşıyıcıların ortaya çıkması gibi birçok zorlukla karşı karşıya kalmaktadır.

Çalışma boyunca, havayolu endüstrisinin kazançlarında dalgalanmaların yaşandığını, önemli kar dönemlerinin ardından finansal kayıpların da gerçekleştiği gözlemlenmektedir. Ayrıca yüksek kaldırma oranları nedeniyle havayolu endüstrisinin ağır borç yapısına sahip olduğu da görülmektedir. Bununla birlikte, birikmiş zararlar nedeniyle negatif ya da çarpık borç-özsermaye oranı ile karşılaşılmaktadır. Negatif veya pozitif fakat düşük miktardaki işletme sermayesi, uzun dönemli borcun belli oranlarda periyodik olan ödemesi anlamına gelen yüksek kaldırma oranı ile açıklanabilir.

Daha önce belirtildiği gibi, havayolu endüstrisi değişken bir yapıda olduğu için, beklenmedik finansal dalgalanmalar arkasında birçok neden bulunmaktadır. Yüksek miktardaki borç nedeniyle büyük faiz maliyeti, siyasi istikrarsızlık (özellikle birçok havayolu için önemli pazarlar olan Ortadoğu ve Kuzey Afrika'daki savaşlar), İzlanda ve Japonya 'da gerçekleşen doğal afetler, Euro Bölgesi borç sorunları ve ekonomik durgunluk gibi sorunlar; tam hizmet taşıyıcılarını etkilemiş, düşük maliyetli taşıyıcıların yararına olmuştur.

Havayollarına özel oran ve istatistiklerden bahsedildiğinde; neredeyse tüm havayolu endüstrisinde, kar eden ve etmeyen yıllar da göz önüne alınarak, operasyonel büyümeyi temsil eden ASK ve RPK büyümelerine bakıldığında, rekabetin üst düzeyde olduğu fark edilmektedir.

Çalışma kapsamındaki işletmelerin geleneksel ve havayollarına özel oranlarının incelenmesi sonucu aşağıdaki sonuçlara varılabilmektedir: Ekonomik büyüme ve havayolu sektörünün küresel anlamda liberalleşmesi; havayolu taşımacılığı ve trafiği için yeni pazarlar üretme ve düşük maliyetli taşıyıcıların ortaya çıkmasına yönelik talebi oldukça etkilemektedir. Sektörde rekabetçi bir yapı oluşmakta ve söz konusu rekabet ortamı büyük havayolu şirketleri üzerinde baskı kurarak, çoğunlukla son yıllarda ortaya çıkan diğer şirketleri de dikkate almasını, finansal yapı ve faaliyetleri açısından sürekli şekilde karşılaştırma yapmayı gerekli kılmaktadır. Diğer bir deyişle, havayolları rekabet edebilirliğini daha fazla borcu finanse etmeye karşılık ASK ve RPK'larını arttırarak sürdürmektedir.

**Anahtar Kelimeler:** Havayolu Sektörü, Büyük Havayolu İşletmeleri, Finansal Performans, Özel Havayolu Değerlendirme Kriterleri

<b>Title of the Thesis:</b> Comparing The Performances Of Major Airline Companies By Traditional And Airline-Specific Ratios And Measures	
<b>Author:</b> Hatem YAGHI	<b>Supervisor:</b> Assist. Prof. Ahmet Selçuk DİZKIRICI
<b>Date:</b> June 23 <sup>rd</sup> , 2015	<b>No. of Pages :</b> x (front) + 71 (thesis) + 3 (app)
<b>Department:</b> Business Administration <b>Field of Science:</b> Accounting and Finance	
<p>Airline industry is developed both in Turkey and worldwide in the previous decades considerably. Air transportation activities have been operated since a much longer time both for military and civilian purposes and a rapid growth in civil aviation has been seen recently due to new opportunities in communication and transportation. Since 1990s especially in Europe and Asia the civil transport demand for airline companies is increased significantly.</p> <p>Because of the importance in corporate performance; the study addresses the traditional ratio analysis in the airline industry in addition to airline-specific measures and ratios. Given the specificity of the airline industry and its significant vulnerability to adverse changes in economic and business conditions, conducting a ratio analysis aims to reveal the airline industry-specific behavior of the selected liquidity, activity, profitability and leverage ratios computed for 17 international airlines over the period of 2011-2013 which is called as post crisis term and find out whether known rules of thumb are applicable to the airline industry. Moreover, via traditional ratios the study examines the financial performance of the selected airlines during the given period by identifying major challenges that they are facing.</p> <p>Airline-specific measures and ratios express sizes and operating areas of the companies in the aviation sector. Moreover they highlight airlines' growth throughout the years by calculating its kilometers travelled and passengers carried. Simultaneously, average load factor highlights the utility of the growth while passengers yield notes its efficiency.</p> <p>By combining these two methods a conclusion about airlines' position and success in one of the biggest and most competitive markets worldwide is drawn according to the comparison of the analyses held.</p>	
<b>Keywords:</b> Airline Industry, Major Airline Companies, Financial Performance, Specific Airline Evaluation Criteria	

## **INTRODUCTION**

One of the unique aspects of airline transportation is the international nature of the business. The main reason for this is the fact that no other kind of transportation can compete with the speed advantage that aircraft have over longer distances. Airlines transport passengers and freight of different nationalities all over the world. Moreover, economic growth and airline liberalization heavily influence demand for air transport and traffic growth. On the other hand, airline industry faces many challenges to maintain its efficiency like competitiveness, fuel price volatility, global economy, safety in air, innovation, the emergence of low cost carriers etc. In recent years the airline industry has experienced severe volatility in earnings and significant profits that are closely followed by periods of financial loss with numerous samples of airlines through the fluctuation in global airline industry.

Corporate finance is a diverse and broad field that deals with ensuring that a company has the financial resources, cash specifically, not only to operate successfully in the short term, but also to position the company for long-term prosperity. Long-term prosperity is critical to every industry and the airline industry is no exception; therefore financial management, together with economics, plays an essential role in maintaining efficient airline operation. Finance touches every side of an airline, affecting its short-term and long-term decision-making and results.

The financial ratio analysis has always been considered as a fundamental element in financial statement analysis. It involves conducting a quantitative analysis of information disclosed in financial statements of companies via various accounting ratios that show relations among different items from the balance sheet, statement of operations and statement of cash flows and are used to evaluate companies' performance for investing and financing purposes.

As any industry, airline companies have their own measures and specifications based on the service provided and customers. Hence airline-specific measures and ratios like Available Seat Kilometer, Revenue Passenger Kilometers, Load Factor and Revenue per Revenue Passenger Kilometer (yield) exist to provide a deeper understanding of the industry's operations and progress.

## **Research Objectives**

The research's objective is firstly to provide introduction to the global airline industry, its evolution and current status. Firstly, the major forces influencing the industry are described, including deregulation and liberalization worldwide, along with some important recent industry challenges, such as the severe financial problems that the industry has faced, which were followed by restructuring of some of the industry's largest airlines. In addition; the study's purpose is to present a quantitative analysis of information reported in financial statements and annual reports of the selected major airlines using traditional financial ratios and airline-specific measures and ratios to assess the major airlines' financial performance for three successive years (2011-2013) and understand their behavior specific to the airline industry. Furthermore, we study the relation between the financial and the airline-specific assessment. Finally, based on the performed analysis, major airlines are being evaluated and compared.

## **Significance of the Study**

Throughout the study, the airline industry's volatile earnings and significant profits that are closely followed by periods of financial losses is noticed. Also the heavy debt structure of the airline industry through high leverage ratios is known. In addition, negative or distorted debt to equity ratios is noted due to earlier bankruptcy and accumulated losses. Consequently, negative or positive but low working capital can primarily be explained by airlines being highly leveraged, which requires periodic payments of the current portion of long-term debt.

The study also highlights the reasons behind major airlines' unexpected financial fluctuations throughout the years under study such as high fuel prices which specifically affect airlines operating long-haul flights, political instability and wars in Middle East and North Africa which are important markets for some airlines, natural disasters represented by Japan's earthquake and tsunami, Eurozone debt issues and economic recession stroked legacy airlines and benefited low cost carriers, past losses and occasionally bankruptcies accompany airlines for long periods after, resulting in negative or tiny equities which distort financial analysis like return on equity and debt to equity ratios etc.



Airline-specific measures and ratios remarks high level of competition in airlines' sector as almost all of the airlines under study record operational growth represented by growing Available Seat Kilometer and Revenue Passenger Kilometer during profitable and unprofitable years.

### **Scope of the Study**

Given the specificity of the airline industry and its significant vulnerability to adverse changes in economic and business conditions, conducting a ratio analysis aims to reveal the airline industry-specific behavior of 22 international airlines over the after crisis period (2011-2013) and find out whether known rules of thumb are applicable to the airline industry. The airlines under study are leading companies in the industry representing North America, Asia, Australia and Europe covering different classes of airlines (legacy carriers and low cost carriers) and different operating strategies such as long-haul flights, medium-haul flights and short-haul flights. Legacy carriers refer to airlines with high-fares due to higher quality services provided than low-cost carriers such as first class and business class seating, better cabin service, better meals, in-flight entertainment, exclusive airport lounges etc.). Airlines' operation strategies are divided in to three groups based on the distance travelled to destination. First, short-haul flight is a flight taking less than three hours to complete, it can be domestic or international. Second, medium-haul flight lasts from three and six hours, basically international flights. Finally, long-haul flight is a flight that requires over six and a half hours to cover and is often a [non-stop flight](#).

Ratio analysis consists of various financial calculations to analyze different portions of a company such as net working capital, current ratio, quick ratio, total asset turnover, return on assets (ROA), return on equity (ROE), profit margin, operating profit margin, debt-to-equity (D/E) and debt ratio, are used to highlight and interpret airlines' liquidity, efficiency, profitability and solvency.

In addition; since every industry is unique, certain industry-specific ratios are developed to provide a greater in-depth analysis and understanding of the sector. The study covers some of the key terms and ratios for the airline industry, such as available seat kilometers (ASK), revenue passenger kilometers (RPK), average load factor and

revenue per revenue passenger mile (RRPM), or yield; which are commonly used in aviation literature.

Available seat kilometers (ASK) is a basic measure of an airline's output, since they represent the number of kilometers that the airline has flown with its available seats, regardless of whether the seat is filled by a passenger.

Revenue passenger kilometers (RPK) represent the number of kilometers that revenue passengers fly on the airline. Whereas ASK do not differentiate between whether the seat is occupied or not, RPK include only seats occupied by revenue passengers in the calculation.

Load factor is simply the proportion of an airline's seats that are filled by revenue passengers. In other words, load factor is a measure of capacity utilization.

Revenue per revenue passenger kilometer (RRPK) represents the average amount that a passenger pays to fly one kilometer. Therefore, to determine the average amount of revenue received for a paid seat.

Airline-specific ratios and statistics express airline's operating scope in the aviation sector. Moreover they highlight airlines' growth throughout the years by comparing its available seats kilometers (ASK) and revenue passenger kilometers (RPK). Simultaneously, average load factor highlights the utility of the growth while passengers yield (RRPK) notes its efficiency.

## **PART 1: THE GLOBAL AIRLINE INDUSTRY**

The first part of the study includes general information about the Airline Industry in the world, hence; it is consisted of the following subtitles as Introduction to Global Airline Industry, Key Organizations and Their Roles in Airline Industry, Airline International Economic Regulations and Liberalization, The Effects of Past Liberalization to Airline Industry and Major Airlines Worldwide.

### **1.1. Introduction to Global Airline Industry**

Airline industry is developed both in Turkey and worldwide in the previous decades considerably. Despite the rapid growth in civil aviation recently; air transport activities have been operated since a much longer time both for military and civilian purposes. The first civilian flights are made in France while Transatlantic ones are succeeded in 1930 (Petrescu, 2013: 144) when Dieudonné Costes and Maurice Bellonte, French pilots, flew a Hispano-powered Breguet biplane from Paris to New York.

But the milestone in the history of aviation is known as Chicago Convention which is the foundation set for today's global air transportation system. Before the end of World War II, "Chicago Convention", an international aviation treaty, is signed by representatives of 54 nations in the International Convention on Civil Aviation which is a conference on the future of international air transport held in 1944 (ICAO, 1947). The mentioned convention makes several fundamental contributions to the conduct of domestic and, especially, international civil aviation that lead enormous growth over time. The global airline industry provides a service to almost every country in the world, and plays an essential role in the creation of a global economy. Airline industry is a major economic force, in terms of both its own operations and its impacts on related industries such as aircraft manufacturing and tourism generating a total of 56,6 million jobs globally (IATA, 2012). At the end of 2014, the air transport industry handled 3,3 billion passengers around the globe with more than 1.000 commercial airlines operating internationally and about 24.000 commercial aircrafts in service (Vasigh, 2015: 3).

### **1.2. Key Organizations and Their Roles in Airline Industry**

A large number of public or private institutions and organizations play roles in shaping policies regarding economic, regulatory and technical matters concerning the air

transport sector. This section presents brief descriptions of the International Civil Aviation Organization and the International Air Transport Association, as well as brief mentions of their contribution to the industry.

### **1.2.1. International Civil Aviation Organization (ICAO)**

The institute is established in 1947 in response to the recommendations of the Chicago Convention in addition to its world headquarters which is located in Montreal, Canada. ICAO maintains seven regional headquarters around the globe such as Bangkok, Cairo, Dakar, Lima, Mexico, Nairobi and Paris. ICAO can be likened to a “United Nations of Civil Aviation” and, in fact, its official status is that of a specialized agency of the UN. Its many important functions include the development, approval and updating of international technical standards and recommended practices for airports and air traffic control, as well as the preparation and publication of broad regulatory guidelines and of economic and environmental policy statements regarding international air transport. Such statements are often expressed in quite broad and unspecific terms. Today, ICAO has 191 Member Nations ([ICAO, 2015](#)), i.e., it includes practically every nation in the world engaging in aviation activities of any significant level. All members participate in the ICAO Assembly meetings every three years.

ICAO (1947) preambles the following statements:

- Whereas the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security.
- It is desirable to avoid friction and to promote that cooperation between nations and peoples upon which the peace of the world depends.
- The undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner. In addition, that the international air transport services may be established on the basis of equality of opportunity and operated soundly and economically.

### **1.2.2. International Air Transport Association (IATA)**

IATA is the trade association of most of the international airlines in the world, with headquarters in Geneva, Switzerland, and Montreal, Canada which represents 250 airlines or 84 % of air traffic (IATA, 2015). It is founded in 1945, the year after the Chicago Convention. The purpose of IATA is to coordinate international airfares during annual traffic conferences and the organization played a critical role in the development of international air transportation over more than three decades. However; the deregulation of USA also EU countries in 1978 and 1999 respectively, IATA (2015) adopted a dual organizational structure, which is still in existence today. According to Belobaba (2009: 42); the first structure operates as a trade association offering various technical, legal and financial services like defining the legal responsibilities of carriers in relation to passengers and cargo, advising airlines regarding such issues as the transportation of dangerous goods, condition and costs of airports' facilities and organizing airport schedule coordination conferences twice a year while the second structure still operates as a tariff coordination organization, assisting in the setting of passenger airfares and cargo rates, commissions for travel agents, etc. including one-third of the IATA's members. Tariff coordination is performed during "traffic conferences" and is based on a "cost plus" formula and all member airlines of IATA benefit themselves of these services. Cost plus expression in aviation sector here, is a pricing strategy based on IATA coordinating air transportation costs while the governments set the profit margin.

The guiding principle of IATA is that fares and rates should not involve intense competition but it should be as low as possible. With the spread of liberalization and deregulation in international air transportation the influence of IATA has been steadily diminishing over the past three decades. However, the organization is still treated in many countries as a semi-official international body, rather than a trade association.

### **1.3. Airline International Economic Regulations and Liberalization**

Airlines have existed in two very diverse environments. Prior to 1978 in the US and before 1999 in Europe, airlines operated in a regulated environment in which governments had full control over where airlines could fly and what rates they could charge. During the regulated era in the airline industry, firms were protected from

intense competition, because governments limited the number of airline companies flying a particular route and pricing was based largely on a cost-plus formula. Because of the regulation, carriers earned relatively stable and healthy profits as a result financial analysis was not of utmost importance to the airlines. Additionally, many airlines globally were owned and controlled by government, creating further regulation in the airline industry.

By changing the traditional aviation regulations; the liberalized market environment changed substantially as airlines were afforded the opportunity to earn greater profits. On the other hand, the companies were subjected to increased competition, placing downward pressure on costs and airfares. As a result, in the post-regulation period, airline industry has become much riskier and even many major airlines have difficulties to compete and eventually some are forced out of business.

#### **1.4. The Effects of Past Liberalization to Airline Industry**

Airlines liberalization changed the market environment considerably leading to several major aspects such as Economic and Traffic Growth, Bankruptcy and Consolidation and Emergence of Low-Cost Carriers.

##### **1.4.1. Economic and Traffic Growth**

Liberalization has led to substantial economic and traffic growth first in the US followed by European countries. The positive effects such as the reduced prices and stimulating traffic growth are mainly due to the increased competition in the aviation markets. In addition, the increased competitive pressure forces airlines to improve their productivity and eliminate inefficient carriers out of the market. Contrary to the pre-liberalization period, finance became extremely important for airline companies to optimize their network operations and pricing strategy. Consequently; employment opportunities, trade promotion, better transport, trading and logistics services etc. are mentioned as the secondary contributions to overall economies, however; these impacts are not uniform across countries.

### **1.4.2. Bankruptcy and Consolidation**

The airline industry has been affected by harsh competition, fuel price volatility, and global economic recessions in the post-liberalization era. These factors have forced many major carriers e.g. Japan Airlines into liquidation (Sanchanta, 2010) while other airline companies have sought bankruptcy protection like Delta Airlines (Perez, 2005). In this volatile climate; consolidation is suggested to be one of the major routes towards stability and prosperity of the companies. In contrast to European countries and rest of the world; US government has eased consolidation and merging processes, where the names of several major carriers have disappeared, resulting in what are now known as the “Big Four” airlines: American, United, Delta, and Southwest (Vasigh, 2015: 5). In recent years, the globalized airline industry has increased, with mergers and takeovers moving the industry along a path towards consolidation and reducing competition among the major players.

### **1.4.3. Emergence of Low-Cost Carriers**

According to (IATA, 2006) opposite of the legacy carriers (full service airlines); the LCCs are the airline companies that squeeze its airfares by limiting its passengers’ services to attract more consumers willing to save money. The emergence of low-cost carriers has dramatically changed the market and continues to do so, again, the lead is taken by the US notably. Southwest Airlines marked the most noticeable LCC expansion, from an intra-Texas airline to the fourth largest domestic carrier with a route network covering most of the US area (Vasigh, 2015: 5). By 2012, LCCs’ share is 31 % of the US market (ICAO, 2013). This step is soon followed by the European countries after the deregulation of internal air services for example according to IAOC (2013); LCCs currently account for 37 % of the total EU market. But also the other regions have already caught up as they already have more than half of the market in Southeast Asia. As an example; Lion Air, an Indonesian airline company, alone had about 550 aircrafts on order in 2013 (Bland, 2013). Globally, LCCs have taken passengers from legacy carriers to reach 22 % of all passengers by 2013 (ILO, 2013: 7).

Such rapid expansion has certainly led to suggestions that the Asia-Pacific market may face some problems previously found in the US and Europe, with increased competition and idle capacity resulting in financial losses among the LCCs, as well as the legacy

carriers, and eventually leading to LCCs' consolidation. It has also raised questions about the ability of airport infrastructure to handle such rapidly increasing demand.

### **1.5. Major Airline Companies Worldwide**

In order to have a broader image about global airline industry, a sample of 22 major airlines worldwide is presented with general information and statistics below. The mentioned airline companies are the most well known major airlines from the 4 continents; Asia, Europe, Oceania and North America. The companies from South America and Africa are neglected in the study while they are not mentioned and ranked as much as the others in the airline journals.

- **Aeroflot:** The Russian flag carrier and largest airline in Russia is founded in March 17, 1923. Aeroflot has its hub at Sheremetyevo International Airport. The airline's Annual Report (2013) notes around 31,4 million passengers per year, reaching 293 destinations with 239 aircrafts.
- **Air Asia:** Air Asia is a Malaysian low-cost airline founded in 1993 with main hub at [Kuala Lumpur International Airport, Malaysia](#). AirAsia was named the World's Best Low-Cost airline at the 2014 World Airline Awards for the 6th consecutive year (Skytrax, 2015). As it is stated in its Annual Report (2013), Air Asia carries 42,6 million passengers per year and flying to 83 destinations using 158 aircrafts.
- **Air Berlin:** Air Berlin is [Germany's](#) second largest [airline](#) after [Lufthansa](#) founded in July 1978 with its main hubs at [Berlin-Tegel Airport](#) and [Düsseldorf Airport](#). Air Berlin's Annual Report (2013) records 41,5 million passengers per year, 171 destinations and 140 aircrafts.
- **Air Canada:** Air Canada is the national flag carrier and largest airline of Canada founded in April 11, 1936. Its largest hub is at [Toronto Pearson International Airport](#). Air Canada's Annual Report (2013) records about 35,8 million passengers per year to 181 destinations with 193 aircrafts.
- **Air France / KLM:** Air France is the French flag carrier founded in 7 October, 1933. Its main hub is Paris-Roissy Charles de Gaulle Airport.



- KLM is the national airline of the Netherlands founded in October 7, 1919. KLM's main hub is at Amsterdam Schiphol Airport.
- In May 2004 Air France merged with KLM creating Air France-KLM and due its Annual Report (2013) they carry together about 77,3 million passengers per year, flying to 231 destinations with 552 aircrafts.
- **Air New Zealand:** Air New Zealand is the national airline and flag carrier of New Zealand founded in 1940 with its main hub based in Auckland International Airport. According to Air New Zealand's Annual Report (2013), the airline carries 8,7 million passengers per year to 48 destination with 104 aircrafts.
- **All Nippon Airways (ANA):** ANA is the largest airline in Japan founded in December 27, 1952. Its main international hubs are at Narita International Airport, [Tokyo](#) and Kansai International Airport in [Osaka](#). According to ANA's Annual Report (2013), the airline carries about 44,7 million passengers per year to 81 destinations with 230 aircrafts.
- **American Airlines (AA):** American Airlines is the national flag carrier founded in 1930 with its main hub at [Dallas/Fort Worth International Airport](#). According to AA's Annual Report (2013), the airline carries 109 million passengers per year to 339 destinations with 970 aircrafts.
- **Cathay Pacific:** Cathay Pacific is the flag carrier of Hong Kong, founded in September 24, 1946. It has the main hub at Chek Lap Kok Airport, [Hong Kong](#). According to Cathay Pacific's Annual Report (2013), the airline carries about 30 million passengers per year, flying to 182 destinations with 140 carriers.
- **Delta Airlines:** Delta is founded in May 30, 1924, USA. Today, Delta operates an extensive domestic and international network and is the world's largest airline operating under a single certificate. Delta's main hub is at Hartsfield-Jackson Atlanta International Airport, [Georgia](#). According to Annual Report of Delta Airlines (2013), it carries around 165 million passengers per year, reaching 322 destinations with 700 aircrafts.

- **Emirates:** Emirates is the largest airline in the Middle East and is the national airline of the Emirate of Dubai founded in 1985. Its hub is at Dubai International Airport, [Dubai](#). As it is stated in the Annual Report of Emirates (2013), the airline carries around 39,4 million passengers per year, flying to 132 destinations with 197 aircrafts.
- **IAG (British Airways / Iberia):** British Airways is the largest airline in the UK and it is the national airline of the Kingdom founded in March 31, 1974. BA has its main hub at London Heathrow Airport and operates a second hub at Gatwick Airport, located near London.
- Iberia is the flag carrier airline of Spain founded in June 28, 1927. It operates an international network of passenger and cargo services by the bases as Madrid-Barajas Airport, and El Prat Airport, [Barcelona](#).
- In 2011, British Airways merged with Iberia and according to their Annual Report (2013); they carry together around 54 million passengers per year to 218 destinations with 431 aircrafts.
- **Korean Air:** Korean Air is the largest airline in South Korea founded in 1969 with its main hub at Seoul Incheon International Airport. The Annual Report of Korean Air (2013) notes around 23,6 million passengers per year, 124 destinations and 153 aircrafts in service.
- **Lufthansa:** Lufthansa is the flag carrier of Germany founded in January 6, 1953. It the largest airline in Europe in terms of passengers carried and the world's fifth-largest airline in terms of overall passengers carried. The airline's main hub is at Frankfurt Airport, it also operates a second hub at Munich Franz Josef Strauss Airport. As it is stated in the Annual Report of Lufthansa (2013), the airline carries around 104,6 million passengers per year to 274 destinations with 622 aircrafts.
- **Malaysian Airlines:** [Malaysian Airlines](#) is the flag carrier of Malaysia founded in October 1, 1972 with its main base at [Kuala Lumpur International](#)

[Airport](#). Number of passengers and destinations are not stated in the limited Annual Report of Malaysian Airlines.

- **Qantas:** Qantas is Australia's oldest and largest airline, founded in November 16, 1920 with major hubs in [Sydney](#) and [Melbourne](#). The Annual Report of Qantas (2013) records about 48,3 million passengers per year to 65 destinations with 202 aircrafts.
- **Ryanair:** Ryanair is an Irish low-cost airline founded in 1985 with its primary operational bases at Dublin and London Stansted Airports. Ryanair is the world's largest LCC (CAPA, 2015). According to Ryanair's Annual Report (2013), the airline carries 79,3 million passengers per year to 180 destinations with 305 aircrafts.
- **Scandinavian (SAS) Airlines:** SAS Airlines (previously Scandinavian Airlines System) is the flag carrier of Sweden, Norway and Denmark, and the largest airline in Scandinavia. It is founded in August 1, 1946 with main hubs in Copenhagen Airport, Oslo Airport and Stockholm Airport. According to SAS Annual Report (2013), the airline carries 28,1 million passengers per year to 120 destinations with 156 aircrafts.
- **Singapore Airlines:** Singapore Airlines is the flag carrier of Singapore which operates from its main hub at Changi Airport founded in January 28, 1972, Singapore. As it is stated in its Annual Report (2013), Singapore Airlines carries 21,5 million passengers per year flying to 60 destinations with 139 aircrafts.
- **South African Airways (SAA):** SAA is the national flag carrier and largest airline of South Africa founded in 1934 with its main hub at OR Tambo International Airport in Kempton. As it is stated in SAA's Annual Report 2013, the airline carries 8,8 million passengers per year to 42 destinations with 61 aircrafts.
- **Turkish Airlines:** Turkish Airlines is the national carrier of Turkey founded in May 20, 1933. Its hub is at Atatürk International Airport, [Istanbul](#). The airline

successfully operates the world's most comprehensive network of 105 countries and has been chosen "Best Airline in Europe 2011, 2012, 2013 and 2014" by Skytrax. Turkish Airlines' Annual Report (2013) notes around 48,3 million passengers per year to 245 destinations with 233 aircrafts.

- **United Airlines:** United Airlines, commonly referred to as "United", is an American major airline founded in April 6, 1926 with a main hub at Chicago O'Hare International Airport. The Annual Report (2013) of United Airlines records 91,3 million passengers per year, 375 destinations and 693 aircrafts.

## **PART 2: FINANCIAL ANALYSIS AND AIRLINE-SPECIFIC ANALYSIS**

To analyze a company, the financial analysts often focus on the income statement, balance sheet, and cash flows. In addition, every industry has specific unit measures which are essential to be arranged and analyzed. In the second part; Financial Analysis Techniques and Airline Specific Measures and Ratios are presented below.

### **2.1. Financial Analysis Techniques**

Financial statements provide the primary means for managers to communicate about the financial condition of their organization to outside parties. Managers, investors, lenders, financial analysts, trade unions and government agencies are among the users of financial statements. The objective of financial statement analysis is to use historical accounting data to help in predicting how the firm will be valued in the future, for this purpose; the following techniques as horizontal, trend, vertical and ratio analyses are given.

#### **2.1.1. Horizontal Analysis**

According to Subramanyam (2008: 28) horizontal analysis is a financial statement analysis technique indicating the year-to-year change in each financial statement item in the amounts of corresponding tables. It is used as a dynamic analysis technique including at least two years. The purpose of horizontal analysis is to determine how each item changed, why it changed, and whether the change is favorable or unfavorable.

#### **2.1.2. Trend Analysis**

Trend analysis is used when the comparison is extended to three or more years. Trends can be shown in both absolute monetary amounts and percentage form by designating the first year in the sequence as the base year. Comparing only absolute amounts has disadvantages because materiality levels differ from company to company or even from year to year for a given single firm, however; amounts are essential when the materiality information is of relative importance (Subramanyam, 2008: 30). An item's materiality is considered important when its knowledge has an impact on the decision of a reasonably informed user. Percentage analysis avoids the materiality problems of comparing

different size companies by measuring changes in percentages rather than absolute amounts. Each change is converted to a percentage of the base year.

### **2.1.3. Vertical Analysis**

Horizontal and trend analyses focus on the relationships between the amounts of each financial item across time. In contrast; vertical analysis, as a static method, concentrates on the relations between various financial items on a particular financial statement. To show these relationships, each item on the statement is expressed as a percentage of a base item that also appears on the statement. On the balance sheet, each item is expressed as a percentage of total assets or percentage of its group besides on the income statements; each item is stated as a percentage of net sales. According to Subramanyam (2008: 31) financial statements prepared in terms of percentages of a base amount are called as common-size financial statements.

Financial analysts use vertical analysis to gain insight into the relative importance or magnitude of various items on the financial statements. By using common-size statements, prepared in a comparative format, analysts can distinguish changes in a firm's financial condition and performance from year to year.

### **2.1.4. Traditional Ratio Analysis**

Ratio analysis; a static method, involves studying various relationships between different items reported in a set of financial statements to evaluate various aspects of a company's operating and financial performance such as its liquidity, solvency (financial structure-leverage), efficiency (activity) and profitability.

The most common used ratios are indicated below in the table.

**Table 1**  
**The Most Common Used Financial Ratios**

<b>Liquidity Ratios</b>	<b>Leverage Ratios</b>	<b>Activity Ratios</b>	<b>Profitability Ratios</b>
Current Ratio	Debt to Equity Ratio	Total Assets Turnover Rate	Operating Profit Margin
Quick Ratio	Debt Ratio	Accounts Receivable Turnover Rate	Net Profit Margin
Cash Ratio	Short-Term Debt to Total Assets Ratio	Inventory Turnover Rate	Return on Assets
	Long-Term Debt to Total Assets Ratio	Accounts Payable Turnover Rate	Return on Equity

#### **2.1.4.1. Liquidity Ratios**

Liquidity ratios are the ratios that measure the ability of a company to meet its short-term debt obligations, such as accounts payable, notes payable, and other short-term financial obligations (Berman, 2008: 161).

- **Current Ratio**

Current ratio is the most common used liquidity rate to evaluate a company's ability to meet its short term obligations. It is to just compare the total current assets and current liabilities. Current ratio is generally expected to be about "2" but in airline industry around "1" is welcomed due to the industry's heavy indebted nature (Morrell, 2012: 62). It is calculated as follows:

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$

Net working capital (NWC) amount calculated as "Current Assets – Current Liabilities" is always desired to be positive, since if short-term obligations are not met, the company will face a solvency problem.

Unlike the amount of working capital, which will vary considerably based on the company's size, the current ratio provides a standardization of working capital by using a ratio instead of a monetary format, enabling cross-firm and industry comparisons.

- **Quick Ratio**

Quick Ratio is an indicator of a company's short-term liquidity to measure a company's ability to meet its short-term obligations with its most liquid assets. Quick assets are normally referred to "Current assets – Inventory" but in air industry, because inventory amount is negligible due to sector's structure; quick assets are calculated by adding cash and cash equivalents, account receivables and short term investments.

$$\text{Quick Ratio} = \text{Quick Assets} / \text{Current Liabilities}$$

- **Cash Ratio**

Cash ratio is suggested to be the most conservative look at a company's liquidity as it just takes the available cash into consideration to cover short term liabilities. The mentioned rate is calculated as follows:

$$\text{Cash Ratio} = \text{Cash} / \text{Current Liabilities}$$

Due to the structure of airline industry, cash ratio is generally expected to be bigger than the common average which is about "0,2".

#### **2.1.4.2. Leverage Ratios**

The ability of a firm to meet or exceed its total debt obligations is known as "solvency" or "leverage". According to Berman (2008: 157) leverage ratios focus on the underlying capital structure of the company, which ultimately helps to determine the firm's financial strength for the future. Debt to Equity Ratio, Debt Ratio, Long Term Debt to Total Assets and Short Term Debt to Total Assets are the most common used leverage ratios in the finance literature.

- **Debt to Equity Ratio (D/E)**

As the classic leverage and long-term risk ratio, the D/E ratio, determines the proportion of the company's capital structure that is devoted to either debt financing or equity financing. The mentioned ratio is calculated as follows:

$$\text{Debt to Equity Ratio} = \text{Total Liabilities} / \text{Total Shareholders' Equity}$$



The debt-to-equity structure of a company can also indicate the variability of future earnings, because more heavily debt-financed companies may incur larger swings in profitability as a result of variable interest expenses.

While the ideal value of D/E is suggested to be “1”, in the airline industry “a value bigger than 2” is welcomed because of airlines’ heavy indebted structure (Morrell, 2012: 61).

- **Debt Ratio**

Debt ratio or “debt-to-assets ratio”, measures the proportion of debt relative to the total asset value of the company. Since either liabilities/debt or stockholders’ equity is used to finance assets, the debt ratio ultimately reveals the percentage of debt in the company’s capital structure. The higher this ratio, the more leveraged the company and the greater its financial risk.

$$\text{Debt Ratio} = \text{Total Liabilities} / \text{Total Assets}$$

In general the ideal value of debt ratio is around “0,5” while in airline industry it is slightly above “0,7”.

- **Long Term Debt to Total Assets Ratio**

It shows the percentage of a company’s assets that are financed with loans and other financial obligations that last over a year. As this ratio is calculated yearly, decrease in the ratio would denote that the company is doing well, and is less dependent on debts for their business needs.

$$\text{Long Term Debt to Total Assets Ratio} = \text{Long Term Debt} / \text{Total Assets}$$

- **Short Term Debt to Total Assets Ratio**

This ratio expresses how risky is the company during a specific period of time as it unveils the debt portion needed to cover current liabilities.

$$\text{Short Term Debt to Total Assets Ratio} = \text{Short Term Debt} / \text{Total Assets}$$

### 2.1.4.3. Activity Ratios

Activity ratios indicate how efficient companies have been in managing their working capital (Berman, 2008: 164). Being a service industry, such ratios are key indicators of possible areas in which airlines might increase efficiency and productivity.

- **Total Assets Turnover Rate**

The total asset turnover ratio measures total revenue against the total assets of the company. Similarly to the return on assets metric, it notes how effectively the company is able to generate revenue with the assets currently on its balance sheet.

$$\text{Total Asset Turnover} = \text{Total Revenue} / \text{Total Assets}$$

- **Accounts Receivable Turnover Rate**

This ratio measures the number of times the average balance in accounts receivable has been converted into cash during the year. The accounts receivable turnover often is used to assess the effectiveness of a company's credit terms and collection policies. The higher the ratio, the more effective the company is in collecting its receivables.

$$\text{Accounts Receivable Turnover} = \text{Net Credit Sales} / \text{Average Accounts Receivable}$$

- **Inventory Turnover Rate**

This rate is important for all firms because it is a quick and easy way to determine which products are selling faster than others, but it plays a particularly key role for manufacturing companies in assisting them to decide the quantity and timing of ordering more materials or products.

$$\text{Inventory Turnover} = \text{Cost of Goods Sold} / \text{Average Inventory}$$

- **Accounts Payable Turnover Rate**

Accounts payable turnover ratio measures the average number of times that the payable account turns over in one year. Higher the ratio, it means that the

company is paying of suppliers fast while when the ratio is low, it takes a longer time for the company to pay of its suppliers.

Accounts Payable Turnover = Purchases on Credit / Average Accounts Payable

#### **2.1.4.4. Profitability Ratios**

Profitability ratios help to describe the success of the business by comparing the profits (or losses) generated against a variety of baselines (Berman, 2008: 151). This allows us to standardize the profits of different companies, making it easier to compare their levels of profitability. Operating Profit Margin, Net Profit Margin, Return on Assets and Return on Equity are the common values to evaluate the profitability.

- **Operating Profit Margin**

Operating Profit Margin enables managers to determine how much operating income is generated from every dollar of revenue earned through normal business operations. The operating profit margin can be particularly useful because it excludes items such as interest expense and taxes, which largely reflect the capital structure of the company. By excluding special items from the income statement in this calculation, the operating profit margin ratio should tend to remain more stable over time. It is calculated as the following:

Operating Profit Margin = Operating Profit / Total Revenue

- **Net Profit Margin**

Unlike operating profit margin, the net profit margin takes into consideration all parts of a company's financial structure, including taxes, interest, and other non-operational items, and it standardizes the financial bottom line of the firm. The profit margin enables million-dollar companies to be compared with billion-dollar companies, because it shows how much net income is generated for every dollar of revenue.

Profit Margin = Net Income / Total Revenue

- **Return on Assets (ROA)**

ROA is a quick way to show the investment return that the assets have provided. A company invests in assets to generate increased profits, and therefore the ROA rate highlights how efficiently assets are used to generate earnings. Hence; the calculation of ROA is indicated as follows:

$$\text{Return on Assets} = \text{Net Income} / \text{Total Assets}$$

- **Return on Equity**

ROE measures the company's performance in terms of the total book value of stockholders' equity. The resulting ratio is an indication of how well the company generates profit from the money invested by its shareholders. ROE is calculated as the following:

$$\text{Return on Equity} = \text{Net Income} / \text{Total Shareholders' Equity}$$

## **2.2. Airline-Specific Measures and Ratios**

Aviation is a unique industry for which specific measures and ratios are developed to provide a greater in-depth analysis and understanding of the sector. In the airline industry, there exist standard measures of passenger traffic and airline output, which are combined to generate several common measures and ratios for airline performance. Available Seat Kilometers (ASK) and Revenue Passenger Kilometers (RPK) are the fundamental measures while Average Load Factor (LF) and Revenue per Revenue Passenger Kilometers (RRPK), or "yield" are fundamental ratios in the sector (Vasigh, 2015: 240).

The mentioned measures and ratios are presented in the table and explained below respectively.

**Table 2**  
**Airline-Specific Ratios**

<b>Ratio</b>	<b>Calculation</b>
Available Seat Kilometers (ASK)	$ASK = \text{Number of Seats per Aircraft} \times \text{Flight Distance in Kilometers}$
Revenue Passenger Kilometers (RPK)	$RPM = \text{Number of Revenue Passengers per Aircraft} \times \text{Flight Distance in Kilometers}$
Load Factor (LF)	$\text{Load Factor} = RPK / ASK$
Revenue per Revenue Passenger Kilometer (RRPK), or “Yield”	$RRPK = \text{Total Passenger Revenue} / RPK$

### **2.2.1. Available Seat Kilometers (ASK)**

Available seat kilometers (ASK) are a basic measure of an airline’s output, since they represent the number of kilometers that the airline has flown with its available seats regardless of whether the seat is filled by a passenger.

$ASK = \text{Number of seats per aircraft} \times \text{Flight distance in kilometers}$

### **2.2.2. Revenue Passenger Kilometers (RPK)**

Revenue passenger kilometers (RPK) represent the number of kilometers that revenue passengers fly on the airline. Whereas ASK do not differentiate between whether the seat is occupied or not, RPK include only seats occupied by revenue passengers in the calculation.

$RPK = \text{Number of revenue passengers per aircraft} \times \text{Flight distance in kilometers}$

### **2.2.3. Load Factor (LF)**

Load factor is simply the proportion of an airline’s seats that are filled by revenue passengers. In other words, load factor is a measure of capacity utilization.

$\text{Load Factor} = RPK / ASK$

#### **2.2.4. Revenue per Revenue Passenger Kilometers (RRPK)**

Revenue per revenue passenger kilometer (RRPK) or yield represents the average amount that a passenger pays to fly one kilometer. Therefore; it is used to determine the average amount of revenue received for a paid seat.

$$\text{RRPK} = \text{Total Passenger Revenue} / \text{RPK}$$

## **PART 3: ANALYZING MAJOR AIRLINE COMPANIES ACCORDING TO TRADITIONAL AND AIRLINE-SPECIFIC RATIOS**

In the third chapter of the study; the selected major airline companies are analyzed according to the traditional ratios chosen and airline specific ratios mentioned. Therefore; aim, scope and limitations are given afterwards list of airlines and ratios are indicated before the analyses of the companies below.

### **3.1. Aim, Scope and Limitation**

It is aimed to present a quantitative analysis of information reported in financial statements and annual reports of the selected leading airline companies to evaluate and to compare their financial performances.

Hence; the companies to be analyzed, additionally, key measures and ratios are chosen for airline industry in order to assess for consecutive years between 2011 and 2013, the three years period after global financial crisis. The companies are selected from IATA and Skytrax ranking lists. The selection of the airline companies here is based on leadership and variety, to say; the carriers under study are the 22 leading airlines from 4 continents. In addition; the selection covers both legacy and low-cost carriers with different operating strategies as short-haul flights, medium-haul flights and long-haul flights.

Although 22 major airline companies are studied to analyze; the following 5 companies as SAS, United, SAA, AA and Malaysian Airlines are eliminated due to lack of financial and traffic data needed to perform full examination and comparison equal to other airlines. The selected 17 major airline companies to analyze are shown in the table below.

**Table 3**  
**List of Airlines Under Study**

	<b>Airlines</b>	<b>Nationality</b>		<b>Airlines</b>	<b>Nationality</b>
1	Aeroflot	Russia	10	Emirates	UAE
2	Air Asia	South Korea	11	IAG	UK/Spain
3	Air Berlin	Germany	12	Korean Air	South Korea
4	Air Canada	Canada	13	Lufthansa	Germany
5	Air France/KLM	France/Netherlands	14	Qantas	Australia
6	Air New Zealand	New Zealand	15	Ryanair	Ireland
7	ANA Group	Japan	16	Singapore Airlines	Singapore
8	Cathay Pacific	China	17	Turkish Airlines	Turkey
9	Delta Airlines	USA			

### **3.2. Traditional and Specific Ratio Analysis for Major Airline Companies**

In this section, the mentioned 17 major international airline companies are analyzed by using traditional financial and airline-specific measures and ratios. Financial ratios selected are such as Current Ratio, Quick Ratio, D/E Ratio, Debt Ratio, Total Assets Turnover Rate, Operating Profit Margin, Net Profit Margin, ROA and ROE are used with Net Working Capital (NWC) Amount to highlight and interpret airlines' liquidity, leverage, activity and profitability. On the other hand, cash ratio is neglected due to cash fluctuation in airline industry from term to term. Short term debt is not indicated because long term debt is significant; hence it is suggested to be better to use total debts. Finally, as receivables, inventories are in tiny amounts in the balance sheet while payables are very huge; only assets turnover rate is used.

In addition to traditional financial ratio analysis; key measures and ratios are used for the airline industry, such as ASK, RPK, LF and RRPM. Airline-specific measures and ratios basically give reader a clear image about the airlines' market share highlighting its expansion or reduction, utility of airlines' flights and the yield achieved per flying passenger.

All the values within the traditional ratio analysis indicated in the tables below are calculated by the author over the financial tables of airline companies indicated in each of their annual reports.



### 3.2.1. Ratio and Airline-Specific Analysis for Aeroflot

**Table 4**  
**Financial Ratio Analysis for Aeroflot**

Aeroflot	Ratios	2011	2012	2013
		NWC (M\$)	-13,2	86,5
Liquidity Ratios	Current Ratio	0,99	1,04	1,2
	Quick Ratio	0,466	0,504	0,801
Leverage Ratios	D/E Ratio	2,642	2,602	2,572
	Debt Ratio	0,737	0,74	0,74
Activity Ratios	Total Assets Turnover Rate	1,008	1,303	1,429
Profitability Ratios	Operating Profit Margin	0,072	0,044	0,068
	Net Profit Margin	0,091	0,02	0,025
	Return on Assets	0,092	0,027	0,036
	Return on Equity	0,33	0,093	0,125

**Table 5**  
**Specific-Airline Ratio Analysis for Aeroflot**

Aeroflot	Airlines' Specific Ratios	2011	2012	2013
AEROFLOT	Available Seat Kilometers (ASK) (Amount in Million)	60.003,70	95.598,10	109.063,90
	Revenue Passenger Kilometers (RPK) (Amount in Million)	46.077,40	74.617,20	85.273,30
	Average Load factor (LF) (%)	76,8	78,1	78,2
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	9,1	9,1	9,1

**Source:** Annual Reports of Aeroflot (2011, 2012, 2013)

Aeroflot's analysis notes a sharp climb in NWC amount from a negative result in 2011 to a significant result of 412,3 M\$ in 2013. Liquidity ratios increase and are acceptable ratios in the airline industry demonstrating airline's ability to cover its short term obligations. In addition, total asset turnover shows impressive ratios above 1 highlighting good efficiency. Leverage ratios are all acceptable compared to aviation ratios' norms with slight gradual decrease in D/E ratios. Throughout the three years under study, Aeroflot notes all profitability ratios positive while they are in decline comparing to 2011 values.

Aeroflot is the fastest growing airline in Europe as its ASK records a massive rise of 82 % through the period under study. Similar to ASK; RPK show a huge increase of 85 %

during three years. In addition LF notes satisfying figures. Finally, RRPK values seem acceptable and remain fixed during the mentioned period.

### 3.2.2. Ratio and Airline-Specific Analysis for Air Asia

**Table 6**  
**Financial Ratio Analysis for Air Asia**

Air Asia		Ratios	2011	2012	2013
		Liquidity Ratios	NWC (M\$)	459,79	349,03
Current Ratio	1,64		1,45	1,17	
Quick Ratio	1,02		0,97	0,59	
Leverage Ratios	D/E Ratio	2,445	2,231	2,571	
	Debt Ratio	0,71	0,689	0,72	
Activity Ratios	Total Assets Turnover Rate	0,323	0,314	0,286	
Profitability Ratios	Operating Profit Margin	0,26	0,208	0,198	
	Net Profit Margin	0,123	0,16	0,071	
	Return on Assets	0,04	0,05	0,02	
	Return on Equity	0,138	0,163	0,072	

**Table 7**  
**Airline-Specific Analysis for Air Asia**

Air Asia	Airlines' Specific Ratios	2011	2012	2013
Air Asia	Available Seat Kilometers (ASK) (Amount in Million)	26.074,00	28.379,00	31.582,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	21.037,00	22.731,00	25.333,00
	Average Load Factor (LF) (%)	80	80	80
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	7	7,1	6,4


Source: Annual Reports of Air Asia (2011, 2012, 2013)

Air Asia's tables record continuing decline in its NWC and liquidity ratios, above industry's acceptable rate. Following the same steps of liquidity ratios, total asset turnover ratios and operating profit ratios note a gradual decrease. In addition, a sharp drop in net profit is noticed in 2013 due to Malaysian currency's instability (Grant, 2014) while Air Asia remains profitable during the three years under study with leverage ratios around the sector's norms.


Air Asia's ASK and RPK values grow during the period with a stable LF of 80 %. RRPK is affected by 2013's financial results and records a huge drop about 7 USD cents.

### 3.2.3. Ratio and Airline-Specific Analysis for Air Berlin

**Table 8**  
**Financial Ratio Analysis for Air Berlin**

Air Berlin 	Ratios		2011	2012	2013
	Liquidity Ratios	NWC (M\$)		-188,66	-54,72
Current Ratio			0,8	0,94	0,65
Quick Ratio			0,45	0,48	0,36
Leverage Ratios	D/E Ratio		19,206	16,032	-11,131
	Debt Ratio		0,951	0,941	1,099
Activity Ratios	Total Assets Turnover Rate		1,989	1,944	2,199
Profitability Ratios	Operating Profit Margin		-0,058	0,016	-0,056
	Net Profit Margin		-0,099	0,002	-0,076
	Return on Assets		-0,198	0,003	-0,167
	Return on Equity		-3,996	0,052	1,695

**Table 9**  
**Airline-Specific Ratio Analysis for Air Berlin**

Air Berlin 	Airlines' Specific Ratios	2011	2012	2013
	Available Seat Kilometers (ASK) (Amount in Million)	62.160,00	60.300,00	57.250,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	52.140,00	50.380,00	48.570,00
	Average Load Factor (LF) (%)	84,8	83,5	83,9
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	10,1	10,3	11,3


**Source:** Annual Reports of Air Berlin (2011, 2012, 2013)

As the largest German operator of connections to North Africa, the political unrest in Egypt and Tunisia hit the sales of Air Berlin in the period. In addition; at the beginning of 2011, introduction of the aviation tax in Germany led to grave losses causing negative values both in operating profit margin and net profit (Annual Report of Air Berlin of 2011, 2012). Air Berlin's financial position improved to record a touch above zero profitability ratios in the following year. However, due to European Market which has been weak for years, 2013 results came out to be negative for Air Berlin again. The airline records remarkable total asset turnover rates but suffered of lower liquidity ratios and extremely high leverage ratios plus Air Berlin's ROE and D/E ratios are heavily distorted by miniscule equity achieved. As a result of hard financial situation, Air Berlin's fleet decreased throughout the three years from 170 to 140 aircrafts leading to


gradual decline in its ASK as well as in its RPK and LF. On the other hand, RRPK records a noticeable increase in 2013.

### 3.2.4. Ratio and Airline-Specific Analysis for Air Canada

**Table 10**  
**Financial Ratio Analysis for Air Canada**

Air Canada 	Ratios		2011	2012	2013
	Liquidity Ratios	NWC (M\$)		174	-258
Current Ratio			1,06	0,92	1,03
Quick Ratio			0,89	0,77	0,88
Leverage Ratios	D/E Ratio		-3,339	-3,58	-7,443
	Debt Ratio		1,416	1,378	1,148
Activity Ratios	Total Assets Turnover Rate		1,205	1,338	1,307
Profitability Ratios	Operating Profit Margin		0,038	0,012	0,05
	Net Profit Margin		-0,021	0,011	0,001
	Return on Assets		-0,023	0,014	0,001
	Return on Equity		0,061	-0,038	-0,007

**Table 11**  
**Airline-Specific Ratio Analysis for Air Canada**

Air Canada 	Airlines' Specific Ratios	2011	2012	2013
	Available Seat Kilometers (ASK) (Amount in Million)	87.244,81	89.534,41	91.371,89
	Revenue Passenger Kilometers (RPK) (Amount in Million)	106.934,14	108.235,82	110.333,96
	Average Load Factor (LF) (%)	82,8	82,7	81,6
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	11,9	11,8	11,6

**Source:** Annual Reports of Air Canada (2011, 2012, 2013)

Both in 2011 and 2013, Air Canada records a positive NWC amount with liquidity ratios about the acceptable rate while recording negative NWC in 2012 with the current ratio being less than 1. Because Air Canada filed for bankruptcy protection following heavy losses in 2003, the airline underwent restructuring under the Company's Creditors Arrangement Act (CCAA) in 2004 (Laurion, 2004). Since then; Air Canada has accumulated a big deficit in shareholders' equity. As a result, in 2011 the airline records negative profit margin and ROA but a positive ROE due to negative net income and equity. Despite of the positive margins in 2011 and 2012; ROE values still remain negative due to the negative equity. In addition, leverage ratios notes big indebtedness with debt ratio exceeding 1 with high negative D/E ratios while Air Canada records a

positive operating profit margin and noticeable total asset turnover ratios during the period.

Despite of the financial problems, its traffic statistics recorded a gradual rise in ASK and RPK throughout the three years with a stable LF and RRPK.

### 3.2.5. Ratio and Airline-Specific Analysis for Air France / KLM

**Table 12**  
**Financial Ratio Analysis for Air France/KLM**

Air France KLM		Ratios	2011	2012	2013
		Liquidity Ratios	NWC (M\$)	-3.809,9	-2.888,9
Current Ratio	0,7		0,77	0,73	
Quick Ratio	0,53		0,63	0,6	
Leverage Ratios	D/E Ratio	3,514	4,568	10,318	
	Debt Ratio	0,777	0,819	0,91	
Activity Ratios	Total Assets Turnover Rate	0,689	0,934	1,004	
Profitability Ratios	Operating Profit Margin	-0,02	-0,034	-0,009	
	Net Profit Margin	-0,033	-0,046	-0,071	
	Return on Assets	-0,029	-0,043	-0,072	
	Return on Equity	-0,133	-0,241	-0,811	

**Table 13**  
**Airline-Specific Ratio Analysis for Air France/KLM**

Air France / KLM	Airlines' Specific Ratios	2011	2012	2013
AIR FRANCE KLM	Available Seat Kilometers (ASK) (Amount in Million)	267.578,00	268.016,00	272.419,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	219.346,00	223.034,00	228.316,00
	Average Load Factor (LF) (%)	82	83,2	83,8
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	10,71	10,4	10,5

**Source:** Annual Reports of Air France/KLM (2011, 2012, 2013)

Air France/KLM operates the leading schedule of long-haul flights on departure from Europe with a huge market in North-Africa and Middle East. As a consequence of political instability and wars in mentioned areas besides high fuel prices, Air France/KLM suffered huge financial losses during the period. As a result; 2012 was a year of mobilization and transition; the company focused on restructuring of the short and medium-haul operations. According to the tables, NWC came out to be negative with a huge shortage through all the years under study leading to low liquidity ratios. In addition, financial ratio analysis reflect the airlines negative profitability along the three

years and escalating to very high leverage ratios specifically D/E which records an enormous jump in 2013. On the other hand, the airline records a noticeable increase in total assets turnover during the years under study.

Despite the airline's poor financial results; Air France/KLM's transition plan records a gradual increase in both ASK, RPK and LF with stable average in RRPK.

### 3.2.6. Ratio and Airline-Specific Analysis for Air New Zealand

**Table 14**  
**Financial Ratio Analysis for Air New Zealand**

Air New Zealand		Ratios	2011	2012	2013
		Liquidity Ratios	NWC (M\$)	-341	17
Current Ratio	0,81		1,01	1,09	
Quick Ratio	0,63		0,8	0,089	
Leverage Ratios	D/E Ratio	2,329	2,237	2,091	
	Debt Ratio	0,715	0,691	0,676	
	Total Assets Turnover Rate	0,886	0,821	0,823	
Profitability Ratios	Operating Profit Margin	0,025	0,035	0,067	
	Net Profit Margin	0,018	0,016	0,039	
	Return on Assets	0,017	0,013	0,032	
	Return on Equity	0,054	0,042	0,1	

**Table 15**  
**Airline-Specific Ratio Analysis for Air New Zealand**

Air New Zealand	Airlines' Specific Ratios	2011	2012	2013
Air New Zealand	Available Seat Kilometers (ASK) (Amount in Million)	32.353,00	32.618,00	33.167,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	26.996,00	27.013,00	27.733,00
	Average Load Factor (LF) (%)	83,6	82,8	83,4
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	13,1	13,5	13,6

**Source:** Annual Reports of Air New Zealand (2011, 2012, 2013)

According to Air New Zealand's tables, the airline records negative NWC with liquidity ratios below the industry's average in 2011. In the following two years, NWC amounts are positive and current ratios above one. Air New Zealand's total asset turnover ranges between 0,82 and 0,88 with the best ratio recorded in 2011. In addition, the leverage ratios decrease during the period below industry's average as a good sign. All over the

three years, all profitability ratios came out to be positive, with the best results achieved in 2013.

New Zealand Air traffic statistics show poor performance with tiny increase in ASK and RPK and the airline maintain its LF and RRPK stable throughout the period.

### 3.2.7. Ratio and Airline-Specific Analysis for All Nippon Airways

**Table 16**  
**Financial Ratio Analysis for All Nippon Airways**

All Nippon Airways	Ratios	2011	2012	2013
		Liquidity Ratios	NWC (M\$)	295,8
Current Ratio	1,05		1,19	1,57
Quick Ratio	0,69		0,88	1,23
Leverage Ratios	D/E Ratio	2,712	2,678	1,82
	Debt Ratio	0,727	0,723	0,638
	Total Assets Turnover Rate	0,704	0,705	0,694
Profitability Ratios	Operating Profit Margin	0,05	0,069	0,07
	Net Profit Margin	0,017	0,02	0,029
	Return on Assets	0,037	0,051	0,051
	Return on Equity	0,047	0,053	0,066

**Table 17**  
**Airline-Specific Ratio Analysis for All Nippon Airways**

ANA	Airlines' Specific Ratios	2011	2012	2013
ANA	Available Seat Kilometers (ASK) (Amount in Million)	86.564,00	91.162,00	96.455,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	58.413,00	59.940,00	64.878,00
	Average Load Factor (LF) (%)	67,2	65,7	67,5
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	15,6	16,2	15,9


**Source:** Annual Reports of ANA (2011, 2012, 2013)

All Nippon Airways records a gradual increase in its NWC as well as in its quite higher liquidity ratios, with a remarkable rise after 2011's earthquake. Similar to liquidity ratios, all profit ratios continue rising, on the other hand; total asset turnover records a slight decrease in 2013. ANA group notes significant leverage ratios in 2013 with D/E ratio way below the sector's average in addition to a noticeable decrease in debt ratio in the mentioned year.


ANA Group notes a gradual growth in its ASK and RPK values. Throughout the years under study, LF came out to be around 66,8 % as an average, which is relatively low comparing to industry's average. On the other hand, ANA's RRPK values records one of the highest results in the airline industry.

### 3.2.8. Ratio and Airline-Specific Analysis for Cathay Pacific

**Table 18**  
**Financial Ratio Analysis for Cathay Pacific**

Cathay Pacific 		Ratios	2011	2012	2013
		<b>Liquidity Ratios</b>	NWC (M\$)	-725	40
	Current Ratio	0,85	1,01	0,96	
	Quick Ratio	0,77	0,89	0,89	
	<b>Leverage Ratios</b>				
	D/E Ratio	1,455	1,708	1,723	
	Debt Ratio	0,592	0,63	0,633	
	<b>Activity Ratios</b>				
	Total Assets Turnover Rate	0,718	0,641	0,586	
	<b>Profitability Ratios</b>				
	Operating Profit Margin	0,056	0,018	0,037	
	Net Profit Margin	0,058	0,011	0,029	
	Return on Assets	0,041	0,007	0,017	
	Return on Equity	0,102	0,02	0,046	

**Table 19**  
**Airline-Specific Ratios Analysis for Cathay Pacific**

Cathay Pacific 	Airlines' Specific Ratios	2011	2012	2013
	Available Seat Kilometers (ASK) (Amount in Million)	126.340,00	129.595,00	127.215,00
Revenue Passenger Kilometers (RPK) (Amount in Million)	101.577,36	103.805,60	104.570,73	
Average Load Factor (LF) (%)	80,4	80,1	82,2	
Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	8,5	8,7	8,8	

**Source:** Annual Reports of Cathay Pacific (2011, 2012, 2013)


According to Cathay Pacific's tables, NWC is negative in 2011 and 2013 with liquidity ratios below industry's norms. In 2012, a minor positive working capital is recorded with a current ratio just a touch above 1. A continuous decrease in total asset turnover is seen during the three years. In the period under study, all the profitability ratios are positive with the highest ratios in 2011. Cathay Pacific shows a balanced capital structure as it keeps its D/E ratio under industry's average throughout the three years with debt ratios below 0,70.




Cathay Pacific's ASK rises in 2012 then drops slightly in 2013. On the other hand, RPK notes a gradual increase during the years under study. LF records a noticeable growth in 2013 with RRPK gradually increasing during the years under study.

### 3.2.9. Ratio and Airline-Specific Analysis for Delta Airlines

**Table 20**  
**Financial Ratio Analysis for Delta Airlines**

Delta Airlines	Ratios	2011	2012	2013
				
Liquidity Ratios	NWC (M\$)	-4,972	-4,998	-4,501
	Current Ratio	0,61	0,62	0,68
	Quick Ratio	0,41	0,38	0,38
Leverage Ratios	D/E Ratio	-32,16	-21,906	3,488
	Debt Ratio	1,032	1,048	0,777
Activity Ratios	Total Assets Turnover Rate	0,807	0,823	0,723
Profitability Ratios	Operating Profit Margin	0,056	0,059	0,09
	Net Profit Margin	0,024	0,028	0,279
	Return on Assets	0,02	0,023	0,202
	Return on Equity	-0,612	-0,473	0,905

**Table 21**  
**Airline-Specific Ratio Analysis for Delta Airlines**

Delta Airlines	Airlines' Specific Ratios	2011	2012	2013
				
	Available Seat Kilometers (ASK) (Amount in Million)	310.162,10	310.495,17	313.735,69
	Revenue Passenger Kilometers (RPK) (Amount in Million)	377.561,50	370.737,74	374.478,74
	Average Load Factor (LF) (%)	82,1	83,8	83,8
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	15,7	16,5	16,9

**Source:** Annual Reports of Delta Airlines (2011, 2012, 2013)

Delta Airlines' tables note huge negative NWC throughout the years under study with liquidity ratios below the ideal value. According to (Perez, 2005); the airline records profits but still has a negative equity in the first two years from its bankruptcy in 2005, Delta challenges associated with its merger with Northwest in 2008 and the economic downturn in 2009. Moreover, because it has a relatively small negative equity value, the ROE calculation is further distorted in 2013. In the same years Delta Airlines notes poor debt ratios of value exceeding 1 while in 2013 the airline records better leverage rates.

Although the company recovers from previous years' negative equity in the last year; its D/E ratio still remains high with a debt ratio back around industry's average.

In 2012, Delta Airlines notes a drop in both ASK and RPK to rise back in 2013. Average LF shows stable results along the years under study with a gradual increase in RRPK.

### 3.2.10. Ratio and Airline-Specific Analysis for Emirates

**Table 22**  
**Financial Ratio Analysis for Emirates**

Emirates	Ratios	2011	2012	2013
		Liquidity Ratios	NWC (M\$)	157,22
Current Ratio	1,03		1,01	1,12
Quick Ratio	0,83		0,8	0,95
Leverage Ratios	D/E Ratio	2,149	2,621	3,153
	Debt Ratio	0,68	0,722	0,757
	Total Assets Turnover Rate	0,833	0,808	0,771
Profitability Ratios	Operating Profit Margin	0,1	0,029	0,039
	Net Profit Margin	0,099	0,024	0,031
	Return on Assets	0,084	0,021	0,025
	Return on Equity	0,284	0,072	0,104

**Table 23**  
**Specific- Airline Ratio Analysis for Emirates**

Emirates	Airlines' Specific Ratios	2011	2012	2013
Emirates	Available Seat Kilometers (ASK) (Amount in Million)	182.757,00	200.687,00	236.645,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	146.205,60	160.549,60	188.606,07
	Average Load Factor (LF) (%)	80	80	79,7
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	7,7	8,3	8,3

**Source:** Annual Reports of Emirates (2011, 2012, 2013)

Emirates' tables show positive NWC through the years under study with a notable increase in 2013. Besides, liquidity ratios came out to be slightly above industry's average. During the period; leverage ratios record a noticeable growth and indebtedness increase significantly. While total assets turnover rate records a slight and gradual decrease as an indicator for efficiency, the whole three years of study express positive profitability ratios despite of the remarkable decline in 2012. Profitability of Emirates hit the highest results in 2011 since the drop was a result of the ongoing Eurozone crisis

and sustained geopolitical turmoil in North Africa and Middle-East which form a considered part of Emirates market.

Emirates' traffic results show significant growth in both its ASK and RPK throughout the three years. LF is almost the same during the three years while passenger yield came out to be higher but unit costs are even lower, partly driven by the strength of capacity growth (Abbas, 2014).

### 3.2.11. Ratio and Airline-Specific Analysis for IAG

**Table 24**  
**Financial Ratio Analysis for IAG**

Int. Airlines Group	Ratios	2011	2012	2013
		Liquidity Ratios	NWC (M\$)	-885,4
Current Ratio	0,9		0,66	0,72
Quick Ratio	0,5		0,341	0,345
Leverage Ratios	D/E Ratio	2,612	3,109	4,237
	Debt Ratio	0,712	0,745	0,797
Activity Ratios	Total Assets Turnover Rate	0,827	0,913	0,894
	Operating Profit Margin	0,028	-0,034	0,028
Profitability Ratios	Net Profit Margin	0,036	-0,051	0,008
	Return on Assets	0,028	-0,047	0,007
	Return on Equity	0,108	-0,194	0,038

**Table 25**  
**Specific-Airline Ratio Analysis for IAG**

Int. Airlines Group	Airlines' Specific Ratios	2011	2012	2013
IAG INTERNATIONAL AIRLINES GROUP	Available Seat Kilometers (ASK)	213.193,00	219.172,00	230.573,00
	Revenue Passenger Kilometers (RPK)	168.617,00	176.102,00	186.304,00
	Average Load Factor (LF) (%)	79,1	80,3	80,8
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	10,62	11,52	11,61

**Source:** Annual Reports of IAG (2011, 2012, 2013)


IAG's analysis record a noticeable negative NWC during the three years with a huge deficit in 2012. As a result, the liquidity ratios came out to be below industry's norms. In addition, leverage ratios note a rapid growth with rates exceeding industry's averages in the last two years. Total asset turnover rate changes slightly along the three years in a positive manner during the period, meaning the increasing activity. In 2012, IAG has

reported a near € 1 billion loss after British Airways' profits were wiped out by strike-hit Iberia and the group wrote down the value of its Spanish carrier. Iberia's operating loss widened from € 61m in 2011 to € 896m in 2012 (Park: 2013). Consequently, IAG put a piece of significant work in 2013 to bounce back from 2012's loss, with all profitability ratios positive then.


ASK and RPK record a significant gradual growth during the three years while LF and RRPK increase slightly throughout the period under study.

### 3.2.12. Ratio and Airline-Specific Analysis for Korean Air

**Table 26**  
**Financial Ratio Analysis for Korean Airlines**

Korean Air 	Ratios		2011	2012	2013
	Liquidity Ratios	NWC (M\$)		-3.501,6	-2.693,1
Current Ratio			0,46	0,54	0,4
Quick Ratio			0,35	0,34	0,3
Leverage Ratios	D/E Ratio		8,249	7,655	7,365
	Debt Ratio		0,892	0,874	0,88
Activity Ratios	Total Assets Turnover Rate		0,584	0,553	0,517
Profitability Ratios	Operating Profit Margin		0,033	0,025	-0,002
	Net Profit Margin		-0,026	0,02	-0,032
	Return on Assets		-0,015	0,011	-0,017
	Return on Equity		-0,138	0,098	-0,14

**Table 27**  
**Airline-Specific Ratio Analysis for Korean Airlines**

Korean Air 	Airlines' Specific Ratios	2011	2012	2013
	Available Seat Kilometers (ASK) (Amount in Million)	84.285,00	88.305,00	89.111,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	64.857,00	68.834,00	68.360,00
	Average Load Factor (LF) (%)	76,9	77,9	76,7
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	9,7	10,1	9,9

**Source:** Annual Reports of Korean Air (2011, 2012, 2013)


The year of 2011 produced slow growth in the air travel industry because of the impact of Japanese earthquake and subsequent nuclear catastrophe, Eurozone debt issues and the economic downturn in Korea. As a result; Korean Air's tables record negative net profits in the period excepting 2012. Liquidity ratios are quite lower than airlines'

industry average due to the huge negative NWC amounts in addition the airline records extraordinary high leverage ratios above sector's norms. Hence, the airline faces major liquidity problem as well as solvency problems.


Contrary to the financial ratios; Korean Air' ASK and RPK values record a slow growth in the period while RPK has a slight decline in 2013. Besides; LF increased in 2012 to drop back again in the last year and RRPK remains almost the same during the years under study.

### 3.2.13. Ratio and Airline-Specific Analysis for Lufthansa

**Table 28**  
**Financial Ratio Analysis for Lufthansa**

Lufthansa	Ratios	2011	2012	2013
				
Liquidity Ratios	NWC (M\$)	-457,64	1	-1.705
	Current Ratio	0,97	1	0,88
	Quick Ratio	0,81	0,9	0,79
Leverage Ratios	D/E Ratio	2,521	2,442	3,794
	Debt Ratio	0,714	0,708	0,79
Activity Ratios	Total Assets Turnover Rate	1,032	1,06	1,032
Profitability Ratios	Operating Profit Margin	0,034	0,033	0,03
	Net Profit Margin	-0,0005	0,032	0,01
	Return on Assets	-0,0005	0,035	0,011
	Return on Equity	-0,002	0,12	0,052

**Table 29**  
**Airline-Specific Ratio Analysis for Lufthansa**

Lufthansa	Airlines' Specific Ratios	2011	2012	2013
	Available Seat Kilometers (ASK) (Amount in Million)	258.263,00	260.169,00	262.682,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	200.394,00	205.015,00	209.649,00
	Average Load Factor (LF) (%)	77,6	78,8	79,8
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	13,5	13,6	13,5

**Source:** Annual Reports of Lufthansa (2011, 2012, 2013)


According to Lufthansa's tables, NWC is negative in 2011 and 2013 with a big deficit in the last year, leading to current ratios less than 1 in the mentioned years. In 2012, current assets almost matched current liabilities causing a miniscule NWC amount and a

current ratio of 1. Indebtedness of the company rises from 0,70s to 79 % in 2013, exceeding industry's average. The airline records an unwavering total asset turnover ratio during the period, fluctuating marginally above 1. The airline suffered in 2011 because of a small loss resulting in a touch below zero profit margins, ROA and ROE. On the other hand, profitability ratios are all positive in the following years.


ASK, RPK and LF continue their gradual growth during the years under study while RRPK remains stable.

### 3.2.14. Ratio and Airline-Specific Analysis for Qantas

**Table 30**  
**Financial Ratio Analysis for Qantas**

Qantas 	Ratios		2011	2012	2013
	Liquidity Ratios	NWC (M\$)		-93	-1.297
Current Ratio			0,99	0,84	1,01
Quick Ratio			0,78	0,65	0,7
Leverage Ratios	D/E Ratio		2,393	2,598	2,395
	Debt Ratio		0,705	0,722	0,705
Activity Ratios	Total Assets Turnover Rate		0,714	0,742	0,787
Profitability Ratios	Operating Profit Margin		0,043	0,017	0,023
	Net Profit Margin		0,017	-0,016	0,0004
	Return on Assets		0,012	-0,012	0,0003
	Return on Equity		0,041	-0,041	0,001

**Table 31**  
**Specific- Airline Ratio Analysis for Qantas**

Qantas 	Airlines' Specific Ratios	2011	2012	2013
	Available Seat Kilometers (ASK) (Amount in Million)	133.281,00	139.423,00	139.909,00
	Revenue Passenger Kilometers (RPK) (Amount in Million)	106.759,00	111.692,00	110.905,00
	Average Load Factor (LF) (%)	80,1	80,1	79,3
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	10,7	10,6	10,3

**Source:** Annual Reports of Qantas (2011, 2012, 2013)


Qantas's tables report negative NWC in the first two years with a huge deficit in 2012 with liquidity ratios being less than industry's norm in the mentioned years. Unlike the previous years, the airline records a positive work in 2013 with a current ratio above 1.

Leverage ratios shows steadiness during the years under study with ratios around sector's norm. During the period, the airline shows a gradual increase in total asset turnover rates. All the profitability ratios in 2011 and 2013 are positive, whereas in 2012 all of the rates except operating profit margin are negative. Throughout the three years, it is visible that operating profit margin is higher than profit margin.


Qantas' ASK and RPK show a noticeable increase in 2012 while LF and RRPK slightly decrease during the three years.

### 3.2.15. Ratio and Airline-Specific Analysis for Ryanair

**Table 32**  
**Financial Ratio Analysis for Ryanair**

Ryanair	Ratios	2011	2012	2013
				
Liquidity Ratios	NWC (M\$)	2.281,8	2.648,59	2.459,14
	Current Ratio	1,89	2,14	1,97
	Quick Ratio	1,4	1,73	0,83
Leverage Ratios	D/E Ratio	1,91	1,722	1,733
	Debt Ratio	0,656	0,633	0,634
Activity Ratios	Total Assets Turnover Rate	0,422	0,488	0,546
Profitability Ratios	Operating Profit Margin	0,135	0,156	0,147
	Net Profit Margin	0,103	0,128	0,117
	Return on Assets	0,044	0,062	0,064
	Return on Equity	0,127	0,169	0,174

**Table 33**  
**Airlin-Specific Ratio Analysis for Ryanair**

Ryanair	Airlines' Specific Ratios	2011	2012	2013
	Available Seat Kilometers (ASK) (Amount in Million)	63.358,26	71.139,69	72.829,96
	Revenue Passenger Kilometers (RPK) (Amount in Million)	53.256,89	58.584,45	59.865,60
	Average Load Factor (LF) (%)	83	82	82
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	6,9	7,7	8,3

**Source:** Annual Reports of Ryanair (2011, 2012, 2013)

Ryanair is the largest low cost carrier in the world and it is Europe's only ultra-low cost carrier airline company. The airline records the highest NWC amount among the airlines under study with significantly higher liquidity ratios throughout the three years.

Total assets turnover rates note a gradual increase during the period. Profitability ratios came out to be positive through all the years with high operating profit margin and profit margin. In addition, Ryanair's ratios show continuing increase in its ROA and ROE. Similar to previous ratios, Ryanair notes weighty leverage ratios way below the industry average.

Airline's ASK and RPK continue their gradual growth during the years under study with a stable average load factor. Similar to ASK and RPK; RRPK values show a continuing growth in yield.

### 3.2.16. Ratio and Airline-Specific Analysis for Singapore Airlines

**Table 34**  
**Financial Ratio Analysis for Singapore Airlines**

Singapore Airlines		Ratios	2011	2012	2013
		Liquidity Ratios	NWC (M\$)	3.546,9	1.940,9
Current Ratio	1,57		1,37	1,35	
Quick Ratio	1,25		1,025	0,989	
Leverage Ratios	D/E Ratio	0,707	0,687	0,688	
	Debt Ratio	0,409	0,402	0,402	
Activity Ratios	Total Assets Turnover Rate	0,591	0,674	0,673	
Profitability Ratios	Operating Profit Margin	0,086	0,019	0,015	
	Net Profit Margin	0,075	0,023	0,025	
	Return on Assets	0,045	0,017	0,02	
	Return on Equity	0,079	0,025	0,029	

**Table 35**  
**Specific-Airline Ratio Analysis for Singapore Airlines**

Singapore Airlines	Airlines' Specific Ratios	2011	2012	2013
Singapore Airlines	Available Seat Kilometers (ASK) (Amount in Million)	108.060,20	113.409,70	118.264,40
	Revenue Passenger Kilometers (RPK) (Amount in Million)	84.801,30	87.824,00	93.765,60
	Average Load Factor (LF) (%)	78,5	77,4	79,3
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	11,9	11,8	11,4

**Source:** Annual Reports of Singapore (2011, 2012, 2013)

According to tables of Singapore Airlines; NWC amount decreases significantly by the end of 2011. On the other hand, liquidity ratios seem reasonable generally but current ratio is in decline, above the acceptable rate for the sector. Likewise, asset turnover




increases as a better sign for efficiency. Net profit margin is bigger than operating margin in the last two years indicating that non-operating income is significant while they are positive through the period despite of the reasonable decline due to intensified competitive landscape, persistently high jet fuel prices and natural disasters e.g. Japan earthquake. In a heavy debt structure industry like aviation industry; Singapore Airlines records a noticeably low D/E ratio around 70 %. In addition, debt ratio is about 40 %, also quite low for the sector, below the acceptable rate.


Singapore Airlines shows gradual growth in ASK, RPK and LF while RPRK decreases during the period.

### 3.2.17. Ratio and Airline-Specific Analysis for Turkish Airlines

**Table 36**  
**Financial Ratio Analysis for Turkish Airlines**

Turkish Airlines 	Ratios		2011	2012	2013
	Liquidity Ratios	NWC (M\$)		64,62	-364,4
Current Ratio			1,03	0,86	0,68
Quick Ratio			0,64	0,59	0,39
Leverage Ratios	D/E Ratio		2,646	2,47	2,648
	Debt Ratio		0,726	0,712	0,726
Activity Ratios	Total Assets Turnover Rate		0,72	0,782	0,826
Profitability Ratios	Operating Profit Margin		0,009	0,077	0,066
	Net Profit Margin		0,002	0,08	0,036
	Return on Assets		0,001	0,062	0,03
	Return on Equity		0,004	0,217	0,109

**Table 37**  
**Specific-Airline Ratio Analysis for Turkish Airlines**

Turkish Airlines 	Airlines' Specific Ratios	2011	2012	2013
	Available Seat Kilometers (ASK)	81.193,00	96.124,00	116.433,00
	Revenue Passenger Kilometers (RPK)	58.933,00	74.410,00	91.997,00
	Average Load factor (LF) (%)	72,6	77,4	79,0
	Revenue per Revenue Passenger Kilometer (RRPK), or Yield in (USD cents)	10,3	10	9,5

**Source:** Annual Reports of Turkish Airlines (2011, 2012, 2013)

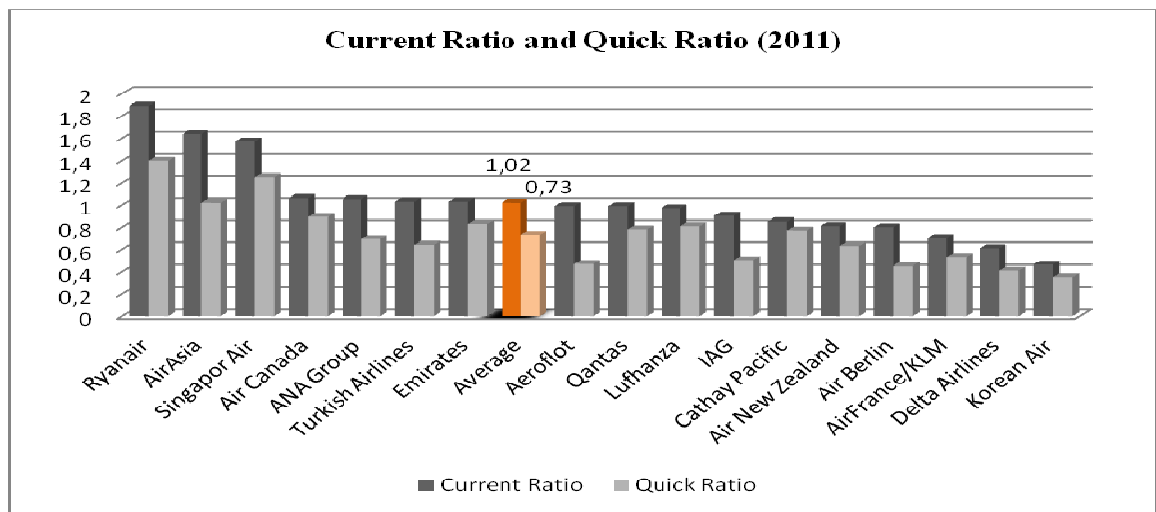
According to Turkish Airline's tables, NWC falls down sharply recording negative results in 2012 and 2013. As a result of working capital drop, liquidity ratios note a gradual decrease below the ideal rate in 2012-2013. Also the airline records gradual increase in total assets turnover rate. On the other hand, profitability ratios are all positive with significant rise in 2012. In addition, the airline shows stability in its leverage ratios with ratios changing around industry's norm.

Turkish airline's traffic statistics highlight its success with a massive rise in its ASK and RPK during three years. Similarly, the airline notes a noticeable continuing increase in its average LF. On the other side, the airline records a continuing decrease in its yield about while they are acceptable values.

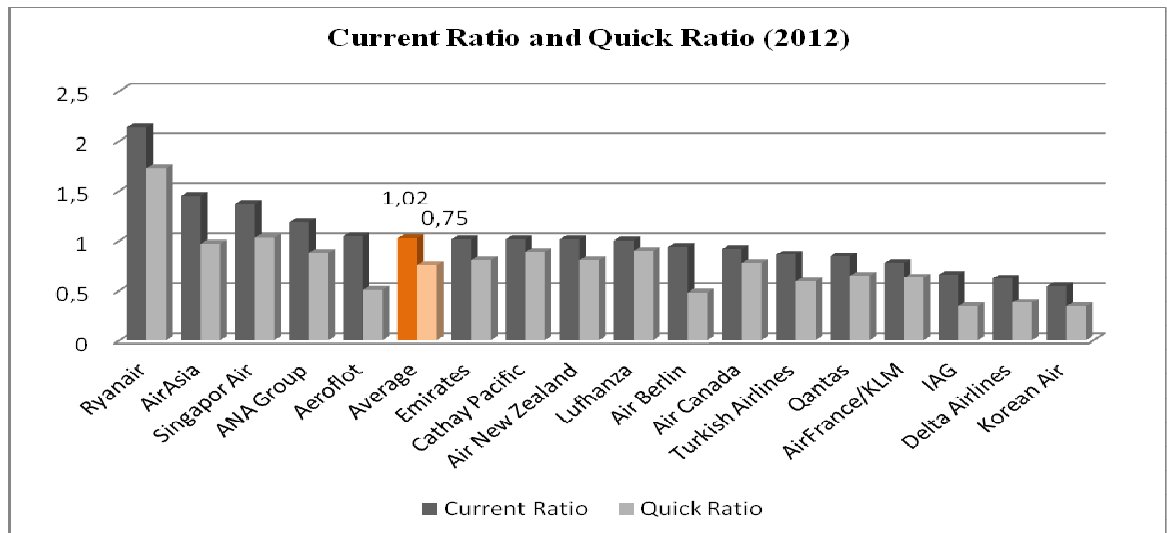
## PART 4: COMPARING MAJOR AIRLINE COMPANIES BY TRADITIONAL AND AIRLINE-SPECIFIC RATIOS

In the 4th chapter of the study; comparing the performances of the airline companies is aimed so the results acquired from the analyses such as liquidity, leverage, activity, profitability also airline specific analysis are compared below.

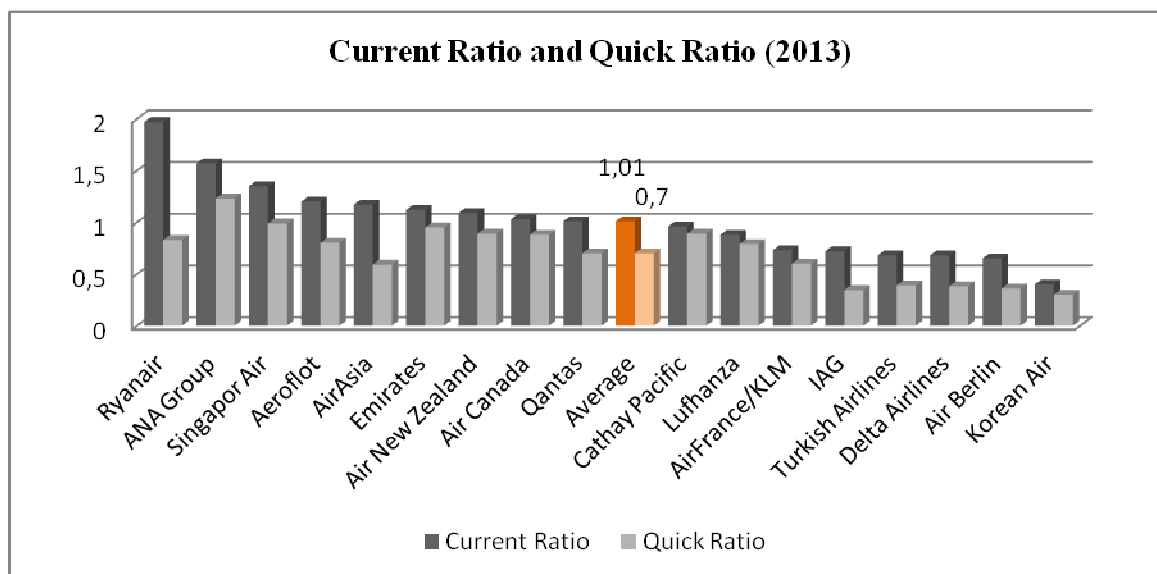
### 4.1. Comparing the Airlines by Using Liquidity Ratios



**Figure 1:** Current Ratio and Quick Ratio (2011)



**Figure 2:** Current Ratio and Quick Ratio (2012)

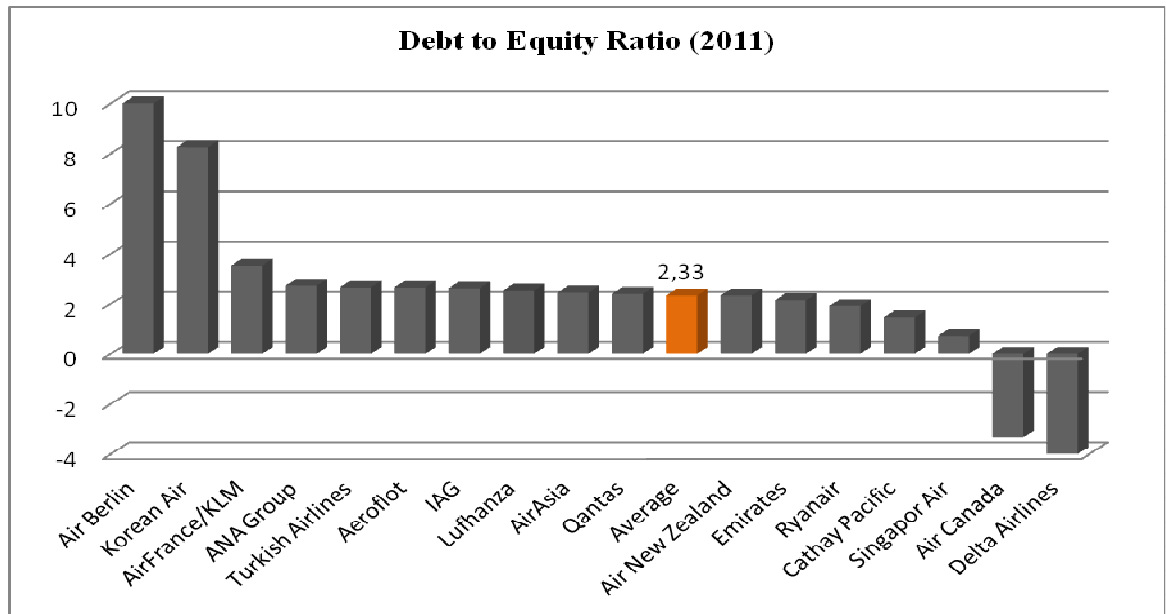


**Figure 3:** Current Ratio and Quick Ratio (2013)

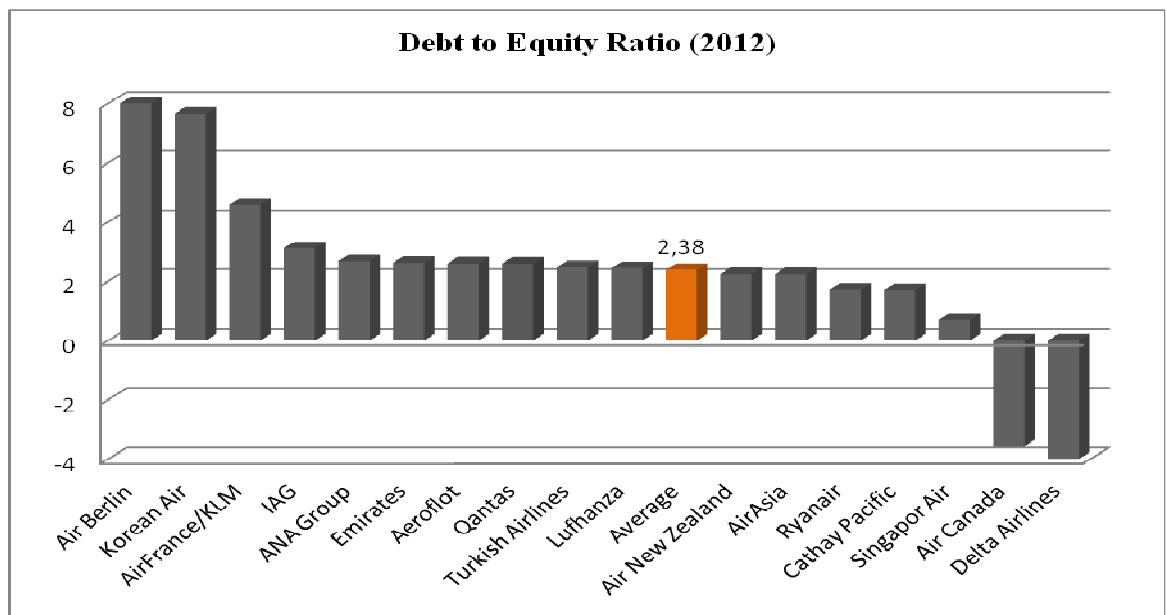
As mentioned previously, the goal of liquidity ratios is to determine whether the airline can meet its short-term financial commitments. In an industry characterized by substantial volatility, negative or positive but low working capital can primarily be explained by airlines being highly leveraged which require periodic payments of the current portion of long-term debt. As a result, ideally an airline wants a current ratio greater than one, indicating that its current assets can cover its short-term liabilities.

Throughout 2011; Ryanair, Air Asia and Singapore air record remarkable liquidity way above (1,5). Air Canada, All Nippon Airways (ANA), Turkish Airlines and Emirates note ratios above 1. The remaining 10 airlines have ratios below ( $< 1$ ), with Air France/KLM, Delta Airlines and Korean Air recording worst ratios below ( $< 0,75$ ). In 2012, liquidity ratios came similar to 2011 as Ryanair, Air Asia and Singapore Air remain the most liquid airlines and the least liquid airlines are Air France/KLM, Delta Airlines, and Korean Air in addition to IAG. In the same time; ANA, Aeroflot, Emirates, Cathay Pasific and Air New Zealand record ratios above ( $>1$ ). At the end of 2013; Ryanair and Singapore Air maintain their high liquidity with ANA taking Air Asia's place. On the other hand, for the third consecutive year Korean Air records the lowest liquidity ratios. In addition, Aeroflot, Air Asia, Emirates, Air New Zealand Air Canada, Qantas, Cathay Pacific and Lufthansa show ratios above ( $>1$ ).

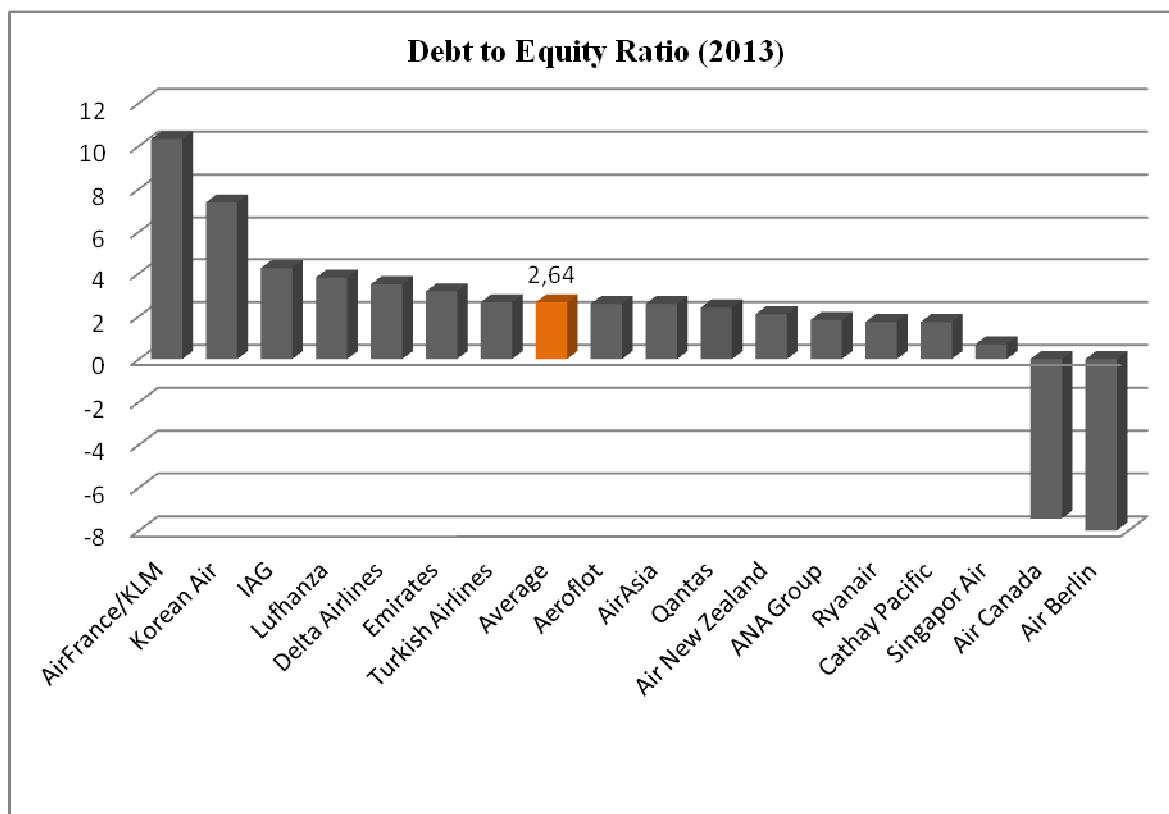
## 4.2. Comparing Airlines by Using Leverage Ratios



**Figure 4:** Debt to Equity Ratio (2011)



**Figure 5:** Debt to Equity Ratio (2012)



**Figure 6:** Debt to Equity Ratio (2013)

The heavy debt structure of the airline industry can be seen by comparing debt to equity ratios of the selected airlines, reflecting the large amount of capital involved in operating an airline. Note that most carriers have debt to equity ratios greater than one (>2), indicating that their capital structures are more heavily debt to equity weighted. Throughout the years under study, Singapore Airlines records debt to equity less than one, beside Singapore Airlines is the only airline in the sample with more equity than debt (< 1). The airlines with the most balanced capital structure are Cathay Pacific and Ryanair, with debt to equity ratios less than two (<2) throughout the three years. At the other end of the scale are Korean Air and Air France/KLM, with the highest debt to equity ratios along the three years. As discussed earlier, Delta Airlines and Air Berlin both show the unusual case of negative equity due to earlier bankruptcy and accumulated losses. What is even more curious is that Air Berlin has more negative equity than Delta, even though its ratio appears to be better. This reflects the confusing nature of the ratio. In other words, that the more negative equity a company has, the less negative its debt to equity ratio becomes.

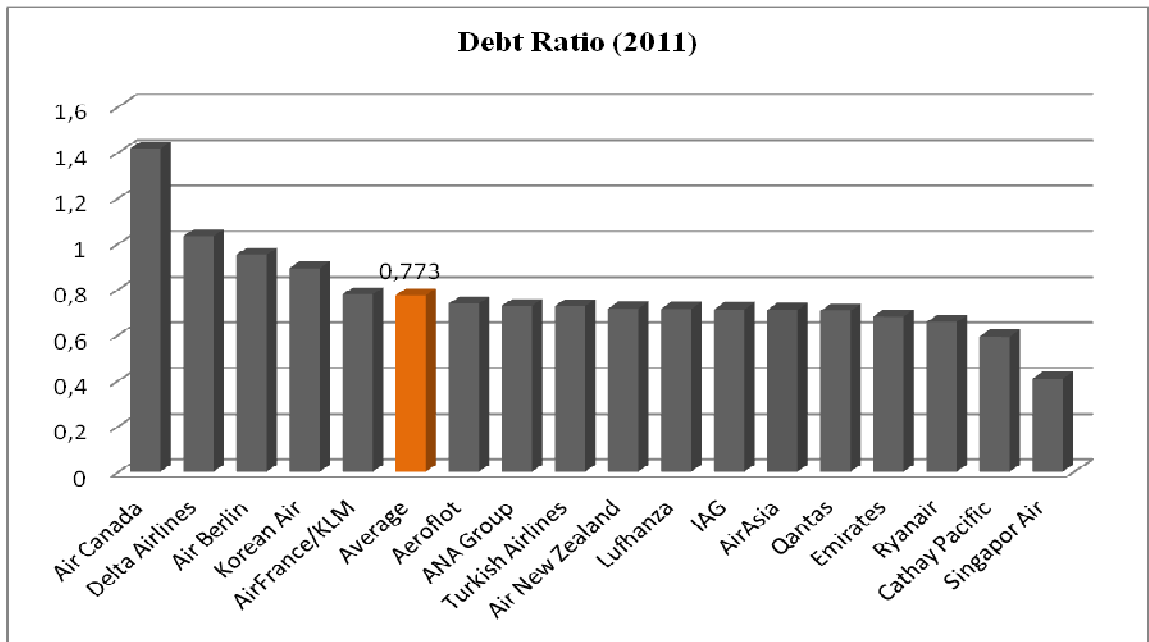


Figure 7: Debt Ratio (2011)

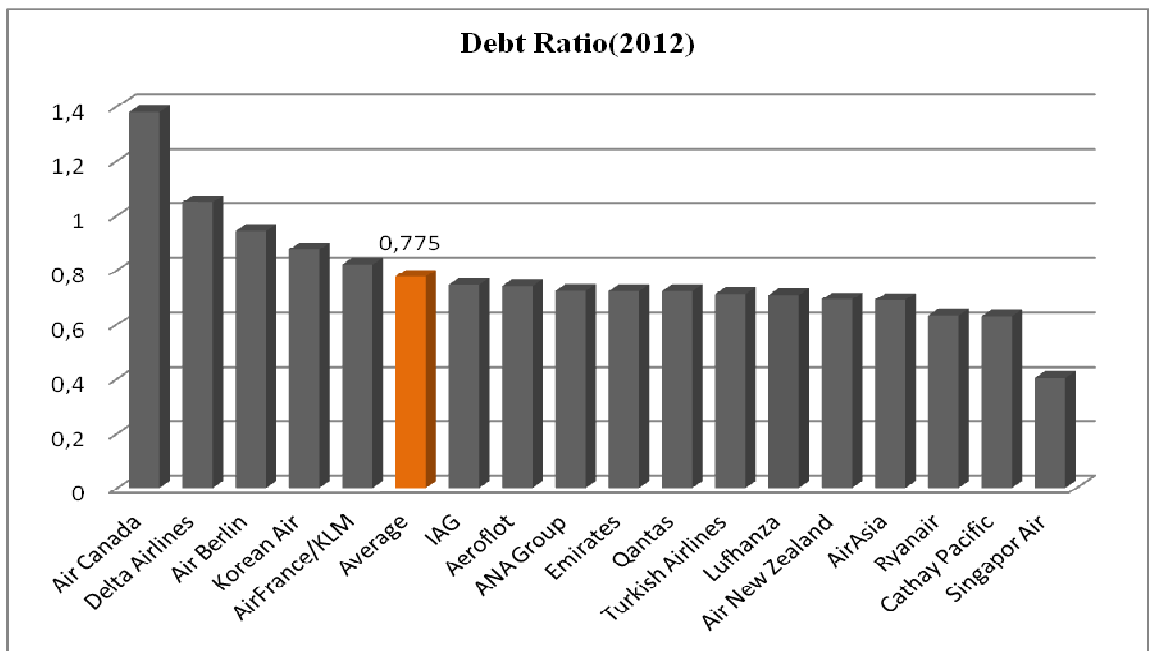
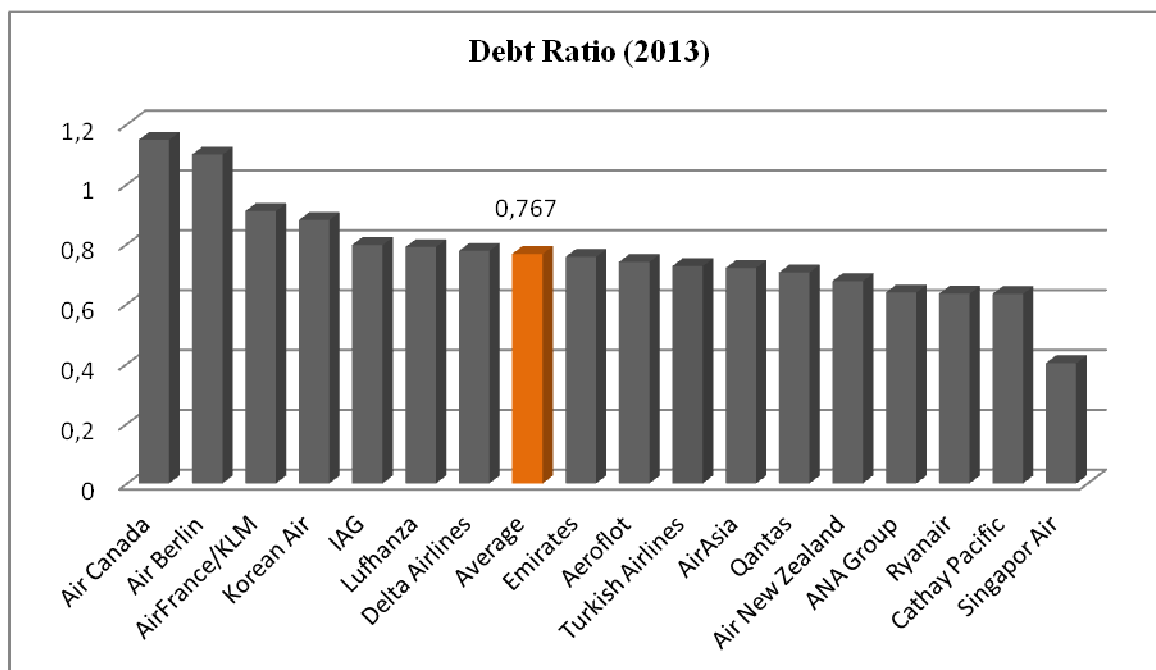


Figure 8: Debt Ratio (2012)



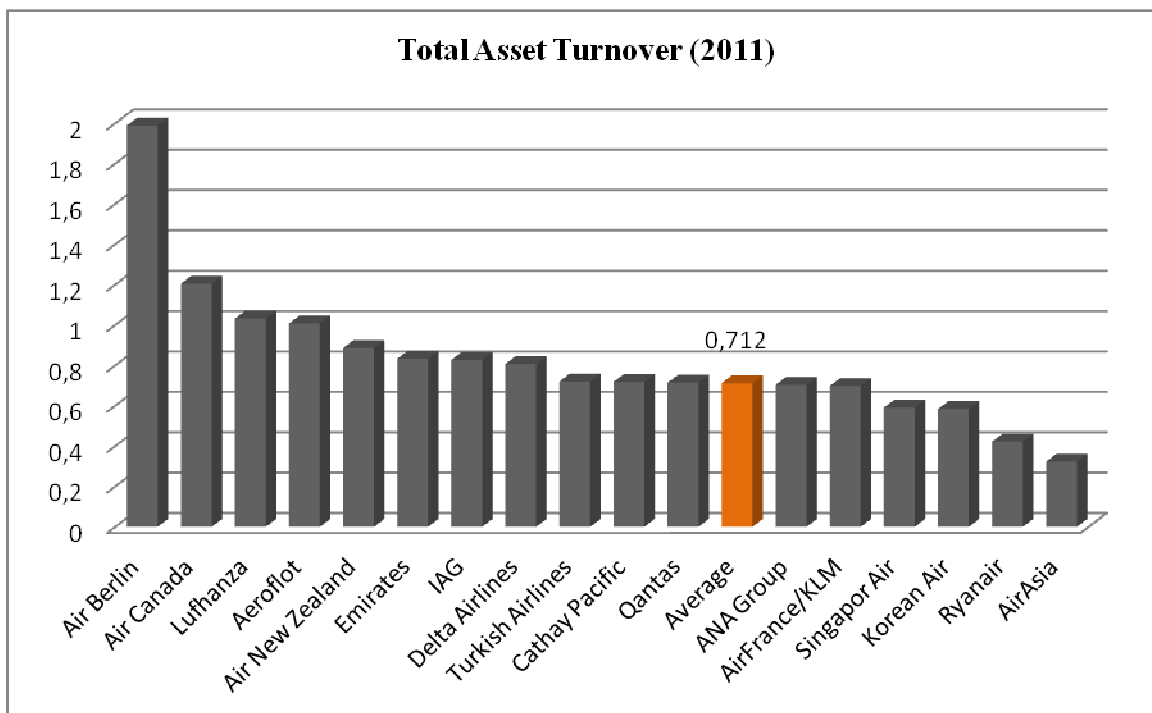
**Figure 9:** Debt Ratio (2013)

Another debt-based long-term risk metric is the debt ratio, which shows the total portion of assets financed by debt and is not affected by negative equity. A high debt ratio indicates that firm has less financial leverage, since there are fewer assets that can be used to cover the debt. This lack of assets may also raise the cost of debt in the future, since it can create more uncertainty for the lender about the airline's ability to make contractual interest payments. Therefore, from a long-term risk perspective, an airline with a lower debt ratio is generally less risky than one with a higher debt ratio.

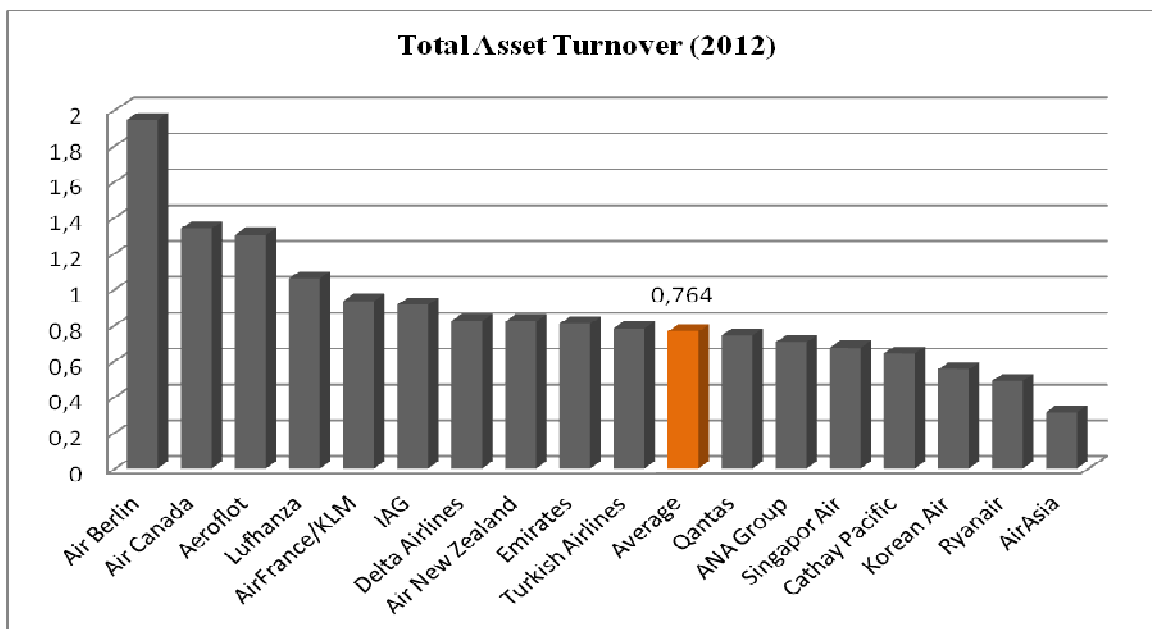
Based on the graph, the riskiest airline in our study is Air Canada, with a debt ratio of more than (1,40) throughout the three years, and the least risky is Singapore with a debt ratio of about (0,4) during the same period. It is noticeable that Cathay Pacific and Ryan air maintain second and third spot respectively throughout the period under study. In addition, Delta Airlines records debt ratios a touch above 1 during 2011 and 2012 but in 2013 the debt ratio notes a significant drop to (0,77).



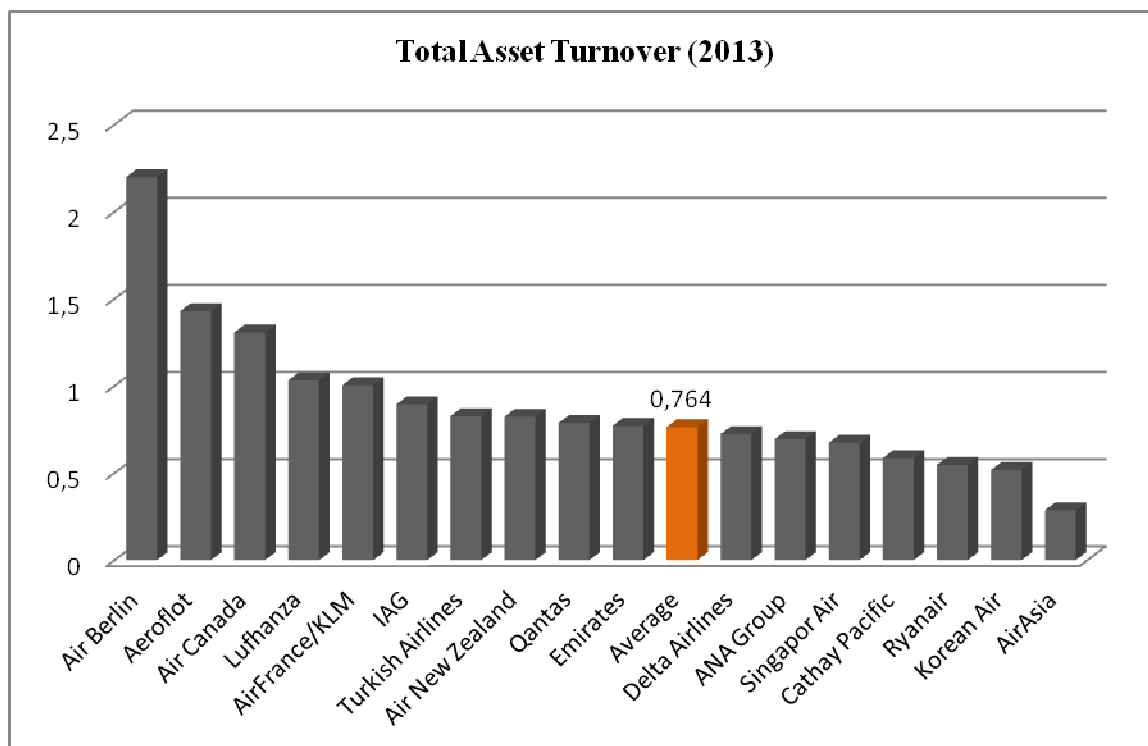
### 4.3. Comparing Airlines by Using Activity Ratios



**Figure 10:** Total Asset Turnover (2011)



**Figure 11:** Total Asset Turnover (2012)

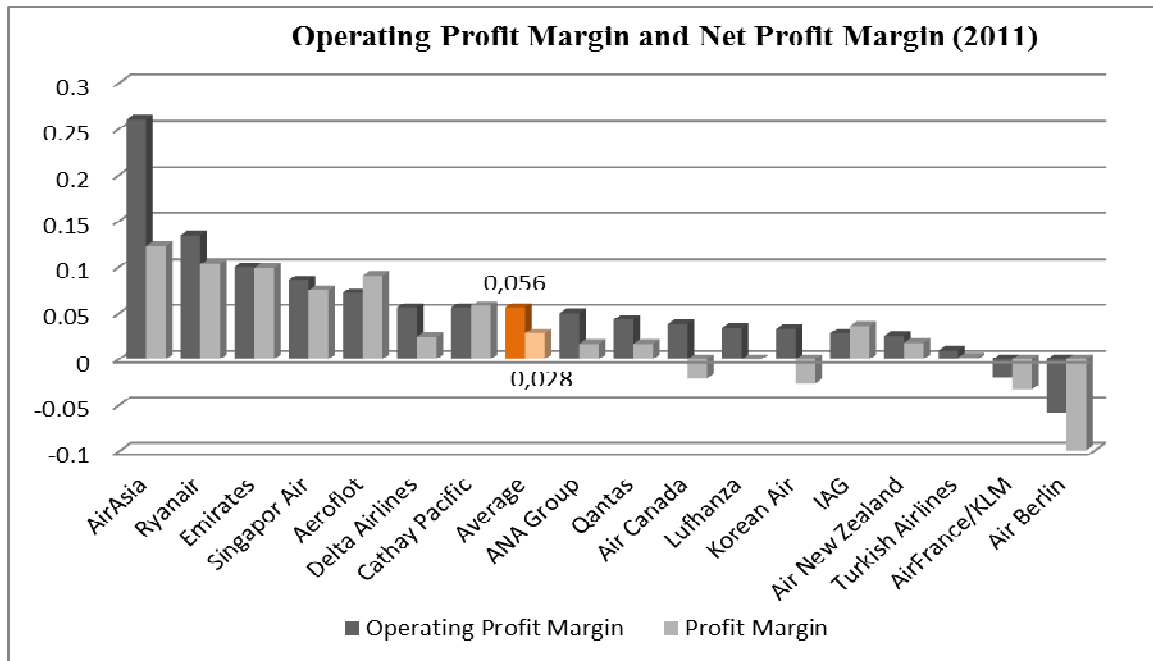


**Figure 12:** Total Asset Turnover (2013)

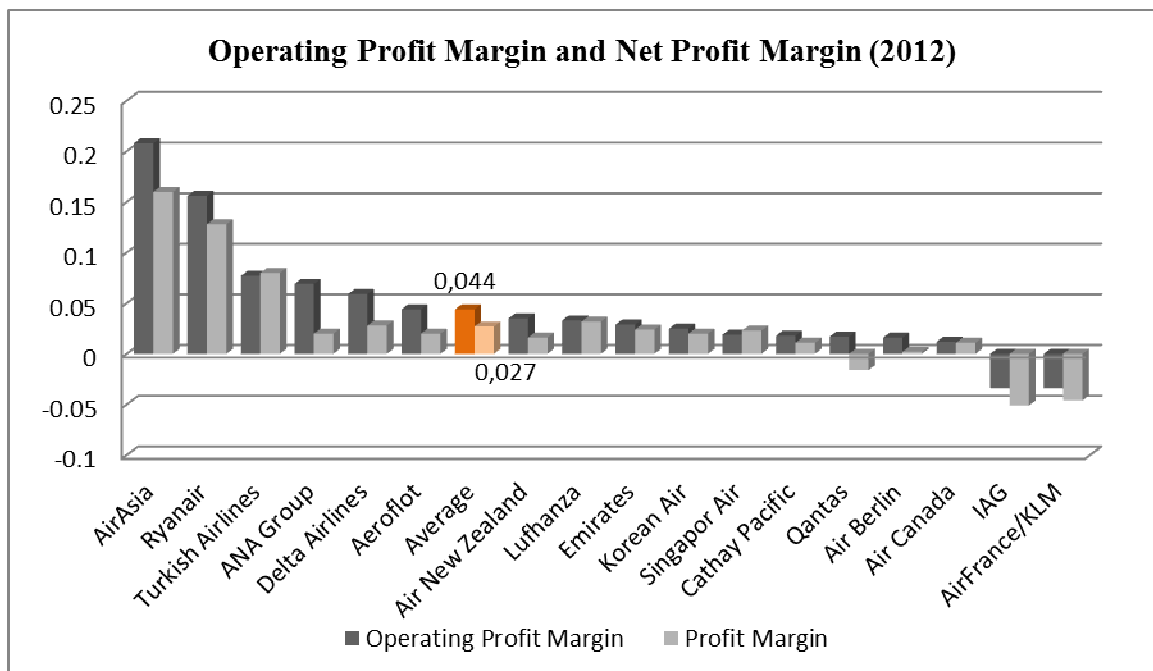
The Asset Turnover ratio is an indicator of the efficiency with which a company is deploying its assets. In other words, it is the amount of revenues generated per dollar of assets. Throughout the years under study, Air Berlin records unexpected high total asset turnover ratios due to sharp total assets reduction of 4,5 % as a result of decrease in property, plant and equipment by 7,7 % prior to 2011. In the following years Air Berlin reduced its fleet from 170 aircrafts in 2011 to 140 in 2013. Consequently, during the years under study, Aeroflot, Air Canada and Lufthansa dominate the top three spots with ratios above 1. On the other hand, the last three spots are dominated by Ryanair, Korean Air and Air Asia.

It is seen that Ryanair and Air Asia are among the last three spots while they dominate operating profit margin and profit margin's top two spot, the answer is that Ryanair and Air Asia are ultra-low cost carriers.

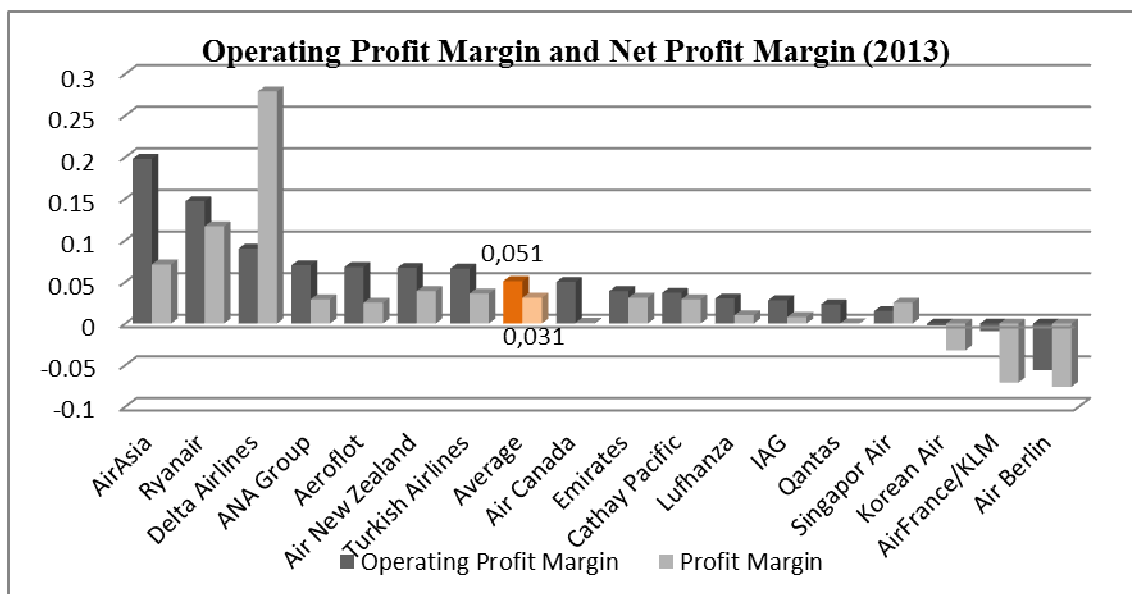
#### 4.4. Comparing the Airlines by Using Profitability Ratios



**Figure 13:** Operating Profit Margin and Net Profit Margin (2011)



**Figure 14:** Operating Profit Margin and Net Profit Margin (2012)



**Figure 15:** Operating Profit Margin and Net Profit Margin (2013)

Operating profit margin ratio is more accurate than net profit margin in assessment of an airline's operations during the period, which helps to remove distortions in the data from restructuring charges, interest expenses and taxes. While operating margins are generally higher than profit margins, several airlines are still unable to achieve positive operating income. This might be a sign that certain business strategies need to be re-examined.

Throughout the three years, Air Asia and Ryanair's dominance is clearly seen in operating profit margin with extraordinary ratios. On the other side, Air France/KLM records three years of consecutive negative operating profit margin. Besides the best and worst results, in 2011 Emirates records a noticeable operating profit margin ratio of 0,1 while Air Berlin notes a negative ratio of -0,058. At the end of 2012, Turkish Airlines shows third highest operating profit margin ratio of 0,077 while IAG has a negative ratio of -0,034. Finally, in the last year under study; Delta Airlines' operating profit margin almost reaches 0,1 and Air Berlin return back to negative operating profit margin with ratio of -0,056. Similar to operating profit margin, most airlines are profitable during the three years with best results recorded by Air Asia and Ryanair. In contrast, Air France/KLM is unprofitable the whole three years. Besides Air France/KLM, Air Berlin, Korean Air and Air Canada record loss in 2011 while Qantas

and IAG record negative net profit margin in 2012. In addition, Air Berlin and Korean Air are unprofitable in 2013.

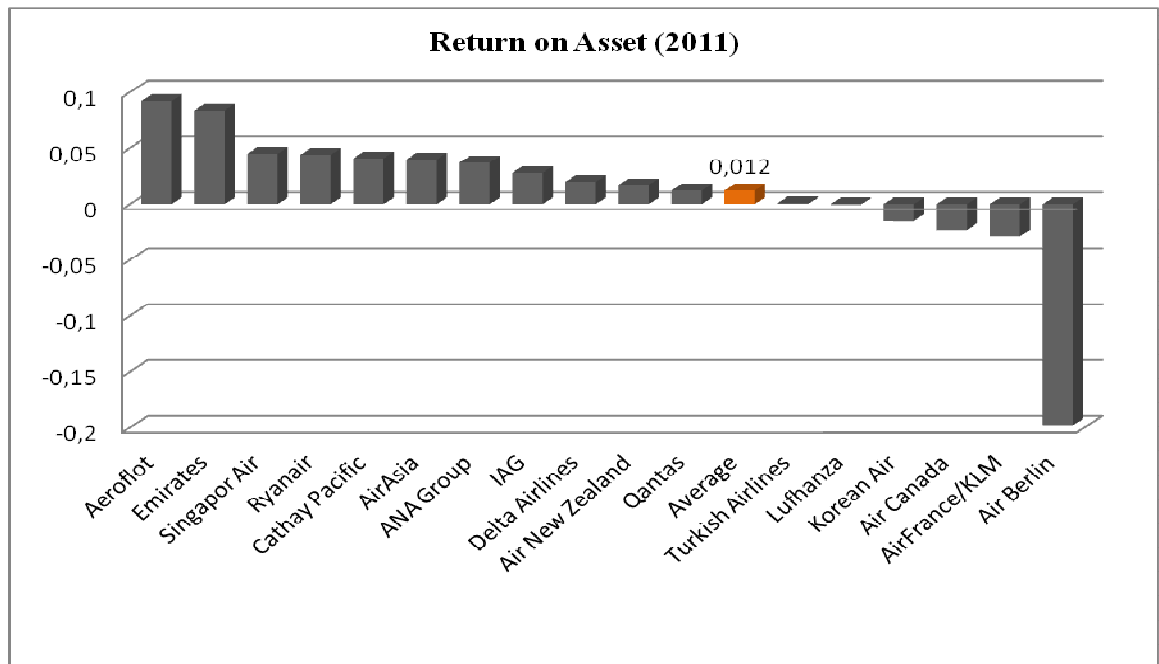


Figure 16: Return on Asset (2011)

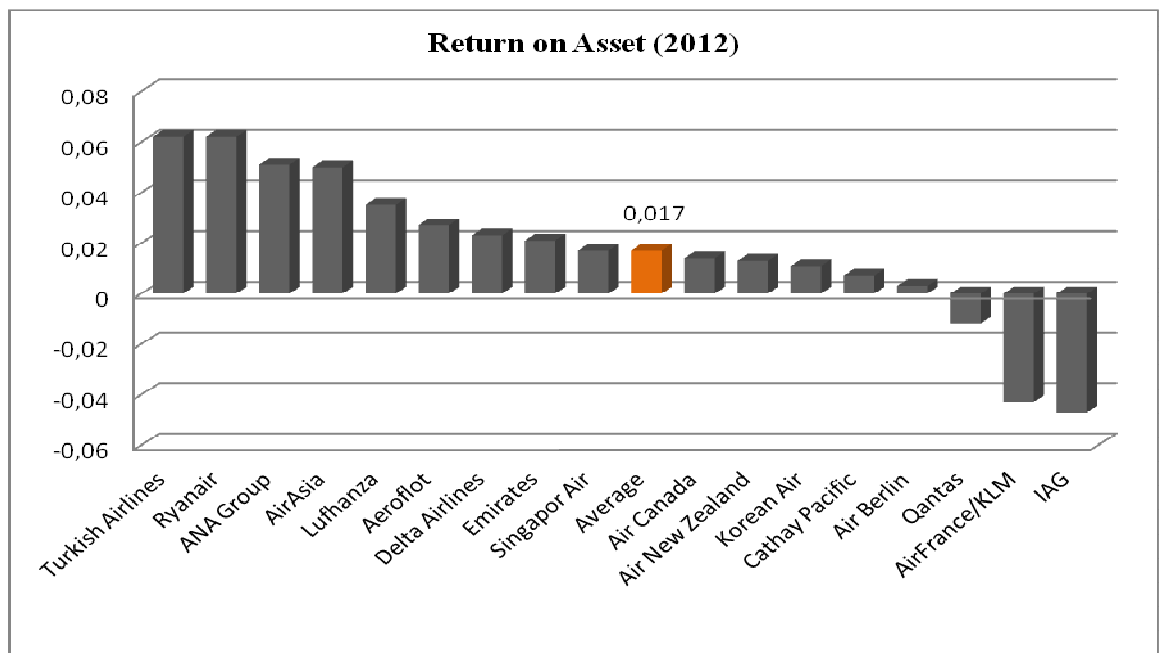
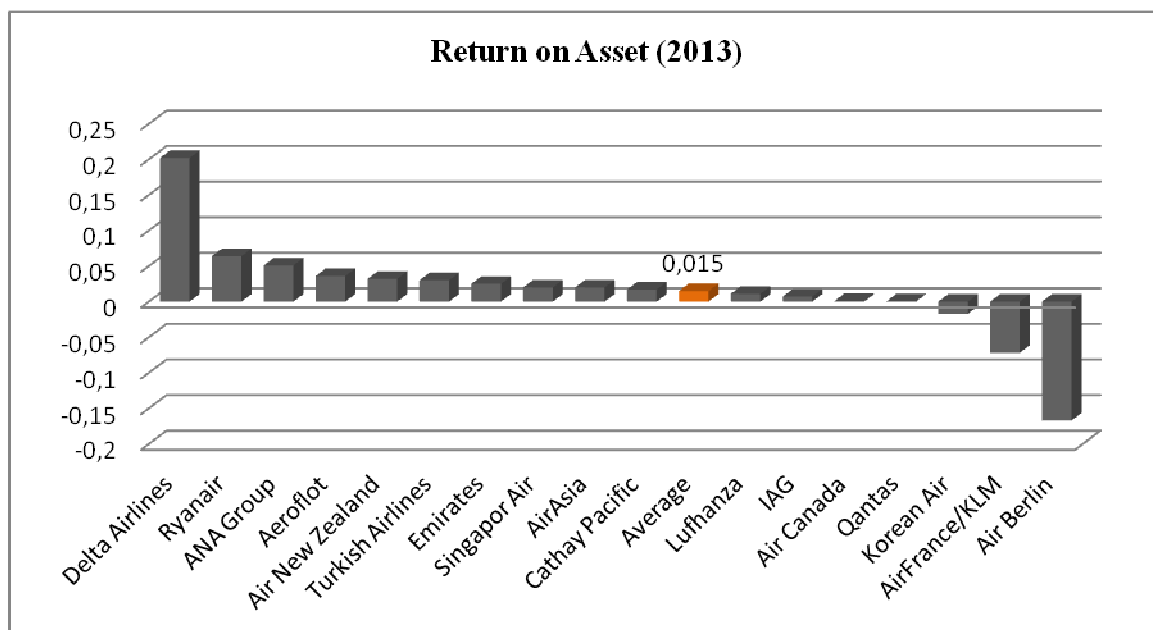


Figure 17: Return on Asset (2012)



**Figure 18:** Return on Asset (2013)

Other method for analyzing profitability is return on assets (ROA). This metrics can be particularly important to investors looking to purchase shares in a company, potential creditors, or potential lessors when evaluating the airline’s ability to cover its costs. To be noted; when evaluating ROA, it is important to consider the different depreciation methods and schedules that the airlines implement, because this can strongly influence the ratio.

Although this graph looks almost identical to profit margins, one major difference is that in 2011, Ryanair and Air Asia rank fourth and sixth respectively in the sample with regard to ROA, whereas the airlines took the top spots based on profit margin. According to ROA in 2011; Aeroflot, Emirates and Singapore Airlines are all able to use their assets more productively than Ryanair and Air Asia. On the other hand, Air Berlin records a catastrophic ratio nearly -0,20 in the same year. In 2012; Turkish Airlines with Ryanair show the best values of 0,062 while Air Asia is the fourth with a ratio of 0,05. In contrast, Air France/KLM and IAG record the worst ratios of -0,043 and -0,047 respectively. During the last year of this study, Delta Airlines took the first spot in ROA rate due to its extraordinary high profit in 2013. Ryanair came second while Air Asia dropped to ninth place with a ratio of 0,02. On the opposite side of the

graph, Air France/KLM and Air Berlin note negative ratios of -0,072 and -0,167 respectively.

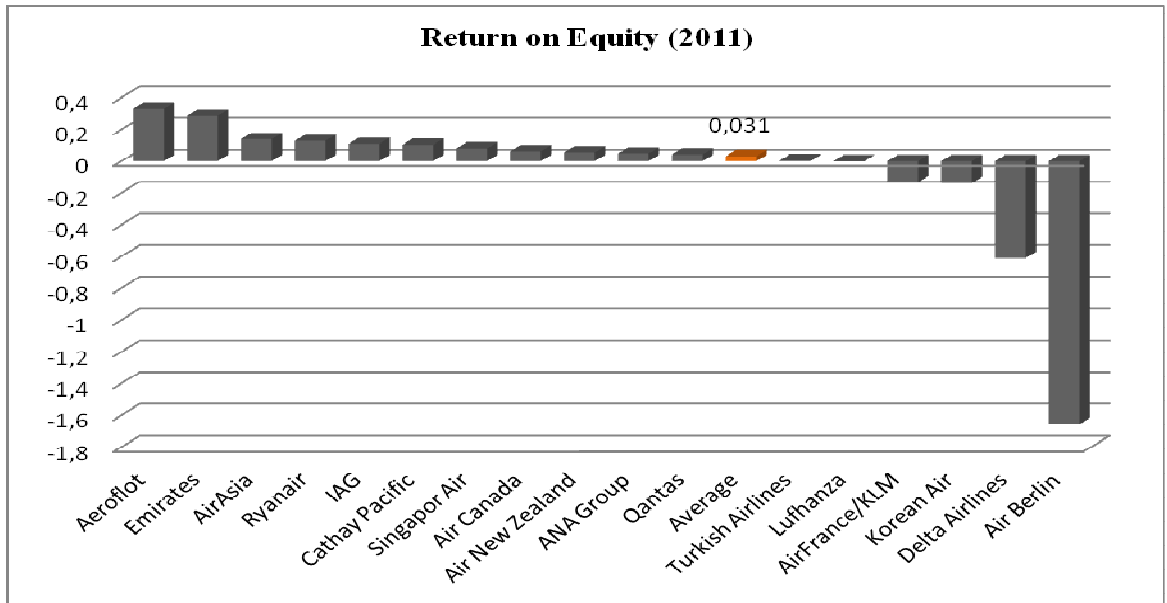


Figure 19: Return on Equity (2011)

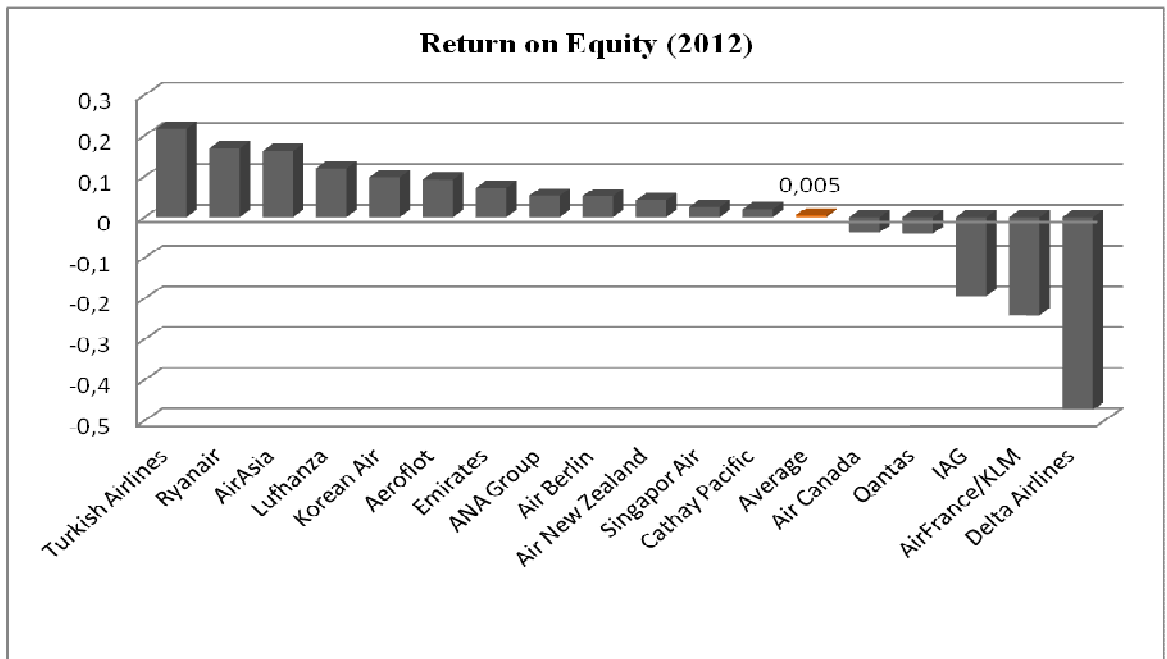
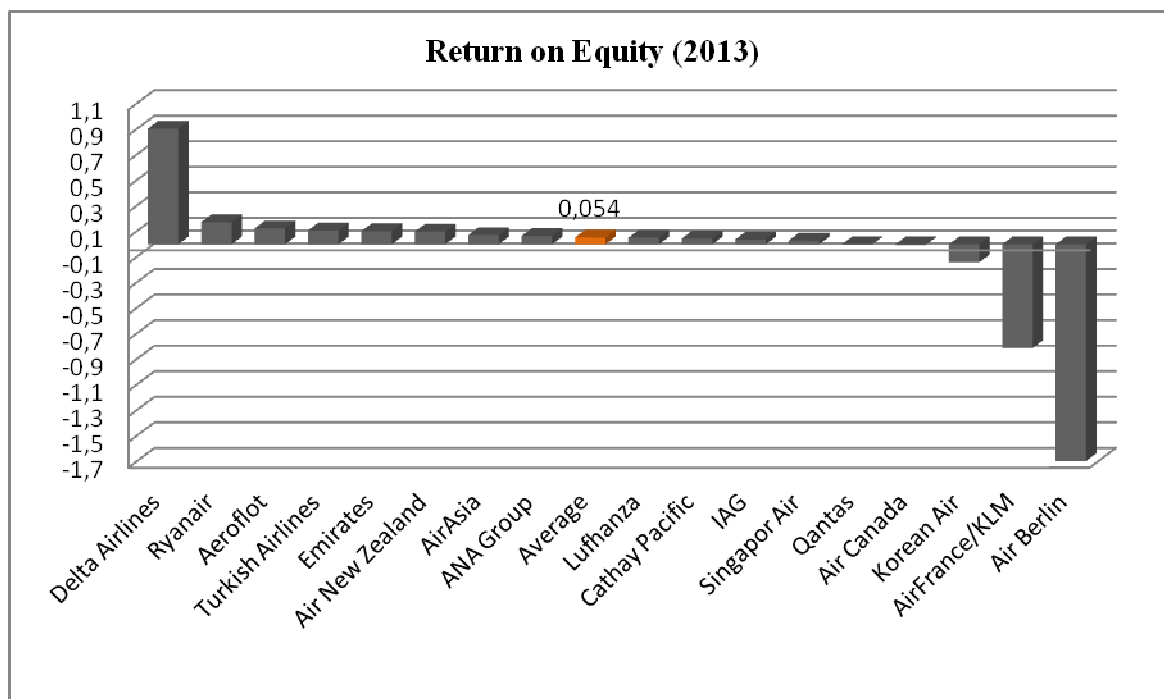


Figure 20: Return on Equity (2012)



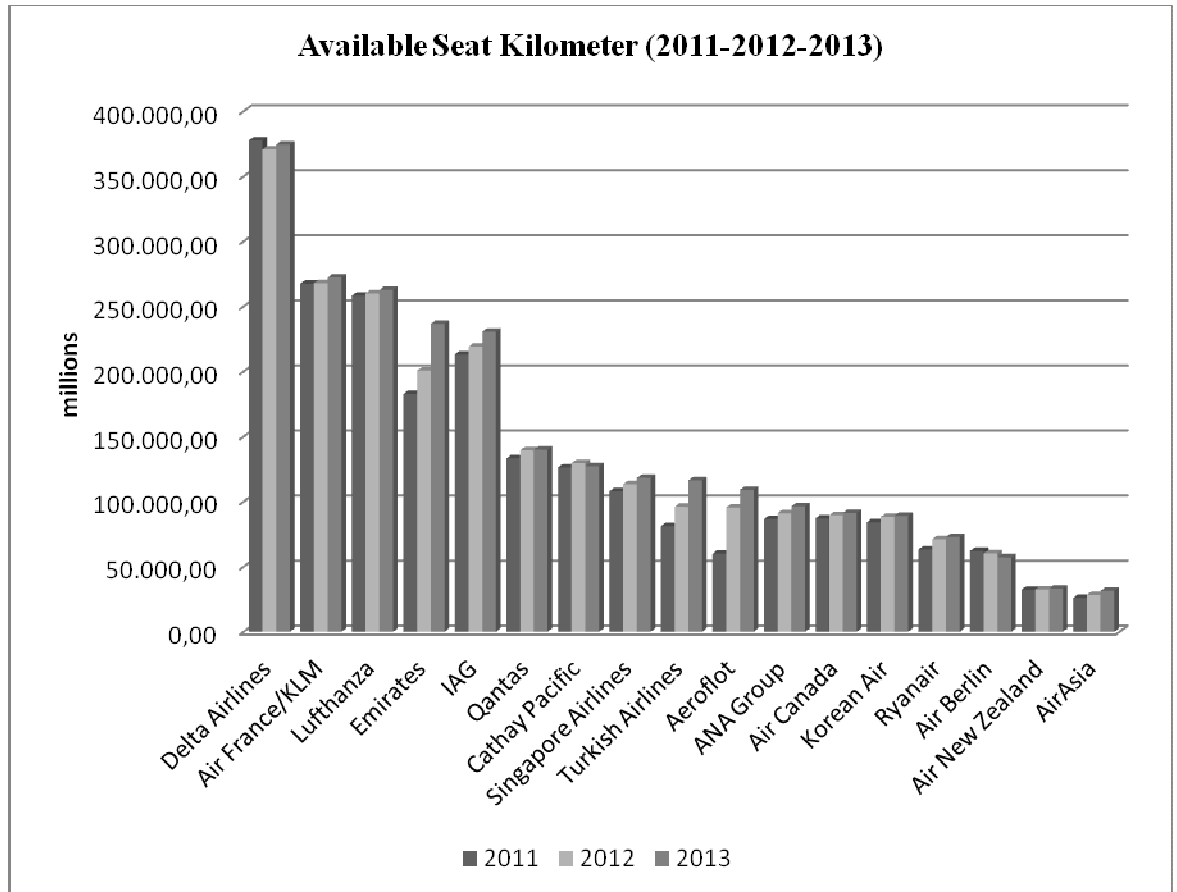
**Figure 21:** Return on Equity (2013)

From a shareholders' perspective, an airline's ability to convert funds acquired through equity into profitability is one of the clear signals of the success of the company. However, because ROE uses book value of equity, it is subjected to certain variances. For instance, the graph shows that Delta Airlines had a high ROE in 2013, much higher than Ryanair being the second. However, although Delta Airlines did produce a profitable year and recorded a strong ROE, the reason why this ratio is so high is mostly that the airline had a very small amount of book equity and was actually running an accumulated deficit from losses accrued over the last decade. Moreover; from the graph of 2011, it appears that Air Canada doing quite well, and this might seem strange given that the airline had negative income for the last several years and one should therefore expect to see a negative ROE. However, Air Canada has posted negative equity on its balance sheet from mounting losses over the years. In other words, because the airline's debt exceeds its total assets and it also has negative earnings, its ROE will become positive when calculated. On a similar note, Delta Airlines has posted profits over the last several years, but still has a negative book value of equity including 2011 and 2012, because of its bankruptcy in 2005. As a result, because it has negative ROE values in the mentioned two years while a huge positive rate in 2013 due to tiny positive equity amount.



In conclusion, LCCs represented by Ryanair and Air Asia have outperformed legacy carriers in terms of operating and profit margins, partly as a result of lower overhead costs. In addition, LCCs maintain high liquidity and below aviation-average leverage ratios throughout the years under study. On the other hand, Air France/KLM and Air Berlin record the worst profitability and leverage ratios beside insufficient liquidity.

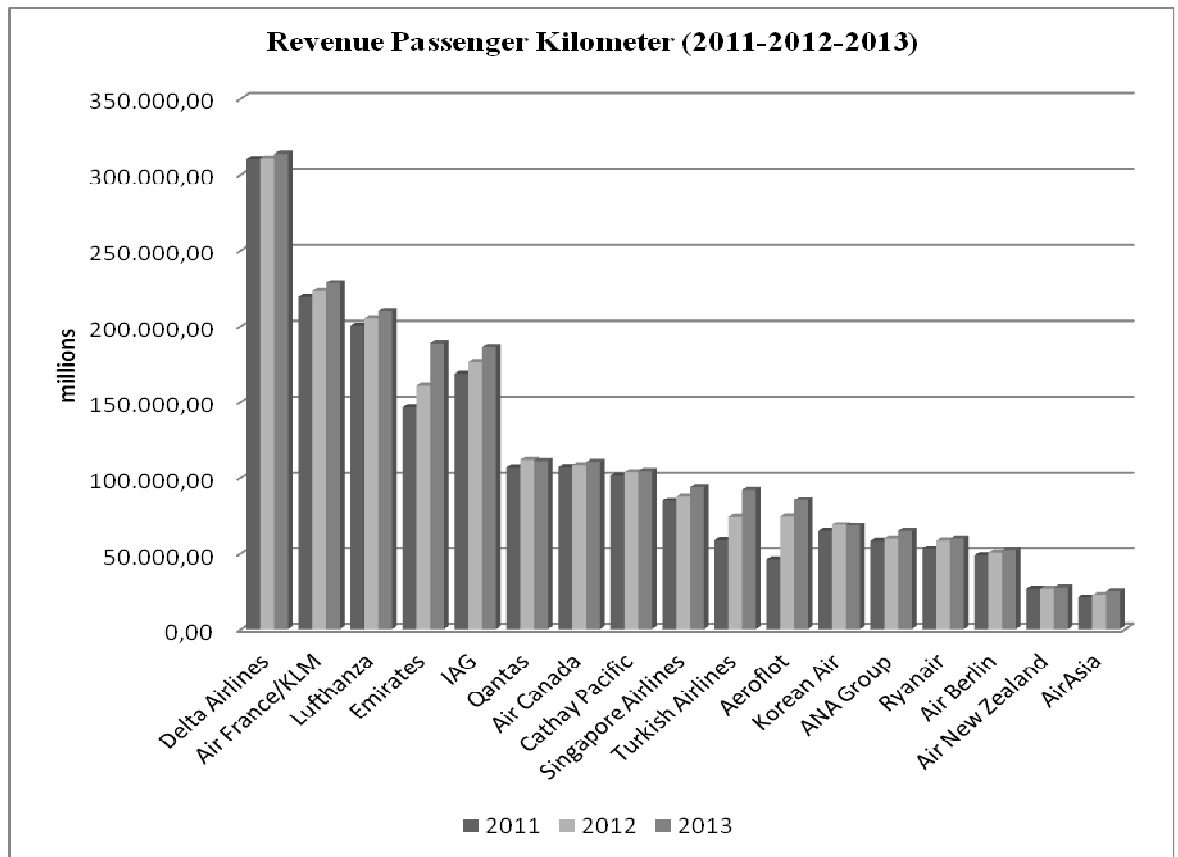
#### 4.5. Comparing the Airlines by Using Airline-Specific Measures and Ratios



**Figure 22:** Available Seat Kilometer (2011-2012-2013)

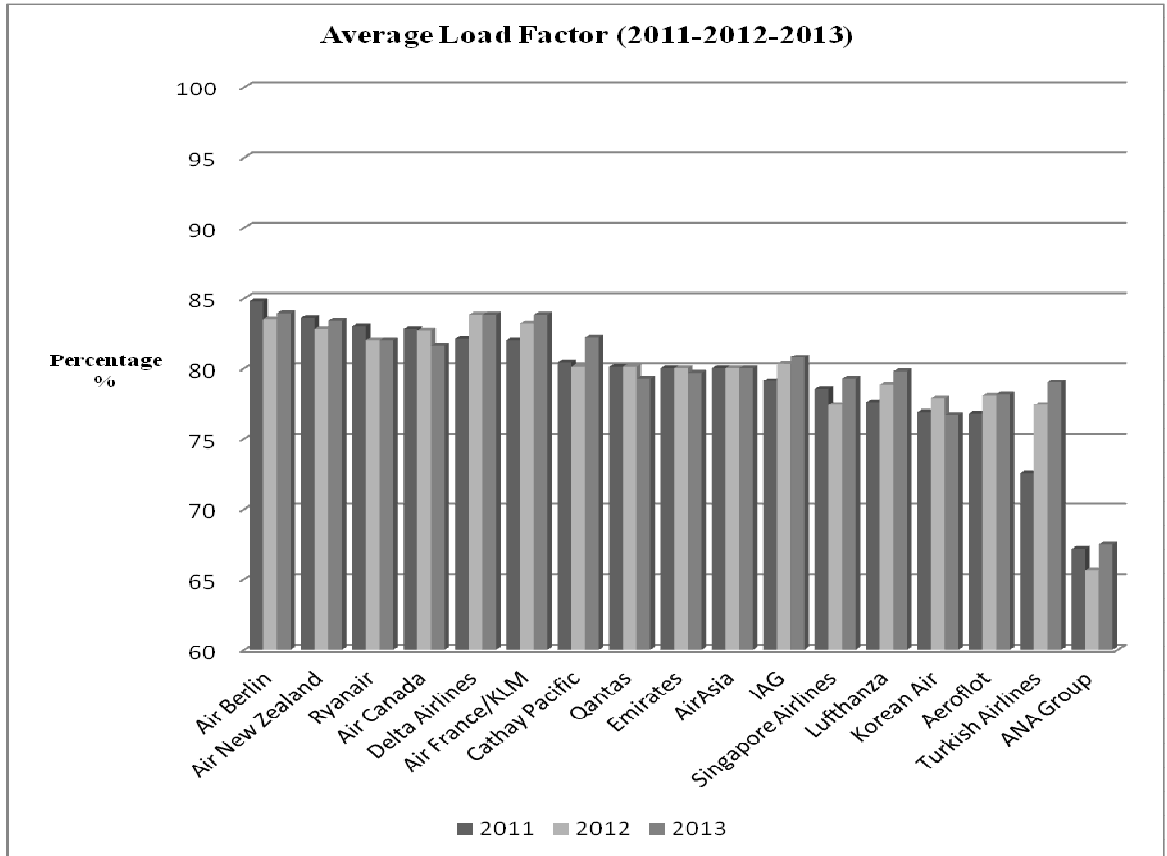
Throughout the three years under study, Delta Airlines, Air France/KLM and Lufthansa (long-haul airlines) dominated the top three spots in available seat kilometer (ASK) and revenue passenger kilometer (RPK) scales due to longer distance they cover and more passengers they carry but it is not a complete standardization, since airlines can have the same amount of ASK, but operate completely differently. For example, a short-haul airline with multiple frequent flights could end up with a similar ASK to that of a long-

haul international airline with less frequent flights, yet the two airlines have quite different business models (ex: Air New Zealand's spot).



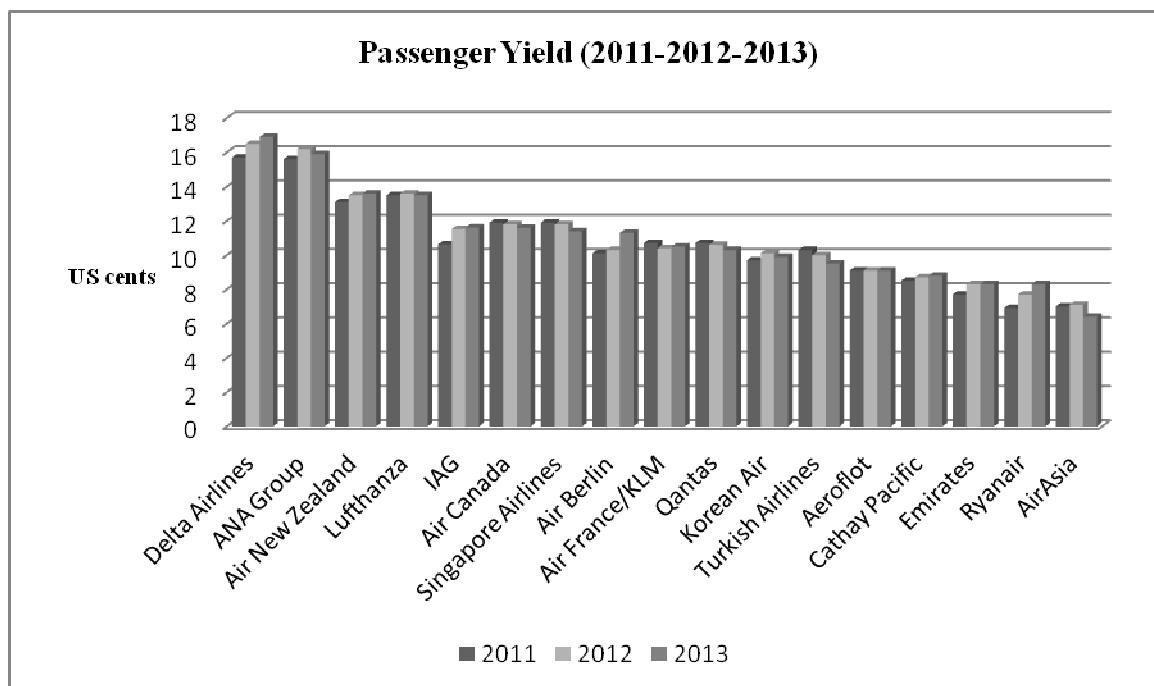
**Figure 23:** Revenue Passenger Kilometer (2011-2012-2013)

To be noticed, Delta Airlines occupies the first spot with results way above the second and third spot. During the mentioned period, most of the airlines record growth in their (ASK) and (RPK) except Air Berlin. In addition, Emirates, Turkish Airlines and Aeroflot note a significant growth in (ASK) and (RPK). Moreover, by the end of 2013, IAG and Emirates are not so behind Lufthansa which occupies the third spot.



**Figure 24:** Average Load Factor (2011-2012-2013)

Airlines' average load factor varied slightly among the years under study except for Turkish Airline's load factor which records a noticeable increase. In addition, airlines under study record load factors ranging between 77% and 85% excluding All Nippon Airways which notes relatively low load factor (around 66.8 %) which is low compared to other airlines.



**Figure 25:** Passenger Yield (2011-2012-2013)

Revenue per revenue passenger kilometer highest two spots is occupied by Delta Airlines and All Nippon Airways respectively. On the other side, Ryanair and Air Asia occupy the lowest two spots. In addition, Emirates records low yield throughout the years under study. Back to airlines' data, Delta Airlines is the industry leader in yield due to the highest RASK- CASK (revenue per available seat kilometer – cost per available seat kilometer) while All Nippon Airways has the highest fares in Asia. Furthermore, Japanese (local market) have a very high affinity for Japanese carriers that translates to a strong yield premium over foreign airlines (CAPA, 2014). On the other hand, Ryanair and Air Asia sit in the last two spots for being ultra-low cost carriers while Emirates' passenger yield is low because unit costs are even lower, partly driven by the strength of capacity growth.

To sum up, in a period full of economic, politic and fuel price turbulence, airline-specific measures and ratios highlight two important aspects. First, Emirates, Turkish Airlines, and Aeroflot note a significant rapid growth in their ASK and RPK. Second, Delta Airlines and All Nippon Airways record a significant yield.

## RESULTS AND CONCLUSION

The global airline industry provides a service to almost every country in the world, and has played an essential role in the creation of a global economy. The airline industry itself is a major economic force, in terms of both its own operations characterized by air transport and its impact on related industries such as aircraft manufacturing and tourism. Few other industries possess the amount attention given to airlines by those directly engaged in its operations, government policy makers, big investors, the news media etc. The reason behind this care is clear; simply air transport is an industry of billions-users.

Hundreds of commercial airlines are operating around the world nowadays but this study encompasses 22 major airlines worldwide with long history of aviation and success such as Air France, KLM, Delta Airlines, Turkish Airlines and Lufthansa etc. in addition to new emerges achieving major airline status in few decades like Emirates, Ryanair and Korean Air etc.

To assess major airline's after crisis period performance, traditional ratio and airline-specific analysis are performed on 17 out of 22 to evaluate companies' financial position and market success. This study also addresses challenges facing the airlines and the impact of past events' results seen till today. More specifically, throughout the study some operating and external factors are fluctuating airlines' earnings from high profits to severe losses during short periods of time. Also it is noticeable that past losses and occasionally bankruptcies have an effect on some major airlines till today such as negative or tiny equities which distort financial analysis like return on equity and debt to equity ratios. In addition, LCCs' came up to be highly profitable throughout the years under study with rapidly growing market share. As a result the biggest companies in airline industry (Legacy Carriers) are restructuring their operation strategies through balancing their long-haul, medium-haul and short-haul flights in order to compete with LCCs and limit their expansion. Finally, the heavy debt structure is noticed of the airline industry with debt to equity ratio average around 2.45 throughout the years under study. The reason behind high indebtedness is the high competition in airlines industry due to emergence of low cost carriers and continuing expanding of the airlines (ASK and RPK) throughout the three years despite losses incurred in order to increase or retain its market share.

Throughout the three years under study, Ryanair dominates the liquidity first spot way above other airlines with current ratios around 2 while at the end of the scale settles Korean Air with current ratios about 0,45. In addition; Air Asia, ANA and Singapore Airlines record ratios above the industry norm. The average current ratio of the 17 companies during 3 years came out to be 1,02.

Leverage ratios average along the three years note debt to equity ratio of 2,5 with Air Berlin, Korean Air, Air Canada and Delta Airlines recording distorted high and negative ratios. The rest of airlines record ratios fluctuating around the industry's norm about 2,4. Finally, the only exception is Singapore Air and Cathay Pacific which note ratios below 1. In addition, debt ratio average during the three years under study came out to be around 0,7. Most of the airlines note ratios below 1 throughout the three years except Air Canada; in contrast Singapore Airlines records noticeable lower debt ratios below 0,4.

Air Berlin records extraordinary total asset turnover ratios way above the rest of the airlines during the three years under study due to its assets' continuing decrease. The three year's average notes a rate around 0,75 with highest ratios achieved by Air Canada, Lufthansa and Aeroflot. On the other hand, Ryanair and Air Asia occupy the last spots due to their Low Cost Carrier nature.

Operating profit margin and net profit margin show Low Cost Carriers' domination along the three years after crisis with relatively high ratios. Air Asia came out to be the most profitable one between the airlines under study with ratios around 0,2; on the other hand, Air France/KLM records three consecutive years of loss. In 2013, Delta Airlines records extraordinary net profit margin with a rate of 0,28 while Emirates records a significant rate in 2011 and Turkish Airlines in 2012.

Airline-specific measures and ratios note legacy carriers' dominance in ASK and RPK represented by Delta Airlines, Lufthansa and Air France/ KLM followed by Emirates and IAG. It is also noticeable that the airlines such as Aeroflot, Emirates and Turkish Airlines have significant increases in their ASK and RPK values. In addition, the average load factor mostly ranges between 77 % and 85 % with best utility recorded by Air Berlin and the worst by ANA. Finally, Delta Airlines and ANA note the highest

yield in the study way above the 11cents (USD) average while the low cost carriers justified their name with the lowest yields.

In addition, comparison based on ratio and airline-specific analysis states the following; LCCs put a better financial performance than legacy carriers, recording higher profitability and lower leverage throughout after crisis period as Ryanair and Air Asia outperformed the rest of the airlines under study.

Regarding airline-specific analysis, legacy carriers operating long-haul flights still dominate the top three spots in available seat kilometer (ASK) and revenue passenger kilometer (RPK) scales as Delta Airlines came first followed by Lufthansa and Air France/KLM respectively.

Further than airlines' traditional ratio and airline-specific analysis and comparison, this study deduct that no formulated relation can be standardized between the two analysis since; Available Seat Kilometer (ASK) and Revenue Passenger Kilometer (RPK) give an image about airlines' operations and sizes therefore their market share. On the other hand, companies' operation scope does not always reflect financial success as it happened in our study.

While the Load Factor provides an understanding of the airline's operation, it is not useful in determining the company's profitability, since it omits two critical factors as revenue and cost. The Load Factor ratio highlights whether seats are full, but high load factors alone do not indicate profitability. Furthermore, Load Factor can easily give a misleading impression of an airline's financial performance as it is possible to achieve a high load factor percent simply by lowering fares.

Revenue per revenue passenger kilometers (RRPK) or passenger yield is not just affected by financial results as we imagine, we note from our study that All Nippon Airways' high yield was a result of Japanese affinity to local airlines.

In conclusion, combining both financial and airline-specific ratios indicate a significant image about airlines' international position and success.

For further studies, it is recommended to focus on interest expense due to airline industry's heavy in debt structure as it can give a significant future risk assessment. In

addition; it can be useful to analyze companies' stock market ratios, in order to evaluate a market and guide investors. Moreover; as the traditional ratio analyses are static ones presenting past and present performances, it is better to study by longer period to evaluate financial performances of the companies.



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## APPENDICES

### Appendix 1:

#### Quick Assets Issue:

Due to current assets' tiny inventory in airline industry, quick assets cannot be calculated simply by subtracting inventories. In addition to inventories, the Airlines should also exclude deferred income taxes, prepaid expenses, and other current assets such as landing slots and airport gate usage rights etc. In other words, it would be more accurate to calculate quick assets as follows:

Quick Assets = Cash and Cash Equivalents + Short Term Investments + Accounts  
Receivable

## **Appendix 2:**

Two important airline-specific metrics that standardize revenues and costs in terms of seat kilometers are Revenue per Available Seat Kilometer (RASK) and Cost per Available Seat Kilometer (CASK). These two metrics do include non-passenger revenue, such as that from the carriage of freight.

- RASK is used to compare the efficiency of airlines. It is obtained by dividing operating revenue by available seat kilometers (ASK). Generally, the higher the RASK, the more profitable is the airline. Revenue is represented in cents and is not solely limited to ticket sales.

Revenue per Available Seat Kilometers = Total Operating Revenue / ASK

- CASK is also used to compare the efficiency of various airlines. It is obtained by dividing the operating expenses of an airline by available seat kilometers (ASK). Generally, the lower the CASK, the more profitable and efficient the airline. On the other hand, many airlines exclude fuel costs from operating expenses, making the CASK an unreliable metric.

Cost per Available Seat Kilometers = Total Operating Expenses / ASK

### **Appendix 3:**

Affinity definition:

Affinity means liking or being attracted to something or someone. In other words it's a process of favoring based on different factors. In the study, affinity is based on nationality as it happened in the case of All Nippon Airways, Japan.

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