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Past and Future Development of the Airline Industry in South- and North East Asia

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1 Introduction to the Past and Future Development of the Airline Industry in South- and North East Asia

The airline industry is a unique and extremely fascinating industry. “It captures the interest of a wide audience because of its glamour, reach and impact on the large and growing numbers of consumers worldwide”. Sir Colin Marshall, former Chairman of British Airways, named the airline industry “the flywheel for the engine of the world's industry”. (Chan 2000)

The airline industry is also an industry that is changing very quickly. Hardly a day goes by without notable changes in the global aviation industry. In the year 2012 alone there were several airline insolvencies within the worldwide aviation market, including those of Hungary’s national carrier “Malév Hungarian Airlines” and the Spanish “Spanair”. More positive airline-related news were the first deliveries of new and enhanced aircraft models from Boeing, the “747 Intercontinental” and the “787 Dreamliner”, as well as various new airline companies that were established, such as Air Asia Japan and Scoot.

The airline industry, the world’s largest industry and at the heart of travel and tourism, impresses with stunning figures: 20 years ago – quite a long time in this business and even though the industry was still much smaller than today – it already employed one in nine workers worldwide. (Corporate Location Journal 1994)

Aviation is at the heart of global economic development, and global economic growth will shape future aviation. After Europe and North America, Asia-Pacific is currently the third major region in the field of global aviation. (Chan 2000)

This will change in the future with Asia-Pacific region becoming the world premier region in the field of aviation.

Especially in North- and South East Asia, air transportation is extremely important as it does not only serve to stimulate the economic development, e.g. trade and growth in the tourism industry, but also helps to improve the people’s mobility. More generally speaking, the air transportation and therefore the airline industry helps to weave together a modern society. (Zhang, et al. 2008)

Talking of the airline industries‘ global commercial influence, observers have suggested that “Europe is the past, the US the present and Asia the future”. This is

„a sweeping assessment, but there are grains of truth, as Europe's economy looks firmly rooted in debt for at least several years; the US, still a massive aviation market, appears to be forging a shaky recovery, albeit heavily founded on debt and with a political melange more appropriate to a fairground. Asia meanwhile is robust and gearing up for a bigger future, even faced with a slack global economy". (Centre for Aviation 2014)

World aviation has experienced elementary changes within the last decades. One of the most fundamental activators has been and still is the emergence of new growth poles in North- and South East Asia that globalization has brought. Along with worldwide liberalization and deregulation of the international air transportation markets this had led to the establishment of plenty of new airlines. A further dynamic development of the international air transport can be expected in the next years and decades. Growth markets will continue shifting further from the United States and Europe to North- and South East Asia where the demand of flights, given an ever-expanding middle-class, will be growing perceptible. (Ruerup and Reichart 2014)

The continuously growing importance of the "Asia-Pacific region" as it is defined by the International Civil Aviation Organization, covering more than 16,000 kilometres from West-Afghanistan to East-Tahiti and more than 11,000 kilometres from Mongolia in the North to the southern tip of New Zealand, can be explained by three key factors: The defining characteristic of the Asia-Pacific region is its geographic fragmentation and its vastness, which emphasizes one of the aviation advantages: saving time. Additionally, there is often no effective alternative ground transportation, whether by road, rail or sea for long distance traveling. The second main reason is demand for transport – the demographic factor: The Asia-Pacific region has an enormously large population. Even if, because of income differences, the propensity to fly is still much lower than in western societies, economic development over the past decades has created wealthy middle classes who fly for business and leisure. This economic development can be seen as the third and main reason for the growth and quick development of the Asia-Pacific aviation industry. (B. Graham 1995)

Although the title of this thesis is “Past and Future Development of the Airline Industry in North- and South-East Asia”, there is also some content that is related to the whole of the Asia-Pacific region because many numbers and statistics are not available for South- and North-East-Asia dedicatedly. However, the main focus of the paper will still lie on the airline industry of selected countries in South- and North-East-Asia. Especially for the category of developing countries, for example China and Malaysia, integration into the international airline industry is an important prerequisite to access global flows of money, goods, people, and information.

This is the reason why this term paper will handle China in greater detail and scope than “already developed” countries Singapore and Japan. The airline sector is a highly competitive industry. Airlines are subject to multiple sources of competitive pressure; for example competition between airlines, the threat of market entry and bargaining power of key suppliers can be named. Unit costs have been driven down by continuous deregulation and technological improvement. Especially the linearization in the field of airline industry has led to a growing and effective competition amongst the participants, the airlines. The entry of so called Low-Cost-Carriers has ensured consumers benefitting from lower fares. “In many ways, the airline industry could be seen as a ‘poster-child’ for the consumer benefits of competition”. (Wittshire 2013)

The paper will show that this assumption can be regarded as true already today. In terms of research questions, this paper does not only want to show that there can be found clear correlations between the growth of economies of South-North East Asian countries and the growth of their airline industries but also which countries of South- and North East Asia sport the most pronounced growth in the aviation sector within the last two decades and what factors can be seen as the reasons for this growth. Furthermore this thesis aims to identify which airlines were best able to cope with and profit from the changes in the North- and South-East Asian aviation sector, and what the key reasons for their success are. The thesis will also answer the question why the penetration of South- and North East Asian countries by Low-Cost Carriers still very uneven and how has the Low-Cost aviation

sector in North- and South-East Asia developed within the last years. All answers to these questions will be given in the general findings section.

Following this general introduction, a brief conclusion of existing literature will be given together with an explanation of the distinctiveness and main characteristics of this thesis. The methodology part will not only clearly define the geographic area of research and time span but also examine how the paper will structure, display and measure its main information used for comparison and answering questions. It will provide information about how growth factors in the airline industry can be defined as well as according to what numbers and key elements a comparison can be carried out properly. Other definitions will be given at the point of necessity rather than defining them beforehand. Following the methodology part, the first main chapter of the thesis will be made up by case studies of the past development of airlines in various selected countries and the different development of the aviation sector in North –and South-East-Asia. The future development of the airline industry in East Asia will then make up the smaller second main part. All findings will then later be compared and explained in regard to the main questions of this paper. Finally, findings will be summarized in a brief conclusion.

2 Measuring Development of the Airline Industry

2.1 State of the Art and Existing Literature

Throughout the process of researching literature regarding the past and future development in North- and South-East Asia, a vast quantity of various scientific sources in the broad field of the airline industry has been found. Many of them have a very specific focus on a certain topic within this field and are often limited to a single country. Though this literature is highly interesting and topics are diverse, most of these journal articles and books are not in the field that this thesis is concentrating on, providing an overview about the general developments within the last two decades in North- and South-East-Asia, set in a context with growth factors in the airline industry. Research related to the field of airline industry is still a field where the majority of researchers comes from the United States and a lot of research

is related to single U.S. airlines or the North American airline industry when focusing at a specific geographic area. As already mentioned, there is a lot of journal articles and books dealing with both the development of the airline industry as well as the future of this industry. As the airline industry as a field that consists of daily changes is an area where you cannot rely on papers and books that have been written years or even months' ago. The likeliness that they, especially when dealing with current or future developments, are already outdated – partly or even as a hole – is high. Having a look at the development of low-cost airlines in South-East-Asia for example, this is an area that has brought massive changes in the last couple of years. Concluding this literature review, one finds that there cannot be found literature or a methodology that is perfectly suitable to carry out the analysis for the development of the airline industry in North- and South East Asia in the light of the last two decades and to give an outlook for the next 20 years. Therefore the next chapter gives a detailed view about the methodology that has been built in on two different pillars in order to carry out this task and is not existing in current literature so far.

2.2 The Region "Asia-Pacific" and Focusing on Certain Countries

The International Civil Aviation Organization as well as other important institutions like the International Air Transport Association and statistics related to the airline industry normally look at Asia-Pacific as a single region. It is an enormously big sprawling region consisting of diverse nations. Therefore, the question arises what to include in this thesis and according to which criteria countries should be selected. As the title of this thesis is "Development of the airline industry in North- and South-East Asia", the aim is to select both a relatively equal number of countries in the two geographical areas for comparison, as well as comparing the North-East-Asia and South-East-Asia with each other as there can be found remarkably differences, for example in regard to the Low Cost Carrier development and their current penetration rates. For the North-East-Asian region, the People's Republic of China (hereinafter referred to as China) and Japan have been chosen, mainly because of their different developmental stages including political, demographic and economic factors such as political systems, economy growth rates and population structure. These are also

the important characteristics according to which the neighbouring countries Singapore and Malaysia have been chosen for the area of South-East-Asia, both of them members of the Association of South-East Asian Nations that currently consists of ten member countries. In the following thesis, the terms South-East-Asia and ASEAN will be used equally as per the definition of the thesis South-East-Asia is made up of the ten ASEAN countries. Anyhow, caused on the one hand by its continuous growing importance on a global level and on the other hand as certain statistics are only available for the complete Asia-Pacific region, the thesis will also look at the development of the Asia-Pacific airline industry as a whole besides providing a view of the world aviation development. This gives the chance to compare the Asia-Pacific region to other regions in the world, for example the so called mature air markets North America and Europe as well as the worldwide-aviation industry. This paper clearly focusses on the civil airline industry with passenger airlines in focus. Airlines that carry freight cargo only will not be mentioned, although the paper provides some information about the development of cargo freight.

2.3 Defining Past and Future Development

The thesis aims to provide a look into the past and future. This brings the necessity for defining a clear time-span that is used. As the airline industry, as already mentioned in the introduction, is an industry that is changing quickly, it does not make sense to look back as far as 50 years while there is no possibility for a realistic outlook into this industry's development over such a long time span. Forecasts in the airline industry usually comprise the period of the next twenty years. Therefore, it makes sense to take this period of time when looking into the future as well as highlighting the development of the last twenty years. Looking at the last twenty years though is only possible for some important traditional airlines, so-called Full-Service-Airlines, in North- and South-East-Asia whereas most Low-Cost-Carriers have developed only in the last couple of years. Detailed characteristics of both airline types will be given later in this paper. In terms of extent, the clear focus of the

thesis lies on the analysis of the past development of the airline industry which will make up the most part of the thesis as it can be built on statistics and findings that are reliable whereas the future part is always – even though the outlook is built on reliable forecasts and aircraft order numbers – bearing a risk of unforeseeable external influence factors.

2.4 Methodology: Analysing and Comparing the Airline Industry Development Divided by Airports, Airlines and Manufacturers

2.4.1 Sourcing

There are various institutions and data providers that supply the airline industry with statistics, forecasts and comprehensive reports on specific airlines, airports and markets. Unfortunately, access to this data is very much restricted in the way that it is only available for purchase and none of the contacted institutions agreed to provide me with access for academic research purposes. The CAPA Centre for Aviation for example offers only selected articles for free, access to their content, especially databases, is beginning from 3,300 USD [1]; the Airports Council International offers their Global Traffic Forecast beginning from 2,310 USD[2] as well as OAG company provides comprehensive databases that are not accessible freely. All big databases containing extensive information and statistics on the development of the airline industry are not accessible when not belonging to a certain institution or paying for it. Therefore, alternative sources had to be found and data had to be compiled. Finding comparable numbers for the airlines that are in focus of this thesis is one of the main achievements of this paper and will be displayed in the annex. Comprehensive data for most airlines in focus could be sourced for the past two decades (in this case defined as 1993 until 2012, as 2012 is the most recent year with data available) with some minor exceptions where it was impossible to find published data and airlines did not respond to or denied requests. Data was mainly extracted from annual reports of the airlines as far as they were available. Freely

[1] http://centreforaviation.com/about-capa/membership/ and access/price offer via email
[2] http://www.aci.aero/Publications/Full-Publications-Listing/ACI-Global-Traffic-Forecast-20122031

accessible publications by ICAO and The International Air Transport Association (IATA), the trade association for the world's airlines were also used, mainly in regard to data for the Asia-Pacific area and for data that was not airline specific. Demographic and economic data regarding the development of North- and South-East Asian countries has been extracted from the World Bank database, ASEAN and OECD yearly reports.

Another issue with sources is that most statistics are available only on a yearly basis instead of monthly data. Some airline companies, however, decided to begin and end their fiscal year different from the calendar years which creates the problem of comparability. In these cases, yearly fiscal data is available for slightly other time-spans than the operational data which is available for calendar years for every airline that is reviewed in detail. As the alternative – not being able to compare fiscal data for some airlines – is worse than the minimal occurring inaccuracy when comparing a fiscal year, for example ending March 1999 with the operational data for the calendar year 1998, this inexactness of three months overlapping is accepted as it does not lead to wrong results and conclusions. The impacts of large crises such as the Asian Financial Crisis or the World Financial Crisis were felt over more than one single year for example. Data in regard to growth factors in case studies that is referred to where no specific source is mentioned always refers to the statistic tables of the World Bank that can be found in the annex of this thesis.

2.4.2 Dividing the Aviation Industry into Categories

Although airlines, airports and aircraft-manufacturers are, of course, not the only participants in the broad field of airline industry participants, they can be seen as the most important ones and therefore are chosen for further research. In order to be able to measure the development of the airline industry in certain countries, one has to find comparable categories and numbers for these nations.

Therefore, the paper will have a look at the countries' air-carriers as well as at the airports. There will of course be differences between the number of people that have been handled by all the airports of a particular country and all passengers

that have flown with the airlines of this country. The reason for that is simply globalization: Airlines from all over the world bring passengers to airports in Asia but these airlines won't appear in any airline statistics on Asian airlines. By comparing data of both local airlines and airports in the findings-section there is also the chance to find out whether a growth in total passengers in a certain country also has benefited local carriers, or if foreign carriers have mainly been responsible for the growth. Regarding aircraft manufacturers, this paper will have a look at how the global market players, Airbus and Boeing, performed and whether airlines in North- and South-East-Asia seem to have a strong preference in terms of their aircraft suppliers.

The main focus of this work lies in the comparison of important passenger airlines in the regions of research. Their financial as well as operational development will be shown, compared and set in context with growth factors of the airline industry that have been developed before. This comparison, carried out in the findings section of this thesis, will take place on various levels. First, airlines will be compared with their competitors (if available) on a local level, e.g. comparing Air China to China Eastern and China Southern. Secondly, the airlines will be compared on a regional level. Lastly, this thesis will explore how they performed on the global stage.

2.4.3 Airports in East Asia

Airports in general are among the most important infrastructure elements of modern cities. They play a crucial role in the globalization of production, for example by mobilizing (senior) staff of major companies and institutions. Consequently, airports play a critical role in the evolution or transformation of economies into knowledge based economies as face-to-face contact of key actors is very important. In our economies "the vitality of a location is tied to its global accessibility, strengthening the role of the airports in economic development. Increasingly, too, airports are involved in the movement of freight as more goods are able to utilize air freight to reach markets. The tourist industry also relies upon air traffic for its growth; in many

places the traffic at the airport reflects the vitality of the tourist industry. For these reasons, airports are critical to the vitality of metropolitan areas". (O'Connor 1995)

The paper will provide information on some of the most important airports in China and Japan as well as Singapore and Malaysia. Their development will be described briefly if there is particularly interesting information. The development of the countries' most important airport passenger numbers and cargo freight numbers (if available) will be compiled, with a focus on the time from the year 1993 till today. As sometimes there are no numbers available for that exact period of time in this regard, the best data available close to these years will be used instead. This is done to gain numbers that later give the chance to compare the growth of different airports in the different countries with each other. To think laterally, the finding section will also put these numbers in an Asia-Pacific and worldwide context, for example by comparing it with the world's important airports.

2.4.4 North- and South-East-Asian Airlines

2.4.4.1 Choice of Airlines

Looking and analysing airline development in both geographical regions can be seen as one main focus of this thesis and will make up a huge share of the main part. Important airlines of all countries in focus will be divided by their country of origin and, after roughly outlining their characteristics like e.g. their historic development, categorized whether they can be seen as a classic Full Service Carrier or as a Low Cost Carrier. Airlines in focus have been chosen according to their size, selecting the biggest ones - in terms of passenger numbers – and omitting those too small or only operating domestically or regionally. This is done in order to be able to compare airlines each other as it would not make any sense to compare a worldwide-operating airline with hundreds of planes and thousands of employees with an airline operating domestic services with a single plane only.

The main goal of research has been to find comparable statistics for the most important Airlines of South- and North-East Asia that show their development in the past 20 years, both financial development as well as operation statistics. Here, a

problem occurs regarding Low Cost Carriers: Firstly, comprehensive statistics are only available for Full Service Carriers as Low Cost Carriers in South and North East Asia normally do not publish their detailed operating data. Secondly, this thesis wants to analyse the development in the light of the past two decades – there is not a single LCC in one of the regions that has existed this long. Therefore, a solution is to focus on Full Service Airlines but to include one big Low Cost Airline that has existed for at least one decade. The Air Asia Group has been chosen for this purpose as it has been operating in all South East Asian countries in focus of this thesis since 2004. In the airline section – by contrast to the airport development - there will not be any information on carried freight-cargo. This is because of various reasons: Reliable numbers in this regard are rarely available and hardly comparable as there are some airlines that carry some cargo, some that carry nearly nothing besides passengers and some that make their only business with cargo transport. Therefore, a comparison would barely make sense and lead to wrong results. To be able to measure how successful airlines have developed within the last 20 years, criteria had to be found according to which one can define their success and compare it with that of competing airlines and countries. Two categories, each including various criteria, have been chosen and will be reviewed on a yearly basis:

2.4.4.2 Financial Data Development Analysis

2.4.4.2.1 Choosing Financial Criteria for Analysis

In terms of financial data, statistics include passenger revenue numbers as well as Total Revenue numbers and numbers for expenses. There will be a look at the airlines' operating profit and expenses which gives the chance to calculate and compare the yearly operating ratio. The net income after taxes – although included in the statistics – is not reviewed as it includes too many exceptional numbers like taxation and special items that often have nothing in common with the actual airline operations.

2.4.4.2.2 Passenger Revenue, Total Revenue and Expenses

Passenger Revenue is earned by the airline through the carriage of passengers in their scheduled operations whereas revenues that are created from airline operations including scheduled and non-scheduled service are called Total Revenue. This means that the Total Revenue numbers do not only include revenue from passengers but also other transport-related revenues such as cargo and excess baggage. The development of the revenue numbers as well as expense numbers themselves will not be analysed but will be used for calculating of other factors:

2.4.4.2.3 Operating Profit and Operating Ratio

The development of the operating profit as well as the operating profit margin for the airlines in focus will be analysed for the last two decades. The operating profit margin is a percentage number that describes earnings before such non-operating factors as interest on debt, currency gains or losses and income taxes. However, the airline industry uses the inverse of that number and calls it the operating ratio. That means that a 5% operating profit margin becomes a 95% operating ratio in terms of the airline industry. (Greenslet 2014)

2.4.4.3 Operational Data Development Analysis

2.4.4.3.1 Choosing Operational Criteria for Analysis

Operational data show not only the total passenger numbers for each year but also Available Seat Miles (ASM), Revenue Passenger Miles (RPM) and the average passenger load factor of the companies' planes and total passenger numbers for each year. Operational information regarding average flight stages (the distance travelled by an aircraft from take-off to landing), fleet size and average number of seats of the fleet is also shown in statistics but will only partly be used for the analysis as these are no criteria that can be analysed themselves in a useful way but are helpful or even necessary in combination with other criteria. Utilization time, however, is very useful to this study and will be analysed as it indicates efficiency.

1.1.1.1.1 Available Seat Miles, Revenue Passenger Miles and Load Factor

Available Seat Miles (ASM) are the most common measure of airline seating. It is a capacity or supply definition and means one seat transported one mile, whether or not it is occupied by a passenger. Revenue Passenger Mile (RPM) on the other hand is the way traffic is measured in the airline industry and is reflecting one passenger carried one mile. Traffic in the airline industry is used as a synonym for RPMs. The percentage of RPMs to ASMs is called Load Factor and is a key measurement of how efficiently the airline is utilizing its capacity. The development of the Load Factor therefore will be analysed. Generally, a load factor as high as possible is desirable as resources are used better the nearer this number comes to 100%. (Greenslet 2014)

One exception can be named: Greenslet explains that “in general higher is better but there is a limit beyond which the airline will turn away, or “spill”, passengers to its competitors and not have seats available for last minute business travellers who are prepared to pay the highest fares for that seat. Since the real objective is to maximize revenue not seat occupancy, the optimum load factor becomes the highest that can be obtained while spilling as few passengers as possible. Once an airplane leaves the airport gate, of course, empty seats represent inventory lost forever so the art of inventory management is one of balancing the perishable nature of the seat against the desire to have last minute product available for the premium buyer”. (Greenslet 2014)

2.4.4.3.2 Passenger Numbers

The development of the airlines’ passenger numbers will – analogous to those of the airports - be shown with a focus on the period from 1994 up to the latest data that is available, usually 2012 or 2013.

2.4.4.3.3 Aircraft Utilization Rate

Utilization rate in the airline industry refers to the number of hours per day that an airplane operates. Together with the Load Factor, this makes up the two most important numbers that can be manipulated by an airline to carry more passengers while maintaining its fleet size. Both are, therefore, key measures of the capacity utilization of the fleet and therefore of the airline efficiency in general. (Greenslet 2014)

2.4.4.4 Key Indicators in Regard to Airline Development

2.4.4.4.1 Combining Operational and Financial Data

By combining both financial and operational data that has been displayed before one can calculate four different key data numbers that allow a comparison with competing airlines, airlines of neighbouring countries in South- and North East Asia as well as the worldwide airline industry.

2.4.4.4.2 CASM: Cost per Available Seat Mile

The so called Cost in Cent per Available Seat Mile (CASM), is the amount it costs an airline to fly one seat one mile. CASM is the primary measure unit of cost in the airline industry. It can be assumed that the lower the Cost per Available Seat Mile is, the more efficient the airline is operating and therefore the more likely the airline will be profitable. Therefore, CASM can be seen as a unit of measurement used to compare the efficiency of various airlines. This number is calculated per available seat mile instead of using passenger miles for calculation. This is because airline costs are basically the same regardless whether a passenger is travelling on a seat or not. CASM is expressed in cents to operate each seat mile offered, and is determined by dividing operating costs by ASMs. The CASM is calculated on an average basis for every airline, there is no diversification whether flights are national, regional or long-haul which creates the problem of comparability: CASM can only be compared amongst different airlines with highly different route-profiles with care. For

example, all other factors being equal, an airline with a longer average stage length like Singapore Airlines will usually have a lower CASM, because the airlines' fixed costs will account for a lower portion of its total costs. For this reason, CASM comparisons across different airlines generally require, at a minimum, that CASMs for all airlines be adjusted to a common stage length, or that the CASMs be graphed versus the stage length of all the airlines being compared. Generally though it can be said, the lower the CASM, the more likely profitable and efficient the airline. A lower CASM means that it is easier for the airline to make a profit, as they have to charge less to break even. A low CASM, however, is by no means a guarantee of profitability. (Greenslet 2014)

2.4.4.4.3 Yield: Revenue per Passenger Mile

Yield means the amount of passenger revenue received for each RPM and is displayed in US-Cents. It is a weighted average price paid by all passengers and therefore does not represent the price paid by anybody. (Greenslet 2014)

2.4.4.4.4 Calculation of a Profitability Index

Prof. Jack Callon, University of California, proposes to define airline profitability as [yield per RPM x load factor] – cost per ASM; arguing these are the three main variables that airlines try to manipulate in order to survive and make profit. (Callon 2004)

This calculation method will be used for estimating a profitability index as it can be regarded a good method for figuring out the profitability of an airline.

2.4.4.4.5 Calculation of an Efficiency Index

Utilization Rate and Load Factor, as already mentioned, are two important numbers regarding the use of available capacity. By multiplying both variables one arrives at an Efficiency Index as this is the comparison of what is actually "produced" with what

can theoretically be achieved with the same consumption of resources. The maximum number of this index could theoretically be 24 (100% load factor x 24.00 hours of utilization rate). In fact, this is impossible, not only as no plane is able to fly 24 hours non-stop but also as refuelling, maintaining, cleaning, on- and offloading, et cetera all need time. Generally long-haul planes will more easily reach high utilization rates than short-haul planes. Therefore attention has to be paid when comparing airlines with each other that have a completely different route profile or fleet. The average number of seats per aircraft is a good indicator for the classification of route profiles.

2.4.4.5 Displaying, Analysing and Comparing Results

Statistics do not only show e.g. whether airlines in focus of this thesis could increase their operating profit and operating ratio but also provide the cost at which airlines were able to produce available seat miles and yield as well as an efficiency and a profitability index. By contrasting the growth or decline of these and some other of the above defined numbers and indexes to the development of airline industry growth factors that will be defined in the next chapter, this will for example indicate whether the airline was able to benefit from the development of airline industry growth factors.

2.4.5 Aircraft Manufacturers and the Asia Pacific Market

The commercial aircraft manufacturing industry composes one of the very few genuinely global markets. The only market is international as no national or regional market has the size to sustain a profitable airplane manufacturer industry. By contrast, production is still national (Boeing) or regional (Airbus) with some insignificant exceptions. (Sandholtz and Love 2001)

The world's two biggest and most important aircraft manufacturers, Boeing and Airbus, both regularly publish their "Orders and Deliveries Reports". These will be used to show how many planes have been delivered to some East Asian airlines

and – this is of special interest regarding future developments – how many have already been ordered and will be delivered in the near future. Other aircraft manufacturers like Embraer of course also deliver to South- and North-East Asia but will not be included in this paper as their share is relatively small. Both, China and Japan today have companies developing and building commercial aircraft but these are – up until today – not important and it remains questionable whether these projects will be successful on a worldwide long-term basis.

2.5 Growth in the Airline Industry

2.5.1 Defining Growth Factors

Singapore Airline's then Chief Executive Officer, Dr Cheng Choon Kong said that "for no rational reason, the aviation industry is not game to be like other industry". (Going Global 1997)

Key factors in the growth of air transportation include economic factors as well as factors linked to demographics and socio-economic development. Urbanization and wealth are two of them, as well as engineering progress. It is unquestionable that an overall stable politic and economic environment supports growth in the airline industry. The terror attacks of September 11 in the United States, the outbreak of epidemics and various financial crises as well as unstable political situations have enormously negative impacts on the performance and development of the airline industry. Various growth factors that are important will be presented in the following and later on the case studies of the particular countries will refer to most of these.

2.5.2 Overall Economic Growth and its Interdependence with the Airline Industry

GDP continues to be a strong explanatory variable for aviation growth. (Airbus 2013)

It can be seen as one of the most important growth indicators and explanation factors regarding the development or growth of the airline industry.

Gross Domestic Products and the airline industry are deeply interwoven with each other: The airline industry contributes to the GDP both directly and indirectly. On the direct level, there are a lot of companies or even trade branches that rely heavily on the airline industry, e.g. the logistic sector that transports time-critical goods and can be seen as one of the industry's prime customers. Indirectly, the airline industry creates jobs and economic activity along its supply chain amongst other industry and service sectors. (Oxford Economics 2009)

Existing literature has often examined that an increase of GDP normally goes hand in hand with airline industry growth. Therefore, case studies of the countries will show the development of the nation's GDP's growth as this gives the chance to set the growth of GDP in context with the growth of airlines and airports later. The development of GDP per Capita will be also shown on a purchasing power parity (PPP) basis as the PPP method "involves the use of standardized international dollar price weights, which are applied to the quantities of final goods and services produced in a given economy. The data derived from the PPP method probably provide the best available starting point for comparisons of economic strength and well-being between countries". (CIA World Factbook 2014)

2.5.3 The Impact of Crisis' to the Airline Industry

As the airline industry is a field that is influenced by daily life very much, crises have a large impact on the industry. Their impact is usually direct and instant when people cannot or do not want to fly – the industry has no chance to plan ahead and has to react quickly. Depending on the intensity of crises and their duration, the impact can take place on a short- or even long-term basis. As crises have normally taken place regionally or globally, they will be explained and mentioned in general and later referred onto rather than explaining every crisis in the case studies of the single countries. In general, there is no doubt that crises of every kind negatively affect the development of the airline industry.

2.5.4 Population Growth, Urbanization and the Emergence of a Middle-Class

It is obvious that an increase of a population can be seen as an increase in potential airline customers and therefore likely has a positive influence on demand. Anyhow, particular attention should be paid to the emergence and/or the rise of the so called middle class. For centuries, the middle class has always played a special role in economic thought as the source of entrepreneurship and innovation —the small businesses that make a modern economy thrive.

Juliet B. Schor has argued that the middle class is defined by what she calls "new consumerism" that defines the middle-class: a constant, "up scaling of lifestyle norms; the pervasiveness of conspicuous, status goods and of competition for acquiring them; and the growing disconnect between consumer desires and incomes." (Schor 1999)

In the world of the 21st century, the middle class consumers of North America and Europe have been the source of demand, while low and middle income countries in Asia have been the source of supply, but this has started to change. (Kharas 2010)

Urbanization goes – historically seen - hand in hand with the emergence of a middle-class (households with daily expenditures between $10 and $100 per person at purchasing power parity as it is defined by an OECD study3). Data from the World Bank highlights the strong relationship between urban population share and GDP per capita over time. The fast evolution for the East Asia & Pacific region countries in the last three decades is noticeable as shown below. (Airbus 2013)

[3] The Emerging Middle Class in Developing Countries – Working Paper No. 285

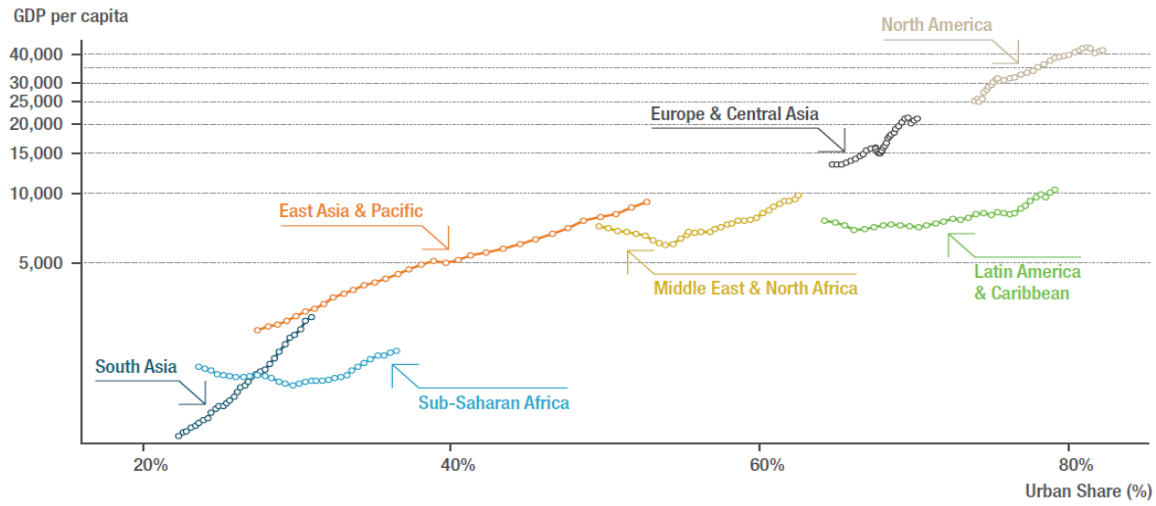

Figure 1: Evolution of the relationship between share of urban population and GDP per capita by region between 1980 and 2011 (Source: OECD, Airbus)

Case studies will show the development of total population rates of the countries that are in focus of the case studies as well as their urbanization rates that can both be used for explaining the development of the airline industry.

2.5.5 The Impact of Falling Prices as a Result of Competition in the Market

Another important growth factor in the commercial airline market development is the ticket price as world transport growth is closely correlated to air ticket price stimulation. (Airbus 2013)

Especially for leisure travellers, the price of air transport represents a large proportion of the overall travel costs and influence the demand for leisure travel immensely. Two studies have recently shown the negative elasticity between ticket prices and air traffic: Graham and Shaw both determined that the higher ticket prices, the lower the demand for flights is. (Graham and Shaw 2008)

During the last 30 years, average airfares decreased around 3% (inflation removed) per year per unit of passenger traffic on a worldwide basis. More efficient aircraft as well as improved productivity from airlines like aircraft utilization and passenger load factors have made this development possible. (Airbus 2013)

Increasing competition and diversification of the business model of airlines, such as the emergence of Low Cost Carriers (the business model of LCC's will be defined later) have a strong impact on prices as in other markets and industries. Falling prices are, especially in developing and emerging economies, an extremely important requirement in order to make the service of flying affordable for more and more customers and thereby increase the number of customers. In general it can be assumed that if there is more competition on a market. Especially if there is competition not only at a single level on which traditional airlines are operating but also on the Low Cost Carrier level, falling prices and an increase in demand can be expected on all levels of the market. Depending on the degree and levels of competition, case studies will classify whether competition can be seen as high or low.

2.5.6 Alternative Forms of Transportation

Alternative forms of transportation have a large impact as a growth factor in the airline industry. The more uncomfortable and slow alternative forms of transport are, the more likely people are to have a look at air-transport. Depending on geographic conditions like spread-out islands, for example in Indonesia or the Philippines, the choice of alternatives is often limited to taking a ferry. One can conclude that the worse the infrastructure of a country regarding its road and rail network is, the more time consuming and uncomfortable traveling by these means of transport is and the more likely people are to choose a plane instead. High speed railways are the most serious competitors of the airline industry. In regards to comfort, price and time and can be seen as one of the most serious threats to the growth of the airline industry. Case studies will show the development of competing forms of transport, especially trains services and identify whether there can be found negative impacts on the airline industry.

2.5.7 Government Regulations

Basis for regulations in the civil aviation sector is the so called Chicago Convention that was signed in 1944 and came into effect in 1947 and the International Civil Aviation Organization was formed. The Convention on International Civil Aviation is now ratified by 191 states worldwide. It regulates for example the so called First and Second Freedom rights in respect to scheduled international air services: the right or privilege granted by one State to another State or States to fly across its territory without landing and the right or privilege granted by one State to another State or States to land in its territory for non-traffic purposes, e.g. refuelling. (International Civil Aviation Organisation 2014a)

The role of government regulatory policies is important regarding the growth of the North- and South-East-Asian airline industry. The rights that directly regard transportation from one to another country are either agreed on in bi-lateral agreements between two single countries (around 3000 of those are currently existing worldwide) or multi-lateral agreements between more than two countries. They differ whether they include fixed aspects such as capacity regulations and route regulations or whether they are so called Open Sky agreements: The term “Open Skies” is not a single, clearly defined concept. It refers to packages of a number of distinct policy aspects, such as capacity deregulation and removal of price controls, which lead to less regulated airline services. It is a strategy agreement opening up aviation markets and can take place on bilateral, regional or multilateral levels. In particular, Open Sky agreements support competition between airlines and - depending on the level of the agreement - provide scope for airlines of a third country to serve on a route between two other countries. A key element of Open Sky agreements is that they bring more flexibility for airlines because they can then develop their routes and networks as they choose, for example by choosing the size of the plane operating on a certain route and the frequency how many times the route is offered. All these measures, amongst others, are only part of the range of components which might be found in a specific Open Skies package. (Monash International 2004)

Other Freedom rights are defined by ICAO as follows:

“Third Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down, in the territory of the first State, traffic coming from the home State of the carrier.

Fourth Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to take on, in the territory of the first State, traffic destined for the home State of the carrier.

Fifth Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down and to take on, in the territory of the first State, traffic coming from or destined to a third State.

ICAO characterizes all "freedoms" beyond the Fifth as "so-called" because only the first five "freedoms" have been officially recognized as such by international treaty.

Sixth Freedom of The Air - the right or privilege, in respect of scheduled international air services, of transporting, via the home State of the carrier, traffic moving between two other States. The so-called Sixth Freedom of the Air, unlike the first five freedoms, is not incorporated as such into any widely recognized air service agreements such as the "Five Freedoms Agreement".

Seventh Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State, of transporting traffic between the territory of the granting State and any third State with no requirement to include on such operation any point in the territory of the recipient State, i.e. the service need not connect to or be an extension of any service to/from the home State of the carrier.

Eighth Freedom of The Air - the right or privilege, in respect of scheduled international air services, of transporting cabotage traffic between two points in the territory of the granting State on a service which originates or terminates in the home country of the foreign carrier or (in connection with the so-called Seventh Freedom of the Air) outside the territory of the granting State.

Ninth Freedom of The Air - the right or privilege of transporting cabotage traffic of the granting State on a service performed entirely within the territory of the granting State." (International Civil Aviation Organisation 2014b)

Air travel is also positively influenced by the facilitation of visa policies. For example more and more countries in South- and North-East-Asia offering Visa-on-Arrival programmes or e-Visa that can be obtained via internet. Generally, an increase in liberalization of the airline industry can be seen as one of the most important growth factors as it enhances competition and efficiency. Case studies will point out whether regulatory conditions for the airline industry have developed well and how the status of liberalization of the airline industry can be classified.

2.5.8 Tourism as Growth Factor for the Airline Industry

Tourism is seen as an important economic- and growth-factor worldwide. A relationship can be discerned between the provision of air passenger transport and the promotion of tourism as a medium of economic development. (B. Graham 1995)

The airline industry is essential in providing a basis and supporting tourism growth – and of course benefits from it likewise. (Oxford Economics 2009)

In Asia-Pacific tourism arrivals depend heavily upon air travel due to the regions' geographic situation with many widespread islands and long distances. While in European countries there are lots of tourists arriving by land transport, for example from neighbouring countries, this means of transport is not that common in the Asia-Pacific countries. Countries such as Japan, Taiwan and the Philippines nearly have a 99% share of foreign tourists arriving by air transport; around 80% of the tourists visiting Korea also arrive by air. (B. Graham 1995)

Worldwide, more than 40% of international tourists are travelling by air today. Similar to the discussion of the effects and contributions of aviation to the overall economy, the airline industry's contribution to the tourism sector are not only the direct impacts to the tourism industry but also indirect effects that the tourism industry itself creates. (Oxford Economics 2009)

Oxford Economics concludes in this sense that “tourism in general, and air tourism in particular, can benefit local economies and populations through other, possibly less obvious ways. First, it is worth noting that air tourists include travellers to and from their host country of work. Air links enable migrant workers to stay in touch with family and friends sometimes more easily than other means of transport would, so enhancing labour mobility. Labour mobility is beneficial for both the host and the home country. The host country benefits from labour inputs with skills that may not be readily available, such as foreign languages, specific skills, technological, cultural or knowledge transfers. Second, the home country may benefit in various forms whilst the migrant is away (e.g. in the form of remittances sent home to their family), and upon the return of the migrant who brings new skills to his home country, capital and possibly a network of business contacts”. (Oxford Economics 2009)

The Asia-Pacific region sports the big advantage of being an all-year-round tourist destination, an extremely advantageous fact for the airline industry. Whilst, for example, in Europe there is an absolute travel peak during the months of June till August, there is no real peak in the Asia-Pacific area, even if Christmas time is the high season there. That means that e.g. European airlines, especially those clearly positioned in the leisure travel sector, sometimes have problems in both, meeting the customer demand in the peak months and to cope with the low demand during the winter months. Asia-Pacific carriers feature a relatively constant demand all year round – the dream of every airline. As explained above, tourism can be seen as an important growth factor for the airline industry. Case studies will show the development of international tourist numbers (both arriving numbers of tourists coming to a country as well as the number of inhabitants of a country that are departing for the purpose of international tourism) and link them to the development of total travellers regarding airlines and airports of the countries that are in focus.

2.5.9 Other Airline Industry Growth Factors

There are, of course, a lot more factors that have influences on the development of the airline industry. A few more will be presented in the following but will not be used for the detailed analysis within the case studies.

Without any doubt, the oil price can be seen as one of the most important growth factors in the airline industry as fuel is, besides labour cost, the highest part of airline operation costs. The oil price is depending on a couple of factors, heavily influenced by political tensions and happenings. The oil-price is indeed something that changes on a global level for every airline in every country of the world, unless airlines practice fuel hedging. Therefore, this factor is not of particular interest to this study as there are no different regional developments although one can assume that lower oil prices lead to lower ticket prices which certainly bring an increase in the demand for flights.

Furthermore, the steadily rising numbers of students studying abroad also has positive impacts on the airline industry. As of latest available numbers of 2009, already one million students out of a total of 3.6 people studying abroad came from the Asia-Pacific region: half of them still studying in the same region, whereas the other half is mostly studying in North America and Western Europe. It can be assumed that this has – at least in a lot of cases - a positive impact for South- and North-East-Asian carriers. (Airbus 2013)

3 Past Development of the Airline Industry

3.1 Introduction to Asia-Pacific Airline Industry

3.1.1 Development of the Airline Industry until 2000

Two decades past, Asia already accounted for around 30 percent of world-air-travel and in 1996 the Asia-Pacific market was valued at USD 10 billion. (Straits Times 1998)

Competition on the air travel market has always been fierce and became more intense two decades ago when travel volumes began slackening, falling to growth

rates slightly below ten percent after average growth rates between 11-12 percent during the 1970s and 1980s. Seen on an international level, high single-digit growth rates were still relatively high compared to those in other regions of the world, but on a regional level it put pressure on Asia-Pacific airlines and intensified competition, for example by price slashing. (Chan 2000)

The years between 1990 and 1993, the years before the two decades that are in focus of this thesis, were very difficult for the airline industry. Main factors that led to this situation were an economic recession beginning in 1990 and the Gulf War in 1991. (Hanlon 1996)

Especially in Japan, at this time accounting for about 60% of international air traffic in Asia, the recession led to falling passenger numbers and unprofitability. To go against this and compete with other airlines, prices on popular routes were lowered by around 20 percent by many airlines in Asia-Pacific. (Asian Business Review 1996)

This measure was accompanied by raising quality- and service standards. The industry's profitability was hurt massively because of falling yields on the one hand and growing costs for better quality and service on the other. IATA director-general Pierre Jeanniot warned in 1997 that price-slashing strategies as they had been seen in the past years will "have a potentially devastating effect on the industry's future" and also pointed out that "the industry needed urgently to protect its yields as well as continue to drive unit costs down". During the time from 1995 to 1996, airlines in Asia-Pacific indeed managed lowering their unit costs – but yield dropped 6 times faster than unit costs. (Business Times 1997)

In 1997, Singapore Airlines Chairman Dhanabalan explained the long-time strategy of his company regarding competitive tactics like price dropping in Asia-Pacific: "Strong competition is not new to SIA. Every now and then, some airline, in an attempt to gain market share, will resort to senseless heavy discounting. It is a short-term phenomenon. We take such competition in our stride… If others resort to cutting fares, we can certainly do the same and we have a far better financial strength to cut fares and last longer than anyone else. But we ask ourselves first whether it

is necessary to do that… So far, we have had no need to do so". (The Sunday Times 1997)

A couple of airlines, most notably Singapore Airlines differentiated themselves from their competitors by high-quality service and not just competing on a price and cost basis. During the boom years before and following the economic slowdowns, not only caused by the Asia Financial crisis in 1997 and 1998, a lot of Asia's top airlines developed themselves into major world players, benefitting from Asian service hospitality and charm. (Chan 2000)

3.1.2 Defining and distinguishing Full Service Airlines and Low Cost Carriers

Before pointing out some important developments in LCC sector in North East Asia, this paper will define the differences between the so- called Full-Service-Carriers, often also named Legacy Airlines, and Low-Cost-Carriers, sometimes also called Budget Airlines. Today, Legacy Carriers, also called traditional airlines or Full Service Carriers/Airlines can be defined as mature airlines with large, complex fleets and global hub-and-spoke networks. All of them share various key characteristics as Marks and Malik define:

- "They have entrenched labor forces with mature seniority systems, and highly paid pilots, flight attendants and mechanics. This restricts cost-effective capacity reduction and the ability to evade new low-cost international competition.
- They have both international and domestic operations, with major hub operations where passengers transit from domestic networks, often on affiliated regional carriers to long-haul flights. Most have affiliate agreements with unbranded regional airlines that provide feed from secondary communities at major hubs. At each hub, most legacies have preferential gate and slot positions that protect them from new market entrants. Inter-airline alliances integrate each legacy's network into a worldwide system, and anti-trust immunity protects them.

- They have mixed fleet types to optimize capital resources across a wide variety of short- and long-haul routes. Most legacies operate both short- and long-haul Boeing and Airbus equipment, increasing maintenance and crew costs.
- They have complex on-board service with at least Business and Economy Class services for both domestic and international routes. Most legacies operate at least five different cabin products across their networks.
- They have pervasive, multi-channel distribution programs with extensive corporate contracts, Internet and telephone reservations. Legacy reservations and fare systems are based on global distribution systems that provide high-cost connections to travel agencies and corporate travel departments. Legacies have recently introduced Internet sites that connect consumers directly to their internal technology systems.
- They have loyalty programs with free flights, upgrades and status recognition that capture passengers. These programs have been downgraded in recent years, reducing their attractiveness to premium passengers.
- Legacy carriers have extensive debt obligations that date from decades of unprofitable operations. Some have received government loan guarantees and others operate under bankruptcy court protection.
- The strongest legacy carriers also exhibit significant route and airport protection, resulting from differential rates of liberalization around the world. Certain legacy airlines enjoy wide access to key business markets, including London/Heathrow, Paris/CDG and Tokyo/Narita.
- Legacies are struggling to take high-cost infrastructure and optimize it for lower-revenue regional routes. They have used their combined networks, both regional and international, to withstand competition. But low-cost carriers now have the potential to replicate those networks in a new, less costly operating model.“ (Marks and Malik 2004)

Virtually all Low Cost Carriers share some important characteristics that are essential for their cost structure. The Low Cost Carrier pioneer Southwest Airlines

can be seen as the original LCC model: All is based on the principle “you get what you pay for”, meaning the airfare you pay is good for being transported from A to B, but there are no extras like check-in luggage or free snacks. Fares therefore are generally low and simple, they are point-to-point meaning that there is no transfer to other flights included. LCC usually sell their tickets directly via phone or internet, sometimes supplemented by travel agents. Fleets of LCC are often singly type fleets, made up of mid-range planes like Airbus 320 or Boeing 737 aircraft which brings lower maintenance costs as well as an increased flexibility in case of a plane change. Low Cost Carriers usually have high utilization rates of more than 11 hours per day. They fly in a single-class layout with high-density seating. They usually offer a very good punctuality as their network is less complex and they do not have to wait for connecting passengers as connection flights are normally not offered in the original LCC model. LCC operate on domestic or regional routes within a time range of usually not more than 3 hours and offer high frequencies. Often, LCC operate to and from airports that are classified as secondary, meaning there is not as much traffic and congestion as at primary airports. However, for South- and North East Asia this is not really true as there are relatively few secondary airports that LCC operate at. LCC usually have very short turnaround times between 20 and 30 minutes. Companies grow very quickly, growth rates of 10 to 20 percent can be often found. As LCC normally sport high productivity and efficiency rates, their business model is often extremely successful. (Doganis 2001)

The enormous success of Low Cost Carrier Southwest Airlines in the United States of America for example as well as the prosperity of Ryanair in Europe have inspired airline entrepreneurs in North- and South East Asia. But, for various reasons that will be explained later, the Low Cost Carrier airlines have developed rather differently in South- and North East Asia. Therefore, this paper will present the development of the North East Asian LCC’s in one dedicated chapter together for China and Japan and – for information only also in South Korea. South East Asian Low Cost Carriers will be analysed in more detail as the Air Asia Group will be an airline that is analysed within the case study for Malaysia.

3.2 Airline Industry Development in North-East-Asia

3.2.1 Past Development of Low Cost Carrier Airlines in North East Asia

As already mentioned before, LCCs are a much more recent phenomenon in North East Asia than for example in the United States of America or Europe. Meanwhile, LCC's have developed in North East Asia but still have a relatively low share in North East Asia's airline field. 2001 is the first year where statistics regarding the LCC penetration of the North East Asian airline market are available and show that LCC's then accounted for 0.4% of the total seats in the region. Though this share has continuously risen, in 2006 still 1.8% of the total seat capacity in the North East Asian market came from Low Cost Carriers. A larger growth of share can be found from 2009 (3,9% share) until 2012 which is the latest statistic data available: LCC's then accounted for a 9,5% share. (Centre for Aviation 2014)

In the case of Japan, 1998 is the year when the country's first two Low Cost Carriers entered the market: Skymark Airlines and Air Do. Both airlines, still existing today, entered the market by offering discounts of up to 50% to its competing traditional Full Service Airlines' fares. Skynet Asia Airlines in 2002 entered the Japanese LCC market, followed by Star Flyer Airlines in 2006. (Zhang, et al. 2008)

The year 2012 brought 3 new Low Cost Carriers to the country: Jetstar Japan, (a Joint-Venture between Quantas and its daughter company Jetstar, Japan Airlines and Mitsubishi Corp.), AirAsia Japan (of its shareholders All Nippon Airways and Air Asia) and Peach Aviation, where All Nippon Airways again holds shares. It stands out that both big FSA's in Japan by now have a large interest to participate in the success and rising share's that Low Cost Carriers have. By the end of 2012, Japanese LCC's had a share of 19% in the domestic market. (Centre for Aviation 2014)

Nearly half of this share operated by Skymark that carried a total of more than six million domestic and international passengers in 2012. (Skymark Airlines 2014)

The emergence of Low Cost Carriers in South Korea has taken place later than in Japan: Hansung Airlines and Jeju Air were the first to LCC's to enter the South Korean market in 2005 and 2006, offering fares about 30% cheaper than its

Full Service competitors Korean Air and Asiana. They were followed by Jin Air and Air Busan some years later. (Zhang, et al. 2008)

In 2012 there were five South Korea LCC's operating, Jeju Air being the biggest. All South Korean LCC's share a characteristic: They all operate the so called "Korea-Style LCC model". This means that their model has reduced some costs when comparing it to a Full Service Airline, but is still far away from being able to compete with LCC's coming from abroad. Some of South Korean LCC's still offer check-in luggage, food and drinks complimentary – things that the normal LCC model does not offer and benefits of by reduced costs. LCC market leader Jeju air has started changing from the Korea-Style LCC model to the normal one in 2013. (Centre for Aviation 2014)

The same picture of a late start can be drawn for China's LCC industry. It had a late start in 2005 with the establishment of Spring Airlines. West Air can be seen as the countries' second LCC. It has started its operations in 2010 and is the latest addition to the Chinese LCC market. (Centre for Aviation 2014)

Others have not followed until as most companies believe that the current regulatory conditions in the country are not yet ripe for LCC operations. (Zhang, et al. 2008)

By contrast to that one has to see that Spring Airlines is a highly successful airline that has grown rapidly within the last years: operating now with around 40 planes and having carried about 10 million passengers last year, more than twice as much as it carried in 2009, 4.3 million passengers. (Centre for Aviation 2014)

A big problem for LCC's in China is the lack of cheaper secondary airports. Today, at the main airports of the country they pay almost the same airport charges as FSA's although LCC terminals are not existent or under-developed. (Zhang, et al. 2008)

3.2.2 Case Study 1: China

3.2.2.1 Introduction to the Development of Aviation in the P.R.C.

The airline industry of China was established in 1954 as an instrument for administration, trade, and tourism. Following reforms and the country's opening-up policy from 1978, the civil aviation industry in China has developed rapidly as it got rid of strong regulations mainly regarding and limiting international traffic. (Comtois 2009)

During the past two decades, the airline industry in China experienced extraordinary growth in terms of both size and profitability.

China's development from a nation having only one single national airline in the 1980's to one having dozens of airlines and being the world's second-largest aviation market today is remarkable. Two of the nation's carriers are now amongst the world's Top 10 by size but it remains questionable whether they can compete with other nations' airlines in terms of cost and efficiency. A reason can be seen in China's GDP that has slowed down in the past years from double-digit growth rates to still high single-digit growth. Few years ago, this was unthinkable and Chinas government had interwoven the planning of airline growth with GDP forecasts deeply for a long time. This lead to overcapacity and a weakening performance of Chinese airlines. The recent government changeover in May 2013 brought a substantial redirection of China's economic leadership and can be seen as an important turning point regarding the regulation of the airline industry. (Centre for Aviation 2013)

3.2.2.2 Development of Airline Industry Growth Factors in China

3.2.2.2.1 Economic Growth Development in the P.R.C

"Since the late 1970s China has moved from a closed, centrally planned system to a more market-oriented one that plays a major global role - in 2010 China became the world's largest exporter." (Central Intelligence Agency 2014c)

China has experienced massive economic development within the last two decades, impressing with double-digit GDP growth numbers in ten years of the last

two decades and high single-digit growth in the others. The country's economy grew a yearly average of 10,2% during the last two decades. GDP per Capita (PPP) in current international US-Dollar was 1.185 back 20 years ago and has increased to 9.083 USD in 2012. This development can be regarded in having had very positive effects onto the development of the airline industry in China.

3.2.2.2.2 Population Development and Urban Population in China

China's population has increased from 1.18 billion people in 1993 steadily up to 1,35 in 2012. This is an increase of only 14% during the last two decades and as a result for the relatively little population growth, China's one child policy can be named as one important reason. Demographics in regard to the urban population by contrast have changed massively during the last 20 years. The country's urban population share of less than 30% in 1993 increased to nearly 52% in 2012 and can be seen as an indicator that China's middle class has increased significantly during the past two decades. For the airline industry, this is a positive development and can be seen as a positive growth factor.

3.2.2.2.3 Development of Competition

Competition on the Chinese aviation market has always been regulated and was very restricted. Therefore, prices were high. As the country has only had one LCC during the past decade, whose prices were mostly regulated by the CAAC as well, the level of competition in China can be described as low for the past two decades. However, this is likely to change in the future and might then be seen as an important growth factor which it cannot be regarded today.

3.2.2.2.4 Development of Alternative Transportation in China

Although the Chinese market offers incredible possibilities, especially in the domestic market, there have also already been some cutbacks on certain routes,

such as the line between Beijing and Shanghai. When the new G-High-Speed-Train route was opened in 2011 and travel time dropped around 8 hours to only a bit more than four hours on this route, airline companies realized quite quickly that it would be very difficult to compete with these high-speed-trains and therefore cancelled a significant amount of the – up to this time – more than one hundred daily flights between the two cities.

China is continuously building more and more high-speed railways and will complete its backbone network of four north-south and four east-west high-speed lines by next year, then having 18.000 kilometres of high speed railways. Many of the country's high speed railways lines have seen passenger growth rates exceeding 20% per year since around 2008. (Qiao 2013)

These developments can be seen as a serious threat for the airline industry as high speed railways directly competes with airlines. Having serious competition of a network of 18.000 kilometers will likely continue to have an impact on prices and yields of the airlines. The total number of railway tracks in China has also risen during the past two decades from around 54.000 kilometers to more than 66.000. Moreover, passenger numbers have more than doubled from around 350.000 million passenger kilometers in 1993 to nearly 800.000 in 2012.

3.2.2.2.5 Development of Chinese Government Regulations

Many aspects in regard to the airline industry are still regulated in China although there have been a lot of changes in the last twenty years.

A regulation that is still in place concerns the fleet planning and purchase of airlines as explained by Zhang, et al: „It is required by law that purchasing of aircraft built by overseas companies must be approved by the National Development and Reform Commission once every year". This means that the Government of China has total control over the development of airlines and can steer the speed and intensity of growth for every airline. As this regulation shows that aircraft purchase is difficult in China wet-leasing of aircraft could be a solution. Yet that was made impossible in 2005 when the CAAC announced that it will no longer process

applications for the permission of wet-leasing aircraft." This brings extremely uncertain planning perspectives for airlines and this step shows that there was a change which did however not benefit the airline industry at all. Wet-leasing is not the only thing that had been restricted in 2005. Shortages of well qualified pilots are a big problem in the country as training is expensive and takes long. To protect this investment, that is paid by the Chinese airlines, free flow of pilots across airlines has been made more restricted and regulated by CAAC: a compensation to the old employer has to be paid by the new employer, ranging between RMB 0.7 and 2.1 million. Fuel purchase is still regulated in the PRC the way that China Aviation Oil is the only aviation fuel provider. This means China Aviation Oil has the monopoly and there is no chance of alternatives. (Zhang, et al. 2008)

But the Chinese aviation market has also experienced major changes in regard to government regulations during the past decade that can be seen as positive for the airline industry.

One important point is that the Civil Aviation Administration of China allowed both a couple of state-owned as well as privately owned carriers to enter the Chinese market. From 2005 on, foreign ownership of airlines has been allowed, up to a cap of 49%. (Wang, et al. 2014)

This regulation together with the 49% cap can be found in a lot of countries in the Asia-Pacific region.

For decades, entry permits for highly frequented routes were required. There has been the additional restriction that it normally was not allowed that routes were served by more than three carriers. (Zhang, et al. 2008)

Except for a few large airports, e.g. Beijing, Shanghai and Guangzhou, route regulations have been largely removed by now. (Wang, et al. 2014)

The CAAC explains that for airports where regulations have not been removed in 2005, this was done because of capacity restrictions. These three airports are the home-bases of China's "big three" state-owned carriers, namely, Air China, China Southern Airlines and China Eastern.

CAAC long restricted the pricing of the airline industry in China as it set prices, depending on the distance of the flight, allowing carriers to increase this price by a

maximum of 25% or decrease by not more than 45%. Offering a 45% discount on the set price was often normal among Full Service Airlines. (Zhang, et al. 2008)

This shows that there was no possibility for Low Cost Carriers to offer their flights cheaper.

China's Civil Aviation Administration has also liberalized the airline market so that airlines are allowed to set their own prices in most cases today. New distribution channels were allowed in addition to traditional ticket agencies, such as ticket sales through the airline's websites or internet travel agencies. Competition amongst airports has also been made possible through commercializing and privatizing. (Wang, et al. 2014)

Although this paper is focussing only on the People's Republic of China, it is worth mentioning that China and the Republic of China (Taiwan) have started to introduce regular non-stop passenger flights on July 4th, 2008 after having been political rivals for six decades. This step has been hailed as tremendous for the Chinese reunification policy and also has large economic effects, as there are currently more than 15 airlines - both Chinese and Taiwanese - that operate flights across the Taiwan Strait. This step also proves that China is continuously liberalizing its airline industry. Of course, the Cross-Strait Air Transport Agreement signed by Taiwan and China and the overall softening of relations between both is mainly trade-driven. The lower travel times and costs that come with direct cross-strait flights will, for example, further increase Taiwanese business contacts with China as well as facilitate touristic visits from citizens of one country to the other, deemed an important economic factor by both. (Chang, Hsu and Lin 2011)

Compared to other countries worldwide, the Chinese market is still in an early stage of development as there are many regulations that prevent a "free" market. This has been illustrated by the example of Lufthansa, which had not been granted permission to fly its Airbus A380 to Shanghai for political reasons like the Chinese blockade of emission certificates introduced by the European Union for years. (Austrianwings 2012)

Concluding all this it can be said that the P.R.C. has had very regulatory conditions for its aviation industry that did not give the opportunity for real

competition and development. Especially in the light of the further economic opening up of the country and the abolishment of many regulatory conditions by the CAAC, the years 2013 and 2014 can be seen as a turning point for the regulatory conditions in regard to the airline industry in China which will soon result in increasing competition and the emergence of new carriers.

3.2.2.2.6 Tourism Development in the P.R.C

Tourism plays a big role in China. Chinese people love traveling and can increasingly afford to do so. Furthermore, the country has a lot of sights and their own culture which has always attracted visitors. This means, both incoming and outgoing tourism plays a big role in the country – a fact from what the airline industry is benefitting a lot, especially in regard to international tourism. Data available from the World Bank in regard to international tourism arrivals and international tourism departures for China dates back as far as 1995, when more than 20 million people were visiting the country. 4.5 million Chinese inhabitants visited a foreign country at this time. Both numbers have increased during the past 18 years. The number of incoming tourists has risen continuously by around 3-5 million people yearly with the exception for the year 2003. This was when the SARS crisis occurred and visitors refrained from going to China as the country was the originating point of the crisis and amongst the most affected countries, resulting in a drop from 36.8 million tourists that arrived in 2002 to slightly below 33 million for the year 2003. It can be seen that the SARS effect was only short-term and had no negative effects on a long-term basis as numbers made an extreme jump to more than 41.5 million arrivals for 2004 then. Until 2012 the number of arriving international tourists in the P.R.C. has grown to nearly 58 million. It can be concluded that tourist arrivals have nearly tripled in the past two decades. The growth of Chinese travellers that visit a foreign country by contrast has nearly multiplied by 20 within the last 18 years from 4.5 million travellers to more than 83 million in 2012. This is a massive change and does only respect the international level of tourism. It can be assumed that the airline industry additionally

to international tourism benefits from domestic tourism, especially in a large-sized country like the P.R.C. where distances are enormous.

3.2.2.3 Airports in China

China is a country that offers nearly two hundred commercially used airports today. Many new airports have been constructed and have become operative since the country's opening policy that began in 1978, with Beijing Capital International Airport being number one with more than 83 million passengers handled in 2013. In terms of cargo handled, Shanghai's largest airport "Pudong International Airport" is the absolute number one: though it handled "only" around 47 million passengers last year, which ranks it number three in terms of passengers after Beijing and Guangzhou, it handled nearly three million tons of cargo that arrived there or left the airport. That is roughly double the amount of cargo-freight handled by Beijing Capital Airport. In addition, it must be taken into account that Shanghai has two airports serving the city. The total passenger number handled by both is slightly more than 82 million and slightly less than 3.5 million tons of air freight passed through them.

The following table shows the development of passenger numbers and cargo at today's ten largest airports in the country (by handled passengers) for the years 2000 (earliest data available) and 2013:

Table 1: Development of passenger and cargo numbers at today's ten largest airports in the P.R.C. between 2000 and 2013

	Airport	Passengers in Mio.		Cargo in Mio. Tons	
		2000	2013	2000	2013
1	Beijing Capital	21.7	83.7	0.56	1.84
2	Guangzhou Baiyun	12.8	52.5	0.42	1.31
3	Shanghai Pudong	5.5	47.2	0.22	2.92
4	Shanghai Hongqiao	12.1	35.6	0.49	0.44
5	Chengdu Shuangliu	5.5	33.4	0.12	0.50
6	Shenzhen Bao'an	6.4	32.3	0.17	0.91

7	Kunming Wujiaba	5.6	29.7	0.10	0.29
8	Xi'an Xianyang	3.9	26.0	0.05	0.18
9	Chongqing Jiangbei	2.8	25.3	0.06	0.28
10	Hangzhou Xiaoshan	2.5	22.1	0.06	0.37

Sources: (Civil Aviation Administration of China 2000-2013)

The table shows the enormous growth of the aviation industry in China, both on the passenger and the cargo side. Most airports have at least tripled the amount of passengers and cargo handled from 2000 to 2013. The only exemption to this trend is Shanghai's Hongqiao airport: With the opening of Shanghai Pudong International Airport on October 1st 1999 and its establishment as primary airport of the city, all growth in cargo and most passenger growth took place there instead of at Hongqiao. To confirm the growth of Chinese aviation, we will now take a look at the entirety of Chinese airports. In the year 2000, China only had 143 airports that were classified as commercial airports and included in the statistics. Private aviation is therefore not included in these numbers; only scheduled commercial passenger and freight traffic are. Total passenger and cargo numbers for all airports in China are shown below for the time span between the years 2000, which is the oldest data that is available, and 2013.

Table 2: Development of passenger and cargo numbers at all airports in the P.R.C. between 2000 and 2013

All Airports	**2000**	**2004**	**2007**	**2010**	**2013**
Passengers in Mio.	133.7	241.9	387.6	564.3	754.3
Cargo in Mio. Tons	3.39	5.53	8.61	11.29	12.58

Sources: (Civil Aviation Administration of China 2000-2013)

These numbers do not only confirm the extremely high growth of the country's ten largest airports above but the growth of all other airports as well. China counted 133.7 million airline passengers in 2000 and that number more than quintupled to nearly 755 million passengers in 2013. This amounts to an average growth in airline passengers of more than 13% annually throughout the entire country for the past 14

years. The cargo growth was extremely high as well with its amount nearly quadrupling but could not reach the level of passenger growth. For the years 2000 to 2013, the average nationwide growth per year was slightly below 10% percent in the cargo sector.

Generally one more thing can be said: though many airports in China are newly built, they already cannot cope with the increasing demand anymore which hinders growth. (Zhang, et al. 2008)

3.2.2.4 Airlines in China

3.2.2.4.1 Introduction to Airlines in China

Chinese Airlines are defined as all airlines that currently have a valid Air Operator Certificate issued by the Civil Aviation Administration of China. According to this definition, there are more than 30 active airlines in China today. Air China was established on July 1st 1988 as a result of the Chinese government's decision to split the operating divisions of the Civil Aviation Administration of China into six separate airlines: Air China, China Eastern, China Southern, China Northern (merged with China Southern 2002), China Southwest (taken over by Air China in 2002), and China Northwest (from 2002 part of China Eastern). China Southern Airlines, China Eastern Airlines and Air China are the three biggest airlines in China today; they are all state owned. (World Airlines 2007)

These three airlines will be reviewed in the following.

3.2.2.4.2 Air China

3.2.2.4.2.1 Introduction to Air China

Air China is a Full Service Carrier and China’s second largest airline. The company is operating both domestically and internationally. The company has its main base in Beijing. It has operated on an average stage length of 1102 miles for the past 20 years: 1302 miles in 1993 and this number slowly decreased to 1009 miles in 2011.

3.2.2.4.2.2 Statistical Data for Air China

Table 3: Statistical Data for Air China, 1993-2011

Financial Data	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Passenger Revenue								1.278	1.411	1.750
Total Revenue	1.040	1.048	1.299	1.340	1.280	1.386	1.400	1.668	1.769	2.140
Operating Profit	27	32	56					163	227	240
Operating Ratio	97,4%	97,0%	95,7%					90,2%	87,2%	88,8%
Net Income after Taxes	33	36	56					-78	5	14
Yield - ¢ per RPM								11,35¢	11,39¢	11,92¢
Cost - ¢ per ASM	9,63¢	9,03¢	9,89¢					8,57¢	7,95¢	8,83¢
Operating Data										
RPMs (mil.)	6.778	7.137	8.216	8.596	8.216	9.074	9.702	11.257	12.391	14.687
ASMs (mil.)	10.527	11.262	12.569	13.027	12.569	15.238	15.784	17.562	19.397	21.507
Load Factor	64,4%	63,4%	65,4%	66,0%	65,4%	59,5%	61,5%	64,1%	63,9%	68,3%
Passengers (000)	4.515	5.251	6.412	6.641	6.412	6.454	6.645	7.942	8.769	10.432
Flight Stage (miles)	1.302	1.194	1.115	1.094	1.115	1.147	1.190	1.156	1.151	1.191
Number of Aircraft	48	52	48	48	53	59	62	65	67	120
Average Seats / Aircraft	212	213	213	204	213	213	213	213	213	213
Utilization (hours/day)	6,32	6,2	6,95	8,66	6,88	8,45	8,06	8,53	9,08	7,08
Profitability Index								-1,29	-0,67	-0,69
Efficiency Index	4,07	3,93	4,55	5,72	4,50	5,03	4,96	5,47	5,80	4,84

Financial Data	2003	2004	2005	2006	2007	2008	2009	2010	2011	Ø past 19y
Passenger Revenue	2.220	3.343	3.861	4.721	5.755	6.260	6.450	8.900	12.950	
Total Revenue	2.693	4.050	4.259	5.043	6.192	6.556	6.756	9.368	15.260	
Operating Profit	276	542	352	253	477	-250	274	1293	971	329
Operating Ratio	89,8%	86,6%	91,7%	95,0%	92,3%	103,8%	96,0%	86,2%	93,6%	92,8%
Net Income after Taxes	11	306	279	399	399	-1.374	638	1.216	1.095	
Yield - ¢ per RPM	10,81¢	11,68¢	11,93¢	12,67¢	13,87¢	15,33¢	14,24¢	16,75¢	17,48¢	13,29¢
Cost - ¢ per ASM	7,76¢	8,81¢	8,97¢	9,78¢	10,85¢	12,52¢	11,03¢	12,24¢	15,82¢	10,11¢
Operating Data										
RPMs (mil.)	20.535	28.616	32.375	3.729	41.485	40.838	45.305	53.120	74.104	
ASMs (mil.)	31.134	39.799	43.541	48.999	52.668	54.354	58.788	65.993	90.348	
Load Factor	66,0%	71,9%	74,4%	76,0%	78,8%	75,1%	77,1%	80,5%	82,0%	69,67%
Passengers (000)	17.793	24.135	27.533	31.315	34.752	34.152	39.665	46.008	66.850	
Flight Stage (miles)	1.006	1.036	1.019	1.033	1.049	1.056	1.024	1.053	1.009	1.102
Number of Aircraft	128	148	170	197	209	227	244	263	387	
Average Seats / Aircraft	191	192	182	175	174	178	178	178	175	212
Utilization (hours/day)	8,50	9,98	10,22	10,44	10,33	9,83	9,84	10,26	10,65	8,75
Profitability Index	-0,63	-0,41	-0,09	-0,15	0,08	-1,01	-0,05	1,24	-1,49	-0,43
Efficiency Index	5,61	7,18	7,60	7,93	8,14	7,38	7,59	8,26	8,73	6,17

Sources: Air China Yearly Reports 1994-2012

3.2.2.4.2.3 Financial Development Analysis

For all years, financial data is available. In the past two decades, Air China managed to gain an operating profit with one single year as exception: 2008, probably a result of the World Financial Crisis, resulted in a negative operating profit for the company, a minus of 250 million USD is recorded. On an average basis for all years that operation profit data is available, an average yearly operation profit of 329 million USD had been achieved. As this data represents 15 years of the past two decades, this number can be considered representative. Air China managed to achieve excellent operating ratios below 90% in the years between 2001 and 2004 as well as in 2010. The average financial operation ratio stands at 92.8% for the 15 years were data is available and is also considered representative of the last 2 decades.

3.2.2.4.2.4 Operational Development Analysis

Air China grew quickly during the past 20 years, also because of mergers that have been mentioned already. Back in 1993, the company was operating with a fleet of 48 airplanes and offering 10.527 million ASM's. 19 years later in 2011, the fleet was around 8 times bigger than back then and the company was offering nearly 9 times as much seats. Passenger numbers grew from 4.5 million in 1993 to around 67 million in 2011. This increase was not only possible because of the larger fleet but also driven by higher load factors: starting in 1993, a load factor of below 65% was achieved. For the next decade then, no big improvements were achieved but from the company continuously managed to increase their planes' load factor and reached more than 80% load factor for the first time in 2010. The average load factor for the past two decades stands at slightly below 70%. Continuous development of efficiency improvement can also be found in regard to the utilization time of Air China's airplanes. While the company used its aircraft less than 7 hours daily between 1993 and 1995, Air China steadily raised utilization times over the years, reaching a rate of more than 10 hours from 2005 onwards with exception of the World Financial Crisis' years 2008 and 2009.

3.2.2.4.2.5 Analysis of Key Indicators of Airline Development

During the past 12 years for which yield data is available for Air China, the company was able to increase this figure every year - except for the year 2003, the year when the SARS-crisis had their negative impacts on the airline industry. Until 2006, Air China was able to produce at costs of less than 10 US-Cent per ASM. However, cost have increased and latest numbers for 2011 show a cost of nearly 16 Cent per ASM. The Profitability Index for Air China that can be calculated for the years 2000 until 2011 shows that 2007 was the most profitable year for the company, reaching an index of 0,08. 2011 is the year with the lowest Profitability Index, -1,49, driven by high costs for producing ASM's. The average Index for the last 12 years is -0,43. In terms of efficiency as already shown in the operational data section, Air China was able to improve from year to year. Scoring and Efficiency Index of only 4,07 that shows a very inefficient use of resources, the company reached Indexes around 8 from 2005 to 2011. For the last two decades, Air China reached an average Efficiency Index of 6,17.

3.2.2.4.3 China Southern

3.2.2.4.3.1 Introduction to China Southern

China Southern is the largest of the "Big Three" Chinese carriers. It is a Full Service Carrier with its main base in Guangzhou and focusing on regional destinations in Asia-Pacific with an average stage length of 752 miles for the past 20 years: 698 miles in 1993 and this number slowly increased to 830 miles in 2011.

3.2.2.4.3.2 Statistic Data for China Southern

Table 4: Statistical Data for China Southern, 1993-2011

Financial Data	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Passenger Revenue						1.280	1.428	1.601	1.819	1.897
Total Revenue	580	900	1.100	1.460	1.541	1.425	1.606	1.833	2.039	2.177
Operating Profit	95	64	47	93	283	60	223	143	142	245
Operating Ratio	83,6%	92,9%	95,7%	93,6%	81,7%	95,8%	86,1%	92,2%	93,0%	88,8%
Net Income after Taxes	106	46	47	93	137	-66	10	61	41	90
Yield - ¢ per RPM						11,60¢	12,74¢	12,27¢	12,02¢	10,95¢
Cost - ¢ per ASM	8,16¢	7,44¢	11,00¢	9,65¢	7,70¢	7,50¢	7,22¢	7,82¢	7,83¢	7,27¢
Operating Data										
RPMs (mil.)	4.554	7.980	6.859	10.019	10.682	11.036	11.210	13.048	15.130	17.323
ASMs (mil.)	5.942	11.240	9.569	14.159	16.336	18.190	19.145	21.617	24.230	26.579
Load Factor	76,6%	71,0%	71,7%	70,8%	65,4%	60,7%	58,5%	60,4%	62,4%	65,2%
Passengers (000)	6.460	11.300	9.722	14.521	14.560	14.455	14.360	16.125	18.478	20.682
Flight Stage (miles)	698	722	698	686	734	762	786	846	701	720
Number of Aircraft	53	61	59	59	72	74	78	80	85	91
Average Seats / Aircraft	162	173	176	171	179	178	176	172	172	172
Utilization (hours/day)	5,57	7,59	6,86	10,12	9,78	9,73	9,92	10,93	11,75	12,17
Profitability Index						-0,46	0,23	-0,41	-0,33	-0,13
Efficiency Index	4,27	5,39	4,92	7,16	6,40	5,91	5,80	6,60	7,33	7,93

Financial Data	2003	2004	2005	2006	2007	2008	2009	2010	2011	Ø past 19y
Passenger Revenue	1.813	2.549	4.197	5.221	6.542	7.279	7.328	10.164	12.637	
Total Revenue	2.111	2.897	4.682	6.078	7.188	7.983	8.331	11.317	14.017	
Operating Profit	55	110	-160	40	208	-944	211	930	675	133
Operating Ratio	97,4%	96,2%	103,4%	99,3%	97,1%	111,8%	97,5%	91,8%	95,2%	94,4%
Net Income after Taxes	-43	-6	-226	26	-243	-696	48	858	944	
Yield - ¢ per RPM	7,51¢	7,58¢	11,18¢	12,26¢	13,00¢	14,18¢	12,77¢	14,80¢	16,68¢	12,11¢
Cost - ¢ per ASM	5,52¢	5,73¢	9,03¢	10,17¢	10,43¢	12,83¢	10,66¢	11,88¢	14,26¢	9,06¢
Operating Data										
RPMs (mil.)	24.126	33.611	37.549	42.576	50.322	51.332	57.398	68.692	75.774	
ASMs (mil.)	37.272	48.662	53.639	59.389	66.949	69.575	76.193	86.675	93.555	
Load Factor	64,7%	69,1%	70,0%	71,7%	75,2%	73,8%	75,3%	79,3%	81,0%	69,62%
Passengers (000)	28.409	39.038	43.228	48.512	56.522	57.961	65.959	76.078	80.545	
Flight Stage (miles)	744	756	761	766	770	764	751	789	830	752
Number of Aircraft	195	222	226	258	280	286	301	335	347	
Average Seats / Aircraft	165	165	164	163	161	164	165	161	161	168
Utilization (hours/day)	10,91	9,65	10,09	10,38	10,86	10,64	11,09	11,92	12,08	10,11
Profitability Index	-0,66	-0,49	-1,20	-1,38	-0,65	-2,37	-1,04	-0,14	-0,75	-0,70
Efficiency Index	7,06	6,67	7,06	7,44	8,17	7,85	8,35	9,45	9,78	7,03

Sources: China Southern Yearly Reports 1994-2012

3.2.2.4.3.3 Financial Development Analysis

Financial statistics for China Southern show that the company only experienced negative operating profits twice in the last two decades (1993-2011). This was 2005 with an operating profit of -160 million USD and, more important in the year mostly affected by the World Financial Crisis 2008 when China Southern nearly had an operation profit of minus one billion USD (-944 million). The company made an average operation profit of 133 million USD during the past 19 years, resulting in an average operation ratio of 94,4% with the best results in the years 1993, 1997, 1999 and 2002 with ratios below 90%.

3.2.2.4.3.4 Operational Development Analysis

The airline experienced high growth rates in terms of passengers and fleet size. China Southern carried around 6,5 million passengers in 1993. This number increased to more than 80 million in 2011. In terms of ASM, this is an increase from 5,9 million to 93,6 million ASM's in 2011 – nearly 16 times as much as 1993, operated with a fleet being more than six times bigger in 2011. Sporting load factors of more than 70% between the years 1993 and 1996, this factor decreased from 1997 to 2003 to under 70%, the worst load factor being 58,5% in 1999. The following years, China Southern managed to increase the load factor and for the first time ever in 2011 it reached more than 80%. The average factor for the last two decades is 69,6%. In terms of aircraft utilization rates, the company achieved big success – it more than doubled utilization time from 5,57 hours in 1993 to 11,92 hours in 2010 and reached more than 12 hours in 2011. Combined utilization rate for the past two decades is 10,1 hours.

3.2.2.4.3.5 Analysis of Key Indicators of Airline Development

During the past 14 years for which yield data is available for China Southern, a mixed picture is drawn: reaching a yield of more than 10 US-Cent between 1998 and 2002 this figure crashed down to less than 8 US-Cent for 2003 and 2004,

probably as the airline with its regional operations profile was extremely negatively impacted by the SARS crisis. Average yield for the last 14 years of China Southern operations is 12,11 US-Cent. In terms of cost, China Southern was able to produce at costs of less than 10 US-Cent per ASM in 12 of the past 19 years. A notably fact is that for the years where yield dropped, CASM also dropped drastic to costs of less than 6 Cent per available mile, together with high load factors, resulting in positive operation profits. Especially though during the past six years, costs have increased and latest numbers for 2011 show a cost of 14,3 Cent per ASM. The Profitability Index for China Southern that can be calculated for the years 1998 until 2011 shows that 1999 was the most profitable year for the company, reaching an index of 0,23. 2008 was the year with the lowest Profitability Index, -2,37, driven by high costs for producing ASM's, a lower load factor and a sub-optimal aircraft utilization. The average Profitability Index for the last 14 years is -0,7. In terms of efficiency as already shown in the operational data section, Air China was able to improve within the last two decades although this improvement did not take place continuously. While the Efficiency Index rose from 1993-1996, it then decreased until 1999 before it recovered and started rising again. A further dip can be seen during the SARS-crisis years 2003 and 2004. For the last two decades, Air China reached an average Efficiency Index of 7,03.

3.2.2.4.4 China Eastern

3.2.2.4.4.1 Introduction to China Eastern

China Eastern is the P.R.C.'s third largest airline. The Full Service Airline is operating international, domestic and regional routes and its main hubs are Shanghai Pu Dong Airport as well as Shanghai Hongqiao Airport. Its average stage length for the last two decades was 804 miles. This number was slightly lower in 1993 (696 miles) and increased up to 814 miles in 2011.

3.2.2.4.4.2 Statistic Data for China Eastern

Table 5: Statistical Data for China Eastern, 1993-2011

Financial Data	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Passenger Revenue						790	970	1.044	1.158	1.213
Total Revenue	711	717	826	878	10.301	987	1.227	1.355	1.468	1.607
Operating Profit	107	220	138	173	76	49	112	135	136	129
Operating Ratio	85,0%	69,4%	83,3%	80,3%	92,6%	95,0%	90,9%	90,0%	90,8%	92,0%
Net Income after Taxes	115	52	41	73	76	-64	18	21	66	25
Yield - ¢ per RPM						11,87¢	12,00¢	12,14¢	11,95¢	10,61¢
Cost - ¢ per ASM	11,65¢	8,52¢	10,04¢	8,98¢	10,06¢	8,29¢	8,13¢	8,85¢	8,45¢	8,39¢
Operating Data										
RPMs (mil.)	3.830	4.037	4.767	5.154	6.106	6.659	8.085	8.603	9.689	11.437
ASMs (mil.)	5.183	5.838	6.855	7.845	9.481	11.309	13.717	13.786	15.769	17.639
Load Factor	73,9%	69,1%	69,5%	65,7%	64,4%	58,9%	58,9%	62,4%	61,4%	64,8%
Passengers (000)	5.116	5.303	6.240	6.286	6.834	7.401	8.467	9.000	10.206	11.907
Flight Stage (miles)	696	709	696	741	816	850	903	903	832	838
Number of Aircraft	42	39	39	42	47	59	57	60	68	82
Average Seats / Aircraft	168	178	187	199	203	203	194	195	176	175
Utilization (hours/day)	6,09	5,21	6,03	6,72	7,03	7	8,04	7,98	9,27	8,8
Profitability Index						-1,30	-1,06	-1,27	-1,11	-1,51
Efficiency Index	4,50	3,60	4,19	4,42	4,53	4,12	4,74	4,98	5,69	5,70

Financial Data	2003	2004	2005	2006	2007	2008	2009	2010	2011	Ø past 19y
Passenger Revenue	1.232	1.856	2.549	3.825	4.638	4.941	4.801	8.724	10.612	
Total Revenue	1.728	2.542	3.357	4.761	5.608	6.028	5.831	11.016	12.943	
Operating Profit	24	179	-16	-356	17	-2178	-161	843	647	14
Operating Ratio	98,6%	93,0%	100,5%	107,5%	99,9%	136,1%	102,8%	92,3%	95,0%	94,5%
Net Income after Taxes	-115	62	-57	-434	50	-2.205	25	779	710	
Yield - ¢ per RPM	10,85¢	10,25¢	9,75¢	12,24¢	13,18¢	14,79¢	10,25¢	15,08¢	16,92¢	12,28¢
Cost - ¢ per ASM	9,09¢	8,68¢	8,91¢	11,68¢	11,72¢	17,39¢	9,22¢	13,73¢	15,47¢	10,38¢
Operating Data										
RPMs (mil.)	11.352	17.142	22.611	31.226	35.538	33.409	46.836	57.836	62.707	
ASMs (mil.)	18.735	25.854	32.584	43.771	48.299	47.184	64.972	74.111	79.485	
Load Factor	60,6%	66,3%	69,4%	71,3%	73,6%	70,8%	72,1%	78,0%	78,9%	67,9%
Passengers (000)	12.200	17.711	24.290	35.015	39.159	37.216	54.760	64.879	68.724	
Flight Stage (miles)	835	844	826	821	795	794	764	790	814	804
Number of Aircraft	116	139	166	196	213	231	252	330	306	
Average Seats / Aircraft	177	167	166	162	163	163	16	164	162	169
Utilization (hours/day)	7,20	8,41	9,93	10,27	10,01	9,22	9,35	10,60	10,50	8,30
Profitability Index	-2,51	-1,88	-2,14	-2,95	-2,02	-6,92	-1,83	-1,97	-2,12	-2,19
Efficiency Index	4,36	5,58	6,89	7,32	7,37	6,53	6,74	8,27	8,28	5,67

Sources: China Eastern Yearly Reports 1994-2012

3.2.2.4.4.3 Financial Development Analysis

China Eastern did experience four years within the last 19 years for which statistical data is available were it did not achieve positive operating profits. The worst result is found in 2008, probably a result of the World Financial Crisis, were statistics show an operating profit of more than minus two billion USD. Other than that, the company experienced negative operating profits in 2005, 2006 and 2009 but not as high as in 2008. The average yearly operating profit for the last two decades was only 14 million dollars. Best operation ratio was achieved in 1994 with 69,4% but such a good result has never happened again. This results in an average operating ratio of 94,5% for the time span between 1993 and 2011.

3.2.2.4.4.4 Operational Development Analysis

China Eastern experienced high growth rates in terms of passengers and fleet size. The company carried around 5,1 million passengers in 1993. This number increased to more than 68 million in 2011. In terms of ASM, this is an increase from 5,2 million to 79,5 million ASM's in 2011 – more than 15 times as much as 1993, operated with a fleet being more than seven times bigger in 2011 than it was 19 years ago. Two decades ago, China eastern had a load factor of more than 73% - but this number declined the following years down to 58,9% in 1998 and 1999 before it recovered and has continuously risen to more than 78% in 2011. The average factor for the last two decades is 67,9%. In terms of aircraft utilization rates, the company developed positively during the past two decades to use its fleet more efficient. A utilization time between 5 and 6 hours was recorded for 1993 and the following two years but then increased to more than 10 hours that can be found in the years 2006, 2007, 2010 as well as 2011. A drop in utilization time is noted for 2003. Combined utilization rate for the past two decades is 8,3 hours.

3.2.2.4.4.5 Analysis of Key Indicators of Airline Development

During the past 14 years for which yield data is available for China Eastern, this number has changed often. Relative constant yields around 12 US-Cents can be

found for the period 1998 until 2001 before declining slightly. Beginning from 2006 onwards, yields increased with a sudden breakdown in 2009 but recovered quickly afterwards up to nearly 17 cents in 2011. Average yield figures for the 14 years of China Eastern operations between 1998 and 2011 is 12,28 US-Cent. In terms of cost, China Eastern was able to produce at costs of less than 10 US-Cent per ASM in 10 of the past 19 years. Particular high CASM figures are found for 2008. Especially during the past two years (2010 and 2011), cost have increased and latest numbers for 2011 show a cost of 15,5 Cent per ASM. The Profitability Index for China Eastern, based on statistics available, can be calculated for the time span between 1998 and 2011. The average Profitability Index for the last 14 years is -2,19. According to this Index, the most profitable years of China Eastern was the time span around 2000 with Indexes between -1,06 and -1,51. The most unprofitable year was 2008 with a Profitability Index that is -6,92. In terms of efficiency the Efficiency Index relatively stagnated for a long time between 1993 and 2000, only reaching scores of less than 5. A particular inefficient use of the company's aircraft has taken place in 1994, the Index score is only 3,6 for this year. While it increased from 2001, a further dip is found for the SARS-crisis year 2003. The first time, China Eastern's Efficiency Index reaches more than 8 was the year 2010 as well as 2011. For the last two decades, China Eastern reached an average Efficiency Index of 5,67.

3.2.2.4.5 Findings in Regard to Chinese Airlines

It becomes clear that all three carriers in focus were able to increase their passenger numbers enormously in the past two decades by multiplication factors between 13 and 16. In this regard, all three have developed very similar. Growth factors like GDP, population growth and an increased middle class have benefitted to this development. By contrast one can distinguish that the airline industry growth factors regarding alternative transportation, level of competition and government regulations have had negative impacts for the growth of the Chinese airline industry and it can be expected that the growth of the airline industry would have even been bigger without these negative impacts.

On an average basis, all “Big Three” have operated profitable for the time span of the past two decades, however – differences can be found. The operating ratio of Air China is slightly better (less than 3% points) than those of China Southern and China Eastern that can be seen equal (94,4% vs. 94,5%). Though, China Eastern recorded a yearly average operation profit of only 14 million USD for the last 19 years whereas China Southern’s average figure is 133 million USD. Air China’s average yearly operation profit between 1993 and 2011 is even higher: 329 million USD.
China Southern’s 1999 Efficiency Index of only 5,80 shows a relatively inefficient use of resources although this was a highly successful year with an operation ratio of 86% and the company’s best Profitability Index of the last two decades. This fact shows that Profitability and Efficiency do not necessary depend on each other though one can assume that a high Efficiency Index generally contributes in reaching a higher Profitability Index. On an average basis, Air China was the most profitable of the “big three”, followed by China Southern though China Southern’s efficiency was higher than that of Air China. China Eastern ranks last for both Indexes.
Even though airport statistics are only available from 2000 onwards it can be distinguished that Chinese airlines were able to develop at similar growth rates than the passenger numbers of the airports.

3.2.2.5 Aircraft Manufacturers and China

Both Airbus and Boeing are extremely interested in gaining high shares of the Chinese aircraft market, as it certainly harbours one of the worldwide highest potentials for selling thousands of new aircraft within the next years. Currently, Airbus is doing slightly better.

Table 6: Aircraft in operation and aircraft orders for Chinese airlines

		Aircraft in Operation		Aircraft Orders	
		Airbus	Boeing	Airbus	Boeing
	China Southern	250	187	33	30
	China Eastern	253	93	43	77
	Air China	153	160	5	63

Sources: (The Boeing Company 2014) and (Airbus 2014)

Looking at the orders of the three most important airlines in China, it becomes evident that they all plan to grow further as they have ordered more than 250 new airplanes while their airplanes currently in operation are not that old that they would need to be replaced already.

3.2.3 Case Study 2: Japan

3.2.3.1 Introduction to Japan as one of the World's Strongest Economies

Japan is, besides the United States, Germany and France, known as one of the strongest "classic" economies of the world and has already had an extremely well developed aviation industry, both in terms of airlines and airport infrastructure, for some decades. Japanese airlines compete with the extremely dense and efficient network of high-speed-trains throughout nearly the entire country. Japan's strongest-ever earthquake in 2011 and the following tsunami, devastated the northeast part of Honshu island. The catastrophe hobbled the country's economy and its infrastructure.

3.2.3.2 Development of Airline Industry Growth Factors in Japan

3.2.3.2.1 Economic Growth Development in Japan

Japan, as an already developed country, does not have GDP growth numbers similar to those of China or other developing countries. GDP growth was very low in the years after 1993, sometimes even negative. The country experienced an average

yearly GDP growth of only 1% until 2008 with some years even showing a negative growth. E.g. 2008 and 2009 show negative growth numbers. 2009 is particular interesting as GDP growth was -5,5% then as Japan suffered very much from the World Economic Crisis. The year after, Japan's economy recovered and reached a GDP growth of 4,7% which is the highest seen in the past 20 years. Due to the Fukushima accident, the growth number for 2011 was negative again: -0,57%. Latest data available is from 2012 and shows a small growth of 2%. In terms of GDP per capita based on purchasing power parity in current international dollar, more development can be determined for the past 20 years in Japan. While this number stood at 22.158 in 1993, it has – except for 2009 where it dropped – continuously risen to 35.618, an increase of more than 50%. This development benefits the airline industry as people have more money to spend and are better able to afford flying. As the GDP growth factor was very low, overall economic development cannot be regarded as having had a positive nor a negative influence to the development of the Japanese airline industry.

3.2.3.2.2 Population Development and Urban Population in Japan

Japan's development in terms of total population is very low. In 1993, 124,5 million people were living in Japan. This number has risen to around 127 million in 2001 and from then onwards stagnated between 127 and 128 million people. Therefore the total number of population will not benefit to the airline industry. Two decades ago in 1993, 96,8 million people in Japan were living in urban areas. This number has increased to 117 million by 2012, meaning that then nearly 92% of the Japanese population were living in urban areas which can be seen as benefitting to the development of the airline industry.

3.2.3.2.3 Development of Competition in the Japanese Airline Industry

Until recently there has been only a medium competition on the Japanese airline market with two large Full Service Carriers operating. With the entering of LCC's into the market, this has changed to high competition levels.

3.2.3.2.4 Development of Alternative Transportation in Japan

Japan has an extensive network of railways and roads, covering the entire country. Even though its network's quality has further improved, especially through the opening of new high-speed railway lines, there was not much development in terms of size of both, the rail network (20.252 km in 1993 vs. 20.140 km in 2012), and the road network in the past two decades. Shinkansen railway, known around the world for being Japan's high-speed-train, is for vital importance of the country as it significantly cuts the time spent moving from region to region. As it often offers extremely fast city center to city center links it can be seen as a serious threat for the airline industry. Its network has been extended extensively within the last two decades, however railway statistics for Japan show that the number of railway passengers carried, measured by million passenger kilometers, has declined slightly within the last 20 years from 250.000 in 1993 to around 244.600 in 2012.

3.2.3.2.5 Development of Government Regulations in Japan

The Japanese Ministry of Land, Infrastructure and Tourism is responsible for improving the functionalities of the airports "as an impetus to the nation's economic growth to bolster Japan's international competitiveness in both arenas of business and tourism". (Japanese Ministry of Land, Infrastructure, Transport and Tourism 2012)

Japan's government passed a new Civil Aeronautics Law in 1999. This law liberalized the licensing system for airline operations in the country and eased the foundation of airlines substantially. The fare approval system and other regulatory provisions also experienced liberalization then. (Zhang, et al. 2008)

Beginning in 2007, the Ministry began pursuing the goal of an Open Sky, with exception for metropolitan areas and its limited airport capacities which cannot be seen as a real deregulation, more as an opening of regional airports. Anyhow, this changed in late 2012 when Tokyo Haneda Airport was opened for international traffic and brought a significant increase in airport capacity to the Tokyo metropolitan area. At this time, Open Sky was expanded to metropolitan airports and Open-Sky agreements were reached with a total of 23 countries, including the United States & Canada, most countries of North- and South-East Asia as well as a couple of countries in Europe and Oceania. This means that in air traffic between Japan and those countries there is an Open Sky agreement with no limits regarding destinations, capacity and frequencies. Furthermore, Japan still has its traditional bilateral agreements regarding air transport with more than 30 other countries that yet are not part of the Open Sky agreement. 2012 was also the year when the Japanese cabinet decided to encourage and facilitate the entry of Low Cost Carriers into the Japanese airline market as a part of its "Comprehensive Strategy for the Rebirth of Japan", hoping that the entry of LCC especially create a new demand for air transport by new foreign tourists that the government of Japan would like to visit their country. The long term vision of the government is to "elevate the underlying demand for aviation by stimulating new demand to expand the presence of LCCs in domestic and foreign air travellers' transportation to equal the U.S. and Europe (about 20 to 30%) by 2020." In particular, two important measures have been taken to facilitate the entry of LCCs in Japan: easement of daily airline operations regulations, especially those that are relevant for the Low Cost Carrier business, such as permitting refuelling with passengers on board and the development of LCC terminals that can make possible the fast turnaround times that LCCs look for and provide cheaper handling costs than existing terminals. (Ministry of Land, Infrastructure, Transport and Tourism 2012)

3.2.3.2.6 Development of Tourism in Japan

International tourism arrival and departures numbers for Japan are available for the time span between 1995 and 2012. In 1995, 3,3 million people from abroad were visiting the country and this number has increased to 8,3 million visitors in 2012. This increase has taken place quite constantly with the exception of two drops that have taken place in 2009 and 2011. Both drops saw a loss of around 1,5 million visitors compared to the respective previous year. The reason for the 2009 drop can be seen in the effects of the World Financial Crisis, the 2011 drop was caused by the earthquake that took place in East Japan in March 2011. In regard to Japanese people travelling international, 1995 statistics show 15,3 million travellers. The number of travellers increased as well but not as intensively as the tourism arrivals to Japan. 2012 figures show 18,5 million departing tourists. Setbacks can be found in the development of these statistics as well: The first in 1998, after the Asian Financial Crisis took place, the second in 2001 as result of September 11 in the United States where a lot of Japanese people go for their holidays. Furthermore 2008 and 2009 numbers a lower than those of the previous years as the World Financial Crisis impacted travelling. By contrast to incoming tourists, the 2011 earthquake had no negative consequences for the development of outgoing tourists.

3.2.3.3 Japanese Airports

As of the latest numbers available, there are a total of 142 airports with paved runways in Japan. (Central Intelligence Agency 2013j)

Table 7: Passenger and Cargo development of Japan's 10 biggest airports between 2003 and 2010

	Airport	**Passengers in Mio.**			**Cargo in Mio. Tons**		
		2003	**2010**	***Change***	**2003**	**2010**	***Change***
1	Tokyo Haneda	62.9	64.2	*+2%*	0.72	0.82	*+12%*
2	Tokyo Narita Intl.	26.5	30.8	*+16%*	2.15	2.17	*+1%*
3	Sapporo New Chitose	18.5	16.7	*-8%*	0.26	0.23	*-13%*
4	Fukuoka	18.8	16.3	*-15%*	0.27	0.26	*-4%*

5	Osaka Intl.	18.8	14.8	*-27%*	0.17	0.14	*-21%*
6	Naha	12.5	14.5	*+14%*	0.22	0.39	*+44%*
7	Osaka Kansai Intl.	13.1	14.2	*+8%*	0.79	0.76	*-4%*
8	Nagoya Chubu Centrair	9.8	9.2	*-7%*	0.17	0.16	*-6%*
9	Kagoshima	6.2	5.0	*-24%*	0.05	0.04	*-25%*
10	Kumamoto	3.1	2.9	*-7%*	0.03	0.03	

Source: (Japanese Ministry of Land, Infrastructure, Transport and Tourism 2012)

One can see both, growth and decline, but there is no clear trend. Therefore, a look at the numbers of all airports in Japan is warranted to get a better image of how passenger and cargo numbers changed between 2003 and 2010 which is the longest time span, were statistics are available. As data is only available for the 50 largest Japanese airports, the total number of passengers and freight between 2003 and 2010 at the 50 biggest airports will be used as a basis for the comparison of total airport grow:

Table 8: Total Passenger and Cargo development of Japan's airports between 2003 and 2010

Passengers in Mio.			**Cargo in Mio. Tons**		
2003	2010	*Change*	2003	2010	*Change*
237,8	231,5	*-2,6%*	4,2	5,1	*+21,4%*

Sources: (Japanese Ministry of Land, Infrastructure, Transport and Tourism 2012)

Although passenger numbers dropped slightly, Japan's airports were able to increase their cargo freight by more than 20%. To prepare the country's airports for the aspired emergence and growth of the Low Cost Carrier aviation sector, Japan's first LCC terminal was opened at Osaka's Kansai International Airport in October 2012 whereas at Tokyo Narita International Airport, interim LCC reception facilities were constructed and opened in the same year before a dedicated LCC terminal will be opened in 2014. Furthermore, an interim LCC terminal was opened at Naha Airport, a regional airport, in the same year. (Ministry of Land, Infrastructure, Transport and Tourism 2012)

This development shows, that only months after the decision of the Japanese Government to support the development of the LCC aviation sector, already three of the country's ten biggest airports had – even though partly only temporary solutions – dedicated Low Cost Carrier Terminals.

3.2.3.4 Airlines in Japan

3.2.3.4.1 Introduction to Japan's Airlines

The two most important and biggest carriers in Japan are All Nippon Airways and Japan Airlines. The country's second largest airline today, Japan Airlines, went bankrupt in 2010 and was then successfully restructuring while continuing operations. Both Full Service Carriers will be analysed in the following.

3.2.3.4.2 Japan Airlines

3.2.3.4.2.1 Introduction to Japan Airlines

Japan Airlines in 2001 had a 65% share of domestic passengers. (Japan Airlines 2002)

By 2009 the domestic share had risen to nearly 80%, which means that the – normally significantly more profitable - international passenger proportion and absolute numbers dropped and only the number of domestic passengers had risen. (Japan Airlines 2009)

The average stage length of Japan airlines has changed within the past year, as indicated above. Between the years 1993 and 2002, it was around 1500 miles but has decreased to an average of only 1000 for the time from 2003 onwards until 2012. Japan's flag carrier has its main hubs at Tokyo's airports.

3.2.3.4.2.2 Statistical Data for Japan Airlines

Table 9: Statistical data for Japan Airlines, 1993-2012

financial year ending 3/31											
Financial Data		***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***	***2003***
Passenger Revenue		6.764	7.820	8.677	8.090	7.284	6.562	7.596	8.253	7.300	7.756
Total Revenue		8.183	9.473	10.883	10.225	9.320	8.464	9.888	10.660	9.583	13.120
Expenses		8.456	9.572	10.724	10.183	9.069	8.271	9.628	10.155	9.686	13.055
Operating Profit		-273	-100	159	41	251	193	260	505	-103	65
Operating Ratio		103,3%	101,1%	98,5%	99,6%	97,3%	97,7%	97,4%	95,3%	101,1%	99,5%
Net Income after Taxes		237	-12	5	-84	-764	204	6	260	-316	73
Yield - ¢ per RPM		19,93¢	19,99¢	20,01¢	17,17¢	15,60¢	13,40¢	14,74¢	14,93¢	14,38¢	15,00¢
Cost - ¢ per ASM		16,23¢	16,86¢	16,83¢	15,10¢	13,76¢	11,58¢	13,16¢	13,43¢	13,12¢	17,96¢
Operating Data		**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
RPMs	(mil.)	33.937	39.108	43.357	47.124	46.700	48.974	51.515	55.296	50.767	51.697
ASMs	(mil.)	52.091	56.766	63.730	67.423	65.928	71.447	73.158	75.640	73.821	72.708
Load Factor		65,2%	68,9%	68,0%	69,9%	70,8%	68,5%	70,4%	73,1%	68,8%	71,1%
Passengers	(000)	24.025	26.085	28.846	29.979	31.772	31.362	32.933	33.857	32.472	33.526
Flight Stage	(miles)	1.489	1.502	1.443	1.454	1.397	1.495	1.513	1.555	1.515	1.473
Number of Aircraft		114	119	124	128	136	139	139	139	134	133
Average Seats / Aircraft		323	326	328	331	327	323	321	323	326	323
Utilization	(hours/day)	9,03	9,35	10,06	10,19	10,12	10,12	10,25	10,48	10,38	10,63
Profitability Index		-3,24	-3,09	-3,22	-3,10	-2,71	-2,40	-2,78	-2,51	-3,23	-7,29
Efficiency Index		5,89	6,44	6,84	7,12	7,16	6,93	7,22	7,66	7,14	7,56

Financial Data		***2004***	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	**Ø past 20y**
Passenger Revenue		10.866	12.564	11.899	12.000	12.608	13.670	11.461	11.400	10.984	10.712	
Total Revenue		17.189	19.841	19.346	19.732	19.641	19.453	16.421	16.011	15.276	14.878	
Expenses		17.790	19.318	19.582	19.536	18.848	19.960	18.163	13.795	12.678	12.534	
Operating Profit		-601	523	-236	196	793	-507	-1742	2216	2598	2344	375
Operating Ratio		103,5%	97,4%	101,2%	99,0%	96,0%	102,6%	110,6%	86,2%	83,0%	84,2%	97,0%
Net Income after Taxes		-789	280	-416	-139	149	-630	-2.558	2.216	2.366	2.061	
Yield - ¢ per RPM		19,61¢	21,33¢	20,29¢	21,62¢	23,84¢	27,18¢	25,36¢	29,01¢	39,85¢	36,41¢	21,48¢
Cost - ¢ per ASM		20,66¢	21,91¢	22,44¢	24,36¢	24,56¢	26,28¢	26,19¢	24,52¢	30,50¢	30,45¢	19,99¢
Operating Data		**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	
RPMs	(mil.)	55.396	58.912	58.657	55.499	52.882	50.296	45.192	39.300	27.565	29.423	
ASMs	(mil.)	86.114	88.186	87.283	80.203	76.752	75.956	69.342	56.265	41.569	41.162	
Load Factor		64,3%	66,8%	67,2%	69,2%	68,9%	66,2%	65,2%	69,8%	66,3%	71,5%	68,5%
Passengers	(000)	52.841	51.736	50.884	48.911	47.204	46.682	41.826	36.959	24.464	24.121	
Flight Stage	(miles)	941	986	1.002	984	971	973	946	937	1.078	1.197	1.243
Number of Aircraft		218	217	211	205	207	206	209	172	151	116	
Average Seats / Aircraft		301	301	296	289	278	273	268	257	248	253	325
Utilization	(hours/day)	11,25	9,34	9,61	9,26	9,31	9,43	8,79	8,17	7,25	8,33	9,57
Profitability Index		-8,05	-7,66	-8,80	-9,40	-8,13	-8,29	-9,66	-4,27	-4,08	-4,42	-5,32
Efficiency Index		7,23	6,24	6,46	6,41	6,41	6,24	5,73	5,70	4,81	5,96	6,56

Sources: Japan Airlines Yearly Reports 1994-2012

3.2.3.4.2.3 Financial Development Analysis

Financial statistics for Japan Airlines show that the company experienced negative operating profits seven times within the 20 years between 1993 and 2012). Worst years for the company were 2003, 2008 and 2009 with negative operating results that all reached more than 500 million USD, 2010 figures even show a higher loss of more than 1,7 billion USD. Seen on a 20-year average basis, the company was able to make a profit of 329 million USD yearly but this figure is not really addressing the actual development of the company. Calculating the average operating profit for the 17 years from 1993 until 2009, a number of -34 million USD is found. The high 20-year figure is only reached as the company recorded extremely high operating profits for the years following the bankruptcy and its restructuring in 2010, 2011 and 2012. Each of this years showed an operating profit of more than 2,2 billion USD and operating ratios of ranging around 85%. The company achieved an average operation ratio of 97,7% for the past 20 years (operating ratio for the 17 years of pre-bankruptcy time is 100,1%. Most successful years of Japan Airlines were –as already mentioned – the years following the bankruptcy and the company's successful restructuring.

3.2.3.4.2.4 Operational Development Analysis

The airline experienced high growth rates in terms of passengers and fleet size from 1993 until 2000. Japan airlines carried around 24 million passengers in 1993. This number increased to nearly 34 million passengers in 2000. In terms of ASM, this is an increase from 52 million ASM's in 1993 to more than 75 million ASM's in 2000 – an increase of slightly below 50%. During this time, the airline's fleet grew less than 25% with the average number of seats per plane being equal. This development indicates that Japan Airlines could increase its load factor within the time span from 1993 to 2000 and load factor figures proof: 65% in 1993 and 73% in 2000. Between 2000 and 2009 then, Japan Airlines experienced unstable times with first dropping numbers of passengers and load factors. ASM's went up for the years 2003 until 2005 shortly while load factors were only ranging about 66%. Until then until the

company went bankrupt in 2009/2010, ASM's and passenger numbers went down continuously while the fleet nearly maintained the same: from 211 planes in 2005 down a maximum of six planes and reaching 209 planes in 2009 resulting in load factors below 69 percent and a lower utilization time than the 11 years before. The average factor for the last two decades is 68,5%. When comparing the average load factors of pre-bankruptcy Japan Airlines (for the 17 years between 1993 and 2009) with those of the "new" company (2010-2012) in terms of aircraft utilization rates, they are only differing by one percent-point. Within the restructured company, the fleet of aircraft was significantly cut to only 116 planes in 2012. Although load-factors as just as explained nearly kept pre-restructuring levels and utilization times even further decreased to a three-year average of 7,9 hours ("old" Japan Airlines used its fleet a combined 17-year average of 9,9 hours) the company achieved big success as will be explained in more detail in the next chapter, analysing the company's key indicators. Combined utilization rate for the past two decades is 9,6 hours.

3.2.3.4.2.5 Analysis of Key Indicators of Airline Development

During the past 20 years for which yield data is available for Japan Airlines, a wave-picture can be drawn: reaching a yield of ranging around 20 US-Cents from 1993 until 1996, a decrease then started: down to around 15 Cents for 1999-2002 before increasing again to levels slightly higher than 1993 until 1996 in the years 2003-2006. 2007 until 2009 saw a further increase to higher levels though 2008 had higher yields than its neighbouring years. Within the "new" Japan Airlines, yield numbers went up quickly to 29 Cent in 2010. 39,8 Cent of Yield were reached in 2011, 2012 numbers show 36,4 Cent. Average yield for the past 20 years of Japan Airlines operations is 21,5 US-Cent. Differentiating between the average 17-year yield prior to restructuring (19 Cent) and the restructuring and post-restructuring phase (35 Cent), big differences can be distinguished. In terms of cost, Japan Airlines was able to produce at costs of less than 10 US-Cent per ASM in none of the past 20 years. Back in 1993, Japan Airlines produced at a cost of 16,2 Cent per ASM. Being stable for the next two years, Japan Airlines achieved a lower CASM in the following years

– it was not higher than 14 Cents until 2001 but then continuously increased from 2002 (CASM of 18 Cent) onwards to as high as 26,2 Cent in 2009. During the phase of restructuring, costs slightly decreased to 24,5 Cents for 2010 but then increased to 30,5 Cents for 2011 and 2012. The development of CASM and yield for Japan Airlines indicated that the company, though it was not able to lower its cost achieved high yields and therefore was as profitable as it was shown before. As a reason for this can be named that the company focused on profitable, high yield routes. The twenty-year average CASM for Japan Airlines stands at 20 Cents, pre-restructuring 17-year CASM at 18,5 Cent and the average post-bankruptcy CASM for the three years of "new" Japan Airlines operation 28,5 Cent. The Profitability Index for Japan Airlines can be expected very low as the company suffered heavy operating profit losses and went into bankruptcy. While the years from 1993 until 2001 show low, but not extreme low Profitability Indexes of around -3, the Index then dropped suddenly to figures between -7,3 and -9,4 in the years 2002-2008. 2009 was the year with the lowest Profitability Index, -9,66. This year, as well as previous years were driven by high costs for producing ASM's and yields that were too low to have the chance of operating profitable. The average Profitability Index for the 17 years between 1993 and 2009 is -5,5, for the time 2010-2012 this number estimates -4,3 and for the past two decades 5,4. In terms of efficiency as already shown in the operational data section, Japan Airlines was able to reach Efficiency Indexes of more than 7 only for seven of the last 20 years – all of those to be found at operating times of the "old" Japan Airlines. The Index numbers for the restructured company (2010: 5,7; 2011: 4,81 and 2012: 5,96) are even worse than the 20-year average of Japan Airlines: 6,6.

3.2.3.4.3 All Nippon Airways

3.2.3.4.3.1 Introduction to All Nippon Airways

All Nippon Airways is Japan's largest airline. It has its main hubs at the Airports of Tokyo. The average stage length of the airline lies at little more than 700 miles and

has not changed much during the past two decades. This stage length is indicating a focus on domestic and regional operations.

3.2.3.4.3.2 Statistical Data for All Nippon Airways

Table 10: Statistical data for All Nippon Airways, 1993-2012

financial year ending 3/31										
Financial Data	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***	***2003***
Passenger Revenue	6.475	7.122	7.575	6.730	6.298	5.884	7.532	7.939	6.556	6.246
Total Revenue	6.951	7.689	8.293	7.401	7.381	7.017	10.859	11.545	9.621	10.133
Expenses	6.795	7.526	8.010	7.242	7.375	7.120	10.576	10.803	9.438	10.154
Operating Profit	155	163	282	159	5	-102	283	742	184	-22
Operating Ratio	97,8%	97,9%	96,6%	97,9%	99,9%	101,5%	97,4%	93,6%	98,1%	100,2%
Net Income after Taxes	21	43	32	35	-22	-51	-137	364	-57	-235
Yield - ¢ per RPM	28,29¢	29,75¢	28,45¢	23,04¢	19,79¢	17,63¢	21,37¢	22,01¢	19,77¢	18,54¢
Cost - ¢ per ASM	18,47¢	19,77¢	19,16¢	16,11¢	15,07¢	13,60¢	19,51¢	20,15¢	18,53¢	20,36¢
Operating Data	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
RPMs (mil.)	22.886	23.937	26.629	29.215	31.827	33.377	35.248	36.067	33.162	33.692
ASMs (mil.)	36.797	38.072	41.803	44.958	48.938	52.338	54.197	53.621	50.932	49.866
Load Factor	62,2%	62,9%	63,7%	65,0%	65,0%	63,8%	65,0%	67,3%	65,1%	67,6%
Passengers (000)	35.129	33.717	37.822	39.377	40.697	41.471	42.743	43.460	43.045	43.680
Flight Stage (miles)	651	658	681	707	739	762	782	785	764	739
Number of Aircraft	111	114	119	123	130	137	137	140	137	138
Average Seats / Aircraft	331,2	331,6	318,6	318,9	316,3	315,9	323,2	319,9	316,1	317
Utilization (hours/day)	7,18	7,26	7,93	8,16	8,47	8,05	8,37	8,2	7,91	7,83
Profitability Index	-0,87	-1,05	-1,04	-1,13	-2,21	-2,36	-5,62	-5,33	-5,66	-7,83
Efficiency Index	4,47	4,57	5,05	5,30	5,51	5,14	5,44	5,52	5,15	5,29

Financial Data	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Ø past 20y
Passenger Revenue	7.313	8.100	8.042	8.700	9.100	8.500	8.000	10.973	12.320	12.182	
Total Revenue	10.834	12.043	12.040	12.763	13.102	12.398	11.551	14.324	16.009	15.895	
Expenses	10.528	11.319	11.259	11.973	12.359	12.406	12.210	13.613	14.887	14.765	
Operating Profit	306	725	781	790	743	-7	-659	711	1122	1130	185
Operating Ratio	97,2%	94,0%	93,5%	93,8%	94,3%	100,1%	105,7%	95,0%	93,0%	92,9%	98,1%
Net Income after Taxes	220	251	235	279	565	-18	-208	274	357	518	
Yield - ¢ per RPM	22,60¢	23,70¢	22,94¢	24,13¢	24,76¢	23,93¢	24,54¢	31,49¢	35,12¢	31,56¢	24,67¢
Cost - ¢ per ASM	20,84¢	22,01¢	21,60¢	22,63¢	22,56¢	22,99¢	24,24¢	27,16¢	27,42¢	25,76¢	20,90¢
Operating Data	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	
RPMs (mil.)	32.360	34.171	35.050	36.058	36.746	35.522	32.601	34.845	35.078	38.602	
ASMs (mil.)	50.517	51.419	52.130	52.917	54.792	53.949	50.368	50.121	54.291	57.314	
Load Factor	64,1%	66,5%	67,2%	68,1%	67,1%	65,8%	64,7%	69,5%	64,6%	67,4%	65,6%
Passengers (000)	43.388	46.450	48.315	49.226	48.987	46.982	41.921	43.585	41.911	44.668	
Flight Stage (miles)	712	660	639	639	671	689	692	710	754	770	710
Number of Aircraft	141	141	146	156	162	165	169	176	178	187	
Average Seats / Aircraft	305	272	257	252	247	238	234	228	223	221	284
Utilization (hours/day)	8,21	9,43	10,18	10,07	9,96	9,90	9,19	9,06	9,53	10,01	8,75
Profitability Index	-6,36	-6,25	-6,18	-6,19	-5,94	-7,25	-8,36	-5,27	-4,73	-4,49	-4,71
Efficiency Index	5,26	6,27	6,84	6,86	6,68	6,51	5,95	6,30	6,16	6,75	5,75

Sources: All Nippon Airways Yearly Reports 1994-2012

3.2.3.4.3.3 Financial Development Analysis

All Nippon Airways did experience four years within the last 20 years for which statistical data is available were it did not achieve positive operating profits. The worst result is found in 2009, probably a result of the World Financial Crisis, were statistics show an operating profit of -659 million USD. Other than that, the company experienced negative operating profits in 1998, 2002 and 2008 but not as high as in 2009. The average yearly operating profit for the last two decades was 375 million dollars. Best operation ratios were achieved in the years 2004 until 2007 where operating ratios ranged between 93,5 percent and 94,3 percent. An average operating ratio of 97% can be calculated for the time span between 1993 and 2012.

3.2.3.4.3.4 Operational Development Analysis

All Nippon Airways experienced medium growth rates in terms of passengers for the year 1993 until 2006. The company carried around 35,1 million passengers in 1993.

This number increased to more than 49,2 million in 2006. Fleet size was growing faster than passenger numbers. The reason for that is to be found in that the average number of seats per aircraft decreased in the same time from 331 seats per plane to 252, so more of smaller aircraft were needed instead of buying fewer of the same size. In terms of ASM, this is an increase from 36,8 million to 49,2 million ASM's in 2011 – an increase of one third. From 2007 onwards, passenger numbers transported lowered and the latest four years show passenger numbers between 41,9 million (2009) and 44,7 million in 2012. The development of the company's load factors is completely indifferent, ranging between numbers of 62,9% (1993) and the highest being 69,5% in 2010, resulting in a 20-year-average Load Factor of 65,6%. In terms of aircraft utilization rates, the company managed to develop positively during the past two decades to use its fleet more efficient. For a little more than first decade in focus of this paper, between 1993 and 2003, utilization time was ranging between 7,2 hours and 8,5. A utilization time between 9,1 and 10,2 hours was recorded for 2004 onwards until 2012.

3.2.3.4.3.5 Analysis of Key Indicators of Airline Development

Yield data for All Nippon Airways is available for all 20 years that are looked at in this thesis. Amounts of yields were high in the 1993-1996 time span (between 28,2 Cent and 29,8 Cents) but afterwards decreased in general numbers as low as 17,6 Cent in 1998. yields amounting as high as in 1993 until 1996 firstly appeared from 2010 onwards then. The past 20 year average yield is estimated at 24,7 Cents.

In terms of cost, All Nippon Airways was not able to produce at costs of less than 10 US-Cent per ASM in any of the past 20 years. CASM figures of lower than 20 Cents can be found for the years 1993 until 1999 and 2001. Lowest CASM figures are recorded for the years 1996 (16,1 Cent), 1997 (15,1 Cent) and 1998 (13,6 Cent). Beginning in 2002, CASM figures were generally increasing from 20 Cent up to 27,4 Cent in 2011 with 2012 being the first year of a slight decline in CASM: 25,8 Cents. On an average basis for the last 20 years, the CASM figure is 20,9 Cent. The Profitability Index for All Nippon Airways, based on statistics available, can be calculated for the time span between 1993 and 2012. The average Profitability Index

for the last 20 years is -4,71. According to this index, the most profitable years for the airline were the four years between 1993 and 1996 with indexes of nearly -1. The most unprofitable years were the time between 2002 and 2009 with Profitability Indexes ranging in between 5,9 and as low as -7,83. In terms of efficiency the Efficiency Index relatively stagnated within the time frame between 1993 and 2003, reaching only scores between less than 4,5 and 5,5. A little increase in efficiency was noted then, from 2004 onwards the Index displays numbers between 6,1 and 6,9. This development though is extremely low. For the last two decades, All Nippon Airways reached an average Efficiency Index of 5,75.

3.2.3.4.4 Findings in Regard to Japanese Airlines

It can be distinguished that All Nippon Airways, by contrast to its opponent Japan Airlines was able to increase traffic, measured in RPM's, at least slightly compared to 20 years ago. Japan Airlines RPM's numbers increased much but the company then struggled and went bankrupt now having less traffic than 20 year ago. Growth factors like GDP, population growth and an increased middle class have were low in Japan and are reflected by the growth of All Nippon Airways. One can also distinguish that the airline industry growth factors regarding alternative transportation, level of competition and government regulations have had negative impacts for the growth of the Japanese airline industry and it can be expected that the growth of the airline industry would have even been bigger without these negative impacts.

The average 20 year operating ratio of Japan Airlines is slightly lower (97,7%) those of All Nippon Airways (97,0%) although it has to be noticed that the operating ratio of the 17 years of the "old" Japan Airlines was 100,1%.

Japan Airline's 20-year Efficiency Index of only 6,56 shows a relatively inefficient use of resources as well as the Index of All Nippon Airways shows a lower number with only 5,75. In case of Profitability Index of the last two decades, All Nippon Airways – as it can be expected as the company by contrast to its competitor did not went bankrupt – performed better with an Profitability Index of -4,71. Index for 20-year average Japan Airlines was -5,43, the 3-year index for the restructured company

only -4,26. On an average basis, Air China was the most profitable of the “big three”, followed by China Southern though China Southern’s efficiency was higher than that of Air China. China Eastern ranks last for both Indexes.

Even though airport statistics are only available from 2003 until 2010 onwards it can be distinguished that Japanese airlines develop similar to the passenger numbers of the airports.

3.2.3.5 Aircraft Manufacturers in Japan

Table 11: Aircraft orders and deliveries for Japanese airlines

		Aircraft Delivered		**Aircraft Orders**	
		Airbus	Boeing	Airbus	Boeing
1	All Nippon Airways	13	175	33	48
2	Japan Airlines		121	31	30

Sources: (The Boeing Company 2014) and (Airbus 2014)

As Japan is today economically deeply linked with the United States, it is not surprising that Japanese airlines buy most of their planes from Boeing. As most of the ordered planes have already been delivered, only a medium fleet growth can be expected within the next years for the country’s two main carriers.

3.3 South-East-Asian Airline Industry Development

3.3.1 Introduction to the Development of South East Asia

The airline industry in South East Asia in the past twenty years can be described as booming. Airports of the region such as Singapore, Kuala Lumpur and Bangkok “gained a reputation as international hubs for the industry. Airlines also took advantage of the rapidly rising demand to record increasing passenger loads, revenue and profitability with route networks being extended.” (Sadi and Henderson 2000)

The emergence of Low Cost Carriers has changed the airline industry in ASEAN significantly.

3.3.2 Development of Growth Factors Affecting the ASEAN Region

3.3.2.1 Government Regulatory Policies on the Regional Level: Open Sky in ASEAN

The Association of South-East Asian nations was formed in 1967 by Indonesia, Malaysia, the Philippines, Singapore and Thailand and continuously enlarged by Brunei, Vietnam, Laos, Myanmar and Cambodia until 1999. The founding principles of the organization - today including all South-East Asian countries defined as belonging to South-East Asia by this paper - are the acceleration of economic growth amongst others like cultural development and regional stability. The move towards Open Sky in ASEAN is different from how Open Skies has been implemented in Europe some time ago. Besides some regional Open Skies arrangements that only include minimal liberalisation measures, the EU Open Skies is the only comparable example of a region that has introduced an open sky policy without any limitations. European Union member countries at this time were forced to implement Open Skies by a decision of the European Court of Justice. It is doubtful whether European air liberalization would have come as far as this if it had up to all member countries negotiating an agreement. Therefore it is even more impressive that ASEAN members have negotiated agreements that lead to a formation of open skies in the region as members of ASEAN are diverse countries looking at the population, GDP, progress of the aviation sector and their current different aviation policies before the implementation of ASEAN Open Sky, ranging from not existing to being extremely restrictive up to being very liberal. The Open Sky policy of ASEAN had its beginning in the 1995 Agenda for Greater Economic Integration that included a plan of action for transport and communications and appeared a lot of times in declarations and action plans of the following years like the ASEAN Vision 2020 (1997) and the Successor Plan of Action in Transport 1999-2004, all aiming at providing a more competitive environment for the air transport industry through liberalization. The 7th

Air Transport Meeting of ASEAN then brought more concrete proposals. Transport Ministers of all ASEAN member countries agreed in launching a regional initiative working on the liberalization of air services in ASEAN with the aim of supporting a greater market access and flexibility regarding air services. In terms of cargo freight operations liberalization, an ASEAN Memorandum of Understanding was signed in 2002 as a first step towards the full liberalization of air freight services within the Association of South-East Asian Nations. After the ASEAN Air Transport Working Group then had worked out the so called Road Map for the Integration of ASEAN: Competitive Air Services Policy that included the various steps and time frames for deregulating the airline industry of ASEAN, it was approved by the Transport Ministers in 2003 and a special meeting on ASEAN Open Sky was held in 2004 and major steps were already done. The action plan for the ASEAN Open Sky included unlimited (e.g. not limited to capacity of aircraft, frequencies, airports) third and fourth freedom between any points within ASEAN by June 2010. Third freedom rights mean the right to carry passengers or cargo from one's own country to another, in this case another member of ASEAN as the ASEAN Open Sky policy does only consist of regional liberalization within all members of ASEAN. Routes between ASEAN members and countries outside the Association of South-East Asian Nations are not included in this Open Sky agreement and still remain handled on bi-lateral agreements between the states. The right to carry passengers or cargo back from another country to one's own is called fourth freedom. Unlimited fifth freedom between any point within ASEAN will be introduced by 2015 and from this time on there will not exist any restrictions on pricing and type of airlines as well as there will be a relaxation on airlines' ownership and control, removing route capacity controls and wet lease aircraft (a leasing arrangement where one airline provides an aircraft including crew, maintenance and insurance to another airline which pays by hours operated and uses the plane for their services) to be allowed within ASEAN. Fifth freedom rights allows an airline to carry revenue traffic between foreign countries as a part of services connecting the airline's own country. Currently not yet part of the ASEAN Open Sky are so called Seventh Freedom Rights from which especially Low-Cost-Carrier airlines of the European Open Sky agreement benefitted extremely and

which can be seen as the basis for their successful development. This gives an airline the right to operate freely and without limitations within countries of the agreement, meaning Singapore Airlines could then offer flights between Indonesia and Thailand without stopping at Singapore. It remains unclear, whether and when this right will be part of the ASEAN Open Sky. Though Open Sky in ASEAN already is and will be continue to be an important component of the overall economic integration of ASEAN as a good system of transport links is critical to for the development of economies. Open Sky provides fertile conditions under those Low Cost Carriers can continue to develop or can arise. (Forsyth, King and Rodolfo 2006)

3.3.2.2 The Asian Financial Crisis and its Influences onto the South East Asian Aviation Industry

South East Asia in the 1990's was one of the world's aviation centers, especially in terms of growth but also in regard to the reputation of some of its airports and airlines. This changed when a massive economic crisis struck Asia, especially the South East Asian countries, beginning in July 1997 and led to a massive value-fall of the region's currencies. The so called Asian Financial Crisis originated from Thailand and spread quickly throughout the ASEAN countries and reached North East Asia as well. (Sadi and Henderson 2000)

Since 1st of July 1997, the Thai Baht has depreciated by 45% against the US-Dollar, Indonesia's Rupiah even lost 70% of its value. Both Malaysia and the Philippines were affected with its currencies loosing around 40% against the US-Dollar. As Singapore at this time already had stronger macro-economic fundamentals, it was not as deeply affected as its neighbouring countries: The Singapore Dollar "only" lost around 20% of its value compared to the USD. (The Straits Times 1998s)

These conditions followed not only an economic crisis of unprecedented scale but especially affected the tourism and transportation sectors in South East Asia. Demand for flights decreased massively as a result of the crisis and in 1998, the growth of tourist numbers in the ASEAN region was the smallest worldwide. As the

airline industry is still an industry that is very much interwoven with the US-Dollar, the currency devaluation had massive effects on the operation of airlines. Fuel costs for example are usually paid in USD, meaning that the cost for fuel increased immensely during this time. Airlines in Thailand, Indonesia, the Philippines and Malaysia suffered most while every airline that operated in these regions and sold tickets in the currencies of these countries felt the negative impacts. (Sadi and Henderson 2000)

The Asian Financial Crisis resulted in the cancelling or suspension of air transport services and the cancellation of aircraft orders as it was unclear how fast and how far the industry would recover and can be seen as one of the most adverse happenings for the airline industry in South East Asia.

3.3.3 Low Cost Carrier Emergence and Development in South-East Asia

The rise of Low Cost Carriers in South-East Asia is a field where the time span of observation in this paper has to be changed from the past two decades to the last decade only. The reason is that the emergence of the first Low Cost Carriers in ASEAN only started about ten years ago. The study “Perspectives on the Development of Low-cost Airlines in South-east Asia” by Kua and Baum, published in 2004, finds that at the time of writing, assuming in 2003, there was not a single low cost airline operating regionally in South-East Asia for various reasons like national regulations that limit access to international air routes in favour of flag carriers and a bilateral system of route allocation that was normal at this time. Cebu Air of the Philippines that can be seen as South-East Asia’s first Low Cost Carrier, that commenced operations in 1996 even before the emergence of Air Asia took place. More information regarding the development of Air Asia will be given as part of the case study for Malaysia. (Baum and Kua 2004)

In the last 10 years, a lot of South East Asian Low Cost Carrier have emerged and developed.

Just recently, in February 2013, Singapore's Transport Minister Lui Tuck Yew stated in an interview "LCCs now make up more than 50% of the intra-Southeast

Asia market, a phenomenal growth from less than 5% just ten years ago. Of the top 15 busiest LCC international routes, nine are found in Southeast Asia. The largest three LCC international routes in the world originate from Singapore: Singapore-Jakarta, Singapore-Kuala Lumpur and Singapore-Bangkok. What is more meaningful in the LCC story is the benefits they have brought. LCCs have brought air travel to the mass market, a particularly significant point for Asia given the region's fast expanding middle class. With their business model, LCCs have also brought air travel to many secondary points that were previously not viable". He noted the continued evolution and transformation of LCCs, including an increased trend of interlining between LCCs and the establishment of LCC affiliates in different countries to take advantage of the air rights in those countries. He continued, "To fully capture the benefits that LCC can bring, governments would need to embrace the LCC sector and facilitate its growth"; (Centre for Aviation 2014)

Statistics regarding the LCC penetration of the South East Asian market show that they had single digit market shares between 2001 and 2004. 2005 was the first year when the LCC capacity share within South East Asia was more than 10% (13,6%). This trend has continued and the enormous success has inspired airline entrepreneurs and FSC to establish Low Cost Carriers to participate in this success. 2009 was the year, when LCC's firstly accounted for more than 30% of South East Asia's traffic and this proportion exceeded 50% for the first time in 2012, growing further to nearly 58% in 2013. Low Cost Carriers in South East Asia do not only fly regionally, the also operate to and from destinations outside South East Asia, mostly North East Asia. LCC's accounted for a 14,6% share in this traffic last year, up from 1,1% in 2005 and 8,6% in 2009. (Centre for Aviation 2013)

3.3.4 Case Study 3: Singapore

3.3.4.1 Introduction to Singapore's Development

Singapore today is one of the world's most prosperous countries. Singapore is ruled by the People's Action Party (PAP), which has dominated Singapore's politics since

its independence on 9th August 1965 after peacefully seceding from the Federation of Malaysia. (Steiner 2011)

Singapore, being an island-state with no natural resources, depends on tertiary sector businesses. Therefore, the country has a strong interest in air-transport as all those businesses would not be possible without the airline industry.

3.3.4.2 Development of Airline Industry Growth Factors in Singapore

3.3.4.2.1 Introduction to the Development of Growth Factors in Singapore

In the following decades of authoritarian development, Singapore transformed into a first-world country, having a higher GDP per Capita than Austria or Germany today.

Today, Singapore – as one of the four Asian Tigers - has a highly developed and successful free-market economy. It enjoys a remarkably open and nearly corruption-free environment, stable prices, and a per capita GDP higher than that of most developed countries. Singapore is a world leader in several areas: it is the world's fourth leading financial center, the world's second biggest casino gambling market, the world's top three oil refining center. Its port of is one of Singapore's key economic elements because the country is lacking in land and natural resources. It is one of the five busiest ports in the world, most notably being the busiest transhipment port in the world. Singapore has attracted major investments in pharmaceuticals and medical technology production and will continue efforts to tighten Singapore as Southeast Asia's financial and high-tech hub. Tourism is also a part of the economy which gets stronger year by year. (Central Intelligence Agency 2013)

3.3.4.2.2 Economic Development of Singapore

During the past two decades from 1993-2012, Singapore experienced a couple of years with GDP growth in the speed of double-digit growth, such as 1993, 1994 and also 2010. By contrast for example, GDP growth was negative in years after major

events like the Asian Financial Crisis 1997 (-2,17% GDP growth in 1998), the terror attacks of 9/11/2001 (-1,15%) and the World Financial Crisis beginning in 2008 that resulted in a negative GDP growth of -0,79% in 2009. Average GDP growth was slightly more than 6% yearly for the past two decades. GDP per Capita (PPP) grew by the factor 2,5 during the past two decades from 23.180 Current International Dollar to 60.800 Current International Dollar in 2012. These developments have generally had a positive impact as a growth factor for the airline industry of the country.

3.3.4.2.3 Population Development and Urban Population in Singapore

Singapore's population increased significantly during the past two decades, mainly because of people from abroad coming to Singapore. Back in 1993, the population size was 3,3 million and has risen by 2 million to more than 5,3 million Singaporean's in 2012. This means the potential number of customers for the Singaporean aviation market has increased by more than 60% during the last 20 years. Therefore, positive impacts on the country's aviation industry can be expected.

3.3.4.2.4 Development of Competition within Singapore's Airline Industry

As the Government of Singapore always encouraged competition and a nearly free aviation industry, competition at Singapore's airport was already existing before the entry of LCC's. The level of competition has increased in the middle of the last decade when more and more competitors entered the LCC market and competition started taking place on all levels between FSC and FSC, LCC and LCC as well as between FSC and LCC. For example, the average fare between Singapore and Kuala Lumpur, a route that previously only had been served by Singapore Airlines and Malaysia Airlines, went down to around 30 Singapore dollars when LCC's entered the market and started serving the route in after Singapore-Malaysia open skies was implemented in 2008. (Zhang, et al. 2008)

The level of competition was medium before LCC entered the market and since a couple of years it can be regarded as high.

3.3.4.2.5 Development of Alternative Transportation in Singapore

Due to the geography of the country, talking about long-haul transportation is not possible for the country. Alternative forms of international travel to air-transport from Singapore only include ferries or road connections with Malaysia – both cannot be seen as a threat to the Singaporean airline industry.

3.3.4.2.6 Development of Government Regulations

Aviation in Singapore is a key component of the Singaporean economy. The country follows the strategy being the premier transport hub in the Asian region. Singapore has followed an open skies policy since the 1960's. Singapore has Air Services Agreements with over 90 countries and regions and signed more than 30 Open Sky Agreements until 2013. "The traffic rights secured for Singapore Airlines under Singapore's open skies strategy have been integral to the carrier's emergence as one of the world's largest airlines despite its very small domestic traffic base." (Centre for Aviation 2014s)

Singapore has the most liberal aviation policy in Southeast Asia. The Civil Aviation Authority of Singapore, a division of the Ministry of Transport has the task to ensure that the country features a vibrant air hub and high standards of civil aviation. Furthermore the government has a strong interest to attract lots of aviation-related businesses and activities. Desirable examples include airlines, maintenance, and repair and overhaul services, aircraft manufacturing and aviation logistics. Foreign direct investment is encouraged. (Centre for Aviation 2014s)

In addition to that – especially important from 2015 onwards, the importance and far-reaching impacts of the ASEAN Open Sky policy have already been explained before. The high regulatory liberalization of the Singaporean airline industry has benefitted much to the growth of the industry.

3.3.4.2.7 Development of Tourism in Singapore

Tourism is an area that it heavily supported by the Singaporean Government as it is seen as one economic key factor and important for the country's further successful development. Back in 1995, Singapore welcomed more than 6 million visitors from abroad while nearly 3 million Singaporean's travelled internationally (it has to be noted that this also includes day trips to Malaysia). Tourism arrival numbers fell slightly the next two years and dropped to 5,1 million in 1998 as the Asian Financial Crisis was affecting the ASEAN countries.

As The Singapore Tourism Board expects the Asian market contributing around 70% of visitors to Singapore this crisis can be seen as the explanation for the sudden drop. (Sadi and Henderson 2000)

However, arrival numbers of international tourists recovered to pre-crisis levels from 1999 until the next crisis that negatively affected tourism: the outbreak of SARS. This crisis had an even worse impact that the Asian Financial Crisis on the development of tourist numbers. In 2003, Singapore only welcomed 4,7 million visitors. After that, numbers recovered again and increased quickly to more than 7 million in 2005 and nearly 8 million tourists arriving in 2007. The World Financial Crisis then negatively influenced the development and numbers decreased by half a million in 2009 compared to 2007. 2010 and 2011 saw quick recovery of tourist arrivals with 2011 being the first year that brought more than 10 million tourists from abroad to the country. 2012 numbers reach 11,1 million. By contrast to this development, one finds that numbers of Singaporean's going abroad have developed rather different: These numbers have increased quite continuously without bigger drops as crisis' hit the country. The number of departures in international tourism raised from 2,9 million in 1993 to more than 8 million in 2012. To conclude it can be said, that Singaporean's departing for tourism have certainly had a continuing positive impact to the airline industry whereas numbers of tourists arriving have not benefitted much to the airline industry development between 1995 and 2003 but can be seen as a growth factor for the airline industry from 2004 onwards.

3.3.4.3 Airlines in Singapore

3.3.4.3.1 Singapore Airlines

3.3.4.3.1.1 Introduction to Singapore Airlines

Singapore Airlines (SIA) was founded in the year 1972 and has developed from a regionally operating airline into one of the world's most famous airlines. It is well known because of the Singapore Girl, representing the carrier's aim for hospitality and exceptional service. One of the main characteristics of SIA is that the airline, given the size and structure of its home-country has no domestic network – it depends solely on international flights. Singapore Airlines can be seen as a distinguished example for a nation's flag carrier. Primarily decades ago but still until today to a smaller extent, flag carriers worldwide played "ambassadorial" roles for the nations they represent. In the case of SIA it is commonly said that it was Singapore Airlines that first of all introduced Singapore to the world. Until today many flag carriers are still seen as national prestige and pride symbols. (Chan 2000)

Singapore Airlines group that also includes its 100% subsidiaries Silk Air that only flies regionally and SIA Cargo is majority owned by the Singapore Government through a state-owned holding company that supports companies with bright growth prospects by providing capital and therefore supporting the economic development of the country, Temasek Holdings. (Forsyth, King and Rodolfo 2006)

Singapore Airlines has a worldwide network with many long-haul flights as its subsidiary Silk Air operates a lot of regional flights within South East Asia. Therefore Singapore Airlines had an average stage length of 2.574 miles for the past twenty years. Singapore Airlines is a Full Service Carrier.

3.3.4.3.1.2 Statistical Data for Singapore Airlines

Table 12: Statistical data for Singapore Airlines, 1993-2012

fiscal year ending March 31										
Financial Data	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***	***2003***
Passenger Revenue	2.666	3.030	3.358	3.496	3.370	3.072	3.511	3.841	3.584	3.849
Total Revenue	3.370	3.868	4.407	4.617	4.547	4.195	4.834	5.313	5.313	5.353
Expenses	3.089	3.363	3.886	4.192	4.137	3.959	4.368	4.747	4.796	5.475
Operating Profit	281	505	522	425	411	236	467	566	557	401
Operating Ratio	91,7%	86,9%	88,2%	90,8%	91,0%	94,4%	90,3%	89,3%	86,6%	93,2%
Net Income after Taxes	452	632	622	639	600	483	747	771	358	625
Yield - ¢ per RPM	10,40¢	10,85¢	11,16¢	10,45¢	9,84¢	8,56¢	8,76¢	8,73¢	8,38¢	8,35¢
Cost - ¢ per ASM	8,61¢	8,60¢	9,30¢	9,32¢	8,71¢	7,77¢	8,18¢	8,28¢	8,19¢	9,05¢
Operating Data	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
RPMs (mil.)	25.642	27.930	30.075	33.453	34.236	35.877	40.097	43.991	42.765	46.090
ASMs (mil.)	35.878	39.080	41.775	44.975	47.516	50.953	53.413	57.357	58.537	60.483
Load Factor	71,5%	71,5%	72,0%	74,4%	72,1%	70,4%	75,1%	76,7%	73,1%	76,2%
Passengers (000)	9.305	9.920	10.761	11.838	12.149	12.329	13.545	14.874	14.696	15.337
Flight Stage (miles)	2.092	2.157	2.177	2.197	2.283	2.416	2.466	2.478	2.471	2.555
Number of Aircraft	63	65	68	77	83	93	102	97	95	96
Average Seats / Aircraft	246	256	255	259	257	228	226	229	230	241
Utilization (hours/day)	10,96	11,04	11,78	12,03	11,74	11,34	10,89	11,33	11,24	12,45
Profitability Index	-1,17	-0,84	-1,26	-1,55	-1,62	-1,74	-1,60	-1,58	-2,06	-2,69
Efficiency Index	7,84	7,89	8,48	8,95	8,46	7,98	8,18	8,69	8,22	9,49

Financial Data	***2004***	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	**Ø past 20y**
Passenger Revenue	3.477	4.449	4.842	6.237	7.535	7.818	6.064	7.612	8.298	
Total Revenue	6.432	7.237	7.201	7.281	8.685	9.056	7.137	8.855	9.664	
Expenses	5.845	6.700	6.809	6.622	7.566	8.485	7.164	8.213	9.519	
Operating Profit	588	537	392	659	1119	571	-27	642	145	473
Operating Ratio	90,9%	92,6%	94,6%	90,9%	87,1%	93,7%	100,4%	92,7%	98,5%	91,8%
Net Income after Taxes	1.017	848	747	1.366	1.395	737	152	824	269	
Yield - ¢ per RPM	8,77¢	9,29¢	9,62¢	11,45¢	13,34¢	13,44¢	11,97¢	14,43¢	15,46¢	10,70¢
Cost - ¢ per ASM	10,62¢	10,47¢	10,09¢	9,51¢	10,82¢	11,44¢	10,77¢	12,39¢	13,64¢	9,78¢
Operating Data	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	
RPMs (mil.)	39.654	47.898	50.325	54.462	56.484	58.178	50.675	52.762	53.688	
ASMs (mil.)	55.043	63.973	67.486	69.627	69.954	74.171	66.493	66.282	69.790	
Load Factor	72,0%	74,9%	74,6%	78,2%	80,7%	78,4%	76,2%	79,6%	76,9%	75,0%
Passengers (000)	13.124	15.877	16.618	18.022	18.957	19.142	16.322	16.621	16.905	
Flight Stage (miles)	2.722	2.764	2.821	2.811	2.831	2.863	2.887	2.949	2.964	2.574
Number of Aircraft	84	89	91	94	94	101	108	110	105	
Average Seats / Aircraft	273	273	270	269	266	273	277	272	272	256
Utilization (hours/day)	12,46	15,28	15,71	15,94	15,89	15,82	13,06	12,70	13,73	12,92
Profitability Index	-4,30	-3,52	-2,91	-0,55	-0,04	-0,90	-1,65	-0,91	-1,75	-1,72
Efficiency Index	8,98	11,44	11,71	12,47	12,83	12,41	9,95	10,11	10,56	9,72

Sources: Singapore Airlines Annual Reports 1994-2012

3.3.4.3.1.3 Financial Development Analysis

For the past two decades in focus of this thesis, 1993-2012, statistics for Singapore Airlines show, that there was one single year, the fiscal year ending March 31st 2010, when the airline did not achieve an positive operating profit (-27 million USD). On a 20-year average basis, Singapore Airlines reaches an operating profit of 473 million dollars and an average operating ratio of 91,8% for this time span.

3.3.4.3.1.4 Operational Development Analysis

Singapore Airlines increased its numbers of passengers carried continuously from about 9,3 million in 1993 to 15,3 million in 2002. For 2003, a drop by more than 2 million passengers can be seen and can be explained by the SARS-crisis. Passenger numbers then continued growing, peaking 2008 with more than 19 million carried passengers. 2009 to 2012 then show passenger numbers ranging between 16 and 17 million. In terms of fleet growth, a wave can be found. The company's fleet grew from 1993 (63 aircraft) to 2000 (102 planes), then declined until 2004 (84 aircraft) and grew again to 110 planes in 2011. 2012 statistics show 105 aircraft in the fleet. Singapore Airlines Load Factors have ranged around 72% to 75% for a long time, beginning in 2006 they increased slightly reaching 80,7% as the highest load factor recorded in the company history in 2007. The 20 year average load factor is 75%. As the company is operating a route profile that includes lots of long-haul flights, it is relatively easy for Singapore Airlines to reach high utilization rates of their aircraft. Back in 1993 it was 10,96 hours and slightly increased within the next ten years before the number reached more than 15 hours between the years 2004 and 2008. After the World Financial Crisis, utilization time levelled off around 13 hours daily, which is also the average utilization rate of the last 20 years: 12,9 hours.

3.3.4.3.1.5 Analysis of Key Indicators of Airline Development

Relative constant yields around 10 US-cents can be found for the period 1993 until 1997 before declining slightly down to around 8 cents between 1998 and 2003.

Beginning from 2004 onwards, yields steadily increased to more than 13 cents in 2007 and 2008. 2009 yield is lower with only 12 cent but then continued its growth and reached 15,5 cent in 2012. In terms of cost, Singapore Airlines was able to produce at costs of less than 10 US-cent per ASM in 11 of the past 20 years. CASM figures higher than 12 cents are only found for 2010 (12,4 Cents) and 2011 with a CASM of 13,6 Cent. The Profitability Index for Singapore Airlines, based on statistics available, can be calculated for the time span between 1993 and 2011. The average Profitability Index for the two decades is -1,72. According to this Index, most profitable years of Singapore Airlines were 2006 with a Profitability Index of -0,55 and especially 2007 with only -0,04. The most unprofitable year was 2003 with an Profitability Index that is –4,3. In terms of efficiency the Efficiency Index relatively stagnated for a long time between 1993 and 2001, reaching scores between 7,8 and 9,0. The index increased to more than 12 for the years 2006-2008. After this year it stagnated around 10 for the following three years. For the last two decades, Singapore Airlines reached an average Efficiency Index of 9,72.

3.3.4.3.2 Findings in Regard to Singaporean Airlines

As Singapore Airlines is the sole carrier within this case study, a comparison is not made here. The general findings section of the thesis will compare the airline with the other airlines in focus of case studies and also benchmark to Asia-Pacific airlines and worldwide airlines.

3.3.4.3.3 Low Cost Carriers in Singapore

In the last years, a lot of LCC's have emerged in Singapore. Named as being based in Singapore are the countries first LCC, Valueair, that had begun operations in 2004. Jetstar Asia (amongst its shareholders are the Australian airline Quantas as well as Temasek Holdings) in 2005 merged with Valueair. Furthermore Tiger Airways (amongst its shareholders are Singapore Airlines, Temasek Holdings and other investment companies) has to be named as well as Scoot, a Singapore Airlines

subsidiary that is operating the Low Cost Carrier model on medium and long-haul routes.

Though Air Asia is not a Singaporean LCC, it offers more than 100.000 weekly seats from and to Singapore. The company for a time considered setting up an affiliate in the city-state but refrained from this as the government regulations in Singapore are that free that it would have had no bigger benefit for the company. (Centre for Aviation 2014s)

3.3.4.4 Aircraft Manufacturers and Singapore

Table 13: Aircraft orders and deliveries for Singapore Airlines

	Aircraft in Operation		**Aircraft Orders**	
	Airbus	Boeing	Airbus	Boeing
Singapore Airlines	46	58	65	35

Sources: (The Boeing Company 2014) and (Airbus 2014)

Numbers of orders show that Singapore Airlines will further increase its fleet within the next years.

3.3.4.5 Airport Development in Singapore

Table 14: Development of passenger and cargo numbers for Singapore airport 1997-2012

	1997	2000	2003	2006	2009	2012
Passengers in Mio.	25,2	28,6	24,7	35	37,2	51,2
Cargo in Mio. Tons	1,38	1,73	1,61	1,91	1,63	1,81

Sources: (Association of South East Asian Nations 2004) (Association of South East Asian Nations 2012)

3.3.5 Case Study 4: Malaysia

3.3.5.1 Introduction to Malaysia's Development

During the past 20 years, Malaysia, currently defined a middle-income country, was successful "in diversifying its economy from dependence on exports of raw materials to the development of manufacturing, services, and tourism. Malaysia is attempting to achieve high-income status by 2020 and to move farther up the value-added production chain by attracting investments in Islamic finance, high technology industries, biotechnology, and services". (Central Intelligence Agency 2014m)

The airline industry can be seen as an essential participant in order to reach these aims and support the economic development of the country.

3.3.5.2 Development of Airline Growth Factors in Malaysia

3.3.5.2.1 Economic Growth Development in Malaysia

Malaysia has achieved economic growth in most years of the past two decades. Only two exceptions can be found where economic growth in the form of GDP growth was negative: The year 1998, affected by the Asian Financial Crisis and the year 2009, affected by the World Financial Crisis. The combined growth ratio of the GDP of Malaysia for the twenty years from 1993 until 2012 is 5,6%. In the first decade that is in review by this thesis, the years 1993 until 1996 achieved GDP growth rates of 9% to 10%. The highest growth rate that can be found for within the last years lies at 7,4% in 2010 after the economy recovered from the World Financial Crisis. Economic growth in Malaysia therefore has benefitted to the airline industry and can be seen as a growth factor for Malaysia's airline industry.

3.3.5.2.2 Population Development and Urban Population in Malaysia

Malaysia's total population has grown massively during the past two decades. It saw an increase of more than 50%, from 19,7 million inhabitants in 1993 to 29,2 million Malaysians in 2012. The share of Malaysian's living in urban areas has also surged

during the past twenty years. While in 1993, 53,3% percent of the population was urban population (in absolute numbers 10,5 million people), this number gained rapidly and has risen to 73,3% or in absolute numbers 21,5 million Malaysians. Both, the increase of total population as well as the increase of the urban population share (indicating a grown middle-class) can be regarded as having had positive influences to the airline industry in Malaysia and can be seen as growth factor.

3.3.5.2.3 Development of Competition

Before Low Cost Carrier Air Asia entered the market, competition was very low with Malaysia Airlines basically being the country's only national airline. After Air Asia entered, a classical duopoly could be found although there still existed a lot of routes that were still only served by one of both competing airlines.

Tham explains: "Since then, competition has heightened between the Full Service Carrier and the Low Cost Carrier. First, in February 2008, the virtual monopoly of MAS and SIA on the Kuala Lumpur–Singapore route was ended with entry of three budget carriers on this route. This lucrative route was served by 180 flights a week by MAS and SIA and 14 flights by Japan Airlines under Fifth Freedom rights prior to 2008. Air Asia from Malaysia, and Tiger Airways and Jetstar Asia from Singapore have been allowed limited flights on this route." Malaysia Airlines and Singapore Airlines then terminated their 30-year-old "Shuttle Agreement" which allowed them to fix their fares. (Tham 2008)

As other LCC have started entering the market in the last years, competition can be seen as growing.

3.3.5.2.4 Development of Alternative Transportation in Malaysia

Malaysia does not have any high speed railways networks. The country's traditional network of rail lines does not cover much of the country. In 1993, Malaysia had a total of 1.668 rail line route kilometres and this has not changed mentionable until 2010. An increase in network can only be found for the years 2011 and 2012 with rail way lines then having a length of 2.250 kilometres. Considering the size of the

country, its coverage is still very low. The development of railway passengers carried, according to the statistics of the World Bank, is unequal and varying a lot but has generally increased during the past two decades. 2012 shows as double as much passengers carried compared to 1993. Although this is an increase, the development of alternative transportation in Malaysia cannot be seen as having had negative impacts onto the airline industry – especially as alternative modes of transportation, due to the geography of the country being split onto two "main islands", often are no alternative.

3.3.5.2.5 Development of Malaysian Government Regulations

In Malaysia, the Department of Civil Aviation (an office of the Malaysian Ministry of Transport) is the institution that regulates civil aviation affairs like regulations. The importance and far-reaching impacts of the ASEAN Open Sky policy have already been explained before. The Department of Civil Aviation so far has signed one hundred bi-lateral air agreements with countries to support the airline industry development. (Ministry of Transport Malaysia 2013)

In addition to its bi-lateral air agreements, in 2007 a multi-lateral air agreement was signed between Malaysia and the European Union, removing nationality restrictions in the bilateral air services agreements and allowing airlines of Malaysia and the European Union to fly between any member country of the European Union and Malaysia. (European Commission for Mobility and Transport 2007)

As a growth factor, these developments have benefitted to the development of the airline industry.

1.1.1.1.2 Tourism Development in Malaysia

Tourism is developed strongly in Malaysia as it was already said before. The country has been highly successful with its efforts to increase the number of incoming tourists as statistics of the World Bank show. Back in 1995, which is the first year, where statistics available, nearly 7,5 million international tourists were arriving in Malaysia. This number has more than tripled within the following 18 years to 25

million tourist arrivals in 2012. Drops in tourist arrival numbers can be found for the years of the Asian Financial Crisis 1997 and 1998 as well as for 2003 when SARS was affecting the Asian countries. The number of Malaysian's travelling internationally has also risen from 20,6 million in 1995 by 50% to 30,7 million in 2004. This year is the latest for which the World Bank provides data. Generally it can be distinguished that tourism was a big growth factor for the airline industry in Malaysia during the last two decades.

3.3.5.3 Airlines in Malaysia

3.3.5.3.1 Air Asia Group

3.3.5.3.1.1 Introduction to Air Asia and its Development

Malaysia's Government in 2001 approved the establishment of the country's first Low Cost Carrier, Air Asia. It emerged out of a formerly government-owned Full Service Airline conglomerate, established already in 1993, that was totally unprofitable. It was sold to Tony Fernandes' company Tune Air for the symbolic sum of one Malaysian Ringgit in 2001 and he managed to change the airline's business model quickly, transforming Air Asia into a Low Cost Carrier and reaching a profit only one year after the aquistion of Air Asia. Initially, the company operated on domestic routes throughout the entire country but relatively quick started operating international flights. (Tham 2008)

As the success of Air Asia was immense, the company soon wanted to expand onto other markets. Because of regulatory conditions, Air Asia formed a joint-venture carrier with the Shin Corporation of Thailand for being able to enter the Thai market. Air Asia is holding the allowed maximum of 49% in the new company Thai Air Asia. Operations of Thai Air Asia commenced in early 2004 and the next step of expanding its network to Indonesia already followed in November 2004. Air Asia purchased a 49% stake of the AWAIR airline company. The company was transformed into a Low Cost Carrier and began operations in December of the same year under its new name Indonesia Air Asia. (Zhang, et al. 2008)

As of 2014 the Air Asia Group has two more affiliated companies: Air Asia X, a Malaysia-based Low Cost Carrier that is – by contrast to traditional Low Cost Carriers – operating the LCC model on long-haul flights, e.g. flights from Kuala Lumpur to Australia. Furthermore Philippines' Air Asia has been launched. The Air Asia Group's network now comprises flights to more than 20 countries meaning that there is no South- or North East Asian country that is not served by the Air Asia Group with its slogan „Now Everyone Can Fly". Air Asia has been awarded "World's Best Low Cost Airline" by Skytrax for five consecutive years in 2009, 2010, 2011, 2012 and 2013. (Air Asia 2014)

As mentioned and explained above, the Air Asia Group can not only be seen as a Malaysian carrier but publishes statistics for the entire group only. As Air Asia Malaysia is still the biggest part of the group, it is analysed as part of the Malaysian case study. It is furthermore the only Low Cost Carrier that is analysed as part of a case study in this paper, for two main reasons. The Air Asia Group is – compared to its LCC competitors in South- and North East Asia – relatively old. Furthermore, it publishes financial and operating statistics what a lot of other LCC's in the region do not. Air Asia has its main base at the Low Cost Carrier Terminal of Kuala Lumpur International Airport and is operating a network of regional and domestic routes. Its affiliated companies also operate regional and domestic flights from its respective hubs abroad. The average stage length of flights of the Air Asia Group is 710 miles.

3.3.5.3.1.2 Statistical Data for Air Asia

Statistical data for Air Asia is a special case. The airline began operations at the end of 2002 and comprehensive statistics were only released from 2004 onwards. Furthermore, the Air Asia Group had adapted a financial year ending on 30th June. This practise was changed in 2007 and the calendar year was chosen instead of having a financial year uneven to the calendar year. This fact hinders in comparisons with other airlines for the years 2004 until 2007 but – as this data is highly interesting though – will be shown and used for the airline analysis and showing its development. Comparisons with other airlines will be made generally on an average 8-year basis

(excluding the second half of 2007 as this would lead to wrong numbers) or from 2008 onwards only then.

Table 15: Statistical data for the Air Asia Group, mid 2004 - 2012

financial year ending June 30 until 2007				*6 months*						
Financial Data	***2004/2005***	***2005/2006***	***2006/2007***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	**Ø past 8y**
Revenue	215	321	480	328	855	890	1.226	1.469	1.606	
Expenses	178,4	298,5	395,8	256,9	960,2	630,7	894,7	1.088,9	1.271,8	
Operating Profit	37	22	84	71	-105	259	331	380	334	168
Operating Ratio	83,0%	93,1%	82,5%	78,4%	112,3%	70,9%	73,0%	74,1%	79,2%	83,5%
Net Income after Taxes	-30	-60	149	-127	-149	144	330	181	594	
Yield - ¢ per RPM	2,69¢	3,29¢	3,64¢	4,07¢	4,45¢	4,02¢	5,03¢	5,63¢	5,66¢	4,30¢
Cost - ¢ per ASM	2,19¢	2,95¢	3,16¢	3,22¢	5,00¢	2,85¢	3,67¢	4,18¢	4,48¢	3,56¢
Operating Data										
RPMs (mil.)	4.881	6.702	9.863	5.930	14.439	16.890	18.499	21.037	22.731	
ASMs (mil.)	6.525	8.646	12.391	7.919	19.217	22.159	24.362	26.074	28.379	
Load Factor	74,8%	77,5%	79,6%	74,9%	75,1%	76,2%	75,9%	80,7%	80,1%	77,5%
Passengers (000)	4.114	5.719	8.737	5.198	11.808	14.253	16.054	17.987	19.679	
Flight Stage (miles)	636	723	676	735	750	725	736	722	713	710
Number of Aircraft	27	42	54	65	78	84	90	97	118	
Average Seats / Aircraft	180	180	180	180	180	180	180	180	180	180
Utilization (hours/day)	12,1	12,0	12,0	11,9	11,8	12,0	12,2	12,3	12,3	12
Profitability Index	-0,18	-0,40	-0,26	-0,17	-1,66	0,21	0,15	0,36	0,05	-0,21
Efficiency Index	9,05	9,30	9,55	8,91	8,87	9,15	9,26	9,92	9,85	9,37

Sources: Air Asia Yearly Reports 2006-2013

3.3.5.3.1.3 Financial Development Analysis

Since July 1st, 2004 until the end of 2012, Air Asia did experience one single year where it could not achieve a positive operating profit. This was in 2008, probably a result of the World Financial Crisis, were statistics show an operating profit of -105 million USD. The average yearly operating profit for the 8 years was 168 million dollars. Best operation ratios were achieved in the years 2009, 2010 and 2011 where operating ratios ranged between 70,9 percent and 74,1 percent. An average operating ratio of 83,5% can be calculated for the 8 year time span defined above.

3.3.5.3.1.4 Operational Development Analysis

Air Asia experienced high growth rates in terms of passengers during the last 8,5 years. The company carried 4,1 million passengers in its financial year (FY) 2005. This number increased to more than 19,7 million in 2012 – a quintupling. Fleet size was growing analogously to passenger numbers. The development of the company's load factors can be described as increasing from FY2005 (74,8%) to 2012 (80,1%) with a drop in the years 2008-2010, resulting in an 20-year-average Load Factor of 77,5%. In terms of aircraft utilization rates, the company managed to use its fleet 12 hours a day from FY2005 onwards with discrepancies of a maximum of 0,3 hours up or down, resulting in an 8-year aircraft utilization rate of 12.

3.3.5.3.1.5 Analysis of Key Indicators of Airline Development

Yield data for Air Asia is available for the past eight years. The height of yields increased every year with exception of the year 2009. The past 8-year average yield is calculated at 4,3 cents. In terms of cost, Air Asia was able to produce at costs of less than 10 US-cent per ASM in any of the past 8 years. CASM figures of lower than 3 cents can be found for the FY2005 and FY2006 as well as the year 2009. On an average basis for the last 8 years, the CASM figure is 3,56 cent. The Profitability Index for Air Asia Group, based on statistics available, can be calculated for the time span between FY2005 and 2012 with the exception of the months July until December of the year 2007 as mentioned before. The average Profitability Index for these 8 years is -0,21. According to this index, most profitable years of the airline were the four last years between 2009 and 2012 with all of these indexes being larger than 0,05. The most unprofitable year was 2008 with a Profitability Indexes of -1,66. In terms of efficiency the Efficiency Index relatively stagnated within the time frame that is looked after, reaching scores between 8,87 and 9,85. For the last eight years, the Air Asia Group reached an average Efficiency Index of 9,37.

3.3.5.3.2 Malaysia Airlines

3.3.5.3.2.1 Introduction to Malaysia Airlines

The Malaysian government is owning the nation's flagship carrier, Malaysia Airlines. The airline operates domestic, regional and long-haul international flights and can be seen as a traditional Full Service Carrier. Its main hub is Kuala Lumpur International Airport. The company's stage length has significantly changed within the last years: Back in 1993, it was 429 miles and has continuously increased during the past two decades to more than 1300 miles in the years 2007 until 2012. This gives an 20-year-average stage length of 932 miles.

3.3.5.3.2.2 Statistic Data for Malaysia Airlines

Table 16: Statistical data for Malaysia Airlines, 1994-2012

financial year ending 3/31 until 2006										
Financial Data	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***	***2003***
Passenger Revenue	1.212	1.500	1.677	1.892	1.567	1.550	1.566	1.769	1.810	1.877
Total Revenue	1.493	1.889	2.265	2.407	1.981	1.929	1.913	2.161	2.288	2.333
Expenses	1.565	1.830	2.195	2.342	2.120	1.633	2.061	2.575	2.508	2.295
Operating Profit	-72	59	70	65	-139	295	-148	-414	-220	38
Operating Ratio	104,8%	96,9%	96,9%	97,3%	107,0%	84,7%	107,7%	119,2%	109,6%	98,4%
Net Income after Taxes	57	104	87	128	-78	-180	-11	-449	-220	89
Yield - ¢ per RPM	11,18¢	11,87¢	11,50¢	11,34¢	8,77¢	8,49¢	7,48¢	7,50¢	8,12¢	8,19¢
Cost - ¢ per ASM	9,92¢	10,19¢	10,57¢	9,70¢	8,17¢	5,81¢	6,89¢	8,13¢	7,69¢	6,97¢
Operating Data	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
RPMs (mil.)	10.840	12.636	14.587	16.692	17.873	18.251	20.946	23.580	22.289	22.927
ASMs (mil.)	15.788	17.956	20.774	24.136	25.948	28.089	29.926	31.668	32.631	32.945
Load Factor	68,7%	70,4%	70,2%	69,2%	68,9%	65,0%	70,0%	74,5%	68,3%	69,6%
Passengers (000)	13.077	14.250	15.408	15.118	15.659	13.654	14.985	16.592	16.311	16.208
Flight Stage (miles)	429	448	402	571	586	674	803	813	798	770
Number of Aircraft	74	74	79	80	87	79	79	77	79	83
Average Seats / Aircraft	221	229	227	225	227	240	233	229	233	230
Utilization (hours/day)	6,45	8,49	9,48	9,99	10,26	10,22	10,53	11,74	11,71	11,62
Profitability Index	-2,23	-1,83	-2,50	-1,86	-2,13	-0,29	-1,65	-2,54	-2,14	-1,27
Efficiency Index	4,43	5,98	6,65	6,91	7,07	6,64	7,37	8,75	8,00	8,09

			fiscal	*calendar*							
Financial Data	***2004***	***2005***	***2006***	***2006***							**Ø past 20y**
Passenger Revenue	1.923	2.429	2.600	2.469	2.723	2.601	1.991	2.923	3.465	3.359	
Total Revenue	2.721	3.061	3.059	3.549	3.946	4.627	3.405	4.236	4.549	4.474	
Expenses	2.720	3.012	3.589	3.604	3.678	4.580	3.585	4.181	5.300	4.591	
Operating Profit	1	49	-530	-55	268	47	-180	55	-751	-117	-84
Operating Ratio	100,0%	98,4%	117,3%	101,5%	93,2%	99,0%	105,3%	98,7%	116,5%	102,6%	102,8%
Net Income after Taxes	110	86	-440	-37	257	82	153	74	-825	140	
Yield - ¢ per RPM	8,41¢	9,16¢	8,85¢	9,67¢	10,93¢	11,67¢	9,74¢	12,43¢	14,03¢	14,54¢	10,19¢
Cost - ¢ per ASM	7,95¢	7,77¢	8,76¢	9,84¢	10,55¢	13,94¢	12,06¢	13,56¢	16,09¢	14,85¢	9,97¢
Operating Data	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	
RPMs (mil.)	22.872	26.509	29.394	25.539	24.915	22.288	20.440	23.512	24.688	23.096	
ASMs (mil.)	34.218	38.784	40.958	36.615	34.863	32.852	29.726	30.829	32.932	30.908	
Load Factor	66,8%	68,4%	71,8%	69,8%	71,5%	67,8%	68,8%	76,3%	75,0%	74,7%	70,3%
Passengers (000)	15.144	17.307	18.211	15.466	13.962	12.631	11.947	13.112	13.301	13.389	
Flight Stage (miles)	761	1.074	1.087	1.193	1.406	1.394	1.357	1.371	1.379	1.328	932
Number of Aircraft	87	97	97	91	85	87	84	89	102	114	
Average Seats / Aircraft	238	242	225	237	237	237	234	227	229	224	231
Utilization (hours/day)	11,3	11,92	12,71	10,12	10,78	10,35	9,59	10,16	9,70	8,22	10,27
Profitability Index	-2,33	-1,50	-2,41	-3,10	-2,74	-6,03	-5,36	-4,08	-5,57	-3,99	-2,78
Efficiency Index	7,55	8,15	9,13	7,06	7,71	7,02	6,60	7,75	7,28	6,14	7,21

Sources: Annual Reports of Malaysia Airlines 1997-2012

3.3.5.3.2.3 Financial Development Analysis

Financial statistics for Malaysia Airlines show that the company experienced negative operating profits in ten years within the last two decades. The worst operating results were achieved in the years 2000, 2005 and 2011 with a combined operating loss of 1,7 billion USD. Most profitable years were 1998 (operating profit of 295 million USD) and 2007 (operating profit of 268 million USD). The company made an average operation profit of minus 84 million USD during the past 20 years, resulting in an average operation ratio of 102,8%.

3.3.5.3.2.4 Operational Development Analysis

The airline did not experience high growth rates in terms of passengers. Malaysia Airlines carried slightly more than 13 million passengers in 1993. This is also the number of carried passengers in 2012. As the stage length has more than tripled

during the time, more aircraft were needed as they were flying longer routes. The number of aircraft has risen from 74 in 1993 to 114 in 2012. ASM data also confirms this development, an increase from 15,7 million AMS's in 1993 to 30,9 million ASM's in 2012 – nearly double as much as 1993. RPM's even show the development better, having increased from 10,8 million RPM's in 1993 to 23,1 million in 2012. Load factors have varied between 68,3 percent and 71,8% in most years until 2009. Exceptions can be found with a load factor of only 65% in 1998 and a load factor of 74,5% in the year 2000. The following years, Malaysia Airlines managed to increase the load factor and reached around 75% in the last three years. The average factor for the last two decades is 70,3%. In terms of aircraft utilization rates, the company developed successfully from 1993 (6,45 hours) to 12,71 hours in 2005. Numbers then decreased slowly to only 8,22 hours in 2012. Combined utilization rate for the past two decades is 10,27 hours.

3.3.5.3.2.5 Analysis of Key Indicators of Airline Development

Average yield for the last 20 years of Malaysia Airlines operations is 10,19 US-Cent. From 1993 onwards, yield figures were stable at levels of more than 11 cents for four years but then declined by around 3 Cents to numbers of about 8 cents until 2003. From then on, yield figures increased steadily until they reached 14,54 cents in 2012. In terms of cost, Malaysia Airlines was able to produce at costs of less than 10 US-cent per ASM in 12 of the past 20 years. Especially during the past six years, cost have increased and latest numbers for 2012 show a cost of 14,85 cent per ASM. On a 20 year average basis, Malaysia Airlines CASM lies at 9,97 US-cents. The Profitability Index for Malaysia Airlines shows that 1998 was the most profitable year for the company, reaching an index of -0,29. 2008 was the year with the lowest Profitability Index, -6,03, driven by high costs for producing ASM's, and a lower load factor. The average Profitability Index for the last 14 years is -2,78. In terms of efficiency as already shown in the operational data section, Malaysia Airlines was able to improve from an Index of 4,43 in 1993 to an index of 9,13 in 2005. From this time on though, it then decreased until 2012 were it was only standing at 6,14

although the stage length development should have benefitted to a further increase. For the last two decades, Malaysia Airlines reached an average Efficiency Index of 7,21.

3.3.5.3.3 Findings in Regard to Airlines of Malaysia

When comparing LCC Air Asia to its competitor Malaysia Airlines, a FSC differences can be expected caused by varying business models. Statistics proof that there exist large differences: In terms of RPM's, Air Asia is growing quickly supported by growth factors like GDP, population growth and an increased middle class and high tourist number growth that all have benefitted massively to this development. By contrast one can distinguish that Malaysia Airlines also managed to grow its RPM's although this increase took place in the ten years when Air Asia was not yet operating and competing with the airline. Comparing only the time span, for which statistics are available for Air Asia, Malaysia Airlines made an average operating profit of minus 135 million USD. Figures for Air Asia are plus 168 million.

Looking at the CASM figures, Air Asia produced at cost of 3,56 cent per ASM, Malaysia Airlines for the same time has a CASM figure of more than three times as high (11,54 cents) although it's much higher stage length can be regarded as advantage. The FSC has an Efficiency Index of 7,44 for the last 8 years, Air Asia has one of 9,37. In terms of Profitability Index's, Air Asia records an Index of -0,21 for the time from mid-2004 until 2012. For the same time, Malaysia Airlines' Index stands at -3,71. These figures can explain why Air Asia is that successful with its business model and works highly profitable.

3.3.5.3.4 Other Malaysian Airlines

Amongst the small Berjaya Air that operates regionally with a focus on connecting Tioman to Malaysia and Singapore, Firefly Airlines is worth mentioning.

It was founded in 2007 and is completely owned by Malaysia Airlines. It has hubs in Penang and Subang, Kuala Lumpur's "old" airport. Its targets are competition

with Air Asia and complementing the Malaysia Airlines network in regard to destinations that are not financially viable for operation by its mother Malaysia Airlines as a Full Service Carrier destination. (Tham 2008)

The latest addition to the Malaysian airline market was the launch of Malindo Air, an affiliate of Indonesia's Lion Air Group. It neither cannot be clearly classified as a Low Cost Carrier nor as a Full Service Airline – as the airline is operating a hybrid business model that for example includes some free check-in luggage, trying to compete both with Air Asia and Malaysia Airlines. As Malindo Air operates domestically this brings further competition to the Malaysian market. (Centre for Aviation 2013)

3.3.5.4 Airports in Malaysia

Malaysia's Government has been and still is investing in infrastructure such as airports as it sees transportation infrastructure like airports vital for the development of the country. In terms of airports that do not only have a point to point function but a hub-function like Malaysia's main airport, Kuala Lumpur International (KLIA) the government continuously wants to boost the competiveness of the airport that is competing with other hub-airports in the region, like Singapore Changi International Airport or Bangkok Suvarnabhumi International Airport that can be seen as the main competitors of Kuala Lumpur International Airport and all three of them are regularly named as being amongst the world's best airports. (Tham 2008)

Since commencing operations in 1998, KLIA, the new capital airport replacing Subang Airport, has won numerous awards from international organisations such as Skytrax and International Air Transport Association. (Kuala Lumpur International Airport 2014)

But Kuala Lumpur International Airport does not only play a large role serving as a Full Service Carrier Airport including a hub-network. It has already had a Low Cost Carrier Terminal for the last couple of years, processing around 15 million passengers in 2013. In May 2014, the new budget terminal, called KLIA2 has opened.

It is the biggest Low Cost Carrier Terminal worldwide and has been designed to handle up to 45 million passengers per year. (Deutsche Presse Agentur 2014)

Malaysia, as of 2013, has a total of 62 airports, 38 of them offering commercial airline service. The country has a total of 8 airports that offer international services. With the exception of Johor Bahru's Senai International Airport, which is independently operated, all of them are operated by Malaysia Airports Holdings.

Table 17: Passenger numbers for Malaysia's 10 biggest airports between 1996 and 2013

	Top 10 Airports	**Passengers in Mio.**					
	Ranking as of 2013	1996	2000	2004	2007	2010	2013
1	Kuala Lumpur Intl.		14.7	21.1	26.5	34.1	47.5
2	Kota Kinabalu Intl.	2.6	3.1	3.3	4.4	5.2	6.9
3	Penang Intl.	2.9	2.7	3.0	3.2	4.2	5.5
4	Kuching Intl.	2.2	2.5	3.3	3.2	3.7	4.9
5	Miri Intl.	1.0	1.0	1.5	1.5	1.7	2.2
6	Langkawi Int.	0.7	1.0	0.8	1.1	1.4	1.9
7	Johor Bahru Intl.	1.0	1.1	1.5	1.3	1.2	1.9
8	Subang	14.6	2.1	0.1	0.1	1.1	1.9
9	Kota Bharu Intl.	0.6	0.5	0.6	0.8	1.0	1.6
10	Sibu	0.7	0.7	1.5	0.8	1.0	1.4

Sources: Malaysia Airports Annual Reports 2005, 2013 and Senai Airport Passenger Statistic

Table 18: Passenger and cargo statistics for all Malaysian airports 1996-2013

All Airports	**1996**	**2000**	**2004**	**2007**	**2010**	**2013**
Passengers in Mio.	31.1	34.0	30.9	46.5	59.0	81.5
Cargo (000 tonnes)[4]	543	775	957	997	918	937

Sources: Malaysia Airports Annual Reports 2005, 2013 and Senai Airport Passenger Statistic

[4] Cargo statistics exclude figures for Johor Bahru Senai Airport as no data is available

Looking at Malaysia's airports statistics that are available from the year 1996 onwards only, one finds a massive growth in passenger numbers. Total passenger numbers for all Malaysian airports grew from 31.1 million passengers in 1996 to 81.5 million passengers carried in the year 2013. This is an increase of 262% for the time span of the last 18 years, averaging a yearly growth rate of 5.5%. The country's main airport KLIA even grew at a faster rate than the country's average. Between the year 2000 (first data as the airport was opened in 1998) and 2013 it could more than triple its passenger numbers from 14.7 million to 47.5 million people. Cargo freight in Malaysia experienced high growth rates until the middle of the last decade. Within the eight years between 1996 and 2004 cargo numbers almost doubled from 543 tonnes to 957 tonnes. By contrast to steadily rising passenger numbers, from 2004 until today cargo numbers remained rather static.

3.3.5.5 Aircraft Manufacturers in Malaysia

Table 19: Aircraft orders and deliveries for Airlines in Malaysia

	as of April 2014	**Aircraft Delivered**		**Aircraft Orders**	
		Airbus	Boeing	Airbus	Boeing
1	Malaysia Airlines	21	81		12
2	Air Asia Group	183		315	

Sources: (The Boeing Company 2014) and (Airbus 2014)

Numbers above indicate that Malaysia Airlines does not plan to grow significantly in the future whereas the Air Asia Group will experience a massive fleet growth.

3.3.6 Findings regarding the Development of the Airline Industry in South- and North East Asia in the Past

Table 20: Development of Airline Industry Growth Factors for China, Japan, Singapore and Malaysia

	within the time span from 1993 until 2012			
	China	**Japan**	**Singapore**	**Malaysia**
Economic growth (GDP)	++	o	+	++
Impact of crises	-	--	--	--
Population growth/structure	++	+	++	++
Competition/falling prices	-	+	++	++
Alternative transportation	--	--	o	o
Government regulations	-	+	++	+
Tourism growth	++	++	+	++
Key				
++	development of this growth factor benefitted very much to the growth of the airline industry			
+	development of this growth factor benefitted to the growth of the airline industry			
o	development of this growth factor had not influence			
-	development of this growth factor was (still) a threat to the growth of the airline industry			
--	development of this growth factor was (still) a heavy threat to the growth of the airline industry			

The table above shows in what extent growth factors of the airline industry have developed during the past two decades and therefore influenced the airline industry of the particular countries.

As the accessibility of a place by air transport helps to define its access to global flows of goods, people, information, ideas, and capital, it is not surprising that a coherency between the growth of a country's GDP and its airline industry growth can normally be found.

For China, an average GDP growth of 10,2% was found for the last two decades. China's "big three" grew at 20-year-average rates of: 13,4% (Air China),

15,8% (China Eastern) and 15,9% (China Southern). These numbers are higher than the average growth numbers of Chinese airports in terms of passengers (13,1%) and cargo (9,8 percent) within the last years. The three carrier's operating ratios are 92,8% for Air China, 94,5% for China Eastern and 94,4% for China Southern.

In the case of Japan, an average GDP growth of 0,83% took place within the last 20 years. All Nippon Airways managed to grow at a higher rate than the country's GDP, 2,6% while Japan Airlines has a 20-year-average growth rate that is -0,7%. All Nippon Airways achieved an operating ratio of 97%, Japan Airlines reached 97,7%. The passenger and cargo numbers at Japan's airports grew with rates of -0,25% respectively 2,5 percent.

Singapore sported an average annually GDP growth of 6% during the past 20 years while the nation's carrier Singapore Airlines only grew by 4% but achieved a very good operating ratio of 91,8% for this time. Passenger numbers at Singapore Changi Airport were slightly higher than SIA's: 4,5% although the increase for cargo was only 1,7%.

GDP growth for the past 20 years of Malaysia reached 5,6% annually which nearly equals the increase of passengers travelling from Malaysian airports (5,5%). Cargo numbers for this time span range at 3,1%. The country's national carrier reached a 20-year-average operating ratio of 102,8% whereas Air Asia – even if only on an 8-year-average basis reaches a number of 83,5%. Respective traffic growth rates for the carriers lie at 3,9% for Malaysia Airlines and massive 21,2% in the case of the Air Asia Group although it has to be mentioned that the group also operated from its Thailand and Indonesia bases.

Looking at the results that the 22 most important Asia-Pacific airlines[5] (all of them FSC's) reached during the same period, a combined average yearly traffic growth of 5,7% and operating ratio of 96,2 percent is found. For the leading 78 FSC world airlines[6] these numbers amount to a combined average yearly traffic growth of 4,7% during 1993 and 2012 and an operating ratio of 97,4% for this time.

[5] Numbers were obtained from the Centre of Aviation through a phone interview in February 2014 as these are found in a database which is not published in the internet.
[6] See above.

By comparing these results from Asia-Pacific and the world, on finds that all three Chinese airlines performed better than the average of Asia-Pacific and the world, both in terms of passenger development as well as in terms of the operating ratio. The two Japanese airlines performed inferior to Asia-Pacific and world airlines in terms of traffic development but were at the same level of world airlines regarding their operating ratios. Singapore Airlines achieved a remarkably good operating ratio during the past two decades, the best of all Full Service Airlines in focus of this thesis and much better than the averages of Asia-Pacific and world airlines although the company did not achieve traffic growth as high as many of its competitors. Malaysia Airlines can be regarded as the weakest performing airline that is in focus of this paper, also compared to world- and Asia-Pacific airlines both in terms of traffic development as well as in terms of operating ratios. Last but not least, the Air Asia Group has to be mentioned. It stands out with an operating ratio of 83,5% for the past 8 years and traffic growth rates of more than 20%.

This means that in regard to the first research question, which countries of South- and North East Asia sport the most pronounced growth in the aviation sector within the last two decades and what factors can be seen as the reasons for this growth China and its “big three” have to be named in terms of FSC-growth in the aviation sector, driven by changes in the population structure, economic growth and growth in the tourism sector. Regarding South East Asia, Malaysia can be named in terms of growth in the Low Cost Carrier aviation sector, driven by falling airfare prices due to increased competition, economic growth, an emerging middle class and increasing tourism. In regard to the second question, which airlines were best able to cope with and profit from the changes in the North- and South-East Asian aviation sector, and what the key reasons for their success are, the Air Asia Group must be named as it was highly successful with its Low Cost Carrier strategy. Singapore Airlines on the other hand was also successful by positioning itself as a Full-Service long-haul carrier benefitting from an extreme high reputation and relatively low CASM. Answering the third question, why the penetration of South- and North East Asian countries by Low-Cost Carriers is still very uneven and how has the Low-Cost aviation sector in North- and South-East Asia developed within the last years it can

be said that this thesis has shown that especially the regulatory conditions have been and still are much better in the South East Asian countries than in China and Japan. Numbers have shown that the LCC-sector now accounts for nearly 60% of intra-ASEAN travel while this figure ranges below 10% for the intra North East Asian travel. Anyhow, especially during the last two years, a lot of LCC have established in North East Asia so that the North East Asian LCC sector is likely to grow in the future.

4 Future Development of the Aviation Industry in North- and South-East-Asia

Foreseeing the future of the airline industry is a risky and difficult task for an industry being influenced by so many internal and external factors.

Airbus and Boeing, and their smaller competitors like Embraer and Bombardier, regularly publish forecasts that seek to deliver an outlook into the next twenty years of aviation by forecasting the demand for civil aircraft. These reports are not only important for the aircraft manufacturers themselves but also serve as references for airlines, investors and governments that deal with the airline industry. By looking at the key economic and operational drivers of air transport markets relatively precise forecasts can be achieved. In terms of growth factors of the airline industry, for the first time ever in 2012, more than a billion people worldwide went abroad for tourist travel. That means that the number of foreign tourists since 1950 has risen more than forty times. The World Tourism Organization (UNWTO) estimates this number to further rise to around 1,8 billion people in the year 2030. (Airbus Global Market Forecast 2013-2032)

This is can be regarded as an enormous important growth factor for the next two decades.

According to DESA, the United Nations Department of Economic and Social Affairs, the world's population will have grown to 8.4 billion people in 2032. This will lead to a strong and rapid urbanization as well as a growth of the middle-class, especially in Asia. DESA estimates that the proportion of people living in large urban

agglomerations of over 5 million people will increase from 18% in the year 2012 to 23%. This means that in 2025, 1 billion people will live in 96 cities of over 5 million inhabitants, with the largest population centres focused in Asia. Tokyo will remain the largest of those mega-cities with a population of more than 38 million inhabitants in 2025. Shanghai is projected to have 28 million residents then. Beijing, Manila, Shenzhen and Guangzhou, all located in North- and South-East Asia, will also belong to the 20 biggest cities worldwide by then. These mega-cities are places where an increasing number of people will live, work and want to travel from and between. Therefore, they are focal points for a large amount of future growth in the aviation industry. Global middle-class is expected to grow by 60% between 2012 and 2022, and by 134% between 2012 and 2032, most of the growth coming from Asia. The region will represent two thirds of the 5.2 billion global middle-class population in the year 2032, to be specific 3.5 billion people. This means that the middle-class in Asia-Pacific will be four times bigger than today. The number of Aviation Mega-Cities, defined as cities that are handling more than 10.000 long-haul passengers per day, will increase significantly. As per the definition above, in 2012 there existed 42 Aviation Mega-Cities worldwide, the majority of them located in the northern hemisphere. By 2032, the total number of them is expected to increase to 89. Most of these new Aviation Mega-Cities are expected to be situated in the southern hemisphere then, including 8 out of 24 of the largest category of Aviation Mega-Cities, handling more than 50.000 long-haul passengers daily, in South- and North-East Asia: Seoul, Tokyo, Beijing, Shanghai and Hong Kong in North East Asia and Bangkok, Kuala Lumpur and Singapore in South East Asia. By contrast, in 2012 there only existed seven of them, only two located in North- and South East Asia: Singapore and Tokyo. (Airbus 2013)

In terms of the development of competition and regulatory conditions, as the analysis has shown, regulatory restrictions have been significantly lowered within the last years. This brings bright prospects for the development of the airline industry. China, for example, is continuing with opening up its airline industry and expects increasing and freer competition. Especially the final implementation of ASEAN Open Sky will bring levels of extremely high competition to South-East-Asia that by

now already has emerged as one of the fastest growing airline markets worldwide. Low Cost Carriers, operating in an extremely competitive environment, today make up around 60% of the regions travel. As LCC's have continuously been floating the market with more and more capacity there can now be seen growing signs of overcapacity, especially in the Low Cost Carrier dominated domestic and short-haul international markets. This means that 2014 will already be a challenging year for South-East-Asia's airlines suffering from lower yields and weak load-factors. Yet – as the region's GDP as well as the middle class is growing – there is an excellent basis for the further development of the airline industry in South East Asia. (Airline Leader 2014)

Boeing and Airbus forecast growth in air travel that they measure in RPK (Revenue Passenger Kilometers) calculated by the global level formula:

RPK growth = GDP growth + f(t). This formula is used because historically seen, growth in air travel has outpaced economic growth that is measured by GDP growth. Therefore f(t) is a time-varying function that normally ranges around 2%. Boeing analysts explain that the formula above is true for the global level of aviation whereas for a regional level, between 60 and 80% of air travel growth can be attributed to economic growth. (Boeing Company 2013)

As this thesis uses the Revenue Passenger Miles as it is common in many airline statistics, kilometers are converted into miles in order to make it comparable with the statistics and findings of this thesis.

Domestic travel in China is forecasted to grow at an average annual rate of 6,9% from 250 billion RPM's up to 944 billion RPM's in 2032 which would nearly mean a quadrupling within the next two decades. All other traffic originating from China going to other regions of the world is forecast to grow at average annual rates of more than 6% with the only exception being regional traffic to neighbouring countries in North East Asia, where average growth rates of only 2,5% are expected for the time span between 2013 and 2032. (Boeing Company 2013)

Spring Airlines, the nation's biggest LCC (11th largest Chinese carrier) and Juneyao Airlines though have demonstrated that it is possible to succeed in China's

heavily regulated market which favours the state-owned 'Big Three' carriers. (Airline Leader 2012)

For the South East Asia region, Boeing experts estimate an average yearly GDP growth of 4,7% for the region. Regional travel within South East Asia is forecast to grow by a yearly average of 7,5%, going up from 94 billion RPM's in 2012 to 400 billion RPM's in the year 2032. That would be more than quadrupling the current number of RPM's. The total average yearly growth rate for traffic is expected to be 6,7%. Looking at North East Asia, regional travel within North East Asia is forecast to grow by a yearly average of 2,5%, going up from 60 billion RPM's in 2012 to 100 billion RPM's in 2032. That would be an increase of 67%. When looking at the worldwide economy (measured by GDP growth) will grow at an average annual rate of 3,2% between 2013 and 2032. The worldwide airplane fleet is expected to increase by an average rate of 3,6% yearly whereas worldwide passenger numbers are forecasted to rise 4,1 percent annually. Total worldwide traffic by contrast is only forecasted to rise by an average rate of 5% annually. The 2012 fleet of aircraft operating in the Asia-Pacific region (5.090 commercial airplanes in total) is forecasted to grow to 14.750 aircraft until 2032. (Boeing Company 2013)

This massive growth of the airline industry will create a large amount of new jobs and benefit the regions' economies. Without becoming more concrete, SIA hopes that sometime the growing number of bi-lateral and regional liberal air agreements will be merged in a worldwide single multilateral air-agreement. (Chan 2000)

5 Conclusion

This paper has shown that China, Japan, Singapore and Malaysia have differently developed airline industries, which will, for various reasons like the different development of airline industry growth factors will continue to develop in different ways.

As there was no comprehensive model for analysing the development of the airline industry existing that does not focus on certain issues only or just compares

the time of two or three years, the paper has developed such a model based on two pillars to answer the three research questions. It has analysed airlines in case studies as the first pillar of the analytic model based on comprehensive statistic material and shown the history of certain key indicators of airline development. Growth factors in the airline industry have been identified and then analysed as part of the case studies.

As the last chapter regarding the future development of the airline industry in North- and South East Asia has shown, the future for the aviation industry in both regions generally looks very bright, especially if seen in global context. Growth will continue and bring further development, new jobs and better travel opportunities that will also benefit economic connections between countries in the Asia Pacific area.

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7 Abbreviations

ASEAN	Association of Southeast Asian Nations
ASM	Available Seat Mile
CAAC	Civil Aviation Administration of China
CASM	Cost per Available Seat Mile
DESA	United Nations Department of Economic and Social Affairs
FSC	Full Service Carrier
FSA	Full Service Airline
FY	Financial Year
GDP	Gross Domestic Product
IATA	International Air Transport Association
ICAO	International Air Transport Association
KLIA	Kuala Lumpur International Airport
LCC	Low Cost Carrier
LF	Load Factor
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
RPM	Revenue Passenger Mile
SIA	Singapore Airlines
UNWTO	United Nations World Tourism Organization
US	United States
USD	United States Dollar

8 List of Tables and Figures

9 Appendix 1: World Bank data

Country	Indicator Name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Singapore	Population (Total)	3.313.500	3.419.000	3.524.500	3.670.700	3.796.000	3.927.200	3.958.700	4.027.900	4.138.000	4.176.000
	GDP growth (annual %)	11,48	10,58	7,28	7,63	8,51	-2,17	6,20	9,04	-1,15	4,20
	GDP per capita, PPP (current international $)	23.180	25.369	26.952	28.361	30.267	28.931	30.915	33.884	33.349	34.963
	International tourism, number of arrivals	..	..	6.070.000	6.048.000	5.894.000	5.122.000	5.604.000	6.062.000	5.857.000	5.855.000
	International tourism, number of departures	..	..	2.867.000	3.305.000	3.671.000	3.745.000	3.971.000	4.444.000	4.363.000	4.399.000
China	Population (Total)	1.178.440.000	1.191.835.000	1.204.855.000	1.217.550.000	1.230.075.000	1.241.935.000	1.252.735.000	1.262.645.000	1.271.850.000	1.280.400.000
	GDP per capita, PPP (current international $)	1.185	1.353	1.516	1.680	1.849	1.995	2.159	2.375	2.612	2.874
	GDP growth (annual %)	14,00	13,10	10,90	10,00	9,30	7,80	7,60	8,40	8,30	9,10
	International tourism, number of arrivals	..	..	20.034.000	22.765.000	23.770.000	25.073.000	27.047.000	31.229.000	33.167.000	36.803.000
	International tourism, number of departures	..	..	4.520.000	5.061.000	5.324.000	8.426.000	9.232.000	10.473.000	12.133.000	16.602.000
	Rail lines (total route-km)	53.802	53.992	54.616	56.000	57.566	57.584	57.923	58.656	59.079	59.530
	Rural population	834.884.673	833.602.770	831.819.843	828.613.393	825.043.284	820.787.390	815.608.155	809.645.853	798.645.489	786.997.860
	Urban population	343.555.327	358.232.230	373.035.157	388.936.607	405.031.716	421.147.610	437.126.845	452.999.147	473.204.511	493.402.140
	Urban population (% of total)	29,15	30,06	30,96	31,94	32,93	33,91	34,89	35,88	37,21	38,54
	Urban population growth (annual %)	4,30	4,18	4,05	4,17	4,05	3,90	3,72	3,57	4,36	4,18
	Railways, passengers carried (million passenger-km)	347.938	363.281	354.261	354.400	332.200	343.000	404.627	441.468	463.660	480.310
Japan	Population (Total)	124.536.000	124.961.000	125.439.000	125.761.000	126.091.000	126.410.000	126.650.000	126.870.000	127.149.000	127.445.000
	GDP growth (annual %)	0,17	0,86	1,94	2,61	1,60	-2,00	-0,20	2,26	0,36	0,29
	GDP per capita, PPP (current international $)	21.558	22.132	22.945	23.912	24.645	24.351	24.603	25.931	26.560	27.241
	International tourism, number of arrivals	..	..	3.345.000	3.837.000	4.218.000	4.106.000	4.438.000	4.757.000	4.772.000	5.239.000
	International tourism, number of departures	..	..	15.298.000	16.695.000	16.803.000	15.806.000	16.358.000	17.819.000	16.216.000	16.523.000
	Rail lines (total route-km)	20.252	20.255	20.134	..	20.175	..	..	20.165	20.158	20.096
	Urban population	96.820.762	97.320.377	97.862.490	98.272.915	98.690.417	99.100.131	99.448.620	99.781.986	101.865.167	103.970.396
	Urban population (% of total)	77,75	77,88	78,02	78,14	78,27	78,40	78,52	78,65	80,11	81,58
	Railways, passengers carried (million passenger-km)	250.013	244.375	248.993	251.723	247.652	242.807	240.877	240.793	241.133	239.246
Malaysia	Population (Total)	19.701.410	20.206.546	20.725.374	21.259.831	21.805.835	22.355.057	22.896.048	23.420.751	23.925.742	24.413.795
	GDP growth (annual %)	9,89	9,21	9,83	10,00	7,32	-7,36	6,14	8,86	0,52	5,39
	GDP per capita, PPP (current international $)	6.548	7.121	7.784	8.500	9.046	8.263	8.685	9.453	9.515	9.978
	International tourism, number of arrivals	..	..	7.469.000	7.138.000	6.211.000	5.551.000	7.931.000	10.222.000	12.775.000	13.292.000
	International tourism, number of departures	..	..	20.642.000	23.333.000	26.165.000	25.631.000	26.067.000	30.532.000	36.248.000	29.866.000
	Rail lines (total route-km)	1.668	1.668	1.668	1.668	1.648	1.648	..	1.622	1.636	1.636
	Urban population	10.506.841	11.014.427	11.541.546	12.106.581	12.691.781	13.292.630	13.902.297	14.515.479	15.096.330	15.677.611
	Urban population (% of total)	53,33	54,51	55,69	56,95	58,20	59,46	60,72	61,98	63,10	64,22
	Urban population growth (annual %)	4,79	4,72	4,67	4,78	4,72	4,63	4,48	4,32	3,92	3,78
	Railways, passengers carried (million passenger-km)	1.776	1.348	1.270	1.370	1.492	1.397	1.312	1.312	1.181	1.123

Country	Indicator Name	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Singapore	Population (Total)	4.114.800	4.166.700	4.265.800	4.401.400	4.588.600	4.839.400	4.987.600	5.076.700	5.183.700	5.312.400
	GDP growth (annual %)	4,58	9,16	7,37	8,62	9,02	1,75	-0,79	14,78	5,16	1,32
	GDP per capita, PPP (current international $)	37.850	41.920	45.374	49.237	52.854	51.987	50.431	57.557	60.442	60.800
	International tourism, number of arrivals	4.703.000	6.553.000	7.079.000	7.588.000	7.957.000	7.778.000	7.488.000	9.161.000	10.390.000	11.098.000
	International tourism, number of departures	4.221.000	5.165.000	5.159.000	5.533.000	6.024.000	6.828.000	6.961.000	7.342.000	7.753.000	8.048.000
China	Population (Total)	1.288.400.000	1.296.075.000	1.303.720.000	1.311.020.000	1.317.885.000	1.324.655.000	1.331.260.000	1.337.705.000	1.344.130.000	1.350.695.000
	GDP per capita, PPP (current international $)	3.204	3.603	4.115	4.753	5.543	6.162	6.747	7.503	8.322	9.083
	GDP growth (annual %)	10,00	10,10	11,30	12,70	14,20	9,60	9,20	10,40	9,30	7,80
	International tourism, number of arrivals	32.970.000	41.761.000	46.809.000	49.913.000	54.720.000	53.049.000	50.875.000	55.664.000	57.581.000	57.725.000
	International tourism, number of departures	20.222.000	28.853.000	31.026.000	34.524.000	40.954.000	45.844.000	47.656.000	57.386.000	70.250.000	83.183.000
	Rail lines (total route-km)	60.446	61.015	62.200	63.412	63.637	60.809	65.491	66.239	66.050	66.298
	Rural population	774.792.224	762.182.825	749.352.182	735.969.919	722.153.536	708.102.278	693.783.486	679.206.337	665.333.597	651.364.560
	Urban population	513.607.776	533.892.175	554.367.818	575.050.081	595.731.464	616.552.722	637.476.514	658.498.663	678.796.403	699.330.440
	Urban population (% of total)	39,86	41,19	42,52	43,86	45,20	46,54	47,89	49,23	50,50	51,78
	Urban population growth (annual %)	4,01	3,87	3,76	3,66	3,53	3,44	3,34	3,24	3,04	2,98
	Railways, passengers carried (million passenger-km)	456.000	551.196	583.320	635.327	689.618	772.834	787.890	791.158	815.699	795.639
Japan	Population (Total)	127.718.000	127.761.000	127.773.000	127.756.000	127.770.750	127.704.040	127.557.958	127.450.459	127.817.277	127.561.489
	GDP growth (annual %)	1,69	2,36	1,30	1,69	2,19	-1,04	-5,53	4,65	-0,57	1,96
	GDP per capita, PPP (current international $)	27.944	29.378	30.441	31.818	33.374	33.589	31.994	33.916	34.266	35.618
	International tourism, number of arrivals	5.212.000	6.138.000	6.728.000	7.334.000	8.347.000	8.351.000	6.790.000	8.611.000	6.219.000	8.358.000
	International tourism, number of departures	13.296.000	16.831.000	17.404.000	17.535.000	17.295.000	15.987.000	15.446.000	16.637.000	16.994.000	18.491.000
	Rail lines (total route-km)	20.067	20.060	20.096	20.050	20.050	20.048	20.036	20.035	20.140	20.140
	Urban population	106.065.201	107.973.632	109.856.670	111.007.955	112.186.807	113.293.661	114.328.157	115.394.920	116.486.531	117.011.388
	Urban population (% of total)	83,05	84,51	85,98	86,89	87,80	88,72	89,63	90,54	91,14	91,73
	Railways, passengers carried (million passenger-km)	241.160	242.300	239.246	249.029	252.579	255.865	253.555	244.235	244.591	244.591
Malaysia	Population (Total)	24.890.654	25.365.089	25.843.466	26.327.098	26.813.819	27.302.348	27.790.324	28.275.835	28.758.968	29.239.927
	GDP growth (annual %)	5,79	6,78	5,33	5,59	6,30	4,83	-1,51	7,43	5,13	5,64
	GDP per capita, PPP (current international $)	10.560	11.369	12.131	12.959	13.884	14.574	14.210	15.185	16.003	16.919
	International tourism, number of arrivals	10.577.000	15.703.000	16.431.000	17.547.000	20.973.000	22.052.000	23.646.000	24.577.000	24.714.000	25.033.000
	International tourism, number of departures	32.201.000	30.761.000	..	..	..	..	..	..	..	..
	Rail lines (total route-km)	1.667	1.667	1.657	1.667	1.667	1.665	1.665	1.665	1.987	2.250
	Urban population	16.262.508	16.856.471	17.463.722	18.023.847	18.594.686	19.175.422	19.764.423	20.360.298	20.903.168	21.450.995
	Urban population (% of total)	65,34	66,46	67,58	68,46	69,35	70,23	71,12	72,01	72,68	73,36
	Urban population growth (annual %)	3,66	3,59	3,54	3,16	3,12	3,08	3,03	2,97	2,63	2,59
	Railways, passengers carried (million passenger-km)	1.931	1.931	1.181	2.075	2.193	2.268	1.527	1.527	1.965	3.293

Source: World Bank Database, 2013

10 Appendix 2: Abstract

The master thesis “Past and Future Development of the Airline Industry in South- and North East Asia” shows and analyses the airline industry in the two regional areas in regard to their development during the past two decades as well as it gives an outlook into the future development of the industry. The thesis aims answering three main questions: Which of the four countries of South- and North East Asia that are in focus of this thesis sport the most pronounced growth in the aviation sector within the last decades and what are the reasons for this growth? Why is penetration of South- and North East Asian countries by Low-Cost Carriers still very uneven and why has the Low-Cost aviation sector in North- and South-East Asia started developing much later than that in Europe and the U.S.? Which airlines were best able to cope with and profit from the changes in the North- and South-East Asian aviation sector, and what were the key reasons for their success? As there is no comprehensive model for analysing the development of the airline industry existing that does not focus on certain issues only or just compares the time of two or three years, the paper is developing such a model based on two pillars. After giving an introduction to the topic the airline industry is divided into sub-categories such as airlines, airports and aircraft manufacturer that will be analysed in case studies as the first pillar of the analytic model. Therefore statistic material of various airlines has been compiled and certain key indicators of airline development are analysed and compared as well as its financial and operational performance. The development of airports in the regions that are in focus of the case studies (People’s Republic of China, Japan, Singapore and Malaysia) is also be shown and analysed in terms of passenger numbers development. The second pillar on which the theoretical model is built are growth factors in the airline industry and how they influenced the development of the airline industry. Various factors are defined and then analysed as part of every case study whether their development benefitted to the development of the airline industry positively. Findings will be summarized and compared, especially by comparing the performance of airlines with each other and setting their performance into a world-wide context. The research questions are answered before concluding the main findings of the thesis.

11 Appendix 3: Kurzzusammenfassung

Die Masterarbeit “Vergangene und Zukünftige Entwicklung der Luftverkehrsbranche in Süd- und Nord Ostasien“ präsentiert und analysiert die Entwicklung der Luftverkehrsindustrie in den beiden geografischen Gebieten in Bezug auf deren Entwicklung während der vergangenen 20 Jahre und gibt außerdem einen Ausblick auf die zukünftigen Entwicklungen der zivilen Luftfahrtindustrie. Die Arbeit strebt danach, drei Fragen zu beantworten: Welche der vier Länder Süd- und Nord Ostasiens die im Mittelpunkt der Arbeit stehen, zeigen das höchste Wachstum in ihrer zivilen Luftfahrtindustrie während der letzten beiden Jahrzehnte und was sind die Gründe für dieses Wachstum? Was sind die Gründe dafür, dass die Marktdurchdringung durch Billigfluggesellschaften in Süd- und Nord Ost Asien nach wie vor sehr unterschiedlich ist und warum hat sich die Billigflugindustrie in beiden Regionen erst viel später entwickelt als in Europa und den USA? Welche Fluggesellschaften waren am besten dazu fähig, von den Veränderungen in der Luftfahrtindustrie Nord- und Süd Ostasiens zu profitieren? Nachdem es in der existierenden Literatur kein umfassendes Modell für die Analyse der Entwicklung der Luftfahrtindustrie gibt bzw. existierende Modelle nur einzelne Bereiche oder sehr kurze Zeiträume umfassen, entwickelt die Arbeit ein solches Modell, was auf zwei theoretischen Säulen basiert. Dazu wird die Luftfahrtindustrie, nach einer Einleitung ins Thema, in Unterkategorien wie Fluggesellschaften, Flughäfen und Flugzeughersteller unterteilt die als eine der Säulen des Modells analysiert werden. Dafür wurden Statistiken der vergangen 20 Jahre erstellt, die besonders wichtige Indikatoren als auch die operationelle und finanzielle Entwicklung der Luftfahrtgesellschaften enthalten und analysiert und verglichen werden. Die Entwicklung der Flughäfen der Länder, die im Fokus der Arbeit stehen (Volksrepublik China, Japan, Singapur und Malaysia) wird ebenfalls anhand von Statistiken, wie z.B. der Passagierzahlen dargestellt und analysiert. Die zweite Säule auf der das theoretische Modell aufbaut ist, sind Wachstumsfaktoren in der Luftfahrtindustrie

und wie deren Entwicklung die Entwicklung der Luftfahrtindustrie in den letzten 20 Jahren beeinflusst hat. Dafür werden verschiedene Wachstumsfaktoren definiert und es wird im Rahmen der Fallstudien für die einzelnen Länder analysiert, ob sie einen positiven Einfluss auf die Entwicklung der Luftverkehrsindustrie hatten.

Die Ergebnisse werden zusammengefasst und verglichen, sowohl miteinander, als auch indem sie in einen Kontext mit der weltweiten Luftfahrtindustrie gesetzt werden. Die gestellten Fragen werden beantwortet und eine kurze Zusammenfassung gegeben.

12 Appendix 4: Curriculum Vitae (English)

Christian Nau

Personal Information

Date of birth	18.11.1987	in Munich
Nationality		German

Education

	1998 - 2008	Secondary school in Munich, qualification: A-levels
	2008 - 2011	Westcoast University of Applied Sciences in Heide, Germany B. A. in Business & Law
	2010	Internship semester as Management Trainee at Allianz Insurance Company in Singapore
	2011 – 2014	University of Vienna, Austria Master studies in East Asian Economy and Society

Language skills

Mother tongue	German
Foreign languages	English, fluent French, advanced Spanish, advanced Japanese, basic

13 Appendix 5: Curriculum Vitae (Deutsch)

Christian Nau

Persönliche Informationen

Geburtsdatum	18.11.1987	in München
Nationalität		Deutsch

Bildung

	1998 - 2008	Gymnasium in München, Abitur
	2008 - 2011	Fachhochschule Westküste in Heide, Deutschland B. A. in Wirtschaft & Recht
	2010	Praxissemester als "Management Trainee" bei der Allianz Versicherung in Singapur
	2011 – 2014	Universität Wien, Österreich Masterstudium Wirtschaft und Gesellschaft Ostasiens

Sprachkenntnisse

Muttersprache	Deutsch
Fremdsprachen	Englisch, fließend Französisch, fortgeschritten Spanisch, fortgeschritten Japanisch, Grundkenntnisse