

The Potential for Low-Cost Airlines in Asia

by

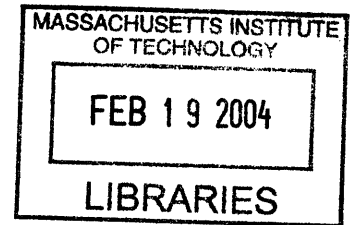
Philipp Dietlin

Bachelor's Degree in Economics and Business Administration
University of St Gallen, Switzerland, 2001

Submitted to the Department of Civil and Environmental Engineering
in Partial Fulfillment of the Requirements for the Degree of

Master of Science in Transportation

at the
Massachusetts Institute of Technology
February 2004



© 2004 Philipp Dietlin. All rights reserved.

The author hereby grants to MIT permission to reproduce and distribute publicly
paper and electronic copies of this thesis document in whole or in part.

Signature of Author
Department of Civil and Environmental Engineering
16 January, 2004

Certified by
Peter P. Belobaba
Principal Research Scientist
Thesis Advisor

Certified by
Amedeo R. Odoni
Professor of Aeronautics and Astronautics and
of Civil and Environmental Engineering
Thesis Reader

Accepted by
Heidi Neuf
Chairman, Departmental Committee on Graduate Studies

BARKER

The Potential for Low-Cost Airlines in Asia

by

Philipp Dietlin

Submitted to the Department of Civil and Environmental Engineering on
16 January, 2004, in Partial Fulfillment of the Requirements for the Degree of
Master of Science in Transportation

Abstract

The purpose of this thesis is to assess the potential for low-cost airlines in Asia. Low-cost airlines have been very successful in North America and Europe and have significantly impacted the airline industry and its stakeholders. In what ways and to what extent this might be repeatable in Asia is the underlying question of this thesis. An investigation of the low-cost airline business model reveals that there are a number of key elements that make it so successful on both sides of the Atlantic. But what works in North America and Europe may not be feasible in Asia. An analysis of the Asian airline industry shows that it differs from the rest of the world in several important dimensions, which will substantially affect prospective low-cost airlines. On the one hand, the rigid regulatory frameworks in most parts of Asia and the fact that many traditional Asian airlines have some of the world's lowest unit costs may not allow Asian low-cost airlines to thrive in the same way as they have in other parts of the world. On the other hand, a breakdown of Asia's socioeconomic indicators shows that the continent is bound to experience significant growth in intra-Asia air travel over the coming years. The low-cost airline business in Asia is therefore challenging in several ways but potentially very lucrative. The possible impacts that an increasing presence of low-cost airlines in Asia would have on the various stakeholders in the region are substantial. While some of these stakeholders will likely benefit from a growing presence of low-cost airlines in Asia, others might have a lot to lose. This thesis analyses several stakeholder groups and suggests potential response options.

Thesis Supervisor: Peter B. Belobaba
Title: Principal Research Scientist

Acknowledgements

I would like to thank Prof. Peter Belobaba, my thesis advisor, for many hours of helpful guidance and advice. He identified the potential in this project early on and helped me with formulating many of the ideas and concepts.

Many thanks to Prof. Amedeo Odoni for being my thesis reader and a great academic advisor. Without him, I would have felt pretty lost during my first few weeks at MIT.

My special thanks go to Mister Kanok Abhiradee, President Thai Airways International, for his generous support and for providing me with a great research opportunity in his company.

I gratefully acknowledge the support of Mister Chartsiri Sophonpanich, President Bangkok Bank. His personal efforts opened a lot of doors.

I would like to thank my dear friends Khun Piya and Khun Nattapote as well as everyone else from Thai Airways' Long Term Planning Department. Thank you for a wonderful time in Bangkok and for the many spicy but incredibly delicious Thai lunches.

Thank you to my classmates, roommates, teammates and all other mates at MIT for their words of encouragement and for providing me with as much distraction as was necessary to keep my perspective.

I would also like to thank the following persons who contributed their time to share their experiences and insights with me. I truly enjoyed the discussions and I hope that I have accurately reflected their thinking in this thesis.

Patrick Folley, Statistical Analyst, IATA

Tony Fernandes, CEO, AirAsia

Pornchai Eua-Aree, Vice President, Airports of Thailand

Mark Webb, Aviation Analyst, HSBC Securities

Rudy Setyopurnomo, CEO, Indonesian Airlines

Amphonesavath Kingsada, Deputy Director, Lao Airlines

Rolando V. Nuñez, Vice President, Cebu Pacific Air

Tomas T. Mañalac, Executive Director, Philippines Civil Aeronautics Board

Richard Stirland, Director General, Association of Asia-Pacific Airlines

Finally, I would like to thank my parents, Joe and Pia Dietlin, for the unconditional love and support they give me throughout all my endeavors.

Table of Contents

1. Introduction.....	11
1.1 Motivation.....	11
1.2 Why LCA?.....	12
1.3 Structure and Purpose of this Thesis.....	13
1.4 Key Findings	14
2. The Low-Cost Airline Model.....	17
2.1 Introduction	17
2.2 Why Low-Cost?.....	18
2.3 Defining Low-Cost Airlines.....	19
2.4 Key Elements	21
2.4.1 Network	21
2.4.1.1 Short Stage Lengths.....	21
2.4.1.2 Focus on Services Within a Single Coherent Economic Region	23
2.4.1.3 Focus City	23
2.4.1.4 Primary vs. Secondary Airports	24
2.4.1.5 In the Future: Long-Haul LCAs?	25
2.4.2 Scheduling.....	26
2.4.2.1 Short Turnaround Times	26
2.4.2.2 High Frequencies?	27
2.4.2.3 Disregard Connecting Passengers	27
2.4.3 Fleet	28
2.4.3.1 Industry Standards	28
2.4.3.2 Fleet Commonality	29
2.4.4 Marketing.....	30
2.4.4.1 Fare Products.....	30
2.4.4.2 Yield vs. Load Factor.....	31
2.4.4.3 Revenue Management.....	32
2.4.4.2 Distribution	32
2.4.5 Finances.....	33
2.4.5.1 Revenues.....	33
2.4.5.2 Expenditures	34

2.4.5.3 Profitability	34
2.4.5.4 Ownership.....	35
2.4.6 Labor	36
2.4.6.1 Labor Productivity	36
2.4.6.2 Cost of Labor	36
2.4.6.3 Corporate Culture.....	37
2.5 Service	37
2.5.1 Level of Service	38
2.5.3 Service Performance	39
2.5.3 Customer Satisfaction.....	41
2.6 Development Cycle	42
2.6.1 Set-Up	42
2.6.2 Penetration	42
2.6.3 Entrenchment	43
2.6.4 Internationalization.....	43
2.6.5 Adaptation	43
2.7 Form.....	44
2.7.1 Independent Low-Cost Airlines	44
2.7.2 Low-Cost Subsidiaries of Established Airlines	44
2.7.3 “No Frills” Services of Traditional Airlines	45
2.7.4 “No Frills” Services of Charter Airlines	46
2.8 Failures	46
2.9 Summary.....	47
3. The Asian Airline Industry	49
3.1 Introduction	49
3.2 The Airlines	50
3.2.1 State-Owned Airlines	50
3.2.2 Private Airlines.....	51
3.2.3 Regional and Domestic Airlines	52
3.2.4 Fifth Freedom Airlines.....	52
3.2.4 Charter Airlines.....	54
3.3 Networks.....	54
3.4 Fleet	56

3.5 Traffic Levels	58
3.6 Yield	59
3.6.1 Domestic Yields.....	60
3.6.2 System-Wide Yields.....	61
3.6.3 Yields in Asia-Pacific	62
3.7 Airline Operating Costs	64
3.8 Distribution	66
3.8.1 Tour Operators	66
3.8.2 Travel Agents	66
3.8.3 Wholesalers.....	67
3.8.4 Direct Online Distribution	67
3.9 Infrastructure	68
3.9.1 Airports.....	68
3.9.2 Air Traffic Control.....	69
3.10 Regulatory Issues	70
3.10.1 Bilateral Agreements	70
3.10.2 Towards Open Skies?	71
3.11 Growing Demand for Air Transportation in Asia	72
3.12 Challenges for Asian Airlines	74
3.12.1 Keeping the Cost Advantage	74
3.12.2 Continued Pressure on Yield	75
3.12.3 Liberalization	75
3.12.4 Shifting Markets.....	76
3.13 Summary	76
4. Opportunities and Challenges for Low-Cost Airlines in Asia	79
4.1 Introduction	79
4.2 Markets	80
4.2.1 Market Characteristics	80
4.2.2 Domestic vs. International.....	80
4.2.3 Leisure Markets	81
4.2.4 Business Markets	82
4.3 Competing Modes of Transport	83

4.3.1 Car	83
4.3.2 Bus	83
4.3.3 Rail	84
4.3.4 Ship/Ferry	85
4.4 Competing Against Traditional Airlines	86
4.4.1 Cost Competitiveness	86
4.4.2 Connecting Passengers.....	87
4.4.3 Competing with Flag Carriers.....	88
4.5 Airports.....	89
4.5.1 Secondary Airports	89
4.5.2 Airport Charges	90
4.5.3 Airport Slots	90
4.5.4 Increased Congestion due to LCAs?	91
4.6 Policy Issues	92
4.6.1 National Interests regarding LCAs	92
4.6.2 Government Policies regarding Airports.....	94
4.6.3 Allocation of Traffic Rights	95
4.6.4 Certification.....	96
4.7 Distribution.....	97
4.7.1 The Customers	97
4.7.2 Distribution Channels.....	98
4.7.3 Credit Card Usage.....	99
4.8 Summary.....	99
5. Implications and Response Options for Major Stakeholders.....	101
5.1 Introduction.....	101
5.2 Traditional Airlines.....	102
5.2.1 Implications.....	102
5.2.2 Response Options	103
5.2.2.1 Add New Low-Cost Operation	103
5.2.2.2 Change Existing Product.....	104
5.2.2.3 Reduce Costs.....	106
5.2.2.4 Aggressive Pricing Response.....	107
5.2.2.5 Repositioning	108

5.3 Airports	109
5.3.1 Implications.....	109
5.3.2 Response Options	110
5.4 Countries	111
5.4.1 Implications.....	111
5.4.2 Response Options	112
5.5 Competing Modes of Transport	113
5.5.1 Implications.....	113
5.5.2 Response Options	114
5.6 Summary	114
6. Summary	117
References	123
Appendix	125

1. Introduction

1.1 Motivation

The low-cost airline model has been very successful in North America and Europe. Today's low-cost airlines are among the most profitable airlines in the world and the global equity markets value many low-cost airlines higher than established airlines. In Asia, the market context is different and the model has not yet been implemented on a large scale. Infrastructure and regulatory constraints may limit the ability of low-cost airlines to exploit their distinct efficiencies. Most of the region's dominant carriers are government controlled so the nature of competition among airlines is different. This could potentially discourage the start-up of low-cost airlines in Asia.

Asian airlines have to operate within the regulatory straightjackets of numerous bilateral air service agreements. Most routes are dominated by major flag carriers whose rights and profit-making ability are protected by their government guardians. There are also major airport slot constraints at many Asian airports and in many cases a lack of secondary airports. Potentially lucrative markets such as Singapore or Hong Kong do not even have serviceable secondary airports within their national boundaries.

However, there are currently a handful of airlines in Asia that operate based on the low-cost airline model (e.g. AirAsia in Malaysia). And several independent low-cost airlines are reported to be launched in the near future (e.g. ValuAir in Singapore). Traditional Asian carriers feel that they could potentially lose passengers to these new airlines. For this reason, some of these traditional airlines (e.g. Thai Airways and Singapore Airlines) are considering setting-up their own "no frills" subsidiaries as they have seen how the low-cost airline model changed the industry in other parts of the world.

Several traditional airlines in North America and Europe are in severe trouble or bankrupt, at least partly because of increased competition from low-cost airlines. But not all lessons learned elsewhere are applicable to Asia. As this thesis will

explain in Chapter 3, many established Asian airlines already have some of the world's lowest unit costs. Low labor costs, long average passenger haul and the use of large aircraft result in significant unit cost advantages. It is not clear if the low-cost airline model can reduce these costs even further to pose a significant threat to Asia's established airlines

However, the Asian airline industry will undoubtedly undergo major changes within the next decade. Forecasts predict Asia-Pacific to account for 30% of world RPK by 2020.¹ That's up from 23% today, making it the largest market for air transportation by that time. In what way low-cost airlines play a role in this is not yet clear. However, the low-cost airline model does not come in a definite form and does allow for regional adaptations. It might prove to be a powerful concept to make air transportation more affordable and therefore to make this form of transportation available to a larger percentage of the population. This could help developing a sustainable aviation environment for the growing economies in the region.

1.2 Why LCA?

Since this new business model was introduced in the seventies by Herb Kelleher of Southwest Airlines, people have struggled to come up with an appropriate term for such airlines. I will use the term *low-cost airline* or its abbreviation *LCA* throughout this thesis. Most European low-cost airlines (e.g. EasyJet) define themselves as such. Another popular term, especially in North America, is *low-cost carrier* or *LCC*. *LCA* and *LCC* can be used interchangeably but for reasons of consistency, I will exclusively use *LCA* in this thesis.

Other industry experts (e.g. Thomas C. Lawton, Imperial College, London UK) use the definition *low-fare airline* or *LFA*. In my opinion, low fares is not what distinguishes an *LCA* from a traditional airline. In the airline industry, fares tend to be market driven rather than cost driven. An established airline can match an *LCA*'s fares anytime in any market. A distinction based on fares does not seem to be appropriate to me.

¹ Airbus Global Market Forecast (2002)

I will use the words *traditional* and *established* to describe airlines that do not fall in the LCA category. Most these airlines have been in business for several decades and their business model has very much shaped the airline industry as we know it today.

Although *established airline* describes a wide range of airlines, it will be a useful term to differentiate LCAs from non-LCAs. Sometimes I will refer to a specific sub-group of established airlines. *Charter airlines* will be referred to as airlines whose main business is not to operate scheduled services and whose services are usually sold in connection with a tour package. The term *network airline* will be used when an airline uses the hub-and-spoke system and thus carries a substantial amount of connecting passengers.

1.3 Structure and Purpose of this Thesis

In Chapter 2, this thesis will examine the low-cost airline model and identify its key success factors. Examples from North America and Europe will serve as examples for how the model works and in what different ways it has been implemented. This chapter will also show the differences between low-cost airlines and established airlines.

In Chapter 3, it will then go on and look closely at the Asian market context, its geography and infrastructure. The chapter will examine how established Asian airlines are different from airlines in North America and Europe. It will also analyze the intra-Asian markets for air transportation (domestic and international) and look at regulations and infrastructure constraints in these markets.

Chapter 4 will draw on Chapters 2 and 3 to evaluate the challenges and opportunities that potential LCAs will encounter in Asia. Will Asian LCAs be able to compete against traditional airlines in the region that have some of the world's lowest unit costs? What are potential markets in Asia? What might limit the growth of LCAs in Asia?

After evaluating the opportunities and challenges for low-cost airlines in Asia in Chapter 4, Chapter 5 will discuss the implications this has on various stakeholders

and how they could possibly respond. The chapter will have a special focus on traditional Asian carriers; how they are affected and what potential response options they might choose.

The reader of this thesis will obtain an understanding of the low-cost airline model as well as the Asian airline industry. The reader will be able to understand how low-cost airlines work, what potential they have in Asia and what this all means for established Asian carriers.

The thesis has a special focus on South East Asia. Most of the activities concerning low-cost airlines in Asia have been centered around this region. Furthermore, with ASEAN², a powerful free-trade zone about to be built, it will likely be the first sub-region to experience multilateral economic deregulation of international air transportation. This might further encourage the rise of low-cost airlines in this part of the world.

1.4 Key Findings

- The low-cost airline business model is very flexible and highly adaptable. Most LCAs share a number of key elements that allow them to operate at a significant lower cost structure than traditional airlines. Although the way LCAs produce and distribute their services may differ from traditional airlines, LCAs are still in the business of carrying passengers from A to B.
- Many established Asian airlines have some of the world's lowest unit costs. Reasons include the lower input costs, the relatively long average stage-lengths and the extensive use of wide-body aircraft. Asian LCAs will only enjoy some of these cost advantages.
- Many domestic and international markets for air transportation in Asia are highly regulated. The development towards a more liberal aviation environment is slow, except for a few countries. Due to the absence of a

² Association of South East Asian Nations (www.asean.org)

powerful regional entity like the EU in Europe, Asia is not likely to see significant multilateral liberalization of air transportation in the coming years.

- The Asian airline industry is significantly different from other parts of the world. The success of the LCA business model in North America and Europe might therefore not be repeatable in Asia to the same extent.
- From an economic perspective, many markets for air transportation in Asia are attractive for any type of airline. Particularly the rapid economic growth and the resulting increase in personal wealth make Asia an appealing region to operate an airline.
- The experience made in North America and Europe suggests that if LCAs were to succeed in Asia, the implications for the various stakeholders would be very significant. While some stakeholder groups might benefit from an increasing presence of LCAs in Asia, others might have a lot to lose.

2. The Low-Cost Airline Model

2.1 Introduction

How can Ryanair regularly sell tickets from Dublin to London for under US\$ 30 and still be Europe's most profitable airline? How can Southwest enjoy the industry's highest customer satisfaction while providing one of the lowest service levels? How can AirAsia be Asia's fastest growing airline without an airline manager at the top?

Traditional airline economics seem to be undergoing major changes. What seemed indisputable a few years ago, is in doubt today. The LCA business model is changing the face of the airline industry around the world. And established airlines find it difficult to respond to this phenomenon.

But low-cost airlines are not a new thing. Southwest Airlines made its maiden flight on June 18, 1971. More than 30 years later, there are now more than 30 low-cost airlines spread across all 5 continents. In North America and in Europe where LCAs have been in business longest, this had far-reaching consequences for established airlines. While LCAs are posting record profits, established airlines declare bankruptcies. In February 2003, Air Canada's CEO Robert Milton said: "(...) the existing full-service network airline model is not sustainable without continued fundamental change."³

There is no single type of low-cost airline. All of today's LCAs have their own distinct characteristics. But at the same time, there are some basic principles that most low-cost airline base their business on. Some of them are from within the airline business, some of them are not. Although LCAs and established airlines are in the same business, *the way they do business* is significantly different.

This chapter will examine the key elements of the LCA business model. It will discuss different forms and also look at the failures. Most examples used in this chapter will come from North America and Europe. The way this business model could be adapted to the Asian market context will be discussed in Chapter 4.

³ On CBC News (www.cbc.ca)

2.2 Why Low-Cost?

Having low-costs enables an airline to charge lower fares. In nearly all markets for goods and services, demand increases with lower prices. In the airline industry, lower fares translate into an increased number of passengers. By carrying large numbers of passengers, an airline is able to operate flights at high load factors and therefore to make efficient use of its fleet and other assets. These efficiencies turn into cost savings which again enables the airline to charge lower fares. The following figure highlights this cycle.⁴

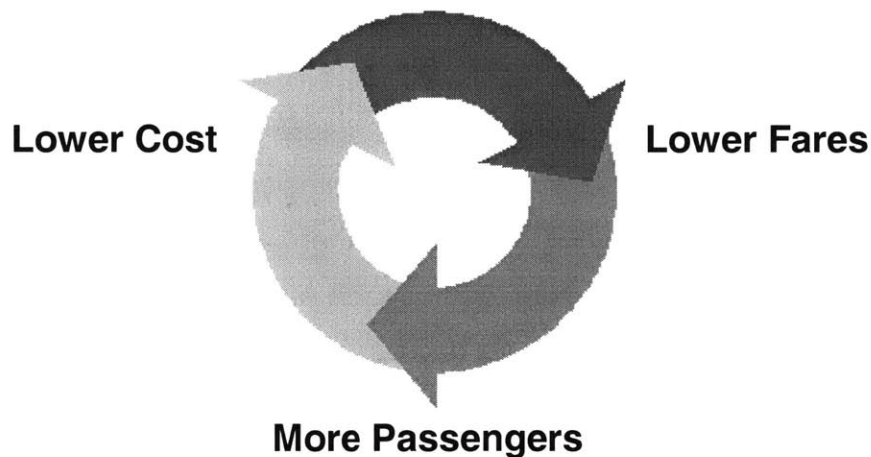


Figure 1.1: Cycle of efficiency

However, the more efficient operations become, the more difficult it gets to increase efficiency further. For airlines operating their flights at load factors in the eighties and flying their aircraft 13 hours a day, it is difficult to further increase the utilization of their produced capacity.

To obtain these high load factors, LCAs tend to cater to high volume markets. But a market does not need to have high volumes at the beginning to be attractive to an LCA. By offering lower fares than the airlines that currently serve a market, a low-cost airline is able to stimulate additional demand and turn a low volume market into a high volume market. Even when the market already has high volumes, it can

⁴ *Cleared for Take-Off – Structure and Strategy in the Low Fare Airline Business*, Thomas C. Lawton, 2002

stimulate demand. In the decade prior to Ryanair's launch, roughly 900,000 people flew from Dublin to London each year.⁵ The previous growth rate was minuscule. Last year, more than 4 million passengers flew from the Irish to the British capital. The reason for this stimulation was mainly Ryanair's entry and the resulting decrease in fares.

2.3 Defining Low-Cost Airlines

With regard to unit costs, many Asian carriers could be defined as low-cost airlines compared to their US or European counterparts. Singapore Airlines' unit costs are at US¢ 3.88 per ASK whereas British Airways operates at US¢ 8.61.⁶ Although Singapore Airlines has relatively low unit costs, it is not a low-cost airline in the sense that it is not using the LCA model. BA and SIA differ in wage levels, stage lengths, average aircraft size etc., which translates into different unit costs. Still, both airlines use the same business model and can be characterized as classic examples of network carriers.

Also LCAs themselves struggle to define their business model. According to EasyJet's strategic vision, the company is based on seven core principles:⁷

- Yield managed fares
- Modern and standardized fleet
- High aircraft utilization
- Short haul services
- No travel agents or tickets
- Point to point service
- No free food or drinks

⁵ *Cleared for Take-Off – Structure and Strategy in the Low Fare Airline Business*, Thomas C. Lawton, 2002

⁶ SIA and BA annual reports 2002

⁷ *Cleared for Take-Off – Structure and Strategy in the Low Fare Airline Business*, Thomas C. Lawton, 2002

However, EasyJet's flights from London to Athens are 4 hours, which might be too long to fall in the category "short haul". And with the acquisition of GO, the standardized fleet is somewhat compromised, too. Also, if the company strictly maximized aircraft utilization, it would not fly into congested airports such as Paris (CDG) or Munich (MUC). And of course also most established airlines have "yield managed fares". These seven principles alone are not what makes EasyJet an LCA.

In the case of Southwest, many people argue that the consumer and employee oriented corporate culture is the major recipe of success.⁸ Again, this is just part of the story and many of the arguments are specific to the case of Southwest. Whereas Southwest openly considers its employees to be more important than its customers, Ryanair's corporate culture has little to do with considering the company as a big family. Ryanair therefore outsources all ground staff except at its Dublin base which is something that would not be compatible with Southwest's values.⁹ This makes clear that LCAs show substantial differences among themselves and what is true for one might not apply to another. It is therefore not possible to define an LCA in a complete and exhaustive manner. However, there are some features that are very common among low-cost airlines. The following catalogue is an attempt to list the things that low-cost airlines usually do.

- Fly short routes.
- Use secondary and/or uncongested airports.
- Carry a low number of connecting passengers.
- Operate flights at very high load factors.
- Do not schedule "banks" at their hubs.
- Sell tickets through own distribution channels, e.g. call centers and booking engines on the airline's homepage.
- Do not issue paper tickets.
- Limit operations to one coherent economic region.

⁸ *Nuts! Southwest Airlines' Crazy Recipe for Business and Personal Success*, Kevin & Jackie Freiberg, 1998

- Offer only one class of travel with a relatively high seat density.
- Provide limited add-on services including (but not limited to) basic in-flight amenities.
- Have a very simple fleet structure, often using just one type of aircraft.
- Have a high daily aircraft utilization.
- Have flexible work rules.
- Do not participate in global alliances.
- Do not market their cargo capacity.
- Are not government owned or government controlled.

An airline that strictly applies the LCA model will show most of these features. Other airlines may use only parts of it or modify the model to some extent. JetBlue is such an airline. Its product quality is higher than most other LCAs. In 2002, the second year in a row, JetBlue won the Reader's Choice Award of *Condé Nast* for best domestic airline. The airline also operates out of a primary airport (New York's JFK) and offers flights with stage lengths longer than most classic LCAs. Hence, it is difficult to classify airlines into LCAs and non-LCAs. There is a range of variations between these two extremes. Appendix 1 shows which LCAs show which of the above characteristics.

2.4 Key Elements

2.4.1 Network

2.4.1.1 Short Stage Lengths

The networks of most low-cost airlines predominately consist of short-haul routes. This might surprise since short flights are inherently more expensive on a per-kilometer basis than longer flights. This is because the labor-intensive and therefore costlier time on the ground is spread over a shorter revenue generating distance in

⁹ *Cleared for Take-Off – Structure and Strategy in the Low Fare Airline Business*, Thomas C. Lawton, 2002

the air. Passenger processing costs, landing fees etc. are largely independent of stage length. This makes shorter trip more expensive on a per-kilometer basis.

So why should a low-cost airline favor short-haul flights if they result in higher unit costs? The high unit costs of short-haul flights are compensated by high unit revenues. On a per-kilometer basis, a US\$59 restricted fare from Los Angeles to Las Vegas on Southwest contributes more than a US\$1,059 restricted fare from Los Angeles to Sydney on Qantas.¹⁰ Short flights are costlier than longer flights but since yields are higher too, that doesn't mean that they are less profitable.

Not only on the revenue side, also on the cost side short-haul flights are more desirable for LCAs. Long flights have lower units cost than short flights. However, the relative cost advantage between LCAs and established carriers diminishes with increased stage length. The cost areas where LCAs have an advantage over established carriers (distribution, ground handling etc.) make up a smaller percentage of the total trip costs at longer stage lengths. LCAs will therefore lose some of their cost advantage over established carriers if they expand into long-haul.

Also, the local OD demand for a long-haul service might not be sufficient enough to break-even, so there would be a need to consolidate demand. However, this is against the principles of the low-cost airline model which focuses on offering point-to-point services. Furthermore, if low-cost airlines wanted to offer long-haul flights, they would need to provide more in-flight services and as a consequence, ground times would get longer due to catering support at the gate and additional cabin cleaning requirements. This would decrease aircraft utilization, which an LCA would hardly want to compromise. Finally, longer flights may cross international boundaries, which would make the flight subject to bilateral agreements that may significantly limit the freedoms enjoyed when operating domestically. Although some low-cost airlines offer international services (e.g. EasyJet from London/UK to Athens/Greece), they usually do so in a coherent economic region such as the NAFTA or the EU.¹¹

¹⁰ Fares quoted on southwest.com and travelocity.com for a 07MAR03 departure in economy class

¹¹ North American Free Trade Agreement (USA, Canada and Mexico); European Union (Belgium, Germany, France, Italy Luxembourg, The Netherlands, Denmark, Ireland, United Kingdom, Greece, Spain, Portugal, Austria, Finland, Sweden)

2.4.1.2 Focus on Services Within a Single Coherent Economic Region

International traffic is governed by bilateral agreements. These treaties may limit international services to designated carriers, which are often the flag carriers of the two nations involved. Many governments still highly protect their national airline which makes entering these markets almost impossible.

Currently all flights of European low-cost airlines are within the EU, with the exceptions of flights to the Czech Republic (Prague), Norway (Oslo) and Switzerland (Zurich, Geneva). However, all these countries have very close ties to the EU. Also in North America, there are only a few flights of LCAs that cross international boundaries and if they do so, it is predominantly between the US and Canada, which have signed an open-skies agreement and also have close economic and regulatory ties. As of today, AirAsia and Virgin Blue fly domestically only.

The more coherent the markets, the more efficient and less risky are airline operations. Although the EU facilitates international air transportation within its boundaries, European LCAs have to operate in a far more heterogeneous environment than their US counterparts. Ryanair flights are sold in more than ten different languages and more than five different currencies. Southwest on the other hand operates in an environment of one language and one currency. Operating in different countries also means various labor agreements that need to be negotiated. Finally, building a corporate culture becomes inherently more difficult if people speak different languages and have different cultural backgrounds.

2.4.1.3 Focus City

A low-cost airline usually starts its operations out of one airport and gradually adds new destinations out of this airport. For JetBlue it is New York's JFK and for AirAsia it is Kuala Lumpur's KLIA. Their networks don't look much different from a traditional hub-and-spoke network. Also Southwest, EasyJet and most other LCAs started from one single airport. The reason behind this strategy is again efficient use of assets (gates, ground staff, maintenance facilities etc.) at this airport. Once the infrastructure at the base is in place, the incremental infrastructure and manpower costs to add another flight is relatively small. This is the main reason for having an

expanding focus city. It is not a means to consolidate demand and to offer connecting itineraries. So although their networks look centralized, low-cost airlines are to a large extent point-to-point carriers with regard to the traffic they carry. JetBlue and AirAsia are still in the start-up phase and therefore have one major focus city. Southwest and Ryanair, which have been in the business for quite some time now, have developed networks with various focus cities. Southwest's current growth strategy is to "connect the dots" which means to offer new non-stop services between existing destinations as opposed to adding new destinations to the network.¹² Adding and developing new destinations is far more expensive and risky, so "connecting the dots" is a more conservative, although limited, growth strategy.

2.4.1.4 Primary vs. Secondary Airports

Although based in London-Luton, EasyJet serves a number of primary airports such as Paris (CDG) or Zurich (ZRH). The airline can sell tickets to/from these convenient airports at a premium because of the airport's location and added services (e.g. car rental agencies, duty free shops). However, these primary airports also mean higher handling costs for the airline as well as costs resulting from congestion at these airports (e.g. decreased aircraft utilization).

Furthermore, many of these primary airports are slot constrained, so it may be difficult to obtain slots at favorable times during a day. Landing fees are another major cost item for low-cost airlines, especially on a per-kilometer basis because their strategy is to offer frequent departures and short stage lengths. Looking at the airports in London (UK), the landing fees for a B737 are US\$730 at Heathrow, US\$545 at Gatwick and US\$310 at Stansted.¹³ Not surprisingly, Stansted has the highest density of low-cost airline traffic.

Ryanair chooses to exclusively use secondary airports such as Hahn (124km north of Frankfurt) or Charleroi (60km south of Brussels). For passengers, these locations are more inconvenient, but Ryanair passes part of the cost savings obtained by using these secondary airports on to its customers. By using secondary

¹² *Aviation Week and Space Technology*, March 10, 2003

¹³ During peak times for aircraft with a MTOW of 50t or greater (BAA 2002 data)

airports, it is also possible to get favorable arrangements with local authorities. At Ryanair, airports are sometimes considered profit centers. The airport authority of the Italian beach resort Rimini paid Ryanair US\$600,000 a year to start flying to their airport in 1998.¹⁴ This was US\$10 per expected passenger. After two years, Rimini's airport management changed and wanted to change the arrangement in its favor. Ryanair refused and pulled out. The same has happened at other airports served by Ryanair. The European Commission, acting on a complaint filed by a unknown competitor, is now investigating the legality of the aid received by Ryanair.¹⁵ Interestingly enough, Ryanair CEO O'Leary was among the loudest to condemn the way other airlines were supported by government aid.

2.4.1.5 In the Future: Long-Haul LCAs?

More recently, there is a trend among LCAs towards longer stage lengths. Both JetBlue and Southwest offer transcontinental flights within the US. However, these flights are still domestic, hence not subject to any bilateral agreements. Furthermore, the airlines can use existing aircraft for these medium-haul flights. More importantly, both airlines fly these transcontinental flights out of their focus cities (New York and Baltimore/Phoenix respectively); hence some consolidation of demand takes place at these locations in the form of passengers connecting to/from other origins/destinations.

One reason for expanding into long-haul is increased aircraft utilization. Short-haul operations have lower aircraft utilization rates than long-haul operations. Virgin Atlantic, which only flies intercontinental routes, has a fleet-wide utilization rate of 13.4 hours.¹⁶ According to current CAA Statistics, this number is the highest among all UK airlines, both LCAs and established airlines. The fact that Virgin Atlantic operates long-haul flights only, is likely to be the main reason for this. This might suggest that LCAs could increase aircraft utilization if they expand into long-haul operations. This could potentially lower their unit costs even further. And the newer versions of B737 aircraft can even be certified for trans-oceanic services. However,

¹⁴ *No Frills*, Simon Calder, 2002

¹⁵ *The Guardian (UK)*, December 12, 2002

for the reasons mentioned in chapter 2.4.1.1, LCAs continue to focus on short-to-medium stage lengths at this point in time. Once these markets saturate, long-haul services might be next chapter of the LCA success story.

2.4.2 Scheduling

2.4.2.1 Short Turnaround Times

From a financial point of view, the fleet is an airline's most valuable asset. High aircraft utilization is therefore a key element in a low-cost operation and LCAs therefore fly their aircraft more hours per day than established airlines. British Airways is using its B737 fleet 7.0 hours per day while EasyJet is using its B737 aircraft 11.1 hours.¹⁷ In most cases, aircraft of LCAs spend between 15 and 25 minutes at the gate between two consecutive flights.¹⁸ The following example highlights the impact of short turnaround times on an airline's costs. If Southwest had to extend its ground times by as little as 10 minutes, the airline would have to buy an additional 31 Boeing 737s at a cost of US\$37 million each in order to be able to fly the same schedule.¹⁹

There are several reasons why low-cost airlines can turn their aircraft quicker than traditional airlines. A "no frills" in-flight service requires little catering supplies on the ground. Flights do not wait for delayed connecting passengers. Most low-cost airlines do not carry cargo, which speeds up the loading and unloading processes. The fact that passengers check-in fewer pieces of baggage on short-haul flights also shortens the loading process. The use of uncongested secondary airports minimizes the exposure to possible delays. Finally, fleet commonality also helps reducing the time spent on the ground as the handling processes are standardized across flights.

Taxi time can be a substantial part of the total trip time, especially on short-haul routes. Most low-cost airlines prefer gates that are at the far end of terminals or at satellite terminals. These gates tend to be at good locations in terms of taxi time.

¹⁶ CAA Statistics

¹⁷ CAA Statistics

¹⁸ *No Frills*, Simon Calder, 2002

¹⁹ According to Colleen Barrett, President of Southwest Airlines (in *No Frills*, Simon Calder, 2002)

When EasyJet started operations to/from Athens in Greece, the airline insisted on being assigned gates at the airport's satellite terminal despite the inconvenience for passengers in the form of long walking distances. This highlights again the focus of LCAs on operational efficiencies rather than on offering premium services for their customers.

2.4.2.2 High Frequencies?

On a given route, Southwest tends to offer a relatively high number of flights. For 2002, the airline reported having operated 947,331 flights, serving 59 cities. This translates into an average of 44 daily departures per city. However, many LCAs offer significantly lower frequencies. EasyJet offers far fewer flights between its cities because it flies many low-density routes that do not support a high number of flights each day. That's why EasyJet destinations saw an average of 7 daily departures in 2002.

The different strategies of Southwest and EasyJet show that frequency is not a key to success in the LCA world. What is important is high aircraft utilization, which both Southwest and EasyJet report. But high aircraft utilization does not necessarily require high frequencies.

2.4.2.3 Disregard Connecting Passengers

Unlike hub-and-spoke carriers, low-cost airlines do not explicitly schedule banks for short connections at their focus cities as this would increase the potential for delays and decrease aircraft utilization. However, this doesn't mean that there are no connecting passengers on board of low cost airlines flights. According to the company, almost 30% of Southwest's customers were connecting passengers in 2001. On the other hand, Ryanair does not allow passenger to book itineraries with connections. The two trips need to be booked as two individual itineraries. Ryanair neither guarantees connections nor offers through-fares.²⁰ Also, baggage is not transferred from one Ryanair flight to another Ryanair flight.

²⁰ A *through-fare* considers a connecting itinerary as being one single product and therefore prices the entire itinerary as opposed to adding up the fares for each segment involved.

Connecting passengers are not only complex from an operational point of view, they are also less favorable from an economic point of view. The customer values connecting itineraries less than non-stop itineraries, so (all else being equal) he is willing to pay a premium for not having to go through the hassle of connecting between two flights. So are non-stop flights higher priced than connecting itineraries? In general, there does not seem to be enough evidence to support such a hypothesis. One reason for this is the fact that there are usually more connecting options than non-stop options between any two cities. A passenger might value the time of departure more than the total trip time and therefore choose a connecting itinerary at his preferred time over a non-stop itinerary at a less desired time. However, for markets that are served by at least one low-cost airline, this is less true. These markets tend to have short stage-lengths, so the disutility of having to connect is very high. Furthermore, LCAs tend to offer multiple non-stop services each day. Consequently, the share of connecting passengers in these OD markets is typically below the industry average.

2.4.3 Fleet

2.4.3.1 Industry Standards

The standard for low-cost airlines seems to be the Boeing 737 series. Depending on the derivative, this type of aircraft can seat up to 189 passengers in an all-economy-class configuration. It can fly between any two airports within continental USA and could be certified for longer distances over water, such as the Atlantic.²¹ What makes the 737 such a popular choice is that it is widely available. This doesn't just apply for the aircraft itself, but also for pilots, engineers, maintenance contractors, spare parts etc.

More recently, the Airbus 320 family is being used by low-cost airlines. According to EasyJet (a recent Airbus customer), passengers clearly prefer the A320 family over the B737 series. JetBlue mentions better cabin technology, higher fuel efficiency and a wider cabin as reasons for its decision to buy/lease A320s. A more

realistic explanation might be Airbus' desire to be present in the low-cost airline market and the resulting discounts that were given to the first few customers. The list price would put the value of EasyJet's firm order of 120 A319s to roughly US\$6 billion. According to the company's CEO Ray Webster, the purchase price will be "a lot less than that".²² Sources rumor that the discounts could have been as high as 50% from the list price. According to EasyJet, the A319-100 will be more cost-efficient to operate than the B737-700. Furthermore, part of the EasyJet-Airbus deal is an extensive support and transition-cost sharing agreement.

Also the B757 is started to be used by low-cost airlines. Delta's Song is currently using a B757-200 fleet. Also Orient Thai has plans to start its low-cost subsidiary with B757-200 aircraft. According to Boeing, the aircraft "has the lowest seat-mile operating cost in its market segment". It can seat up to 228 passengers.

Start-up low cost airlines such as AirAsia operate used aircraft unless they are as comfortably financed as JetBlue, which operates a fleet of brand new aircraft. Currently, used B737-200 aircraft are available from under US\$3 million.²³ The list price of a new B737-700 is US\$ 55 million.²⁴ New aircraft are either purchased or leased whereas used aircraft are generally bought. JetBlue CEO Neeleman has sat on the board of a leasing company. In an interview he said: "Leasing companies make a ton (of money). I decided we are going to buy our airplanes."²⁵

Leasing tends to be the more costly option but offers some interesting advantages. Most importantly, it makes the operation of an airline less capital intensive because leasing doesn't tie down large amounts of capital. It also has some tax advantages and offers more flexibility in terms of changing the size of the fleet to adjust to the varying market demand.

2.4.3.2 Fleet Commonality

To achieve low costs, more important than the actual aircraft type is fleet commonality. Reduced fleet complexity generates substantial savings in the form of

²¹ According to Boeing's 737 product information (ETOPS certification)

²² EasyJet CEO Ray Webster on *CNN Money*, October 14, 2002

²³ www.aerobuy.com

²⁴ *The Business Times*, September 19, 2003

less ground support equipment, fewer training, lower spare parts inventories, standardized handling and maintenance processes, flexible crew scheduling etc. A 1997 study of 40 of the world's largest airlines suggests that airlines with the most uniform fleet (Southwest, Singapore Airlines, Cathay Pacific) also among the most profitable.²⁶ The study shows that the higher the number of aircraft per aircraft type, the smaller the number of flight crew an airline needs to employ per aircraft. Most of the existing low-cost airlines therefore operate one family of aircraft only.²⁷

Fleet commonality reduces complexity but also flexibility. The airline cannot change aircraft size to respond to changes in market demand. Changing capacity is therefore only achievable by adding/dropping flights, which doesn't allow for minor adjustments. Fleet commonality also makes an airline dependent on one supplier. This increases the power of the supplier. However, with switching from Boeing to Airbus, EasyJet has shown that it is possible to change supplier, although the transitions costs in terms of training, maintenance equipment etc. will be substantial.

2.4.4 Marketing

2.4.4.1 Fare Products

Like all other airlines, low-cost airlines routinely use price discrimination as a means to maximize revenue. As the willingness to pay differs across market segments, airlines try to charge different fares to different passengers. But unlike many established airline, most low-cost airlines do not offer business/first class products. Differential pricing of connecting versus non-stop itineraries would not have a big impact since connecting traffic is very limited. So as all passengers receive the same service, the underlying product differentiation has to be based on different fare products.

The various fare products differ in flexibility of purchase and flexibility of use. The diverse fare restrictions are a way to segment the market and serve as fences to

²⁵ *JetBlue Airways: Starting from Scratch*, HBS Case Study

²⁶ *Journal of Air Transport Management*, Volume 3, 1997

²⁷ See Appendix 1 for details

prevent diversion from one fare product to another. These restrictions include minimum/maximum stay, advanced purchase requirements and fees for cancellations and changes. The more flexible a ticket is, the higher its fare usually.

Comparing the practices of low-cost airlines with traditional airlines, the restrictions applied to lower fares tend to be less stringent at low-cost airlines. Furthermore, the difference between the lowest and highest fare is generally smaller at LCAs. At Southwest the ratio is about 1:4. During the nineties, traditional carriers were charging up to 12 times the lowest fare for an unrestricted Y-class fare. These ratios have come down significantly since then but are still significantly higher at established airlines than at LCAs.

2.4.4.2 Yield vs. Load Factor

Typically, established airlines tend to have a yield-focused sales strategy. They try to maximize total revenues by maximizing the revenue of each passenger. This means that passengers whose willingness to pay is too low will not be accepted. This strategy leads to a high average yield, but to relatively low load factors.

The strategy of LCAs is generally different. They try to maximize revenues by filling capacity. As long as the additional revenue is higher than marginal costs, an LCA usually accepts bookings. This strategy leads to lower average yields, but higher load factors.

Both strategies are potentially revenue maximizing. It all depends on the price elasticity of demand. LCAs tend to operate in markets where price elasticity of demand is high whereas traditional airlines generally cater to markets that have a lower price elasticity. This explains why LCAs and traditional airline choose different revenue maximizing strategies.

More recently, particularly in the US, evidence of these two distinct strategies is disappearing. Southwest has been reporting load factors that are lower than the load factors of most major US airlines. One reason might be Southwest's current growth strategy, which is no longer based on adding new cities to the network but to increase frequencies in existing markets. This might be the reason why demand has increased lower than the increase in capacity. On the other hand, traditional airlines

increasingly shift their objective to filling their capacity by offering lower fares due to increased competition as well as the ongoing economic slowdown. This results in an increase in load factor for traditional airlines and a decrease in the load factor of LCAs as people switch back to traditional airlines.

2.4.4.3 Revenue Management

All low-cost airlines have revenue management systems in place, which come in various degrees of sophistication. The main objective of these systems is to protect seats for later-booking, high-fare passengers. Business travelers are willing to pay a premium for making late or walk-up reservations. An airline has an interest to get this premium but on the other hand needs to make sure that these seats are not sold at lower fares earlier in the booking history of a flight. Hence, there is the risk that a protected seat departs unoccupied although it could have been sold at lower fare earlier. Protecting the right number of seats for later-booking business travelers is therefore a key to maximizing the revenue of each flight.

Tight revenue control is important for low-cost airlines and they practice price discrimination very extensively. At Southwest, 32% of passengers pay the highest published fare.²⁸ According to Joyce Rogge, the company's Senior VP Marketing, this is a far higher percentage than at any other established airline.

Some LCAs also use overbooking as part of their revenue maximization strategy. Ryanair, which is actually more known for its low fares rather than its service commitment, never overbooks any of its flights.²⁹ Also JetBlue rarely reports involuntary denied boardings and only few voluntary denied boardings.³⁰

2.4.4.2 Distribution

Distribution costs are a major cost item for established airline. British Airways' distribution costs were 9.5% of operating costs in 2002. At Ryanair, distribution costs were 2.5% in the same period. This shows that distribution is an area where LCA can

²⁸ *Air Transport World*, September 2002

²⁹ According to Ryanair's *Passenger Fares, Punctuality and Service Commitment* (on www.ryanair.com)

³⁰ US DOT data (Q3 2002)

generate significant cost savings compared to established airlines. Internet sales plays a major role in this. According to the company's homepage, Southwest's cost per booking via the Internet is less than \$1 whereas the cost per booking via a travel agent is in the \$6 range. The cost per booking to Southwest via the airline's reservations agents lies somewhere in between.

In Europe, internet bookings are by far the most common way in which low cost airlines sell their tickets. EasyJet sells 91% of its tickets through its own website and the rest through its call centers.³¹ The airline can therefore avoid the CRSs and the involved costs. In addition to that, the airline has never paid a cent of commission to travel agencies. Check Appendix 1 for an overview of different LCAs and their share of online sales.

Air travel is not a physical product so the airline does not have to ship anything to its customers after a reservation is made. This makes air travel perfect for online distribution. Many traditional airlines still send paper tickets but virtually none of the low-cost airlines do. When booked over the internet, the airline sends out an electronic confirmation. This helps to reduce distribution costs and facilitates reservation and check-in processes.

However, not everywhere is internet and credit card usage as high as in North America and Europe. AirAsia was the first airline worldwide to accept reservation via SMS sent from mobile phones. And Thai Airways is currently evaluating the possibility of prepaid cards for its future low-cost subsidiary.

2.4.5 Finances

2.4.5.1 Revenues

Ticket sales are the most important source of revenue for an LCA. At EasyJet it is 96% of total revenue. The rest comes from excess baggage charges, in-flight sales, ticket change fees as well as commissions on travel insurance, hotel bookings and car rentals. At other low-cost airlines, the picture looks similar as LCAs don't

³¹ *No Frills*, Simon Calder, 2002

provide additional services such as cargo, handling or crew training. The percentage of ticket revenues is significantly lower for most established airlines. Korean Air makes only 58% of its revenue through ticket sales, the rest comes mainly from the company's huge air cargo division.³² Such diversification has not been seen among low-cost airlines, although partnerships to provide peripheral services (e.g. car rental and travel insurance) are on the increase.

2.4.5.2 Expenditures

The three biggest operating cost items for almost any airline are staff, fuel and depreciation/leasing costs, although not necessarily in this order.³³ This is true for LCAs and traditional airlines alike. Apart from that, traditional airlines have higher sales costs reflecting the commissions and fees paid to travel agents and reservation systems. Also handling and passenger service costs are generally higher among traditional airlines, which is a result of the higher service standards and the use of primary airports. All of these cost savings have been discussed in previous sections.

Also in non-operating costs, LCAs have a cost advantage over traditional airlines. Southwest's cost of debt is 4.8% annually; Easyjet's is 5.3%.³⁴ On the other hand, Continental pays 12.5% for its debt and American Airlines 16.5%. This reflects that the capital market evaluates investments into traditional airlines as fairly risky compared to investments into LCAs. Also, most low-cost airlines tend to be more equity financed than traditional airlines.³⁵ Finally, there are also differences among airlines with regard to the debt period, which also impacts the annual cost of debt.

2.4.5.3 Profitability

The traditional airline industry is a cyclical industry. This means that the financial performance of traditional airlines follows the cycles of the world economy. In 2002, none of the major US airlines posted a profit. In Europe and Asia, the results

³² Korean Air Annual Report 2002

³³ AAPA Statistics, CAA Statistics, airline annual reports

³⁴ Citigroup Study (2003)

³⁵ Hoover's Online Financial Statistics (hoovers.com)

were more mixed. There is little hope for established airlines that this will change anytime soon. For 2003, IATA forecasts that its members will lose US\$ 6.5 billion.³⁶

Both in North America and Europe, all major low-cost airlines posted a profit in 2002. For Southwest, it was the 31st profitable year in a row. JetBlue reported an operating profit margin of 16.5%, EasyJet reported 12.4% and Ryanair a whopping 31.3%.³⁷ As of today, none of the major LCAs has ever posted an annual loss, except during start-up years.³⁸

2.4.5.4 Ownership

JetBlue, with US\$130 million, was the best-funded start-up airline in the history of commercial aviation.³⁹ Southwest currently boasts a debt-to-equity ratio of 34% while the industry stands at 71%.⁴⁰ And despite the uncertainty in the global stock markets, EasyJet was able to finance 73% of the \$600 million take-over of GO with new equity.⁴¹ Many of today's low-cost airlines seem to be financed very well. As this thesis will discuss later, solid financing is a key to success for any start-up airline. The ones that survive the first few years in business are most likely the ones that have very sound finances.

Traditional carriers are either publicly listed companies, government owned, or a combination of the two. Besides governments, investors tend to be institutional investors rather than private ones. In some cases, employees hold a substantial part of an airline's shares. United Airlines employees held 55% of the company's shares in 2002. None of the low-cost airlines is government owned. Although Thai Airways is a state-enterprise, its planned low-cost subsidiary will be a private company. Because of the high risks involved, start-ups tend to be privately funded with the management being among the investors. An IPO usually follows a few years after the start-up.

³⁶ IATA press release (September 8, 2003)

³⁷ Hoover's Online Business Database (www.hoovers.com)

³⁸ annual reports

³⁹ Port Authority of New York and New Jersey Press Release (February 10, 2000)

⁴⁰ www.airlines.org

⁴¹ *Scotsman Evening News*, May 16, 2002

Employee ownership plans are also found among low-cost airlines. Southwest employees held 12% of the company in 2002 as part of an employee profit-sharing plan.⁴²

2.4.6 Labor

2.4.6.1 Labor Productivity

Efficient use of assets is one of the key principles of the LCA business model. And one of the most important and most valuable assets of an airline is labor. Most industry analysts recognize that a major cost difference between established airlines and LCAs is found in the labor bill, both in terms of wages and work rules.

A recent study done by The Boston Consulting Group suggests that more than half of an LCA's labor cost advantage stems from higher productivity. According to the study, 60% of the costs saving are due to the higher productivity and only 40% due to lower costs per full time employee. Appendix 1 shows that employees at both Southwest and JetBlue produce more ASKs than their colleagues at Continental and Southwest. And this despite shorter stage lengths and smaller average aircraft size of the two LCAs.

2.4.6.2 Cost of Labor

Salaries at low-cost airlines tend to be below the industry average. According to a Unisys study, the average total cost for a pilot at Southwest is US\$139,000 per year.⁴³ At American Airlines, pilots cost US\$208,000 annually. However, if productivity is taken into account, this is even more compelling. The annual block hours per pilot are 790 for Southwest and 537 for American. Hence, per block hour, a Southwest pilot costs US\$176, whereas an American Airlines pilot costs US\$387, 20% more. After adjusting for the structural differences between the two airlines (e.g. average aircraft size, average stage length), the same study estimates that the pilot at AA produces 32% fewer ASKs than the pilot at Southwest.

⁴² *Los Angeles Times*, December 4, 2002

2.4.6.3 Corporate Culture

Southwest was included in Fortune magazine's list "100 Best Companies to Work for in America" and the company has consistently enjoyed a employee turnover rate lower than any other US airline.⁴⁴ It is Southwest's policy that employees are the airline's number one customers. Why this strong focus on corporate culture?

Many processes in an airline's operations need a high degree of coordination. In a low cost airline, this is even more the case since efficiency is closely correlated with coordination. Hence, good labor relations and a corporate culture that supports the processes are crucial to the success of a low-cost airline. For airlines like Ryanair, this is more difficult as the company has staff in many different countries with different languages and different work cultures. That's why Ryanair outsources most of the operation abroad and put less effort on building a strong corporate culture.

2.5 Service

All airlines are service providers. It is therefore important to examine the link between service and the LCA business model. The service of LCAs is different from the services that established airline produce. However, *service* is a broad term and not easy to define. This thesis will therefore make a distinction between *level of service*, *service performance* and *customer satisfaction* and discuss them separately.

Level of service says something about *what* services are provided. For instance, many low-cost airlines do not offer internet check-in, airports lounges, seat assignments etc. whereas many established airlines do. So with regard to pre-flight services, LCAs tend to offer a lower level of service, or in other words, they don't provide all the services that many established airlines do.

Service Performance says something about the degree of excellence with which the level of service is provided. An airline can offer a very low level of service but still offer a high service performance. For instance, Southwest's *level of service* in

⁴³ Unisys Management Consulting (www.unisys.com/transportation)

⁴⁴ *The Southwest Airlines Way*, Jody Hoffer Gittel, 2002

terms of baggage handling is about as high as any other US airline because the airline provides roughly the same baggage handling services to its customers than any other airline in the US. However, the service performance of this service is higher since Southwest mishandles a fewer number of suitcases per 1,000 passengers than most other US carriers.⁴⁵

Customer Satisfaction measures perceived service quality against service expectations. Neither the level of service nor the service quality say something about the success the service offering has in the marketplace. Singapore Airlines' level of service is very high and the airline is very profitable. Ryanair's level of service is very low and the airline is also very profitable. However, there is strong evidence that suggests a positive correlation between customer satisfaction and the company's profitability.⁴⁶

2.5.1 Level of Service

All airlines provide the same core service: air transportation for passengers with their baggage from point A to point B. LCAs and traditional airlines do not differ greatly in this respect. It is what defines a passenger airline. The level of core services is therefore about the same across airlines.

However, established airlines usually provide more add-on services such as free meals and access to airport lounges, which have little to do with air transportation itself. These additional services are provided in order to earn additional money from the customer. Most LCAs refrain from offering such additional services for the reasons discussed earlier in this chapter.

In some aspects, the level of service of some US airlines has been decreasing lately. American Airlines no longer serves free food in economy class on flights up to 4 hours.⁴⁷ Customers can no longer receive free paper tickets for most of their American Airlines flights. As the range of add-on services shrinks, the level of service of established airlines gets more similar to the level of service that is offered by

⁴⁵ US DOT's Air Consumer Report (October 2003)

⁴⁶ *Built for Use: Driving Profitability through the User Experience*, Karen Donoghue, 2002

⁴⁷ USA Today, August 22, 2002

LCAs. Whether this is a viable strategy for AA or whether the two business models are on a collision course will be discussed later in Chapter 5.

2.5.3 Service Performance

As LCAs provide only limited add-on services, comparing the service quality of LCAs and established airlines makes sense only if core services are measured up against each other.

Service is difficult to measure as the perception and importance of a service element differs from one customer to another. This thesis will therefore focus on the service performance measures used by the US Department of Transportation. It uses three main measurements to evaluate the service performance of major US airlines, all of which measure the quality of a core service directly related to air transportation:

- *On Time Performance (OTP)*: percentage of flights that arrived on-time⁴⁸
- *Involuntary Denied Boardings (IDB)*: involuntary denied boardings per 10,000 enplanements
- *Mishandled Baggage (MHB)*: reports per 1,000 enplanements

The following table is an attempt to compare the core services of two American LCAs and two established American airlines. It uses 2003 Q2 data (April-June) from the US DOT's Air Travel Consumer Report.

⁴⁸ on-time: arrival within 15 minutes of scheduled arrival time (US DOT definition)

	OTP	IDB	MHB
Jet Blue	87.5%	0.00	3.56
Southwest	88.8%	1.25	3.52
American	83.8%	0.71	4.41
Continental	85.4%	1.35	3.01
Delta	85.1%	1.68	3.79
Northwest	85.2%	0.86	3.50
United	85.9%	0.79	4.02
US Industry Average	84.7%	1.08	4.28

Table 2.1: Service performance of selected US carriers

Not surprisingly, the on-time performance of the two LCAs seems to be higher. The reasons for this are the key elements of the LCA business model described earlier. Particularly the use of secondary airports and the disregard of connecting passengers are responsible for these good results.

The results for involuntary denied boardings are less clear. There seems to be no difference between LCAs and established carriers. The LCA business model does not advocate a specific strategy regarding overbooking. It is more part of an airline's service strategy how aggressively it wants to overbook its flights. Ryanair never overbooks its flights whereas Southwest does. JetBlue does it cautiously with no IDB during the period and only 6 voluntary denied boardings.

For mishandled baggage, the two LCAs report similar numbers (below the industry average) whereas the established airlines differ significantly. LCAs carry fewer connecting passengers, hence the possibility of mishandling a piece of luggage is a lot lower than at network carriers. And LCAs also have to handle fewer checked bags, as people carry less baggage on their relatively short flights. However, Continental reports the lowest number in this sample, although a substantial number of passengers connect from one flight to another.

US DOT survey only covers two LCAs so this survey is statistically not significant. However, all of JetBlue's figures are above the industry average whereas

all of American Airlines' figures are below the industry average. This might suggest that the quality of core services tends to be better at LCAs than at established airlines.

2.5.3 Customer Satisfaction

Whether a service offering is successful or not has something to do with customer satisfaction. A customer is satisfied if his perceptions of the delivered service level and quality exceeds his expectations.

The following table compares the satisfaction of customers of two US LCAs and five US established airlines. Consumer Complaints (CC) is a US DOT measure that is defined as the number of consumer complaints per 100,000 enplanements. 2003 April to June data is used. ACSI is the American Customer Satisfaction Index and measures consumer satisfaction on a scale from 1 to 100.⁴⁹ First quarter 2003 data is used.

	CC	ACSI
JetBlue	<i>0.43</i>	<i>n/a</i>
Southwest	<i>0.15</i>	<i>75</i>
American	<i>0.94</i>	<i>67</i>
Continental	<i>1.03</i>	<i>68</i>
Delta	<i>0.88</i>	<i>67</i>
Northwest	<i>1.11</i>	<i>64</i>
United	<i>0.86</i>	<i>63</i>
US Industry Average	<i>0.77</i>	<i>67</i>

Table 2.2: Customer satisfaction index of selected US carriers

⁴⁹ Administrated by the University of Michigan Business School

These numbers suggest that LCAs enjoy fewer complaints and higher customer satisfaction. Of course one has to take into account that network airlines have by definition of their operation a disadvantage over LCAs. The operation of an international network carrier is far more complex than a domestic point-to-point airline. So more things can potentially go wrong on a Boston-Newark-Tokyo-Bangkok itinerary than on a Providence-Baltimore flight.

2.6 Development Cycle⁵⁰

2.6.1 Set-Up

These are approximately the first two years of the life of an airline. It is arguably the most critical phase of the airline since most start-ups do not survive the first two years. Competitive responses from other airlines are most aggressive. Expensive lawsuits, price wars with other airlines and initial advertising campaigns will likely narrow the financial resources of the young company. That doesn't mean that LCAs can't be profitable during this time. JetBlue was profitable within its first year of operation.⁵¹ Successful operations are crucial since it is the time when the company builds its values and brand. Also, media attention tends to be highest. Singapore's ValueAir is currently in the set-up phase.

2.6.2 Penetration

After the initial phase, the airline will capitalize on backbone markets. It will develop high-density trunk routes as frequencies to existing markets requires less capital than developing new markets. AirAsia is currently is the penetration phase.

⁵⁰ Following the development cycle classification of Roland Berger Strategy Consultants

⁵¹ *JetBlue 101* on www.jetblue.com

2.6.3 Entrenchment

The next big step is an initial public offering. An IPO provides fresh capital for developing the network and expanding the fleet. The company's investors have incentives to go public as investments into start-up airlines are extremely risky. An IPO allows the original investors to realize an appropriate return on their risky investment.

With the additional funds, the airline can develop new destinations. Later, the LCA might develop a multi-base network. JetBlue is currently developing Long Beach (California) to its second domestic base.

2.6.4 Internationalization

After having penetrated the home market, an LCA might look for destination abroad. Virgin Blue recently applied for traffic rights to fly from Australia to New Zealand. Later, the airline might even develop a base in a foreign country. Ryanair has created a base in Hahn near Frankfurt (Germany).

Southwest has never showed intentions to enter international markets. This however might be a special case, as the USA is such a large market for air transportation. So although Southwest is in business for a long time and has gotten quite big, there are still markets to be penetrated domestically.

2.6.5 Adaptation

As low-cost airlines grow older, they will acquire some of the attributes of traditional carriers. Southwest, in business for 32 years now, has a highly unionized workforce, carries a substantial amount of connecting passengers and its operating margin is down to a one-digit figure. However, the company's business philosophy, corporate culture and operating strategy have changed little despite it now being one of the majors in the US.

This is also the period when the LCA model reaches its limits. Not all OD markets support low-cost airlines, hence, at some point the market reaches

saturation and growth will be very limited. Some analysts suggest that 100 PDEW (passengers per day each way) is the threshold for a LCA to successfully enter a OD market.⁵² If this is correct, the growth of American LCAs is severely limited by the fact that they already serve 82% of all these markets. Furthermore, out of the 213 OD markets that are left, 45% are slot controlled or over 2'000 miles in length. So only 118 OD markets are immediate candidates for LCAs. And these markets would only produce an additional 1.6% new market share for LCAs. Under this scenario, Southwest's growth would be limited to 0.2%.⁵³

2.7 Form

Low-cost airlines do not come in a definitive form. It can vary in structure and purpose depending on market context, ownership arrangements, competition and geography. There are at least three broad forms that can be identified.

2.7.1 Independent Low-Cost Airlines

These are carriers that are founded by a group of private investors or are existing carriers that have been turned into low-cost airlines. They adhere to the principles of the LCA model and show most of the features described in this chapter. Transporting passengers is usually their only business, diversification is rare. The vast majority of these airlines either operate in North America or Europe. Examples include Southwest, EasyJet, and Ryanair.

2.7.2 Low-Cost Subsidiaries of Established Airlines

These are low-cost airlines that are owned (and usually managed) by a traditional airline. They are introduced as a competitive response to the start-up of independent low-cost airlines. These companies are often difficult to sustain since

⁵² *Growth of Low-fare Carriers*, Bill Swelbar of ECLAT Consulting, at MIT's 2nd Annual Airline Industry Conference (April 2003)

⁵³ In terms of ASKs

they compete directly with the parent company. Many of them disappear or are sold within few years of their start-up.

Current examples of wholly-owned LCA subsidiaries of traditional airlines include Air Canada's ZIP, BMI's bmibaby and SAS's Snowflake.⁵⁴ British Airways' GO was sold. So was KLM's buzz. Swiss aborted plans for its proposed low-cost subsidiary in 2003 as the company's pilot union didn't accept the plan.

An important reason for having a separate entity is the contracts with the different stakeholders, employees in particular. One of the main cost drivers of an airline is labor. Traditional airlines have been in business for several decades and seniority is therefore a big issue. Also, these labor agreements tend to have some form of scope clause. The only way an airline can operate its low-cost services under a different labor agreement is to set up a separate legal entity.

Although a separate company, there are usually strong ties to the parent company. United Airlines recently announced plans to set up a low-cost subsidiary. According to UAL, the new subsidiary will have a distinct management team, but the parent company will hold on to pricing, scheduling and marketing.⁵⁵ This seems to be the most common setup for such entities.

Cannibalization is always a major issue in such arrangements. But airlines are realizing that cannibalizing their own business hurts less than losing business to other airlines completely.

2.7.3 "No Frills" Services of Traditional Airlines

These services are also operated by traditional carriers but lack the independence of being real subsidiaries. Some airlines use the assets of the parent company. At Delta Express, the staff, aircraft, distribution channels etc. were taken over from Delta's mainline operation. Other airlines decide not to operate the services themselves. Swissair Express flights, for instance, were operated by aircraft and crew of Flightline.

⁵⁴ Reed's Air Transport Intelligence (www.rati.com)

⁵⁵ *Aviation Daily*, February 25, 2003

As these services replace existing mainline services, they tend to be offered out of the (usually congested) hub of the airline. This is to ensure that these flights remain part of the airline's overall network. Such operations therefore experience difficulties in achieving the cost structures of an independent LCA. Such services can achieve higher aircraft utilization and higher load factors but the unit costs may not differ greatly from the airline's mainline operation because they use the same assets, same contracts and fly the same routes.

As discussed, "no frills" services of traditional airlines profit from the brand and infrastructure of the parent company. Hence, brand dilution is a severe problem and many of these services no longer exist. Delta continues to be convinced of the viability of this model but changes the Delta Express business plan by starting to operate "Song".

2.7.4 "No Frills" Services of Charter Airlines

Charter airlines play a major role in Europe's leisure markets. And as European LCAs such as Ryanair and EasyJet service many of these markets, some European charter airlines now have their own LCA services. They are usually not independent subsidiaries but are part of the normal operations of the airline.

"No frills" services of traditional airlines didn't seem to be sustainable. But since charter airlines operate at much lower unit costs and have a different corporate culture, this might prove to be a successful business model. Examples include Volare's Volareweb in Italy and Hapag-Lloyd's Hapag-Lloyd Express in Germany.

2.8 Failures

According to the Aviation Institute of the George Washington University, 80-85% of the mostly low-cost start-ups in the US since deregulation have failed. In

Europe, 60% have ended up bankrupt. A 1998 study by the institute rated the causes of failures in the following order.⁵⁶

- Inadequate or inappropriate operational plans
- Excessive debt
- Escalating costs
- Inadequate traffic
- Economic downturns
- Inability to obtain financing
- Lack of management expertise

The list makes clear that the failures have more to do with poor business planning, over-ambition and management shortcomings rather than with inherent problems in the LCA model. The model has proven to be working in various market environments and leaves room for various adaptations.

Most low -cost subsidiaries of existing airlines also no longer exist. Some people argue that low-cost subsidiaries are doomed to fail. If they do not make money, the parent company declares it a failure and terminates operations (e.g. Continental Lite). If the subsidiary does make money, it starts to compete with the parent company and is terminated too (e.g. British Airways' GO).

2.9 Summary

The LCA business model does not re-invent the business of flying. Most of the processes found in a traditional airline are also found in an LCA. There is no fundamental difference in *what* low-cost airlines do. However, there is a lot of difference in *how* they do these things.

The LCA business model's main theme is high utilization of assets. All key elements described in this chapter eventually target effective use of the airline's

⁵⁶ *An Examination Why New Entrant Airlines Fail* by Daryl Jenkins, Director, The Aviation Institute, The George Washington Institute, June 1998

assets. That is why all LCAs have aircraft utilization figures and labor productivity numbers that are significantly above the industry average.

Despite this common theme, today's low-cost airlines look very different from each other. Southwest, Ryanair and AirAsia are among the airlines that use the LCA business model in its purest form. Virgin Blue on the other hand could almost be classified as an established airline. A distinction between LCA and non-LCA is not sufficient. One needs to look at each specific airline in order to understand how it uses the LCA business model.

Low-cost airlines have been very successful in North America, Europe and Australia. First steps have been taken in South America, South Africa and Asia. After looking at the Asian airline industry in Chapter 3, the key elements that have been discussed here will be taken up again in Chapter 4 in order to evaluate the viability of the LCA business model in Asia.

3. The Asian Airline Industry

3.1 Introduction

Since Southwest Airlines started in 1971, low-cost airlines have been increasingly affecting the airline industry in North America. Competition has increased, yields have fallen and several traditional airlines no longer exist. Europe is about to experience the same phenomenon. The question therefore is, whether Asia is going to be next. This chapter will examine the Asian airline industry and point out the differences that exist between Asia and other parts of the world. Chapter 4 will then go on and analyze in what ways the low-cost airline business model that was described in Chapter 2 might be applicable to Asia.

Asia is a vast and extreme continent, home to more than half of the world's population. It is one of the most diverse continents in terms of culture, economic progress and geography. The same is true for the region's airline industry, which is also one the most diverse in the world. Some of the Asian carriers are among the most competitive and most profitable airlines in the world. Others could not survive without the backing of their respective governments.

Due to the rapid economic growth in the region, the demand for air transport within the region picked-up substantially over the last two decades. As this economic growth is likely to continue into the foreseeable future, also air traffic is expected to growth. In 1997, IATA forecasted Asia-Pacific passenger traffic would grow 7.4% per year until 2010, more than twice the rate in the rest of the world.⁵⁷ However, Asia's airline industry has had to face many disruptive years recently. In 1997 the Asian Economic Crisis, in 2001 the terrorist attacks in the US, in 2002 the Bali bombings and in 2003 the outbreak of the Severe Acute Respiratory Syndrome (SARS). All these events had severe impacts on the region's airlines. Today, the Asian airline industry is still somewhat tattered from these events. And despite significant forecasted growth and new opportunities that open up (e.g. in China), the Asian airline industry needs to address some fundamental challenges in the coming years.

Asia as defined in this thesis includes all countries and territories in the time zones UTC+5 to UTC+9, with the exceptions of the Russian Far East and Australia. *Asia-Pacific* will include Australia and New Zealand.

Throughout this chapter, frequent reference will be made to AAPA (Association of Asia-Pacific Airlines), AEA (Association of European Airlines) and ATA (Air Transport Association of America). A directory of member airlines of these associations can be found in Appendix 2.1.

3.2 The Airlines

3.2.1 State-Owned Airlines

Most countries in Asia used to own their flag carrier. Some of these airlines are still state enterprises, few of them have been partly or fully privatized, others no longer exist. Appendix 2.2 gives an overview of the ownership of all AAPA member airlines in Asia. It is worth noting that most private airlines have been private from the start. Only Korean Air was the outcome of a privatization effort. It seems that many Asian countries do not want to give up control over their national carriers.

One of the main reasons given by these countries is that a national airline is needed to support the national economy.⁵⁸ While it is easy for a market economist to dismiss this argument, objectives such as promotion of tourism may be legitimate goals. Many remote tourist destinations in other parts of the world such as Tahiti, Papua New Guinea or Malta have their own state-run airlines. Neither of the flag carriers of these three nations posted a profit in 2002.⁵⁹ Their main objective is to support the country's economy by promoting incoming tourism.

Other nations say that they need the national airline to reduce the balance of payments deficit. However, purchasing/leasing of aircraft, fuel and other services usually involve substantial foreign cash outflows so that this argument may not be

⁵⁷ *Shaping Air Transport in Asia Pacific*, Tae Hoon Oum and Chunyan Yu, 2000

⁵⁸ *Impediments to Liberalization in Asia Pacific International Aviation*, Michael Tretheway, 1996

⁵⁹ Reed Business Information (www.rati.com)

very convincing. Another important argument may be the wish of countries to have access to aircraft in times of national emergencies. While this argument seems to be theoretically sound, the US government is regularly seizing aircraft from US airlines.⁶⁰ Airlines do not need to be state enterprises, also commercial airlines can be forced to fulfill certain duties in times of a national emergency.

Many of these arguments seem to lose relevance as the world economic and geopolitical landscape has changed. Many governments realized that it is in their nation's interests to privatize their flag carrier. That's why many European airlines have been privatized over the last two decades and analysts expect to see more privatizations of airlines (e.g. in Asia) in the near future.⁶¹ However, although several nations around the world have privatized their national airline, they usually do not allow airlines to be owned by foreign investors. Therefore, some Asian countries may find it difficult to privatize their state-owned carrier simply because of a lack of viable domestic investors. Then again, the example of state-owned Singapore Airlines shows that national carriers can be run like private enterprises and be highly profitable, while still be under the de-facto control of a national government.

3.2.2 Private Airlines

Unlike in Europe, most large airlines in Asia that are private enterprises today, started off as private airlines. Most Asian AAPA member airlines that are private today were privately run from the beginning (see Appendix 2.2). This includes carriers such as Japan Airlines or Cathay Pacific.⁶² Part and full privatizations have been rare in Asia.

There have been many private start-ups in Asia in recent years, particularly regional/domestic airlines. In large island nations such as the Philippines and Indonesia, air transportation is a vital form of transportation. Hence, governments have liberalized their domestic airline industry early, which opened the skies for new

⁶⁰ The US Defense Production Act of 1950 provides the legal basis for the President of the United States to allocate industrial production and services to the Department of Defense during a national emergency.

⁶¹ *Privatization in Asia Pacific Aviation*, Peter Forsyth, 1996

private entrants. Filipinos can fly domestically with 13 different private airlines today and Indonesians can choose between 19 different private domestic airlines.

3.2.3 Regional and Domestic Airlines

The Asian airline industry is characterized by large airline companies whose main business is operating intercontinental and transcontinental services. Because Asia is such a vast continent, most intra-Asia flights are characterized by long stage lengths. Singapore Airlines services some of its less dense regional routes through its subsidiary Silk Air. Cathay Pacific works together with regional carrier Dragonair. However, Silk Air and Dragonair have average passenger hauls of 1,468km and 1,260km respectively, and none of these airlines operate aircraft with less than 100 seats. So although they are generally referred to as regional airlines, they look very different from regional airlines in Europe and North America.

In many countries, domestic travel is still dominated by surface transportation as air transportation is not affordable to most lower income groups. But the first step towards liberalizing air transportation is usually liberalizing domestic air services. Hence, several Asian nations have seen domestic start-up carriers. In China and Indonesia, domestic airlines are a common sight as the vast geographical dimensions of these countries make alternative modes of transport less competitive. Thailand has a few regional/domestic airlines that mainly cater to the large tourist markets. Also Japan has several domestic airlines, but traffic within the country continues to be dominated by JAL and All Nippon Airways.

3.2.4 Fifth Freedom Airlines

The *Fifth Freedom of the Air* stands for the right of an air carrier to pick up revenue passengers from a country other than its country of registry and deliver them to a third country, also not its country of registry, on flights that connect to/from its

⁶² Reed Business Information (www.rati.com)

country of registry. This arrangement requires the approval of all three governments involved.

While there is virtually no fifth freedom traffic in North America and only little in Europe, Asia sees many fifth freedom carriers operating in the region. Between Bangkok and Singapore, in addition to Thai Airways and Singapore Airlines, there are currently 8 fifth freedom carriers serving this market.⁶³

Many Asian carriers enjoy fifth freedom rights within Asia. These traffic rights are negotiated between the governments involved and are usually based on reciprocity. For instance, Taiwan grants Thai Airways the right to offer services between Hong Kong and Taipei. At the same time, Thailand grants Taiwanese carriers the rights to fly from Bangkok to Amsterdam.

Also many European airlines enjoy fifth freedom rights in Asia. The flights of European airlines arrive Asia in the early afternoon. These aircraft cannot fly back to Europe until late at night, because they would arrive in Europe in late at night/early in the morning. This is inconvenient for passengers (particularly the ones with onward connections) and might even be prohibited by night curfews at many European airports. Hence, aircraft of European airlines have to spend several hours in Asia before returning back to Europe. Instead of not utilizing these aircraft during this time, most European airlines decide to fly to secondary destinations beyond their primary ones. Swiss flights to Bangkok continue to Singapore, and Manila is served as an extension of the Zurich – Hong Kong flight.

For US carriers, the main gateway cities in Asia are Tokyo and Hong Kong. Both United and Northwest enjoy fifth freedom rights beyond these two cities. Also several African and Middle Eastern airlines were granted fifth freedom rights in Asia. Both Ethiopian Airlines and Emirates currently offer services between Bangkok and Hong Kong.

Many of these flights are flown as extensions of intercontinental flights. Due to scheduling constraints and flights across different time-zones, aircraft can usually not fly the return leg of the intercontinental flight immediately after having arrived in Asia. Hence, the aircraft and crew would sit idle for several hours. However, the cost

difference between having an aircraft parked on the tarmac versus having the aircraft flying is relatively low. And as the latter option generates revenue, an airline might decide to fly an extension during this period. As a consequence, might make sense not to allocate the full amount of overhead costs to these flight segments. Hence, markets with many fifth freedom carriers (e.g. Bangkok – Singapore, Bangkok – Hong Kong) tend to have some of the lowest fares in Asia.

The rationale behind allowing fifth freedom carriers has usually nothing to do with creating a liberal air service environment. Even the very liberal Canada – US Open Skies Agreement of 1995 excludes fifth freedom rights.⁶⁴ Nations tend to reluctantly allow fifth freedom rights to foreign airlines. Japan was forced to give unlimited fifth freedom rights beyond Japan to the United States after being defeated in World War Two.⁶⁵ Thailand allowed fifth freedom carriers on important routes such as to Amsterdam, Sydney or Hong Kong mainly due to the fact that the government wanted to stimulate tourism but the national carrier was not able to grow fast enough.

3.2.4 Charter Airlines

Despite having many leisure destinations in Asia, there are no major charter airlines in Asia. *Airline Business'* listing of the world's top 50 charter airlines does not include any airline from Asia.⁶⁶ Most of the scheduled airlines in the region provide non-scheduled services. However, from all AAPA member airlines, only Garuda earns a substantial share (13%) of its operating revenue from non-scheduled services.

3.3 Networks

Several major US airlines (e.g. American, Continental) serve more than 70 destinations in North America. And also in Europe, several major airlines together with their regional subsidiaries (e.g. Air France, Lufthansa) serve well over 70

⁶³ OAG October 2003 data

⁶⁴ *Canada-US Open Skies*, Michael W. Thretheway, 1996

⁶⁵ *Air Transport Policy in Japan: Limited Competition under Regulation*, Hirotaka Yamauchi, 1996

European destinations. In Asia, networks tend to be less dense. Singapore Airlines together with its regional subsidiary Silk Air currently serve 52 destinations in Asia. Hong Kong's Cathay Pacific currently serves 44 Asian destinations, of which 22 are served by its partner Dragonair. Thai Airways serves 38 international Asian destination and an additional 12 domestically in Thailand. One of the reasons for this is that economic activity is much more centered in Asia than in the rest of the world. Most Asian nations have one or two economic centers, one of which usually is the capital.

With 83%, most of the system-wide RPKs of AAPA airlines are generated on international routes.⁶⁷ Only All Nippon Airways and Qantas have domestic operations with more than 5 million RPKs annually. In many other countries, domestic travel is dominated by surface transportation, as air transportation is only affordable to a relatively small percentage of the population.

Virtually all flights of major Asian airlines are flights to and from the airlines' hubs. This is mainly due to the fact that most flights are international and therefore subject to bilateral air service agreements. And as these agreements do not usually allow for flights from a foreign state into another foreign state, virtually all flights are to and from the hub in the airline's country of origin. This encourages/forces Asian airlines to develop hub-and-spoke networks.

However, the vast dimensions of the Asian continent makes it difficult for a single airline to set-up a hub-and-spoke network that efficiently covers the entire region. Intra-continental networks of European and North American airlines are much more efficient as both continents are significantly smaller. And North American airlines have the additional benefit of being able to operate multiple-hub networks as the entire region is under one jurisdiction.

Global airline alliances are a way to virtually extend the network coverage of each individual member airline. All of these alliances currently have only one major US member airline. This is enough as the network of one US airline covers the entire region rather efficiently. In Europe, these alliances usually have one major airline

⁶⁶ October 2003 issue

⁶⁷ AAPA Statistical Report 2002

together with several smaller airlines to cover the entire region. In Asia, airline alliances need multiple major airlines to cover the continent effectively. When looking at the global flow of traffic, it makes sense for Asian airlines to be part of a global alliance. Hence, both Singapore Airlines and Thai Airways work together with various Star Alliance carriers. However, this may bring difficulties locally. As the networks of both airlines overlap to a large extent, they cooperate very little among themselves.

3.4 Fleet

65% of all aircraft in AAPA's fleet are wide-body aircraft.⁶⁸ This is substantially more than in Europe or North America. AEA airlines have 20% wide-body aircraft in their fleet and ATA members 19%.⁶⁹ Also the fact that most A380 orders came from Asian carriers is an indicator that flying in Asia is and will continue to be dominated by wide-body aircraft. Some Asian airlines (e.g. Cathay Pacific, Singapore Airlines) operate exclusively wide-body aircraft, while narrow-body aircraft are operated by their regional subsidiaries. Regional jets and turboprop aircraft are far less common in Asia than in North America or Europe. Most of them service domestic routes.

Of course, many Asian airlines fly long-haul routes to Europe, North America and Australia/New Zealand that must be flown by wide-body aircraft due to the long distances. But also most of the intra-Asia flying is done with wide-body aircraft. Only 2 out of the current 22 frequencies between Bangkok and Singapore are flown with narrow-body aircraft, although the flight time is less than two hours.⁷⁰

Stage length is not what makes Asian carrier use wide-body aircraft on intra-Asian routes. So is it traffic level? Generally, no. About the same number of passengers travel between San Francisco (SFO) and Los Angeles (LAX) as do between Bangkok (BKK) and Singapore (SIN) each day.⁷¹ While the 24 flights between the two US cities are all operated by narrow-body aircraft, nearly all of the 22 flights between the two Asian cities are operated by wide-body aircraft. So Asian

⁶⁸ AAPA Statistical Report 2002

⁶⁹ AEA and ATA reports

⁷⁰ OAG data (October 2003)

⁷¹ AAPA Statistical Report 2002

carriers could easily accommodate the existing traffic with smaller aircraft. This would suggest that Asian airlines have relatively low intra-Asian load-factors. Is that true? There is indeed some evidence for that. Singapore Airlines' system-wide load factor is 74.5%, but on Asian routes the factor is down to 67.5%.⁷² The same is true for Malaysia Airlines (63.1%) and several other major Asian carriers.⁷³ What seems to be the reason for that?

As mentioned, Asian airlines must necessarily have wide-body aircraft as there is no other way of servicing European and North American destinations. These intercontinental flights generally arrive in Asia early morning and leave again around midnight. An Asian airline will therefore have this capacity available during the day in Asia. Hence, it will rather fly these existing aircraft at relatively low load-factors across Asia as opposed to buy additional narrow-body aircraft.

This has important impacts on frequency. Singapore Airlines provides roughly 1'750 seats from Singapore to Bangkok each day.⁷⁴ United Airlines provides about the same number of seats between Boston and Chicago each day. However, while Singapore Airlines offers 5 daily frequencies, United offers 13.⁷⁵ Also Appendix 2.3 shows that 9 out of the top 10 AAPA city pairs have weekly frequencies of 84 or less. This is significantly lower than any of the top 10 ATA city pairs.⁷⁶

Another important reason for operating large aircraft in Asia is the fact that the level of competition is usually quite low. In many domestic markets, US airlines compete on frequency. Both American Airlines and United Airlines offer hourly flights between Chicago (ORD) and New York (LGA) from 06:00 to 20:00. Due to limited competition in many Asian markets, Asian airlines generally do not compete on frequency. And since offering low frequencies with large aircraft is cheaper than high frequencies with small planes, Asian airlines tend to choose the low frequency approach.

⁷² DOT Form 41 data, AAPA 2002 Annual Report

⁷³ 2002 Annual Report (not including domestic operations)

⁷⁴ OAG schedule and capacity data (October 2003)

⁷⁵ OAG schedule and capacity data (October 2003)

⁷⁶ ATA Annual Report 2002

Also some bilateral agreements may limit the number of frequencies that an airline can offer between two cities in Asia. This too, forces Asian airlines to operate large aircraft.

3.5 Traffic Levels

In 2000, intra-Asia-Pacific RPK accounted for 14% of world RPK.⁷⁷ Airbus expects this figure to grow to 18.4% by 2020, suggesting that Asia-Pacific will have displaced North America as the largest intra-regional market for air transportation by that time.

OD traffic data for Asia-Pacific not readily available, unless bought from a CRS provider. The following analysis of traffic level will therefore rely on traffic data as reported by AAPA. *City pair* will be defined as two cities that are linked with at least one direct flight by one or more AAPA member airlines.

In 2001, AAPA member airlines served 246 international city pairs in Asia, with an average number of daily passengers of 314 (in each direction).⁷⁸ 59% of these city pairs had daily traffic of 100 passengers or more, which is a level that generally justifies one daily return flight with widely-used narrow-body aircraft type such as the B737 or A319/A320. It is also the threshold that analysts suggest is needed for low-cost airlines to enter a market.⁷⁹ Appendix 2.3 lists AAPA's top ten intra-Asia city pairs by passenger numbers.

The city pairs that rank highest, usually include a hub of a major airline at one end or the other. These hubs are where intercontinental traffic connects to/from intra-Asia flights. Hence, a significant share of passengers between these city pairs does not originate in Asia. Another substantial part does not terminate in Asia. Plus, also a significant part of intra-Asia traffic is likely to be connecting at a hub.

The city pair with the highest number of daily passengers is Hong Kong – Taipei. The reason for this is that Taiwan and Mainland China have very close social

⁷⁷ Airbus Global Market Forecast (2002)

⁷⁸ PDEW: passengers per day each way

⁷⁹ *Growth of Low-fare Carriers*, Bill Swelbar of ECLAT Consulting, at MIT's 2nd Annual Airline Industry Conference (April 2003)

and economic ties but direct flights are not allowed between the two countries. Therefore all passengers wishing to travel between the two countries must fly via a third state. Hong Kong SAR is geographically one of the most convenient. That's why traffic numbers between Taipei and Hong Kong are artificially high. According to analysts, this might change soon as the Chinese government is likely to grant permission for direct flights between the two countries.⁸⁰

Intra-Asian traffic does experience some peaking, e.g. during the Chinese New Year festivities. However, unlike traffic within North America or within Europe, Asian airlines and airports do not experience a high degree of seasonal peaking. Summer months tend to be the busiest months for airlines and airports in North America and Europe, mainly due to increased leisure traffic. But due to cultural and climatic reasons, this phenomenon is far less accentuated in many markets in Asia. Asian airlines usually offer the same network and the same frequencies throughout the year.

3.6 Yield

Most Asian carriers do not publish information about their yields. AAPA does publish yield data, but only on an aggregate level. These figures can be somewhat misleading as Asia is too big and too diverse to make a general statement about yields in the region. Flights in and out of Tokyo are likely to earn high yields as demand and purchasing power are both very high but supply limited due to fact that the two Tokyo airports are heavily congested. On the other hand, flights between Bangkok and Singapore will earn low yields since there are currently 8 fifth-freedom carriers competing in this market at very low fares.

The following is an attempt to compare yields in Asia with yields in other parts of the world. In order to do that, some generalizations and aggregations had to be made.

⁸⁰ CNN, July 19, 2002

3.6.1 Domestic Yields

The following table gives an overview of the domestic yields as reported by ATA, AEA and AAPA for 2002. A directory of member airlines of these airline associations can be found in Appendix 2.1. Yield data is reported in US cents per RPK and the average passenger haul (APH) in kilometers.

	Domestic Yield	Domestic APH
ATA	8.3	1,356
AEA	17.4	523
AAPA	11.0	779

Table 3.1: Domestic yield and domestic average passenger haul

With the United States being one of the geographically largest domestic markets in this survey, it is not surprising that the average passenger haul of ATA member airlines is longest. This has an obvious impact on US domestic yields, which are lower than in Europe and Asia-Pacific. The link between short stage lengths and low yields has been discussed in Chapter 2. The US domestic market was also one of the markets to be liberalized earliest. Hence, competition has driven down fares substantially. Between 1986 and 1995, Delta's yield declined 28%, or 2.5% each year.⁸¹

The two other regions have higher domestic yields, partly due to the shorter average passenger haul. Furthermore, competition in Europe and Asia is not as fierce as it is in the US. Japan, which accounts for more than half of total AAPA domestic RPKs, has traditionally been a country with high air fares due to limited competition, supply constraints (e.g. airport slots) and high levels of income. Domestic yields in other countries in Asia tend to be significantly lower.

⁸¹ *Winning Airlines – Productivity and Cost Competitiveness of the World's Major Airlines*, Tae Hoon Oum and Chunyan Yu, 1998

3.6.2 System-Wide Yields

System-wide yield is the average yield across all scheduled commercial air services an airline provides, both domestic and international.

	System-Wide Yield	System-Wide APH
ATA	6.0	1,685
AEA	9.3	2,015
AAPA	6.7	2,409

Table 3.3: System-wide yield and system-wide average passenger haul

Despite having the longest domestic APH, US carriers have the shortest system-wide APH in this survey. This is mainly due to their very large domestic operations. ATA airlines' short system-wide APH doesn't translate into having the highest yield. Again, competition is extremely lively in the domestic US market. And because it is the US government's policy to liberalize many international air service agreements, also many international markets to/from the US are very competitive (e.g. transatlantic markets).

Both AEA members and AAPA members have higher system-wide yields despite having higher system-wide APHs than ATA airlines. Again, this is mainly due to the fact that European and Asian carriers do not face the same level of competition as US carriers do. AAPA airlines have a 20% higher APH compared to AEA airlines, which explains part of the 38% difference in yield. The traffic mix for both groups of airlines is about the same. AEA airlines carry 11.4% of their international passengers in Business and First Class, AAPA airlines 14.4%.⁸² The main reason for AAPA's lower yield is likely a combination of insignificant domestic traffic, lower levels of income and the power of distribution intermediaries in Asia.

⁸² AEA Yearbook 2002, AAPA Statistical Report 2002

3.6.3 Yields in Asia-Pacific

AAPA does not publish data on yields in Asia-Pacific. Neither do most Asian airline companies. Only Singapore Airlines' financial reports offer some limited insights into Asia-Pacific's yields. The company reports a yield for Asia-Pacific of US¢ 6.39, which is 28% higher than its system-wide yield. Of course the airline's average passenger haul in Asia-Pacific (2,982km) is significantly shorter than its system-wide APH (4,741km).

The following table compares Singapore Airlines' Asia-Pacific operations with the operations of other airlines with a similar average passenger haul (APH).⁸³

	Yield	APH
Singapore Airlines (Asia-Pacific)	6.39	2,982
British Airways (System-Wide)	10.25	2,915
KLM (System-Wide)	8.05	2,966
Air Canada (System-Wide)	7.65	2,890

Table 3.4: Yield and average passenger haul for selected major airlines

All these airlines have a similar APH and operate in a similar competitive environment, with the exception of Air Canada, whose lower yield is primarily an outcome of the high degree of competition the airline faces in many North American markets.

Singapore Airlines' yield is 38% lower than BA's and 21% lower than KLM's. As mentioned in chapter 3.3, the strategic fleet decision makes Singapore Airlines fly its intra-Asia flights with wide-body aircraft. In order to fill this capacity, the airline must stimulate additional demand (e.g. with lower fares) in order to achieve an adequate load factor. This will lower the average intra-Asia yield. Singapore Airlines also carries a significant amount of connecting traffic originating/terminating outside Asia. The formula the airline uses to pro-rate revenues from connecting passengers also impacts the average yield on Asian routes.

A recent study by Rigas Doganis presents the following data about yields within the Far East, where Far East is not defined further.⁸⁴ The table shows yield (US¢ per RPK), actual load factor as well as break-even load factor using 2000 IATA data.

	Yield	Actual LF	Break-Even LF
First Class	23.9	24%	108%
Business Class	18.7	49%	57%
Economy Class	8.6	74%	62%

Table 3.5: Yield and load factor data of different cabin classes

The survey does not explain the cost allocation strategy that was used to obtain the break-even load factor. According to this survey, neither First Class nor Business Class reach their respective break-even load factors. This suggests that it costs the airlines more money to provide these services than they earn from them. The break-even load factor for the First Class is over 100% and will therefore never be achieved. The only service class that seems profitable is Economy Class. This might suggest that Asian carriers should terminate their First Class services within the Far East. Within North America and within Europe, most airlines have done this already.

The same survey also examines services within Europe. A comparison is shown in the following table. As there are virtually no First Class services within Europe, only Business Class and Economy Class are included.

⁸³ Singapore Airline Annual Report 2002/2003, Reed Business Information (www.rati.com)

	Within Europe	Within Far East
Business Class LF	40%	49%
Business Class BELF	33%	57%
Business Class Yield	41.3	18.7
<hr/>		
Economy Class LF	69%	74%
Economy Class BELF	80%	62%
Economy Class Yield	14.4	8.6

Table 3.6: Business Class vs. Economy Class in Europe and Far-East

While the survey suggests that within the Far East, Economy Class is profitable and Business Class is not, the opposite seems to be true within Europe. This is mainly due to the high Business Class fares within Europe. Business Class travelers in Europe pay 187% more than in Economy Class. Within the Far East, the mark-up is only 117%.

Business Class travelers in Europe pay 121% more than Business Class travelers in Asia. For Economy Class the difference is 67%. However, some of this difference is explained by the difference in average passenger haul, which is likely to be higher in within the Far East than within Europe.

3.7 Airline Operating Costs

Appendix 2.4 gives an overview of airline operating costs per ATK in North America, Europe and Asia. ATK was chosen over ASK because of the varying size of the airlines' cargo operations. The figures show that both direct and indirect operating expenses are significantly lower in Asia compared to the two other regions. Total unit operating costs are 25% lower than in North America and 37% lower than in Europe.

Labor is one of the main drivers of airline operating costs. In most activities that require a high level of labor input, Asian carriers therefore enjoy lower unit costs. This is mainly due to the lower wage levels in many Asian economies. ATA member airlines pay an average of USD 71,800 per employee; AAPA airlines pay USD 40,300

⁸⁴ *Flying Off Course*, Rigas Doganis, 2002

or 44% less.⁸⁵ If one assumes that labor costs make up 25% of total operating costs, 44% lower labor costs result in 11% lower total operating costs. Appendix 2.4 shows that Asian carriers tend to have a cost advantage in all activities that require a high level of labor input (e.g. maintenance and overhaul, station expenses). However, although labor costs are generally lower in Asia, extreme differences exist among Asian carriers. A flight attendant at Cathay Pacific earns ten times more than a flight attendant at Philippine Airlines.⁸⁶ Other airlines with relatively high labor costs include JAL and All Nippon Airways, both from Japan.

Another major operating cost is fuel. Due to competing suppliers at many airports and low taxes, fuel tends to be cheapest at North American airports.⁸⁷ Prices in Europe are about 2% higher; in Asia they are roughly 10% higher. These prices can hardly be influenced by airlines. It is in the respective governments' hands to allow multiple fuel providers at airports as well as to set fuel tax levels.

The data in Appendix 2.4 shows that Asian airlines pay 86% higher airport charges per ATK than North American carriers. Asian airlines have a significant longer average stage length, hence airport charges (which are not dependent on stage length) should be lower. However, airport charges in the US tend to be very low, thus US carriers have a significant cost advantage. Airport charges in Europe are higher than in Asia. The landing fee and government taxes for a B747-400 aircraft at Singapore (USD 5,085), Bangkok (USD 5,376) and Hong Kong (USD 5,390) are all considerably lower than at Paris CDG (USD 6,673), Frankfurt (USD 8,276) or London-Heathrow (USD 15,063).⁸⁸ Important exceptions in Asia are the Japanese airports, with Tokyo-Narita charging USD 16,044.

Most other important costs do not vary significantly as the markets for aircraft, capital etc. are relatively global, so differences in prices cannot be explained by differences in geographical location. However, as Asian airlines tend to have a relatively long average stage length and a relatively large average aircraft size, they

⁸⁵ ATA Annual Report 2002, AAPA Statistical Report 2002

⁸⁶ *Flying Off Course*, Rigas Doganis, 2002

⁸⁷ *Flying Off Course*, Rigas Doganis, 2002

⁸⁸ *Flying Off Course*, Rigas Doganis, 2002

tend to have a unit cost advantage over North American and European carriers in several cost items.

3.8 Distribution

3.8.1 Tour Operators

Because of language barriers, the collectivistic nature of Asian cultures and inexperience in travel, many Asian travelers prefer to travel in a group when visiting other countries. This is true for leisure travelers and to a lesser extent also for business travelers. That's why many air tickets sold in Asia are part of a package tour, organized by a tour operator.

With this arrangement, travelers have relatively little influence with what airline they fly. Tour operators tend to choose the airline that offers them the most rewarding financial incentive in the form of commissions and monetary kickbacks. This affects the marketing and sales strategies of Asian airlines. Airline marketing in Asia has still a strong focus on tour operators/travel agents rather than individual customers. While in the US many airlines no longer pay commissions to tour operators and travel agents, commissions are still an important part of the travel business in Asia.

3.8.2 Travel Agents

Unlike in Europe and North America, the Asian travel agent industry is characterized by a large number of small independent travel agents. This is because in most countries, it is easy to open a travel agency with many Asian countries not requiring a license. The larger travel agencies usually have direct access to a CRS system but may or may not issue ticket themselves. The smaller ones either book directly with the airline or through a wholesaler. They earn money from sales commissions, kickbacks from the airlines and/or fees collected from the traveler.

Most worldwide corporate travel agents (e.g. BTI or Carlson Wagonlit) have offices throughout the region. These companies offer travel management services to

large and medium-sized corporations that do not have their own in-house travel department.

Both Europe and North America have seen many online travel agents starting up within the last decade. In Asia, the only major international online travel agent is zuji.com, which was created in 2002 by Travelocity together with 16 major airlines operating in the region. It is currently operating in Australia, Hong Kong, Korea and Singapore.

3.8.3 Wholesalers

The large number of small independent travel agents without access to a CRS system justifies wholesales. Many airline offices do not have the capacity to deal with the large number of requests from these small independent travel agents.

Wholesalers are intermediaries between the airlines and the travel agents. Like with tour operators, the strong presence of wholesalers impacts the airlines' sales and marketing strategies.

The business model of wholesalers is simple. Because they buy large volumes from the airlines, they receive substantial discounts. They then pass part of these discounts on to the individual travel agents. The result is that the airlines do not have to deal with all travel agents, the wholesalers make money by keeping part of the discounts and the travel agents get tickets at lower prices.

3.8.4 Direct Online Distribution

The internet has become an important distribution channel for the travel industry in Europe and North America. With direct online distribution, an airline can sell its tickets through its website. Usually, the bookings are directly fed into the airline's internal reservation system, bypassing travel agents as well as CRS providers. By doing this, an airline can reduce its distribution costs significantly.

Continental cut distribution costs from 17.1% of sales in 1998 to 10.3% in 2002.⁸⁹ This was mainly a result of bypassing travel agents and CRS providers, cutting commissions as well as moving from paper tickets to electronic tickets.

Many major Asian airlines (e.g. Garuda Indonesia, Malaysian Airlines) do not offer direct online distribution. Some (e.g. Thai Airways) have a booking engine on their homepage but the bookings are routed via a conventional CRS, hence only travel agents are bypassed, not the CRS providers. Only Asia's most advanced airlines (e.g. Cathay Pacific, Singapore Airlines) make full use of direct online distribution.

The main reason for this is that in many parts of Asia, the internet is not yet as widely used as in Europe and North America. Appendix 2.5 shows that the level of internet usage varies greatly among Asian nations. Of the 15 nations in the sample, 5 have a usage rate of 30% and higher, which is comparable to Europe and North America. However, the majority of nations report rates of less than 5%. Also credit card usage is less popular in Asia, which makes internet sales even less popular.

3.9 Infrastructure

3.9.1 Airports

With 51 million passengers a year, Tokyo's Haneda airport is the only airport in Asia that ranks among the world's 20 busiest airports by passenger numbers.⁹⁰ Other major airports in Asia include Seoul (37 million), Hong Kong (32 million), Bangkok (28 million), Singapore (both 27 million) and Tokyo-Narita (25 million).⁹¹

Several of Asia's airports rank among the best in the industry. Singapore's Changi Airport is OAG's "Airport of the Year 2003". Because many Asian airlines are state-owned, governments like to invest heavily into airports partly to give their national carrier a competitive advantage over other Asian airlines. This results in

⁸⁹ Continental Airlines annual reports

⁹⁰ *Shaping Air Transport in Asia Pacific*, Tae Hoon Oum and Chunyan Yu, 2000

⁹¹ ICAO 2002 data

competition between airports. To some extent, airports have a natural geographical monopoly. However, for cargo as well as connecting and transit passengers, this is less true. Kuala Lumpur's KLIA airport reportedly convinced Egypt Air to move its intermediate stop on its Cairo – Sydney flight from Singapore to Kuala Lumpur.⁹²

Before the Asian Economic Crisis, many airports in the region were experiencing capacity shortages of various dimensions. In Tokyo-Narita it was runway capacity, in Beijing passenger processing capacity and in Bangkok aircraft stand capacity. The Asian Economic Crisis gave some temporary relief as passenger number dropped across Asia. Since then, many airports have increased their capacity to be able to accommodate future traffic levels. Tokyo-Narita added an additional runway, Beijing opened a new passenger terminal building and Bangkok is about to build a brand new airport, due to open in 2005.

Flight delays in Asia-Pacific are less common than in North America or Europe. At major airports in Asia-Pacific, an average of 14% of all flight departures were delayed 15 minutes or more in 2001.⁹³ The three most common causes were “Airport and Government Authorities” (35%), “Reactionary/Consequential” (31%) and “Technical/Damage of Aircraft” (12%). AEA airlines report that 24% of all intra-Europe flights were delayed in 2001.⁹⁴ The causes were very similar. And in the US, 21% of all flight departures at the top 32 airports were delayed more than 15 minutes.⁹⁵

3.9.2 Air Traffic Control

Air space congestion has been identified as a major issue of concern to the international carriers and the most serious threat to the growth of traffic movement in the region.⁹⁶ ICAO has concluded that, given the high forecasted growth of air traffic in Asia, the existing air traffic control systems will not be able to “support flight operations at acceptable safety levels”.

⁹² *The Straits Times*, March 29, 2002

⁹³ AAPA Statistical Report 2002

⁹⁴ AEA press release, November 13, 2002

⁹⁵ Bureau of Transportation Statistics (www.bts.gov)

⁹⁶ *Shaping Air Transport in Asia Pacific*, Tae Hoon Oum and Chunyan Yu, 2000

Some Asian countries (e.g. China) open up relatively little airspace to commercial aviation. Reasons for that include lack of ground-based navigational infrastructure, large military use of airspace as well as political and cultural issues. Although there are relatively few air traffic bottlenecks in Asia today, the high air passenger growth numbers suggest that this might change soon.⁹⁷ Regions currently experiencing air traffic congestion include the area south of Japan, the area around the Pearl River Delta as well as the South China Sea.

Seven different countries administer the airspace over the South China Sea, each with its own air traffic control center and separation regulations. Analysts suggest that congestion problems could be mitigated if individual countries would work closer together in air traffic control matters. Both in North America and Europe, the work of regional/national air traffic control centers is coordinated by a central flow management unit.

3.10 Regulatory Issues

3.10.1 Bilateral Agreements

International air services are subject to bilateral agreements signed by the state of origin and state of destination. Traditionally, these agreements specified the capacity, frequency, routes, designated carriers, fares and other parameters of all air services between the two nations. They are usually based on the concept of reciprocity; hence traffic rights are exchanged equally between the two countries.

Most bilateral agreements between Asian nations are of this traditional kind. With such tight regulations, it is not surprising that the environment in which airlines operate is not very competitive. The carriers involved do not really compete with each other and new entrants are generally not allowed. North American and European governments increasingly adopt more liberal (bilateral or multi-lateral) open-skies

⁹⁷ *Air Traffic Congestion and Infrastructure Development in the Pacific Asia Region*, Paul Stephen Dempsey and Kevin O'Connor, 1996

agreements. The reasons for why this has not yet happened in Asia will be discussed in the following section.

3.10.2 Towards Open Skies?

Many countries in Asia have started to sign open-skies agreements with other countries outside Asia, particularly with the US. Liberalization of bilateral agreements within Asia is still in its infancy. One of the major reasons of this is that the countries and their respective aviation industries vary significantly across the continent.

Singapore has only one major international airport. So if Singapore opens its skies, it in fact opens up just one airport. Furthermore, its carriers are relatively competitive; hence they will likely be able to survive in an increased competitive environment. If China opens its skies, it would open many international airports, not just one. Hence, an open-skies agreement between China and Singapore would be very imbalanced. Furthermore, Chinese carriers are less competitive than Singapore's. In a competitive environment, the Chinese carriers will likely lose over Singapore's carriers. Consequently, it will be very difficult to liberalize the bilateral air services agreement between Singapore and China.

In other parts of the world, these differences didn't stop nations from signing open skies agreements. For instance, the US was willing to negotiate open skies agreements with many smaller nations like Austria or Denmark that have only one major international airport. However, US airlines were very competitive; hence they would likely benefit from a more liberal air service agreement. Furthermore, even under the open-skies regime, the US opened up only several airports to these smaller countries.

The differences between Asian countries will be more difficult to overcome. Airline of large countries (e.g. China, India) gain relatively little market access by signing an open skies agreement with smaller nations (e.g. Singapore, Malaysia). In addition to that, it happens that the competitiveness of airlines from smaller nations tends to be relatively high; hence large countries face the additional disadvantage of endangering their own carriers by signing more liberal open skies agreements.

However, Asian countries do have an interest in opening up their skies. Tourism is an important industry in many Asian countries and many governments want to develop tourism further. Evidence suggests that an open skies agreement and the resulting competitive environment will increase traffic between two nations.⁹⁸ Hence, governments do have an interest in signing open skies agreements for the purpose of stimulating tourism. The first open-skies agreement among Asian nations was signed in 1999 by the governments of Indonesia, Malaysia and Thailand.⁹⁹ However, the aviation industries of these three countries are similar. And although there are no capacity or frequency restrictions, the agreement does not apply to all airports in these three nations.

The differences in Asia could be overcome if aviation was not treated separately from other industry sectors. The EU Treaty of Rome was a package of free trade agreements that included aviation. EU countries could not opt out of the common market for an individual industry. So although the national aviation industries were very different, all countries adopted the package of free trade agreements and the liberalized multi-lateral air service agreement with it. This could potentially work in Asia, with ASEAN or APEC taking the lead.

3.11 Growing Demand for Air Transportation in Asia

Appendix 2.4 gives an overview of the expected annual population growth rates until 2015 of various Asian countries. Many populations will grow by more than 1% each year. India's growth rate of 1.3% means that the country's population will grow by more than 13 million each year. Except for Japan and Korea, all countries in the list are forecasted to grow more than 0.5%, which is the expected annual population growth rate of OECD countries.¹⁰⁰ However, evidence suggests that population segments with low incomes tend to grow faster than high-income segments. In Asia, a 1% growth in population will therefore most likely not result in air passenger growth of 1%. It will be somewhat lower.

⁹⁸ *Flying Off Course*, Rigas Doganis, 2002

⁹⁹ *Shaping Air Transport in Asia Pacific*, Tae Hoon Oum and Chunyan Yu, 2000

Income is another important driver of air transportation. Evidence suggests that the percentage of money spent on travel increases as disposable income grows. Hence, if GDP per capita grows by 1%, demand for air transportation will grow by more than 1%, all else staying equal. Appendix 2.6 shows the growth rates in GDP per capita in various Asian countries. The income in all major Asian economies are growing significantly higher than the growth rate of OECD nations, which averages 1.7%.¹⁰¹ And despite the ongoing global economic slowdown, most forecasts predict continuously high GDP growth rates all across Asia.

Another important factor that affects the demand for air transportation is the level of fares. Like in most other markets for goods and services, lower air fares will stimulate demand for air transportation. Fares can decrease by a variety of reasons, e.g. increased competition, lower fuel prices or increased productivity due to privatization. Most Asian carriers have seen their yields falling during the last decade. Singapore Airlines' system-wide yield decreased 12% from US¢ 5.9 to US¢ 5.2 between 1993/1994 and 2002/2003.¹⁰² Both IATA and Boeing forecast yields to continue decreasing across the region. This will make air transportation affordable to more people in Asia and encourage existing customers to fly more often.

Many Asian countries relax travel restrictions, both for their own nationals as well as for incoming visitors. The Association of South-East Asian Nations (ASEAN) has plans to be visa-free for all ASEAN citizens.¹⁰³ This will most likely further stimulate the demand for intra-Asia air transportation. Also China will become a major outgoing tourism market. The government's decision to relax travel restrictions marks a significant change from the 1980s, when passports were limited to the few who went on official trips and those who were well connected.¹⁰⁴

Major Asian tourist destinations have traditionally targeted overseas tourist to visit their resorts. It is only recently that Asian countries have initiated large tourism promotion campaigns in other Asian countries. Most Asian couldn't afford to travel abroad, hence it made little sense to promote intra-Asia tourism. The people from

¹⁰⁰ UNDP Human Development Indicators 2003

¹⁰¹ UNDP Human Development Indicators 2003

¹⁰² Using 2003 exchange rates, not taking into account inflation

¹⁰³ *TTG Asia*, February 20, 2003

Japan, Hong Kong and Singapore did have the money to travel but usually did so in groups, which also didn't require much tourism promotion. But as incomes are now on the rise and people from Japan and other countries start to explore the continent more individualistically, tourism promotion becomes more important. PATA (Pacific-Asia Travel Association) is also increasingly shifting its focus towards promoting intra-Asia tourism.

3.12 Challenges for Asian Airlines

3.12.1 Keeping the Cost Advantage

Apart from the two major Japanese airlines, most other major airlines in Asia have unit costs that are significantly lower compared to major European and North American airlines. The main reason for this is lower input costs, particularly with regard to labor costs. Singapore Airlines' unit labor costs are US¢ 0.77 per ASK whereas American Airlines reports US¢ 2.92 per ASK, 279% more.¹⁰⁵ The same is true for many other Asian airlines.

However, some Asian airlines are losing their cost competitiveness vis-à-vis their European and North American competitors. Singapore's GDP per capita has been growing at an average annual rate of 8.1% in recent years.¹⁰⁶ Hong Kong's GDP per capita is already the 11th highest in the world.¹⁰⁷ Incomes are on the rise throughout Asia, which translates into increasing labor cost for the region's airlines. This is an important issue and some airlines have been very active in finding strategies to solve the problem. Cathay Pacific currently employs many flight attendants from low-income countries like the Philippines as flight attendants from Hong Kong have become too expensive. But as incomes are on the rise in virtually any country in Asia, this strategy just delays the problem.

¹⁰⁴ CNN, September 8, 2003

¹⁰⁵ 2002 Annual Reports (not adjusted for stage length, different aircraft size etc.)

¹⁰⁶ World Economic Forum 2003 data

¹⁰⁷ UNDP 2001 data

The answer to the problem must lie in productivity growth. If input prices cannot be influenced, the only way to contain unit costs is by increasing labor productivity. Is there evidence that Asian carriers are less productive? Oum and Yu (1996) suggest there is. Their study shows that if Thai Airways had to pay the same level of input prices as American Airlines, it would have unit costs 43% higher than American Airlines.

3.12.2 Continued Pressure on Yield

In addition to increasing costs, Asian airlines will also have to face decreasing yields. According to both IATA and Boeing, worldwide airline yields will decrease 1.1% per year until 2010 and analysts expect intra-Asia yields to decrease much faster than that.¹⁰⁸ If low-cost airlines will successfully enter markets in Asia, it is very likely that this will drive yields down even further.

Because the environment will become increasingly competitive, it is unlikely that Asian airlines will be able to defend their current yield levels. Hence if airlines want to keep their level of profitability, they must carefully manage their costs. But as costs are rising too, one might conclude that the profitability of Asian airlines might decrease over the coming years.

3.12.3 Liberalization

As discussed earlier, governments have incentives to liberalize their national aviation industries, e.g. to promote tourism. While consumers are likely to profit from a more liberal and competitive market for air transportation, not all airlines in the region will welcome it.

Airlines that are generally regarded as competitive today (e.g. Singapore Airlines) tend to be in favor of a more liberal market environment as their competitive advantage would enable them to dominate the market. But many Asian airlines may currently not be competitive enough to survive in a fully competitive environment. For

¹⁰⁸ *Shaping Air Transport in Asia Pacific*, Tae Hoon Oum and Chunyan Yu, 2000

these airlines, liberalized markets will pose a considerable threat to their survival. Even successful airlines like JAL might turn out to be not competitive. JAL's unit costs are almost twice as high as Singapore Airlines' unit cost. Generally, major airlines in other parts of the world do not differ as much in unit cost as airlines in Asia do. Appendix 2.7 lists the unit cost and other relevant data of 41 airlines around the world. The standard deviation in unit cost is greatest among Asian carriers.

3.12.4 Shifting Markets

The northern hemisphere accounts for most of the worldwide air traffic. The same is true for Asia, with major markets like Japan and Korea located in the north of the continent. The rapid economic growth of China and India will likely shift traffic movements further up north in Asia. Many major Asian carriers, including Singapore Airlines and Malaysia Airlines have hubs that are at the extreme south of the continent. While this location is desirable to serve market like Europe – Australia, it is less desirable for the markets where significant future growth is expected. Markets like USA – China or Europe – India cannot be efficiently served by many South-East Asian carriers. Unless these airlines can secure fifth freedom traffic rights, they will likely miss out on these opportunities.

3.13 Summary

Asia's airlines operate in a different market environment. Also the regulatory frameworks are different in Asia compared to the ones known in North America and Europe. More fundamentally, the *raison-d'être* of some Asian airlines is different as the main objective may be to support the national agenda as opposed to posting a profit.

Apart from Japanese carriers, Asian airlines tend to have relatively low unit costs, a result of low input costs, large aircraft sizes and long stage-lengths. Yields vary significantly across airlines and markets; hence aggregations tend to be misleading. The fleet of major Asian airlines is characterized by a large percentage of

wide-body aircraft. Networks are mostly all hub-and-spoke networks, usually less dense than networks in Europe or North America. Flight frequencies tend to be low.

Asian airlines differ significantly among themselves. Asia is home to some of the most profitable and most respected airlines in the world. At the same time, there are many Asian carriers, that struggle and whose future is very uncertain. Therefore, general statements about the Asian airline industry can be misleading.

Although several one-time events in recent years temporarily brought growth to a standstill, air traffic is widely expected to grow significantly in Asia in the foreseeable future. Income is rising in most Asian economies, the population is growing and travel restrictions disappearing for many travelers. Markets like China and India will open up additional opportunities for Asian airlines.

But there are also challenges ahead. Rising costs and declining yields will have severe impacts on the profitability of Asian airlines. And as the environment will continue to become more competitive, some airlines might not survive. One of these challenges will be the potential emergence of low-cost airlines in Asia.

Chapter 4 will now examine in what ways the nature of competition, the market environments and the regulatory frameworks discussed in this chapter allow low-cost airlines to emerge in Asia.

4. Opportunities and Challenges for Low-Cost Airlines in Asia

4.1 Introduction

As discussed in Chapter 2, the low-cost airline business model is very flexible and has been successfully adapted to the local environments of various countries in North America and Europe. However, in many ways, Asia is different. As the previous Chapter explained, the airline industry in Asia has some very distinct characteristics that cannot be found in either North America or Europe. This Chapter will discuss the obstacles that potential low-cost airlines in Asia will have to overcome as well as the opportunities that Asia has to offer to these airlines.

Low-cost airlines in Asia will face challenges that other LCAs around the world do not have to deal with. Competing with traditional airlines that have some of the world's lowest unit costs, the rigid regulatory frameworks, congested airports and several other issues are major factors that will fundamentally affect the viability of operating a low-cost airline in Asia.

Despite these obstacles, Asia offers many opportunities that might appeal to potential low-cost airlines. Monopolies of flag carriers are disappearing, national and international regulations are becoming more liberal and the fact that intra-Asia traffic is forecasted to grow significantly has already spurred several new entrants that are keen on making the LCA business model work in Asia.

The airline industry has many stakeholders. Low-cost airlines, traditional airlines, operators of other modes of transport, airports, regulatory authorities, passengers etc. will all try to influence the future of the industry in their favor. Many of these stakeholders have conflicting interests. Although the outcome is far from being clear, the Asian airline industry will likely become more competitive than it used to be.

4.2 Markets

4.2.1 Market Characteristics

Although the services might be produced jointly, airlines usually offer service in many different markets, each with its own distinct characteristics. Depending on these market characteristics, an airline will decide whether to enter a specific market or not.

In the airline industry, a market can be defined in several ways. Geographically, markets can be described on an airport level (e.g. New York JFK – London Heathrow), on a city level (e.g. New York – London) or on a regional level (North America – Europe). Markets can also be defined by consumer segment (e.g. the people who visit friends and relatives). Other frequently-used market distinctions include domestic vs. international and short haul vs. medium haul.

As described in Chapter 2, some of the key elements of the LCA model are the reason why LCAs tend to favor certain types of markets. The LCA business model tends to work best in very liberal environments; hence, as international markets tend to be more heavily regulated than domestic markets, the distinction between domestic and international markets is a very important one for LCAs. In addition to that, because certain passengers are more likely to be attracted by the lower fares than others, LCAs find it useful to look at potential markets by consumer segments. The following sections will therefore examine the distinction between domestic and international markets as well as the distinction between leisure and business markets in the Asian context.

4.2.2 Domestic vs. International

Many low-cost airlines around the world started as domestic operators and several major LCAs limit their operations to domestic flights even after several years in business (e.g. Southwest). As discussed in Chapter 2, the main obstacle in entering international markets is that an airline needs to obtain the relevant traffic rights. Several LCAs in North America and Europe do fly international routes. This is

a result of substantial bilateral deregulation of international air transportation in both regions. Asia is very different in this respect. So far, there are very few liberal bilateral air services agreements within Asia. And most traffic rights that countries have negotiated between them are used by traditional airlines. LCAs in Asia might therefore find it difficult to enter international markets.

Another reason why LCAs tend to favor domestic operations is that flights are generally shorter. For the reasons explained in Chapter 2, LCAs tend to serve city pairs with relatively short stage lengths. Most flights of low-cost airlines in North America and Europe are shorter than three hours. In Asia, the flying time between major cities can be significantly more than three hours. Of AAPA's top 20 international city pairs by passenger numbers, almost half are more than three hours flying time apart.¹⁰⁹ This might discourage many LCAs to enter these international markets.

Also, competition in domestic markets in Asia tends to be less fierce than in international markets. Many international markets in Asia are served by at least two carriers nonstop (usually one from each country) as well as by several additional airlines that offer connecting services. But domestically, in many Asian countries, the flag carrier used to be the only operator. As a result, domestic flights tended to be overpriced and of poor service quality. As some of these domestic markets are about to be deregulated to a substantial extent, they might be very attractive for potential LCAs.

4.2.3 Leisure Markets

As discussed in Chapter 2, many LCAs around primarily target leisure markets. Asia will probably not be any different. According to the Pacific Asian Travel Association (PATA), short-haul intra-Asia leisure traffic will increase substantially over the next decade.¹¹⁰ Increasing disposable incomes, fewer travel restrictions and the development of new leisure destinations are forecasted to significantly stimulate

¹⁰⁹ AAPA Statistical Report (2002), OAG (2003)

¹¹⁰ *The Bangkok Post*, July 15, 2003

intra-Asia leisure traffic. This makes the Asian leisure market very attractive for low-cost airlines.

Many major Asian cities like Bangkok and Hong Kong are both origins and destinations of leisure traffic. Other cities like Seoul or Singapore tend to see more outgoing than incoming leisure traffic. And islands like Phuket or Bali will predominantly be net tourist receivers, which could make them important destinations for LCAs.

Leisure traffic in North America and Europe tends to see a relatively high degree of peaking and seasonality. Because of cultural/religious reasons, the entire population of these regions enjoys their holidays at the same time. Asia is culturally and politically more diverse, leisure traffic tends to be more evenly distributed. This is desirable for LCAs, in terms of being to offer the same capacity year-round.

A fair amount of leisure traffic in Europe is carried by charter airlines. As in Asia there are virtually no charter airlines, traditional airlines accommodate most of this traffic. But as leisure traffic is relatively price-sensitive, many of those passengers might switch to LCAs as their fares are likely going to be significantly cheaper.

4.2.4 Business Markets

Although most LCAs offer significantly fewer amenities like airport lounges, business/first class cabins etc. and although business traffic tends to be less price-sensitive than leisure traffic, many LCAs do cater to some sub-segments of the business market. Will potential Asian LCAs be able to do the same?

Economic activity in Asia is not as dispersed as it is in North America and Europe. For instance, Manila accounts for 15% of the Filipino population but accounts for over one third of the country's GDP.¹¹¹ Hence, most business traffic in Asia travels in and out of major cities. Asian LCAs will therefore have to offer services between these major cities in order to target a substantial amount of business travelers. However, the airports of these major cities tend to be congested and

¹¹¹ *The Economist* Country Intelligence Unit (www.economist.com)

charge relatively high user charges. And as will be discussed later, secondary airports are usually not an option.

If low-cost airlines started services between major Asian cities, would business travelers have an incentive to switch to LCAs? As the analysis in Chapter 3 showed, business fares in Europe are significantly higher than leisure fares. As shown in Chapter 3, this markup tends to be substantially lower in Asia. This might suggest that business travelers in Asia save less than European business travelers by switching from traditional airlines to LCAs.

4.3 Competing Modes of Transport

4.3.1 Car

On shorter flights of up to one hour, LCAs in North America and Europe compete with the car to some degree. For several reasons, even for short distances, competition from the car will be very limited in Asia.

Appendix 2.5 shows that car ownership is relatively low in many parts of Asia. While in most Western nations, there are more than 300 cars per 1,000 inhabitants, the number for most Asian countries is less than 100.¹¹² In addition to that, road infrastructure is relatively poor in many Asian countries, particularly long-distance roads. And as discussed earlier, for many Asian city pairs, ground transportation is not an option as the cities might be on different islands.

4.3.2 Bus

Since a large percentage of the population in Asia is relatively poor, for most people, the cost of travel is more important than the convenience of travel. In many parts of Asia, public and private buses are therefore among the most popular means of intercity transportation. However, distances tend to be long and road conditions relatively poor. So will LCAs in Asia be able to compete with buses?

¹¹² World Development Indicators 2002 (The Worldbank)

Malaysia's LCA AirAsia flies from Johor Bahru (a 90 minutes drive from downtown Singapore) to Kuala Lumpur's KLIA (a 60 minutes drive from downtown Kuala Lumpur). Including ground transportation and the time spent at the airports, the total journey time from Singapore to Kuala Lumpur is about 4.5 hours. There are several bus companies that provide nonstop downtown-to-downtown services between the two cities at roughly the same time and at lower costs. Hence, AirAsia might find it difficult to compete with the bus on this specific route.

There are several Thai start-up airlines that announced low-cost services between Bangkok and Chiang Mai starting at under USD 26.¹¹³ The downtown-to-downtown travel time will be approximately 4 hours. Several bus operators raised concerns that competition from LCAs might drive them out of business.¹¹⁴ An up-market express bus on the same route costs USD 16 and takes around 9 hours. Although only a limited number of seats will be sold at the USD 26 fare, a substantial amount of travelers might switch from buses to LCAs. Traditional airlines like Thai Airways charge more than USD 50 for the same trip. Hence, travelers that are willing to pay USD 25 to 50 for the trip are traveling by bus today, but may choose to fly once LCAs enter the market.

The two examples show that whether LCAs will be able to draw away passenger from bus operators will depend on the circumstances. The longer the distance, the poorer the bus service and the smaller the cost difference, the more likely bus passengers are going to switch to LCAs.

4.3.3 Rail

There is no significant international rail traffic in Asia as there are very few rail links between countries. However, railways do get a fair amount of domestic intercity traffic in many Asian countries. Apart from Japan, South Korea and Taiwan, service is relatively cheap but tends to be inconvenient and relatively unreliable. Many railway companies are government-owned and receive substantial amounts of

¹¹³ *The Bangkok Post*, November 12, 2003 (THB 999 airfare plus THB 100 tax)

¹¹⁴ *The Bangkok Post*, November 14, 2003

subsidies. A train ticket from Bangkok to Chiang Mai costs USD 4 to 30, depending on the class of travel and type of train.¹¹⁵ The trip takes from 12 to 15 hours. LCAs are expected to offer fares as low as USD 26. Some of the first class rail passengers that value convenience and travel time might therefore start flying. The State Railway of Thailand (SRT) expects that LCAs will substantially impact its long-distance business and plans to offer substantial discounts on the affected routes.¹¹⁶

4.3.4 Ship/Ferry

For overland journeys, cars, buses and trains are relatively fast and convenient. For trips across large areas of water, surface-based transportation modes tend to be slow and rather inconvenient; hence travelers are more willing to switch to air transportation, particularly if it is easily affordable. As the cost difference between a ferry ticket and a ticket for a traditional airline is relatively high, the two modes do not compete for the same customers. However, as LCAs enter the market, this might change. One of the reasons why the UK and Ireland were the first countries in Europe to be served extensively by LCAs was their geographical location off the coast of Continental Europe.

The same pattern emerges in Asia. The first country in Asia that was served by a low-cost airline was Malaysia, a country with provinces on the continent, on the Island or Borneo as well as on several smaller islands. Most of the flights of Malaysian LCA AirAsia are indeed flights that connect cities on the continent to cities on the country's islands.

Several other countries including Japan and Taiwan are also off the coast of continental Asia. Hence, these countries might be potential markets to be served by LCAs. In addition to that, Indonesia and the Philippines are archipelagos. For most city pairs in these nations, the only mode of surface transportation that will compete with LCAs is the ferry, which tends to be cheap, but also slow, unreliable and

¹¹⁵ State Railway of Thailand homepage (www.railway.co.th)

¹¹⁶ *Financial Times Information* (www.fnWeb.com), November 17, 2003

inconvenient. The ferry passengers that value time and convenience might therefore be willing to switch to a low-cost air alternative.

4.4 Competing Against Traditional Airlines

4.4.1 Cost Competitiveness

As discussed earlier, many of Asia's major airlines have relatively low unit costs, compared globally. Asian LCAs will be able to enjoy many cost advantages that these traditional Asian carriers enjoy, e.g. low labor costs. However, some of the cost advantages of traditional Asian carrier will not be transferable to LCAs. For instance, the fact that most traditional Asian carriers use large aircraft on many intra-Asian flights has some important implications.

As discussed in Chapter 2, LCAs tend to favor narrow-body aircraft of around 150 seats. This could mean that LCAs will offer more frequencies than traditional airlines on a given route. From a consumer's point-of-view, this is favorable and might force traditional Asian airlines to do the same. However, small aircraft tend to have significantly higher unit costs than large aircraft. At Continental Airlines, the aircraft operating costs for their 283-seat B777-200 are USD 6,361 per hour or USD 22.1 per seat-hour.¹¹⁷ Flying their 124-seat B737-300 costs Continental USD 3,617 per hour or USD 29.2 per seat-hour. Hence, on a per-seat-hour basis, the B737-300 is 29,8% more expensive than a B777-200.

However, substantial amount of these cost savings are due to the longer stage-lengths that large aircraft tend to fly. If both a B737-300 and a B777-200 flew the same route, the cost difference would be somewhat smaller. Still, even on the same route, large aircraft tend to have lower unit operating costs than small planes. Doganis shows that for the same 3,000km trip, a 300-seat A340-600 has more than 10% lower unit operating costs (per ATK) than a 150-seat A320-200.¹¹⁸

¹¹⁷ US DOT Form 41 data (2003)

¹¹⁸ *Flying Off Course*, Rigas Doganis, 2002

Aircraft operating costs are major contributor to an airline's overall costs. It might be difficult for LCAs to make up that difference in cost items other than aircraft operating costs. On the other hand, the it could also be that the increased competition from LCAs might force traditional Asian airlines to start competing on frequency; hence use smaller aircraft, too.

Many North American and European LCAs use their aircraft more hours each day than their established competitors. This results in substantial savings in unit ownership costs. But in Asia, many traditional carriers also use their aircraft extensively as they operate many long-haul routes. Asian LCAs might therefore not enjoy the same unit ownership cost advantage.

This discrepancy in aircraft size is an important difference between Asia and other parts of the world. Both in Europe and North America, traditional airlines and LCAs use similar aircraft sizes in many market in which they compete. In Asia, traditional airlines will have the cost-advantage of using larger aircraft. Plus, as discussed in Chapter 3, Asian airlines fly intra-Asia routes at relatively low load factors, usually around 60-70%.¹¹⁹ Hence, they could match or even undercut the fares of their low-cost competitors without adding any additional capacity. This makes this form of retaliation very likely. A full discussion of how traditional Asian carriers could respond to the LCA phenomenon will follow in Chapter 5.

4.4.2 Connecting Passengers

Because Asia has only a very limited number of intercontinental gateways, a substantial part of intra-Asia traffic originates or terminates outside Asia. A passenger flying from Phnom Penh to Bangkok might actually connect in Bangkok to an intercontinental flight bound for London. Since Asian LCAs will not offer intercontinental services anytime soon, they will not be able to compete for such traffic on intra-Asia flights. Since LCAs usually do not work together with traditional airlines, it is very unlikely that a connecting passenger will fly his/her intra-Asia segment on an LCA and then connect to an intercontinental flight of a traditional

¹¹⁹ see Chapter 3.4

airline. Asian LCAs will only be able to compete for traffic that originates and terminates within Asia. And as explained earlier, this competition will be fiercest on flights of under three hours.

With the demise of Ansett Australia, Singapore Airlines lost its partner that provided domestic feeder flights from secondary Australian cities to SIA's gateway cities. Since Qantas and Virgin Blue are the only two airlines that provide reasonably good network coverage in the domestic Australian market and because Qantas is member of the oneWorld alliance, Singapore Airlines and other Star alliance members showed interest in working together with Virgin Blue.¹²⁰ Virgin Blue reported it was considering its options carefully but eventually declined.¹²¹ But since SIA and Virgin Blue do not compete in the same markets, such a cooperation might make sense for both parties.

4.4.3 Competing with Flag Carriers

It is very likely that LCAs in Asia will compete with established Asian carriers that are state-owned and that may or may not receive subsidies or preferential treatment from their respective governments. Privately-held Malaysian LCA AirAsia has already complained several times that government-backed Malaysia Airlines is using tax-money to cut fares.¹²² While in North America and Europe several low-cost airlines have sued traditional airlines over alleged predatory pricing and predatory capacity conduct, similar law-suits may turn out to be very difficult in Asia as the legal systems are generally not as elaborate with regard to rules on fair competition. It will likely depend on the government's view on the issue as well as on the nature of the government-airline relationship whether flag carriers are allowed to use tax money to cut fares in order to compete with private airlines.

¹²⁰ *Aviation Daily*, July 25, 2002

¹²¹ *Traveltrade (Australia)*, March 5, 2002

¹²² *The Financial Times (London)*, October 14, 2003

4.5 Airports

4.5.1 Secondary Airports

As discussed in Chapter 2, servicing secondary airports results in significant cost advantages for low-cost airlines. Landing fees and other airport charges are lower than at primary airports. As secondary airports tend to be less congested, the possibility that flights are delayed is much lower. This has positive implications on the airline's aircraft utilization. Secondary airports also tend to be smaller which results in shorter taxi times; hence shorter turnaround times.

In the United States, most people have a car and driving is relatively cheap and convenient. Consequently, many passengers are willing to drive substantial amounts of time to reach a secondary airport that is served by one or more low-cost airlines. Europe is less car-focused. However, public transportation is well developed and secondary airports can usually be reached relatively easily by bus or train.

Asia is somewhat different. While there is usually a serviceable secondary airport within 100km of every major city in the US and in Europe, secondary airports are less widespread in Asia. Airports in Asia were mainly built to accommodate intercontinental flights. There was little reason to build smaller airports, except for military purposes.

The best alternative to Hong Kong's main airport would be Macao, which is a two hours ferry/bus journey away. Singapore's secondary airport has a runway too short to accommodate an A319 or B737.¹²³ The only feasible alternative is Johor Bahru across the border in Malaysia, a 90 minutes car ride away from downtown Singapore. Kuala Lumpur and Bangkok do not have suitable secondary airports at all. The same is true for several other major Asian airports.

However, Asian LCAs need to serve large cities, as traffic between two secondary Asian cities might be too low to justify point-to-point services. In many of Asia's large cities, congested and expensive primary airports will be the only option for these airlines. At smaller cities, the problem is not as severe. Although they

¹²³ *Channel News Asia*, October 14, 2003

usually do not have secondary airports either, congestion tend to be less of a problem, airport charges are lower and turnaround times can be kept to a minimum.

4.5.2 Airport Charges

One reason why low-cost airlines choose secondary airports is the lower airport charges. The main components of the charges that an airline incurs at an airport are landing fee, parking fee and handling fee. As discussed in Chapter 3, landing fees in Asia are significantly higher than in the US. However, both LCAs and traditional airlines are charged the same fees at a given airport. Hence, the higher fees at Asian airports will not affect the competition between LCAs and traditional airlines.

Many airports in Asia have been built to accommodate large aircraft that serve intercontinental routes. The B737 of an LCA might therefore have to use the same parking position that could accommodate a much larger B747. If airports become congested – and several major Asian airports are – airport authorities have an incentive to use of the airport more efficiently. This could mean the establishment of policies and fees to discourage the use of smaller aircraft. Since a small aircraft uses up approximately the same airside capacity than a large aircraft, but seats fewer passengers, large aircraft make more efficient use of an airport's existing airside capacity.¹²⁴

4.5.3 Airport Slots

Unlike most airports in North America, virtually every major airport in Asia is slot-controlled. Every airport has a certain maximum number of aircraft it can handle per hour. In order to ensure that demand does not exceed capacity during any given time period, airlines have to obtain the right to land and take-off at an airport during a specified time window, called “slot”. At several important airports in Asia, it is difficult to obtain these slots as most of them have already been granted and are used by the

¹²⁴ An airport's airside capacity includes tarmac, taxiways, runway, and surrounding airspace.

various airlines. IATA's system of grandfather rights means that it is very difficult for new airlines to start serving these airports.

In Europe, where most major airports are also slot-controlled, the European Commission views the system of grandfather rights as a major factor restricting the opening up of new routes and services. New regulations therefore require airports to set up a pool of slots that "contain newly created slots, unused slots and slots which have been given up by a carrier " and that "50 % of these slots shall be allocated to new entrants".¹²⁵

Asia is still a long way from adopting such competition-friendly regulation that supports new entrants. The lack of available slots, particularly during peak times, might therefore be a major obstacle for Asian LCAs. Since IATA is mainly sponsored by established airlines, it will have relatively little incentive to take the lead in opening up slot-controlled airports to LCAs. APEC or ASEAN will have to address this problem. But since fighting poverty and other problems are more urgent economic issues, the slot problem is not likely going to be addressed anytime soon.

4.5.4 Increased Congestion due to LCAs?

A significant part of flights within Asia are operated by wide-body aircraft. LCAs in Asia will most likely use significantly smaller aircraft, e.g. the B737 or A320 families of aircraft. Hence, if LCAs will compete for the traffic that is currently carried in wide-body aircraft, the number of flights will increase since the same number of passengers will be being carried in more aircraft. This could potentially lead to congestion problems in the air as well as on the ground because to a large extent a B737 uses up the same airport and airspace capacity than a much larger B747.

¹²⁵ Article 10 of Council Regulation 95/93/EC

4.6 Policy Issues

4.6.1 National Interests regarding LCAs

Many airlines in Asia are state-owned; hence governments have an interest in creating a regulatory environment that supports the national carrier. Policies that support the national carrier have so far been in line with the broader goal of supporting the national economy. However, with the emergence of LCAs, this is likely going to change. Supporting only the national carrier might no longer be in the best interest of a nation.

A microeconomic theory that is based on a hypothesis developed by Adam Smith suggests that a fully competitive market where all parties have perfect information maximizes social welfare.¹²⁶ A fully competitive market with perfectly informed decision-makers is an abstract concept that cannot exist in reality. However, the theory suggests that, the more competitive a market is, the more desirable the outcome for the economy as a whole.

As discussed in Chapter 3, many markets for air transportation in Asia are not very competitive mainly because of tight economic regulation of the airline industry as well as because there is usually only a very limited number of suppliers in each market. The following table shows the annual “possible cost savings from competitive aviation service in 2010” for selected Asian countries as estimated by Findlay and Clyde in 1997.¹²⁷

¹²⁶ *Microeconomic Theory*, Walter Nicholson, 1995

¹²⁷ *Flying High – Liberalizing Civil Aviation in Asia Pacific*, Gary Clyde Hofbauer and Christopher Findlay, 1997

Annual User Cost Savings (USD billions)	
Hong Kong	2.2
Japan	9.4
South Korea	3.9
Malaysia	1.0
Singapore	2.7

Table 4.1: Estimated annual user cost savings of selected Asian nations

The cost savings would be achieved mainly by “forcing leaner airline operations and route rationalizations” which would turn into increased “trade and tourism”. The figures represent only the additional consumer benefit. The decreased producer benefit due to lost monopoly profits is not taken into consideration. However, the authors suggest that in the long run, the increase in consumer benefits will be significantly higher than the decrease in producer benefits. This would suggest a net increase in social welfare due to a more competitive market for air transportation in Asia.

However, for many Asian nations this will mean to expose the national carrier to an increasingly competitive environment in which these airlines are likely going to suffer in terms of profitability. So although economically optimal, a fully competitive aviation environment might not be in the interest of a country. The new benefits that LCAs bring in terms of lower cost for air travel might be outweighed by the dis-benefits of having a weak national carrier. Ireland created an environment that encouraged the start-up and growth of low-cost airlines. Although the nation benefited from lower airfares, Aer Lingus, the national carrier, suffered substantially on European routes. And as European traffic was needed to support the airline’s intercontinental network, Aer Lingus’ number of intercontinental destinations gradually declined. Today, only 5 destinations remain in the airline’s intercontinental network.¹²⁸ For many Asian nations, being linked to economies in Europe and North

¹²⁸ Aer Lingus Homepage (www.aerlingus.com)

America is vital. Asian governments might therefore justify continued preferential treatment and/or subsidies for their national carrier.

4.6.2 Government Policies regarding Airports

The main reason why Asian governments built airports was to support the local tourism industry and the local businesses. As both tourism and business was focused on trade with North America and Europe, airports were built as intercontinental airports. Even today, virtually every new airport in Asia is a multi-billion dollar intercontinental gateway. Kuala Lumpur's KLIA cost US\$ 2.4 billion and Bangkok's New International Airports is estimated to cost US\$ 2.8.¹²⁹ Although partly funded by the private sector, these are very significant investments for those countries. Consequently, as governments want airlines to use their newly built-airport, they are not likely to be interested in developing secondary airports e.g. by allowing commercial aviation at military airports.

On the other hand, examples like Charleroi in Europe have shown that a local area can experience significant economic stimulation by the incoming tourism that LCAs bring. As in many Asian countries, economic activity is centered around only a few major cities, LCAs could stimulate the country's more remote regions that usually do not have much economic activity.

Airport development is a very time consuming process and most of the newly built/expanded airports in Asia were planned before the Asian Crisis of 1997/1998 with very optimistic traffic forecasts. These airports will likely be substantially underutilized for some years to come. Many airport authorities will therefore welcome any new traffic. Singapore's aviation authority CAAS is willing to waive the landing fees for all new airlines during the first two years of operation.¹³⁰ CAAS is also looking into attracting low-cost airlines by offering "special terms" to LCAs and considers designating part of its terminals to LCAs.¹³¹ Several other airports in Asia take similar actions.

¹²⁹ CNN, October 20, 2000

¹³⁰ Channel News Asia, October 14, 2003

¹³¹ The Business Times, September 6, 2003

4.6.3 Allocation of Traffic Rights

An airline does not usually require traffic rights to fly a specific domestic route in the country in which it is registered. But as discussed in Chapter 3, it does for most international routes. Many Asian countries traditionally had - or still have - only one international carrier, usually a government-owned enterprise. All traffic rights that the government negotiated with foreign countries were automatically granted to that airline.

With the potential start-up of international LCAs in Asia, governments will have to decide how they will allocate the traffic rights that the current airlines use, the traffic rights that are currently unused/underused as well as traffic rights that will be negotiated in the future. Singapore's Ministry of Transport stated that it will allocate traffic rights in a way that "maximizes national interest and public benefit".¹³² The Singapore Airlines Group (Singapore Airlines, SilkAir, SIA Cargo) will keep its existing rights for 10 years "in recognition of the role that the SIA Group has played in building Singapore into an aviation hub", according to the Ministry of Transport. Some of the partly unused rights (e.g. to Thailand and Hong Kong) might be granted to start-up airlines.

Not all countries in Asia are likely to adopt such a liberal regime. And even in Singapore's case, it is not really clear what maximizing "national interest and public benefit" means. In many countries, it might continue to be very difficult to obtain traffic rights for lucrative routes. AirAsia's subsidiary in Thailand is a joint venture with local Shin Corporation. The fact that Shin Corporation is controlled by Thailand's Prime Minister Thaksin Shinawatra might make it easier for AirAsia to be granted traffic rights in and out of Thailand. Some Thai politicians have already raised concerns about fair competition.¹³³

¹³² *The Business Times*, October 4, 2003

¹³³ *The Bangkok Post*, November 11, 2003

4.6.4 Certification

As a rule, new airlines that want to be registered in a country must undergo some form of certification. The certificate granted is generally referred to as Air Operator Certificate (AOC). There is usually several classes of AOCs, e.g. for charter operations, scheduled operations or freight-only operations and the national aviation authority can impose additional restrictions, e.g. limiting the area of operation to domestic flights or limiting the size of aircraft. The AOC is primarily intended to ensure the future airline has the capabilities to ensure the safe operations of its aircraft. Paragraph 87 of Singapore's Air Navigation Order reads as follows:

“A Singapore aircraft shall not fly on any flight for the purpose of public transport otherwise than under and in accordance with the terms of an air operator certificate granted to the operator of the aircraft (...) certifying that the holder of the certificate is competent to ensure that the aircraft operated by him on such flights are operated safely.”

As this example shows, the terms in an AOC may substantially limit the airline's ability to operate. This is not limited to Asia but applies in most countries. However, several airlines in Asia still enjoy preferential treatment from the government. As aviation authorities have considerable leeway to define the terms of an AOC, this could mean that the certification process could be misused by a government to protect the national carrier. A government could limit the operations of a start-up LCA to domestic flights, thereby limiting the exposure of the flag carrier to the new competition.

4.7 Distribution

4.7.1 The Customers

The overwhelming part of the population in North America and Western Europe can afford to fly, hence are potential customers for LCAs. Since low-income population segments tend to be more price-sensitive than high-income segments, LCA customers tend to have lower incomes and customers of traditional airlines.

In many countries in Asia, more than 50% of the population lives on less than USD 2 a day.¹³⁴ Even in countries that have undergone substantial economic development like Thailand, the average income is only about USD 2,000 per year. Even these relatively high levels of income will not allow people to become regular air travelers.

Chinese consumer groups estimate the income threshold where people start to spend money on air travel to be at CNY 20,000 (USD 2,416) per year.¹³⁵ In 2000, the average annual income in China was USD 855.¹³⁶ Although Chinese incomes grow at over 7% per annum, it will take several decades before a significant part of the Chinese population is able to fly on a regular basis. But if low-cost airlines entered the Chinese market, the CNY 20,000 threshold would probably decrease somewhat as flying would become more affordable. This could substantially stimulate air travel in China.

As discussed earlier, LCAs will be able to draw away a limited number of passengers from surfaced-based modes of transportation. But the most important consumer segment for Asian LCAs will likely be existing air travelers. However, these individuals are usually part of the upper-class and whether this population segment is price-sensitive enough to be convinced by a low-cost alternative, is not quite clear yet. In Asia, people care significantly more about their status. Status-symbols like luxury watches and high-end automobiles are therefore highly valued in many Asian cultures. People who can afford traditional airlines might therefore be reluctant to

¹³⁴ Appendix 2.5

¹³⁵ *South China Morning Post*, July 16, 2003

¹³⁶ World Development Indicators 2002 (World Bank)

switch to low-cost alternatives because it might imply the message of being overly cost-conscious which tends to have a negative connotation in most Asian cultures.

4.7.2 Distribution Channels

The internet is by far the most important distribution channel for most low-cost airlines. Appendix 2.5 shows that internet usage in many countries in Asia is significantly lower than in most Western countries. Except for Japan and a few other developed countries in the region, less than 5% of the population has access to the internet.¹³⁷ This compares to 50% in the US, 41% in the UK and over 25% in most other Western European nations.

As discussed in Chapter 2, direct distribution that allows the bypassing of travel agents and CRS providers, is a key element that distinguishes LCAs from traditional airlines. Due to the lower internet usage rates in Asia, distribution via the internet is likely to be more difficult. Although internet usage in Malaysia is among the highest in Asia, AirAsia's share of online sales is only 45%. This is less than half of what EasyJet or Ryanair sell over the internet.

Although distribution via the internet is very cost-effective, there are other alternatives that might be more suitable for Asia. The second most important distribution channel for many LCAs in North America and Europe is the telephone. In Asia, most people that can afford to fly, have access to a telephone. Call centers might therefore likely become the main distribution channel for Asian LCAs.

Mobile phones are increasingly popular in Asia. Most modern mobile phones allow the user to send and receive short messages via the short message service (SMS). Malaysian LCA AirAsia was the first airline in the world to introduce an SMS booking service.¹³⁸ Mobile phone users can book flights, check airfares and request schedules via SMS. Although the process is still somewhat inconvenient, it might become a popular way to book tickets in Asia.

¹³⁷ Data and definition from UNDP (2002)

¹³⁸ www.airasia.com

4.7.3 Credit Card Usage

At LCAs, all bookings usually require instant payment. So although passengers can usually choose from various distribution channels, credit cards are usually the only accepted form of payment, regardless of the channel used. But as credit card usage is limited in many countries in Asia, LCAs might have to offer alternative methods of instant payment.

Booking a flight on the internet or via a call center and paying the ticket at the airport at the day of travel would be convenient but is not a viable solution because payment is not made at the time of booking. Prepaid cards might be a viable alternative to credit cards. They could be distributed through convenient stores and be used for payments over the internet as well as over the phone. However, a significant amount of passengers in Asia will likely prefer to pay cash. AirAsia therefore opened airport sales offices as well as city offices in most cities it serves. Although they might be important distribution channels, they are also a major cost factor. Distribution via travel agents is also a way to combine instant payment with the possibility to pay cash. AirAsia therefore works together with several “preferred travel agents”. Either the airline will have to provide these agents with some form of commission, or the agents will charge the passengers some sort of booking fee.

4.8 Summary

The discussions in this Chapter have shown that potential LCAs will face challenges in Asia different from elsewhere. Some of the key elements of the LCA business model that were described in Chapter 2 may have to be compromised in order to adjust to the Asian context. Secondary airports are not an option in many major Asian cities, leaving only congested and expensive primary airports as a way to serve these cities. As internet and credit card usage is very limited in most parts of Asia, LCAs might have to use costly distribution channels like travel agents and city offices. International air transportation in Asia remains tightly regulated and government-owned airlines may continue to receive preferential treatments from their respective governments. Competing against the traditional airlines in Asia is going to

be challenging since these airlines have several cost advantages over potential Asian LCAs, most importantly due high aircraft utilization and as a result of flying large aircraft.

Despite these obstacles and difficulties, examples like AirAsia in Malaysia show that it is possible to operate a low-cost airline in Asia. Markets are slowly opening up as governments and other stakeholder realize that it might be in their interest to create an environment that supports the start-up of LCAs in their country. However, traditional Asian airlines will not going to give up their intra-Asia business easily. They will try to retaliate in order to keep their existing business. Chapter 5 will analyze in more detail what the LCA phenomenon means to these traditional Asian carriers.

Although the environment for LCAs in Asia is not as favorable as it might be in North America and Western Europe, the market environment is changing. Disposable income is rising in almost every Asian country, hence, each year, a larger number of people in Asia will be able to afford air transportation. Also the regulatory framework is changing. Important steps have been taken towards liberalizing air transportation in Asia. Domestically, some countries have deregulated air transportation to a large extent. The process of liberalizing international air transportation within Asia, however, remains slow.

5. Implications and Response Options for Major Stakeholders

5.1 Introduction

The airline industry has a large number of stakeholders. Many of them carefully follow the evolution of LCAs around the world as some of these groups may benefit from this trend. Others, including traditional airlines, may observe the success of LCAs more apprehensively because the same stakeholders in North America and Europe have struggled to deal with the growing presence of LCAs. This chapter will look at how four of the most important stakeholder groups are affected by LCAs and how they could potentially react to this phenomenon.

Traditional airlines are the most directly affected stakeholders and the ones with the most to lose. Asian carriers have the advantage of being able to refer to the experiences of traditional airlines in other parts of the world, particularly Europe and North America, and analyze to how these airlines have responded to the growing threat that LCAs pose to them. The implications for Asian carriers will be very similar. Asian carriers can therefore draw upon the possible response options that European and North American carriers have already experimented with.

Airports are important suppliers to the airline industry and therefore affected by changes in the airline industry. While traditional airlines generally have a lot to lose, some airports can potentially benefit from a growing presence of LCAs in Asia.

Countries are also important stakeholders of the airline industry. The general population of a country are potential users of air transportation. The economy as a whole has an interest in an efficient and reliable air transport infrastructure. And some government authorities are particularly important to the airline industry as they create the regulatory framework in which airlines have to operate.

Other modes of transport are also affected because, to some extent, they compete for the same customers. Similar to traditional airlines, the impacts from LCAs on other modes of transport will generally be a negative one. Low-cost airlines mean additional competition for train, buses and ferry operators. Since these modes

are among the main forms of intercity transportation in many parts of Asia, the potential damage that LCAs could cause is substantial.

This chapter will look at traditional airlines, airports, countries and other modes of transport; analyze how these four stakeholder groups are affected and give an overview of how they could potentially respond if LCAs were to emerge in Asia on a large scale.

5.2 Traditional Airlines

5.2.1 Implications

Not surprisingly, the impacts that LCAs have on traditional airlines are largely negative. Many traditional airlines around the world filed for bankruptcy in recent years, including once prestigious airlines like Air Canada, Ansett Australia and Swissair. One of the reasons that led to these and other bankruptcies of airlines was the increasing competition from low-cost airlines.

Traditional airlines are losing customers to LCAs because of the significant difference in fares. Since traditional airlines would like to prevent to loss of customers, they are forced to lower their fares. As a result, many major airlines in North America and Europe experienced declining yields over the last decade.¹³⁹ Since many traditional airlines were also faced with increasing costs at the same time, the profitability of the traditionally low-margined airline industry suffered substantially.

Low-cost airlines tend to be very innovative. JetBlue was the first airline to offer free live satellite TV in every seat.¹⁴⁰ AirAsia was the first airline to allow customers to book flights using the short messaging system (SMS) of mobile phones.¹⁴¹ Traditional airlines are used to competing on various dimensions, such as

¹³⁹ Airline annual reports, IATA statistical reports

¹⁴⁰ www.jetblue.com

¹⁴¹ www.airasia.com

price or frequency. With the start-up of LCAs, there now seems to be a trend towards competing on innovation.

Until recently, Singapore Airlines and its subsidiaries were granted all the traffic rights that the government of Singapore negotiated with other nations. This has been practiced in many Asian countries because they only had one international carrier that could use these rights. With the possibility of international LCAs starting-up in Asia, this is likely going to change. How traffic rights will be allocated to the various competing carriers has not been decided yet. But traditional Asian carriers might no longer be the sole recipients of these traffic rights. They might have to start competing for them.

5.2.2 Response Options

5.2.2.1 Add New Low-Cost Operation

Many traditional airlines decided to start their own low-cost operation in a move to better compete with LCAs. Such efforts have been described in Chapter 2. The experience with this strategy in other parts of the world has been mixed. In the early days of LCAs in the United States, several traditional airlines started their own low-cost operations. None of these early-days low-cost operations still exists today as their business plans might not have been sustainable. Many of these low-cost operations had the same cost structure as the mainline operation; hence the lower fares might not have been able to cover costs. The approach of traditional airlines has changed since then. Most of the low-cost operations of traditional airlines today do have a viable business plan and are meant to be more or less autonomous profit centers.

The degree of independence that the low-cost operation is given from the mainline operation is a crucial question when this strategy is chosen. The low-cost operation could be part of the existing operation, be a separate business unit or even be a separate legal entity. The more independent the low-cost operation is, the greater the flexibility and the lower usually the cost structure because the entity is able to build its own cost structure as opposed to having to operate at the same costs

as the mainline operation. The low-cost operation is able to generate substantial cost savings if it can negotiate separate labor contracts, choose its own distribution channels and is able to develop an independent network and timetable. However, with a high degree of independence, the low-cost operation is likely to start cannibalizing the mainline operation. Many low-cost operations of traditional airlines (e.g. United's Ted, SAS's Snowflake) have been set-up at one of the hubs of the owning airline. Since, these low-cost operations tend to be point-to-point carriers, they directly compete on markets to and from this hub. Since a network airline has a very dominant position at its hubs, these markets tend to be some of the more lucrative ones. To some extent, the LCA operation will start cannibalizing the mainline operation in these markets. This cannibalization effect was one of the main reasons why British Airways sold its low-cost operation GO.¹⁴²

Despite the fact that the results of such a strategy has been very mixed in other parts of the world, several traditional Asian airlines plan to follow such a strategy of adding a low-cost operation. In 2003, both Thai Airways and Singapore Airlines announced that they have plans to start their own low-cost operations.

5.2.2.2 Change Existing Product

Several airlines in North America and Europe changed their existing economy class product in a way to make it more similar to the product of LCAs. In 2003, Swiss International Air Lines changed its economy class product on all its European flights. EasyJet's strong presence in Geneva, the increasing number of foreign LCAs that serve Zurich and the recent start-up of local LCA *Helvetic* all prompted the national carrier to rethink its short-haul economy class product.¹⁴³ Swiss lowered its economy class fares significantly, most of the fares now need to be booked online and the airline no longer offers complimentary inflight meals. All these and other changes were aimed at making the airline's economy class product more similar to the offering of an LCA.

¹⁴² *No Frills*, Simon Calder, 2002

¹⁴³ www.helvetic.com

According to the airline, the move has been successful. In November 2003, Swiss International Air Lines reported the following changes as compared to the time before the product modification.¹⁴⁴

	Relative Change
Yield	-11%
Load Factor	+16%
Revenue per ASK	+3.2%

Table 5.1: Relative changes following the modifications made to Swiss' economy class product

These figures suggest that the demand is price-elastic. The average fare decreased by 11%, which resulted in an increase in demand of 16%. Overall, the airline generates 3.2% more revenue than it did before. On the cost side, the airline will experience savings in the area of passenger service (e.g. catering) and an incremental increase in fuel costs. Total costs are likely going to be lower. Since revenue increased 3.2%, the airline's profitability improved.

Will something like this be viable in Asia? Airlines would experience the challenges of operating a low-cost airline in Asia, which have been discussed in Chapter 4 (long stage lengths, few secondary airports etc.). Furthermore, most of Asia's leading network carriers (e.g. Singapore Airlines, Cathay Pacific, Japan Airlines) have positioned themselves as premium airlines in terms of passenger service. Hence, they will not likely turn parts of their existing products into some form of low-cost offering. And also most of Asia's second tier airlines aim to become premium airlines. Thai Airways' current corporate strategy is entitled *Towards Asian Leadership*.¹⁴⁵ The airline plans to improve passenger services and is therefore not likely going to cut them instead.

If an airline chooses to convert its short-haul economy class product into a low-cost offering, it must take network effects into account. In the case of Swiss, the

¹⁴⁴ Press Release, November 27, 2003 (www.swiss.com)

¹⁴⁵ www.thaiair.com

airline's European network is part of its global network. Depending on the airline's revenue management system, it might be that the additional low-yield demand that is stimulated on European flights displaces connecting traffic to airline's long haul flights. An important role of short-haul flights in the network of a network carrier is to feed passengers to and from long-haul flights. If these connecting passengers do not obtain seats on the short-haul feeder flights they will also be absent on the airline's long-haul flights. Hence, some long-haul flights might no longer be sustained and the long-haul network might shrink.

5.2.2.3 Reduce Costs

A traditional airline might choose not to change its existing product or add a new product but instead to more efficiently produce and distribute its products. Most North American and European airlines have therefore introduced online booking engines, electronic tickets and check-in kiosks. Many of them cut travel agent commissions and also introduced other measures targeted at reducing costs.

The airline industry is a very capital-intensive business. The ability to use assets very efficiently is very important in order to be able to finance them. An airline's fleet – if not leased – ties down large amounts of capital. These capital costs do generally not depend on how much the fleet is being used. Hence, there are substantial cost savings to be gained if the fleet utilization can be improved. Traditional Asian airlines might therefore find ways to maximize their aircraft utilization, e.g. by using modern fleet assignment methods, minimizing turnaround times or offering off-peak flights.

Another step in making the most efficient use of an airline's fleet is to ensure that each flight generates the highest possible revenue. A modern revenue management system is able to fill an airline's daily capacity with those passengers that generate the highest revenue. By replacing a simple revenue management system by a more sophisticated system that takes into account network effects,

traditional airlines can often increase their revenues by 6-8% at relatively low additional costs.¹⁴⁶

5.2.2.4 Aggressive Pricing Response

Delta Air Lines has a major hub in Atlanta; hence the airline has a very dominant position in markets to and from that city. In May 2003, JetBlue launched flights from Atlanta to Long Beach, a secondary airport close to Los Angeles in California. Delta's immediate response was to "slash fares and hike capacity from Atlanta to all of its destinations in and around Los Angeles by nearly 50%".¹⁴⁷ Despite being funded very comfortably, JetBlue decided to move out of Atlanta after several month of fierce competition with Delta.

Since traditional airlines tend to have stronger financial resources and are generating revenues in many different markets, they are able to sustain a price war in one specific market without significant impacts on the company's overall financial performance. LCAs depend much more on the profitability of each market and they usually do not have the financial resources to sustain price wars over several months.

Although appealing, a traditional airline cannot start price wars in all markets that are under attack. Making a market unattractive for an LCA by cutting fares and increasing capacity is only a viable strategy if the LCA can turn to more attractive markets. If all traditional airlines would start price wars in all cities that are under attack by LCAs, LCAs would have no other cities to turn to. If price wars are used only in a few selected cities, LCAs might be kept away from very lucrative markets by allowing them enter less important ones. However, it will only be a matter of time before LCAs will want to enter these lucrative markets, too. JetBlue might decide to go back to Atlanta a few years from now. Responding to the threat of LCAs by price wars is therefore only a short to medium-term strategy. Price wars have no impact on the competitiveness of traditional airlines.

¹⁴⁶ PROS Revenue Management (www.prosrm.com)

¹⁴⁷ *Business Week*, November 24, 2003

In addition to that, Delta's price and capacity conduct might potentially be considered predatory by its competitors or government authorities, which might not be legal under the laws of the United States. An airline that chooses to start a price war with an LCA therefore takes the risks of being sued over predatory price and capacity conduct.

5.2.2.5 *Repositioning*

Traditional airlines could also reposition themselves in a way that makes them less exposed to competition from LCAs. There are various strategies to achieve this.

As of today, no low-cost airline offers long-haul flights of more than 8 hours. The reasons for this were explained in Chapter 2. Airlines like Virgin Atlantic offer long-haul flights only. These airlines do not directly compete with LCAs and are therefore not affected by the increasing presence of LCAs. Traditional airlines might therefore choose to focus their growth strategy on their long-haul network.

Another strategy is to exploit the advantages of a hub. By consolidating demand at a hub it is possible to produce flight itineraries more efficiently. *Joint Production* in the airline industry means that parts of individual itineraries can be produced jointly. Delta's flight DL 219 from Boston to Atlanta produces part of the Boston – Atlanta – Miami itinerary as well as part of the Boston – Atlanta – Denver itinerary. Since LCAs tend to be point-to-point carriers, they are not able to do this. Whereas LCAs need to serve markets with substantial local OD traffic, network airlines can serve cities with relatively little local OD demand by consolidating demand from that city to multiple destinations at their hubs. In many cases, regional jets might be appropriate for such operations.

Another strategy is to focus on yield as opposed to passenger numbers. If a traditional airline loses passengers to LCAs, it might try to defend its yields rather than keeping passenger by lowering fares. British Airways has chosen this strategy in recent years. The airline tried to reduce the share of connecting traffic and tried to focus on the generally more lucrative local OD traffic. British Airways also improved its Business and First Class product. In addition to that, a fourth service class, *World*

Traveller Plus, was introduced on long-haul flights. All these measures were targeted to increase total revenue, both by attracting more customers and increasing the revenue collected from each existing customer.

Another option might be to strengthen the airline's cargo division. Many of the most profitable airline companies in the world (e.g. Singapore Airlines, Emirates) earn a substantial part of their group-level revenues from their cargo division. Such a strategy might be particularly attractive for Asian airlines as cargo traffic in and out of Asia is forecasted to grow substantially in the coming years.¹⁴⁸ Increased cargo revenues could offset some of the lost passenger revenues.

5.3 Airports

5.3.1 Implications

Airports generate aeronautical revenues and non-aeronautical revenues. Aeronautical revenues includes landing fees, aircraft parking fees as well as passenger service charges and is collected from the airlines or directly from the passengers. Non-aeronautical revenues include rental income from shops, airline and other outlets, car parking revenues as well as payments from other concessionaires on the airport premises.

LCAs tend to be more cost-conscious than traditional airlines. However, the scope with which airlines can influence the costs they incur at any given airport is limited. Therefore, LCAs have to pay the same landing charges as traditional airlines. The experience in other parts of the world has shown that low-cost airlines tend to favor gates that are less convenient for passengers but cheaper for the airline. Asian airport operators may therefore experience an increased demand for such gates. Also, many Asian LCAs will likely start as domestic carriers. Since at many Asian airports, domestic flights depart from a different terminal than international flights, the additional demand for gates will probably be highest at the domestic terminal.

¹⁴⁸ Airbus Global Market Forecast

Many Asian airports (e.g. Bangkok) charge an airport tax for departing passengers but not for connecting passengers. Since most LCAs carry relatively little connecting passengers, airports authorities will be able to charge this tax from virtually all LCA passengers.

Asian airport operators will also feel an impact on non-aeronautical revenues. LCAs usually do not offer any airport lounges or other large passenger facilities at airports. Operating airport sales offices is also very uncommon for LCAs. Therefore, rental income from LCAs will be relatively low compared to traditional airlines.

As explained in Chapter 4, LCAs use significantly smaller aircraft than traditional airlines. If LCAs succeed in competing for traffic of traditional airlines, the number of aircraft movements will increase significantly. Additionally, the lower fares will also stimulate additional traffic. This will increase the number of aircraft movements even more. This could lead to congestion problems at certain major Asian airports.

5.3.2 Response Options

Since LCAs are very cost-conscious and generally not interested in added services, airport operators might turn to passengers in order to grow their revenues. Particularly food and beverage outlets might turn out to be a profitable strategy since LCAs generally do not offer free meals on board. LCAs in Europe and North America serve many airports that are somewhat farther away from any major city. A substantial share of passengers arrives at the airport by private car. Extensive car parking facilities might therefore be another revenue-generating option for airports that are served by LCAs.

Passenger numbers are likely going to grow if a LCA starts servicing an airport, particularly if the airline decides to make the airport one of its focus cities. On the one hand, the rising traffic numbers could lead to increased congestion at major Asian airports. These airports might therefore decide to discourage the use of smaller aircraft with the establishment of appropriate policies and fees. On the other hand, increasing passenger numbers might be favorable for underutilized regional airports.

They could attract LCAs by offering attractive conditions for the use of their facilities. Several European airports have done this. The legality of such strategies is currently examined by the EU. In Asia, this is not likely going to happen as the legal systems tend to be less elaborate in the area of the legality of government subsidies.

In the long run, airports might include the needs of LCAs in their expansion plans. If LCAs will become a common sight at Asian airports, the average aircraft size in Asia will decrease to some extent. While most Asian airports were built to accommodate wide-body aircraft, these airports might decide to build smaller gates and parking positions to more efficiently accommodate the increasing number of narrow-body aircraft. Also, if passenger numbers increase and additional runways are needed, Asian airports no longer need to build long runways that were needed to accommodate wide-body aircraft. The increasing fleet of narrow-body aircraft in Asia might justify building shorter runways to supplement existing capacity.

5.4 Countries

5.4.1 Implications

Chapter 4 explained that many Asian countries would benefit from a more liberal aviation industry because the lower cost of air travel would positively affect social welfare. Not only users of air transportation would benefit, also related industries such as the hospitality industry would likely experience positive impacts.

However, if a country creates legal and economic frameworks that encourage the start-up of LCAs and other private airlines, the country's flag carrier is likely going to suffer. Since LCAs will provide many short-haul services that existing airlines do, countries do not have to fear to lose any important internal air services because of that. However, if the profitability of short-haul routes begins to suffer, traditional airlines might no longer be willing to cross-subsidize unprofitable domestic routes that they have been asked to serve by the government as part of a national air transport infrastructure. If governments allow LCAs to start-up, they may need to allow the

national carrier to give up these unprofitable routes in order to ensure that the flag carrier is able to effectively compete with LCAs.

Many Asian countries used to have one single airline, often a state-owned enterprise. The traffic rights that the government negotiated with other countries were all granted to this airline. As Asian LCAs might decide to fly international routes, the allocation of traffic rights will become more difficult. Obtaining traffic rights fundamentally affects the business opportunities of any international airline. How these rights are distributed among competing airlines is therefore a crucial question. Governments must decide how to handle this potentially controversial problem.

5.4.2 Response Options

The citizens of countries that are served by low-cost airlines today tend to think positively of the introduction of LCAs. Many Asian countries might therefore follow the examples of countries in Europe and North America and try to create an aviation environment that supports the start-up of domestic LCAs. For several Asian countries this will require substantial deregulation efforts.

As explained, Asian governments might also need to start allocating international traffic rights among the various competitors. A reasonable approach would be to choose an allocation scheme that benefits the country as a whole. The transport ministry of Singapore said it would allocate traffic rights in a way that “maximizes national interest and social benefit”.¹⁴⁹ This strategy is theoretically sound but practically, it is not clear what a social-benefit-maximizing traffic right allocation should look like.

Many Asian countries continue to provide preferential treatment to their flag carriers. As long as that carrier is the only carrier in the country, governments could argue that treating the national carrier better than foreign carriers is in the national interest and choose to do this even though it might not be in accordance with WTO regulations. However, if there is more than one carrier in that country, preferential

¹⁴⁹ *The Business Times*, October 4, 2003

treatment of one carrier could result in unfair competition; hence treating the flag carrier better might no longer be in the national interest.

Most governments want all regions of the national territory to have access to the country's transportation infrastructure. As countries get richer, the air transportation network becomes an integral part of the country's transportation infrastructure. However, it might not always make commercial sense to serve all regions of a country by air. Several Asian governments therefore force their flag carriers to serve these unprofitable routes. In return, the flag carrier enjoys some form of preferential treatment. But with the potential of the start-up of domestic LCAs, Asian governments may have to rethink these arrangements as such interventions could result in unfair competition.

5.5 Competing Modes of Transport

5.5.1 Implications

The implication of growing LCAs on competing modes of transport is one of increased competition. Traditionally, air transport is one of the most convenient and most expensive modes of transport. LCAs will therefore take away the customers from other modes of transport.

It will be the convenient-conscious train, bus and ferry passengers with a relatively low price-elasticity that are most likely to switch to air transportation. Due to this low price elasticity of the customers that have been lost, it makes little sense for operators of other modes of transport to lower their fares. It is unlikely that they can win back these customers by lowering fares as this would not significantly influence their decision which mode to choose. The increased competition from LCAs will therefore not directly put pressure on the fares of other modes of transport.

5.5.2 Response Options

Rail and bus operators must have an incentive to keep these lucrative customers. Because of the low-price elasticity of the customers concerned, the response strategy would be one of increasing the level of service as opposed to lowering fares. Rail and bus have several advantages over air transport. Apart from being less costly, they can provide downtown-to-downtown services. The total trip time for short journeys by air can be substantially longer than just the flying time because airports are located some distance from the city center and because of the time spent at the origin and destination airports. Surface-based modes of transport might therefore decide to build on these competitive advantages. If operators decide to start lowering fares, the level-of-service, which in several Asian countries is already relatively low, will decrease even further, possibly making even more customers switch to LCAs.

5.6 Summary

In North America and Europe, low-cost airlines have transformed the airline industry significantly over the past two decades. Many stakeholders of the Asian airline industry therefore anxiously follow the development of the first low-cost airlines in Asia. For some groups, there might be a lot to gain, others might have a lot to lose.

By looking at what has happened in other parts of the world, traditional Asian airlines rightly worry about start-up LCAs in the region. However, traditional carriers in Asia have the advantage of being able to learn from other traditional airlines around the world, that have been competing with LCAs for quite some time now. There is a range of response options that might help to make traditional airlines more competitive against LCAs. Several big Asian carriers have already made their first steps in that direction.

Also Asia's airports will feel an impact should LCAs succeed in Asia. The experience in North America and Europe has shown that doing business with LCAs can be very attractive for some airports. But there will also be challenges for Asian airports, particularly for major ones. If LCAs can strengthen their presence in Asia,

aircraft movements might grow significantly, which could lead to severe congestion problems at some airports.

Since the general population is likely to benefit from a more competitive market for air transportation, government authorities are likely to encourage the start-up of LCAs. But first, many countries will have to substantially liberalize their domestic aviation market before LCAs might start up. And for international air transport, the way in which governments allocate traffic rights is going to be of fundamental importance.

Surface-based modes of transportation make up the backbone of the national transportation infrastructure in most Asian countries. But as with LCAs, the cost of air travel will decrease substantially, there might be a shift from surface-based modes of transportation to LCAs. Particularly train, bus and ferry operators could therefore lose some of their most lucrative customers.

If LCAs in Asia will succeed, the Asian airline industry will undoubtedly undergo substantial changes. The impacts will be felt by traditional Asian carriers and far beyond. For some stakeholders, it will be very difficult to respond to this challenge. In Europe and North America, several have failed to survive.

6. Summary

Low-cost airlines have been very successful in North America and Europe. They are among the fastest growing and most profitable airlines in these regions. The LCA business model has a proven record of success on both sides of the Atlantic and has influenced traditional airlines, air transport users, airport operators and many other stakeholders alike. The question seems therefore justified: Is there a potential for low-cost airlines in Asia?

LCAs are essentially in the same business as traditional airlines: operating a fleet of aircraft and selling the produced capacity to potential users. Both traditional and low-cost carriers offer the same core service, air transport from A to B. Although traditional airlines and LCAs are essentially in the same business and offer the same core service, they significantly differ in how this service is produced and distributed. Some of the key elements that low-cost airlines use include operating flight with short stage lengths, use of uncongested secondary airports, homogeneous fleet, short turnaround times and carrying relatively few connecting passengers. All these and other key elements that are frequently found among LCAs have one common goal: high utilization of assets.

Distribution is another area where LCAs choose a different approach. Established airlines have traditionally distributed their services through travel agents and computer reservation systems. To a great extent, LCAs sell their services directly to their customers and are therefore able to bypass these intermediaries; hence they do not incur the applicable costs.

With these and other strategies, LCAs are able to generate substantial cost savings, which allow them to offer relatively low airfares. LCAs can therefore stimulate new demand that traditional airlines have traditionally decided not to satisfy. Hence, LCAs do not simply draw away passengers from traditional airlines, they attract passengers from other modes of transport and also stimulate completely new travel demand.

Southwest is generally regarded as being the first low-cost airline in the history of aviation. The airline made its maiden flight on June 18, 1971. The domestic US airline industry has seen many more low-cost entrants since then. Today, US LCAs account for more than 20% of capacity in the domestic US market.¹⁵⁰ In the late nineties, LCAs began to emerge in Europe, equally successful. Why shouldn't Asia experience the same phenomenon? Homogenous fleet, distribution via the internet and short turnaround times must also be possible in Asia. Hence, at first sight, one could conclude that the LCA business model should also be viable in Asia. However, as this thesis analyzed in Chapter 3, the airline industry in Asia is different from the rest of the world in several respects.

Many markets in Asia remain highly regulated, which poses a substantial obstacle to prospective LCAs. Until recently, the Government of Thailand set minimum domestic airfares to US¢ 9.8 per kilometer.¹⁵¹ Although slowly disappearing, such profound government interventions create a very difficult environment for LCAs to operate.

Many traditional Asian carriers are state-owned, often with close links to the government and its regulating authorities. In many cases, traffic rights for lucrative international routes might be very difficult to obtain. Due to the absence of a powerful regional entity, such as the EU in Europe, the Asian airline industry is not likely going to see substantial multilateral liberalization efforts.

Another potential stumbling block for Asian LCAs is the fact that traditional Asian carriers have among the world's lowest unit costs. This is mainly due to lower input costs, the large fleet of wide-body aircraft as well as the relatively long stage-lengths that characterize these airlines. As a result, Singapore Airlines' unit costs are 59% lower than the unit costs of American Airlines.¹⁵² Asian LCAs will also enjoy the lower input costs in Asia, however, not all cost advantages that make Singapore Airlines' unit cost so low will be applicable to an Asian LCA. For instance, if an LCA starts flying from Singapore to Bangkok, its 150 narrow-body aircraft will have to compete with 390-seat wide-body aircraft from Singapore Airlines that has much

¹⁵⁰ *Business Week*, November 24, 2003

¹⁵¹ *The Nation*, November 21, 2003

lower unit costs. It is therefore not clear yet whether the LCA business model will be able to reduce costs low enough to be able to compete with established Asian airlines.

Another challenge Asian LCAs have to confront is that in many parts of Asia, the aviation infrastructure is far less developed than in North America or Europe. For instance, suitable secondary airports are not as widely available as in other parts of the world. Many important Asian cities have only one primary airport, often congested at peak-times. Slots for departures and arrivals at convenient times for passengers might therefore be hard to obtain in some cases.

Low-cost airlines generate a significant part of their cost savings in the area of distribution. The internet and credit cards are usually two core elements in any distribution strategy of an LCA. However, in many parts of Asia, internet and credit card usage remains relatively low, which might potentially hinder a lean and cost-efficient way of distributing services. Some existing Asian LCAs therefore work together with selected travel agents or operate city sales offices.¹⁵³ Although convenient for the customer, these are very expensive distribution channels compared to online distribution.

Despite these and other challenges, Asia might still attract start-up LCAs. The economic development in many Asian countries has been very substantial in recent years with disposable incomes rising in most Asian countries. As people become wealthier, they spend an increasing percentage of their disposable income on leisure-related activities such as traveling. As Asian nations become wealthier and more industrialized, the population will also enjoy more free time. IATA, Airbus and many other organizations therefore forecast the demand for air travel in Asia to grow substantially in the coming years. Many forecasts predict Asia to grow significantly faster than most other regions in the world. Airbus even predicts Asia to become the world's largest market for air transportation by 2020.¹⁵⁴ The fact that LCAs are going to charge significantly lower fares than traditional Asian carriers will stimulate

¹⁵² Appendix 2.7

¹⁵³ e.g. AirAsia (www.airasia.com)

¹⁵⁴ Airbus Global Market Forecast (2002)

additional demand for air transportation in Asia and might therefore support such optimistic growth predictions.

Another promising development is that several countries in Asia have made the first steps towards a more liberalized aviation environment. Although it is going to be a slow process, Asian LCAs will likely benefit from such changes in the regulatory framework.

The airline industry is a highly interconnected industry. On the one hand, various stakeholders will affect the potential success of LCAs in Asia. Low-cost airlines in Asia will particularly depend on Asian governments to liberalize domestic and international markets for air transportation. On the other hand, many stakeholders will be affected by LCAs. Especially traditional Asian airlines will feel the impact of increased competition from low-cost airlines. The growing presence of LCAs in Europe and North America was one of the reasons why traditional airlines like Air Canada, United Airlines or Swissair filed for bankruptcy. Established Asian carriers therefore follow the development of Asian LCAs very carefully. Operators of other modes of transport might also feel the additional competition from LCAs. As a result, Asia's users of transportation will likely benefit from the increased competition and lower cost of air travel.

During the time this thesis has been written, the discussion about LCAs in Asia has become increasingly popular and the Asian airline industry has seen a growing number of start-up LCAs. Several independent LCAs have been launched and many more have been announced. Malaysia's AirAsia, one of the very first Asian LCAs, continues to gain ground domestically and has started to expand internationally so that traditional airlines in Southeast Asia feel the need to take action. Singapore Airlines has teamed up with the founders of Ryanair and is expected to formally launch its low-cost subsidiary Tiger Airways in the second half of 2004. Mr. Chew Choon Seng, CEO of Singapore Airlines, recently said: "SIA recognizes the potential for low-cost travel in this part of the world and wishes to participate in this new

segment of the market.”¹⁵⁵ These and other recent developments might indicate that low-cost airlines will indeed be a part of the future Asian airline industry.

This thesis was an attempt to assess the potential for low-cost airlines in Asia. As mentioned, the Asian airline industry will undergo substantial changes in many respects. Particularly the fact that there seems to be a development towards a more liberal aviation environment in some parts of Asia will have substantial impacts on many stakeholders. The LCA phenomenon will only be one aspect of this evolution.

Areas of Further Research

This thesis has tried to assess the potential for low-cost airlines in Asia. The area that has been researched is highly dynamic and continues to evolve. There are several aspects that may ask for further investigation.

The focus of this thesis has been Asia, motivated by the growing importance of Asia as a market for air transportation. However, several low-cost airlines have recently started up in other parts of the world, including Africa and South America. As much as Asia differs from the rest of the world, so will other regions have their own distinct characterizes that will affect the potential for low-cost airline there. Future research might therefore investigate the LCA phenomenon in other parts of the world or detached from any regional focus.

Even in some of the more mature markets for air transportation like the domestic United States, where LCAs have been in business for quite some time now, LCAs continue to draw away passengers from established airlines as well as other modes of transport. In case this trend is bound to reach an equilibrium, it has not been reached yet because the growth rate of LCAs continues to be significantly higher than the one of established airlines. Whether an equilibrium will be reached and how it might look like could also be part of further research.

The business model of low-cost airlines has been analyzed in Chapter 2 of this thesis. Some of the key elements that make LCAs so competitive in the marketplace

¹⁵⁵ www.tigerairways.com

may be transferred to other modes of transportation or even to other industries. Lean production of goods and services or cost-efficient distribution, two key elements in the low-cost airline business, are also responsible for the success behind companies like Dell or Amazon. Research into what other modes of transport and other industries might learn from LCAs could turn out to be a very rewarding areas of investigation.

References

- Calder, Simon: *No Frills - The Truth Behind The Low-Cost Revolution In The Skies*; Virgin Books; London (2002)
- De Neufville, Richard; Odoni, Amadeo: *Airport Systems - Planning, Design and Management*; McGraw-Hill, New York (2003)
- Doganis, Rigas: *Flying Off Course - The Economics of International Airlines (3rd edition)*; Routledge; New York (2002)
- Doganis, Rigas: *The Airline Business in the 21st Century*; Routledge; New York (2001)
- Donoghue, Karen: *Built for Use - Driving Profitability Through User Experience*; McGraw-Hill; New York (2002)
- Findlay, Christopher; Sien, Chia Lin; Singh, Karmjit: *Asia Pacific Air Transport - Challenges and Policy Reforms*; Institute of Southeast Asian Studies; Singapore (1997)
- Freiberg, Jackie; Freiberg, Kevin: *Nuts! Southwest Airlines' Crazy Recipe for Business and Personal Success*; Broadway Books, New York (1998)
- Gittell, Jody Hoffer: *The Southwest Airlines Way - Using the Power of Relationships to Achieve High Performance*; McGraw-Hill; New York (2003)
- Hufbauer, Gary Clyde; Findlay, Christopher: *Flying High - Liberalizing Civil Aviation in the Asia Pacific*; Institute for International Economics; Washington DC (1996)
- Jenkins, Daryl: *An Examination Why New Entrant Airlines Fail*; The George Washington University; Washington DC (1998)
- Lawton, Thomas C.: *Cleared for Take-Off - Structure and strategy in the low fare airlines business*; Ashgate; London (2002)
- Nicholson, Walter: *Microeconomic Theory (6th edition)*; The Dryden Press; Fort Worth 1995
- O'Connor, William E.: *An Introduction to Airline Economics (6th edition)*; Praeger; Westport (2001)
- Oum, Tae Hoon; Yu, Chunyan: *Shaping Air Transport in Asia Pacific*; Ashgate; London (2000)

Appendix 1.1

Low-Cost Airlines: Product information

	Southwest	JetBlue	EasyJet	Ryanair	VirginBlue	AirAsia
use of secondary airports	high	mixed	mixed	very high	low	low
hubs / focus cities	multiple	multiple	multiple	multiple	multiple	one ¹
connecting passengers	significant	insignificant	insignificant	insignificant	significant	insignificant
available at travel agents	yes	yes	no	no	yes	yes
share of direct online sales	50%	63%	91%	94%	no data	45%
paper tickets	no	no	no	no	no	no
seat density (pitch)	32-33 inch	32-34 inch	29 inch	30 inch	32 inch	29 inch
cargo services	yes	yes	no	no	yes	no
partnerships with airlines	no	no	no	no	yes ²	no
frequent flyer program	yes	yes	no	no	no	no
share of international flights	none	none	high	high	none ³	low

sources: airline websites, airline annual reports, Skytrax (airlinequality.com), Air Transport World (atwonline.com), CAA (caa.co.uk), USA Today (usatoday.com), Air Transport Intelligence (rati.com), Hoover's (hoovers.com)

¹ AirAsia plans to develop Senai Airport into a second hub.

² With REX (Regional Express)

³ Virgin Blue has recently applied for traffic rights to New Zealand and other international destinations in the South Pacific.

Appendix 1.2

Low-Cost Airlines: Financial and Operational Information

	Southwest	JetBlue	EasyJet	Ryanair	VirginBlue	AirAsia
load factor	65.9%	83.0%	84.8%	84.0%	79.4%	70%
RPK ('000)	73,035,572	10,998,847	9,218,000	10,200,000	3,924,000	no data
yield (US cents per RPK)	7.32	5.59	9.71	8.37	4.92	2.54
unit cost (US cents per ASK)	4.61	4.00	7.26	5.56	3.43	1.64
aircraft utilization (h/day)	11.2	12.9	11.1	no data	no data	no data
operating margin	7.6%	16.5%	12.4%	31.3%	16.7%	9.4%
average fare (USD)	85	107	92	54	89	no data
number of employees	33,705	3,823	3,100	1,897	1,421	812
number of aircraft types	1	1 ⁴	2 ⁵	1	1	1
number of aircraft	383	47	70	59	35	7
int'l / total destinations	0 / 58	0 / 22	76 ⁶ / 84	76 ⁷ / 80	0 / 17	0 / 13
annual passengers (mill)	63.0	5.8	11.4	15.7	2.3	no data
avg passenger haul (km)	1,159	1,896	809	650	1,706	no data
aircraft/destinations ratio	6.6	2.1	0.8	0.7	2.1	0.5
ASK per employee	3,288	3,466	3,506	6,401 ⁸	2,897	no data

sources: airline websites, airline annual reports, Skytrax (airlinequality.com), Air Transport World (atwonline.com), CAA (caa.co.uk), USA Today (usatoday.com), Air Transport Intelligence (rati.com), Hoover's (hoovers.com)

⁴ JetBlue plans to add 100 Embraer 190 aircraft to its fleet starting 2005.

⁵ EasyJet is currently in transition from a B737 fleet to an A319/A320 fleet.

⁶ Only 3 of EasyJet's 76 international destinations are outside the EU.

⁷ Only 2 of Ryanair's 76 international destinations are outside the EU.

Appendix 1.3
Established Airlines: Product Information

	American	Continental	Lufthansa	British Airways	Qantas	SIA
use of secondary airports	no	no	no	no	no	no
hubs / focus cities	multiple	multiple	two	two ⁹	multiple	one
connecting passengers	significant	significant	significant	significant	significant	significant
available at travel agents	yes	yes	yes	yes	yes	yes
share of direct online sales	no data	no data	no data	no data	no data	no data
paper tickets	yes ¹⁰	yes ¹¹	yes	yes	yes	yes
seat density (pitch)	33-35 inch	31-33 inch	31 inch	31 inch	31 inch	32 inch
cargo services	minor	minor	major	major	major	major
partnerships with airlines	yes (oneWorld)	yes	yes (Star)	yes (oneWorld)	yes (oneWorld)	yes (Star)
frequent flyer program	yes	yes	yes	yes	yes	yes
share of international flights	low	low	high	high	medium	100%
low-cost airline subsidiary	evaluating	abandoned	indirect stake ¹¹	sold	evaluating	evaluating

sources: airline websites, airline annual reports, Skytrax (airlinequality.com), Air Transport World (atwonline.com), CAA (caa.co.uk), USA Today (usatoday.com), Air Transport Intelligence (rati.com), Hoover's (hoovers.com)

⁹ London-Heathrow and London-Gatwick could together be considered a single multi-airport hub.

¹⁰ For itineraries which allow e-ticketing, AA and CO charge an additional fee to passengers wishing a paper ticket.

¹¹ Germanwings is an LCA fully owned by Eurowings. Lufthansa has a minority stake in Eurowings.

Appendix 1.4

Established Airlines: Financial and Operational Information

	American	Continental	Lufthansa	British Airways	Qantas	SIA
load factor	70.7%	74.2%	73.9%	71.9%	78.3%	74.5%
RPK ('000)	195,897,000	92,191,000	88,600,000	100,112,000	75,134,000	74,183,000
yield (US cents per RPK)	7.37	7.23	13.78	10.67	8.21	5.26
unit cost (US cents per ASK)	6.92	5.73	9.50	8.61	6.20	3.88
aircraft utilization (h/day)	10.1	10.8	9.2	9.4	11.6	11.0
operating margin	-15.2%	-0.1%	4.6%	3.8%	6.0%	6.8%
average fare (USD)	168	197	267	296	219	252
number of employees	93,500	48,000	29,494	57,014	33,044	14,418
number of aircraft types	8	5	8	6	5	3
number of aircraft	771	347	215	241	135	79
int'l / total destinations	63 / 204	59 / 223	144 / 157	204 / 215	21 / 38	54 / 55
annual passengers (mill)	94.1	40.0	43.9	38.0	27.1	15.3
avg passenger haul (km)	2,082	2,304	2,018	2,635	2,772	4,849
aircraft/destinations ratio	3.8	1.6	1.4	1.1	3.6	1.4
ASK per employee	2,963	2,588	4,065	2,442	2,904	6,906

sources: airline websites, airline annual reports, Skytrax (airlinequality.com), Air Transport World (atwonline.com), CAA (caa.co.uk), USA Today (usatoday.com), Air Transport Intelligence (rati.com), Hoover's (hoovers.com)

Appendix 2.1 Airline Associations

Air Transport Association of America	Association of European Airlines	Association of Asia Pacific Airlines
Alaska Airlines	Adria Airways	Air New Zealand
Aloha Airlines	Aer Lingus	All Nippon Airways
America West Airlines	Air France	Asiana Airlines
American Airlines	Air Malta	Cathay Pacific Airways
American Trans Air	Alitalia	China Airlines
Atlas Air	Austrian	Dragonair
Continental Airlines	BMI	EVA Air
Delta Air Lines	British Airways	Garuda Indonesia
Hawaiian Airlines	Croatia Airlines	Japan Airlines
JetBlue Airways	CSA Czech Airlines	Korean Air
Midwest Express Airlines	Cyprus Airways	Malaysia Airlines
Northwest Airlines	Finnair	Philippine Airlines
Southwest Airlines	Iberia	Qantas Airways
United Airlines	Icelandair	Royal Brunei Airlines
US Airways	JAT Yugoslav Airlines	Singapore Airlines
	KLM	Thai Airways International
	LOT Polish Airlines	Vietnam Airlines
	Lufthansa	
	Luxair	
	Malev	
	Meridiana	
	Olympic Airways	
	SAS Scandinavian Airlines	
	SN Brussels Airlines	
	Spanair	
	Swiss International Air Lines	
	TAP Air Portugal	
	TAROM	
	Turkish Airlines	
	Virgin Atlantic	

Only includes passenger airlines. Does not include associate members. Not all airlines may participate in all reports used in this thesis. Memberships as of October 1, 2003.

Appendix 2.2
Ownership of AAPA Member Airlines

Flag Carriers	Country	Share
China Airlines	<i>Taiwan</i>	<i>71.4%</i>
Malaysia Airlines	<i>Malaysia</i>	<i>50.9%</i>
Royal Brunei Airlines	<i>Brunei Darussalam</i>	<i>100%</i>
Singapore Airlines	<i>Singapore</i>	<i>56.8%</i>
Thai Airways	<i>Thailand</i>	<i>93.0%</i>
Vietnam Airlines	<i>Vietnam</i>	<i>100%</i>

Private Carriers	Country	Important Shareholders
All Nippon Airways	<i>Japan</i>	<i>none</i>
Asiana Airlines	<i>South Korea</i>	<i>Kumho Industrial Co. (29.8%)</i> <i>Kumho Petrochemical Co. (15.1%)</i>
Cathay Pacific	<i>Hong Kong SAR</i>	<i>Swire Group (45.1%)</i> <i>Citic Pacific (25.4%)</i>
Dragonair	<i>Hong Kong SAR</i>	<i>China National Aviation Co. (43.3%)</i> <i>Citic Pacific (29.4%)</i> <i>Cathay Pacific (17.8%)</i>
EVA Air	<i>Taiwan</i>	<i>Evergreen Marine Corp. (13.5%)</i> <i>Evergreen International Corp. (25.3%)</i>
JAL	<i>Japan</i>	<i>none</i>
Korean Air	<i>South Korea</i>	<i>Mr. Yang-Ho Cho & Family (30.8%)</i>
Philippine Airlines	<i>Philippines</i>	<i>Lucio Tan (53.8%)</i>

source: Reed Business Information (www.rati.com)

Appendix 2.3
Top-Ten AAPA City Pairs 2002

		Traffic	Airlines	Distance	Time	Weekly Frequency	Load Factor
Hong Kong	Taipei	6,527	6	804	1:40	265	53.9%
Kuala Lumpur	Singapore	2,909	8	296	0:55	84	80.3%
Bangkok	Singapore	2,690	10	1,442	2:20	89	63.8%
Bangkok	Hong Kong	2,517	11	1,682	2:55	87	59.5%
Hong Kong	Singapore	2,232	4	2,560	3:45	84	54.8%
Seoul	Tokyo	2,214	8	1,262	2:20	87	58.1%
Taipei	Tokyo	2,079	7	2,181	3:10	63	66.8%
Hong Kong	Tokyo	1,933	5	2,961	4:10	70	56.0%
Hong Kong	Seoul	1,847	4	2,060	3:25	63	64.2%
Hong Kong	Manila	1,774	4	1,144	2:00	59	64.4%

Traffic: total number of passengers per day each way on AAPA airlines (includes connecting traffic)
Airlines: number of airlines serving offering direct services between the city pair (AAPA and others)
Distance: distance in kilometers
Time: scheduled block-time
Weekly Frequency: weekly frequencies of AAPA airlines
Load Factor: load factor (using October 2003 capacity data from OAG)

sources: Reed Business Information (www.rati.com), OAG

Appendix 2.4
Airline Operating Costs

Cost Item	US¢ per ATK			% of total operating costs		
	North America	Europe	Asia	North America	Europe	Asia
Flight Crew	5.3	3.5	1.4	11.3%	6.4%	4.1%
Fuel and Oil	6.5	7.0	6.4	13.9%	12.6%	18.4%
Flight Equipment Insurance	0.0	0.1	0.2	0.0%	0.1%	0.5%
Rental of Flight Equipment	2.4	3.7	3.1	5.1%	6.6%	8.8%
Flight Crew Training	0.0	0.2	0.1	0.0%	0.3%	0.4%
Other Flight Expenses	0.4	0.0	0.2	0.9%	0.0%	0.7%
Maintenance and Overhaul	5.4	5.6	3.2	11.5%	10.2%	9.2%
Depreciation and Amortization	2.6	3.4	3.0	5.6%	6.1%	8.7%
Total Direct Operating Costs	22.6	23.5	17.7	48.2%	42.4%	50.8%
Airport Charges	0.7	2.4	1.3	1.5%	4.3%	3.8%
Enroute Charges	0.5	2.3	1.3	1.0%	4.2%	3.8%
Station Expenses	7.0	7.5	2.5	14.9%	13.5%	7.2%
Passenger Service	5.2	7.0	4.0	11.2%	12.7%	11.6%
Ticketing and Sales	6.6	8.5	5.0	14.1%	15.3%	14.2%
General and Administrative	2.4	4.2	1.3	5.2%	7.6%	3.7%
Other Operating Expenses	1.8	0.1	1.7	3.8%	0.1%	4.9%
Total Indirect Operating Costs	24.2	31.9	17.2	51.8%	57.6%	49.2%
Total Operating Costs	46.8	55.4	34.9	100.0%	100.0%	100.0%

North America: American Airlines, Continental Airlines, Delta Air Lines, Northwest Airlines, United Airlines

Europe: Air France, British Airways, KLM, Lufthansa, SAS

Asia: Japan Air Lines, Korean Air, Malaysian Airlines, Singapore Airlines, Thai Airways

source: compiled using ICAO (2000) data

Appendix 2.5
Key Socioeconomic Indicators of South-East Asian Nations

	Income	Less Than 2 USD/Day	Air Passengers	Urbanization	Passenger Cars	Internet Users
Bangladesh	359	82.2%	10	25%	0	0.1%
Cambodia	265	<i>no data</i>	<i>n/a</i>	16%	0	0.1%
China	855	47.3%	49	32%	1	1.8%
Hong Kong SAR	23,918	<i>no data</i>	2'117	100%	42	38.3%
India	450	79.9%	17	28%	2	0.5%
Indonesia	728	55.4%	45	41%	7	1.0%
Japan	38,153	<i>no data</i>	854	79%	283	37.1%
Korea	9,666	<i>no data</i>	726	82%	48	40.3%
Laos	322	73.2%	40	24%	6	0.1%
Malaysia	3,848	9.3%	711	57%	101	15.9%
Myanmar	<i>n/a</i>	<i>no data</i>	13	28%	<i>no data</i>	0.0%
Philippines	989	46.4%	72	59%	7	2.6%
Singapore	23,063	<i>no data</i>	4'176	100%	89	30.0%
Thailand	2,013	32.5%	287	22%	14	3.8%
Vietnam	399	63.7%	37	24%	<i>no data</i>	0.3%

Income: GDP per capita in USD (2000)
Less Than 2 USD/Day: percentage of population that lives on less than 2 USD per day (1990-2001)
Air Passengers: domestic and international aircraft passengers per 1,000 residents (2000)
Urbanization: percentage of population living in areas defined as urban (2000)
Passenger Cars: number of passenger cars per 1,000 residents (2000)
Internet Users: percentage of population with access to the worldwide network (2000)

source: World Development Indicators 2002 (World Bank)

Appendix 2.6
Growth in South-East Asian Nations

	Population	Income	Outbound Tourists	Int'l Travel Expenditures
Bangladesh	1.6%	6.1%	11.0%	10.5%
Cambodia	1.6%	2.7%	n/a	n/a
China	0.7%	7.2%	17.2%	36.9%
Hong Kong SAR	0.6%	9.2%	7.4%	n/a
India	1.3%	2.0%	5.3%	17.7%
Indonesia	1.2%	3.1%	n/a	10.9%
Japan	-0.1%	2.2%	4.1%	2.8%
Korea	0.4%	7.8%	13.4%	7.3%
Laos	2.2%	3.3%	n/a	28.2%
Malaysia	1.5%	5.7%	5.7%	3.1%
Myanmar	1.0%	n/a	n/a	1.2%
Philippines	1.7%	2.1%	4.4%	28.0%
Singapore	1.3%	8.1%	12.4%	3.8%
Thailand	0.8%	3.5%	8.0%	9.2%
Vietnam	1.5%	4.1%	n/a	n/a

Population: estimated annual population growth rate (2000 to 2015)
Income: annual growth rate of GDP per capita (1999-2000)
Outbound Tourists: annual growth rate of the departures that people make from their country of usual residence (1990-2000)
Int'l Travel Expenditures: annual growth rate of the expenditures of international outbound tourists (1990-2000)

source: World Development Indicators 2002 (World Bank)

Appendix 2.7 Key Figures of Traditional Asian Airlines

Airline	Country	PAX	Revenue	ASKs	RPKs	Load Factor	Yield	Unit Cost	Average Fare	APH
Royal Brunei	Brunei Darussalam	1,026	157,623	5,540,465	3,697,812	66.7%	4.26	4.15	154	3,604
Eva Air	Taiwan	4,574	877,721	24,564,713	18,398,676	74.9%	4.77	6.30	192	4,022
China Airlines	Taiwan	8,296	1,311,302	33,925,694	25,087,318	73.9%	5.23	6.02	158	3,024
Cathay Pacific	Hong Kong SAR	11,190	2,607,554	62,790,254	44,792,224	71.3%	5.82	5.67	233	4,003
Garuda	Indonesia	6,634	737,196	24,141,000	16,576,000	68.7%	4.45	4.02	111	2,499
Japan Air Lines	Japan	32,378	6,787,202	115,633,718	79,361,451	68.6%	8.55	8.25	210	2,451
Korean Airlines	South Korea	21,638	2,591,648	55,802,220	38,452,353	68.9%	6.74	8.21	120	1,777
Malaysia Airlines	Malaysia	15,733	1,663,537	52,594,942	34,708,517	66.0%	4.79	4.02	106	2,206
All Nippon Airlines	Japan	43,090	6,077,878	80,719,140	52,713,805	65.3%	11.53	8.94	141	1,223
Asiana Airlines	South Korea	11,900	1,120,039	22,253,713	15,743,396	70.7%	7.11	7.61	94	1,323
Philippine Airlines	The Philippines	5,678	681,531	19,483,460	13,491,771	69.2%	5.05	3.88	120	2,376
Qantas Airways	Australia	22,681	4,699,404	90,435,809	70,312,062	77.7%	6.68	6.13	207	3,100
Singapore Airlines	Singapore	14,764	3,488,664	94,558,500	69,994,500	74.0%	4.98	4.27	236	4,741
Thai Airways	Thailand	18,058	2,270,598	60,458,579	45,167,123	74.7%	5.03	4.38	126	2,501
Vietnam Airlines	Vietnam	3,393	383,456	7,481,683	5,575,426	74.5%	6.88	5.55	113	1,643

PAX:	number of passengers carried (in thousands)
Revenue:	passenger revenue (in thousands of USD)
ASKs:	available seat kilometers (in thousands)
RPKs:	revenue passenger kilometers (in thousands)
Load Factor:	passenger load factor (2000)
Yield:	passenger yield (in US cents per RPK)
Unit Cost:	operating expenses (in US cents per ASK)
Average Fare:	average passenger fare per segment (in USD)
APH:	average passenger haul (in kilometers)

sources: Reed Business Information (www.rati.com), airline annual reports, AAPA Statistical Report 2002

Appendix 2.7 Key Figures of Traditional European Airlines

Airline	Country	PAX	Revenue	ASKs	RPKs	Load Factor	Yield	Unit Cost	Average Fare	APH
Air France	France	43,421	10,535,430	129,469,600	98,508,300	76.1%	10.69	9.66	243	2,269
Alitalia	Italy	21,861	3,211,100	41,694,700	29,617,600	71.0%	10.84	11.30	147	1,355
Austrian Airlines	Austria	7,070	1,957,530	19,561,400	13,794,300	70.5%	14.19	10.78	277	1,951
British Airways	United Kingdom	34,009	10,164,620	136,225,900	99,123,200	72.8%	10.25	8.43	299	2,915
Finnair	Finland	5,838	1,426,940	12,933,400	8,462,300	65.4%	16.86	12.06	244	1,450
Iberia	Spain	23,888	3,587,250	55,370,700	40,464,300	73.1%	8.87	7.64	150	1,694
KLM	The Netherlands	19,956	4,766,810	73,813,700	59,181,300	80.2%	8.05	8.97	239	2,966
Lufthansa	Germany	43,915	9,239,790	121,458,700	93,642,600	77.1%	9.87	9.28	210	2,132
Scandinavian	Denmark/Norway/ Sweden	22,896	3,433,620	34,096,200	24,170,200	70.9%	14.21	11.19	150	1,056
Swiss International Air Lines	Switzerland	11,316	2,465,510	31,508,200	21,828,900	69.3%	11.29	10.66	218	1,929

PAX:	number of passengers carried (in thousands)
Revenue:	passenger revenue (in thousands of USD)
ASKs:	available seat kilometers (in thousands)
RPKs:	revenue passenger kilometers (in thousands)
Load Factor:	passenger load factor (2000)
Yield:	passenger yield (in US cents per RPK)
Unit Cost:	operating expenses (in US cents per ASK)
Average Fare:	average passenger fare per segment (in USD)
APH:	average passenger haul (in kilometers)

sources: Reed Business Information (www.rati.com), airline annual reports, AEA Yearbook 2002

Appendix 2.7 Key Figures of Traditional North American Airlines

Airline	Country	PAX	Revenue	ASKs	RPKs	Load Factor	Yield	Unit Cost	Average Fare	APH
Alaska Airlines	USA	13,639	1,565,000	28,770,529	19,676,461	68.4%	7.95	6.35	115	1,443
American Airlines	USA	98,742	16,436,000	296,569,271	204,191,754	68.9%	8.05	7.19	166	2,068
Continental Airlines	USA	42,357	7,156,000	130,499,554	94,435,428	72.4%	7.58	6.37	169	2,230
Delta Air Lines	USA	94,045	11,876,000	227,327,565	157,044,836	69.1%	7.56	6.24	126	1,670
Northwest Airlines	USA	52,271	8,219,000	158,221,015	117,635,599	74.3%	6.99	6.57	157	2,250
United Airlines	USA	75,138	13,466,000	265,116,539	187,604,573	70.8%	7.18	7.48	179	2,497
US Airways	USA	56,105	6,580,000	107,288,120	73,906,197	68.9%	8.90	8.79	117	1,317
Air Canada	Canada	23,100	5,109,000	91,297,878	66,765,455	73.1%	7.65	7.13	221	2,890

PAX:	number of passengers carried (in thousands)
Revenue:	passenger revenue (in thousands of USD)
ASKs:	available seat kilometers (in thousands)
RPKs:	revenue passenger kilometers (in thousands)
Load Factor:	passenger load factor (2000)
Yield:	passenger yield (in US cents per RPK)
Unit Cost:	operating expenses (in US cents per ASK)
Average Fare:	average passenger fare per segment (in USD)
APH:	average passenger haul (in kilometers)

sources: Reed Business Information (www.rati.com), airline annual reports, AEA Annual Report 2002

Appendix 2.7

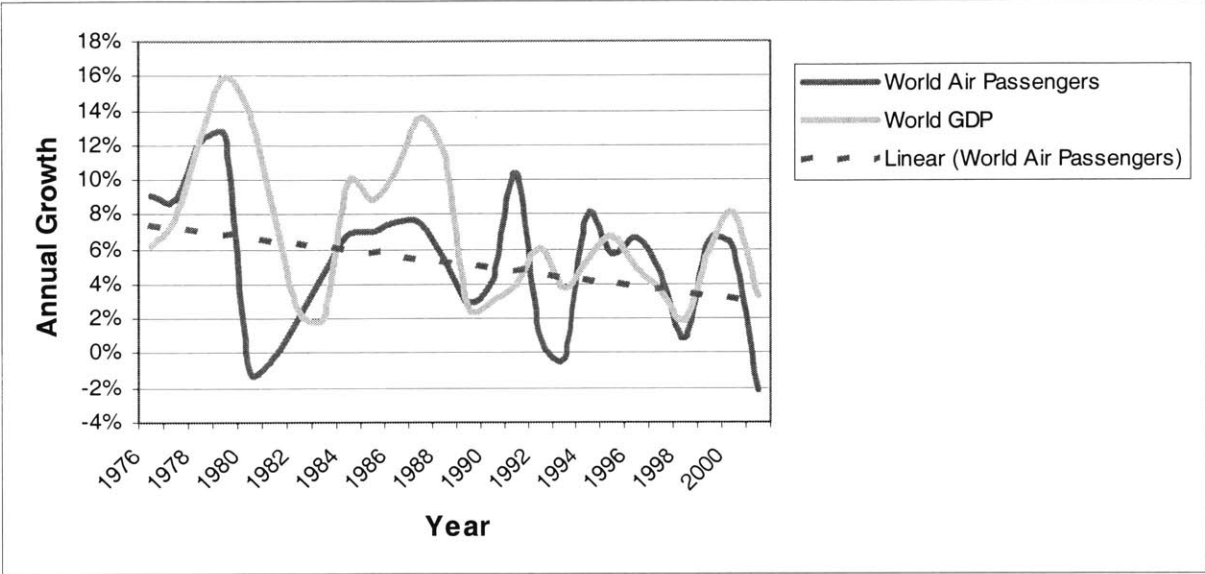
Key Figures of Traditional Airlines in Other Parts of the World

Airline	Country	PAX	Revenue	ASKs	RPKs	Load Factor	Yield	Unit Cost	Average Fare	APH
South African	South Africa	6,360	1,436,370	30,913,420	21,276,930	68.8%	6.75	5.70	226	3,345
Emirates	United Arab Emirates	8,500	1,882,760	41,336,550	31,660,550	76.6%	5.95	5.67	222	3,725
Aeroflot	Russia	5,500	1,100,800	25,370,200	17,645,200	69.6%	6.24	5.36	200	3,208
Varig	Brazil	9,700	1,492,035	38,085,240	26,115,300	68.6%	5.71	7.49	154	2,692
Air China	People's Republic of China	10,590	1,563,280	35,158,000	24,002,300	68.3%	6.51	4.85	148	2,267
Aeromexico	Mexico	8,800	1,247,700	20,534,280	13,307,600	64.8%	9.38	6.79	142	1,512

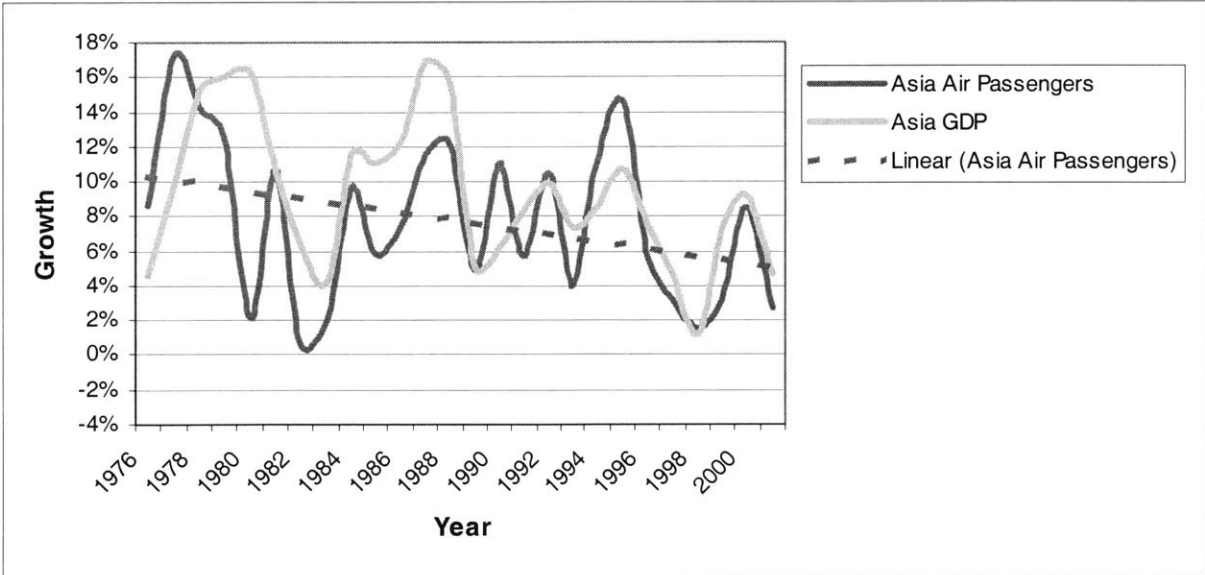
PAX: number of passengers carried (in thousands)
Revenue: passenger revenue (in thousands of USD)
ASKs: available seat kilometers (in thousands)
RPKs: revenue passenger kilometers (in thousands)
Load Factor: passenger load factor (2000)
Yield: passenger yield (in US cents per RPK)
Unit Cost: operating expenses (in US cents per ASK)
Average Fare: average passenger fare per segment (in USD)
APH: average passenger haul (in kilometers)

sources: Reed Business Information (www.rati.com), airline annual reports, AEA Annual Report 2002

Appendix 2.8
GDP and Air Passenger Growth



data source: World Bank



data source: World Bank