universität wien

MAGISTERARBEIT

Titel der Diplomarbeit

,,The importance of labour costs in the airline's cost structure. Unit cost benchmark study of Sky Europe, Austrian Airlines and Air Berlin''

Verfasserin

Polia Degenhart

angestrebter akademischer Grad

Magistra der Sozial- und Wirtschaftswissenschaften
(Mag.rer.soc.oec.)

Wien, im März 2010

Studienkennzahl laut Studienblatt:	A 066 915
Studienrichtung laut Studienblatt:	Magisterstudium Betriebswirtschaft
Betreuer:	Univ.-Prof. Dr. Franz Wirl

Eidesstattliche Erklärung

„Ich erkläre hiermit an Eides Statt, dass ich die vorliegende Arbeit selbständig und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe. Die aus fremden Quellen direkt oder indirekt übernommenen Gedanken sind als solche kenntlich gemacht. Die Arbeit wurde bisher weder in gleicher noch in ähnlicher Form einer anderen Prüfungsbehörde vorgelegt und auch noch nicht veröffentlicht.“

Table of Contents:

Index of Tables

List of Diagrams:

List of Graphics:

Abbreviations:

ATK	Available tonne-kilometer
ASM	Available seat-mile
ASK	Available seat kilometer
RTK	Revenue tonne-kilometer
RPK	Revenue passenger- kilometer
CASK	Cost per available seat kilometer (unit costs)
DEA	Data envelope analysis
TFP	Total factor productivity
LCC	Low-cost carrier
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
ESOP	Employee Stock Option Plan
TQM	Total Quality Management
SE	Sky Europe
AB	Air Berlin
OS	Austrian Airlines
EU	European Union
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards

I would like to express my thanks to Univ.-Prof. Dr. Wirl and Mag. Pützl for their supervision!

Thanks to my family for their support!

CHAPTER ONE

1. Introduction:

The impressive growth of the airline industry, its strong impact on other business sectors, the newly developed LCCs and the processes, undergoing and changing the industry as deregulation and privatisation, make the air transport interesting theme for a study.

The pressure from the increased competition has forced the airlines to focus on achieving better efficiency levels. In US the deregulation has resulted in higher efficiency by the airlines.[1] There are evidences that the deregulation has increased the competition and has brought improvements in the efficiency also by the European airline.[2]

Further efficiency aspects by the labour factor, seen in terms of productivity, wages and employee relations, will be discussed in my work. I have based my work on many academic researches, thus analysing these aspects from past to nowadays.

The study is beginning with presenting the importance of the airline industry, deregulation process and efficiency aspects, airline network systems, LCCs phenomena and financial situation of the industry. In Chapter three are presented cost classifications in the airline industry, unit cost decomposition and competitiveness. In the next Chapter four the focus is on the labour costs, seen as highly controllable cost group in the airline cost structure and as a complex from productivity, wages and labour relations. Efficient aspects by the unit labour costs in Europe and USA and by traditional and LCCs airlines are discussed. Further in Chapter five the labour wages are analyzed, including efficiency aspects in terms of deregulation and privatisation. Chapter six is presenting specific productivity measurement methods (partial measurement and methods for overall productivity

1 Nijkamp, P. (1996). Liberalisation of Air Transport in Europe: The Survival of the Fittest? , Swiss Journal of Economics and Statistics 1996, Vol. 132 (3), pp.257-278

2 Gagnepain, P. and Marin, Pedro L. (2006). Regulation and Incentives in European Aviation, Journal of Law and Economics, Vol.49 (1), pp. 229-248

and efficiency evaluation), applied in the airline industry and the results and conclusions, which they are revealing. As next after discussing the wages and productivity in the previous chapters, in Chapter seven the development of the labour relations in the industry in terms of deregulation, quality aspects, unionisation and different regional practices by the airlines is presented. Chapter eight reveals the benchmarking method and particularly its application in the airline industry. Accounting issues in terms of the income statements are presented briefly in Chapter nine. Further follows my empirical study, where first the unit costs by Austrian Airlines, Sky Europe and Air Berlin are analyzed and then particularly the unit labour costs. The conclusion of my work and the bibliography are as next chapters. Finally I have calculated and presented in the Appendix different metrics as unit costs, unit labour costs, labour productivity and average wages regarding the empirical part of my work.

CHAPTER TWO

2. Airline Industry characteristics

The most important process during the last decades was the deregulation of the international air transport, which has brought adjustments in the markets.[3] Thus I will present here the process of deregulation, the different network systems, Low cost carriers' phenomena and airline financial state.

2.1. Development and importance of the airline industry

The airline sector is nowadays a significant industry. It' roots can be followed back to 1919, but the real growth was after the Second World War, when peace was recovered. After the war era a high priority was given to national carriers as a defence guarantee and a lot of them have began operations in this period. Many of these national airlines would not have existed nowadays without government's financial aids.[4]

The process of deregulation of airline industry has first started in the United States (US), where the industry was till liberalisation under strong regulations and rules, which has kept it relatively steady. The industry was changed with the deregulation and the competition has boomed.[5]

The airline industry shows impressive numbers how this business has boosted in the 50s and 60s with air traffic increase of 14% every year and in the period of 1970-79 the growth was 10%. In the next years till 1989 the growth has lowered and was 6% and the following period of time till 1999 was 5,2%.[6] But growth of the airline industry is specific in the different areas of the world. The reason could be that the geographical places are in different phases of the development cycle in the airline sector and the growth is possibly following S shape model with the time. This model means that begins slow, than quick development and again slow,

3 Doganis R. (2006). Airline Business, 2 ed., Routledge, London, pages 12 and 13

4 Hanlon, J.P. (1999). Global airlines: competition in a transnational industry, 2.ed., Oxford: Butterworth-Heinemann, page s 1 and 6

5 Morrison, S. A. and Winston, C. (1995). The evolution of the airline industry, DC: Brookings Inst., Washington, pages 4 - 7

6 Doganis, R. (2002). Flying off course: the economics of international airlines, 3. ed., Routledge London, page 4

when turn up to maturity. This would express that Africa is in period of going into growth stage; Asia and Middle East are at the peak and North America and Europe seem to be in the end of growth before then moving into the mature phase.[7]

The airline and airport sectors assure directly jobs for 4,7 million employees and transport goods with value of 35% from the total international trade, thus contribution to the globalisation of the production. This industry is very important for the tourism sector, as about 40% from the international tourists are using air services. It's often the only mode of transport to reach some distant areas. These numbers are impressive, taking into account that these are only the direct impacts from the industry. The airline sector is affecting indirectly other business fields such as fuel and aircraft suppliers, airport facility companies and service sectors, connected with the airline industry. Good airline networks are also important factor for many companies, when deciding where to invest. This kind of transport is bringing for producing companies also quick delivery times of the goods, thus reducing the inventory expenses. With the expansion of the Internet commerce the airline sector is bringing most efficiently different goods to the final customers.[8]

Regarding the role of the air transport for tourism there is interrelation between the both industries, as the airlines sometimes are developing in some extent tourist journey's destination (for example with advertising) and at the same time the tourist destination points have an interest to develop their airline transport.[9]

Another question which is important for the airline transport is connected with the environment challenges for the industry, which is ranked at second place in transport sector after the diesel motor cars, regarding produced CO_2 emissions. Possible ways for decreasing these emissions such as: emission permits and

7 Hanlon, J.P. (1999). Global airlines: competition in a transnational industry, 2.ed., Oxford: Butterworth-Heinemann, page 5

8 http://www.iata.org/nr/rdonlyres/5c57fe77-67ff-499c-a071-4e5e2216d728/0/atag_economic_social_benefits_2008.pdf , accessed on 15.09.2009 , pages 2-3 and 5-7

9 Bieger, T. and Wittmer, A. (2006). Air Transport and tourism - Perspectives and challenges for destinations, airlines and governments, Journal of Air Transport Management, Vol. 12, pp. 40–46

trading, looking for alternative fuels, improving the fuel efficiency or replacing some short haul flights with rail transport.[10]

It's considered that economic factors in the airline industry will put a tension on the airlines for consolidation process. In order to increase the global airline alliances there should be made changes and mitigations in the regulations and antitrust practices regarding the airlines.[11]

2.2. Deregulation in the airline industry

Different rules and guidance, applied to the airline industry years prior the deregulation have had unique reasons to each state. Such reasons could be country security protection, state importance and status, local development or environmental reasons.[12]

The airline sector was the first deregulated in the United States and this has been seen as an important part of the globalisation process. It's considered that has brought lower prices and twice more travellers since 1978. At the same time the deregulation has raised questions about monopoly, carriers controlling hubs and thus preventing new entrants and causing unfair competition.[13]

In Europe the deregulation process could be described historically with the implementation of three packages: the first was implemented in 1987, followed in 1990 with second act and later on in 1993 the third package was introduced in Europe. The last package brings: carriers could fly on every route within the member countries; freedom regarding airlines fairs, prices and no capacity limitations; unification the requirements for becoming an operating licence; member companies to start up or buy an airline in another member country. But this concern only intra Europe air operations and such outside the European Union (EU) were regulated through agreements of each member country with third

10 Chapman, L. (2007). Transport and climate : a review , Journal of Transport Geography ,Vol.15 , pp. 354–367

11 Fan, T., Vigeant-Langlois, L., Geissler, C., Bosler, B. and Wilmking, J. (2001). Evolution of global airline strategic alliance and consolidation in the twenty-first century, Journal of Air Transport Management, vol. 7, pp. 349-360

12 Gonenc, R. and Nicoletti, G. (2000). Regulation, Market Structure and Performance in Air Passenger Transportation , OECD Economics Department ,Working Paper No. 254, pp. 4-49

13 Goetz, Andrew R. (2002). Deregulation, competition, and antitrust implications in the US airline industry, Journal of Transport Geography, Vol.10, pp. 1-19

parties. As next in the deregulation process was to close significant players on air market such as Europe and North America into a common area, which should take the place of the existing bilateral agreements.[14]

2.2.1. Impact of the deregulation on the efficiency

The most advantages of the liberalization are seen in removing the inefficiency. The European airlines are showing lower efficiency compared internationally with other airlines and also they have cost disadvantages, resulting from higher prices and other uncontrollable costs. The process of liberalisation and the US background is seen as a way to achieve cost efficiency and competitiveness in Europe's airlines.[15] The deregulation has increased the efficiency in the aviation industry in the US as the fares have lowered and routes and frequencies have been extended. But at the same time the large airlines have become more monopoly strengths and the profitability of the operations were low. For the US airlines it was easier to make reforms in the sector compared to the European carriers, which have specific national aspects and it was more complex to react efficiently to the new changes. The tension for increasing the efficiency of the national flag carriers in Europe will be enormous in the future.[16]

Analyzing the deregulation process in US seen thirty years after the beginning has brought lower fares, more passengers and destinations, but also poor financial results of the industry and uncertainty for the employees. In some extent regulatory control is needed in the airline industry, which is naturally oligopolistic and has high importance for the national interests.[17]

Comparison of the technical and economic efficiency of international airlines in terms of the liberalisation for the period of 1996-2000 is revealing that the

14 Doganis, R. (2002). Flying off course: the economics of international airlines, 3. ed. , Routledge , London, pages 45-47,52 and 66

15 Good, D. H., Röller L.-H. and Sickles, R. C. (1993) .US Airline Deregulation: Implications for European Transport, The Economic Journal, Vol. 103, No. 419 , pp. 1028-1041

16 Nijkamp, P. (1996). Liberalisation of Air Transport in Europe: The Survival of the Fittest? , Swiss Journal of Economics and Statistics, Vol. 132 (3), pp.257-278

17 Goetz, A. R. and Vowles, T. M. (2009). The Good, the Bad, and the Ugly: Thirty Years of US Airline Deregulation, Journal of Transport Geography, Vol. 17, pp. 251–263

advantages from the growth of competition in terms of efficiency have been large for the Asian airlines.[18]

2.2.2. Hub-and-Spoke and Point-to-Point Network Systems

The growth in implementation of the hub-and-spoke network system begins after the deregulation. The type of network system brings to the passengers connections to many destinations, frequent flights and at the same time for the airlines in terms of cost the system assures economies of density. The linear point-to-point system network provide direct services, which give the passengers the advantages of direct flights without transfers and thus brings economies from aircraft utilisation. The hub-and-spoke system is endogenous selection from the full carriers and the point-to-point network is being adopted from the low cost airlines. The possibility of the full carriers to co-exist with low cost carriers and thus the two types of networks requires changes by the full carriers as decreasing the complexity in products and processes. A modern characteristic of networks is the strategic alliance, which is connected with the full carriers and is giving them the possibility to expand their networks.[19] There are evidences that there could be coexistence of different business models in the airline industry, namely: the settled traditional carriers, using the hub-and-spoke system and the low-cost model, applying the point-to-point network.[20]

Regarding the competition in terms of airline networks, it has been founded that the traditional carriers, applying the hub-and-spoke model, are almost not penetrating each other's local markets. The reason for this is the possible profit drop, resulting from retaliation and network effects. The traditional carriers are of course competing, but on the long-haul market, where the rivalry could be strong. On another side the LCCs, applying the point-to-point model, where such network

18 Inglada, V., Rey, B., Rodriguez-Alvarez, A. and Coto-Millan, P. (2006). Liberalisation and efficiency in international air transport, Transportation Research Part A ,Vol.40 , pp. 95–105

19 Gillen, D. and Morrison, W., (2005). Regulation, competition and network evolution in aviation, Journal of Air Transport Management ,vol.11, pp.161–174

20 Alderighi, M., Cento, A., Nijkamp, P. and Rietveld , P. (2005) , Network competition—the coexistence of hub-and-spoke and point-to-point systems, Journal of Air Transport Management, Vol. 11, pp. 328–334

effect does not exist, are the main competitors on the short-haul destination markets.[21]

In respect with the hub-and-spoke network model, some operational research models exist, which are allowing to find out, which hub-and-spoke system could bring to a carrier survival and profitability, as the models locate the best hubs for new entrants or find out other new hubs for existing airlines.[22]

2.2.3. Open Skies

The European Commission has received a mandate in June 2003 to force the liberalisation between Europe and US in all fields. Building a Trans Atlantic common aviation area is very important for the international air transport industry as large markets are involved.[23]

The first stage in the EU –US air transport agreement was signed on 30.04.2007 and has opened the pattern for second stage talks in May 2008. The first stage has brought release of the services between US and EU as all caps on routes, prices and number of flights between the both involved sides, were eliminated. The second stage would allow for example any EU airline to fly between any points in USA and each airline of the United States to operate between any points within the European Union countries. This EU–US cooperation in removing restrictions and working together to close this agreement will bring enormous economic benefits to the both sides and should give equal possibilities for competition with airlines from both sides.[24]

2.3. The low cost carriers phenomenon

Regarding the development of the LCCs, the market share of low-cost carriers in Europe reached a new record of 16,5% of all flights in August and October 2006. In the last 6 months of 2006, the market share of the LCCs market has increased

21 Pels, E. (2008). Airline network competition: Full-service airlines, low-cost airlines and long-haul markets , Research in Transportation Economics,Vol.24, pp. 68–74

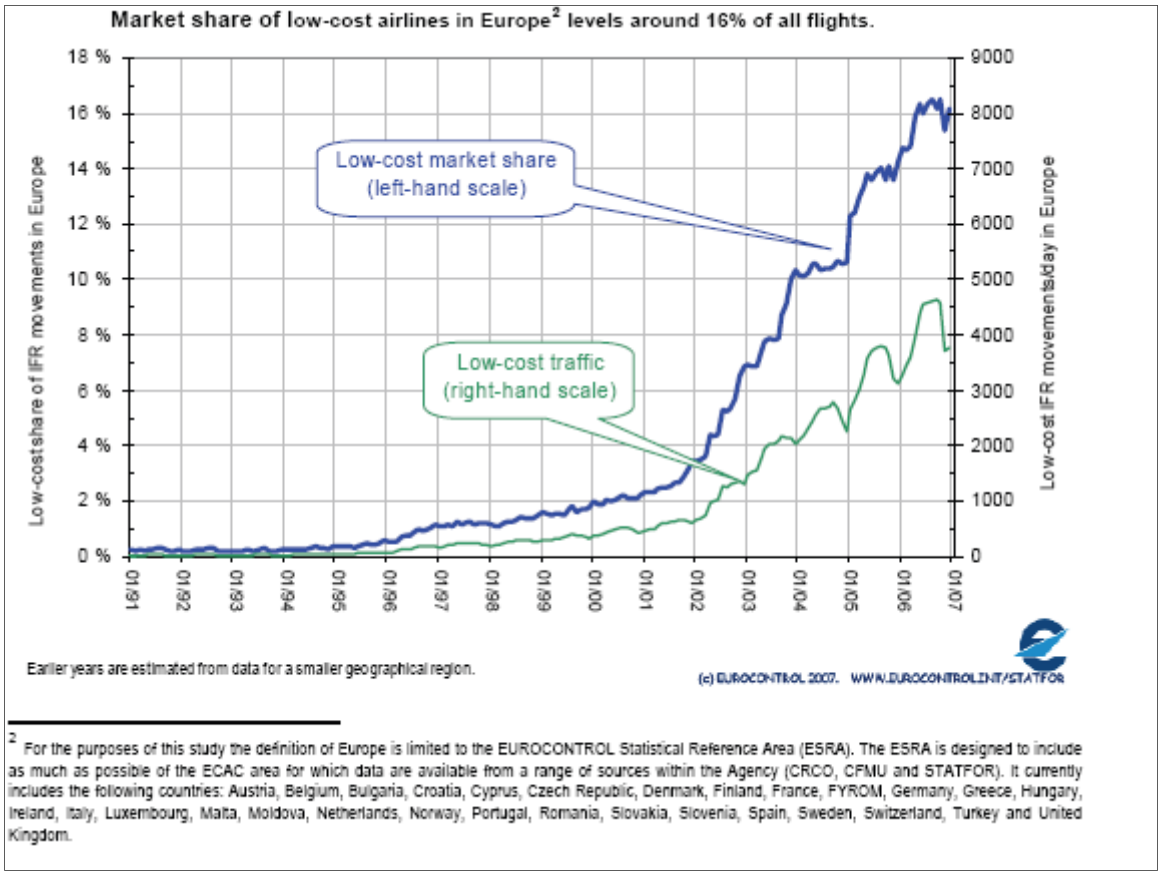
22 Adler, N. (2001). Competition in a deregulated air transportation market, European Journal of Operational Research, Vol.129, pp. 337-345

23 Doganis R. (2006). Airline Business, 2 ed., Routledge, London, pages 67 and 72

24 http://www.eurunion.org/eu/index2.php?option=com_content&do_pdf=1&id=1756 , accessed on 08.08.2009

with 2,6 % compared to the last 6 months of 2005. In the bellow Graphic 1 it's evident that the LCCs flights are impacted by the seasonality and having the same sequence as traditional airlines.[25]

Graphic 1: Low-cost market share and traffic in Europe for 01/1991-01/2007



[2] For the purposes of this study the definition of Europe is limited to the EUROCONTROL Statistical Reference Area (ESRA). The ESRA is designed to include as much as possible of the ECAC area for which data are available from a range of sources within the Agency (CRCO, CFMU and STATFOR). It currently includes the following countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, FYROM, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Moldova, Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

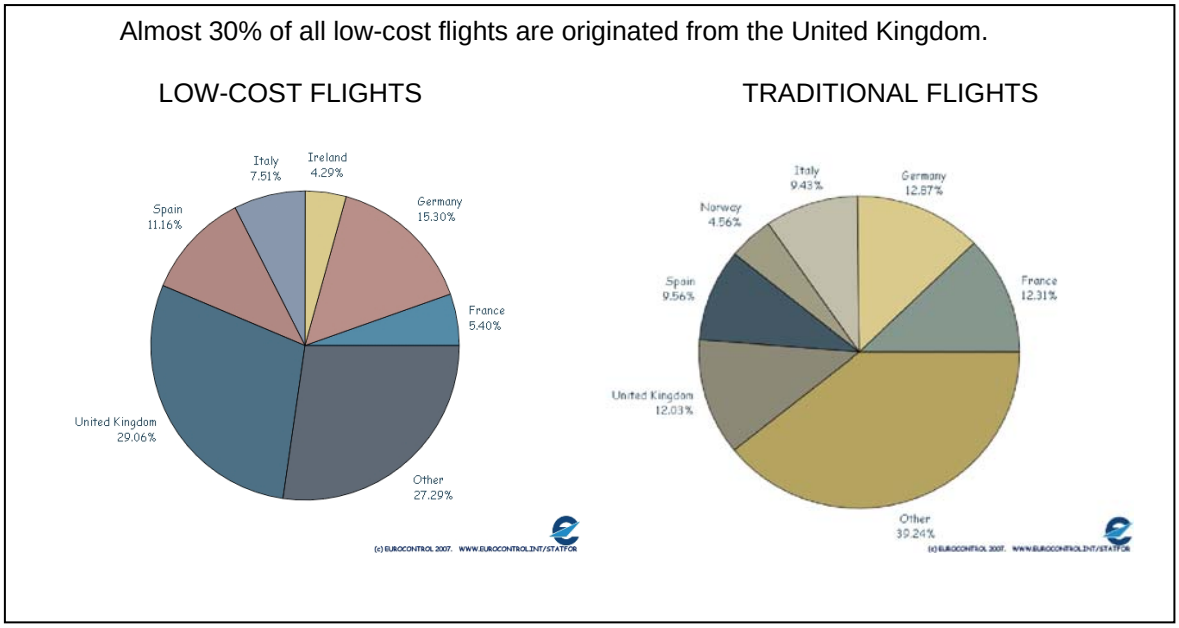
Source: Eurocontrol, Low-Cost Carrier Market Update, December 2006, Page 6

It is interesting also to know how the LCC's market and the market of the traditional airlines are divided across different countries. We could see below in Graphic 2 that a leadership in Europe across the LCCs market has United Kingdom, followed by Germany and Spain. With respect to the traditional carrier's flights, the three countries generating the most part are Germany, France and United Kingdom.[26]

25 http://www.eurocontrol.int/statfor/gallery/content/public/analysis/LowCostMarketUpdateDec06_V01.pdf, page 6, accessed on 20.07.2009

26 http://www.eurocontrol.int/statfor/gallery/content/public/analysis/LowCostMarketUpdateDec06_V01.pdf, page 7, accessed on 20.07.2009

Graphic 2: Flight distribution in Europe for traditional airlines and LCCs



Source: Eurocontrol, Low-Cost Carrier Market Update, December 2006, Page 7

The US LCCs accounted for more than 20% in terms of all passenger revenue-miles in 2006, which is a 48% increase in the low-cost carrier market share compared to 2001.[27]

2.3.1. Business model

The model of the LCC is established on maintaining the processes in a simple way and could be seen in two contexts: revenue and cost side. Regarding the revenue side, the LCC has clear and easy price frame (based on the point-to-point routing); basic flight services offered to the passengers in a single class structure by high seat density and cabin crew personnel at the minimum; high ancillary revenues; point-to-point model do not sell connectivity (not responsible for omissions of connections); no assistance if problems arise (in contrast the legacy carriers are helping to passengers, who has missed a connection). Regarding the cost side by LCCs, some characteristics are: lower distribution costs due to the direct sales operations; lower landing and handling costs resulting from the use of secondary airports; high aircraft utilisation; the LCCs do not have transfer services of passengers and baggage, such achieving economies in costs, for example labour

27 http://www.bts.gov/programs/airline_information/performance_measures_in_the_airline_industry/html/bottom_line/2006.html accessed on 10.08.2009

expense; outsourcing some services as aircraft maintenance; flying a single type fleet; more productive labour force.[28] The LCC business model is not a complex and has cost competitive benefits over the traditional carriers, showing 50% lower unit costs per seat-km on the same legs compared with the unit costs of conventional carriers. The traditional carriers were put into situation to decrease their costs through the competition impact of the LCCs.[29]

2.3.2. Implications for the conventional airlines

The LCCs model was successful and has a persistent role in the airline market and the fact that the LCCs have launched low one way fares is the most considerable implication for the network carrier's model. This has resulted in deterioration of the price discrimination practices applied by the network carriers as a way to cover up their costs. The predictions for the full service network airlines are that they have future perspectives, but possibly the market for them will be smaller.[30] When the conventional carriers succeed to decrease their unit costs significantly, but at the same time to offer relatively the same service standards, then they could achieve both sustainable positions and gain a next stage of efficiency.[31]

In the last years the effectiveness of strategies, applied from traditional airlines in Europe has changed. There is evidence that the conventional carriers have implemented strategies, which are typical for the low cost airlines. A reason could be the increased competition on the traditional airlines from the low cost sector.[32] Thus the traditional carriers in Europe, which are put under pressure from the low cost menace, are reacting in different ways. Such are cut off in staff costs, increasing labour productivity and outsourcing, handing over some of the short haul flight to local partner airlines, reducing secondary hubs, cutting off the

28 Holloway, S.(2008). Straight and level : Practical Airline Economics , 3 ed., Ashgate, Aldershot, pages 32-34

29 Doganis, R. (2006). Airline Business, 2 ed., Routledge , London , pages 170 and 178-179

30 Tretheway, M.(2004). Distortions of airline revenues: why the network airline business model is broken, Journal of Air Transport Management, Vol.10, pp. 3–14

31 Franke M.(2004)., Competition between network carriers and low-cost carriers—retreat battle or breakthrough to a new level of efficiency?, Journal of Air Transport Management ,Vol.10, pp. 15–21

32 Schnell, Mirko C.A. (2003). Does the effectiveness of airline strategies change? A survey of European full service airlines, International Journal of Transport Management ,Vol.1, pp. 217–22

distribution costs, increasing aircraft utilization, revising pricing or starting up a low cost subsidiary.[33]

2.3.3. Development of the low cost carriers

Regarding the further development of the LCCs the expectation is further growth of this model. The process of deregulation is not the only factor for their expansion and also another factor should be considered, namely the entrepreneurial (enterprising) competency of persons have contributed for the success and effectiveness of the most prosperous low cost airlines.[34]

There are not many studies regarding the direct competition between LCCs, but price competition is one way used from airlines in competing and controlling demand and yields. When looking at the influence of the start-up low cost airlines on the traffic of existing competitor's low cost carriers its reveals the following: in a competition situation there is a risk that the fixed costs of the start-ups are not secured with their prices.[35]

2.4. Financial situation in the airline industry

The airline industry has a cycle character and is correlated with the world economic, respectively such downturns in the airline sector happened in the beginning of 80's, 90's and early 2000. But some airlines as British Airways and Singapore Airlines have succeeded and have brought profits in the 90's. At the same time another, mostly state airlines showed losses even in profitable periods of times. It's under question if the profits generated in the peak periods of the industry could cover the losses in the industry.[36]

Changes are necessary to be made in the traditional carriers' model, as the generated net earnings in the airline industry for the period 1947-2000 are lower

33 Dennis, N. (2007). End of the free lunch? The responses of traditional European airlines to the low-cost carrier threat, Journal of Air Transport Management , Vol.13, pp. 311–321

34 Francis, G., Humphreys, I., Ison, S. and Aicken, M. (2006).Where next for low cost airlines? A spatial and temporal comparative study, Journal of Transport Geography, Vol.14, pp.83–94

35 Pitfield, D.E. (2008). Some insights into competition between low-cost airlines, Research in Transportation Economics Vol. 24, pp. 5–14

36 Doganis, R. (2006). Airline Business, 2 ed., Routledge, London, pages 5-6

than 1%, such far way from desirable numbers.[37] Different reconstructions in network, costs cut offs and achieving good liquidity parameters should be implemented. For a lot of the state carriers with liquidity problems it's should be the government to provide financial help, as this happened in the United States after the 11th September. But the data for 2004 for US shows that the improvement of the finance state of many carriers is under question. Further some of the LCCs are having also financial problems and are going into bankruptcy.[38]

For the airline industry the data for 2001 and 2002 shows record net losses of $13 billion and $11,3 billion respectively. The prognoses for 2009 year are losses of $1 billion and the downturn in the sector is the worst from decades.[39]

Regarding the influence of the 11th September events on the airlines it's evident that the US airlines are these, which have mainly suffered in terms of market turn down. Asian airlines were hit at least and they have managed to improve promptly compared with the airlines in Europe and North America area. The LCCs have seemed not to be strong influenced and they succeeded to regain their markets quickly after the events.[40]

37 Taneja, Nawal K. (2003). Airline survival kit: Breaking out of the zero profit game, Ashgate, pages 1 and 129

38 Doganis R. (2006). Airline Business, 2 ed., Routledge, London, pages 18-19 and 22- 23

39 http://www.iata.org/NR/rdonlyres/D9A9698A-EFF5-4277-B9A9-D0C8D8D55105/0/Industry_Outlook_Mar09.pdf , accessed on 20.08.2009, page 4

40 Gillen, D.and Lall, A. (2003). International transmission of shocks in the airline industry, Journal of Air Transport Management , Vol.9, pp. 37–49

CHAPTER THREE

3. Airline's costs aspects

3.1. Cost classification

The International Civil Aviation Organisation (ICAO) has developed a special form to be fulfilled from its member airlines, which includes information about the Profit and Loss Statement and the Balance Sheet. In the Statement financial form regarding the cost side are given operating and non- operating expenses. In the group of the operating costs are included the following items: flight operations; flight equipment maintenance and overhaul; depreciation and amortization; user charges; station expenses; passengers services; ticketing, sales and promotion; general and administrative; other operating expenses. In the group of the non-operating costs are: interest costs; loss on retirement of equipment and other assets; losses from affiliated companies and other costs, for example losses resulting from operations in foreign currency or with securities.[41]

But there is not a particular classification of the airline costs that could fulfil at the same time the different analysis tasks in an airline. Thus the carriers are breaking down the costs based on the different desired management objectives. A lot of carriers are separating their costs in operating and non operating costs and further the operating costs could be grouped in direct operating and indirect operating costs.[42] The direct costs are connected with the airplane type used and the indirect are not correlated with the aircraft operated. But in practice this grouping is difficult to be followed from the carriers.[43]

The costs could be grouped in fixed and variable costs. The fixed costs are not correlating with the output of the airline and the variable costs are connected positively with the change of the output. In the short terms most of the costs of the airlines are fixed and not easy to escape. In the long period of time the costs are

41 http://www.icao.int/icao/en/atb/ead/sta/form_ef.pdf, pages 1-10, accessed on 20.09.2009

42 Oum, T.H. and Yu, C. (1998). Winning Airlines: Productivity and Cost Competitiveness of the World's Major Airlines, Kluwer Academic Publishers, Transportation Research, Economics and Policy, Pages 127,143,146 and 153

43 Doganis, R. (2002). Flying off course: the economics of international airlines, 3. ed., Routledge, London, Page 78

more variable and escapable. Regarding the fixed costs, there is a risk resulting from negative traffic trend by an airline. The decline of traffic could lead to revenue decrease at such extent, that the carrier could not cover its fixed costs.[44]

3.2. Fuel price and hedging

There are three possibilities by the airlines to mitigate the fuel price volatility, namely: to increase the fuel efficiency, to transfer further the price increase to the customers or to apply hedging. There is definitive a need for each airline to apply fuel hedging. For this purpose the airlines could use forwards, futures contracts or derivatives.[45]

The fuel price risk management in the airline industry is possible through application of futures. Thus for a carrier the degree of ambiguity regarding the fuel prices for a period could at least be decreased, which could further make in some extent more predictable the operational expenses and revenues for the airline in this period. There are strong evidence that the application of fuel hedging strategy could bring the volatility of the incomes (average and on quarterly base) with 20% down. The use of hedging is not necessary a strategy, which application is limited only to airlines, which are not strong enough to cope with the fuel price's growth. Airlines should not avoid hedging, while considering possible opportunity expenses in case the fuel prices decrease rather to increase. In the long terms hedging is effective as it brings a more stability in the earnings.[46]

There are evidences regarding the fuel hedging by airlines that there is a positive connection between the fuel hedging and the company value. When the airline is applying derivatives in order to hedge against reversals of the fuel prices than the firm value of the carrier on an average base is increasing.[47]

3.3. Factors, affecting the airline's costs

44 Holloway, S. (2008). Straight and level: Practical airline economics, 3rd edition , Ashgate , Aldershot, pp.266-268

45 Morrell, P. (2007). Airline finance , 3 ., rev. and updated ed. , Ashgate, page 188

46 Vadhindran , K. Rao.(1999). Fuel price risk management using futures , Journal of Air Transport Management 5, pp.39-44

47 Carter, D. A., Rogers, D. A. and Simkins, B. J. (2004).Does Fuel Hedging Make Economic Sense? The Case of the US Airline Industry (September 16, 2002). AFA 2004 San Diego Meetings, pp.1-48

In one of the first international studies regarding the airline's costs it's founded that the direct operational expenses of the airlines decrease with increasing firm size and the economies of scales are one possible explanation for the cost decline, but there are also other strong factors as route densities, stage lengths, wage levels and schedules.[48] Factors, which are influencing the unit operating costs, are the input prices (for example employee, fuel, materials and repair). The operational parameters of the airlines are also factor affecting the unit costs. The most important parameters are the sector length flown, the aircraft size and the extent of performed freight operations. And the third factor having an impact to the unit cost is the productivity.[49]

Regarding the differences between the unit costs of small and large airlines under deregulation, there are empirical evidences that the economies of scale are not a factor explaining this gap. Such significant factors having an impact on the costs are the traffic density of airline network and the average stage length of flights. The economies of scale are constant as for the trunk carriers and also for local airlines.[50]

Analyzing unit costs differences of US and non-US carriers is revealing that the two main factors behind the gap are the labour prices and traffic density. Particularly the results are showing that in 1983 the US airlines have had higher unit costs, which was due to the higher labour prices. On another side the higher unit costs were compensated from much higher levels of traffic density (resulting into higher productivity). The US airlines have had about 7% lower unit costs then the European ones, but 26% higher compared to the East Asian carriers. Comparing particularly US and European airlines, another factor for the unit cost differences is the government ownership, which leads in Europe to higher unit

48 Straszheim M.R., (1969). The International Airline Industry, The Brookings Institution, Washington D.C.

49 Alamdari, F. E. and Morrell, P. (1997). Airline labour cost reduction: post-liberalisation experience in the USA and Europe, Journal of Air Transport Management, Vol. 3, No. 2, pp. 53-66

50 Caves, D., Christensen, L. and Tretheway, M. (1984). Economies of density vs. economies of scale: why trunk and local service airline costs differ. RAND Journal of Economics, Vol. 15, No. 4, pp. 471-489

costs often due to higher labour input to generate the same output and one possible way for reduction is privatisation.[51]

3.4. Translog variable cost function, unit cost decomposition and competitiveness

This chapter refers to the study of Oum and Yu[52] presenting particularly the unit costs competitiveness by airlines.

An airline is cost competitive, when its unit costs are lower from these by the competitors. In order to optimize its unit costs, an airline could operate more efficiently, transfer less for input or to combine the two possibilities. Thus the airline cost differentials depend on the differences in the factor prices and productive efficiency. It's important to evaluate these cost differentials and to find out the exact sources. Analyzed are 22 international airlines in the period 1986-93 in order to find out the sources of cost competitiveness. A translog variable cost function has been constructed and its results have been used to decompose the unit cost differentials into possible sources: firm characteristics (network and output mix), input prices and efficiency. Additionally has been considered that exchange rates changes have an influence on the costs of airlines and this impact has been also analyzed. Following Caves et.al. (1984)[53] and Gilen et.al. (1990)[54], the following translog variable cost function has been applied to present the short run cost minimization process:

51 Windle, R. J. (1991). The World's Airline: A Cost and Productivity Comparison, Journal of Transport Economics and Policy, Vol. XXV, No. 1, January, 1991, pp. 31-49

52 Oum, T. H. and Chunyan, Yu. (1998). Cost competitiveness of major airlines: an international comparison , Transportation Research Part A: Policy and Practice, Volume 32, Issue 6, pp. 407-422

53 Caves, D., Christensen, L. and Tretheway, M. (1984).Economies of density vs. economies of scale: why trunk and local service airline costs differ. RAND Journal of Economics, Vol. 15, No. 4, pp. 471-489

54 Gillen, D.W.,Oum,T.H. and Tretheway,M.W.(1990).Airline cost structure and policy implications, Journal of Transport Economics and Policy, Vol.24, No.2, pp.9-34

$$lnVC = a_0 + \sum_t a_t T_t + b_y lnY + \sum_i \delta_i ln\, R_i + \sum_i b_i\, lnW_i + b_k \ln(uK)$$

$$+b_e lnE + clnZ + \tfrac{1}{2} d_{yy} (\ln y)^2 + \tfrac{1}{2} \sum_i \sum_j d_{ij}\, lnW_i lnW_j + \tfrac{1}{2} d_{kk} (\ln(\mathrm{u}K))^2 \quad (1)$$

$$+\tfrac{1}{2} d_{ee} (lnE)^2 + \tfrac{1}{2} d_{zz} (lnZ)^2 + \sum_I e_{yi}\, lnY lnW_i + e_{yk} lnY ln(uK) + e_{ye} lnY lnE$$

$$+e_{yz} lnY lnZ + \sum_I f_{ki} \ln(uK)\, lnW_i + f_{ke} \ln(uK)\, lnZ$$

$$+\sum_i g_{ei}\, lnE lnW_i + \sum_i g_{zi} lnZ\, lnW_i$$

where VC is the cost of variable inputs; Y represents the aggregate output index; W is a vector of input prices which include labour, fuel, and purchased services and materials inputs; K is capital stock which is considered as fixed in the short run; u is utilization of capital stock (in this case, weight load factor); $R_i{}'$s are the revenue shares of freight and mail, non-scheduled services, and incidental services; Z is average stage length; and E is an efficiency index; $a_t{}'s$ are coefficients connected with year dummy variables ($T_t{}'s$) in order to reflect the effects of changes in technical efficiency over time. a_0, b's, δ's, c's,d's, e's, f's, g's are coefficients of the translog variable cost function to be estimated. In the variable cost function is integrated a variable E for efficiency, which is index of residual productivity, presenting the whole efficiency of the airlines, after excluding the effects of factors, which are not in the control of the management such as stage length and output mix. Involving E in the cost function, it's considered the fact that some carriers are more efficient compared to other. Then a two step process is taken to evaluate the cost function. During the first step an efficiency index is calculated and in the second step, this index is applied as an explanatory variable in the cost function.

Using the Shephard's lemma to the variable cost function, the coming cost minimization variable input cost share equations can be determined:

$$S_i = \frac{\partial lnVC}{\partial lnW_i} = b_i + \sum_j d_{ij} lnW_j + e_{yi} lnY + f_{ki} \ln(uK) + g_{ei} lnE + g_{zi} lnZ \quad (2)$$

In order to become better efficiency of the evaluation it should be determined the translog variable cost function (1) together with the variable input cost share (2).

As to become improved efficiency of the evaluation additionally has been considered to include the next formulation for the shadow value of capital stock:

$$\frac{C_k}{VC} = \frac{\partial lnVC}{\partial \ln(uK)} = -(b_k + d_{kk} \ln(uK) + e_{yk} lnY + \sum_i f_{ki} lnW_i + + f_{ke} \ln E + f_{kz} lnZ) \quad (3)$$

where C_k is the depreciated capital cost which is approximated by the total capital cost multiplied by utilization rate. The above equation (3) is primarily the first order condition for short-run total cost minimization, which endogenizes the capacity utilization. Further following Oum and Zhang (1991)[55] have been evaluated the translog variable cost function (1), the cost share equitation (2) and the shadow price of capital input (3) together as a system of multivariate equations applying a Maximum Likelihood method.

The total unit costs differentials between two observations 1 and 0 could be break down into sources applying the below formula, following Caves and Christensen (1988)[56] and Fuss and Waverman (1992)[57]:

55 Oum,T.H.and Zhang,Y.(1991). Utilization of quasi-fixed inputs and estimation of cost functions, Journal of Transport Economics and Policy, Vol.25, No.2 , pp.121-134

56 Caves, D. W. and Christensen, L. R. (1988). The importance of economies of scale, capacity utilization, and density in explaining interindustry differences in productivity growth. The Logistics and Transportation Review ,Vol.24, No.1, pp. 3-32.

57 Fuss, M. A. and Waverman, L. (1992). Cost and Productivity in Automobile Production: the Challenge of Japanese Efficiency,Cambridge University Press, New York.

$$
\begin{aligned}
c^1 - c^0 = {} & S\left[{}^1/_2\left(d_y^1 C_V + d_y^0 C_y\right) - 1\right].(Y^1 - Y^0) && \text{size} \\
& + S\left[{}^1/_2\left(d_k^1 C_V + d_k^0 C_y\right).(K^1 - K^0)\right] && \text{size} \\
& + (1 - S)\left[(K^1 - K^0) - (Y^1 - Y^0)\right] && \text{size} \\
& + S\left[{}^1/_2\left(d_r^1 C_v + d_r^0 C_v\right).(R^1 - R^0)\right] && \text{output mix} \\
& + S\left[{}^1/_2\left(d_w^1 C_v + d_w^0 C_v\right).(W^1 - W^0)\right] && \text{input prices} \\
& + (1 - S).(W_k^1 W_k^0) && \text{input prices} \\
& + S\left[{}^1/_2\left(d_z^1 C_v + d_z^0 C_v\right).(Z^1 - Z^0)\right] && \text{operating characteristics} \\
& + S\left[{}^1/_2\left(d_t^1 C_v + d_t^0 C_v\right).(t^1 - t^0)\right] && \text{time effects} \\
& + S\left[{}^1/_2\left(d_e^1 C_v + d_e^0 C_v\right).(E^1 - E^0)\right] && \text{efficiency}
\end{aligned}
\qquad (4)
$$

where S presents the average share of variable cost in the total cost for observation 0 and 1, and $d_x^i C_v$ presents the partial derivative of the variable cost for observation i with respect to variable $\mathcal{X}$. In order for simplicity American Airlines (AA) in the study is used as a benchmark against which the other airlines are contrasted.

Regarding the data, five outputs are applied: scheduled passenger service (measured in revenue-tonne-kilometers: RTK); scheduled freight service (in RTK); mail service (in RTK); non-scheduled service (RTK) and incidental services (include not major activity of airlines as catering and ground handling). Then a multilateral output index is constructed combining the five outputs. Regarding the input side five inputs are included: labour; fuel; flight equipment; ground property and materials. For example the price for the labour input is calculated by the average compensation per employee. There are existing factors, which are having an impact on the unit costs of airlines, but are almost not controllable from the airlines. Such variables are: average stage length; average load factor; revenue shares of freight and mail; non-scheduled services and incidental services.

The cost function estimation reveals some results. The first order coefficient for the input prices shows for example that the labour and fuel input are causing 32% and 15% of the total variable costs. Other conclusions are: the variation costs are going down with the stage length; by efficient companies is more to be expected to

have lower costs and by carriers with higher accent on the incidental businesses is more to be anticipated to find lower variable costs.

Further applying the above presented equitation (4) the unit cost differences between every carrier and American Airlines are broken down into different sources. The variations of the stage length are causing a considerable part of the unit cost differences, but the output mix has not a significant impact on the unit costs. The input prices analysis reveals costs benefits for the Asian carriers compared to American Airlines, resulting from lower labour and non-labour input prices. The efficiency as another source of unit costs differentials shows that the higher efficiency has contributed for cost decreases of the US airlines.

Regarding the unit cost competitiveness it has been presented further that the founded unit cost differences are not presenting the real cost competitiveness between the carriers, as they posses different network and operating parameters. Therefore it should be considered how the airlines are competing at a particular market. In such case the most significant determinants of cost competitiveness are the input prices, which the carrier pays and how efficiently are the services generated. Thus a cost competitiveness indicator is constructed taking into account the input prices and efficiency. The study reveals that the Asian carriers were more cost competitive compared with the main US airlines and the reason is that they have lower input prices. On another side the Europe airlines are showing less cost competitiveness compared with American Airlines, because of their higher input prices and lower efficiency. The conclusion has been made that more determining factor, affecting the cost competitiveness of the airlines in the past were the input prices, but with the further liberalisation, the efficiency will become more important and deciding factor for the cost competitiveness by airlines than the input prices.

CHAPTER FOUR

4. Labour costs in the airline industry

4.1. Labour costs as complex

For the airlines extremely important are both the costs and the productivity of the labour as complex, as these are the main determinates of unit labour costs. Further the unit labour costs determine significantly the total unit costs by airlines.[58] The labour costs are object of research seen complexly and also in terms of the liberalization process comparing both Europe and US airlines.[59] By the labour factor, important are also the employee relations in the airline industry, especially in terms of the deregulation process.[60]

The management of the labour costs is decisive for the cost control and competitiveness by airlines and the labour costs should be seen complexly as a function of the costs of labour levels and the labour productivity.[61] Carriers with relatively low wages expenses and high productivity are very competitive. The role of the management is important here as it should increase the productivity of the labour element.[62]

The main problem field, where the management attention by the traditional airlines is concentrated is the labour force, presented in terms of labour wages, productivity, unionisation and negotiations in the airline industry.[63] But the control

58 Holloway, S. (2003).Straight and level: Practical airline economics, 2 ed., Ashgate, Aldershot, pp.314

59 Alamdari, F. E. and Morrell, P. (1997). Airline labour cost reduction: post-liberalization experience in the USA and Europe, Journal of Air Transport Management, Vol. 3, No. 2, pp. 53-66

60 Johnson , N. B. and Anderson , J. R.(2004).Airline employment , productivity and working conditions following deregulation , Transportation Labor Issues and Regulatory Reform Research in Transportation Economics, Volume 10, pp.79–108

61 Doganis R. (2006). Airline Business, 2 ed., Routledge, London , pages 118 and 120

62 Oum, T.H. and Yu, C. (1998). Winning Airlines: Productivity and Cost Competitiveness of the World's Major Airlines, Kluwer Academic Publishers, Transportation Research, Economics and Policy, pages 127-129

63 Taneja , N.K .(2003).Airline survival kit : Breaking out of the zero profit game, Ashgate Publishing, pages 142-146

of the labour costs is critical also for the low cost carriers, as they are one of the most considerable elements in the airline cost structure.[64]

There are also challenges existing for the labour at present time. On one side the real unit labour costs, which are determined both from the labour productivity and the wages have declined nowadays with 21% compared to the levels in the 80's. Secondly the total unit costs by the airlines have decreased with 27% for this time period. At the same time the real problem is that the decrease of the revenue per-seat mile (RPM) is more than the decline both by the unit labour cost and total costs by the carriers. Thus the last fact brings financial troubles for the airlines. It is also important to put an accent on cooperation and solving conflicts with the employees, as this is critical for attaining a positive culture and high performance.[65]

4.2. Labour costs controllability

As the labour costs are representing a great part of the total operational costs by many airlines they are the ones to be first analysed in times of crisis and uncertainty. This could happens in different directions: to decrease the employee numbers; to lower the payments and premiums; to modify the working rules in order to boost the labour productivity or to outsource by companies, which have lower labour costs.[66]

The labour costs are the most important cost group item in terms of possible cost reductions by airlines.[67] They are considered as the only controllable cost element from many carriers.[68]

64 Vasigh, B., Tacker, T. and Fleming K. (2008). Introduction to air transport economics: from theory to applications, Ashgate, Aldershot, page 309

65 Kochan, T., Andrew von Nordenflycht, McKersie , R. and Gittell, J.(2003). Out of the ashes: options for rebuilding airline labor relations , MIT Sloan School of Management Working Paper 4301-03, Institute for Work and Employment Research (IWER) Working Paper 04-2003, pp.1-22

66 Holloway S. (2008). Straight and level :practical airline economics , 3 ed., Ashgate, Aldershot, page 311

67 Seristö, H. (1995). Airline performance and costs: an analysis of performance measurement and cost reduction in major airlines, Helsingin Kauppakorkeakoulu, Helsinki, pages 10, 21, 45 and 115

68 Keith J. Mason , William G. Morrison .(2008).Towards a means of consistently comparing airline business models with an application to the 'low cost' airline sector, Research in Transportation Economics 24 ,pp. 75–84

In the times of crises in the airline industry during 1990-1993, the view that the labour costs are not controllable has turned out and they have been seen as variable. Since this crisis period it's becoming clear that managing the labour costs is the most important for cost management and cost competitiveness. The labour costs are seen as a main determinant in differentiating costs between competing carriers.[69]

The factors, affecting the airline operating costs could be classified into three groups, depending on the extent to which they are controllable from the airline management , which could be seen in the below Table 1. In the group of the external factors, over which the control is limited are: fuel costs, airport and navigation charges and the degree of demand (in the meaning of traffic density and stage length). In the second group are factors, which are more controllable from the airlines, such as: cost of labour**,** type and characteristics of aircrafts and route network structure of the airline. The last group includes factors, which are in a high extent under control: airline marketing and financial policy, corporate strategy and the quality of management.[70]

Table 1: Factors, affecting airline operating costs

Factor	Degree of management control		
External economic factors	Little		
Cost of labour		Some	
Type/Characteristics of aircraft used		Some	
Route structure/network characteristics		Some	
Airline marketing and product policy			High
Airline financial policy			High
Corporate strategy			High
Quality of management			High

Source: Doganis (2002), page 103

69 Doganis R. (2006). Airline Business, 2 ed., Routledge, London, pages 118,124-128 and 191-192

70 Doganis, R. (2002). Flying off course: the economics of international airlines, 3. ed. , Routledge, London ,pages 103-104

4.3. Efficiency aspects by the unit labour costs in the airline industry

Regarding the unit labour costs efficiency improvements, achieving lower wages is one way to lower the unit labour costs and another possibility is to raise the labour productivity. Lower labour costs by airlines is considered essential, taking into account the present and future business context, but reduced labour costs structure is seen only as desirable and proper as a start point, from which further new labour relations practices should be created. The different approaches to the labour costs reduction, namely with wage cut-offs only or through increasing labour productivity, would influence in great extent the existence of each airline in the long term period.[71]

Cost control in the labour cost area is seen as a critical and very important to achieve efficiency. Measures for labour costs optimization could be: reduction of the employee numbers, negotiating new wages and working conditions, creating LCCs subsidiaries or relocating jobs.[72]

4.3.1. Labour costs' efficiency features in Europe, USA and Asia

From the airline's management perspective the two most important factors seen as problem for achieving better cost efficiency in Europe are the labour costs and the strong and rigid labour unions.[73]

The European airlines are showing unit cost inefficiency compared to North American carriers and the main part of the cost gap is resulting from the labour costs. The labour productivity by the European airlines is lower, compared with the North American ones for the period of 1990-1995. On another side there are evidence for progress and increased cost efficiency and productivity by the European airlines after the 90's, resulting from the liberalisation process, market

71 Kochan, T., Andrew von Nordenflycht, McKersie, R. and Gittell, J. (2003). Out of the ashes: options for rebuilding airline labor relations , MIT Sloan School of Management Working Paper 4301-03, Institute for Work and Employment Research (IWER) Working Paper 04-2003

72 Doganis R. (2006). Airline Business, 2 ed., Routledge, London, pages 272-274

73 Seristö H. (1996).The executive view on the cost problem of European airlines, European Business Review, Vol. 96 , Nr. 4, pp. 14–17

competition and privatisation in the industry. [74] The airlines both in Europe and in USA have improved their unit labour cost efficiency after the deregulation process. In USA the achievement of better efficiency in the unit labour costs has happened through decrease of the wages and increased labour productivity. The European airlines have followed another path and the optimization of the labour costs was due mainly to improved labour productivity, as they were not so successful with cut off of the wages.[75]

There are evidences that the high cost structure of the European airlines is resulting from technical inefficient use of labour, as the airlines are paying employee wages, which are above their marginal revenue product. It's difficult to make assumptions for the future if the European airlines will overwhelm the labour cost problem and will achieve cost efficiency in wages, taking into account the powerful labour unions in Europe.[76]

Under the presumptions that the European airlines would reach the US airlines efficiency and their output would be unchanged, it was estimated that the European airline sector has suffered a $4 billion lost in 1986, resulting from inefficiencies, compared to US. This makes 16% from the total operating costs and by constant output it would bring cutting off about 42,000 working places in the industry. It is to be considered that the employees dismissed could be more than refunded by the cost economies resulting from more efficiency.[77]

Regarding the European carriers Table 2 below reveals the simulated cost economies if the airlines in Europe were efficient as the US ones. The decrease in the labour factor that could be reduced is estimated at approximately 17-22%. These numbers are very similar to the reduction levels, implemented by British Airways and Lufthansa. As the labour regulations in the Europe airline industry are

74 Martin, J. C., Nombela, G. and Romero, M. (1999). European Airline Industry: a cost analysis and economic performance evaluation, ,World transport research Amsterdam, Pergamon, pp.211-223

75 Alamdari ,F. E. and Morrell, P. , Airline labour cost reduction: post-liberalization experience in the USA and Europe, Journal of Air Transport Management, Vol. 3, No. 2, pp. 53-66

76 Purvez, F. Captain and Sickles, Robin C. (1997). Competition and Market Power in the European Airline Industry: 1976-90, Managerial and Decision Economics, Vol. 18, No. 3, pp. 209-225

77 Good, D. H., Röller, L.-H. and Sickles, Robin C. (1993). US Airline Deregulation: Implications for European Transport, The Economic Journal, Vol. 103, No. 419 (Jul., 1993), pp. 1028-1041

more social and strict compared to US ones, there is a potential problem in the reduction of the employees to efficiency levels.[78]

Table 2: Technical efficiency costs and excess labour for European airlines, compared to US carriers

Technical efficiency costs and excess labor for average European efficiency compared to average of US firms (nominal millions of $)

Year	Wage rate	Within model			DEA model		
		Technical eff. cost	Excess labor (%)	Cost per job saved	Technical eff. cost	Excess labor (%)	Cost per job saved
1976	0.014	230.5	17.4	0.050	266.3	20.1	0.050
1977	0.017	269.9	17.6	0.053	301.9	19.7	0.053
1978	0.020	345.1	17.9	0.063	388.0	20.1	0.063
1979	0.023	467.4	18.9	0.078	499.2	20.1	0.078
1980	0.027	565.4	19.7	0.092	605.4	21.1	0.092
1981	0.024	511.4	19.8	0.089	512.7	19.9	0.089
1982	0.023	492.4	20.0	0.088	491.8	20.0	0.088
1983	0.023	493.3	20.4	0.089	496.7	20.6	0.089
1984	0.022	521.1	20.8	0.089	523.2	20.9	0.089
1985	0.023	560.6	20.7	0.093	567.6	21.0	0.093
1986	0.028	625.5	21.6	0.100	650.8	22.5	0.100

Source: Good et.al. (1995), page 517

More recent data of the International Air Transport Association (IATA), presented in the below Table 3, which compares the share of the labour costs from the total operating costs across airlines in North America, Europe and Asia, brings evidences for increased efficiency in the labour costs. It could be seen that the airlines in all geographical regions have reduced and achieved efficiency by this cost category, comparing the levels in 2008 with these in 2001 year. The process of transformation by the North American airlines has brought significant efficiency improvements by the labour costs with decrease of 14,70% by this cost group. Regarding the carriers in Asia Pacific region, the labour costs are representing only a 14,70% in 2008 from the total operating costs, which is due to the lower wages. Generally the major airlines has reduced the labour costs from 28,30% to 20,10% as a result from increased employee productivity with 42% in the period analyzed.[79]

78 Good, D., Röller, L.-H. and Sickles, R. C. (1995). Airline efficiency differences between Europe and the US: implications for the pace of EC integration and domestic regulation, European Journal of Operational Research 80 ,pp. 508-518

79 http://www.iata.org/NR/rdonlyres/2C2C38BA-BB3B-4A4E-A8BE-1AC0FF87AC86/0/Airline_Labour_Cost_Share_Feb2010.pdf , page 1 , accessed on 18.11.2009

Table 3: Shares of the different cost groups from the total operating costs in %[80]

	North America		Europe		Asia Pacific		All Major Airlines	
	2001	2008	2001	2008	2001	2008	2001	2008
Labour	36.2%	21.5%	27.2%	24.8%	17.2%	14.7%	28.3%	20.1%
Fuel	13.4%	34.2%	12.2%	25.3%	15.7%	36.7%	13.6%	32.3%
Aircraft Rentals	5.5%	3.0%	2.9%	2.5%	6.3%	4.5%	5.0%	3.5%
Depreciation and Amortisation	6.0%	4.5%	7.1%	5.7%	7.4%	7.8%	6.7%	5.9%
Other	38.9%	36.9%	50.7%	41.8%	53.4%	36.3%	46.4%	38.2%

Source: IATA Economic Briefing, February 2010

4.3.2. Labour costs' efficiency development by low cost carriers and network airlines

As one possible problem and challenge field for the LCCs is controlling the costs and particularly the labour costs. As they mature it's expected that the employees and unions would force them to revise and increase the wages.[81] This problem for LCCs already exists and there are evidences for a process of convergence in the unit labour costs of LCC and network airlines. The last have understood the importance of the labour costs decrease and have made cut-offs of approx. 25% in the unit labour costs, thus improving their cost efficiency. On another side the unit labour costs by LCCs have kept on rising, as these carriers have become more mature.[82]

One of the strategies applied by the traditional airlines in response to the low cost competition was in terms of the labour costs. As to overwhelm the better cost efficiency of the LCCs, the network airlines were put under pressure to bring down the labour costs through different measures: rising up the productivity; suspending or even decreasing the wages and premiums; contracting new employees on lower costs and outsourcing.[83] Another strategy as to reply to LCCs threat was the creation from some network airlines of their own LCCs offshoots. Analyzing data

80 http://www.iata.org/NR/rdonlyres/2C2C38BA-BB3B-4A4E-A8BE-1AC0FF87AC86/0/Airline_Labour_Cost_Share_Feb2010.pdf, accessed on 18.11.2009

81 Doganis, R. (2006). Airline Business, 2 ed., Routledge, London, pages 191-192

82 Tsoukalas, G., Belobaba , P.and Swelbar, W, (2008).Cost convergence in the US airline industry: An analysis of unit costs 1995–2006, Journal of Air Transport Management ,Vol.14, pp.179– 187

83 Dennis N. (2007). End of the free lunch? The responses of traditional European airlines to the low-cost carrier threat , Journal of Air Transport Management , Vol.13 , pp. 311–321

for the period of 1995-2003, it has been concluded, that the most considerable cost gap between the LCCs and the traditional airlines are the labour costs, which results from the LCCs better productivity and lower wages. But the networks airlines with their own LCCs do not seem to be more successful in narrowing particularly the labour cost differences with the LCCs than those network carriers without own LCC subsidiaries.[84]

There are evidences that the LCCs are more efficient regarding the labour costs. They have ratio of salary costs per total operational costs, which is lower compared with the traditional carriers and one factor behind is the better utilization. The pilots by the LCCs are flying 210 days per year and by the traditional carriers this parameter is on average 184 days. Additionally the wages by LCCs are lower than the network ones: the pilot wages by the LCCs are 27% lower than these by the traditional carriers and there exists also a variable part by the salaries of the LCCs' pilots, depending on the flight numbers. The variable part for the First Officers by the LCCs is approximately 18% and by the network airlines this number is 5%; for the captains' employee group these values are 20% and 8% respectively.[85]

In the US airline industry important changes have happened in the period of 1985-2006. By the traditional airlines the employment rates have decreased with 5% from 1985/2001 period to 2002/2006 and by the LCCs there was increase in employment with 128% in the same period. The changes in wages are a further confirmation that the traditional carriers were going through different transformations by improving productivity than the LCCs. The average pay per employee by LCCs have increased with 48% for the period of 2001-2006, while by the legacy airlines with only 16% over the same period. Regarding the efficiency and performance aspects in the industry, the application of Data Envelop Analysis (DEA) and Tobit analysis is revealing some interesting results. The payment per employee (labour pay) is improving carrier's own efficiency in the time (as it brings

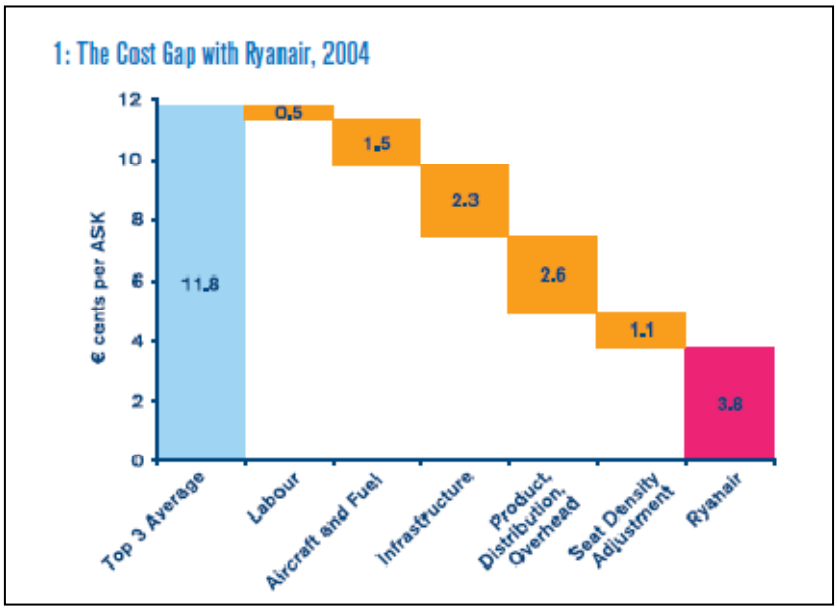
84 Morrell, P. (2005). Airlines within airlines: An analysis of US network airline responses to Low Cost Carriers, Journal of Air Transport Management Vol.11, pp. 303–312

85 Harvey G. and Turnbull P. (2006). Employment Relations, Management Style and Flight Crew Attitudes at Low Cost Airline Subsidiaries: The Cases of British Airways/Go and bmi /bmibaby, European Management Journal , Vol. 24, No. 5, pp. 330–337

progress in the labour morale and in the working conditions), but it's leading to increased inefficiency, when comparing within the peer group. Thus the labour pay is contributing to the operational efficiency of a carrier in the time, but it's not corresponding against peer group competition.[86]

Regarding recent development in the labour costs, IATA statistical data in Graphic 3, reveals that in 2004 the cost gap by the European network carriers and Ryanair, as a representative benchmark LCC, was highest by the product and distributional costs. The gap by the labour costs, which are the cabin and crew wages in the statistical report, was the smallest one. The growth of LCCs has increased the competition in the industry and the network carriers were forced to achieve better cost efficiency.[87]

Graphic 3: Cost gap European network airlines with Ryanair in 2004



Source: IATA Economics Briefing Nr.5: Airline cost performance

86 Bhadra, D. (2009). Race to the bottom or swimming upstream: Performance analysis of US airlines, Journal of Air Transport Management ,Vol.15 , pp.227–235

87 http://www.iata.org/NR/rdonlyres/09078492-F854-4B38-980D-2B0E0048F725/0/890200_Airline_Cost_PerformanceSummary_Report.pdf , accessed on 20.11.2009

CHAPTER FIVE

5. Labour costs as input prices

Further to the above presented labour costs aspects in the previous Chapter 4, here I will discuss the labour costs as input prices (wages), seen in the context of the deregulation process, privatisation, efficiency aspects and factors, affecting the wages.

5.1. Consistency in the labour wages in terms of deregulation

Exploring the wages after the deregulation on the base of data for the period of 1972-1989 there are only a little evidences that the earnings after the deregulation have decreased.[88] Regarding one specific employee group, namely the mechanics and analyzing data for the period of 1978-1983, there are confirmations that after the deregulation there are only small changes in the real wages of the mechanics. But the deregulation has resulted in a shift of about 5000–7000 maintenance jobs from larger airlines to small carriers.[89]

There are evidences that the employees in the airline industry have not experienced significantly more deterioration by their real wages than employees in other industries.[90] The deregulation had a small impact on the airline's earnings, whereas by sectors as the railroad the wages have declined with 20 %.[91]

5.2. Efficiency in labour wages and the deregulation

Analysing data in 1977 and 1984, there are evidences that the decrease in the wages by airlines were statistically significant. These differences in the two periods of time are uniform with the view that the bargaining power of labour in airlines has diminished, compared with the past, but the organized employees in the airline

88 Brown N. (1991). Airline Workers' Earnings and Union Expenditures under Deregulation, Industrial and Labor Relations Review, Vol. 45, No. 1, pp. 154-165

89 Card, D. (1986). The Impact of Deregulation on the Employment and Wages of Airline Mechanics, Industrial and Labor Relations Review, Vol. 39, No. 4

90 Johnson, N.B.(1995). Pay Levels in the Airlines since Deregulation. In *Airline Labor Relations in the Global Era: The New Frontier*, edited by Peter Cappelli, pp. 101-115. Ithaca, NY: ILR Press

91 Winston, C.(1993). Economic Deregulation: Days of Reckoning for Microeconomists, Journal of Economic Literature, Vol. 31, No. 3 , pp. 1263-1289

industry are still in better financial situation than workers in less concentrated sectors with small union memberships.[92] It has been found out that the deregulation have brought down the labour costs levels. The relative wages are increasing through 1983 and after that they decrease strongly.[93]

Researching the impact of deregulation on the labour earnings in the airline industry for the period 1980-1990 reveals that the real earnings have declined with 10% since 1980. After the deregulation the wage gaps across airlines in terms of the different groups' employees has raised: up to 40% differentials for pilots and 10-30% for flight attendants.[94]

Analyzing the period 1973-1997 it has been concluded that due to the deregulation the relative earnings in the industry have considerably decreased in the last half of 80's and in the early 90's. The wage premiums continue to exists, but they are humble for the most of the airline employees, exception are the pilots. After the deregulation the earning gap has risen as the differences in payment between unionized airlines and the growing number non-union airlines have increased. The labour rents are due to a great extent to the union contracting power, which is withheld from the financial situation of the airlines.[95]

Studying the wages for the period of 1952-1992 in the airline industry reveals that there are evidences of significant decline. The group of the mechanics has suffered only small wage decrease, but the groups of the flight attendants and pilots are significantly influenced. Two reasons are explaining the fact that wages by the mechanics have been almost not changed: the group of the mechanics have more jobs possibilities outside the airline industry and secondly their part of the total employee numbers have declined during the period studied. It could be seen in the below Table 4 that the earnings of the flight attendants have been with 12% in 1985 and with 39% in 1992 lower than the levels expected to be attained if

92 Peoples, James, Jr. (1990). Airline Deregulation and Industry Wage Levels, Eastern Economic Journal, Vol.16, No.1, pp.49-58

93 Baltagi, B. H., Griffin, J.M. and Rich, D. P. (1995). Airline deregulation: the cost pieces of the puzzle, International Economic Review, Vol. 36, No. 1, pp. 245-258

94 Card , D.(1996). Deregulation and Labor Earnings in the Airline Industry, NBER Working Paper Nr.5687

95 Hirsch, B. and Macpherson, D.A. (2000). Earning, Rents and competition in the airline labour market, Journal of Labor Economics, Vol. 18, No. 1, pp. 125-155

the deregulation has not occurred. Accordingly the pilot's earnings were 12% and 22% below the values that could be achieved if deregulation has not happened in 1985 and 1992 years.[96]

Table 4: The impact of deregulation on the wages

	Wage Loss (in Percentage)					
	From Deregulation Alone			From Deregulation Plus Economywide Effects		
Category	1985	1990	1992	1985	1990	1992
Pilots	12	22	22	18	32	33
Flight Attend. with Seniority	36	60	65	34	57	63
Flight Attend. without Seniority	12	33	39	12	33	39
Mechanics	0	−7	−8	20	27	30

Source: Cremieux (1996), page 237

5.2.1. Efficiency aspects of wages in Europe and USA

There are discrepancies in the level of wages, when comparing different geographic areas. Regarding pilots and cabin crew personnel, who represent two specific and very important employee groups, the US wages in 2002 were similar across the major carriers. The European average wages of pilots were higher compared to the levels in North American. The cockpit crew is a small part of the entire employees in an airline, but their wages represent a solid part of the total staff costs. It could be seen in the below Table 5 regarding the European airlines, that the cockpit as percentage of the employee numbers is varying between 5,8% and 13,6% and the cockpit costs are accounting between 14.1% and 32,2% from the labour costs. Thus managing the pilot wages is of high importance for each airline and achieving agreements with this employee group is considered as a main part of the labour relations. The pilots could evaluate and compare the level of the wages only with pilots in other carriers, sometimes in other regions. Thus a trend for increasing of their wages exists, which should be taken into consideration from each airline.[97]

96 Cremieux, P.Y. (1996).The effects of deregulation on employee earnings: pilots, flight attendants and mechanics 1959-1992, Industrial and Labor Relations Review, Vol. 49, No. 2, pp. 223-42.

97 Doganis R. (2006). Airline Business, 2 ed., Routledge, London, pages 121-122

Table 5: Impact of cockpit crew on the total labour costs, European airlines 2002

Impact of cockpit crew on total labour costs, selected European airlines in 2002		
	Cockpit crew as percentage of airline's staff costs	
	% of staff numbers	% of staff costs
Austrian	13.6	32.2
Alitalia	13.6	29.0
LOT Polish Airlines	10.9	27.0
Iberia	8.2	25.6
Finnair	9.1	25.0
SAS	10.0	24.8
KLM	7.1	22.1
Air France	6.7	22.0
Air Portugal	5.9	20.4
British Airways	6.7	18.9
Cyprus Airways	6.4	18.7
Olympic	5.8	14.1
Note: Cockpit crew includes pilots, co-pilots and for some airlines, flight engineers; labour costs include overtime payments and social security payments.		

Source: Doganis (2006), page 122

In terms of the liberalization process by the European airlines the wages have been higher, compared with the trend in USA, where these costs have been reduced.[98] There are evidences that the inefficiency in the cost structure by European airlines, compared with US carriers, have resulted mainly from high labour rents, low labour productivity and high indirect costs. It's expected that the liberalization process in Europe could bring cost efficiency in the labour cost area.[99]

Analyzing the staff costs by European and US airlines in terms of the deregulation, reveals some conclusions. In the period after the deregulation, namely: 1978-1985 the wages of pilots and cabin crew, employed by US carriers, have increased a little over the inflation rate. But at the same period the group of the maintenance employees have suffered decrease in the real wages. In following period 1985-1993, the wages of US cabin crew employees have been reduced at most, while pilots, maintenance staff and ticketing and sales personnel have experienced at

98 Nijkamp, P. (1996). Liberalisation of Air Transport in Europe: The Survival of the Fittest? , Swiss Journal of Economics and Statistics , Vol. 132 (3), pp.257-278

99 McGowan, F., Seabright, P., Breyer S. and Encaoua D. (1989). Deregulating European Airlines, Economic Policy, Vol. 4, No. 9, pp. 283-344

least cut offs in payment. This efficiency in the labour costs was due to the pressure from the low cost, non-unionized airlines and the negative turndown in the economics during 90's. The carriers have reacted with cut offs in wages or fixing them, implementation of the two-tier wage system, early retirement incentives and lower free days. On another side by the European airlines in the period of 1985-1993 the wages in real values have increased for all groups of workers. The wages of the pilots have increased at most and by the ticketing and sales personnel this increase was the smallest. The European airlines have not achieved efficiency in the wages compared to the USA experience. But wage cut offs were expected by the European airlines, reflecting the US background and as a measure to obtain an international level of efficiency and competitiveness in the unit labour costs.[100]

There is a possibility of closing the existing wage gap between the international airlines as a result from the liberalization process. A risk of wages reductions exists, resulting from the growing use of the wage differences from the international carriers. The possibilities of outsourcing and moving to countries with low labour costs have been exploited for example from Lufthansa, Swissair and British Airways.[101]

5.3. Determinants of the wages

Here I will base on Doganis (2001) [102], which presents that generally the level of salaries for the different employee categories is conditioned on the airline's home labour market and the expenses for living in this country. In countries with free negotiating it's an interaction of supply and demand for the employee groups needed by the carriers, together with the power of the unions, which set how much wages should be paid. In some countries the salaries could be determined by agreements between states or employers' organisations and the unions, but sometimes the state itself could regulate the wages. Nevertheless the salaries should be correlated with the living expenses in the particular country. The carriers

100 Morrell, P. and Alamdari, F. (1997). Airline labour cost reduction: post-liberalisation experience in the USA and Europe, Journal of Air Transport Management, Vol. 3, No. 2, pp. 53-66

101 Hanlon, J.P. (2007). Global airlines: competition in a transnational industry, 3 ed., Oxford: Elsevier Butterworth-Heinemann, pages 41-42

102 Doganis, R. (2006). Airline Business, 2 ed., Routledge, London, pages 122-124

could bargain with the unions the level of the payments within a limited band, whose degree is impacted from the current levels of salaries in the country. But there are evidences that in times of crisis or when the carriers are generating financial losses, the airline management is in strong position by regulating the level of wages. In many countries additionally to the primary salaries, the airlines should provide social payments to their workers' pension and to state's security funds. In result from these charges, the labour expenses by the airlines are increasing and they could differ a lot even in border countries. The airlines in Europe are the best example, where this variation in the social costs could be noticed. The social expenses by US airlines are higher, bringing about 25% increase to the basic wages. The level of these costs in USA was so enormous that after the crisis in 2001, the airlines have experienced difficulties and have attempted to hold or decrease the pension funds payments.

5.4. Privatisation and wages

By the privatization process of the European airlines, there are evidences, that the average employee wages in the privatized carriers are significantly lower than the wages in the state airlines.[103] Regarding the labour productivity there are evidences for an impact of the airline ownership structure on the productivity. In state airlines and such with mixed ownership the labour productivity is lower compared to the employee productivity by private airlines.[104]

Regarding the privatization by airlines, implementation of recovery plans should be applied to the state owned airlines. The example of the Olympic Airways recovery plan posses all the three elements that should be considered by re-organisations, namely: route and network optimizations; financial reforms and cost optimization. The cost reduction happens mainly in terms of labour costs, including employee number reductions, fixing the level of wages, and early employee's retirement.[105] On another side there are evidences for increase in employee numbers in airlines after privatization, which opposes the expectations that the management would cut

103 Macchiati, A. and Siciliano, G. (2007). Airlines' Privatisation in Europe: Fully versus Partial Divestiture, RIivista di Politica Economica, Vol. 97(1), pp. 123-156

104 Backx, M., Carney, M.and Gedajlovic E. (2002). Public, private and mixed ownership and the performance of international airlines, Journal of Air Transport Management , Vol.8, pp. 213–220

105 Doganis, R. (2006). Airline Business, 2 ed., Routledge, London, pages 236- 237

off labour force after privatisation to increase the productivity. But indeed after the privatization the sales have raised due to better efficiency in marketing and management. This has resulted in increase of the employees by the airlines after privatisation.[106]

106 Al-Jazzaf, Mahdy I.(1999). Impact of privatization on airlines performance: an empirical analysis, Journal of Air Transport Management 5 ,pp. 45-52

CHAPTER SIX

6. Productivity aspects in the airline industry

Below I will present productivity aspects in the airline industry, including application of partial measurements and overall assessment of productivity.

6.1. Partial measurement of the labour productivity and outcomes

Partial measures are oft applied by the measurement of the labour productivity as a ratio of some output per employees. Such measurements by the airlines as available tonne-kilometers (ATK) per employee and revenue passenger-kilometers (RPK) per employee have the disadvantage that they do not make a distinction between different kinds of payload. Thus comparison between airlines carrying more cargo and carriers concentrated more on the passengers is difficult. Another labour productivity measurement considered as better is the ratio between passengers and employees numbers, but it's should be also applied carefully as there are variations in the capital to labour ratios. A ratio of revenues per employee could also be used as a partial labour productivity measure.[107] By measuring the labour productivity a better indicator could be applied, when the employee numbers are replaced with labour costs in the denominator. Using the employee numbers in the denominator unifies all personnel groups as a pilot, manager and ground handling worker are considered as one employee, but obviously they have different outputs and cost effects. From the three groups of partial measurements (labour, fuel and flight equipment), the labour measure is showing the highest correlation with Total factor productivity (TFP). Particularly the revenue ton-kilometers (RTK) per employee have the highest value of correlation with TFP.[108]

Researching the unit labour costs by airlines in Europe and US for the period of 1978-1985, and applying partial measures (for wages and labour productivity),

107 Seristö, H. (1995). Airline performance and costs: an analysis of performance measurement and cost reduction in major airlines, Helsinki School of Economics and Business Administration, pages 49 -52 and 55

108 Windle, R. J. and Dresner, M. E. (1992).Partial Productivity Measures and Total Productivity in the Air Transport Industry: Limitations and Uses, Transportation Research - A, Vol. 26A, No. 6, pp. 435-445

presents some specifics. There are evidences that the unit labour costs by US and European airlines have decreased: by US airlines result from some decrease in wages and increased labour productivity and by the European carriers in result from higher productivity, as they were not effective in decreasing the real wages.[109] The existence of a gap in the labour productivity is also evident by studying airlines in Europe and North America for the period 1990 - 1995, applying partial labour productivity measurements. The analysis of the pilot productivity (expressed as a ratio of the hours flown per pilot) and the employee productivity (available tonne-kilometers per employee) reveals lower labour productivity by European airlines. But there are evidences that both the airlines in Europe and in US have achieved better productivity especially from 1990 year.[110]

Regarding the labour productivity after the deregulation and researching the period of 1970 - 2002 by US carriers, there are evidences for a growth of the labour productivity and this increase reflects the productivity growth in the economy as a whole. The labour productivity is measured in available seat-miles (ASM) and revenue passenger- miles (RPM) per employee and departures per employee. But the growth of the productivity has been achieved in RPMs and ASMs and not in departures, which means that the great part of the productivity increase came from employees interacting with the passengers (flight attendants, passenger service) and not due to mechanic.[111]

When applying partial productivity measurements some factors, which have influence, should be considered. The first group includes: labour rules, holidays, working hours per week, part time/full time rules for employment; all these factors are indeed government regulated and could limit the improvement measurements of the labour productivity. Next group of factors are the operational as: size of aircraft, sector distance, cargo operations of the airline and frequency. The degree of outsourcing is also at factor, which could include for example outsourcing of

109 Alamdari, F. E. and Morrell, P. (1997). Airline labour cost reduction: post-liberalisation experience in the USA and Europe , Journal of Air Transport Management, Vol. 3, No. 2, pp. 53-66

110 Martin, J. C., Nombela, G. and Romero M. (1999). European Airline Industry: a cost analysis and economic performance evaluation, ,World transport research Amsterdam, Pergamon, pp. 211-223

111 Johnson ,N. B. and Anderson , J. R.(2004). Airline employment, productivity and working conditions following deregulation, Research in Transportation Economics, Vol.10, pp. 79–108

catering and maintenance. There is a need also of adjusting the traditional parameter of labour productivity.[112]

Applying the product and organizational architecture approach (POA) to six European airlines, considered usually as LCCs, reveals some results. In the POA model one of the important applied benchmark metric is the labour productivity, which is constructed as an index including the following ratios: passenger per employee; employees per aircraft; personnel cost per available seat-kilometers (ASKs); flight and cabin crew per total employees; ASK per employee. This labour index has a high correlation coefficient with the profitability. As for a lot of carriers the labour is the main controllable cost element it's was not unexpected that airlines with high labour productivity are also more profitable. There is a strong correlation between the cost and labour indices, which reveals that the low cost carriers, which gain high labour productivity are a long way into assuring low costs.[113]

The partial measurements of productivity are applied in research papers as they are not complex to calculate. But the gross measures of such partial productivity are influenced from variables as stage length and output structure, which could not be controlled from the management. To compare properly airline efficiency in using different inputs, the influence of such uncontrollable determinants should be excluded. But it should be noted that the outcomes are not revealing the overall productivity as they are showing only how a single input is used. Analyzing the labour input efficiency reveals that in 1993 it was highest for the Asian carriers, followed by the North American carriers and lowest by the European airlines. This result was in some extent unexpected as it was considered that the Asian airlines were using more labour due to the lower labour wages locally. One reason was the use of employee numbers to evaluate the labour input rather than employee-hours and the personnel by Asian carriers were working more hours generally. At the same time the variations in labour efficiency by the airlines in Asia is much more then these in North America. Regarding the growth rate of the labour

112 Doganis, R. (2006). Airline Business, 2 ed., Routledge , pages 124 and 126- 128

113 Mason, K. J.and Morrison W.G. (2008).Towards a means of consistently comparing airline business models with an application to the 'low cost' airline sector, Research in Transportation Economics 24, pp. 75–84

efficiency for the period 1986-1993, the European airlines have had the highest growth rate, followed by the Asian carriers and North American airlines.[114]

6.2. Overall productivity and efficiency measurement methods and evidences

Here I will present some methods, specifically applied in the airline industry for measuring overall productivity and efficiency and some results and trends, which they reveal.

Empirical comparison of different productivity measurements by airlines as: RTK per employee, ATK per employee, TFP (Total factor productivity) index, DEA (Data envelope analysis), TFP index decomposition, DEA index decomposition and cost function decomposition, reveals some results. Calculating correlations between these different productivity measures, applying data of 34 airlines in 1983 year, three groups are formed. In each group the measures are highly correlated, with coefficient of 0,75 or higher. The first group includes the two partial productivity measurements, TFP index and DEA. In the second group are TFP decomposition and DEA decomposition and in the third category is the cost function decomposition. Regarding the first group, the RTK per employee has a coefficient of correlation 0,907 with TFP and ATK per employee has coefficient of 0,873 with TFP.[115]

6.2.1. Total factor productivity approach

Analyzing the period of 1970-1983, applying TFP for measuring productivity, reveals that the productivity of US airlines has increased with 3% per annum before the deregulation and by non-US carriers the rise was 4,5%. But after the deregulation these numbers have changed and the US carriers have achieved

114 Oum, T.H. and Yu, C. (1998). Winning Airlines: Productivity and Cost Competitiveness of the World's Major Airlines, Kluwer Academic Publishers, Transportation Research, Economics and Policy, pages 77-81

115 Windle , R. and Dresner , M.(1995). A note on productivity comparison between air carriers, Logistics and Transportation Review 31 (2), pp. 125-134

3,3% increase per annum in productivity and the group of the non-US gained 2,8%.These results were due to the process of deregulation.[116]

Applying TFP approach to compare productivity discrepancies between US and non-US airlines, using panel data for 1983, reveals some evidences. The following inputs have been applied in the study: labour; fuel; flight equipment; ground property and equipment and materials. Outputs are: scheduled revenue passenger–miles, non- scheduled revenue ton-miles, scheduled revenue ton-miles of mail and scheduled revenue ton-miles of freight. Then the TFP is calculated as a ratio of total output to total input, applying the translog multilateral index approach of Caves et.al. (1982)[117]. Then the translog multilateral comparison of the output of companies k and j could be presented as follows:

$$lnY_k - lnY_j = \sum_i {}^1\!/_2\,(R_{ik} + \bar{R}_i)\ln(Y_{ik}/\tilde{Y}_i) - \sum_i {}^1\!/_2\,(R_{ij} + \overline{R}_i)\ln(Y_{ij}/\tilde{Y}_i) \quad (1)$$

where Y_{ik} is output of type i for airline k, R_{ik} is the revenue share of output i for airline k, $\bar{R}_i$ is the arithmetic mean of the revenue share of output i over all observations in the sample, and $\tilde{Y}$ is the geometric mean of output i over all observations of the sample. The translog multilateral comparison of the input of companies *k and j* could be expressed as:

$$lnX_k - lnX_j = \sum_i {}^1\!/_2\,(W_{ik} + \overline{W}_i)\ln(X_{ik}/\tilde{X}_i) - \sum_i {}^1\!/_2\,(W_{ij} + \overline{W}_i)\ln(X_{ij}/\tilde{X}_i) \quad (2)$$

where X_{ik} are the inputs and W_{ik} are the cost shares. Then the translog multilateral comparison of TFP of companies *k and j* can be presented as:

$$lnTFP_k - lnTFP_j = \left(lnY_k - lnY_j\right) - (lnX_k - lnX_J) \quad (3)$$

The above equations are then applied in order to calculate an index of TFP for each airline in the data sample. It has been concluded that US airlines have productivity benefits compared to international airlines, with the exception of carriers in East Asia. The carriers in East Asia have had 15,3% higher productivity

116 Caves, C.W., Christensen, L.R., Tretheway, M.W. and Windle, R.J. (1987). An assessment of the Efficiency Effects of US Airline Deregulation via an international comparison , in E.E.Bailey ed., Public regulation: New perspectives on institutions and policies, MIT Press , Cambridge, pp. 285-320

117 Caves, Douglas W., Christensen, Laurits R. and Diewert, W. Erwin. (1982). Multilateral Comparisons of Output, Input, and Productivity Using Superlative Index Numbers, The Economic Journal, Vol. 92, No. 365 , pp. 73-86

compared to the US carriers. Regarding the European airlines, their TFP values are with 19% lower than the US levels.[118]

6.2.2. Two-step total factor productivity method and stochastic function

In this chapter I will follow Oum and Yu (1998) [119] in order to present further overall productivity measurements methods, applied in the airline industry.

In order to evaluate the airlines' overall productive efficiency, methods as TFP, residual TFP and stochastic frontier method could be applied. Further in the study the multirateral index procedure of Caves et.al. (1982)[120] have been adopted for estimating TFP and comparing between firms and over time. The gross TFP results for the period 1986-1995 have revealed higher TFP growth for the European airlines than US carriers. But the calculated TFP index is regarded as gross TFP as it could not resemble the real productivity of an airline, because of the impact of factors as stage length, economic situation and output content. That's why in order to make a proper comparison two-step TFT model has been further applied.

The two-step TFP method is then used to regress the gross TFP index against a set of explanatory variables. Thus a residual TFP index is calculated after excluding the effects of variations in the uncontrollable variables from the gross TFP. The residual TFP index is applied for comparison of productive efficiency between airlines and over time within an airline. Comparing the residual TFP with the gross TFP index it's evident that the residual TFP has much lower spread between airlines than the gross. This is due to the fact that a great part of the spread in the gross TFP was defined from the uncontrollable variables.

Calculating further regional average residual TFP indexes it's evident that European airlines on average are with 12% less efficient from the US airlines, but they have gained a progress since the deregulation and the efficiency spread with

118 Windle, R. (1991). The world's airlines, a cost and productivity comparison, Journal of Transport Economics and Policy. January.XXV (1), pp.31-49

119 Oum, T.H. and Yu, C. (1998). Winning Airlines: Productivity and Cost Competitiveness of the World's Major Airlines, Kluwer Academic Publishers, Transportation Research, Economics and Policy, pages 91-100, 106-108 and 114-115

120 Caves, Douglas W., Christensen, Laurits R. and Diewert, W. Erwin. (1982). Multilateral Comparisons of Output, Input, and Productivity Using Superlative Index Numbers, The Economic Journal, Vol. 92, No. 365 , pp. 73-86

the US airlines is closing. At the same time the US airlines have been with 4% more efficient compared to the Asian carriers for the period of 1986-1993. The group of the Asian carriers on another side have succeeded to gain productivity progress and to decrease the spread with the North American airlines from 18% to 5%.

The next model presented is the stochastic frontier method, which assumes that some companies are not succeeding to attain the production (cost) frontier; thus there are inefficiencies and they could not be entirely clarified with the measurable variables. Therefore a one–sided error item, additionally to the traditional symmetric noise item was added in the model in order to catch such inefficiency. Different distributions have been estimated regarding the one sided (inefficiency) term.

The basic stochastic frontier is express as follows:

$$y = f(\mathcal{X}, \beta)e^{v}e^{-u}, \quad u \geq 0$$

In the above model, y express the output, $f(\mathcal{X}, \beta)$ is the deterministic base of the frontier production function, β are the parameters to be evaluated, v is a random variable taking following values $(-\infty; +\infty)$ and describes the effect of measurement errors, non observable explanatory variables and random shocks; u is a random variable and has nonnegative values, representing the inefficiency. Thus the $f(\mathcal{X}, \beta)e^{v}$ is the stochastic frontier and the e^{-u} is expressing the deviation of each observation from the frontier, that's means the inefficiency. The condition $u \geq 0$ assures that the observations are on or below the production frontier.

The empirical results are revealing that the US airlines are the most efficient, but the European and Asian airlines productivity growth rate is higher compared to the level by US carriers. Comparing the residual TFP indices and the efficiency indices from the stochastic frontier production function it has been concluded that the outcomes from the two models are uniform as a whole.

But the productive efficiency does not consider other factors such service quality differences between the airlines and also the impact of airport congestions to airlines and other uncontrollable factors. Thus the productive efficiency parameters could underestimate the real efficiency of airlines that generate high quality services and carriers, with mainly flights through congested airports.

6.2.3. Data envelope analysis

Studying the efficiency and productivity divergence between European and US carriers for the period 1976-1986, reveals some results. Two methods have been applied: stochastic frontier (based on regression analysis) and approach based on linear programming, namely the DEA. As below presented in Table 6 there are evidences for efficiency and productivity gap between the European and US carriers and the US airlines have better parameters. But the advantages of the deregulation could be significant in terms of productivity and efficiency for the European Airlines.[121]

Table 6: Average productivity growth Europe and US airlines between 1976-1986

Average productivity growth and efficiency levels (adjuste DEA)

Year	Productivity growth (%)		Technical efficiency (%)	
	Europe	US	Europe	US
1976	1.2	1.9	73.4	91.9
1977	1.1	1.7	74.2	92.4
1978	0.9	1.6	74.6	93.3
1979	0.7	1.4	74.9	93.8
1980	0.5	1.2	74.0	93.9
1981	0.3	1.0	75.4	940
1982	0.2	0.8	75.5	94.4
1983	0.0	0.7	75.4	94.9
1984	0.2	0.5	74.9	94.7
1985	0.4	0.3	74.6	94.4
1986	0.6	0.1	73.2	94.4

Source: Good et.al. (1995), page 516

Applying DEA and Malmquist productivity index to analyze the changes of the productivity of major US airlines in the period of 2000-2004, brings interesting

121 Good , D., Röller L-H. and Sickles, R.C. (1995). Airline efficiency differences between Europe and the US: Implications for the pace of EC integration and domestic regulation , European Journal of Operational Research 80 , pp.508-518

results. The Malmquist productivity index estimates the development of the productivity of a decision making unit (DMU) in the time. Further the change in productivity is due to two factors: efficiency changes and technical changes. In the input–related efficiency aspect an efficiency improvement happens, when there are reductions in the amount of inputs used to generate a given set of outputs with a particular production technology. This could happen with a more rational use of inputs. Particularly in the airline sector efficiency improvements could happen with adjustments in the working rules or decrease of the labour force required to produce certain available seat-miles (ASMs). On another side the technical changes are achieved through implementation of new technologies, which decrease the minimum of input necessary to generate defined output. Further applied is DEA method, which is a nonparametric linear programming method and has benefits, compared to the parametric ones by determination of the efficiency frontier. The input DEA method establish if the produced output from the DMU could be generated with proportionally less of every input than the DMU is consuming. Efficient DMUs in the airline sector are taken as benchmark in order to make this estimation. The results have revealed that better productivity level has came more from efficiency improvements than from adoption of new technologies in the airline industry.[122]

The application of DEA model enables to include various inputs and outputs in the production frontier and make possible estimation of the airline technical efficiency. Airline's data of European carriers is applied as base for the period of 2000-2005 and a two-stage DEA model is used. It's has been concluded that the airline's efficiency is increasing, but at a declining level in the period studied. Further the population of the countries has impacted also the efficiency of the airlines. It has been founded out that mostly the low cost airlines are bringing the efficiency of the European airlines. There are evidences that the networks are also bringing positive effect on the efficiency. Some measures should be taken from inefficient European airlines in order to achieve better efficiency levels. Such practices to be implemented are: applying a benchmark practices as to estimate the situation of the airline and then to make the necessary steps in order to move to the best

122 Greer, M. R. (2008). Nothing focuses the mind on productivity quite like the fear of liquidation: Changes in airline productivity in the United States, 2000–2004, Transportation Research Part A 42, pp. 414–426

practices; the airlines should apply employee policy, which removes the collective problems; they should look for market focused strategies, which boost the output and reduce the input.[123]

Regarding efficiency and productivity aspects by the low cost and full service carriers and applying DEA and TFP, bring some conclusions. The results from the two methods are consistent and are revealing that the low cost carriers are more efficient, due to the business model implemented and the labour is the only input that has certainly impact on the productivity.[124]

Applying DEA to a sample of US carriers reveals that the influence of the unionisation on the airline efficiency is statistically unimportant. There are other factors, which are affecting the technical efficiency as the average aircraft size, average stage length and the extent to which a carrier has build its routes on hubbing. By increase of the average aircraft size or average stage length the airline efficiency improves, but the growth of the hubbing brings lower efficiency results.[125]

123 Barros, C. P. and Peypoch, N.(2009)., An evaluation of European airlines' operational performance, Int. J. Production Economics 122 , pp.525–533

124 Barbot, C., Costa, A. and Sochirca, E. (2008). Airlines performance in the new market context: A comparative productivity and efficiency analysis, Journal of Air Transport Management 14 , pp. 270– 274

125 Greer,M.(2009). Is it the labor unions' fault? Dissecting the causes of the impaired technical efficiencies of the legacy carriers in the United States, Transportation Research Part A 43 , pp. 779–789

CHAPTER SEVEN

7. Labour relations in the airline industry

Discussing in my work the labour factor it's obligatory to present also different aspects, regarding the employee's relations in the airline industry.

The labour relations are important as they have impact on a lot of people and are highly transparent. The airline industry is a unique, because it is from the few sectors, where the unions are remaining powerful and strong in protecting their interests.[126]

7.1. Labour relations and the process of deregulation

After the deregulation the employment in the airline industry has increased, but with cycles of economic deterioration. The number of the part-time employees has increased also; the productivity has improved at a rate jointly with the manufacturing industry. At the same time there are evidences that the working conditions are becoming worse, taking into account the increased level of injuries, customer's offense and increase exhaustion by pilots and flight attendants. After the deregulation the working hours of the pilots have increased. The same has happened by the flight attendants, which have handled more passengers and have worked more hours. Thus in the airline industry there was an increase of tired employees and higher safety risks. By the airline mechanics group the post deregulation period has brought more pressure for increased efficiency, which has resulted from increased competition in forms of outsource maintenance and repairs.[127]

There are evidences that the deregulation have strongly decreased the union bargaining power in the airline industry. In USA the Congress has approved a law in order to protect airline employees, affected form the deregulation. But in practice the airline labour force has not experienced the advantageous from this

126 Cappelli, P. (1995). Airline labor relations in the global era: The new frontier, Ithaca, NY, page 1

127 Johnson ,N. B. and Anderson , J. R.(2004). Airline employment, productivity and working conditions following deregulation, Research in Transportation Economics, Vol.10, pp. 79–108

act. Some aspects of the airline collective bargaining in the deregulated industry as: using of non-union subsidiaries and subcontracting, have additionally deteriorated the employee relations by the US airlines.[128] The deregulation is the main factor for forming new employee relations in the airline industry. The process of deregulation has pressed the airlines not only to oppose the further unionization, but also to force the unions to accept cost decrease practices and to face competition. Thus the airlines were resistant to higher wages and benefits as it was no more possible transferring these costs further to the end customers.[129]

7.2. Reduction in wages and employees' morale

Most of the employers are avoiding the payments cuts as they believe that the effect on the morale and on productivity is negative. The morale of the employees suffers, because the cut offs in wages are deteriorating their standard of living and are personally understood as a disrespect and discontentment with the employees. The cut offs are not usually considered as a good opportunity to the layoffs. The layoffs are not so damaging on the morale of the employees as the cut offs in wages.[130]

But studying the permanent cut offs of wages of pilots and the response in terms of pilot's efforts, reveals interesting results. Applying the airline on time performance as a measure for the pilot efforts it has been concluded that there are only limited proofs that permanent decrease in the wages lead to lower employee's efforts or has a negative effect on their morale.[131]

7.3. Quality aspects of the labour relations

Here I will rely on Gittell et.al. (2004)[132], where is looked more complexly at the labour relations in the airline industry, considering the quality of labour relations

128 Nay, Leslie A. (1991). The Determinants of Concession Bargaining in the Airline Industry, Industrial and Labor Relations Review, Vol. 44, No. 2 , pp. 307-323

129 Northrup, H. (1983). The New Employee-Relations Climate in Airlines, Industrial and Labor Relations Review, Vol. 36, No. 2, pp. 167-181

130 Bewley, T. F. (1999). Why wages don't fall during a recession , Cambridge, Mass. Harvard Univ. Press , page 192

131 Lee, D. and Rupp, N.G. (2007). Retracting a Gift: How Does Employee Effort Respond to Wage Reductions, Journal of Labor Economics, Vol. 25, Nr. 4, pages 725-761

132 Gittell , J. H., Andrew von Nordenflycht and Kochan, T. A. (2004). Mutual Gains or Zero Sum? Labor Relations and Firm Performance in the Airline Industry, Industrial and Labor Relations Review, Vol. 57 , pp.163-180

also. Quantitatively have been analyzed the effects of structural factors (shared governance, wages, and unions) and relational factors (negotiation conflicts and workplace culture) on the performance in the airline industry. The results are revealing that the relational factors are more decisive on the airlines performance than the structural ones.

Taking into account the relational factors in the model developed, there are evidences that the presence of unions is bringing higher salaries. The presence of unions is connected also with higher aircraft productivity, resulting from high joint work efforts, which are allowing a higher aircraft utilization. The achieved productivity is supposed to be enough to compensate for the wages benefits, as the presence of unions is connected rather with increased profitability by airlines. The shared governance in the context of the relational factors has a net negative effect on the profitability (negative effect on the labour and aircraft productivity) and is connected with rather lower wages. Further considering the model for the wages, the study shows the negative effects of wages on labour productivity and on the profitability (supposing that wage benefits could come at the costs of profitability if they are not associated with decrease in conflicts and improvement in workplace culture).

Measurements to overcome the crisis in the industry, based mainly on cut offs in the employees' costs, numbers of workers or reduced unions influence, could bring improvements only in short terms. In order to achieve continues advantages in the service quality and in the financial results by airlines there should be implemented profound changes in the labour relation's quality. This means concentrating on the relationship between labour and managers and on attaining collective agreements on a sociable and non-conflict base, which could bring better financial results and service quality in the airline sector.

7.4. Union power, financial situation and cooperative labour relations by airlines

Below I will base on Hirsch (2006) [133] .

Over the regulatory period in 1973-78 the part of the workers, who were union member was 49,2% and this rate was 49,4% in 2005. The unionisations rate among flight and ground employees were higher. Thus the airline industry is one of the most unionized sectors, where the unions have significant bargaining power and this power is revealed from the possibility of strikes to close and bankrupt an airline. As the employees and unions do not have an interest to damage the employers, so the demands of the unions are hold back from the financial situation of the carriers.

There are proofs for considerable wage premiums in the airline sector, which are achieved mainly by union employees at main and mid–size carriers. The level of the wages is lower compared to the level at big national airlines. There is not much proof for existence of premiums for non-union employees in the industry, which mainly are not in the groups of the traditional workings groups as pilots, flight attendants, mechanics and service personnel. For union pilots the premiums are higher and for other union workers are also considerably high. The premiums are depending strongly on the union bargaining capability (strike strengths) and the union power to achieve wage benefits is depending on the financial situation of the airline. The financial problems, which exist by major and mid-size airlines combined with the rising competition, lead the unions and their members to realize that stable development seen in the long term need financial stable employer. Regarding the future, if there is a lack of developing more collaborative labour relations in the airline industry, then it’s possible to expect a coming back of wage and profit cycles, more entrance of airlines, which can attain low costs and an insecure future for the rest of the legacy airlines.

133 Hirsch, B. (2006). Wage Determination in the U.S. Airline Industry: Union Power under Product Market Constraints, Institute for the Study of Labor (IZA), Discussion Paper No. 2384 , pp. 1-41

7.5. Critique on the management practices in the airline industry

Referring the labour relations there exist also critique on the human resource practices in the airlines. It's argued that workplace practices regarding the safety and the health of the employees were not implemented by the airlines. The management attitude to the employees does not correspond also to the classical view for human resource practices and there exist a gap between the declared commitments to the personnel and the real situation. When the inadequate working physical conditions, the lack of management practices, stressful environment and heavy work tasks are to be considered, then the wrong economy policy is evident, formed by the airlines short term view. They have focused on the management culture practices in order to offset the existing problems of the employees. By following only a short term strategy, the main target was only the profit.[134]

The airline management oft do not assure sufficiently services to the own personnel as training and development, which could bring better employee performance and thus higher service quality. This fact is due to weakness of the human resource management in airlines and an option for improvements to be achieved is to concentrate on the nature of the employee relation problems.[135]

As a reaction to the implemented optimisations in work processes and employee costs from the airline management in Europe, the airline personnel have demonstrated resilience in the form of conflicts in the industry. These conflicts are taking the form of strikes, which in the early 80's and 90's were more offensive then defensive. The strikes are presenting the most reliable method to oppose to management plans.[136]

7.6. Airline's service quality and the employees

There are evidences that the employees' fulfilment, engagement and loyalty depend on high involvement and intercommunication from the management's side.

134 Boyd, C. (2001). HRM in the airline industry: strategies and outcomes, Personnel Review, Vol. 30, No. 4, pp. 438-453

135 Appelbaum, S. H. and Fewster, B. M. (2003).Global Aviation Human Resource Management: Contemporary Employee and Labour Relations Practices, Management Research News, Volume 26 ,Number 10/11, pp.56-69

136 Gall, G. (1996).Converging on Conflict? A Further Comment on Warhurst, European Journal of Industrial Relations, Vol. 2, Nr.2, pp.255-260

When the employees are motivated, loyal and engaged then the airlines could attain high quality service.[137]

One factor, having an impact on the customers by choosing an airline, is the comfort product characteristic. Behind the comfort there are such factors as quality of training of the employee; motivation of the labour force (delegation to the staff to handle the problems by themselves) and also the number of employees. By the contact with the customers the motivation and quality of the personnel are very important as achieving friendly and efficiency employees' leads to high level of service.[138]

As the airlines are operating in a high competitive market, where the service quality is a very important factor, the process by some major European airlines to sub-contract tasks to lower-paid and not enough trained employees, could be understand as a evidence, that in practice the costs have been put on a first place and not the quality as declared.[139]

7.7. Employee practices by low cost carriers

There are evidences that by 70% of the LCCs there is a presence of unions, applying traditional practices. The employees with fixed and unlimited contracts are equally by the LCCs. The main part of the LCCs has offered poor working conditions, compared to the traditional airlines. Further there are evidences that the LCCs have established a unique labour climate, by identifying their employees with the airline and thus have achieved loyalty of their personnel.[140]

Analyzing the Ryanair model has been found that the main determinant for its low cost base is seen to be the high labour productivity. In its labour policy the airline has found a balance between in-house operations and outsourcing, which assures in some extent freedom in its decisions. The employees in Ryanair have also

137 Bamford , D. and Xystouri, T.(2005). A case study of service failure and recovery within an international airline, Managing Service Quality ,Vol. 15 , No. 3, pp. 306-322

138 Doganis, R. (2002). Flying off course: the economics of international airlines, 3. ed. , London : Routledge , pages 237 , 243

139 Boyd, C. (2001). HRM in the airline industry: strategies and outcomes, Personnel Review, Vol. 30, No. 4, pp. 438-453.

140 Hunter, L. (2006). Low Cost Airlines: Business Model and Employment Relations, European Management Journal, Vol. 24, No. 5, pp. 315–321

shares of the company, they are young and the level of unionization is minimal and the share values and employee promotions are connected with the results of the airline. The labour productivity has increased tremendously and the base for such a growth is the workplace culture in the airline.[141]

The main items of the successful human resource management by Singapore Airlines are: rigid selection procedures of employees, profound training of personnel and investments in re-training, building effective teams among the cabin crew staff, possibility of the front-line staff to make independent decisions and motivation the employee (variable pay component, share options, rewards).[142] Similar success factor are existing by Southwest. Such factors behind the motivation are: good employee-management relations (employee's feelings of loyalty, responsibility and involvement); regular employee training (important motivation tool) and a presence of a strong leader.[143]

7.8. Labour relations in Europe and USA

Incentives programs in order to motivate employees are more applied by the US airline management, compared with Europe airlines, which is explained with differences in the cultures. For the Europe's airlines the delegation to the employees as a way to increase efficiency, is less important than by US carriers. The significance of the company culture is higher by US airlines, which is a result from the policy of keeping the unions aside.[144] In crisis economic times the carriers are often negotiating with the unions to hold up the level of salaries or even sometimes to cut them off. Both the US and European carriers were forced to propose result/profit oriented bonuses or shares in order to gain support from their employees. The employee share practices or stock option plans (ESOPs) in the industry has been applied to obtain better labour-management relations and employee motivation on one side and the other purpose is to achieve specific

141 Barrett, S. D. (2007). The sustainability of the Ryanair model, International Journal of Transport Management No.2, pp.89–98

142 Heracleous, L., Wirtz, J. and Pangarkar, N. (2008). Managing human resources for service excellence and cost effectiveness at Singapore Airlines, Managing Service Quality , Vol. 18 , No. 1, pp. 4-19

143 Bunz, U.K. and Maes, J.D. (1998). Learning excellence: Southwest Airlines' approach, Managing Service Quality, Vol. 8 Nr. 3 , pp. 163-169

144 Gudmundsson, S. V. (1997). The difference between European and US airline management practice: the case of new-entrant airlines, Journal of Air Transport Management, Vol. 3, No. 2, pp. 75-82

concessions on wages and work conditions. Evidence from US airlines shows that applying such ESOPs or close to it practices with shares to obtain pay adjustments is limited in short time terms only. Some exceptions are coming from the LCCs sector, but it was combined with employee focused management culture.[145]

Studying the management-labour relationships of airlines in Europe in the context of considering liberal (UK and Ireland) and coordinated market economics (Germany), reveals some results. It has been confirmed that management-labour relations happen more likely in coordinated markets than in liberal markets. In Germany for example Lufthansa (LH) has succeeded to implement a strategy on long term base, which was boosted from employment systems in the company, resembling the existence of social relationship on institutional and industrial level. But the more decentralize economics of UK and Ireland allows short term, labour oriented cost cutting strategies to be implemented.[146]

7.9. Demand elasticity by different employment groups

Studying the working conditions of three important for each airline working groups as a pilot, flight attendants and mechanics personnel, reveals some specifics. For these three groups a discrepancy regarding the demand elasticity exists. The most inelastic demand is connected with the pilots as they are the highest skilled personnel and not easy to substitute. They have not a lot of job possibilities outside the sector and are also expensive personnel, thus are dependent on their employer. On another side the group of the flight attendants is not involved in much training and is easy to replace. The mechanic personnel posses the most elasticity compared with the other two groups, which means that they could easily find a job position in another sectors. And a great part of the maintenance in the airline industry could be also outsourced.[147]

145 Doganis, R. (2006). Airline Business, 2 ed., Routledge Pages, pages 136-137,139 and 141-143

146 Turnbull, P., Blyton, P. and Harvey, G. (2004). Cleared for Take-off ? Management-Labour Partnership in the European Civil Aviation Industry, European Journal of Industrial Relations 10, pp. 287-307

147 Johnson N.B., Anderson J. (2004). Airline employment, productivity and working conditions following deregulation, Research in Transportation Economics, Volume 10, pp.79–108

7.10. Labour relations and recent crisis

Regarding the airline industry in US after the events from 11/09, it's important to look for the reasons why some airlines have succeeded after the attacks to overcome and cope with the crisis and other did not. Applying layoffs for the employees in some airlines in order to achieve fast recovery was not an effective measure. After the attacks there have been evidences that the layoffs are highly correlated with the absence of financial reserves and the lack of feasible business model before the crisis. The existence of such model is based on building and supporting relational reserves with the time. Further the preservation of sufficient financial reserves allows the keeping of relational reserves and vice versa. Thus financial reserves and feasible business models are important for reducing the layoffs and in preserving the relationships, which helps the airline to recover after crisis. For example Southwest Airlines succeeded quickly to recover after the crisis in 9/11 due to its feasible model, resulting from the existence of long term positive employee relations and financial reserves. Thus Southwest Airlines was able to hire even new employees after the crisis contrary to airlines as US Airways, which have applied a strategy of employee cut–offs in an attempt to overcome the down turn.[148]

148 Gittell, J. H., Cameron, K., Lim, S. and Rivas, V. (2006). Relationships, Layoffs, and Organizational Resilience: Airline Industry Responses to September 11, Journal of Applied Behavioral Science, Vol.42, Nr.3, pp.300-329

CHAPTER EIGHT

8. Benchmarking

8.1. Definition and classifications

"Benchmarking is the search for industry best practices that lead to superior performance."[149] Four types of benchmarking could be defined: internal (when comparison is within the organisation), competitive (comparing with the best direct competitors), functional (comparison outside the sector) and generic (comparing of work process with such having innovative ones).[150]

The benchmarking could be classified also into: internal, external and best practice. The internal benchmarking is performed within the organisation, while by the external a comparison with other companies is conducted. Thus the external benchmarking allows finding out superior performance. By the best practice benchmarking there is a possibility to compare with organisations, which performance is considered as best-in-class. But it's not exists a particular single best practice organisation, which could be used for such comparison. The only possibility to find out, which company is the best, is to conduct profoundly planning and gathering of data. In the beginning of the best practice benchmarking is important to discover an organisation, which is better in the process that needs improvements. Then when the performance has been surpassed with the time, the benchmarking could be again performed searching a still better organisation. Thus the evolving steps could bring to the ''best''.[151]

Another classification of the benchmarking could be seen in the below Table 7 [152]

149 Camp, R.C. (1989). Benchmarking: The search for industry best practices that lead to superior performance. Wisconsin: ASQC Quality Press, page 12

150 Camp, R.C. (1995). Business process benchmarking: finding and implementing best practices. Wisconsin: ASQC Quality Press, page 16

151 Coding, S. (1995). Best practice benchmarking: a management guide,.2. rev. ed., Gower, Aldershot, pages 7-12

152 Fong, S.W.,Cheng, E.W.L. and Ho,D.C.K.(1998). Benchmarking: a general reading for management practitioners, Management Decision 36/6, pp.407-418

Table 7: Benchmarking classification

Classification of benchmarking

Classification	Type	Meaning
Nature of referent other	Internal	Comparing within one organization about the performance of similar business units or processes
	Competitor	Comparing with direct competitors, catch up or even surpass their overall performance
	Industry	Comparing with company in the same industry, including non-competitors
	Generic	Comparing with an organization which extends beyond industry boundaries
	Global	Comparing with an organization where its geographical location extends beyond country boundaries
Content of benchmarking	Process	Pertaining to discrete work processes and operating systems
	Functional	Application of the process benchmarking that compares particular business functions at two or more organizations
	Performance	Concerning outcome characteristics, quantifiable in terms of price, speed, reliability, etc.
	Strategic	Involving assessment of strategic rather than operational matters
Purpose for the relationship	Competitive	Comparison for gaining superiority over others
	Collaborative	Comparison for developing a learning atmosphere and sharing of knowledge

Source: Fong et.al. (1998), page 410

8.2. Application of benchmarking

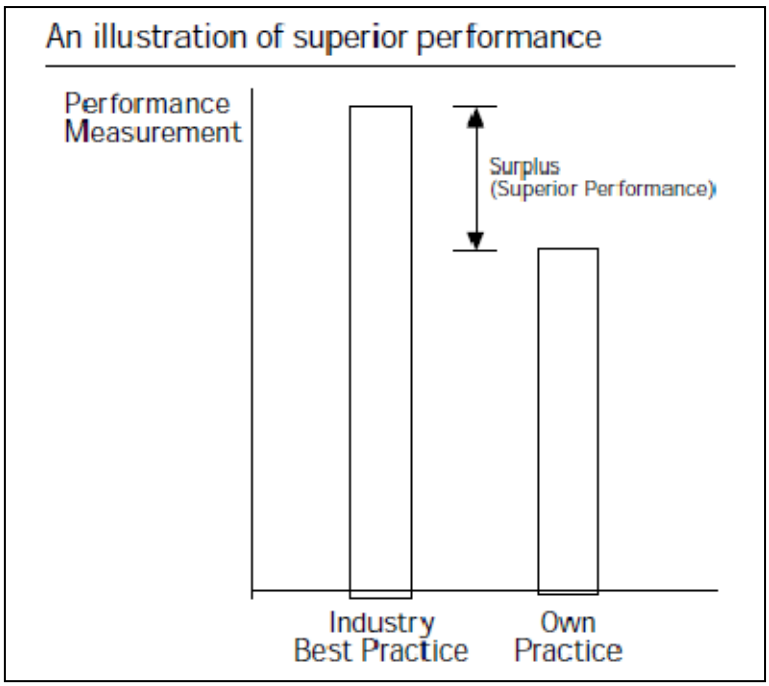
There are existing different applications for the benchmarking: for achieving high competitiveness; evaluating the performance compared with the best; as a process described by standard (a superiority point attained) and variables (anticipations and performance); as a process of comparing procedures or products with the strongest competitors and industry top performers and to pattern the best by constantly applying adjustments and check up of the performance. The benchmark leads to qualitative and quantitative data. The qualitative data is associated with the success factors, which are bringing the excellent performance. On another side the quantitative data assure measurement of the levels achieved at a specific moment. These two kinds of data are known also as practices and metrics. The employee factor, processes, organizational frame, management course and also strategic concepts are in the group of practices. Regarding the group of the metrics, these are measures which should be controlled constantly and they could express: financial performance parameters (business performance), technical performance parameters (productivity indicators) or

efficiency parameters (human contribution indicators). The aggregation of looking for practices and finding the gaps (metric) makes the benchmarking successful.[153]

But benchmarking is for optimization processes and should not be considered as a cost reduction method.[154]

Applying benchmarking brings a means to attain a continuous better performance. As the Graphic 4[155] below shows in order to achieve the performance surplus the gap should be completed by learning from the best practices. Indeed such a process should be conducted regularly, possibly years continuous improvement until the surplus is reached.

Graphic 4: Superior performance



Source: Fong et.al. (1998), page 409

As a result of not understanding properly the benchmarking some organisations have applied a result or cost-driven benchmarking, which accent only on cost optimisations. Thus the processes, leading to better performance are not realized, the results of such benchmarking practices are poor and the existing gap could not

153 Zairi, M. (1998). Benchmarking for best practice: continuous learning through sustainable innovation, Paperback ed., Butterworth-Heinemann , Oxford , pages 35 and 37

154 Zairi, M.(1994).Measuring performance for business results, Chapman & Hall, London, page 62

155 Fong, S.W.,Cheng, E.W.L. and Ho,D.C.K.(1998). Benchmarking : a general reading for management practitioners, Management Decision 36/6, pp.407-418

be fulfilled. On another side is the process benchmarking, which is focused on the processes that lead to the performance differences, could bring to an organisation superior performance. The process benchmarking allows finding out not only the best performance, but also how it has been reached. The total quality culture provides the ideal conditions for process benchmarking to enhance the processes, which are most significant to business success. The combination of total quality management (TQM), performance measurement and benchmarking constitute the main items of the competitiveness. It brings also a culture of regular improvement and assures external view. Thus the benchmarking guarantees that each process is at least competitive and brings a total quality organisation from continuous improvements to continuous learning.[156]

8.3. Stages by the benchmarking

The benchmarking process includes some stages:

- It starts with evaluating what functions of the company to benchmark by choosing the key success factors
- The significance of each factor is to be estimated
- Find organization, with which the benchmarking will be performed
- Assure benchmarking data
- Comparison between company's own performance and the '' best-in-class'' and thus finding out the gap
- Benchlearning from the results: how the organization could achieve improvements learning from the ''best-in-class'' performance
- Benchaction: the process of applying the adjustments

Thus through the benchmarking the performance of an organisation is measured against the ''best-in-class'' and the objective is to find out best practices, which could be implemented in order to achieve better performance. This is considered

156 Zairi, M. and Hutton, R. (1995). Benchmarking: a process-driven tool for quality improvement, The TQM Magazine,Vol.7, Nr.3, pp.35-40

as benchlearning process and the implementations are presenting the benchaction process.[157]

8.4. Benchmarking in the airline industry

Regarding the benchmarking particularly in the transport sector it's consists and starts with comparing performance indicators, which is revealing that some actual performance level is already existing somewhere in another company. But on other side the benchmarking is more complicated as it should disclose how these better performance parametric levels are achieved in other companies. This means that it should be founded which factors and processes are behind these performance indicators.[158]

Best practice benchmarking is seen as a one possible approach in the airline industry for achieving performance improvements. Comparison with other airlines is considered as critical, taking into account the high competitive nature of the industry. Constructing performance measurement indicators and benchmark ranking is the start stage for the benchmarking, which enables the comparison with the industry patterns. The focus on the processes and not only on the metric results is critical for effective benchmarking. But sometimes it's difficult to decide in which extent this could be regarded as benchmarking as it's ambiguous how far the carriers are analyzing the processes, which bring the metric results. Further the experience of Britannia Airways has been presented. The airline has applied for years both internal and external benchmarking. Benchmarking particularly in the maintenance department of the carrier has revealed proficiency in technical maintenance, but existence of cost problems. The procedure of benchmarking the maintenance costs has started with creating a benchmark data base with these costs and constructing key performance indicators, which has allowed comparison of Britannia Airways with other airlines. There have been used 18 key performance parameters in the benchmarking such as: engineering and maintenance costs per: ASK; block hour; seat. The application of the key performance indicators has been

157 Freytag, P. V. and Hollensen , S.(2001). The process of benchmarking, benchlearning and benchaction, The TQM Magazine, Volume 13 , Number 1 , pp. 25-33

158 Wouters, M., Kokke, K., Theeuwesf, J. and Karel van Donselaar. (1999). Identification of critical operational performance measures a research note on a benchmarking study in the transportation and distributions sector, Management Accounting Research 10, pp. 439-452

applied in order to found out problems fields and to involve the employees from this area to look for a decision.[159]

Aer Lingus is an airline applying benchmarking practices. The carrier was benchmarked with low cost airlines. As a result the sales process has been optimized as the airline has implemented sales mainly via internet.[160] An example for excellent performance is Singapore Airlines in the context of service excellence carrier and the same time combining this with cost efficiency leadership. The airline has achieved lower unit costs in the period of 2003-2004 compared with such airlines as Ryanair and Easy Jet. SIA is applying extensively benchmarking practices not only to major competitors, but also comparing itself to the best in class.[161]

There is a need in the airline industry for applying performance measurement, resulting from processes in the industry such as: privatization, mergers, deregulation, LCC growth challenge, safety reasons. All these factors have driven the airlines to seek ways to attain better economic outputs. It has been founded out that the benchmarking was the most applied method by airlines (88% of the airlines studied have applied benchmarking) as a way to achieve better results. At the second and third place are quality systems (for example ISO9000) and the balanced scorecard. The benchmarking was mainly conducted externally: comparing an airline with other airlines. As the Table 8 below reveals about 90% from the airlines have applied the cost per seat-kilometre (CASK) as measure. This fact is to be expected bearing in mind the strong tension for cost efficiency in the industry. Another measure, namely the labour costs calculated as a percent from the total airline operating costs, is used from 87% by airlines. Regarding the financial measures, the operating costs are used from 95% from the airlines and have a leading place for usefulness. But the most used parameters from the

159 Francis, G. , Humphreys, I. and Fry, J. (1999). Best practice benchmarking: a route to competitiveness? , Journal of Air Transport Management 5, pp. 105 -112

160 Harrington, D. G., Lawton T. C. and Tazeeb, R. (2005). Embracing and Exploiting Industry Turbulence: The Strategic Transformation of Aer Lingus, European Management Journal, Vol. 23, No. 4, pp. 450–457

161 Heracleous, L. and Wirtz, J. (2009). Strategy and organization at Singapore Airlines: Achieving sustainable advantage through dual strategy, Journal of Air Transport Management , pp.1–6

airlines are the on-time performance (punctuality) and the load factor per flight , revealing a application rate of 100%.[162]

Table 8: Operational performance measures

Operational performance measures

Operational performance measure	Used (%)	Not used (%)	Don't know (%)	Usefulness of measure[a]	
				Mean	S^b
Punctuality/on-time performance per operation	100	0	0	4.6	0.9
Revenue passenger kilometres	95	5	0	4.2	1.1
Load factor per flight	100	0	0	4.5	1.0
Average fleet age	80	17	3	3.0	1.1
Available seat kilometres	93	7	0	4.2	0.9
Available tonne kilometres per employee	49	49	2	4.0	0.9
Average turnaround time	76	21	3	4.1	0.9
Labour cost as % of total operating cost	87	11	2	3.9	1.0
Cost per seat kilometre	90	8	2	4.7	0.7
Daily aircraft utilization (hours)	98	0	2	4.3	1.0
Total revenue per work load unit	43	40	17	4.5	0.5
Other	78	11	11	4.8	0.5

[a]Scale: 1 – not useful to 5 – very useful.
[b]S = standard deviation.

Source: Francis et.al. (2005), Page 212

There are some issues, which should be considered in order to assure that a proper comparison of the performance is made, when benchmarking airlines or airports. Regarding the benchmarking in the airline sector there are some factors related to the data, which could complicate the comparison method. Such determinants are for example: the outsource processes by some carriers in the engineering and catering; ownership; accounting. Typical airline performance measures, applied in the airline industry are: unit revenues, total operating costs per passenger and profitability. Benchmarking of performance indicators is under the influence from factors not only by the airline industry and an adjustment of the data is needed, when making a comparison, which could be sometimes difficult.[163]

The highest value for the most benchmarks in a sample should be considered as ''the best in class'', as for example ASK per employee, which represents the labour productivity. In other cases the ''best in class'' is the lowest rate: the carrier with the lowest unit costs from the sample is ''best in class''.[164]

162 Francis, G., Humphreys, I. and Fry, J. (2005). The nature and prevalence of the use of performance measurement techniques by airlines, Journal of Air Transport Management 11, pp. 207–217

163 Peter Mackenzie-Williams. (2005). Aviation benchmarking Issues and industry insights from benchmarking results, Benchmarking: An International Journal ,Vol. 12, No. 2, pp. 112-124

164 Mason, K. J. and Morrison, W.G. (2008). Research in Transportation Economics 24 ,pp.75–84

CHAPTER NINE

9. Accounting and financial issues

9.1. Income statements and international accounting standards

As some of the data used in the study is based on the income statements, which by all of the airlines are prepared according to the International Financial Reporting Standards (IFRS), I will present only briefly some issues.

In the IFRS income statements the standards are giving two possibilities for the companies to categorize their operating costs: by nature or by function. When classifying the costs per nature it's considered the cause of the cost and accordingly the groups are for example: material costs, depreciation and amortization, staff costs. Classifying the costs by function is taking into account what is the purpose of the costs such as production costs or service costs. In the airline sector more applied is the classification by nature with respect of IFRS.[165]

Regarding the income statement according to International Accountant Standard (IAS) 1.78 all elements of income and expense recognized in a period should be included in the income statement. According to IAS 1.81 there should be minimum items on the face of the income statement:

- revenue
- finance costs
- share of the profit or loss of associates and joint ventures accounted for using the equity method
- a single amount comprising the total of (i) the post-tax profit or loss of discontinued operations and (ii) the post-tax gain or loss recognized on the disposal of the assets or disposal group(s) constituting the discontinued operation

165 Palepu, K. G., Peek, E. and Healy, P. M. (2007). Business Analysis and Valuation: text and cases, IFRS ed., Thomson, London, page 120

- tax expense
- profit or loss

And further according to IAS 1.103 regarding the notes to financial statements they should include some information as:

- present information about the basis of preparation of the financial statements and the specific accounting policies used;
- disclose any information required by IFRSs that is not presented on the face of the balance sheet, income statement, statement of changes in equity, or cash flow statement; and
- provide additional information that is not presented on the face of the balance sheet, income statement, statement of changes in equity, or cash flow statement that is deemed relevant to an understanding of any of them.[166]

9.2. Profitability indicators by airlines

Oft used measures for the operational profitability of airlines are earnings before interest and tax (EBIT), earnings before interest, taxes, depreciation and amortization (EBITDA) and earnings before interest, taxes, depreciation, amortization and rent (EBITDAR). The last measure allows by comparison between airlines as it eliminates the effects from differences in the amortization policy and airplane financing.[167]

Analyzing profitability of airlines between different countries the best parameter in is EBITDAR, which compared to EBITDA is excluding also the rental costs, which generally could represent a great part of the airline's costs.[168]

166 http://www.iasplus.com/standard/ias01.htm , Page IAS 1 , accessed on 20.10.2009

167 Morrell, P. S. (2007). Airline Finance, 3 rev. and updated ed. Ashgate, Aldershot , Page 57

168 Li, Michael Z. F., Oum, Tae H. and Zhang, Y. (2004). Tobin's q and Airline Performances, Public Works Management Policy, Vol. 9, pp. 51-65

CHAPTER TEN

10. Empirical study

10.1. Introduction

The analysis will be based in form of descriptive statistics evaluation and different ratios are constructed. Such metrics applied are: the total unit costs, the unit labour costs, then the average wages and labour productivity. The focus of the analysis here is put on the labour factor.

SE will be compared with other two airlines: OS and AB. First I will compare the unit costs after adjustments. Further the focus of the analysis will be put on the unit labour costs.

Austrian Airlines has been chosen in the pool as a representative for a network airline and Air Berlin as a representative for a LCC.

It should be mentioned also that meanwhile SE do not operate anymore since 1.09.2009 and has gone in bankruptcy. This fact reveals the dynamic, very competitive nature of the airline industry, which request excellent performance from each airline in order to survive and operate.

10.1.1. Presence of Austrian Airlines, Sky Europe and Air Berlin at Vienna Airport

According to the data presented in the below Table 9, the presence of the Austrian Airlines at Vienna Airport was 56,60% in 2005, measured as passenger share. It has been followed at second place from Air Berlin. [169]

The data, presented in Table 10 for 2006 and 2007, reveals that OS and AB have kept their ranking and Sky Europe is for a first time represented with 3,40% share in 2007.[170]

169 http://ir.viennaairport.com/jart/prj3/ir/data/uploads/Kitz_19_01_2006_engl.pdf, page 13, accessed on 15.05.2009

170 http://ir.viennaairport.com/jart/prj3/ir/data/uploads/Kitzbuehl.pdf, page16, accessed on 15.05.2009

Table 9: Airlines passenger share for 2005

%	2005
Austrian Airlines Group	56.6
Air Berlin	5.9
Lufthansa	5.5
Niki	4.3
British Airways	2.2
Germanwings	2.1
Swiss Intl.	2.0
Air France	1.8
Others	19.6

Source: Investor relations, Vienna Airport, 2006, page 13

Table 10: Airlines passenger share for 2006 and 2007

%	2007	2006
Austrian Airlines Group	52.6	57.0
Air Berlin	6.7	6.3
Niki	5.5	4.5
Lufthansa	5.3	5.6
Skyeurope Airlines	3.4	0.0
Germanwings	2.5	2.1
British Airways	1.8	2.1
Swiss Intl.	1.7	1.8
Air France	1.6	1.8
KLM	1.2	1.4
Others	17.7	17.4

Source: Investor relations, Vienna Airport, 2007, page 16

10.1.2. EBITDAR indicators

SE has a negative net financial results and negative EBITDARs for 2005 and 2006; exception is 2007 year with positive EBITDAR.[171] OS have positive EBITDARs for 2005-2007 period and negative net financial result in 2005 and

171 Sky Europe Annual Report for 2005, page 12 and Annual Report for 2007, page 3

2007.[172] AB has positive EBITDARs and also net financial results for 2005-2007.[173]

My study is not focused on the revenue side or profitability of the airlines, but in this case the EBITDAR and the net financial results are only indicative indicators about the profitability of the airlines included in the analysis.

10.2. Data used

The data[174] used in the study is official operational data from the airlines (as passenger numbers, employees, ASKs flown, RPKs) and also data from the income financial statements of the airlines (total operational costs, personnel costs, fuel costs, maintenance costs, sales and marketing costs and aircraft rental costs).

Some of the information I have requested and received from the Investor relation departments of AB and OS. It's including: cost grouping information (in order to form comparable cost categories), confirmation of my calculations regarding the adjusted labour productivity of OS and some operational information of the airlines.

All of the carriers, included in the study are preparing their statements according to the International Financial Reporting Standards (IFRS). The costs positions are presented in the income statements by SE, AB and OS and also in the notes following the income statements for AB and OS.

10.3. Cost categories

First the unit costs of the airlines will be adjusted, excluding some cost groups considered as almost uncontrollable by the airlines (airport and handling charges and navigation costs). Regarding the fuel costs, it should be mentioned that fuel hedging strategies have been applied by all of the studied airlines.

172 Austrian Airlines Annual Report 2006,page 35 and Annual Report for 2007, page 44

173 Air Berlin Annual Financial Report for 2006, page 1 and Annual Report for 2007, page 1

174 Detailed operational and financial data for OS,SE and AB can be found in the Appendix

In the group of the adjusted unit costs are included the following cost categories:

Maintenance, material and repairs costs

Aircraft rental costs

Fuel costs

Labour costs

Sales and marketing costs

Then the adjusted unit costs are calculated as follows:

Adjusted unit costs =

$$\frac{\sum\left(\begin{matrix}\boldsymbol{Maintenance, material\ and\ repair\ cost,\ \ Aircraft\ rental\ cost,\ \ Fuel\ cost,}\\ \boldsymbol{Labour\ cost\ and\ Sales\ and\ marketing\ costs}\end{matrix}\right)}{\boldsymbol{ASK}}$$

10.4. Development of the adjusted unit cost and different cost groups

The above constructed cost groups will be analyzed here and also the adjusted unit costs.

It is evident from the data in Tables 11-13, that AB has the lowest adjusted unit costs in 2005-2007 in the airlines' pool and regarding the costs is clearly the ''best in class''. SE has inefficiency in the adjusted unit costs, compared to AB and by OS the unit cost inefficiency is the highest in the group.

Table 11: Adjusted unit costs and cost groups for OS, SE and AB for 2005 year in Eur

Airlines	Adjusted Unit costs /Ask	Labour cost/Ask	Fuel cost /Ask	Aircraft rental/Ask	Repair and maintenance /Ask	Sales and marketing /Ask
OS	0.0425	0,0163	0,0147	0,0021	0,0024	0,0070
SE	0.0357	0,0051	0,0155	0,0086	0,0033	0,0032
AB	0.0213	0,0045	0,0092	0,0037	0,0014	0,0025

Based on: Gr.5, Gr.7, Gr.15-18, Gr.26-28 and Investor relations AB

Table 12: Adjusted unit costs and cost groups for OS, SE and AB for 2006 year in Eur

Airlines	Adjusted Unit costs/Ask	Labour cost/Ask	Fuel cost /Ask	Aircraft rental/Ask	Repair and maintenance /Ask	Sales and marketing/ Ask
OS	0.0485	0.0195	0.0169	0.0023	0.0031	0.0067
SE	0.0388	0.0061	0.0165	0.0059	0.0075	0.0028
AB	0.0260	0.0057	0.0120	0.0045	0.0019	0.0019

Bases on: Gr.8, Gr.10, Gr.15-18, Gr.26-28 and Investor relations AB

Table 13: Adjusted unit costs and cost groups for OS, SE and AB 2007 year in Eur

Airlines	Adjusted Unit costs/ask	Labour cost/ask	Fuel cost/ask	Aircraft rental/ask	Repair and maintenance /ask	Sales and marketing /ask
OS	0.0513	0.0199	0.0166	0.0029	0.0038	0.0081
SE	0.0344	0.0061	0.0137	0.0069	0.0046	0.0031
AB	0.0227	0.0053	0.0095	0.0044	0.0021	0.0014

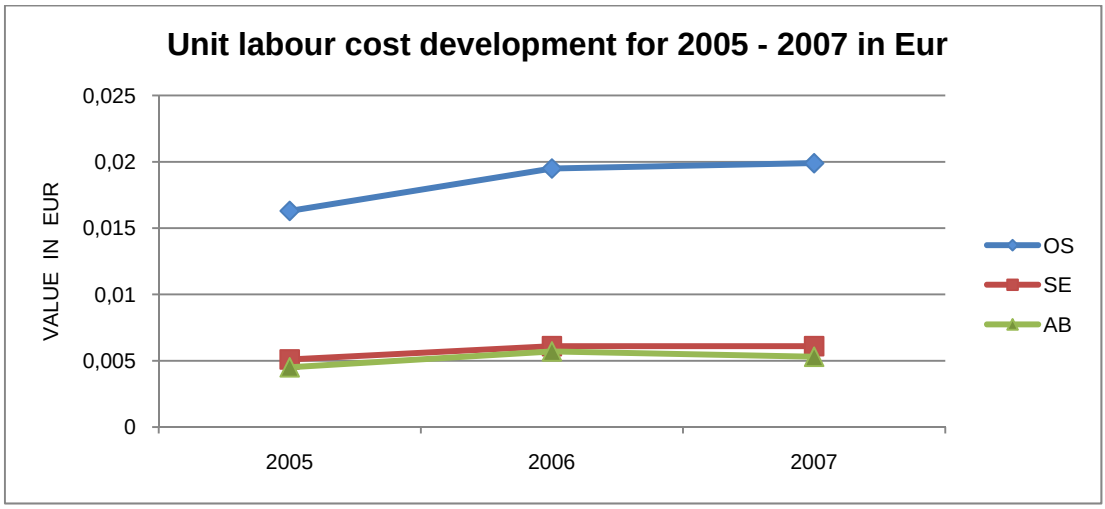
Based on: Gr.8, Gr.10, Gr.20-24, Gr.31-33 and Investor relations AB

On the base of the above Tables 11-13, have been constructed Diagram 1 and Diagrams 14-17[175] revealing the development of the different cost groups by the airlines. It could be noted that there are trends by OS for increase by: aircraft rental costs, repair and maintenance and sales and marketing costs during 2005-2007. By AB the repair and maintenance costs are decreasing, whereas in the sales and marketing cost group efficiency has been achieved during 2005-2007.

Particularly the unit labour costs as could be seen in the below Diagram 1 are increasing by OS for the whole period. By AB there is a small increase in the unit labour costs in 2006, followed by decrease in 2007. The labour costs by SE are the same in 2007 & 2006, but are higher compared to 2005 levels.

175 The analysis is on the base of Diagrams 14-17, available in the Appendix

Diagram 1: Unit labour cost development OS, SE and AB for 2005 - 2007 in Eur



Based on data from Tables 11-13, regarding the unit labour costs of OS, SE and AB for 2005-2007

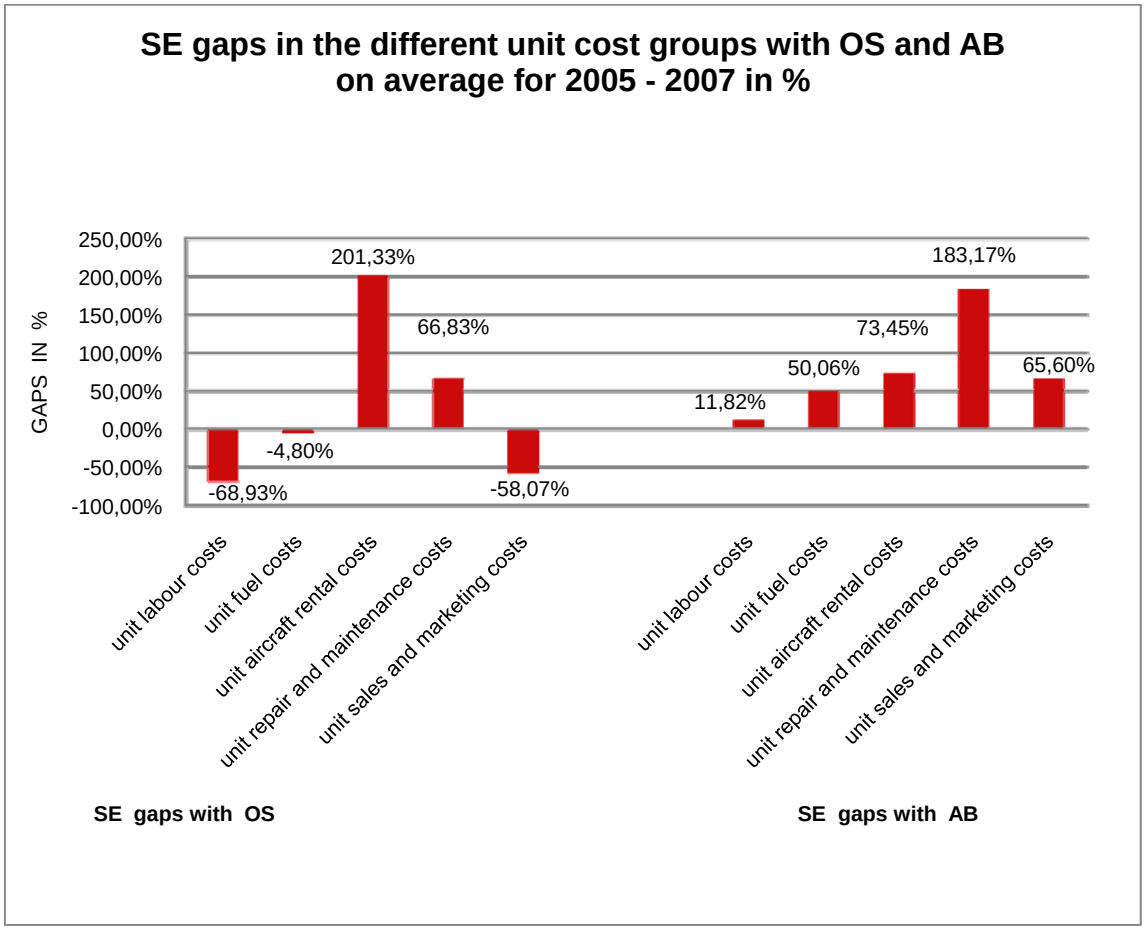
10.5. Unit cost gaps

In the Diagram 2 below are presented the average gaps in the different unit costs between SE and AB on one side and between SE and OS on another side.

Comparing SE and AB its evident that the maximum cost gap is by the unit repair and maintenance costs: SE has with 183,17% higher costs. By the unit labour costs the gap is the lowest one (unit labour costs are higher with 15,24%).

Analyzing the gaps between SE and OS it's evident that by the unit labour costs is the maximum difference in favour of SE: 68,93% lower unit labour costs than OS. By the unit aircraft rental costs SE has maximum difference in terms of inefficiency compared with OS (the data shows that SE has with 201,32% higher unit aircraft rental costs).

Diagram 2: SE gaps in the different unit cost groups with OS and AB on average for 2005 - 2007 in %



Based on the data from Diagrams 9-13, Available in the Appendix

SE has increased the payments for wage and benefits in 2007 compared to 2006 due to higher number of employees and wages adjustments to pilots and mechanics, in order to bring competiveness in the payment. However the labour costs in terms of ASK have been kept stable, resulting from employee utilisation measures. The unit fuel costs have also decreased in 2007, due to new and modern fleet and applying hedging. Regarding the aircraft rental costs on ASK base they have increased highly due to the expensive aircrafts operated and the aircraft utilisation has not offset this trend. The sales and marketing costs in ASK terms have increased also with 10.4 %. Regarding the group of the unit maintenance, materials and repair costs have decreased, due also to the increased part of new aircrafts.[176]

176 http://www.skyeurope.com/Documents/ANNUAL_REPORT_07_SKY_ENG.pdf, pages 27-29, accessed on 14.07.2009

Thus SE is cost inefficient by all cost groups compared to a ‘’best in class’’ performer regarding the costs such as AB and shows also some cost inefficiency compared to a network carrier as OS (SE has higher unit aircraft rental costs and unit repair and maintenance costs than OS). Analyzing the gaps from Diagram 2, it’s evident that SE compared with AB shows the smallest cost inefficiency gap by the unit labour cost group and compared with OS, reveals maximum cost efficiency gap by the unit labour costs category.

The importance of the unit labour costs by SE has been considered as this cost group has been the mostly controlled item, when the gaps by the other cost groups are taken into account.

10.6. Average payment per employee

Further the unit labour costs and their aspects in terms of wages and productivity will be compared and analyzed.

Below is indicative information of the average payments per employee in the airlines. As direct comparison between the airlines is not properly, as they are operating in different countries, the average wages by OS, SE and AB are compared with the average wage particularly in the transport sector in Austria, Germany and Slovakia and also with the average wages for these countries.

Table 14: Average monthly wage per employee for OS, SE and AB for 2005-2007 in Eur

Airlines	Average monthly wage per employee Eur 2005	Average monthly wage per employee Eur 2006	Average monthly wage per employee Eur 2007
OS	4.941,15	5.935,87	5.469,43
SE	1.519,61	2.156,47	2.322,01
AB	4.233,67	4.121,99	4.456,07

Based on: Gr.5-6, Gr.8-9, Gr.11-12, Gr.19, Gr.24-25, Gr.27, Gr.30 and Gr.32

Table 15: Gap between average monthly wage per employee for SE and average wage transport sector in Slovakia in %

Years	Average monthly wage in transport Slovakia	Average monthly wage per employee in SE	Difference SE wage from average wage in transport
2005	608,78	1.519,61	149,62%
2006	648,34	2.156,47	232,61%
2007	706,03	2.322,01	228,88%

Based on Statistic Slovakia for 2005-2007[177] and on Table 14

Table 16: Gap between average monthly wage of AB and average wage transport sector in Germany in %

Years	Average monthly wage in transport	Average wage per employee in AB	Difference AB wage from average wage in transport
2005	2.092,25	4.233,67	102,35%
2006	2.109,58	4.121,99	95,39%
2007	2.152,00	4.456,07	107,07%

Based on Statistics Germany for 2005–2007[178] and on Table 14

Table 17: Gap between average monthly wage of OS and average wage in transport sector in Austria in %

Years	Average monthly wage Austria in transport	Average monthly wage per employee in OS	Difference OS wage from average wage in transport
2005	-	4.941,15	-
2006	2.385,00	5.935,87	148,88%
2007	2.482,42	5.469,43	120,33%

Based on Statistics Austria for 2006 & 2007[179] and on Table 14

177 http://portal.statistics.sk/showdoc.do?docid=6042, http://portal.statistics.sk/showdoc.do?docid=6038 and http://portal.statistics.sk/showdoc.do?docid=8145 , accessed on 14.10.2009

178 https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1025392, Statistisches Bundesamt, Fachserie 18, Reihe 1.4, 2009 , page 70, accessed on 28.12.2009

179 http://www.statistik.at/web_de/statistiken/soziales/personen-einkommen/allgemeiner_einkommensbericht/index.html, Allgemeiner Einkommensbericht nach Branchen, accessed on 28.12.2009

Thus there are indications that the employees by SE, OS and AB all have average wages higher than the average wages in transport sector in their home countries and also higher levels of average monthly wages compared with the average levels in Austria, Germany and Slovakia [180] .

10.7. Labour productivity ratios

The labour productivity could be compared directly between the airlines and is revealing some results. Different labour productivity ratios are constructed and applied for the analysis.

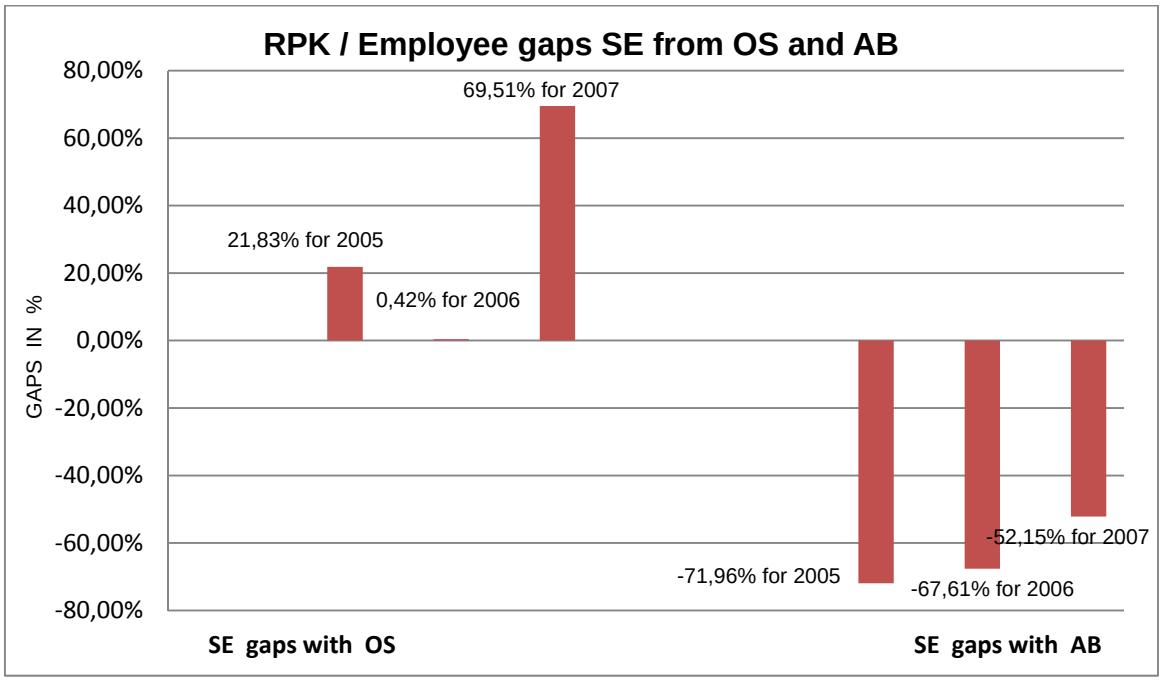
As in the group of the airlines is OS, which has a cargo component also, in order to assure relevance in the labour productivity metrics, it's correct to make some adjustments in the data. These adjustments are confirmed from the Austrian Airlines Investor Relations[181] as correct and they include the following: from the average employee's numbers will be deducted the numbers of the cargo personnel as they are not related directly with the outputs: ASK, PAX and RPK. Regarding the metric ASK / labour costs, the labour costs by OS are also adjusted (from the personnel costs are deducted the cargo staff costs). On the base of these ratios I have calculated the different gaps by the airlines.

It's evident from the below Diagram 3 that the labour productivity is lower by SE compared to AB for the whole period. The negative gap is narrowing in some extent for the studied period of 2005-2007. The labour productivity rates of SE are higher than these by OS. It's to be seen also that between for 2006 the gap is only 0,42% in favour of SE.

180 Table 19 is available in the Appendix

181 See Appendix

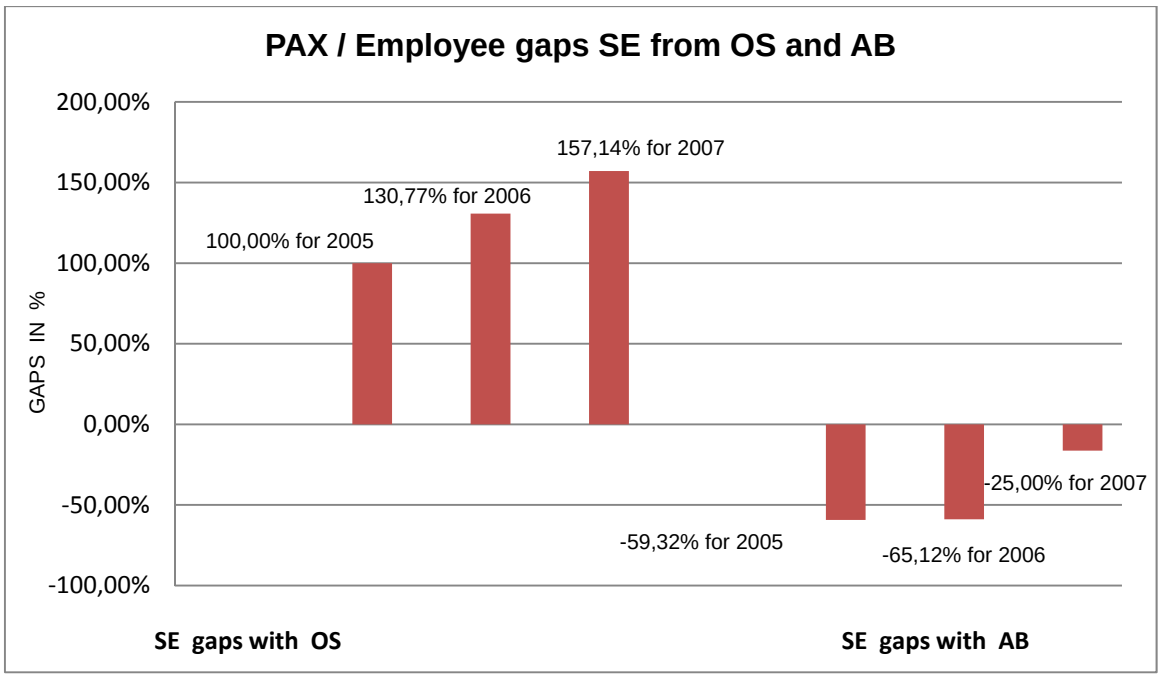
Diagram 3: RPK/Employee difference SE from OS and AB for 2005 - 2007 in %



Based on Gr.6-7, Gr.9-10, Gr.12-14, Gr.24, Gr.27, Gr.29, Gr.32, Gr.34 and OS IR

The labour productivity measured partially in terms of the passenger number per employee according to Diagram 4 reveals lower results for SE for the whole period compared with AB. Regarding SE and OS comparison, there are advantages for SE in the labour productivity.

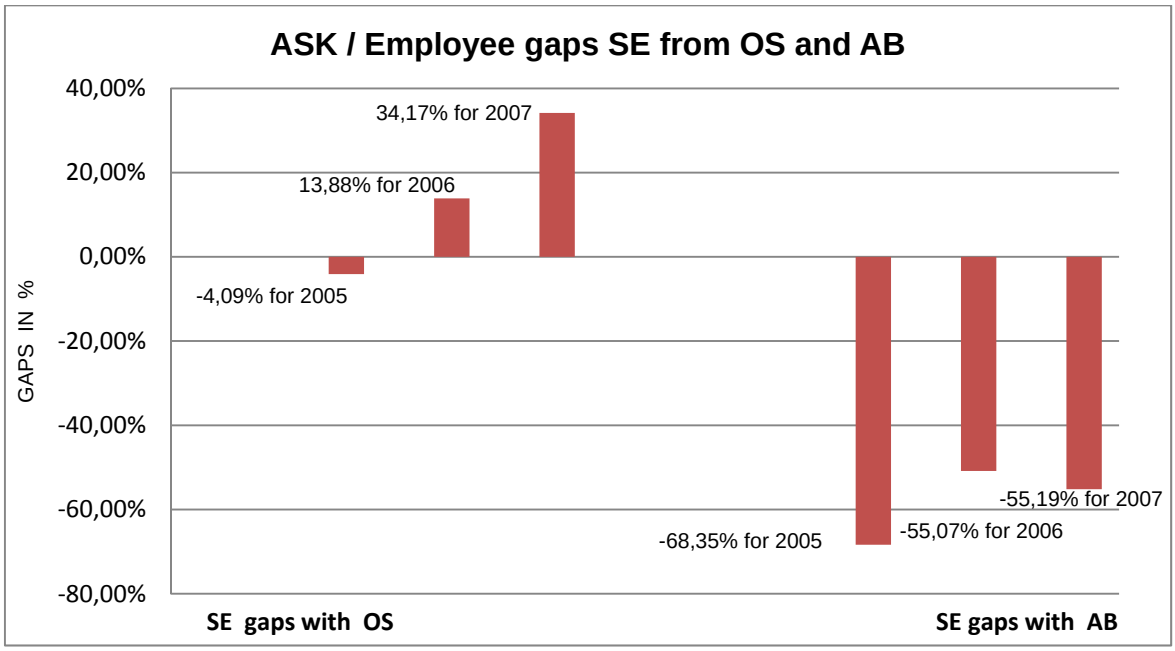
Diagram 4: PAX/Employee difference SE from OS and AB for 2005 - 2007 in %



Based on Gr.7, Gr.9-10, Gr.12, Gr.18, Gr.23-24, Gr.27, Gr.32, AB IR and OS IR

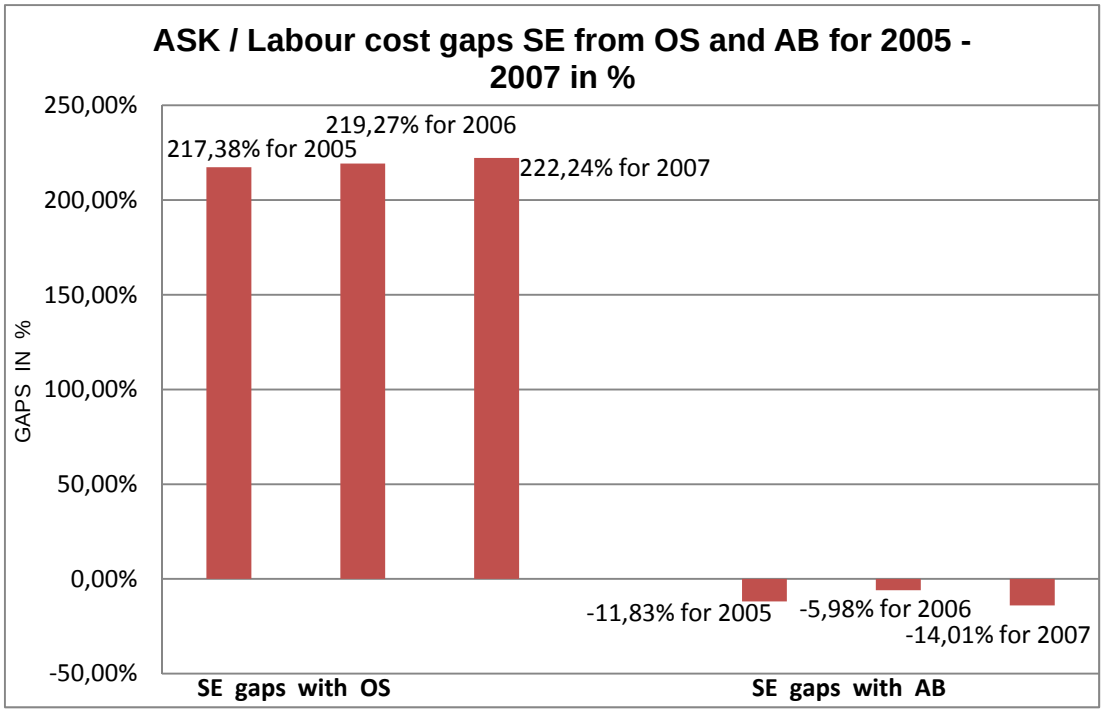
Measuring ASK / Employee in Diagram 5 shows once again lower values for SE compared to AB. There is even lower labour productivity for SE, comparing with OS for 2005 (-4,09 % lower levels for 2005 year).

Diagram 5: ASK/Employee difference SE from OS and AB for 2005 - 2007 in %



Based on: Gr.9-10, Gr.12, Gr.18, Gr.23-24, Gr.2, Gr.32, AB IR and OS IR

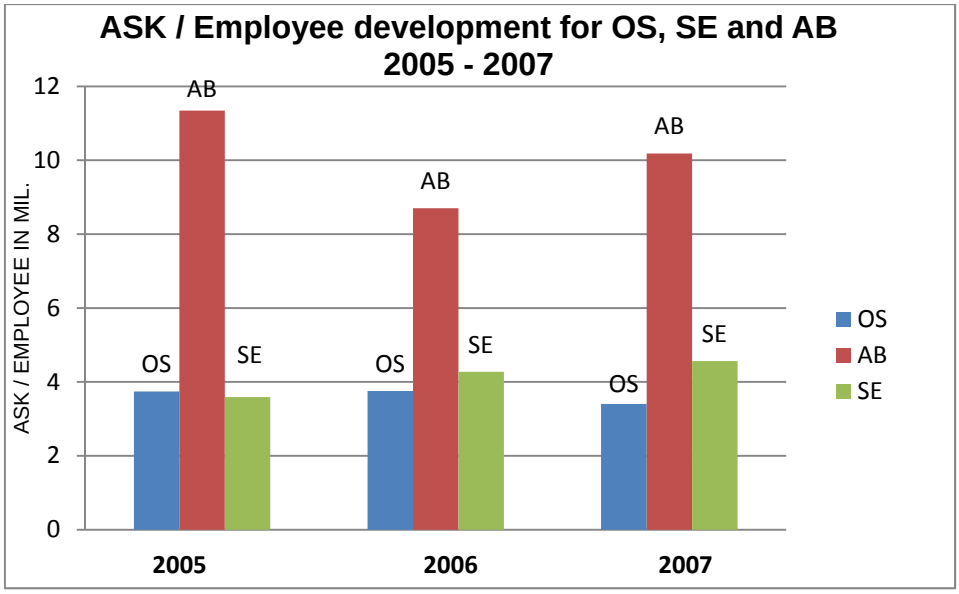
Diagram 6: ASK/Labour cost difference SE from OS and AB for 2005 - 2007 in %



Based on: Gr.5, Gr.7-8, Gr.10-11, Gr.18-19, Gr.23, Gr.25, Gr.30, AB IR and OS IR

The data in Diagram 6 reveals lower labour productivity for SE compared with AB for the whole period studied. Regarding SE and OS comparison, it's evident that SE has better performance.

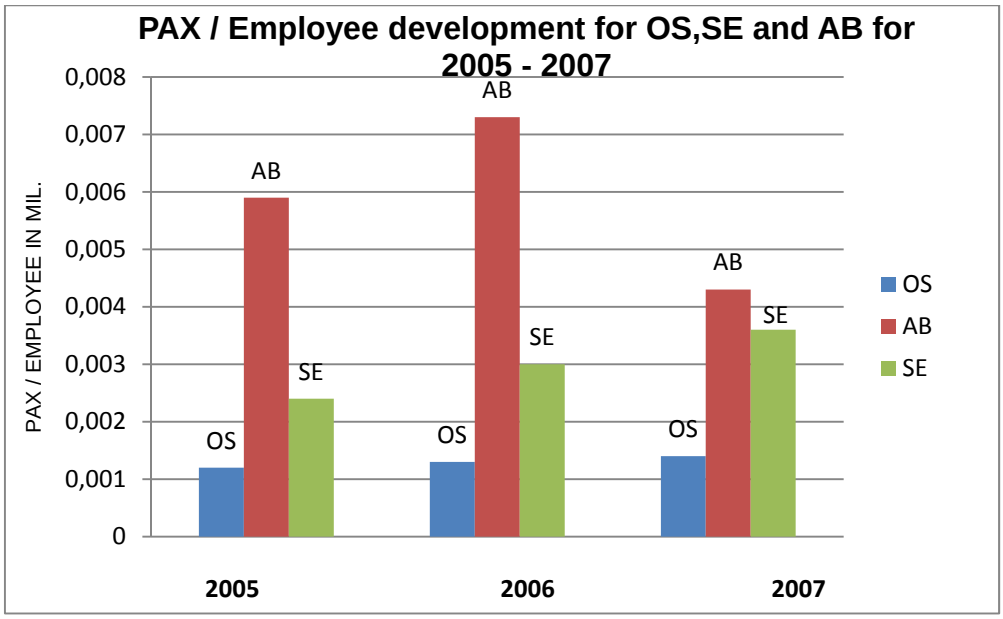
Diagram 7: ASK/Employee development for OS, SE and AB for 2005 - 2007



Based on: Gr.9-10, Gr.12, Gr.18, Gr.23-24, Gr.2, Gr.32 and AB IR and OS IR

According to Diagram 7, it should be noted that only by SE for the period of 2005-2007 there is a trend for increased labour productivity.

Diagram 8: PAX/Employee development for OS, SE and AB for 2005 - 2007



Based on Gr.7, Gr.9-10, Gr.12, Gr.18, Gr.23-24, Gr.27, Gr.32 and AB IR and OS IR

According to Diagram 8 in terms of PAX / employee there is a trend for increased labour productivity by SE and OS.

From the above analysis it's evident that SE has higher labour productivity compared with OS (with an exception in 2005 measured in ASK/employee) and has lower productivity compared with the best performance of AB in the sample.

My study is mostly focused and limited in terms of metrics and quantitative data analysis, but I will overview briefly some labour relation aspects regarding the three airlines.

10.8. Labour practices by Austrian Airlines, Sky Europe and Air Berlin

Regarding Austrian Airlines as an example of a traditional, network airline, it's applying the collective agreements for its employees since 1957 year (foundation year). At the moment as per information from the Investor relations[182], the company is using six different collective labour agreements for the employees. In 2007 as result from reconstructing the flight segments (turning from long–haul to short haul routes), the company has reduced the number of the pilots with 8,3% and the flight attendants with 12,60% and in the administrative area with 5,60%. Along with the optimization of the employee numbers, the airline has also applied measures to increase the labour productivity (making work processes easy with moving to a new Head Office regarding the administration area and P900 program for increasing the efficiency of the technical department). In the same year after negotiations with the unions the collective agreements in the company have been adjusted and increased for the cabin staff and the commercial-technical employees. Another measure in the labour area was the Stock Option Plan for the members of the Management Board, directors and executives personnel in the airline. The share options are connected with the net result of the group and the success of the shares at the Stock Exchange. Regarding the motivation of the employees, the carrier has applied employee survey in 2007 and for a first time an index of satisfaction was created, connecting different groups of questions in order to become employee's satisfaction level. The Austrian Airlines group has also moved to centralisation of the recruiting process, thus enabling more unification

182 See Appendix

and efficiency for the employment practices. In the 2008 the OS has implemented also electronic platform for the recruiting process, such simplifying the process.[183]

By Air Berlin there is a trend for increase in employee's numbers, which is due to acquisitions (LTU, Belair and dba). The average age of the employees is under 35 years. The airline has special program ''Take a Month Off'' with adjusted wages, in which captains and co-pilots could participate for maximum of 3 months in winter and / or summer. The airline has invested a lot in the crew staff in 2007, increasing the cockpit numbers of the employees and the number of the flight attendants. There is also apprenticeship program training, both for commercial and also for electronics engineer and aircraft mechanics. In 2007 has started to function a new flight school, where training for pilots is made. The airline declares also having a flat organisation, which is bringing the communication on efficient level and community feeling is existing between the employees.[184]

For the first time, Air Berlin concluded payment contracts and framework agreements on employment conditions for the flying staff: for the pilots with "Vereinigung Cockpit" (VC), the trade union for pilots, and also for the flight attendants with representatives from their unions.[185]

Sky Europe provides training of the employees and management staff by applying SkyAcademy. A bonus system has been also implemented in order to achieve motivation of the labour factor. But collective agreements are not presented in the company.[186]

183 http://www.austrianairlines.co.at/NR/rdonlyres/8EDADF4C-DA45-4987-BCC6-1E1761490280/0/Jahresfinanzbericht2007es.pdf , pages 39-42, accessed on 15.10.2009

184 http://www.ir.airberlin.com/_files/en/080410_AB_AnnualReport2007_247.pdf ,pages 72-74,accessed on 20.10.2009

185 http://www.ir.airberlin.com/presse_detail.php?lang=en&bereich=ah&id=169 , accessed on 20.10.2009

186 http://www.skyeurope.com/Documents/ANNUAL_REPORT_07_SKY_ENG.pdf , page 20 , accessed on 14 .07. 2009

CHAPTER ELEVEN

11. Conclusion

It’s evident that different processes in the airline industry as deregulation, privatisation, the development of the LCCs and consolidations have increased the competition and put a strong pressure for improving the efficiency by the airlines. Additionally the net financial results in the airline industry are deteriorating and turning into losses.

As the labour costs are considered as controllable in a high extent, they were the first, where the airlines have focused their efforts for optimization. The network carriers have taken different measures to increase the efficiency in the labour factor in terms of wages, productivity and employee practices and have made progress. At the same time although the LCCs have revealed better efficiency levels, the labour force has been seen as a potential challenge as they mature and the presence of unions increased.

There are evidences also for regional specifics, as the European airlines have showed inefficiency in the wages and lower productivity levels, compared with the US carriers. But it has been confirmed that the process of deregulation and privatisation has brought improved efficiency regarding these parameters.

Additionally as the labour factor is complex the employee relations should be taken into account also. Evidences for worse working conditions in the industry and pressure for efficiency on the employees after the deregulation have been found. It has been also argued that the quality of the labour relations is of high importance, in the meaning of focusing on the relationship between employees and managers and attaining collective agreements on a sociable base. Thus financial and service quality aspects in the industry could be brought to better levels.

It has been argued that the benchmarking should not be understood as a cost optimisation method, but as a way to understand the processes, leading to superior performance. Different processes as deregulation, privatisation, safety

standards and the LCCs growth in the industry have forced the airlines to look for a way to improve their performance and the benchmarking has been the most used performance improvement method.

The empirical part analyses first the unit costs of Sky Europe against Austrian airlines and Air Berlin, then the focus is put on the labour factor, in terms of productivity, wages and some aspects of the labour relations. There are evidences that the unit labour costs have been kept at highest extent under control by SE compared with the variations by the other cost groups. Further it has been shown that particularly there are inefficiencies by the labour productivity of SE, compared with the “best-in-class” performance of AB regarding this aspect.

CHAPTER TWELVE

12. Bibliography:

Academic Journals and Literature:

Adler, N. (2001). Competition in a deregulated air transportation market, European Journal of Operational Research, Vol.129, pp. 337-345

Alamdari, F. E. and Morrell, P. (1997). Airline labour cost reduction: post-liberalisation experience in the USA and Europe, Journal of Air Transport Management, Vol. 3, No. 2, pp. 53-66

Alderighi, M., Cento, A., Nijkamp, P. and Rietveld, P. (2005). Network competition—the coexistence of hub-and-spoke and point-to-point systems, Journal of Air Transport Management, Vol. 11, pp. 328–334

Al-Jazzaf, Mahdy I. (1999). Impact of privatization on airlines performance: an empirical analysis, Journal of Air Transport Management 5, pp. 45-52

Appelbaum, S. H. and Fewster, B. M. (2003). Global Aviation Human Resource Management: Contemporary Employee and Labour Relations Practices, Management Research News, Volume 26, Number 10/11, pp.56-69

Backx, M., Carney, M.and Gedajlovic E. (2002). Public, private and mixed ownership and the performance of international airlines, Journal of Air Transport Management, Vol.8, pp. 213-220

Baltagi, B. H., Griffin, J.M. and Rich, D. P. (1995). Airline deregulation: the cost pieces of the puzzle, International Economic Review, Vol. 36, No. 1, pp. 245-258

Bamford D. and Xystouri, T. (2005). A case study of service failure and recovery within an international airline, Managing Service Quality, Vol. 15, No. 3, pp. 306-322

Barbot, C., Costa, A. and Sochirca, E. (2008). Airlines performance in the new market context: A comparative productivity and efficiency analysis, Journal of Air Transport Management 14, pp. 270-274

Barrett, S. D. (2007). The sustainability of the Ryanair model, International Journal of Transport Management, No.2, pp.89-98

Barros, C. P. and Peypoch, N. (2009). An evaluation of European airlines' operational performance, Int. J. Production Economics 122, pp.525-533

Bewley, T.F. (1999). Why wages don't fall during a recession, Cambridge, Mass. Harvard Univ. Press

Bhadra, D. (2009). Race to the bottom or swimming upstream: Performance analysis of US airlines, Journal of Air Transport Management, Vol.15, pp.227-235

Bieger, T. and Wittmer, A. (2006). Air Transport and tourism - Perspectives and challenges for destinations, airlines and governments, Journal of Air Transport Management, Vol. 12, pp. 40–46

Boyd, C. (2001). HRM in the airline industry: strategies and outcomes, Personnel Review, Vol. 30, No. 4, pp. 438-453

Brown N. (1991). Airline Workers' Earnings and Union Expenditures under Deregulation, Industrial and Labor Relations Review, Vol. 45, No. 1, pp. 154-165

Bunz, U.K. and Maes, J.D. (1998). Learning excellence: Southwest Airlines' approach, Managing Service Quality, Vol. 8 Nr. 3, pp. 163-169

Cappelli, P. (1995). Airline labor relations in the global era: The new frontier, Ithaca, NY: ILR Press

Camp, R.C. (1989). Benchmarking: The search for industry best practices that lead to superior performance. Wisconsin: ASQC Quality Press.

Camp, R.C. (1995). Business process benchmarking: finding and implementing best practices. Wisconsin: ASQC Quality Press

Card, D. (1986). The Impact of Deregulation on the Employment and Wages of Airline Mechanics, Industrial and Labor Relations Review, Vol. 39, No. 4

Card, D. (1989). Deregulation and Labor Earnings in the Airline Industry, Industrial Relations Section Working Paper Nr. 247, Princeton, NJ: Princeton University

Card, D. (1996). Deregulation and Labor Earnings in the Airline Industry, NBER Working Paper Nr.5687

Carter, D. A., Rogers, D. A. and Simkins, B. J. (2004). Does Fuel Hedging Make Economic Sense? The Case of the US Airline Industry (September 16, 2002). AFA 2004 San Diego Meetings, pp.1-48 t

Caves, Douglas W., Christensen, Laurits R. and Diewert, W. Erwin. (1982). Multilateral Comparisons of Output, Input, and Productivity Using Superlative Index Numbers, The Economic Journal, Vol. 92, No. 365 , pp. 73-86

Caves, D., Christensen, L. and Tretheway, M. (1984). Economies of density vs. economies of scale: why trunk and local service airline costs differ. RAND Journal of Economics, Vol. 15, No. 4, pp. 471-489

Caves, D.W., Christensen, L.R., Tretheway, M.W. and Windle, R.J. (1987). An assessment of the Efficiency Effects of US Airline Deregulation via an international comparison, in E.E.Bailey ed., Public regulation: New perspectives on institutions and policies, MIT Press, Cambridge, pp. 285-320

Caves, D. W. and Christensen, L. R. (1988). The importance of economies of scale, capacity utilization, and density in explaining interindustry differences in productivity growth. The Logistics and Transportation Review, Vol.24, No.1, pp. 3-32.

Chang, Yu-Hern and Yeh, Chung-Hsing. (2001). Evaluating airline competitiveness using multiattribute decision making, Omega 29, pp.405–415

Chapman, L. (2007). Transport and climate: a review, Journal of Transport Geography, Vol.15, pp. 354–367

Coding, S. (1995). Best practice benchmarking: a management guide, 2. rev. ed., Gower, Aldershot

Cremieux, P.Y. (1996). The effects of deregulation on employee earnings: pilots, flight attendants and mechanics 1959-1992, Industrial and Labor Relations Review, Vol. 49, No. 2, pp. 223-42.

Dennis, N. (2007). End of the free lunch? The responses of traditional European airlines to the low-cost carrier threat, Journal of Air Transport Management, Vol.13, pp. 311–321

Distexhe, V. and Perelman, S. (1994).Technical Efficiency and Productivity Growth in an Era of Deregulation: the Case of Airlines, Swiss Journal of Economics and Statistics, Vol. 130 (4), pp.669-689

Doganis, R. (2002). Flying off course: the economics of international airlines, 3. ed., Routledge, London

Doganis R. (2006). Airline Business, 2 ed., Routledge, London

Fan, T., Vigeant-Langlois, L., Geissler, C., Bosler, B. and Wilmking, J. (2001). Evolution of global airline strategic alliance and consolidation in the twenty-first century, Journal of Air Transport Management, vol. 7, pp. 349–360

Fong, S.W., Cheng, E.W.L. and Ho, D.C.K. (1998). Benchmarking: a general reading for management practitioners, Management Decision 36/6, pp.407-418

Francis, G., Humphreys, I., Ison, S. and Aicken, M. (2006). Where next for low cost airlines? A spatial and temporal comparative study, Journal of Transport Geography Vol.14, pp.83–94

Francis, G., Humphreys, I. and Fry, J. (1999). Best practice benchmarking: a route to competitiveness?, Journal of Air Transport Management 5, pp. 105 -112

Francis, G., Humphreys, I. and Fry, J. (2005). The nature and prevalence of the use of performance measurement techniques by airlines, Journal of Air Transport Management 11, pp. 207–217

Franke M. (2004). Competition between network carriers and low-cost carriers—retreat battle or breakthrough to a new level of efficiency? , Journal of Air Transport Management, Vol.10 ,pp. 15–21

Freytag,P. V. and Hollensen , S.(2001). The process of benchmarking, benchlearning and benchaction, The TQM Magazine, Volume 13 . Number 1 , pp. 25-33

Fuss, M. A. and Waverman, L. (1992). Cost and Productivity in Automobile Production: the Challenge of Japanese Efficiency, Cambridge University Press, New York.

Gall, G. (1996).Converging on Conflict? A Further Comment on Warhurst, European Journal of Industrial Relations, Vol. 2, Nr.2, pp.255-260

Gagnepain, P. and Marin, Pedro L. (2006). Regulation and Incentives in European Aviation, Journal of Law and Economics, Vol. 49(1), pp. 229-248

Gillen, D.W., Oum, T.H. and Tretheway, M.W. (1990).Airline cost structure and policy implications, Journal of Transport Economics and Policy, Vol.24, No.2, pp.9-34

Gillen, D. and Morrison, W. (2005). Regulation, competition and network evolution in aviation, Journal of Air Transport Management, Vol.11, pp.161–174

Gillen, D.and Lall, A. (2003). International transmission of shocks in the airline industry, Journal of Air Transport Management, Vol.9, pp. 37–49

Gittell, J. H., Andrew von Nordenflycht and Kochan, T. A. (2004). Mutual Gains or Zero Sum ? Labor Relations and Firm Performance in the Airline Industry, Industrial and Labor Relations Review, Vol. 57, pp.163-180

Gittell, J. H., Cameron, K., Lim, S. and Rivas, V. (2006). Relationships, Layoffs, and Organizational Resilience: Airline Industry Responses to September 11, Journal of Applied Behavioral Science Vol.42, Nr.3, pp.300-329

Goetz, A. R. (2002). Deregulation, competition, and antitrust implications in the US airline industry, Journal of Transport Geography, Vol.10, pp. 1–19

Goetz, A. R. and Vowles, T. M. (2009). The Good, the Bad, and the Ugly: Thirty Years of US Airline Deregulation, Journal of Transport Geography, Vol. 17, pp. 251–263

Gonenc, R. and Nicoletti, G. (2000). Regulation, Market Structure and Performance in Air Passenger Transportation, OECD Economics Department, Working Paper No. 254, pp. 4-49

Good, D. H., Röller, L.-H. and Sickles, R. C. (1993). US Airline Deregulation: Implications for European Transport, The Economic Journal, Vol. 103, No. 419, pp. 1028-1041

Good, D., Röller L-H., Sickles, R.C.(1995). Airline efficiency differences between Europe and the US: Implications for the pace of EC integration and domestic regulation, European Journal of Operational Research 80, pp.508-518

Greer, M. R. (2008). Nothing focuses the mind on productivity quite like the fear of liquidation: Changes in airline productivity in the United States, 2000–2004, Transportation Research Part A 42, pp. 414–426

Greer, M. (2009). Is it the labor unions' fault? Dissecting the causes of the impaired technical efficiencies of the legacy carriers in the United States, Transportation Research Part A 43, pp.779-789

Gudmundsson, S. V. (1997). The difference between European and US airline management practice: the case of new-entrant airlines, Journal of Air Transport Management, Vol. 3, No. 2, pp. 75-82

Hanlon, J.P. (1999). Global airlines: competition in a transnational industry, 2. ed., Oxford: Butterworth-Heinemann

Hanlon, J.P. (2007). Global airlines: competition in a transnational industry, 3 ed., Oxford: Elsevier Butterworth-Heinemann

Harrington, D. G., Lawton T. C. and Tazeeb, R. (2005). Embracing and Exploiting Industry Turbulence: The Strategic Transformation of Aer Lingus, European Management Journal, Vol. 23, No. 4, pp. 450–457

Harvey G. and Turnbull P. (2006). Employment Relations, Management Style and Flight Crew Attitudes at Low Cost Airline Subsidiaries: The Cases of British Airways/Go and bmi /bmibaby, European Management Journal , Vol. 24, No. 5, pp. 330–337

Heracleous, L., Wirtz, J. and Pangarkar, N. (2008). Managing human resources for service excellence and cost effectiveness at Singapore Airlines, Managing Service Quality, Vol. 18, No. 1, pp. 4-19

Heracleous, L. and Wirtz J. (2009). Strategy and organization at Singapore Airlines: Achieving sustainable advantage through dual strategy, Journal of Air Transport Management, pp. 1–6

Hirsch, B. and Macpherson, D.A. (2000). Earning, Rents and competition in the airline labour market, Journal of Labor Economics, Vol. 18, No. 1, pp. 125-155

Hirsch B., (2006). Wage Determination in the U.S. Airline Industry: Union Power under Product Market Constraints, Institute for the Study of Labor (IZA), Discussion Paper No. 2384, pp. 1-41

Holloway, S. (2008). Straight and level: Practical airline economics, 3 ed., Ashgate, Aldershot

Holloway, S. (2003). Straight and level: Practical airline economics, 2 ed., Ashgate, Aldershot

Hunter, L. (2006). Low Cost Airlines: Business Model and Employment Relations, European Management Journal, Vol. 24, No. 5, pp. 315–321

Inglada, V., Rey, B., Rodriguez-Alvarez, A. and Coto-Millan, P. (2006). Liberalisation and efficiency in international air transport, Transportation Research Part A, Vol.40, pp. 95–105

Johnson, N. B. and Anderson, J. R. (2004). Airline employment , productivity and working conditions following deregulation , Transportation Labor Issues and Regulatory Reform Research in Transportation Economics, Volume 10, pp.79–108

Johnson, N.B. (1995). Pay Levels in the Airlines since Deregulation. In Airline Labor Relations in the Global Era: The New Frontier, edited by Peter Cappelli, pp. 101-115. Ithaca, NY: ILR Press

Keith J. Mason, William G. Morrison (2008). Towards a means of consistently comparing airline business models with an application to the ‘low cost’ airline sector, Research in Transportation Economics 24, pp. 75–84

Kochan, T., Andrew von Nordenflycht, McKersie, R. and Gittell, J.(2003). Out of the ashes: options for rebuilding airline labor relations, MIT Sloan School of Management Working Paper 4301-03, Institute for Work and Employment Research (IWER) Working Paper 04-2003, pp.1-22

Lee, D. and Rupp, N.G. (2007). Retracting a Gift: How Does Employee Effort Respond to Wage Reductions, Journal of Labor Economics, Vol. 25, Nr. 4, pp.725-761

Li, Michael Z. F., Oum, Tae H. and Zhang, Y. (2004). Tobin's q and Airline Performances, Public Works Management Policy, Vol. 9, pp. 51-65

Lichtenberg, F. and Kim, M. (1989). The effects of mergers on Prices, Costs and capacity utilization in the U.S. Air transportation industry, 1970-1984, The Jerome Levy Economics Institute, Bard College, Working Paper No. 32, pp.1-20

Macchiati, A. and Siciliano, G. (2007). Airlines' Privatisation in Europe: Fully versus Partial Divestiture, RIivista di Politica Economica, Vol. 97(1), pp. 123-156

Marin, P. (1998). Productivity differences in the airline industry: Partial deregulation versus short run protection, International Journal of Industrial Organization 16, pp. 395–414

Martin, J. C., Nombela, G. and Romero, M. (1999). European Airline Industry: a cost analysis and economic performance evaluation, World transport research Amsterdam, Pergamon, p.211-223

Mason, K. J.and Morrison W.G. (2008). Towards a means of consistently comparing airline business models with an application to the 'low cost' airline sector, Research in Transportation Economics 24, pp. 75–84

McGowan, F., Seabright, P., Breyer S., Encaoua D. (1989). Deregulating European Airlines, Economic Policy, Vol. 4, No. 9, pp. 283-344

Morrison, S. A. and Winston, C. (1995). The evolution of the airline industry, DC: Brookings, Washington

Morrell, P. (2005). Airlines within airlines: An analysis of US network airline responses to Low Cost Carriers, Journal of Air Transport Management, Vol.11, pp. 303–312

Morrell, P. S. (2007). Airline Finance, 3. rev. and updated ed. Ashgate, Aldershot

Nay, Leslie A. (1991). The Determinants of Concession Bargaining in the Airline Industry, Industrial and Labor Relations Review, Vol. 44, No. 2, pp. 307-323

Nijkamp, P. (1996). Liberalisation of Air Transport in Europe: The Survival of the Fittest? , Swiss Journal of Economics and Statistics , Vol. 132 (3), pp.257-278

Northrup, H. (1983). The New Employee-Relations Climate in Airlines, Industrial and Labor Relations Review, Vol. 36, No. 2, pp. 167-181

Oum, T.H.and Zhang, Y. (1991). Utilization of quasi-fixed inputs and estimation of cost functions, Journal of Transport Economics and Policy, Vol.25, No.2, pp.121-134

Oum, T.H. and Yu, C. (1998). Winning Airlines: Productivity and Cost Competitiveness of the World's Major Airlines, Kluwer Academic Publishers, Transportation Research, Economics and Policy

Oum, T. H. and Chunyan, Yu. (1998). Cost competitiveness of major airlines: an international comparison, Transportation Research Part A: Policy and Practice, Volume 32, Issue 6, pp. 407-422

Palepu, K. G., Peek, E. and Healy, P. M. (2007). Business Analysis and Valuation: text and cases, IFRS ed., Thomson, London

Pels, E. (2008). Airline network competition: Full-service airlines, low-cost airlines and long-haul markets, Research in Transportation Economics, Vol.24, pp. 68–74

Peoples, James, Jr. (1990). Airline Deregulation and Industry Wage Levels, Eastern Economic Journal, Vol.16, No.1, pp.49-58

Peter Mackenzie-Williams. (2005). Aviation benchmarking Issues and industry insights from benchmarking results, Benchmarking: An International Journal, Vol. 12, No. 2, pp. 112-124

Pitfield, D.E. (2008). Some insights into competition between low-cost airlines, Research in Transportation Economics, Vol. 24, pp. 5–14

Purvez, F. Captain and Sickles, Robin C. (1997). Competition and Market Power in the European Airline Industry: 1976-90, Managerial and Decision Economics, Vol. 18, No. 3, pp. 209-225

Seristö H. (1996). The executive view on the cost problem of European airlines, European Business Review, Vol. 96, Nr. 4, pp. 14–17

Seristö, H. (1995). Airline performance and costs: an analysis of performance measurement and cost reduction in major airlines, Helsingin Kauppakorkeakoulu, Helsinki

Schnell, Mirko C.A. (2003). Does the effectiveness of airline strategies change? A survey of European full service airlines, International Journal of Transport Management, Vol.1, pp. 217–22

Straszheim M.R., (1969). The International Airline Industry, The Brookings Institution, Washington D.C.

Taneja, Nawal K. (2003). Airline survival kit: Breaking out of the zero profit game, Ashgate Publishing, Aldershot

Tretheway, M. (2004).Distortions of airline revenues: why the network airline business model is broken, Journal of Air Transport Management, Vol.10, pp. 3–14

Tsoukalas, G., Belobaba, P.and Swelbar, W. (2008). Cost convergence in the US airline industry: An analysis of unit costs 1995–2006, Journal of Air Transport Management, Vol.14, pp.179– 187

Turnbull, P., Blyton, P. and Harvey, G. (2004). Cleared for Take-off? Management-Labour Partnership in the European Civil Aviation Industry, European Journal of Industrial Relations 10; 287

Vadhindran , K. Rao.(1999). Fuel price risk management using futures, Journal of Air Transport Management 5, pp.39-44

Vasigh, B., Tacker, T. and Fleming, K. (2008). Introduction to air transport economics: from theory to applications, Ashgate, Aldershot

Windle, R. (1991). The world's airlines; a cost and productivity comparison, Journal of Transport Economics and Policy, pp.31-49

Windle, R. and, Dresner, M. (1995). A note on productivity comparison between air carriers, Logistics and Transportation Review 31 (2), pp. 125-134

Windle, R. J. and Dresner, M. E. (1992). Partial Productivity Measures and Total Productivity in the Air Transport Industry: Limitations and Uses, Transportation Research - A, Vol. 26A, No. 6, pp. 435-445

Wouters, M., Kokke, K., Theeuwesf, J. and Karel van Donselaar. (1999). Identification of critical operational performance measures a research note on a benchmarking study in the transportation and distributions sector, Management Accounting Research 10, pp. 439-452

Zairi, M. (1994). Measuring performance for business results, Chapman & Hall, London

Zairi, M. and Hutton, R. (1995).Benchmarking: a process-driven tool for quality improvement, The TQM Magazine, Vol.7, Nr.3, pp.35-40

Zairi, M. (1998). Benchmarking for best practice: continuous learning through sustainable innovation, Paperback ed., Butterworth-Heinemann, Oxford

Internet data sources:

http://www.eurocontrol.int/statfor/gallery/content/public/analysis/LowCostMarketUpdateDec06_V01.pdf, accessed on 20.07.2009

http://www.icao.int/icao/en/atb/ead/sta/form_ef.pdf, accessed on 20.09.2009

http://www.iata.org/NR/rdonlyres/2C2C38BA-BB3B-4A4E-A8BE-1AC0FF87AC86/0/Airline_Labour_Cost_Share_Feb2010.pdf, accessed on 18.11.2009

http://www.iata.org/NR/rdonlyres/09078492-F854-4B38-980D-2B0E0048F725/0/890200_Airline_Cost_PerformanceSummary_Report.pdf, accessed on 20.11.2009

http://www.iata.org/NR/rdonlyres/D9A9698A-EFF5-4277-B9A9-D0C8D8D55105/0/Industry_Outlook_Mar09.pdf, accessed on 22.08.2009

http://www.iata.org/nr/rdonlyres/5c57fe77-67ff-499c-a071-4e5e2216d728/0/atag_economic_social_benefits_2008.pdf, accessed on 20.08.2009

http://www.iata.org/NR/rdonlyres/D9A9698A-EFF5-4277-B9A9-D0C8D8D55105/0/Industry_Outlook_Mar09.pdf, accessed on 20.08.2009

http://www.eurunion.org/eu/index2.php?option=com_content&do_pdf=1&id=1756, accessed on 08.08.2009

http://www.bts.gov/programs/airline_information/performance_measures_in_the_airline_industry/html/bottom_line/2006.html , accessed on 10.08.2009

http://ir.viennaairport.com/jart/prj3/ir/data/uploads/Kitzbuehl.pdf, accessed on 15.05.2009

http://ir.viennaairport.com/jart/prj3/ir/data/uploads/Kitz_19_01_2006_engl.pdf, accessed on 15.05.2009

http://www.iasplus.com/standard/ias01.htm , Page IAS 1, accessed on 20.10.2009

http://www.skyeurope.com/Documents/ANNUAL_REPORT_07_SKY_ENG.pdf, accessed on 14.07.2009

www.skyeurope.com/pdf/investor_relations/annual_report_2005_en.pdf, accessed on 14.07.2009

http://ir.airberlin.com/_files/en/080410_AB_AnnualReport2007_247.pdf , accessed on 20.10.2009

http://ir.airberlin.com/_files/en/E_Geschaeft_AB1J06E_122.pdf , accessed on 20.10.2009

http://www.ir.airberlin.com/presse_detail.php?lang=en&bereich=ah&id=169, accessed on 20.10.2009

http://www.austrianairlines.co.at/NR/rdonlyres/8EDADF4C-DA45-4987-BCC6-1E1761490280/0/Jahresfinanzbericht2007es.pdf, accessed on 20.03.2010

http://www.austrianairlines.co.at/NR/rdonlyres/791A0F0B-1C01-4D33-90DC-C56C4E0AF767/0/GB2006englKorrS.pdf , accessed on 24.03.2010

https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1024635, accessed on 28.12.2009

https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1025392, Statistisches Bundesamt, Fachserie 18, Reihe 1.4, 2009, page 70, accessed on 28.12.2009

http://www.statistik.at/web_de/statistiken/soziales/personen-einkommen/verdienststruktur/index.html, accessed on 28.12.2009

http://www.statistik.at/web_de/statistiken/soziales/personen-einkommen/allgemeiner_einkommensbericht/index.html, Allgemeiner Einkommensbericht nach Branchen, accessed on 28.12.2009

http://portal.statistics.sk/showdoc.do?docid=6042, accessed on 14.10.2009

http://portal.statistics.sk/showdoc.do?docid=6038 , accessed on 14.10.2009

http://portal.statistics.sk/showdoc.do?docid=8145, accessed on 14.10.2009

Other sources:

E-mail Correspondence with Dr.Hegner - Head of Investor Relations of Air Berlin in the period of 08.10.08 - 11.11.09

E-mail Correspondence with Ms.Kopp from Investor Relation Department and Mr. Schreiner from the HR Policy of Austrian Airlines in the period of 10.04.09-30.12.09

CHAPTER THIRTEEN

13. Appendix:

13.1. Cost data evaluation of Austrian Airlines, Sky Europe and Air Berlin for 2005-2007

Table 18: Development of the monthly wage per employee for the OS, SE and AB for 2005-2007 in %

Airline	Years	Development of the monthly wage per employee in % for 2005-2007
OS	2006 / 2005	+ 20.11%
	2007 / 2006	-7.86%
SE	2006 / 2005	+41.91%
	2007 / 2006	+7.68%
AB	2006 / 2005	- 2.57%
	2007 / 2006	+8.03%

Based on data from Table 14

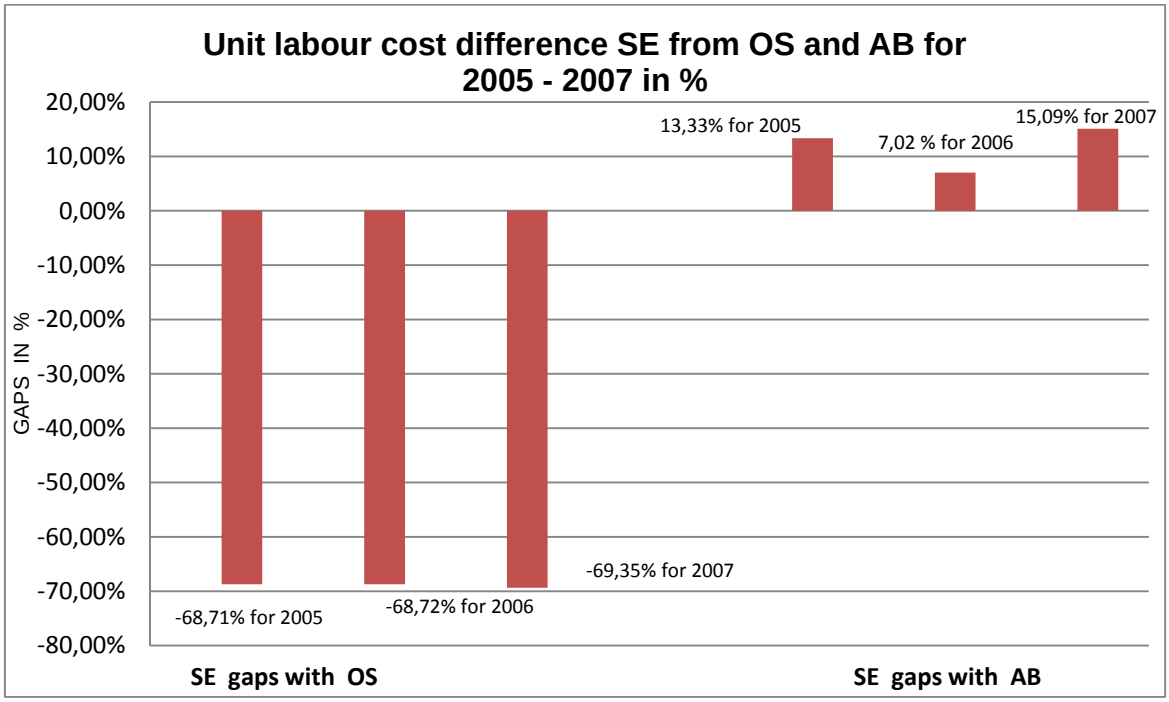
Table 19: Gaps between average wage in OS, SE and AB and the average wage in Austria, Germany and Slovakia[187]

Airlines	Difference OS wage from average wage in Austria	Difference AB wage from the average wage in Germany	Difference SE wage from average wage in Slovakia
2005	130.68 %	91.92 %	165.02 %
2006	168.80 %	85.17 %	246.28 %
2007	139.03 %	97.08 %	247.23 %

Based on Statistic Austria, Germany and Slovakia & on data from Table 14

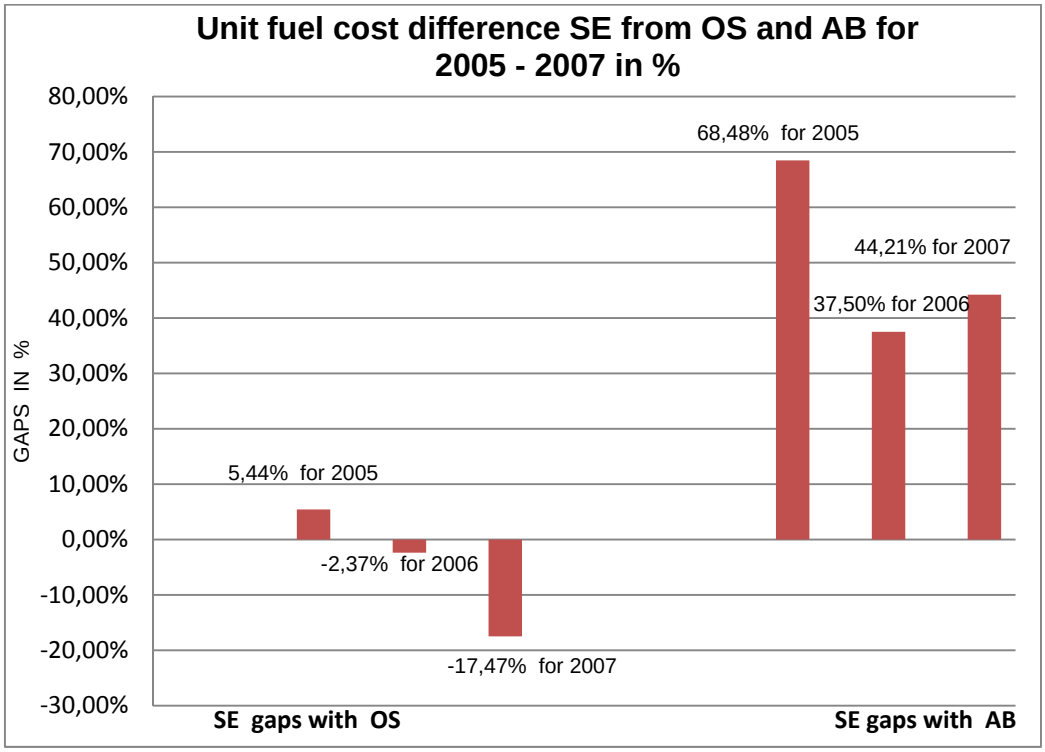
187 http://www.statistik.at/web_de/statistiken/soziales/personen-einkommen/jaehrliche_personen_einkommen/index.html, accessed on 28.12.09 , http://portal.statistics.sk/showdoc.do?docid=6037, accessed on 14.10.09 and https://www-ec.destatis.de/csp/shop/sfg/bpm.html.cms.cBroker.cls?cmspath=struktur,vollanzeige.csp&ID=1025392, Statistisches Bundesamt, Fachserie 18, Reihe 1.4, 2009, page 70, accessed on 28.12.2009

Diagram 9: Unit labour costs difference SE from AB and from OS for 2005 - 2007 in %



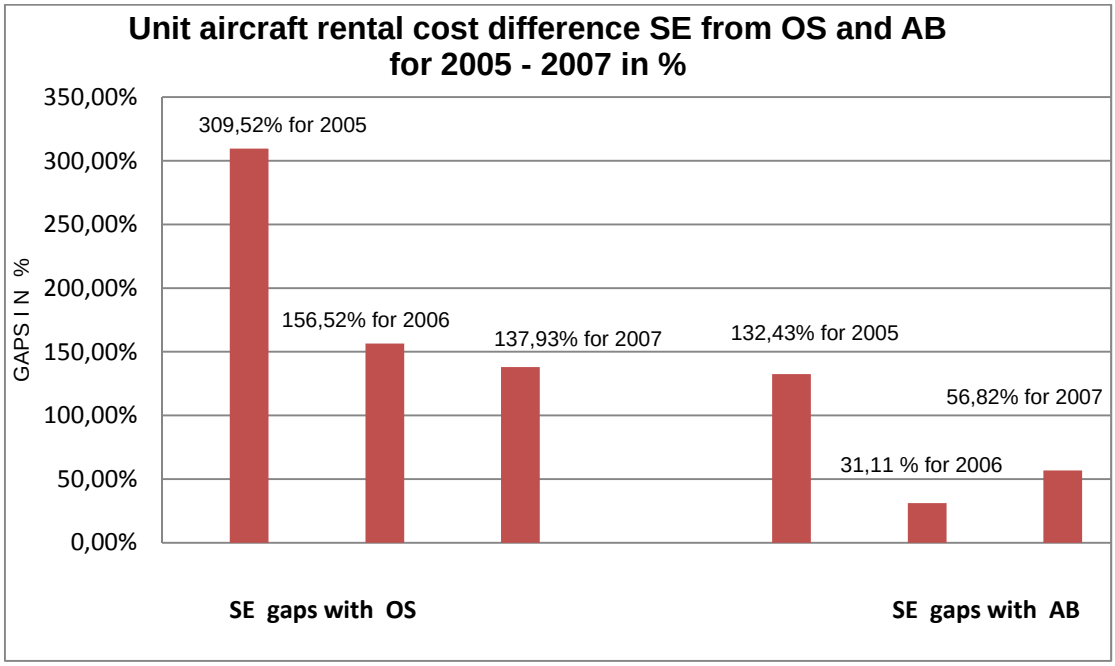
Based on the data in Tables 11-13

Diagram 10: Unit fuel costs difference SE from OS and from AB for 2005 - 2007 in %



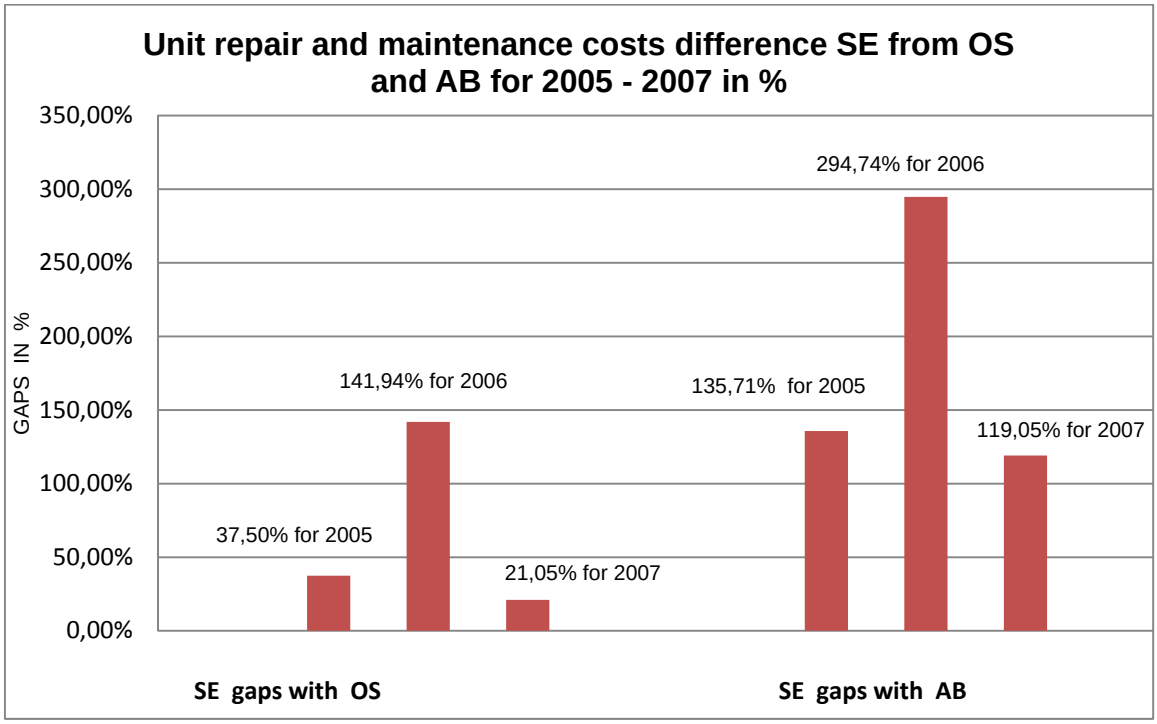
Based on data in Tables 11-13

Diagram 11: Unit aircraft rental costs difference SE from OS and from AB for 2005 - 2007 in %



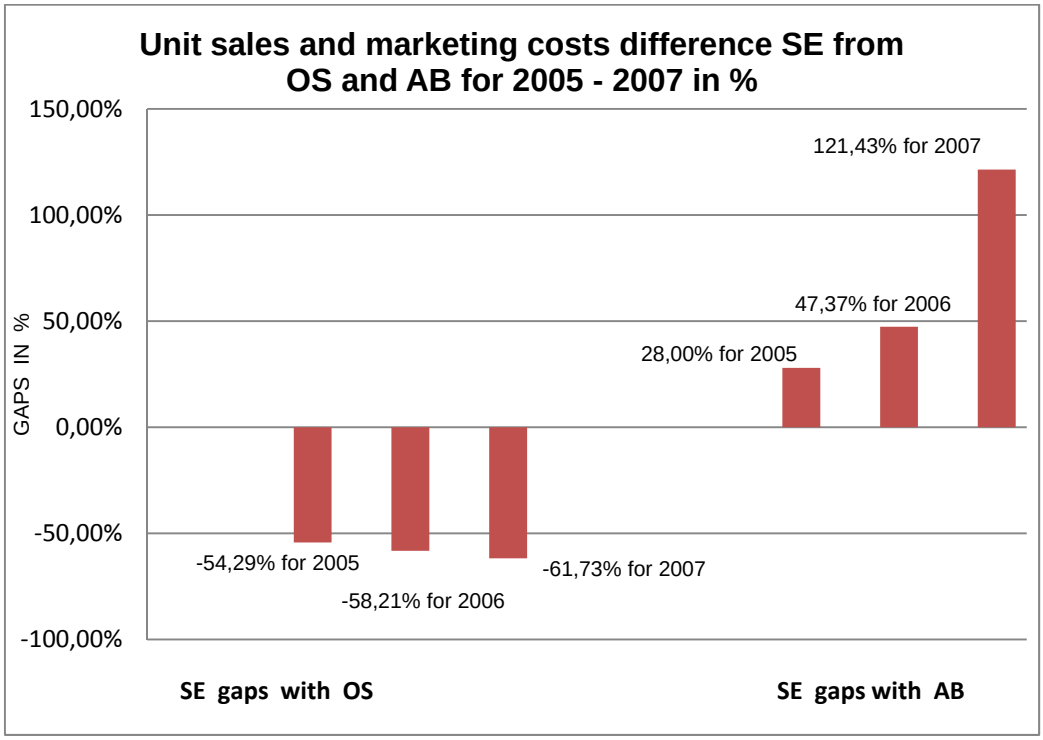
Based on the data in Tables 11-13

Diagram 12: Unit repair and maintenance costs difference from OS and from AB for 2005 - 2007 in %



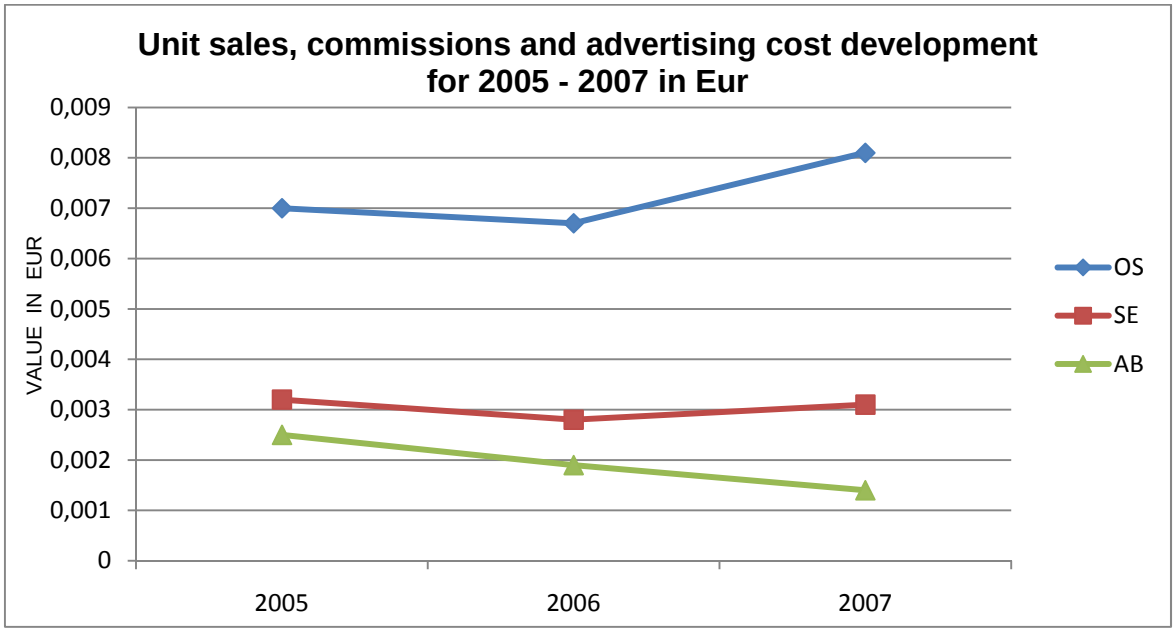
Based on the data in Tables 11-13

Diagram 13: Unit sales and marketing costs difference SE from OS and from AB for 2005 - 2007 in %



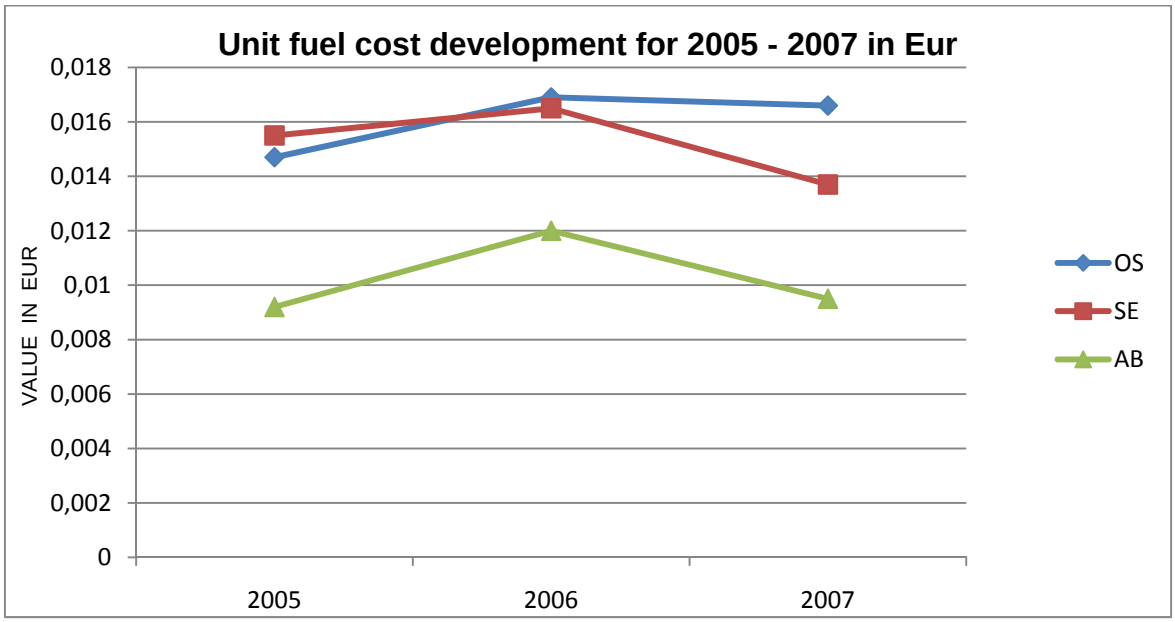
Based on the data in Tables 11-13

Diagram 14: Unit sales and marketing cost development OS, SE, and AB for 2005 - 2007 in Eur



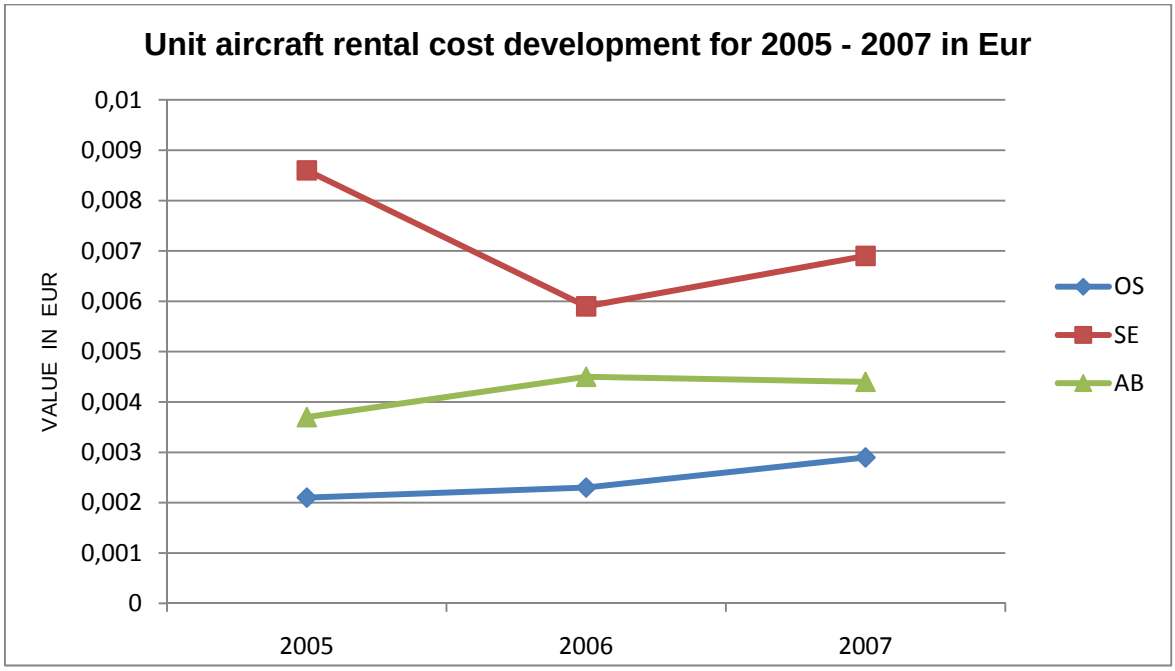
Based on data from Graphics 5, 8, 13, 15, 18, 20, 26 and 30, available in the Appendix

Diagram 15: Unit fuel costs development OS, SE and AB for 2005 - 2007 in Eur



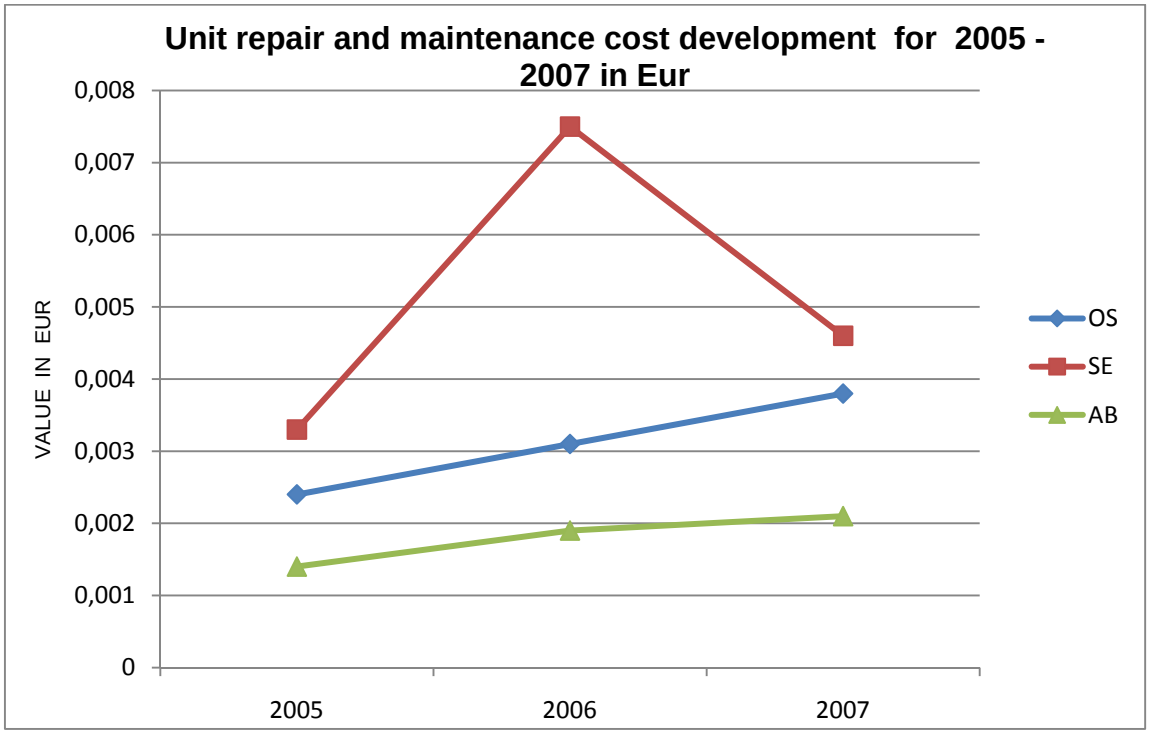
Based on data from Graphics 5, 8, 13, 18, 24 and 28, available in the Appendix

Diagram 16: Unit aircraft rental cost development OS, SE and AB for 2005 – 2007 in Eur



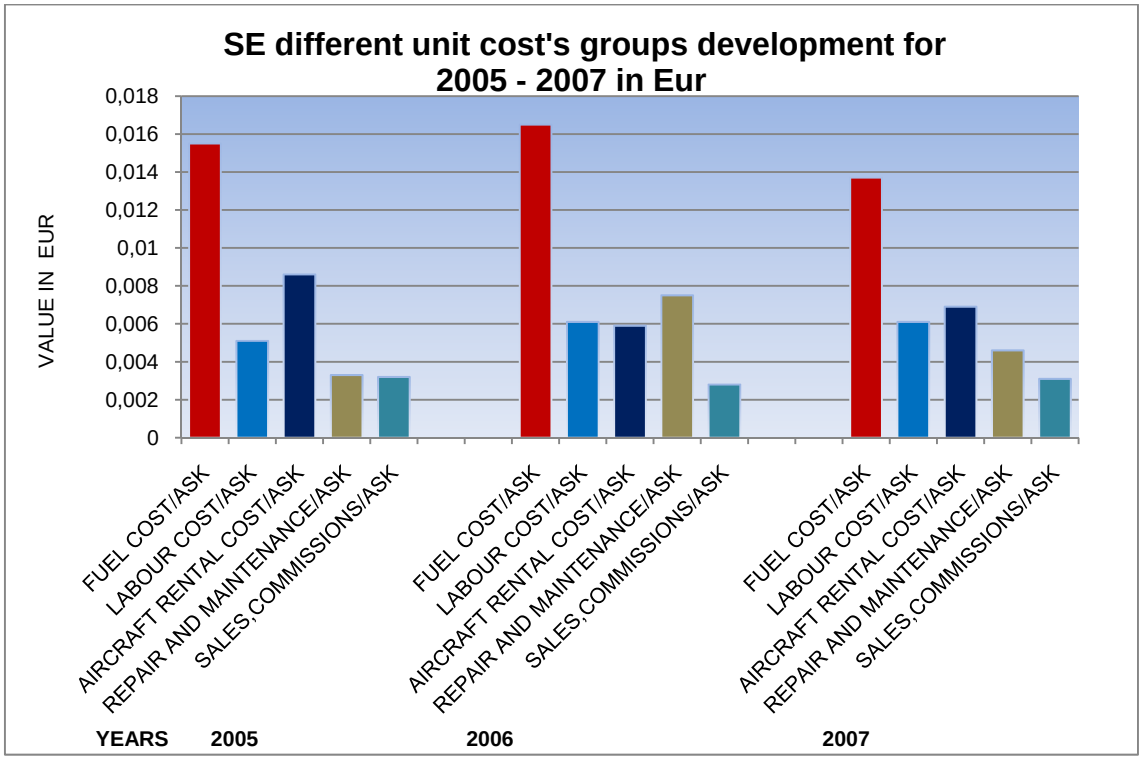
Based on data from Graphics 5, 8, 13, 18, 24 and 28

Diagram 17: Unit repair and maintenance cost development OS, SE and AB for 2005 - 2007 in Eur



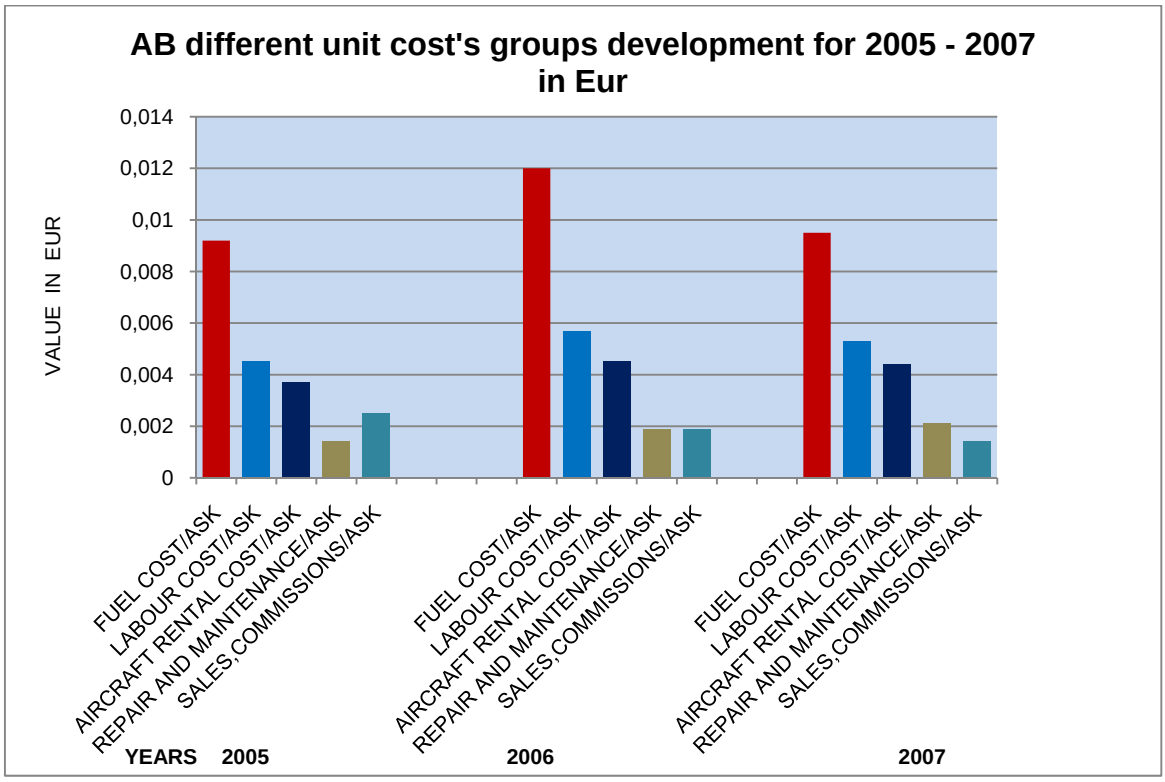
Based on data from Graphics 5, 8, 13, 18, 26 and 30

Diagram 18: SE different unit costs groups' development for 2005 - 2007 in Eur



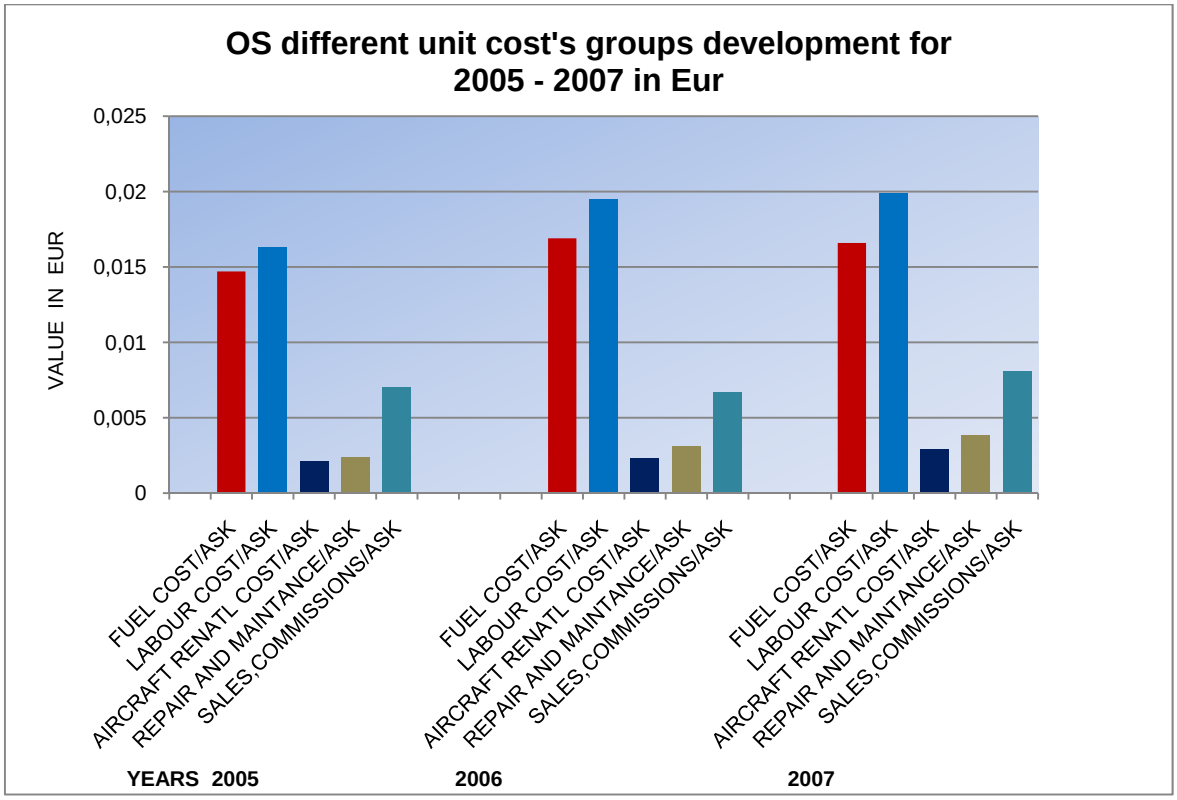
Based on Tables 11-13

Diagram 19: AB different unit costs groups' development for 2005 - 2007 in Eur



Based on Tables 11-13

Diagram 20: OS different unit costs groups' development for 2005 - 2007 in Eur



Based on Table 11-13

13.2. Financial and operating data Austrian Airlines, Sky Europe and Air Berlin for 2005-2007

Graphic 5: SE Income Statement for 2005[188]

CONSOLIDATED INCOME STATEMENTS FOR 2005

In thousands of EUR	Note	30 September 2005 12 months	30 September 2004 9 months
Net operating revenues	16		
Passenger revenues		83,856	39,452
Ancillary revenues		27,457	6,482
		111,313	45,934
Other operating income	16	1,354	402
Operating income		112,667	46,336
Operating expenses			
Salaries, wages and benefits	19	(13,019)	(5,117)
Aircraft fuel		(39,690)	(10,974)
Aircraft rental		(22,007)	(8,808)
Sales and marketing	18	(8,090)	(5,193)
Aircraft and traffic servicing		(45,107)	(18,773)
Maintenance, materials and repairs		(8,405)	(4,856)
Depreciation and amortization	4	(811)	(216)
Other operating expenses	17	(9,105)	(4,287)
Operating expenses		(146,234)	(58,224)
Operating loss		(33,567)	(11,888)
Other income (expenses)			
Financial (expenses) income, net		(368)	(59)
Loss before income taxes		(33,935)	(11,947)
Income tax benefit	21	5,323	3,316
Net loss for the period after tax		(28,612)	(8,631)
Basic and diluted loss per share	22	(2.95)	(1.29)

Source: SE Holding AG Annual Report for 2005, Page 18

188 www.skyeurope.com/pdf/investor_relations/annual_report_2005_en.pdf, Page 18, accessed on 14.07.2009

Graphic 6: SE Notes to the Income Statement for 2005[189]

18 Sales and marketing expense

In thousands of EUR	30 September 2005 12 months	30 September 2004 9 months
Barter advertising expenses	1,250	1,053
Other	6,840	4,140
	8,090	5,193

19 Salaries, wages and benefits

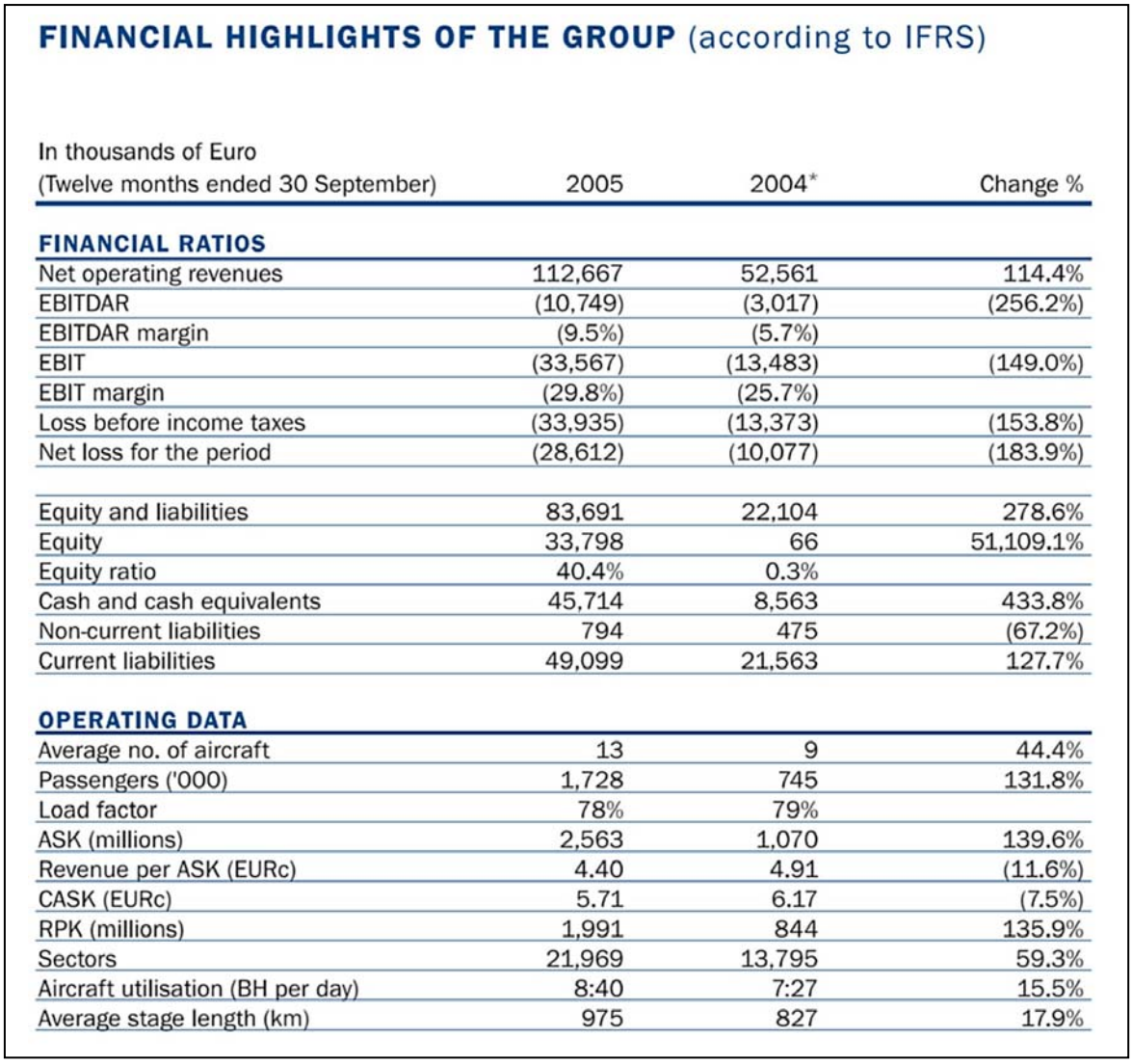
	30 September 2005 12 months	30 September 2004 9 months
The average number of employees, including the Management Board, during the period, analyzed by category, was as follows:		
Flight and cabin crew	342	164
Sales, operations and administration	372	200
	714	364

In thousands of EUR	30 September 2005 12 months	30 September 2004 9 months
The aggregate payroll costs of these persons were as follows:		
Wages, salaries and related costs	10,491	3,510
Social welfare costs	2,368	845
Other personnel costs	160	762
	13,019	5,117

Source: SE Holding AG, Annual Report for 2005, Pages 32 and 33

189 http://www.skyeurope.com/pdf/investor_relations/annual_report_2005_en.pdf, Page 32 and 33,accessed on 14.07.2009

Graphic 7: SE Financial highlights for 2005[190]



FINANCIAL HIGHLIGHTS OF THE GROUP (according to IFRS)

In thousands of Euro (Twelve months ended 30 September)	2005	2004*	Change %
FINANCIAL RATIOS			
Net operating revenues	112,667	52,561	114.4%
EBITDAR	(10,749)	(3,017)	(256.2%)
EBITDAR margin	(9.5%)	(5.7%)	
EBIT	(33,567)	(13,483)	(149.0%)
EBIT margin	(29.8%)	(25.7%)	
Loss before income taxes	(33,935)	(13,373)	(153.8%)
Net loss for the period	(28,612)	(10,077)	(183.9%)
Equity and liabilities	83,691	22,104	278.6%
Equity	33,798	66	51,109.1%
Equity ratio	40.4%	0.3%	
Cash and cash equivalents	45,714	8,563	433.8%
Non-current liabilities	794	475	(67.2%)
Current liabilities	49,099	21,563	127.7%
OPERATING DATA			
Average no. of aircraft	13	9	44.4%
Passengers ('000)	1,728	745	131.8%
Load factor	78%	79%	
ASK (millions)	2,563	1,070	139.6%
Revenue per ASK (EURc)	4.40	4.91	(11.6%)
CASK (EURc)	5.71	6.17	(7.5%)
RPK (millions)	1,991	844	135.9%
Sectors	21,969	13,795	59.3%
Aircraft utilisation (BH per day)	8:40	7:27	15.5%
Average stage length (km)	975	827	17.9%

Source: SE Holding AG, Annual Report for 2005

190 http://www.skyeurope.com/pdf/investor_relations/annual_report_2005_en.pdf, accessed on 14.07.2009

Graphic 8: SE Income Statement for 2007, incl. 2006[191]

(Expressed in thousands of EUR except basic and diluted los s per share)	Note	30 September 2007	30 September 2006
Operating revenue			
Scheduled revenue		208,204	157,164
Ancillary revenue		11,589	4,254
Charter revenue		16,384	23,939
		236,177	**185,357**
Operating expenses			
Aircraft fuel		(57,892)	(61,043)
Sales and marketing		(13,231)	(10,487)
Ground handling charges		(19,216)	(16,158)
Maintenance, material and repairs		(19,405)	(27,708)
Salaries, wages and benefits	16	(25,832)	(22,412)
Navigation charges		(23,522)	(20,256)
Aircraft and passenger insurance		(1,980)	(2,132)
Administrative expenses	14	(13,324)	(17,818)
Airport charges		(51,261)	(39,486)
Base closure expense		(910)	-
		(226,573)	**(217,500)**
Operating income (loss) before interest, tax, depreciation, amortisation and rental (EBITDAR)		**9,604**	**(32,143)**
Depreciation and amortization		(1,488)	(1,547)
Aircraft rental		(29,029)	(21,788)
Operating loss (EBIT)		**(20,913)**	**(55,478)**
Other income (expenses)			
Financial income (expense), net	15	710	(2,603)
Loss before income taxes		**(20,203)**	**(58,081)**
Income tax (expense)/credit	18	(3,867)	788
Net loss for the period after tax		**(24,070)**	**(57,293)**
Weighted average number of ordinary shares at end of year		39,156,838	20,208,110
Basic and diluted loss per share (EUR)	19	**(0.61)**	**(2.84)**

Source: SE Holding AG, Annual Report for 2007, Page 40

191 http://www.skyeurope.com/Documents/ANNUAL_REPORT_07_SKY_ENG.pdf, accessed on 14.07.2009

Graphic 9: SE Salaries, wages and benefits and average employee numbers for 2007, incl. 2006[192]

16 SALARIES, WAGES AND BENEFITS

	30 September 2007	30 September 2006
The average number of employees, including the executive directors, during the period, analyzed by category, was as follows:		
Flight and cabin crew	459	378
Sales, operations and administration	468	488
	927	**866**
The aggregate payroll costs of these persons were as follows:		
Wages, salaries and related costs	19,305	16,286
Social welfare costs	4,740	3,977
Other personnel costs	1,787	2,149
	25,832	**22,412**

Source: SE Holding AG, Annual Report for 2007, Page 61

Graphic 10: SE Key operating data for 2007, incl. 2006[193]

KEY OPERATING DATA

(12 months ended 30 September)	2007	2006	Change
Operating data			
Average no. of aircraft	12.9	14.0	(7.7%)
No. aircraft at period end	14.0	14.0	0.0%
Passengers	3,312,443	2,560,597	29.4%
Aircraft utilisation (BH per day)	10:45	9:29	13.2%
ASK (million km)	4,230	3,703	14.2%
RPK (million km)	3,503	2,801	25.1%
Load factor (RPK/ASK)	82.8%	75.6%	7.2 pp
Revenue per ASK (EURc)	5.58	5.01	11.5%
Revenue per seat (EUR)	58.2	52.8	10.2%
Yield in EURc (Rev./RPK)	6.74	6.62	1.9%
Average revenue per PAX (EUR)	71.3	72.4	(1.5%)
Cost per ASK (EURc)	6.08	6.50	(6.6%)
Cost per ASK ex fuel (EURc)	4.71	4.85	(3.0%)
Cost per seat (EUR)	63.4	68.7	(7.7%)
Sec tors	27,796	25,542	8.8%
Average stage length	1,041	1,055	(1.4%)
Total staff at period end	927	860	7.7%
Staff per aircraft	66	61	7.7%

Source: SE Holding AG, Annual Report for 2007, Page 24

192 http://www.skyeurope.com/Documents/ANNUAL_REPORT_07_SKY_ENG.pdf, page 61,accessed on 14.07.2009

193 http://www.skyeurope.com/Documents/ANNUAL_REPORT_07_SKY_ENG.pdf, page 24,accessed on 14.07.2009

Graphic 11: Austrian Airlines Consolidated Income Statement for 2006, incl. 2005[194]

Consolidated Income Statement for the Financial Year 2006

EURm	Notes	2006	2005	+/–	+/– %
Continuing operations					
Flight revenue	7	2,458.8	2,260.5	198.3	8.8
Other revenue	8	134.4	132.4	2.0	1.5
Revenue		**2,593.2**	**2,392.9**	**200.3**	**8.4**
Changes in inventories		5.2	0.6	4.6	–
Result from disposal of non-current assets	9	–3.2	7.4	–10.6	–
Other income	9	67.6	84.9	–17.3	–20.4
Operating revenue		**2,662.8**	**2,485.8**	**177.0**	**7.1**
Expenses for materials and services	10	–1,659.4	–1,546.2	–113.2	–7.3
Personnel expenses	11	–611.3	–502.1	–109.2	–21.7
Depreciation and amortisation	12	–293.8	–337.8	44.0	13.0
Other expenses	13	–187.3	–199.7	12.4	6.2
Operating expenses		**–2,751.8**	**–2,585.8**	**–166.0**	**–6.4**
Result from operating activities (EBIT) before associates		**–89.0**	**–100.0**	**11.0**	**11.0**
Share of results in associates	14	0.1	1.0	–0.9	–90.0
Financial expenses	15	–67.9	–72.6	4.7	6.5
Financial income	15	25.7	28.6	–2.9	–10.1
Other financial expenses and income	16	–7.0	13.4	–20.4	–
Financial result		**–49.1**	**–29.6**	**–19.5**	**–65.9**
Result before tax		**–138.1**	**–129.6**	**–8.5**	**–6.6**
Income taxes	17	–1.5	–1.7	0.2	11.8
Result from continuing operations		**–139.6**	**–131.3**	**–8.3**	**–6.3**
Discontinued operation					
Result from operations held for sale	27	**9.7**	**2.2**	**7.5**	–
Net result for the year		**–129.9**	**–129.1**	**–0.8**	**–0.6**
Attributable to: Shareholders of Austrian Airlines AG		–130.1	–130.7	0.6	0.5
Minority interests		0.2	1.6	–1.4	–87.5
Earnings per share	43	**–EUR 3.55**	**–EUR 4.05**	**EUR 0.50**	**12.3**
Earnings per share diluted	43	**–EUR 3.55**	**–EUR 4.05**	**EUR 0.50**	**12.3**
Earnings per share from continuing operations	43	**–EUR 3.29**	**–EUR 3.98**	**EUR 0.69**	**17.3**
Earnings per share diluted from continuing operations	43	**–EUR 3.29**	**–EUR 3.98**	**EUR 0.69**	**17.3**

Source: Austrian Airlines Group, Annual Report for 2006, Page 66

194 http://www.austrianairlines.co.at/NR/rdonlyres/791A0F0B-1C01-4D33-90DC-C56C4E0AF767/0/GB2006englKorrS.pdf , page 66, accessed on 24.03.2010

Graphic 12: Austrain Airlines average employee numbers by division[195]

Number of employees by division[1]	2006	2005	+/– abs.	+/– %
Marketing, Sales, Administration	2,012	2,010	3	0.1
Technical Services	1,361	1,333	28	2.1
Ground Services	1,088	1,070	18	1.7
Cargo	226	215	11	5.1
Flight Attendants	2,354	2,296	57	2.5
Pilots	1,200	1,197	4	0.3
Flight Operations Support[2]	341	348	–7	–2.0
Total	**8.582**	**8.468**	**114**	**1.3**

1 Average on full-time basis, including employees in training and similar
2 Including off duty cases, trainee flight attendants

Source: Austrian Airlines Group, Annual Report for 2006, Page 56

Graphic 13: Austrian Airlines RPK for 2006 and 2005[196]

	2006	2005
Revenue passenger kilometers (000)	19,959,073	18,902,885

Source: Austrian Airline Group, Annual Report for 2006, Page 45

Graphic 14: Austrian Airlines RPK for 2007[197]

	2007
Revenue passenger kilometers (000)	17,431,603

Source: Austrian Airline Group, Operating Statistics

195 http://www.austrianairlines.co.at/NR/rdonlyres/791A0F0B-1C01-4D33-90DC-C56C4E0AF767/0/GB2006englKorrS.pdf , page 56, accessed on 24.03.2009

196 http://www.austrianairlines.co.at/NR/rdonlyres/791A0F0B-1C01-4D33-90DC-C56C4E0AF767/0/GB2006englKorrS.pdf, accessed on 24.03.2010, page 45

197 http://www.austrianairlines.ag/InvestorRelations/FinancialReports/TrafficPerformance.aspx?sc_lang=en, accessed on 24.03.2010

Graphic 15: Austrain Airlines breakdown of expenses for materials and services for 2006, incl. 2005[198]

10 » Expenses for materials and services

EURm	2006	2005
Aircraft fuel	530.0	454.3
Landing and handling charges	274.5	284.0
En route charges	123.8	126.6
Aircraft parts	26.5	25.0
Subcontracted aircraft overhauls	69.5	48.1
Travel expenses of crew	33.7	33.6
Long-term aircraft lease	19.7	18.1
Short-term aircraft lease (ground transports, Blocked Space Agreements, etc.)	52.7	47.6
Expenditures on commissions	127.9	139.6
Passenger servicing	104.3	97.8
Passenger landing charges	188.4	169.9
Expenditure on reservation systems	53.7	46.5
Merchandise for resale	28.1	27.6
Other passenger related expenses	26.6	27.5
	1,659.4	**1,546.2**

Source: Austrian Airlines Group, Annual Report for 2006, Notes to the Consolidated Financial Statements, Page 78

Graphic 16: Austrian Airlines breakdown of personnel expenses for 2006, incl. 2005[199]

11 » Personnel expenses

EURm	2006	2005
Wages and salaries	374.4	351.9
Severance payments and payments to an employee severance fund	61.5	16.1
Pensions	71.3	33.7
Compulsory social expenses	90.9	85.3
Other social expenses	13.2	15.1
	611.3	**502.1**

Source: Source: Austrian Airlines Group, Annual Report for 2006, Notes to the Consolidated Financial Statements, Page 78

198 http://www.austrianairlines.co.at/NR/rdonlyres/791A0F0B-1C01-4D33-90DC-C56C4E0AF767/0/GB2006englKorrS.pdf page 78, accessed on 24.03.2010

199 http://www.austrianairlines.co.at/NR/rdonlyres/791A0F0B-1C01-4D33-90DC-C56C4E0AF767/0/GB2006englKorrS.pdf , page 78,accessed on 24.03.2010

Graphic 17: Austrian Airlines breakdown of other expenses for 2006, incl. 2005[200]

13 » Other expenses

EURm	2006	2005
Other costs of premises and plant	69.4	58.4
Insurance	7.1	7.2
Advertising and representation expenses	29.7	30.3
Consultancy costs	10.1	11.8
Claims	1.4	0.5
Losses of receivables	10.2	2.4
Postage and telecommunications charges	4.9	5.4
Travel expenses of ground staff	6.8	6.8
Taxes (excluding taxes on income)	3.3	4.5
Support materials	13.3	14.8
Other material usage and purchased services	24.9	22.5
Foreign currency losses	–	28.5
Other expenses	6.2	6.6
	187.3	**199.7**

Source: Austrian Airlines Group, Annual Report for 2006, Notes to the Consolidated Financial Statements, Page 79

Graphic 18: Traffic statistics of OS for 2006, incl. 2005[201]

Traffic statistics

		2006	2005	+/– %
Passengers carried		10,834,668	10,119,773	7.1
Block hours		347,414	332,314	4.5
Available seat kilometers (ASK)	(000)	31,373,758	30,886,813	1.6
RTK	(000)	3,047,575	2,965,547	2.8
ATK	(000)	4,230,180	4,152,069	1.9
Sector flights		167,292	159,692	4.8
Total tons		171,284	160,992	6.4

Source:Austrian Airlines Group, Annual Report for 2006, Page 42

200 http://www.austrianairlines.co.at/NR/rdonlyres/791A0F0B-1C01-4D33-90DC-C56C4E0AF767/0/GB2006englKorrS.pdf , page 79,accessed on 24.03.2010

201 http://www.austrianairlines.co.at/NR/rdonlyres/791A0F0B-1C01-4D33-90DC-C56C4E0AF767/0/GB2006englKorrS.pdf, page 42, accessed on 24.03.2010

Graphic 19: Austrian Airlines Consolidated Income Statement for 2007[202]

Consolidated Income Statement for the Financial Year 2007

EURm	Notes	2007	2006	+/-	+/- %
Continuing operations					
Flight revenue	7	2,368.6	2,458.8	–90.2	–3.7
Other revenue	8	100.0	134.4	–34.4	–25.6
Revenue		**2,468.6**	**2,593.2**	**–124.6**	**–4.8**
Changes in inventories		2.5	5.2	–2.7	–51.9
Result from disposal of non-current assets	9	7.4	–3.2	10.6	–
Other income	9	72.4	67.6	4.8	7.1
Operating revenue		**2,550.9**	**2,662.8**	**–111.9**	**–4.2**
Expenses for materials and services	10	–1,538.6	–1,659.4	120.8	7.3
Personnel expenses	11	–527.1	–611.3	84.2	13.8
Depreciation and amortisation	12	–270.1	–293.8	23.7	8.1
Other expenses	13	–189.5	–187.3	–2.2	–1.2
Operating expenses		**–2,525.3**	**–2,751.8**	**226.5**	**8.2**
Result from operating activities (EBIT) before associates		**25.6**	**–89.0**	**114.6**	**–**
Income from disposal of affiliated companies		**12.9**	**–**	**12.9**	**–**
Share of results in associates	14	1.0	0.1	0.9	–
Financial expenses	15	–64.5	–67.9	3.4	5.0
Financial income	15	35.0	25.7	9.3	36.2
Other financial expenses and income	16	–7.2	–7.0	–0.2	–2.9
Financial result		**–35.7**	**–49.1**	**13.4**	**27.3**
Result before tax		**2.8**	**–138.1**	**140.9**	**–**
Income taxes	17	0.5	–1.5	2.0	–
Result from continuing operations		**3.3**	**–139.6**	**142.9**	**–**
Discontinued operations					
Result from operations held for sale	27	**–**	**9.7**	**–9.7**	**–**
Net result for the year		**3.3**	**–129.9**	**133.2**	**–**
Attributable to: Shareholders of Austrian Airlines AG		2.6	–130.1	132.7	–
Minority interests		0.7	0.2	0.5	–
Earnings per share of shareholders of Austrian Airlines AG	43	**EUR 0.03**	**–EUR 3.55**	**EUR 3.58**	**–**
Earnings per share of shareholders of Austrian Airlines AG diluted	43	**EUR 0.03**	**–EUR 3.55**	**EUR 3.58**	**–**
Earnings per share of shareholders of Austrian Airlines AG from continuing operations	43	**EUR 0.03**	**–EUR 3.82**	**EUR 3.85**	**–**
Earnings per share of shareholders of Austrian Airlines AG diluted from continuing operations	43	**EUR 0.03**	**–EUR 3.82**	**EUR 3.85**	**–**

Source: Austrian Airlines Group, Annual Report for 2007, Page 48

202 http://www.austrianairlines.co.at/NR/rdonlyres/8EDADF4C-DA45-4987-BCC6-1E1761490280/0/Jahresfinanzbericht2007es.pdf, page 48, accessed on 20.03.2010

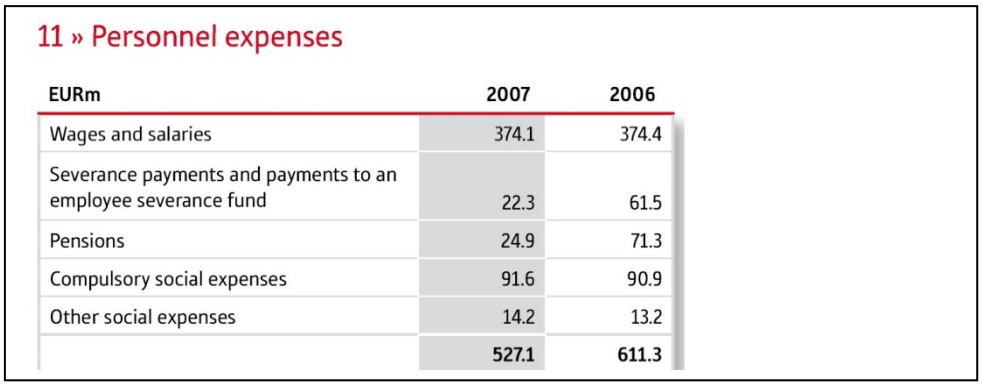
Graphic 20: Austrian Airlines breakdown of expenses for materials and services for 2007[203]

10 » Expenses for materials and services

EURm	2007	2006
Aircraft fuel	441.7	530.0
Landing and handling charges	264.0	274.5
En route charges	113.6	123.8
Aircraft parts	26.3	26.5
Subcontracted aircraft overhauls	73.7	69.5
Travel expenses of crew	29.4	33.7
Long-term aircraft lease	15.9	19.7
Short-term aircraft lease (ground transports, Blocked Space Agreements, etc.)	61.6	52.7
Expenditures on commissions	118.0	127.9
Passenger servicing	116.4	104.3
Passenger landing charges	194.4	188.4
Expenditure on reservation systems	55.9	53.7
Merchandise for resale	3.5	28.1
Other passenger relates expenses	24.2	26.6
	1,538.6	**1,659.4**

Source: Austrian Airlines Group, Annual Report for 2007, Notes to the Consolidated Financial Statements, Page 61

Graphic 21: Austrian Airlines breakdown of personnel expenses for 2007[204]



11 » Personnel expenses

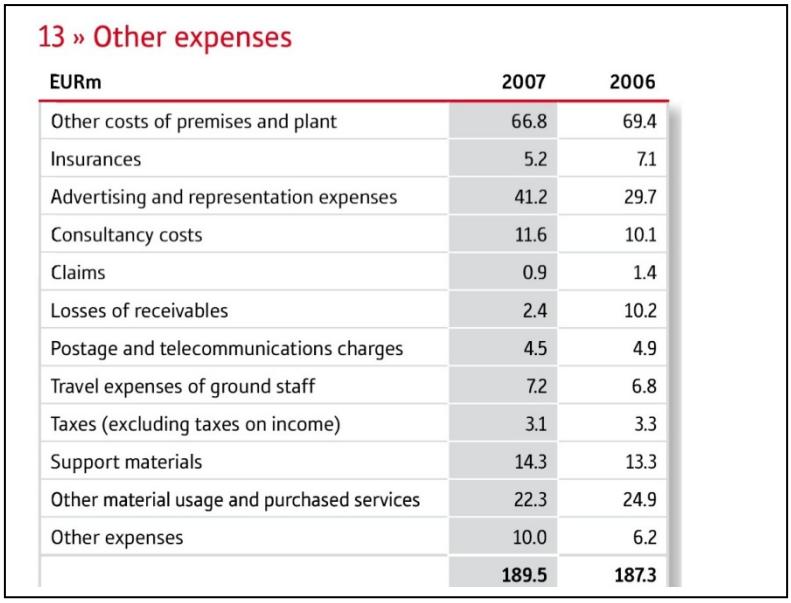
EURm	2007	2006
Wages and salaries	374.1	374.4
Severance payments and payments to an employee severance fund	22.3	61.5
Pensions	24.9	71.3
Compulsory social expenses	91.6	90.9
Other social expenses	14.2	13.2
	527.1	**611.3**

Source: Austrian Airlines Group, Annual Report for 2007, Notes to the Consolidated Financial Statements, Page 61

203 http://www.austrianairlines.co.at/NR/rdonlyres/8EDADF4C-DA45-4987-BCC6-1E1761490280/0/Jahresfinanzbericht2007es.pdf, page 61,accessed on 20.03.2010

204http://www.austrianairlines.co.at/NR/rdonlyres/8EDADF4C-DA45-4987-BCC6-1E1761490280/0/Jahresfinanzbericht2007es.pdf, page 61,accessed on 20.03.2010

Graphic 22: Austrian Airlines breakdown of other expenses for 2007[205]

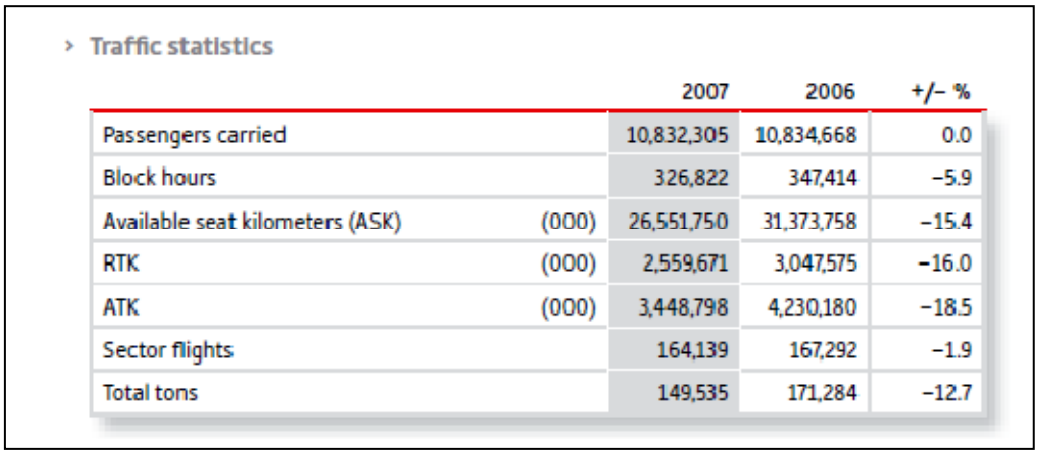


13 » Other expenses

EURm	2007	2006
Other costs of premises and plant	66.8	69.4
Insurances	5.2	7.1
Advertising and representation expenses	41.2	29.7
Consultancy costs	11.6	10.1
Claims	0.9	1.4
Losses of receivables	2.4	10.2
Postage and telecommunications charges	4.5	4.9
Travel expenses of ground staff	7.2	6.8
Taxes (excluding taxes on income)	3.1	3.3
Support materials	14.3	13.3
Other material usage and purchased services	22.3	24.9
Other expenses	10.0	6.2
	189.5	**187.3**

Source: Austrian Airlines Group, Annual Report for 2007, Notes to the Consolidated Financial Statements, Page 61

Graphic 23: Austrian Airline traffic statistics for 2007[206]



› Traffic statistics

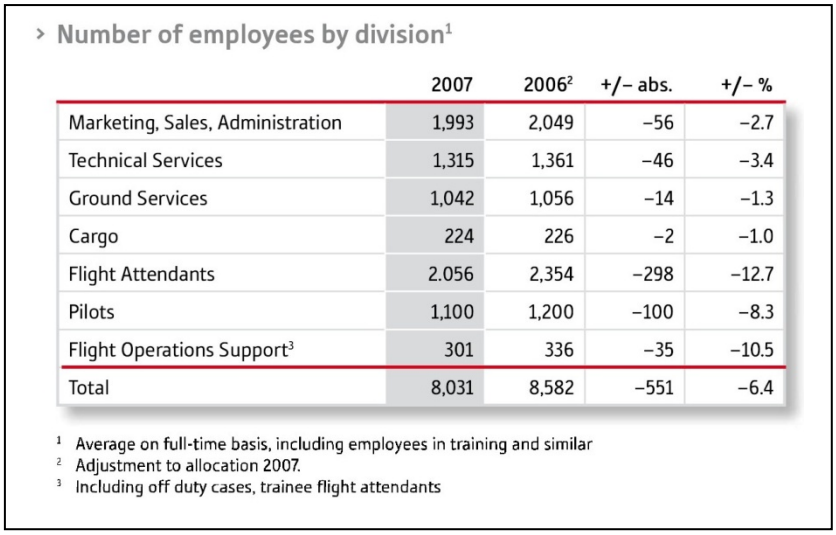
		2007	2006	+/– %
Passengers carried		10,832,305	10,834,668	0.0
Block hours		326,822	347,414	–5.9
Available seat kilometers (ASK)	(000)	26,551,750	31,373,758	–15.4
RTK	(000)	2,559,671	3,047,575	–16.0
ATK	(000)	3,448,798	4,230,180	–18.5
Sector flights		164,139	167,292	–1.9
Total tons		149,535	171,284	–12.7

Source: Austrian Airlines Group, Annual Report for 2007, Page 25

205 http://www.austrianairlines.co.at/NR/rdonlyres/8EDADF4C-DA45-4987-BCC6-1E1761490280/0/Jahresfinanzbericht2007es.pdf, page 61, accessed on 20.03.2010

206 http://www.austrianairlines.co.at/NR/rdonlyres/8EDADF4C-DA45-4987-BCC6-1E1761490280/0/Jahresfinanzbericht2007es.pdf, page 25, accessed on 20.03.2010

Graphic 24: Austrian Airlines average employee number by division for 2007[207]



› Number of employees by division[1]

	2007	2006[2]	+/– abs.	+/– %
Marketing, Sales, Administration	1,993	2,049	–56	–2.7
Technical Services	1,315	1,361	–46	–3.4
Ground Services	1,042	1,056	–14	–1.3
Cargo	224	226	–2	–1.0
Flight Attendants	2.056	2,354	–298	–12.7
Pilots	1,100	1,200	–100	–8.3
Flight Operations Support[3]	301	336	–35	–10.5
Total	8,031	8,582	–551	–6.4

[1] Average on full-time basis, including employees in training and similar
[2] Adjustment to allocation 2007.
[3] Including off duty cases, trainee flight attendants

Source: Austrian Airlines Group, Annual Report for 2007, Page 40

207 http://www.austrianairlines.co.at/NR/rdonlyres/8EDADF4C-DA45-4987-BCC6-1E1761490280/0/Jahresfinanzbericht2007es.pdf, page 40, accessed on 20.03.2010

Graphic 25: Air Berlin Consolidated Income Statement for 2006, incl. 2005[208]

Air Berlin PLC

CONSOLIDATED INCOME STATEMENT

for the year ended 31 December 2006

	Note	**2006**	2005
		€ 000	€ 000
Revenue	20	**1.575.395**	1.215.240
Other operating income	21	**30.867**	4.731
Expenses for materials and services	22	**(1.094.501)**	(864.145)
Personnel expenses	23	**(163.293)**	(116.903)
Depreciation and amortisation	6, 7	**(64.232)**	(62.558)
Other operating expenses	24	**(220.088)**	(181.908)
Operating expenses		**(1.542.114)**	(1.225.514)
Result from operating activities		**64.148**	(5.543)
Financial expenses	25	**(41.917)**	(19.026)
Financial income		**7.389**	2.851
Foreign exchange gains (losses), net	26	**14.857**	(49.192)
Net financing costs		**(19.671)**	(65.367)
Share of profit of associates	27	**608**	39
Profit (loss) before tax		**45.085**	(70.871)
Income tax benefit (expenses)	28	**4.972**	(45.029)
Profit (loss) for the year - all attributable to equity holders of the Company		**50.057**	(115.900)
Basic and diluted earnings per share in €	12	**0,95**	(2,90)

Source: Air Berlin Annual Report for 2006, Page 87

208 http://ir.airberlin.com/_files/en/E_Geschaeft_AB1J06E_122.pdf , page 87, accessed on 20.10.2009

Graphic 26: Air Berlin breakdown of expenses for materials and services for 2006, incl. 2005[209]

22. EXPENSES FOR MATERIALS AND SERVICES

In thousands of Euro	2006	2005
Fuel for aircraft	345,839	239,531
Catering costs and cost of materials for in-flight sales	59,897	58,535
Airport & handling charges	412,104	333,392
Operating leases for aircraft and equipment	128,156	96,163
Navigation charges	123,012	109,018
Other	25,493	27,506
	1,094,501	864,145

Source: Air Berlin Annual Report for 2006, Notes to the Consolidated and Company Financial Statements, Page 112

Graphic 27: Air Berlin breakdown of personnel expenses and average staff numbers for 2006, incl. 2005[210]

23. PERSONNEL EXPENSES AND STAFF NUMBERS

In thousands of Euro	2006	2005
Wages and salaries	139,885	99,463
Pension expense	4,831	3,027
Social security	18,577	14,413
	163,293	116,903

Employees	On annual average	As at 31 December
2006		
Flight and cabin crew	1,807	2,148
Sales, operations and administration	1,492	1,773
	3,299	3,922
2005		
Flight and cabin crew	1,282	1,379
Sales, operations and administration	1,019	1,109
	2,301	2,488

Source: Air Berlin Annual Report for 2006, Notes to the Consolidated and Company Financial Statements, Pages 112-113

209 http://ir.airberlin.com/_files/en/E_Geschaeft_AB1J06E_122.pdf ,page 112, accessed on 20.10.2009

210 http://ir.airberlin.com/_files/en/E_Geschaeft_AB1J06E_122.pdf ,pages 112-113, accessed on 20.10.2009

Graphic 28: Air Berlin breakdown of other operating expenses for 2006, incl. 2005[211]

24. OTHER OPERATING EXPENSES

In thousands of Euro	2006	2005
Sales commissions paid to agencies	25,806	37,208
Repairs and maintenance of technical equipment	58,352	35,921
Advertising	34,751	29,199
Insurances	18,640	15,561
Hardware and software expenses	18,752	11,298
Bank charges	9,413	7,825
Travel expenses for cabin crews	10,459	7,241
Expenses for premises and vehicles	12,541	8,663
Losses from disposal of fixed assets	0	5,824
Training and other personnel costs	5,351	4,556
Phone and postage	3,527	2,763
Allowances for receivables	2,340	1,018
Remuneration of the auditor	1,623	1,482
Other	18,533	13,349
	220,088	181,908

Source: Air Berlin Annual Report for 2006, Notes to the Consolidated and Company Financial Statements, Page 113

Graphic 29: Air Berlin Revenue passenger kilometres (RPK) for 2006 and 2005 [212]

	2006	2005
Revenue passenger kilometers (billions; RPK)	24.45	22.90

Source: Air Berlin Annual Report for 2006, Page 38

211 http://ir.airberlin.com/_files/en/E_Geschaeft_AB1J06E_122.pdf , page 113, accessed on 20.10.2009

212 http://ir.airberlin.com/_files/en/E_Geschaeft_AB1J06E_122.pdf, page 38, accessed on 20.10.2009

Graphic 30: Air Berlin Consolidated Income Statement for 2007[213]

Air Berlin PLC

CONSOLIDATED INCOME STATEMENT

for the year ended 31 December 2007

	Note	**2007**	(restated) 2006
		€ 000	€ 000
Revenue	20	**2.536.500**	1.575.395
Other operating income	21	**14.575**	30.867
Expenses for materials and services	22	**(1.736.435)**	(1.094.501)
Personnel expenses	23	**(311.802)**	(163.293)
Depreciation and amortisation	6, 7	**(93.772)**	(64.232)
Other operating expenses	24	**(387.647)**	(220.088)
Operating expenses		**(2.529.656)**	(1.542.114)
Result from operating activities		**21.419**	64.148
Financial expenses	25	**(49.624)**	(41.917)
Financial income	25	**13.851**	7.389
Foreign exchange gains, net	25	**225**	14.857
Net financing costs		**(35.548)**	(19.671)
Share of profit of associates, net of tax	26	**791**	608
Loss (profit) before tax		**(13.338)**	45.085
Income tax benefit (expense)	27	**34.315**	(5.009)
Profit for the year - all attributable to equity holders of the Company		**20.977**	40.076
Basic earnings per share in €	12	**0,33**	0,76
Diluted earnings per share in €	12	**0,33**	0,76

Source: Air Berlin Annual Report for 2007, Page 109

213 http://ir.airberlin.com/_files/en/080410_AB_AnnualReport2007_247.pdf , page 109, accessed on 20.10.2009

Graphic 31: Air Berlin expenses for material and services breakdown for 2007, incl. 2006[214]

22. EXPENSES FOR MATERIALS

In thousands of Euro	2007	2006
Fuel for aircraft	561,751	345,839
Catering costs and cost of materials for in-flight sales	85,708	59,897
Airport & handling charges	596,184	412,104
Operating leases for aircraft and equipment	263,843	128,156
Navigation charges	186,666	123,012
Other	42,283	25,493
	1,736,435	1,094,501

Source: Air Berlin Annual Report for 2007, Notes 19-24 to the Consolidated and Company Financial Statements, Page 145

Graphic 32: Air Berlin personnel expenses breakdown for 2007, incl. 2006[215]

23. PERSONNEL EXPENSES AND STAFF NUMBERS

In thousands of Euro	2007	2006
Wages and salaries	262,513	139,885
Pension expense	23,735	4,831
Social security	25,554	18,577
	311,802	163,293

Employees	On annual average 2007	On annual average 2006	As at 31 December 2007	As at 31 December 2006
Flight and cabin crew	3,327	1,807	4,792	2,235
Sales, operations and administration	2,504	1,492	3,568	1,873
	5,831	3,299	8,360	4,108

Source: Air Berlin Annual Report for 2007, Notes 19-24 to the Consolidated Income Statement, Page 145

214 http://ir.airberlin.com/_files/en/080410_AB_AnnualReport2007_247.pdf , page 145, accessed on 20.10.2009

215 http://ir.airberlin.com/_files/en/080410_AB_AnnualReport2007_247.pdf ,page 145, accessed on 20.10.2009

Graphic 33: Air Berlin breakdown of other operating expenses for 2007, incl. 2006[216]

24. OTHER OPERATING EXPENSES

In thousands of Euro	2007	2006
Sales commissions paid to agencies	31,130	25,806
Repairs and maintenance of technical equipment	125,094	58,352
Advertising	51,701	34,751
Insurances	20,848	18,640
Hardware and software expenses	42,627	18,752
Bank charges	16,070	9,413
Travel expenses for cabin crews	19,872	10,459
Expenses for premises and vehicles	19,244	12,541
Training and other personnel costs	15,225	5,351
Phone and postage	5,072	3,527
Allowances for receivables	3,358	2,340
Consulting fees	8,171	2,093
Remuneration of the auditor	2,866	1,623
Other	26,369	16,440
	387,647	220,088

Source: Air Berlin Annual Report for 2007, Notes 19-24 to the Consolidated and Company Financial Statements, Page 145

Graphic 34: Air Berlin revenue passenger kilometres (RPK) for 2007[217]

	2007
Revenue passenger kilometers (billions; RPK)	46,07

Source: Air Berlin Annual Report for 2007, Page 56

216 http://ir.airberlin.com/_files/en/080410_AB_AnnualReport2007_247.pdf ,page 145, accessed on 20.10.2009

217 http://ir.airberlin.com/_files/en/080410_AB_AnnualReport2007_247.pdf , page 56, accessed on 20.10.2009

13.3. Abstract in German

Prozesse wie zum Beispiel Privatisierung, Deregulierung und das Ausbauen von Billigflügen verändern die Struktur der Luftfahrt Industrie und haben einen besonders starken Einfluss auf die Arbeitsaspekte in der Industrie. Letzeres wurde in meiner Studie analysiert, speziell im Bezug auf die Produktivität, Löhne und Arbeitsbeziehungen in der Industrie. Es gibt Beweise, dass die Effizienz bei Löhnen und Produktivität als ein Ergebnis der Deregulierung und Privatisierung in der Luftfahrt erreicht wurde.

Es hat sich gezeigt, dass Mitarbeiter nicht nur in Form von Kosten und Möglichkeiten zur Kostenoptimierung gesehen werden dürfen. Eher muss die Wichtigkeit der Qualität der Arbeitsbeziehungen in der Industrie erkannt werden. Es müssen Kollektivverträge zwischen dem Management und den Angestellten aufgrund einer konfliktfreien Basis angewandt werden.

Das Benchmarking darf nicht als eine Kostenreduktionsmethode verstanden werden, sondern als ein Weg, die Prozesse zu finden, welche zu besserer Performance führen. Verschiedene Prozesse zwangen die Luftfahrt Unternehmen ihre Effizienz zu steigern, wobei Benchmarking die am häufigsten verwendete Methode, dieses Ziel zu erreichen, war.

Meine Arbeit schließt mit der Darstellung einer Empirischen Studie ab, wobei Arbeitsaspekte bei Austrian Airlines, Sky Europe und Air Berlin, davon hauptsächlich Produktivität und Gehälter, analysiert wurden. Es ist bewiesen, dass die Arbeitskosten per verfügbare Sitz-Kilometer von Sky Europe im Vergleich mit anderen Kostengruppen am genausten kontrolliert wurden. Weiters hat es sich gezeigt, dass es besonders dabei Ineffizienzen bei der Arbeitsproduktivität von Sky Europe gibt, verglichen mit Air Berlin – dem Unternehmen mit der besten Effizienz in diesem Bereich.

13.4. Curriculum Vitae

LEBENSLAUF

Polia Degenhart
Josef Schleussner Str. 9/4/25
2340 Mödling

Persönliche Angaben:

Geburtsdatum:	14.04.1976
Geburtsort:	Pleven, Bulgarien
Mädchenname:	Polia Ignatova
Email:	polia.degenhart@speed.at

Ausbildung:

10 / 2006 -	Universität Wien Studium: Betriebswirtschaftslehre Module: • Industrielles Management • Finanzen und Banking
10 / 1995 - 11 / 2000	Universität für National und Weltwirtschaftswesen, Sofia, Bulgarien Studium: Industrielles Management Diplomarbeit: Finanzielle Analyse des Betriebs
09 / 1989 - 05 / 1995	Mathematisch-Naturwissenschaftliches Gymnasium , Pleven, Bulgarien

Berufserfahrung:

01 / 2000 - 09 /2006	Radea GmbH, Sofia, Bulgarien Position: Controllerin

Sonstige Fähigkeiten und Kompetenz:

EDV Kenntnisse:	exzellente Kenntnisse in Microsoft Office (Word, Excel, PowerPoint, Grundkenntnisse Access); SAP Business One Kenntnisse
Sprachen:	Deutsch (ausgezeichnet),Bulgarisch (Muttersprache), Englisch (ausgezeichnet),Russisch (gut)
Hobbies:	Sport (Radfahren, Basketball) und Kochen

13.5. Abstract in English

Different processes in the airline industry as privatisation, deregulation and the LCCs growth have changed its structure and particularly have impacted strongly the labour factor. The last is analysed in my work in terms of productivity, wages and labour relations in the industry. There are evidences that increased efficiency in the wages and productivity has been achieved as result from the structural processes undergoing in the industry.

It's to be considered that the employees should not be seen only in terms of costs and cost optimisation measures and it has been shown that the importance of the quality by the employee relations in the industry should be taken into account. The collective agreements between the employees and the management should be established on non-conflict and sociable base.

The benchmarking method should not be understood like cost optimisation method, but as an approach, which allows to find out the processes leading to better performance. Due to the pressure for increasing efficiency in the airline industry, the benchmarking was the most applied method in the sector in order to achieve better performance results.

Further my work presents an empirical study, where different aspects by the labour factor are revealed, particularly the wages and labour productivity by Austrian Airlines, Sky Europe and Air Berlin have been compared and analysed. By the comparison there are evidences that the unit labour costs by Sky Europe were in highest extent controlled, compared with the other unit cost categories. Further it's has been founded out that there are inefficiencies particularly by the labour productivity of Sky Europe, compared with Air Berlin: the airline with the best parameters in the pool, regarding the labour aspect.