

Nicole Petrick-Felber

# Liberalizing Europe's Skies – A Failure?

An Analysis of Airline Entry and Exit in the  
Post-liberalized German Airline Market, 1993-2006



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## ABSTRACT

This paper examines actual entry and exit dynamics in the German airline market in light of the European liberalization process. For this purpose, flight schedules data was used to derive entry and exit statistics for a set of chosen inner-German routes over a period of thirteen years. Data was analysed in cross-sectional and longitudinal manner while identifying different entry waves and examining incumbent behaviour with respect to entry deterrence strategies. Furthermore, the market's concentration and structure was tracked to allow a conclusion with respect to the market's contestability after liberalization. The results suggest the existence of remaining structural barriers to entry and depict a rather unsatisfactory overall state of the post-liberalized market.



## TABLE OF CONTENTS

List of Illustrations.....	5
Abbreviations.....	6
Acknowledgements .....	7
1 INTRODUCTION .....	8
2 THE LIBERALIZATION PROCESS OF EUROPE’S SKIES .....	12
2.1 Pre-Liberalization Status Quo .....	13
2.2 Liberalization of Intra-European Air Transport.....	14
2.2.1 The three Liberalization Packages .....	15
2.2.2 Cabotage Rights.....	18
2.2.3 The Single European Sky Initiative 2004 .....	19
2.3 Liberalization of International Air Transport.....	20
2.4 Liberalization Review .....	22
3 THEORY .....	23
3.1 What do we know about entry? .....	23
3.2 Entry deterrence and dynamic competition.....	25
3.2.1 A model of limit capacity .....	26
3.2.2 Excess capacity as prospect for collusion .....	27
3.3 A four-stage game of airline market entry .....	28
3.4 Airline capacity utilization.....	30
4 THE GERMAN AIRLINE MARKET.....	33
4.1 Infrastructure .....	33
4.1.1 Airports .....	34
4.1.2 Slots, slot pools and slot allocation .....	38
4.2 Demand for air travel .....	40
4.3 Supply of air travel.....	44
4.4 Ground transport .....	47
4.4.1 Railway system.....	47
4.4.2 Road network.....	48
4.5 Modes of transport compared.....	49
4.6 The short-haul problem.....	51

5	ANALYSIS OF ENTRY AND EXIT .....	52
5.1	Purpose .....	53
5.2	Data .....	53
5.2.1	Data construction .....	54
5.2.2	Strengths and weaknesses of the data set .....	56
5.3	Methodology .....	56
5.4	Entry, exit and welfare effects .....	58
5.5	Entry and exit over time .....	59
5.5.1	The 1996 entry wave .....	63
5.5.2	The 2004 entry wave .....	64
5.5.3	Airlines 1993-2006 .....	66
5.6	Entry, exit and market concentration .....	67
5.7	Entry, exit and incumbent behaviour .....	74
5.8	Entry, exit and prices .....	80
5.9	The German Airline Market in 2006 .....	83
5.9.1	Route network .....	85
5.9.2	Market shares .....	86
5.9.3	Brand competition .....	88
5.10	Summary of Results .....	90
6	IMPEDIMENTS TO COMPETITION .....	93
6.1	Barriers to entry .....	93
6.1.1	Strategic barriers to entry .....	94
6.1.2	Structural barriers to entry .....	94
6.2	Alliances – an economic necessity? .....	96
7	SUMMARY .....	99
	Appendix .....	101
	A – Glossary .....	101
	B – Freedoms of the Air .....	103
	C – Germany’s International and Regional Airports .....	104
	D – IATA Airport and Airline Codes .....	106
	E – Additional Tables and Statistics .....	107
	References .....	116

## LIST OF ILLUSTRATIONS

### FIGURES

Figure 2-1: Multi-level air transport .....	12
Figure 3-1: Passenger load factor on inner-German routes.....	31
Figure 4-1: German airport network .....	34
Figure 4-2: German airports according to PAX .....	37
Figure 4-3: Demand for air travel and GDP .....	41
Figure 4-4: World passenger development 1996-2005 .....	42
Figure 4-5: Air traffic growth until 2015.....	43
Figure 4-6: Development of LCC route network.....	45
Figure 4-7: Capacity growth of Low Cost Carriers for Europe and Germany 2001-2006 .....	46
Figure 5-1: Operated routes with no entry 1993-2006 .....	61
Figure 5-2: Aggregated entry, exit and net entry rates (%) 1993-2006 .....	62
Figure 5-3: Airlines 1993-2006.....	66
Figure 5-4: Number of routes (total: 25) with given number of operating airlines 1993-2006 ..	68
Figure 5-5: Number of LON routes (total: 8) with given number of airlines 1993-2006 .....	69
Figure 5-6: Distribution of non-monopolistic routes 1993-2006 .....	70
Figure 5-7: Entry, exit and output .....	76
Figure 5-8: Development of frequency on route BERDUS .....	79
Figure 5-9: Price indices Germany 2000-2006 (2000=100) .....	81
Figure 5-10: Operating carriers on inner-German routes 2006.....	84
Figure 5-11: Airline route networks 2006 .....	86
Figure 5-12: Airline ownership and control 2006 .....	89

### TABLES

Table 2-1: Overview of deregulatory measures.....	19
Table 4-1: Comparison of transport modes for short-haul inner-German routes .....	50
Table 5-1: Entry and exit activity 1993-2006.....	60
Table 5-2: Route entry and exit in 1996 .....	63
Table 5-3: Route entry and exit 2004-2005 .....	65
Table 5-4: Average number of airlines per operated route.....	71
Table 5-5: Herfindahl index and numbers-equivalent of firms.....	72
Table 5-6: Number of different airlines on inner-German and LON routes 1993-2006 .....	73
Table 5-7: Effects of firm entry and exit on capacity and frequency.....	75
Table 5-8: Correlation of Lufthansa output with entry and exit .....	78
Table 5-9: Airline route networks 2006.....	85
Table 5-10: Market shares and concentration ratios 1993-2006 .....	87
Table 5-11: 4U versus X3 competition.....	87

## ABBREVIATIONS

Art. – Article (law)

ASA – air service agreement

ATC – air traffic control

ATM – air traffic management

BKartA – Bundeskartellamt / Federal cartel office

BMVBS – Bundesministerium für Verkehr, Bau und Stadtentwicklung / Federal Ministry of Transport, Building and Urban Affairs

CRS – computer reservation system

DFS – Deutsche Flugsicherung GmbH / German air traffic controller

DLR – Deutsches Zentrum für Luft- und Raumfahrt / German Aerospace Center

cp. – compare

EC – Regulation of the European Commission [law]

EC DG – European Commission Directorate-General

ECJ – Court of Justice of the European Communities

EEC – Council Regulation (of the Council of the European Union) [law]

FFP – frequent flyer program

H – Herfindahl index

IATA – International Air Transport Association

ICAO – International Civil Aviation Organisation

ICE – Inter City Express (German high speed train)

LCC – Low Cost Carrier

LuftVG – Luftverkehrsgesetz / Air Traffic Act of Germany

LuftVZO – Luftverkehrs-Zulassungs-Ordnung / Air Traffic Authorisation Ordinance

NEF – numbers-equivalent of firm (inverse of Herfindahl index)

OAG – OAG Worldwide Ltd. (global travel and transport information company)

p.a. – per annum

para. – paragraph [law]

PAX – passengers

resp. – respectively

RPK – revenue passenger-kilometres

TACO – travel agent commission override program



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# 1 Introduction

“The airline industry is an enigma.”  
(Rigas Doganis, 2006)<sup>1</sup>

The airline industry is an industry of contradictions: international by its nature yet bound to national, bilateral or at best to multilateral economic regulations and legal restrictions. It is an industry of dynamic growth and change, greatly influenced by new technologies and innovations.<sup>2</sup> It is highly cyclical while strongly correlating with GDP and frequently put into turbulences via internal and external shocks.<sup>3</sup> Despite its dynamic growth, the airline industry turns out to be of only marginal profitability.<sup>4</sup> Trends towards “deregulation” (U.S.) or “liberalization” (EU) have fostered the dynamics of change that did not only produce the suspected outcomes of competition and increased social welfare but that shook airlines, markets and resulted in periods of high losses with airlines filing for bankruptcy, the emergence of stronger networks, new business models and a new structure of the industry as a whole.

The Federal Aviation Act of 1958 of the United States of America, still the basic governing statute, declared a policy to adapt the air transportation system “to the present and future needs of the domestic and foreign commerce of the United States, the Postal Service, and the national defense.”<sup>5</sup> These three aspects of public interest in air transport did and still do motivate both domestic and international regulation on the aspects of market access, designation, flight frequency and capacity as well as fares. In 1978, however, the Airline

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<sup>1</sup> Rigas Doganis is non-executive director of South African Airways and former CEO of Olympic Airways, Greece. He is lecturing in air transport and author of books on the international airline business. See Doganis (2006), p. xii.

<sup>2</sup> Growth is measured in multiple ways. Literature usually refers to (revenue) tonne-kilometres resp. (revenue) passenger-kilometres (see Glossary). Growth may also be approximated via the total number of passengers (PAX) of an airline or on (a) route(s) in a period of time, usually referring to either weekly or annual data. Growth in the airline industry is said to be “dynamic” because it is forecasted to be strong - ICAO predicts a growth rate of 5.8% (5.6%) in scheduled airline passenger traffic for 2007(2008).

<sup>3</sup> Worldwide air traffic (measured in passenger-kilometres) is said to have an income elasticity of 2. Thus, changes in GDP affect the airline industry strongly although there might be a time lag. See Doganis (2006), p. 17. External shocks such as the terrorist attacks of 2001 (U.S.) and 2006 (UK) have a strong dampening affect on traffic although the overall growth rate recovers and returns to the original trend. See Airbus (2002), p. 12 and ICAO (2005), p. 6.

<sup>4</sup> Net profit of all ICAO airlines was 1% of revenue in 2005; see ICAO (2005), p. 6. Even in the profitable years of 1997-99, net profit was only between 2-3% and negative net profit usually exceeds (in absolute terms) positive net profits. See Doganis (2006), pp. 4-8.

<sup>5</sup> In O'Connor (1995), p.13.

Deregulation Act became law and with it entry and exit controls were abolished (with some exceptions) and regulation of air fares was virtually eliminated.<sup>6</sup> As a result the shape of the U.S. domestic market changed dramatically: many new small firms evolved with the number of operating carriers nearly doubling whereas existing airlines expanded into new routes.<sup>7</sup> Route density increased as did the rate of competition while air fares dropped substantially and with it airline profitability. Incumbent carriers began to set up hubs and controlled feeder flights on spoke routes by acquiring commuter airlines, which resulted in the reduction of direct flights and an increase in the average fare on hub routes.<sup>8</sup> Moreover, the mid-1980s brought “a series of mergers and a general trend toward consolidation into fewer but larger airlines” whereas the 1990s forced many airlines into bankruptcy.<sup>9</sup> Only Southwest Airlines, the first carrier using the new no frills, low cost business model, prospered. Legacy carriers, in response, continued to strengthen their networks and started to engage heavily in alliances, the latter remain until today a controversy on whether being a way to undermine competition or an economic necessity. All the same, the upshot of U.S. deregulation remains positive, leaving the industry with a better cost structure and a higher operating efficiency. Even though many new entrants and some former large carriers disappeared, the remaining airlines that managed to survive do now show a strong capability to compete.<sup>10</sup>

As the incidents from the U.S. domestic airline market suggest, “deregulation” or “liberalization” is not a process that can be described by a simple equation where reducing regulatory barriers equals market entry equals more competition equals lower fares and higher welfare. Instead, regulatory barriers to entry tend to be replaced by competitive barriers to entry, consolidation in the competitive market might lead to a market concentration even higher than under regulation and state subsidies might be the last possibility to save large carriers that are of

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<sup>6</sup> Regulation continues with respect to “minimal essential services at small points”. Moreover, the U.S. domestic market remains closed for non-national (“substantially owned and effectively controlled by their own nationals”) carriers. In fact, the U.S. domestic market is with respect to rights granted for international air traffic still very restrictive. Cp. O’Connor (1995).

<sup>7</sup> Cp. Gillen (2001), p. 42.

<sup>8</sup> Morrison and Winston (1995) give an analysis on the negative welfare effects of the hub-and-spoke system due to fewer (direct) routes and a “hub-premium”, however the hub system also increases the frequency of flights on spoke routes.

<sup>9</sup> O’Connor (1995), p. vii. Apart from Southwest Airlines all new interstate entrants of the 1978 to the early 1980s disappeared again in the late 1980s via acquisitions (cp. Morrison and Winston [1995]). Among the airlines that went into bankruptcy was also the trunk carrier Pan American, the former monopolist on U.S. international routes.

<sup>10</sup> Morrison and Winston (1995) find that despite the various strategies of airlines to limit competition passengers reaped gains from deregulation that remain considerable. Campbell (1999) also argues that deregulation led to the elimination of weaker competitors with a more efficient industry by means of lower costs and an improved yield management.

national importance notwithstanding the somewhat symbolic role of national flag carriers. In the end, as the U.S. experience shows, deregulation posed to airlines the question of how to survive and of whether and how to regulate deregulation to officials. Nevertheless, with the largely positive effect in mind, Europe liberalized its airline industry to transfer the single European market also to its skies.<sup>11</sup>

The European liberalization process went even beyond U.S. deregulation boundaries and results for the European economic area seem to be positive: the number of scheduled airlines in the European Union increased steadily as did the number of intra-community routes.<sup>12</sup> However, many entrants exited shortly after entry, consolidation is strongly evidenced, stronger networks developed and alliances undermine competition.<sup>13</sup> Contrary to expectations, the average price level of Europe's air fares did not drop; in fact it even increased despite the existence of more promotional tariffs.<sup>14</sup> The result is surprising since new entrants, mostly low cost carriers, seem to offer endless possibilities for passengers to fly to any destination in Europe for a fare even below "cab prices". Current literature capitalizes on this "low cost revolution". Yet, when focusing on low cost carriers, which frequent secondary airports rather than primary airports, large routes like those connecting hubs remain mostly out of sight. Moreover, to the best of my knowledge, there is little information on whether and how a former closed national market has changed within its boundaries.<sup>15</sup> Yet, to evaluate the liberalization's aftermath it is these routes that need to be looked upon since remaining oligopolistic or even monopolistic national (hub) routes that unite a large share of passenger traffic would challenge the achievements.

Accordingly, for the analysis of entry and exit in the post-liberalized German airline market this paper singles out the eight largest airports of Germany and analyses all routes between these airports for a period of 13 years from 1993, when the Third Liberalization

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<sup>11</sup> Art. 2 EC Treaty [Treaty establishing the European Community]: „The Community shall have as its task, by establishing a common market and an economic and monetary union...”.

<sup>12</sup> Cp. EC DG Energy and Transport (2007/02) *Website* and OAG (2006).

<sup>13</sup> O'Connor (1995), pp. 32-34 and Campbell (1999), p.73 both pronounce the impediments to competition via hub-and-spoke systems, merger and acquisitions as well as alliances. Doganis (2006) even devotes a whole chapter to the topic of alliances. Yet, the American approach to alliances seems to be more "laissez-faire" than the European, with Americans rather viewing alliances as an economic necessity instead of an impediment to competition. (cp. Campbell [1999]). Supposedly, whether to sentence an alliance or not is a case decision: if the existence of an alliance on a certain route deters entry or unites former competitors, than it is certainly true that competition is hampered.

<sup>14</sup> Cp. Jung (1999), p.31. and EC DG Transport and Energy (2006), p.117.

<sup>15</sup> Gillen (2001) analyses the effects of liberalized international bilaterals for the Northern German region resp. Hamburg airport. The most recent study on entry and exit after liberalization in the UK market focuses on routes between UK and EU airports. See Gil-Moltó and Piga (2006).

Package was enacted, until 2006. The objective is to observe whether the legislative liberalization of the European sky had an effect on the entry and exit dynamics on large national routes as significant sub-markets. Beforehand, the European liberalization process will be summarized in Chapter 2. Beginning with an introduction to the different levels of air transport, a description of the non-liberalized European air transport market follows. The Chapter then continues by introducing both the legal and economical motivations for the liberalization process to begin and summarizes the important legislative measures that lead to the shape of the industry as existent today. Chapter 3 then deals with the role of entry and exit as a proxy for the level of competition and the contestability of a market from the theoretical point of view. Thereby a brief summary on entry research as well as a set of models that deal with excess capacity as entry deterrence will be introduced. However, as the airline industry is somewhat special neither model perfectly fits and a simple proposal for a model of airline entry is made. Subsequently, in order to gain further insight into the industry, the German airline market is defined and characterized according to its infrastructure for both air and ground in Chapter 4. Further attention is given to the characteristics of demand and supply, thereby outlining special challenges faced by airlines operating within the German regional market. With the legislative, theoretic and economic background in mind, the actual analysis of entry and exit is presented in Chapter 5. Thereby, entry and exit statistics are presented over time and routes. Moreover, market concentration and incumbent behaviour is analysed. Also, the effects on consumer welfare and prices are commented upon in short. Furthermore, an overview on the structure of the German airline market in 2006 gives further insight by covering the incumbents, their route network, market shares and interdependences. As both entry dynamics and entry deterring strategies turn out to be rather weak or insignificant, Chapter 6 devotes further attention to airline-market specific barriers to entry of structural kind. Also, the role of alliances as either impediment to competition or economic necessity will be looked upon shortly. Finally, the paper is summarized in Chapter 7.