A dynamic competitive assessment of the recent Lufthansa mergers

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The development of Lufthansa, it's partners and competitors on the relevant markets from 2000 to 2014

IQ on behal	f of LH			IQ: pı	urchase	d by C	9					Jan.: 10	Q and C9	are insolv	ent, exit		
BE on behal	f of SN	V					١	NK: purchas	sed by L	_X	2L op	erates 3	3 aircrafts	on beha	lf of LX		
C3 on behal	f of LH	ı			July: L	H/LX r	nerger:	LH's shares	up to 1	.00%							
C9 on behal	f of LH	l			Decen	nber: L	H/ EW :	merger: LH'	s share:	s in EW ab	ove 50%	6					
CL on behal	f of LH																
VO on beha	If of O	S		April:	LH's sh	ares in	EW up	to 49%		May: LH/	bmi take	eover: L	.H's share	s in bmi ı	up to 100	%, no re	emedies
				4U w	as foun	ded as	100% s	ubsidiary of	EW	June: LH/	SN mer	ger: LH	's shares i	in SN up t	to 45% wi	th sole	control
			C3: pu	urchas	ed by E	W				Aug.: LH/	OS take	over: L	H's share	s in OS up	to 85%		
			NG fo	ounde	d as a si	ubsidia	ry of OS	S		Jan.: 4U: 1	L00% pu	rchased	d by LH				
before 200	2001	2002	2003	2004	2005	2006	2007		2008	2009 201	0 2011	2012	2013			2014	
			Nov.:	HG wa	as found	ded						CY: sta	ite aid inv	estigation	n by the E	С	
				Jan.:	AB's sh	ares u _l	to 24 9	% in HG		August: N	E is inso	lvent,	exit				
						Aug.:	DI: purc	hased by A	В			Sept.:	C3: purch	ased by C	DL		
							Apr.: D	I brand beca	ame AB				Jan.: C3 a	nd OL ar	e insolvei	nt, exit	
							Aug.: L	T: 24 aircraf	ts purc	hased by A	AB, no re	emedie	S				
							l	T brand bed	came Al	В							
								Nov.: DI's ex	(i t								
										Nov.: X3:	14 aircr	afts on	behalf of	AB			
										AB'	s shares	up to 4	19.9% in H	<mark>IG, no r</mark> ei	medies		
					DM m	erged	with NB				Nov.:	AB's sh	nares up t	o 100% ii	n HG, no i	remedie	es
							(Oct: DM and	NB are	e insolvent	:	Nov.: H	HG brand	became A	AΒ		
			2L wa	s foun	ided as	a LCC	[Dec.: DM an	d NB ar	e taken ov	er by QI	under	the name	Cimber	Sterling		
						2L has	financi	al problems	, new C	EO		May: 0	QI is inso	lvent, exi	t		
							X3 was	founded as	a follov	wer of Hap	ag-Lloyd	and HI	F				

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Trend: bankruptcy wave and mergers to avoid insolvency...

Impression: partnership with LH gives the possibility to survive; the stronger the partnership, the more possibilities: mergers

But: what if LH becomes too strong and abuses market power? (Harvard's concentration doctrine)

European Commission (EC) allows mergers only if they do not harm consumers = do not increase prices. Therefore, the EC imposed undertakings, so-called remedies.

Research question: did the remedies work?





	Remedy Tab	le	20	04	20	05	200	06	20	07	20	008	20	009	20	10	20)11	20	12	20)13
Nr.	frequency fre price freeze ((pf)						14/		147						14/						
1	price reducti		S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W
1	ZRH-FRA	ff at 11			pf	pf	5	5	5	5	5	5										
2	ZRH-MUC	ff at 10			pf	pf	5	5	5	5	5	5										
3	ZRH-DUS				pf	pf	4	4	4	4	4	4										
4	ZRH-HAM				pf	pf	4	4	4	4	4	4										
5	ZRH-VIE				pf	pf	4	4	4	4	4	4										
6	ZRH-TXL				pf	pf	3	3	3	3	3	3										
7	ZRH-CPH				pf	pf	3	3	3	3	3	3										
8	ZRH-HAJ				pf	pf	2	2	2	2	2	2										
9	ZRH-ARN	pr			pf	pf	2	2	2	2	2	2										
10	ZRH-WAW	pr			pf	pf	2	2	2	2	2	2										
11	ZRH-OTP				pf	pf	1	1	1	1	1	1										
12	VIE-CGN	ff at 3				pf	pf	3	3	3	3	3	3	3	3							
13	VIE-STR	ff at 5				pf	pf	2	2	2	2	2	2	3	3							
14	STR-DRS	ff at 5				pf	pf	2	2	2	2	2	2									
15	BRU-MUC													3	3	3	3					
16	BRU-HAM													3	3							
17	BRU-FRA													2	2	2	2	2	2	2	2	
18	BRU-ZRH													2	2	2	2					
19	VIE-FRA													5	5	5	5	5	5	5	5	
20	VIE-BRU													4	4							
21	VIE-MUC													4	4							

Source: own figure, based on EC decisions

Hypotheses, questions and answers

Hypothesis	By meaning	Evidence if	Results in groups						
11y potnesis	by meaning	Evidence ii	1	2	3	4			
1) The success of the EC	Slot remedies does not	a) LH's market share remains high	Yes						
slot remedies is questionable	work	b) No sufficient entries							
	Strategic or predatory	c) LH's equipment capacity grows until the rival left the route			Yes	,			
2) The fear of the EC to	behavior to frighten competitors	d) Price war	No		Yes	Partly			
abuse market power is feasible	Concentration and price positively correlated: less competition results in	e) Average yield on regulated relevant routes is higher than on non-regulated routes	Yes						
	higher prices	f) LH's price grows with increasing market share	Υe	es	Partly	-			

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Groupings of the relevant markets



1) LH monopoly

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2) Germanwings dominance

3)

LCC competition

ZRH-DUS,

4) Flag cooperation

5) No regulation

2005

ZRH-FRA,

ZRH-MUC

VIE-STR, VIE-CGN, STR-DRS ZRH-HAM, ZRH-VIE, ZRH-TXL, ZRH-HAJ (AB)

ZRH-CPH, ZRH-ARN, ZRH-WAW, ZRH-OTP

36 routes

2009

BRU-MUC, BRU-FRA, BRU-ZRH, BRU-HAM, VIE-BRU

VIE-STR, VIE-CGN VIE-FRA, VIE-MUC (NIKI)

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Data and methodology

Data: time series panel data: monthly; concerning 21 plus 36 city pairs investigated by the EC

Methodology: descriptive route analysis with Excel

Schedu	ule Data (all relevant routes 2002 January – 2014 June)
a.	Origin and Destination
b.	Operating and Marketing Airline
c.	Fleet, Equipment Capacity; and Total Capacity per month
d.	Load Factor
e.	Departure and Arriving Time; Flight Duration
f.	Starting and discontinued Date; Days of operation during the week
g.	Distance (km)
h.	Departure count (frequency per month)
i.	Year and month
j.	Segment Passengers
	a. Yield-US-Cents/Mile
	b. OD Revenue In USD
	c. Segment Revenue In USD
	d. OD Average Fare In USD
	e. Segment Average Fare In USD
	f. Cabin class (only hub-to-hub connections, 3 years data)
	g. Segment split (only hub-to-hub connections, 3 years data)

Hyp 1: Did the slot remedies work? Evidence: A) and B)



Within the remedy periods:

- A) LHG's average market share increased from 69.9% up to 76.1%
- B) 15.3 daily slot remedies were used instead of 350
 - 3 new short entries (AB)
 - 2 capacity expansions (AB)
 - 2 airline exits

The slot remedies did not work.

	Relevant route	Slot remedy	Entry/ Expansion / Exit	LHG's marke share	t	M Sh.
G1	ZRH-FRA	5*6	AB 3.07*1	99.8	99.9	71
GI	2004-2008	3.0	AB 3.07 · 1	99.0	99.9	•
	ZRH-MUC 2004-2008	5*6	-	99.9	99.2	Ľ
	BRU-MUC 2008-2010	3*4	-	99.1	99.6	71
	BRU-HAM 2008-2010	3*2	-	97.9	99.4	71
	BRU-FRA 2008-2010	2*8	-	98.6	100	71
	BRU-ZRH 2008-2010	2*4	-	89.4	97	↑
	VIE-BRU 2008-2010	4*2	NE -0.7	68.3	97.7	↑
G2	VIE-CGN 2004-2010	3*8	X3 0.53*1, AB 1.7*1	82	75.9	Ψ
	VIE-STR 2004-2010	2*6 + 3*2	AB 1*3	75.5	96.9	↑
	STR-DRS 2004-2008	2*6	-	99.7	100	71
G3	ZRH-DUS 2004-2008	4*6	-	54.4	51.9	Ľ
	ZRH-HAM 2004-2008	4*6	AB 0.8*5	45	43.6	Ľ
	ZRH-VIE 2004-2008	4*6	(HG)	30	56	↑
	ZRH-TXL 2004-2008	3*6	AB 0.5*6	36.6	45	^
	ZRH-HAJ 2004-2008	2*6	-	77	59	Ψ
	VIE-FRA 2008-2012	5*8	JP -2.3	57	72.4	^
	VIE-MUC 2008-2010	4*2	-	57	62.1	↑
G4	ZRH-CPH 2004-2008	3*6	-	29.3	47.2	↑
	ZRH-ARN 2004-2008	2*6	-	45.5	54.2	^
	ZRH- WAW 2004-2008	2*6	-	43.2	62.6	↑
	ZRH-OTP 2004-2008	1*6	-	81.7	79	Ľ
Av		16.7	0.59	69.9	76.1	1
All		350	15.3			

Hyp 2: If remedies are not successful, is there a fear of abusing market power?

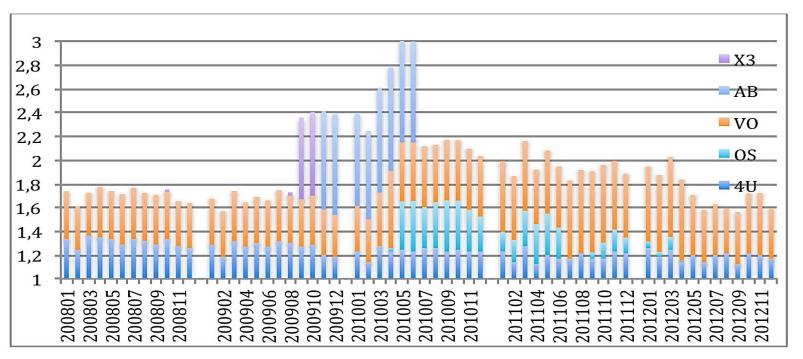
Strategic or predatory behaviour to frighten competitors?

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C) LHG's capacity increases until rival left the route

VIE-CGN: Post-merger seat capacity development (in 10,000)



- 1) when **OS entered** in May 2010, the load factor of both 4U and VO stood at an all-time low (63 and 53 %);
- 2) also OS undercut the AB average fares

Strategic or predatory behaviour to frighten competitors?



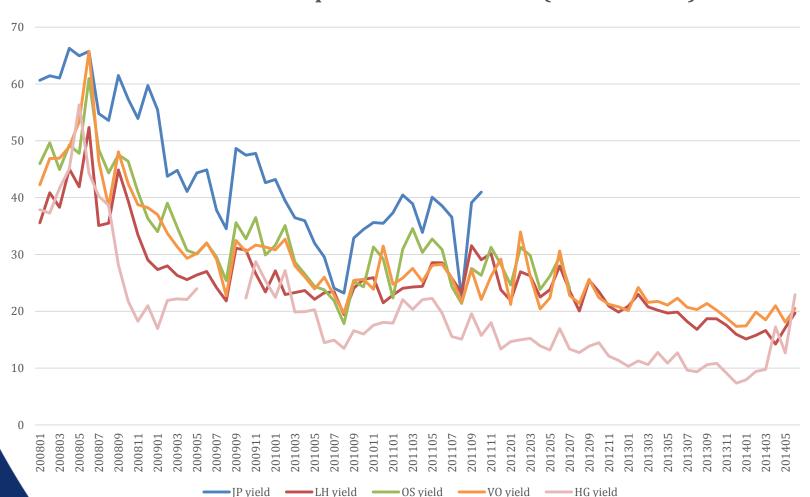
D) Healthy competition or price war?

Route	AB's market share (%)	market share AB's sum seat capacity fare in %, during its whole operation,							LH Group's average fare in %, compared to during competition, after AB left the route							
			LH	LX	CL	4U	VO	LH	LX	CL	4U	VO				
ZRH-FRA	4	23.571	-3	-27	-	-	-	26	19	-	-	-				
VIE-CGN	26	66.492	-	-	-	-51	-31	-	-	-	-53	14				
VIE-STR	23	79.302	-	-	-56	-10	-52	-	-	19	10	-2				
ZRH-HAM	34.2	1.18 m	-27	-19	-	-	-	15	32	-	-	-				
ZRH-TXL	46	2.52 m	-23	-21	-40	-	-	No exit								
ZRH-HAJ	39	665.838	-40	-22	-	-	-	-	21	-	-	-				
average			-23	-22	-48	-31	-42	21	24	19	-22	6				

Disappearing flag carriers: because of the price war?



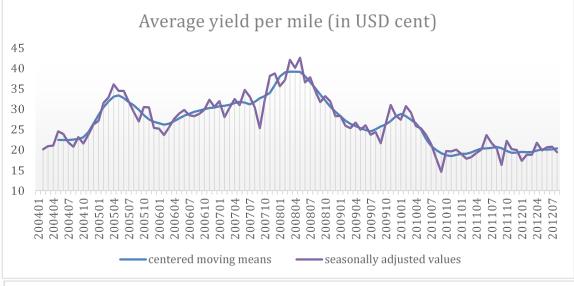
Yields per mile on VIE-FRA (in USD cents)



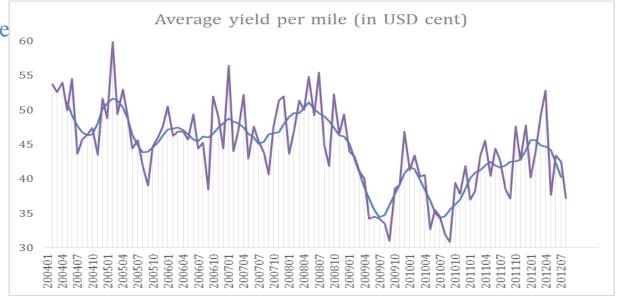
Comparing general performances



Air berlin's average yield per mile from 2004 to 2012



Lufthansa's average yield per mile from 2004 to 2014

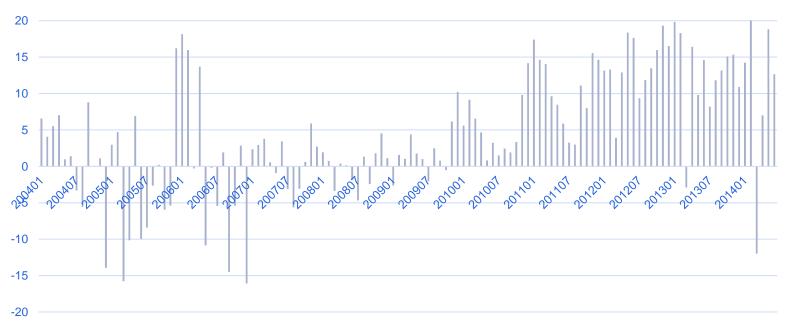


Concentration and price: is there a positive correlation?



E) Higher net ticket prices on relevant routes

LH's difference in average yield per mile (in USD cent)

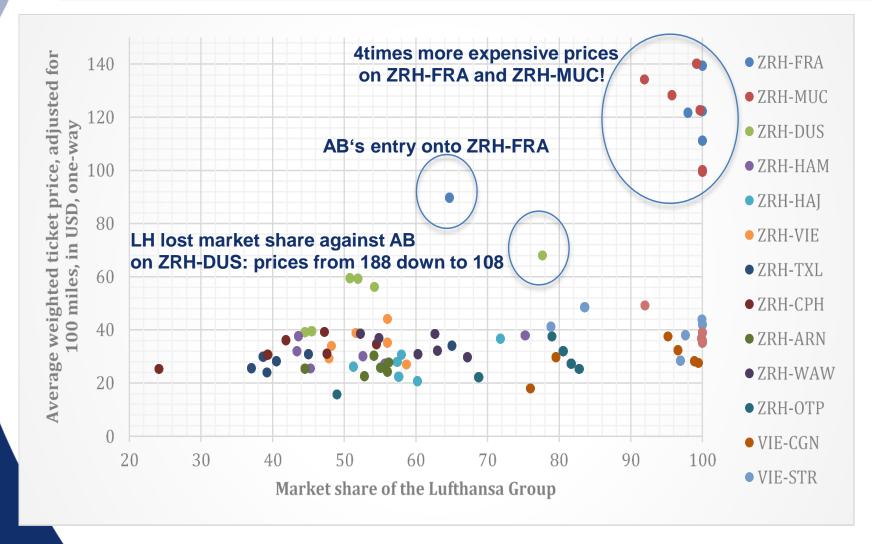


- LH's average yield per mile: 40 USD cent
 - 12 relevant (dominant) and 19 non-relevant routes in the sample
 - Since Nov. 2009 (after SN and OS takeovers): 24 percent higher net ticket prices on relevant routes!

Concentration and price: is there a positive correlation?

F) LH's price grows with increasing market share





There is no general rule, must be analyzed case-by-case

Summary



Hyp 1: The efficiency of the EC slot remedies in order to promote competition (and avoid price increases) is questionable

- Market structure more concentrated:
 - Slot remedy used: 15.3 out of 350
 - LHG's market share increases 69.9 % to 76.1 %

Hyp 2: The fear of abusing market power is feasible

- Strategic capacity improvement to frighten Air berlin
- AB's reaction: fierce price competition (price war?)



Thank you!

Questions? Remarks? Interest in joint research? Job offers?

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