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## SUSTAINABILITY OF BUSINESS MODELS OF AIRLINES IN CRISIS SITUATIONS

The paper analyzes the sustainability of business models of traditional and low-budget airlines. The analysis has been implemented on the basis of the activities of actually operated airlines during global financial crisis of 2008.

Keywords: business model, airline, value, sustainability, competitiveness. Statement of the problem. Dynamic changes, that take place in the global economy have their role in the airline sector. The existing classical business models of airlines that have been profitable over the past decades are losing their competitive position. This situation is inherent to airlines of developed countries as well as to developing countries. Ukrainian airlines are facing difficult situation due to the low competiveness. In the struggle to preserve their market segment for them it would be wise to reconsider their approaches to business. The performance of the leading airlines in the period of instability and global financial crisis of 2008 seves as an illustration of inferior competitiveness of existing business models of airlines.

Analysis of recent researches and publications. Modern business models of airlines are being tested by changes in consumer demand and the economic, political conditions. There are many ideas and practices concerning optimum business models of airlines today. Among Ukrainian scientists we can name Grigorak Y., Karpun O., Mokrynska Z., Litvinenko L. and others. But ultimately final opinion is not formed among practitioners and scientists.

Unsolved aspects of the problem. Analysis of scientific papers and publications showed that the problem of adaptation of existing business models of airlines to present conditions is not sufficiently investigated. The author believes that the time has come for new, flexible business models of airlines business. The existing business models have proved its inability to fit to non-standard situations and work under conditions of uncertainty and the vivid illustration of this assumption is the performance of airlines during the global financial crisis of 2008.

Statement of the task (objectibes of the article). The goal of the article is to verify the hypothesis of the author, which says that none of the existing business models meets the needs of today.

Statement of main content. For a comparative analysis of existing business models of aviation business airlines were selected from different areas of registration to minimize the impact on the analysis of characteristics of business models of the specific market. As the sample of the traditional airline business models were chosen: Ukrainian airline "MAU" and "Aerosvit", British airline «British Airways», German airline «Lufthansa», Russian airline «Aeroflot". As the sample of low-budget airline business models were chosen: American Airlines «Southwest Airlines», «Jet Blue» and Indian Airline «Jet Airways». Selected airlines are leaders in their market segments.

Ukrainian low-budget airlines currently are not founded yet, so they are not listed, and for low-budget airlines, which are working in Ukraine, their information is closed, so they are also not included in the sample. Data for the analysis were taken from the official websites of airlines, reports of ICAO, IATA, State Statistics Committee of Ukraine, the official website of the Ministry of Transport of Ukraine.

Key performance indicators are presented in Table 1.

Table 1

Revenues and costs of airlines, million USD.

	Rev	ennes ana c	osis oj airiin	es, million O	DD.		
Indicators		Revenues			Costs		
Year	2009	2008	2007	2009	2008	2007	
Name of companies			Tradition	al airlines			
Airline «MAU»	273,85	270,03	280,6	272,98	255,37	262,21	
Airline «Aerosvit»	344,58	416,21	438,38	412,80	467,994	430,09	
Airline «British Airways»	12034,17	12034,17 13090,55		12833,54	13410,83	15670,17	
Airline «Lufthansa»	32083,06	31885,83	33331,81	32412,78	30112,68	30973,91	
Airline «Aeroflot»	3522,61	4613,8	3807,8	3374,15	4275,3	3229,8	
		Low-	budget airlin	es			
Airline «Jet Blue»	3286,0	3388,0	2842,0	2673,0	2372,0	3007,0	
Airline «Southwest Airlines»	10350	11020,0	9860,0	10186	10637,0	8800,0	
Airline «Jet Airways»	2319,94	2507,35	2456,16	2437,1	2455,64	2237,40	

Revenues of all airlines regardless of business models tend to decrease. So for the company «British Airways» the income has decreased due to the weakening of global economy and the devaluation of Pound-sterling, which used to compensate for the decline in traffic. Demands for seats in first class and business class, which are most profitable in the airline fell by almost 14 % in 2008, while cargo volume by 17%. Because of the crisis 16 aircrafts in the airline are idle [11]. It is wise to note that as a result of the crisis share prices of the airline stocks fell by 29% in 2009. Reduced demand has led the airline to the use of management tools of low-budget business models. The airline has shifted a part of basic services into additional services, and the passengers for the right to select the place on board have to pay from \$16 to \$200 depending on the flight and the location.

The airline «Lufthansa» has also experienced decreased volume of passengers traffic and along with this, changes are noticed in the direction of traffic flow - there was an increase of passenger traffic to the direction of Africa and the Middle East. The decrease of passenger traffic did not affect the position of the airline in the market. During 2008-2009 the airline took over four European airlines. Most affected was the cargo unit of Lufthansa Cargo, which is the second largest in the world after the U.S. FedEx. In Ukrainian Airline "MAU" they experienced decline in revenues in 2008. The economic situation, unfavorable weather conditions, difficult epidemiological situation affected most the reduction of revenues in the

end of 2009 as were noted in the government aviation administration. Total number of flights was decreased by 16.14 %.

According to the data of official websites of the airlines, which are presented in Table 1, since 2008 the trend of decline in revenues can be traced regardless of the airline business models except for two low-budget airlines «Southwest Airlines» and «Jet Airways». In 2008 the airlines "MAU», «British Airways», «Lufthansa» and low-budget airline «Jet Blue» could minimize their costs. The analysis of the operating performance of airlines showed that only for 2 of the investigated airlines in 2008 - 2009 costs exceeded revenues. These airlines are "Aerosvit" and «British Airways». The author believes that the data do not prove the effectiveness of operations of other airlines.

Traditionally it is thought that low-budget airlines have higher workload of flights, and thus greater profitability. From the official websites of the airlines we have selected for the analysis of airlines load ratios of passenger planes for 2006 — 2009. As it is shown in table 2, the load ratios of the investigated airlines are almost in the same range. In 2008 there was a decrease in the load ratios for all airlines, except for «Southwest Airlines», since 2009 a gradual increase of workload began for almost all airlines.

Table 2.

Dynamics of load ratios of passenger planes

Name of airlines/	2007	2008	2009
Year			
	Traditio	onal airlines	
Airline «MAU»	72,8	73,5%	67,7%
Airline «Aerosvit»	73,3%	74,0%	61,4%
Airline «British Airways»	70,4%	70%	78,5%
Airline «Lufthansa»	79,8 %	75,2 %	77,9%
Airline «Aeroflot»	70,9%	70,3 %	69,5%
	Low-bu	dget airlines	
Airline «Jet Blue»	85,2%	83,2 %	79,7%
Airline «Southwest Airlines»	72,6 %	73,1%	76,0%
AK «Jet Airways»	70,9 %	70,2 %	67,2%

It should be noted that for almost the same load ratios advantage is on the side of low-budget airlines, because passenger planes of low-budget airlines have more seats than the traditional ones, and frequency of their flights is higher.

Comparative analysis of the efficiency of various airline business models has been started with the analysis of labor force, because one of the most important resources of airline enterprises is their employees. This is due to the fact that employees enter into relationships

with passengers during the entire period of service and the outcome of the airline enterprise depends on the availability of workforce in the enterprise and the effectiveness of their use. Dynamics of average number of employees and revenues and costs per employee are presented in Table 3. It is noted that the low-budget airline «Jet Blue» does not use average annual number of employees but the equivalent of full employment.

From the data, shown in Table 3, the downward trend of employees of investigated airlines can be tracked. However, despite of the reduction of the staff of employees, begining from 2008 there was a decline in revenue per employee. The only airline which has increased revenue per employee while reducing costs is an American low-budget airline «Jet Blue». By the way, in this airline uniform trend can be traced not to reduce staff of employees, but to increase it. This situation happened due to an increased demand for the services of the airline in the region of its operation.

Most airlines have chosen for themselves one of the areas of reducing operating costs - reduction of labor costs for employees. So most airlines regardless of the business models in 2008 carried out the reduction of staff of employees and salaries.

For example, British Airways managed to reduce its costs by 30 million euros by reducing salaries by 2.6%. It should be noted that 7 thousand employees responded to the call of the management of the airline to work for one month without pay. These workers went on unpaid leave or receiving salaries with significant delay. Thus, according to data of the airline, it was able to save around 10 million pounds.

However, union members have repeatedly expressed protest against these decisions. The airline "Lufthansa" planned to cut about 15% of administrative staff of employees in 2012. According to the estimation of the management, costs of the airline will be reduced by almost 5% per year. The main point is that it was decided not to dismiss employees, the company does not continue the contract, term of which has ended and do not recruit new employees in place of retired ones. The Ukrainian airline "Aerosvit" in 2008 began to cut staff of retirement age and during 2009 it cut 20% of employees, while others were transferred for a short working day.

Analysis of the data in Table 4 promotes to determine that the highest revenue per passenger was in the Russian traditional airline «Aeroflot» but this does not indicate high efficiency for building a business of airline, as it is evidenced by high costs per passenger in it. Among the investigated airlines that managed to increase traffic volumes in 2009 in relation to 2008 are the traditional airline «Lufthansa» and low-budget airline «Jet Blue». The airline «Aeroflot» in 2009 managed to maintain its position in relation to transportation of passengers at the level of 2008.

Clear trend can be traced in 2008 to increase the costs per passenger in all airlines, regardless of business models. Even the leader in the segment of low-budget airlines — the airline "Southwest Airlines" failed to optimize its costs. Among the investigated airlines only 2 airlines operated with a positive difference - the traditional airline «Lufthansa» and low-budget airline «Jet Blue», which promotes to conclude that crisis situations in economy affect at the same level both the traditional airlines and the low-budget airlines.

We will analyze the operations of the airlines for the second area of their activities — cargo transportation. Traditionally it is thought that low-budget airlines do not transport cargo, but there are exceptions, which are evidenced by the activities of the Indian low-budget airline «Jet Airways». As shown in Table 5, all airlines have increased the volume of cargo since 2008. Despite of increased spending on transportation, traffic revenues cover costs that allows the airlines to stay afloat.

Table 3. Dynamics of average number of employees and revenues and costs per employee Indicators Revenue per employee (USD) Number of employees Costs per employee (USD) Year Name of Traditional airlines companies Airline «Aerosvit» Airline «British Airways» Airline «Lufthansa» Airline «Aeroflot» Low-budget airlines *Airline*«*Jet* Blue» Airline«Sout hwest **Airlines**» *Airline*«*Jet* Airways»

The airline "Aeroflot" has the lowest figures for cargo transportation, it is because of the airline has allocated cargo transportation in a separated business and has founded a subsidiary company for it — the JSC "Aeroflot -Cargo"

Owners' equity has great value for autonomy and independence of airline enterprises. For the investors preferred the presence of a significant proportion of owners' equity, as in this case there is less financial risk and they will be sure to return their investments. But in practice the efficiency of debt usually is higher than that of owners' equity. Financial condition of the airline depends largly on the optimal ratio of owners' equity and debt. The results of calculations for the investigated airlines are summarized in Table 6.

Analyzing the results of the calculations, presented in Table 6, it can be concluded that the calculated ratios of financial stability of investigated airlines tend to decrease, but they are within the recommended values except for Ukrainian airline "Aerosvit". For the mentioned airline the ratio of financial stability before 2008 was lower than the recommended values, and in 2008 they became negative. The reasons for the current situation require detailed analysis, but as related information is in secret, it is impossible to make the analysis.

There are interesting values of indicators of financial stability in the low-budget American airline «Southwest Airlines»: owners' equity exceeds debt almost by 7 times. The only airline, in which there is a growth of indicator of financial stability is the airline «Jet Blue». Values of indicators of financially independence of investigated airlines are in the range, less than the recommended values, but they tend to increase, which is a positive tendency. Indicators of financial dependence exceed the recommended values, which indicate high debts of airlines. Study of leverage index has practical value, because this index reflects how the airlines meet the interests of investors. The leverage promotes to estimate how shareholders' funds are being increased by other methods of financing when placing them into productive assets. This effect for shareholders' funds is very important, especially when shareholders seek returns higher than their initial assets. The leverage indicates how many times the growth rate of net profit exceeds the growth rate of gross profit.

This excess is ensured due to the effect of financial leverage, a part of which is its lever, i.e. the ratio of debt to equity. Depending on the specific conditions the airlines has the ability to increase or decrease the lever and thereby it can affect profit, net profit and profitability. Thus, the higher is the level of financial leverage, the higher is the financial risk.

The level of financial leverage affects directly proportionally the degree of financial risk of airlines and rate of profit, required by shareholders. In modern conditions the airlines are trying to attract a significant share of debt for their activities, such companies refer to those with high level of financial leverage.

Evaluation of the financial condition of the company in market economy is particularly important for the competitiveness and financial stability, reliability of the airline as a business partner. There is a growing need to assess the financial condition and analysis of the liquidity (solvency) of the company. On the basis of the data of the airlines' balances the calculations of liquidity ratios for the investigated airlines are made. It is necessary to call attention to the fact that reports of foreign airlines are submitted by the state on March 31.

The calculations of liquidity ratios are given in Table 7. It can be concluded that the investigated airlines have a solvency ratio of less than 1, that indicates the absence of real opportunity of the airlines to restore their solvency in the near future.

Table 4. Analysis of indicators of passengers' traffic and revenues-costs of passengers' traffic

Indicators	To	otal passeng (thousand)						* * *				ıger
Year	2009	2008	2007	2009	2008	2007	2009	2008	2007	2009	2008	2007
Name of companies	Traditional airlines											
Airline «MAU»	1563	1681	1446	3257	3417	2912	175,2	160,64	194.05	174,65	151,92	181,34
Airline «Aerosvit»	2126	2510	2054	4332	5260	4521	162,08	165,82	213,43	194.17	186,45	209,39
Airline «British Airways»	31825	33161	33068	110851	113016	112851	378,14	394,76	526,68	403,25	404,42	473,88
Airline «Lufthansa»	76543	70543	62894	160647	154155	135011	419,15	452,01	529,97	423,46	426,87	492,48
Airline «Aeroflot»	8755,5	8800	9300	25986,2	26000	27200	402,33	524,3	409,44	385,38	485,83	347,29
					Low-budg	et airlines						
Airline «Jet Blue»	22450	21920	21387	25955	29107	28410	146,37	149,91	158,41	133,94	137,18	153,31
«Southwest Airlines»	86310	101921	101911	74457	73492	72319	119,92	108,12	96,75	118,02	104,37	86,35
Airline «Jet Airways»	7392	7972	9787	18984	20727	24956	313,85	314,52	250,96	329,69	308,03	228,61

Table 5. Dynamics of indicators of cargo transportation and revenues and costs of cargo transportation

Indicators		ails and c	~		naround of chousand ton.		Revenu	es per 1 ton co (USD)	argo	Costs	per 1 ton c (USD)	1 ton cargo USD)	
Year	2009	2008	2007	2009	2008	2007	2009	2008	2007	2009	2008	2007	
Name of companies					Tradition	al airlines							
Airline «MAU»	7,75	4,65	3,6	27,9	16,28	13,68	35335	58071	77944	35223	54918	72836	
Airline «Aerosvit»	7,47	10,1	8,4	26,26	37,07	28,89	46128	41209	52188	55261	46336	51201	
Airline «British Airways»	760	805	762	4537	4891	4695	15834,43	16262	22856	16886,24	16659	20565	
Airline «Lufthansa»	1712	1919	1911	8704	9530	9043	18740,11	16616	17442	18932,7	15692	16208	
Airline «Aeroflot»	86,8	86,8	87,9	2738,6	2700	2800	40723,82	53154	43319	39007,51	49255	36744	
					Lo	w-budget air	lines						
Airline «Jet Blue»	_	_	_	_	_	-	_	_	_	-	_	_	
Airline «Southwest Airlines»	-	_	_	_	-	-	_	_	_	_	_	_	
Airline «Jet Airways»	77,4	85,1	114,2	781,9	912,4	1406,8	29973,4	29464	21508	31487,1	28856	19592	

Table 6. Financial indicators of effectiveness of activities of the airlines

Indicators	Ratio of financial stability				o of financ dependence		Ratio of financial dependence			Coefficient of financial levero		
Year	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
Name of companies	Traditional airlines											
Airline «MAU»	1,279	0,962	1,045	0,264	0,229	0,233	3,788	4,356	4,29	0,978	0,743	0,79
Airline «Aerosvit»	0,45	-0,48	-0,52	0,14	-0,25	-0,29	7,25	-4,04	-3,45	0,20	-0,09	-0,05
Airline «British Airways»	1,14	0,66	0,726	0,29	0,18	0,198	3,46	5,68	5,053	0,94	0,89	0,905
Airline «Lufthansa»	2,68	1,93	2,286	0,31	0,31	0,235	3,23	3,24	4,255	0,17	0,17	0,189
Airline «Aeroflot»	1,88	1,49	2,240	0,35	0,30	0,654	2,87	3,36	1,529	0,04	0,05	-0,049
					Low-bu	dget airline	es					
Airline «Jet Blue»	1,30	1,55	4,66	0,19	0,21	0,24	5,40	4,78	4,26	0,0019	0,0024	0,0019
Airline «Southwest Airlines»	9,15	7,42	7,33	0,41	0,35	0,383	2,42	2,89	2,61	0,12	0,16	0,148
Airline «Jet Airways»	1,20	1,04	0,74	0,22	0,15	0,16	4,55	6,79	6,26	0,019	0,025	0,033

Table 7.

Indicators of liquidity of investigated airlines

	indicates of inquiatify of investigated divinies													
Indicators	Ratio o	of absolute li	quidity	Ratio	of rapid liq	uidity	Ratio of present liquidity							
Year	2007	2008	2009	2007	2008	2009	2007	2008	2009					
Name of companies		l		Ti	raditional air	rlines	l L							
Airline «MAY»	0,145	0,212	0,27	1,039	1,160	1,21	1,321	1,408	1,44					
Airline «Aerosvit»	0,06	0,03	0,02	0,73	0,53	0,49	0,79	0,57	0,45					
«British Airways»	0,53	0,33	0,458	0,86	0,54	0,689	0,89	0,57	0,715					
Airline «Lufthansa»	0,25	0,17	0,129	0,94	0,80	0,917	1,01	0,87	0,991					
Airline «Aeroflot»	0,09	0,14	0,173	1,18	0,99	1,882	1,28	1,06	2,067					
				Low-budg	et airlines									
Airline «Jet Blue»	0,15	0,59	0,78	0,87	0,86	1,28	0,89	0,89	1,32					
Airline «Southwest Airlines»	0,46	0,49	0,416	0,87	0,96	1,172	0,92	1,03	1,255					
Airline «Jet Airways»	0,07	0,09	0,056	0.19	0,13	0,114	0,35 0,23	0,17	0,156					

Table 8. Indicators of cost of capital and economic added value of the investigated airlines

	Indicators of cost of capital and economic added value of the investigated airlines													
Indicators		ROE		ROI			ROA				EVA			
Year	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009		
Name of companies		Traditional airlines												
Airline «MAY»	0,5310	0,10	0,23	0,1674	0,0215	0,0563	0,1370	0,0179	0,0463	6446	-76450	-54638		
Airline «Aerosvit»	1,12	-20,93	-27,63	0,037	-0,512	-0,594	0,031	-0,456	-0,573	-82277,31	- 252329,5	-284631		
Airline «British Airways»	0,237	0,217	-0,222	0,064	0,0328	-0,04	0,064	0,034	-0,039	-132,19	-491,53	-1279,2		
Airline «Lufthansa»	1,502	0,519	-0,096	0,0842	0,0272	-0,005	0,079	0,027	-0,004	86	-1071,6	-2177,2		
Airline «Aeroflot»	6,07	0,72	0,995	0,108	0,011	0,021	0,092	0,011	0,032	-153,53	-432,06	-140,49		
					Lo	w-budget a	irlines							
Airline «Jet Blue»	9	-25,33	19,33	0,003	-0,013	-0,009	0,003	-0,013	0,009	-429,84	-557,84	-453,21		
Airline «Southwest Airlines»	0,801	0,220	0,123	0,043	0,012	0,007	0.039	0,012	0,007	-510,27	-852,18	-914,1		
Airline «Jet Airways»	-2,931	-4,661	-5,416	-0,016	0,018	-0,024	-0,012	-0,017	-0,028	-3255,32	-3859,48	-2915,4		

Absolute liquidity ratios of the investigated airlines are less than one, it means that the airlines are currently unable to fully repay all their current debts. Only for three airlines values of absolute liquidity ratios correspond to the recommended values: traditional airline «British Airways», and low-budget airline «Southwest Airlines» and «Jet Blue».

These indicators of financial conditions of the investigated airlines show an unstable situation of the airlines both for the traditional business models and low-budget models. After a comparative analysis of the activities of the airlines of various business models the question raises about the criteria by which to measure the added value created by them. This is no easy task, especially in Ukrainian conditions, where most companies have shares, which are freely traded on the share market.

Indicator of EVA takes into account the company's efforts in the material sphere, it can be considered as a good measure of added value. The specified index is also used for the analysis of business value. As the indicators of economic added value and its modifications can be used for planning and monitoring the performance of the company as a whole and its seperated units, these indicators can be layed in the foundation of the system of motivation for managers of the company. Various modifications of the indicator of economic profit are taken into service by many corporations.

They are designed to remove the contradiction among the estimations of efficiency of financial resources, which form assets, rewards of managers, whose main tasks are to provide support and create values.

According to the main principles of value - based management managers should be encouraged for activities that enable the creation and increase of values to the company. This is the way the developed system to motivate managers correspond to the interests of the owners of the company. However, even the determination of conditional figure of added value at the company level as a whole still does not solve all problems, because the figure of such value does not show actually created value at the level of business segments and the business processes.

This is the information we need to establish the points for the most effective managerial influence. Obtaining such information requires much greater costs, because the issue is not about just one indicator, but rather a complex system of indicators.

The Calculations of EVA index were conducted on the basis of financial reports of the airlines from 2006 to 2009. The results of calculations are presented in Table 8.

For the values obtained for the EVA index for the investigated airlines conclusion can be made that in the last three years the airlines do not create added value, only in 2007 the airline "MAU" and the airline «Lufthansa» created more than the average value of their capital.

In general, it should be noted that the results indicate the uneffectiveness of operations of the airlines, regardless of business models. The results of the analysis say that return on investment is very low for all airlines without exception, and the airlines "Aerosvit", "Jet Blue", "Jet Airways" are absolutely not interesting objects for investors. The highest return on shareholder's equity is in the airline "Jet Blue", which makes it attractive for shareholders. The airlines "AeroSvit" and "Jet Airways" have negative values of the indicator.

The actual rate of profitability of the investigated airlines are also quite low. The analysis showed that the crisis tendencies influenced the activities of the airlines regardless of the their business models, markets of registration and operation. These trends are alarming, but it is not possible to make a definite conclusion, because the more successful are the traditional airline business models by one indicator and by another indicator - low-budget models. The

only airline that goes inefficient for all indicators and creates the least economic value is a Ukrainian traditional airline "Aerosvit".

Conclusions. The results of the research provided an opportunity to assert the ineffectiveness of classic business models of the airlines in today's business conditions, because they do not provide the desired results. The author believes that the airlines should create flexible business models that will promote to maneuver costs and core business processes that create values.

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