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Financial Performance of Top 20 Airlines

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Abstract

This empricial research article intends to analyse the financial performance of the top 20 airlines in the Word for the period of year 2011 and 2014. In order to measure the financial performance of the airlines on a uniqie base,an hormonic index is propesed by considering performance areas of profitability, operating, efficiency and liquidity. Next, each performance area is defined by using a various of performance ratios. Finally, all airlines companies examined are listed by their harmonic index scores. The total assets of the 20 biggest airlines are amounted over $457 billion in 2014 and Delta Airlines with an assest size of $54 billion is the biggest ailines. On the other hand, the highest revenue generated by Luftansa in 2011, 2012 and 2013 over $40 billion per year The emprical results show that the worst scores of harmonic index refer American Airlines in 2011, Soutwest in 2012, China Eastern Airlines in 2013 and Quantas Airways in 2014, while the best scores of harmonic index point Delta in 2011, Hainan Airlines in 2012 and EasyJet in 2013 and 2014. This analysis supports that the measurement of financial performance based upon total revenuue or profitability is somehow weak and may be extented by including other indicators.

Keywords: Financial performance; airlines; performance indices; harmonic index

1. Introduction

This emprical research intends to analyse and rank the financial performance of the top 20 airlines in the Word for the period of year 2011 and 2014. Over the last two decades, the troubled airlines were oftenly on news delebrating financial difficulties, layouts and distrupted sceduled flights. Many well-known airlines needed financial rescue and either received government fundings or seeked consolidation or a partnership. The previous literature are also interested in the financial performance of airlines and almost all agreed that the finacial performance of airlines needs to capture more extensive measures than solely total revenues and net income. Hence, this paper concentrates on a comprehensive performance measurement for the biggest 20 ailine company in the Word. In order to measure the

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performance of the airlines a harmonic index is constructed considering the performance areas of profitability, operating, efficiency and liquidity. Based upon the key ratios representing each performance area an index value is produced for each company and for each year. The empirical findings support that the financial performance ranking by total income or net income may lead companies to follow different strategic decisions than otherwise stated by the harmonic index.

The paper is organized as follows. The next section covers the previous related literature. The section three explains the data employed and the model constructed. The later section presents the empirical results. The final section discusses the concluding remarks.

2.Literature Review

The financial performance of airlines influences short and long term decisions as well as shapes strategic planning. Literature usually indicates about the ongoing of operational performance metrics such as available seat kilometres, revenue per kilometre and load factor. In recent years however, financial performance for airlines doubted an interest of financial indicators and comparisons among firms. Feng and Wang (2000) indicates to analyse the financial performance of airlines by using metrics related to profitability, liquidity and solvency. Feng and Wang (2000) produced a performance indicator set.

There are several literature highlights the key financial performance indicators for the industry. Doganiz (1985) indicates that the profitability of an airline depends on the interplay of unit costs, unit revenues and load factors. He underlines that airlines should adjust costs and fares to generate more profitable pairs. Doganiz (1985) underlines that if the seats remain unsold, these seats flown or seat kilometers produced will be lost.

Altough financial ratios derived from financial statements used in stock market evaluations are so many, main are identified on similar patterns. To avoid modelling financial ratios repeatedly, the ratios are suggested to be clustered in some basic categories. (Deogun et al., 1997, Dubes and Jains, 1988, Eom, 1999). Wang (2008) highlights to divide ratios for airlines into four categories according to their related patterns. Wang review financial ratios of domestic airlines in Taiwan in subcategories such as financial structure, solvency, turnover and profitability. Feng and Wang (2000) develops a performance evaluation model for airlines in Taiwan that includes the consideration of financial ratios. They group the total performance of an airline in three categories as production, marketing, and execution. They indicate that any one of the three types of indicators can be replaced by another or can stand independent of another. This result reveals that transportation indicators or financial ratios cannot alone measure all performance aspects of an airline. To evaluate financial performance of a firm, there are various indicators to include in modelling. Leverage, liquidity, operational efficiency, profitability, company size, growth and systematic risk are the main tools to certainly examine. Financial leverage is the extent to which a company relies on debt. A leveraged company is the company with some debt in its capital structure (Ross, Westerfield, Jaffe and Jordan, 2011). Modigliani and Miller (1958) show in their theory (the MM theory) that the company with higher financial leverage involves higher risk for stock investors thus they require a higher return on the stock.

Liquidity or accounting liquidity refers to the ease and quickness with which assets can be converted to cash (Ross, Westerfield, Jaffe and Jordan, 2011). Liquidity is an important indicator of the company because it represents the company's ability to meet its short-term liability. The more liquid a company's assets, the less likely the company is to experience problems meeting short-term obligations. Kettler and Scholes (1970) find that company systematic risk is negatively related with the liquidity.

Operational efficiency illustrates how efficiently the company generates outputs by inputs, which is how efficiently the company is managing its assets. The company which has a high efficiency may be facing a small probability of loss or actual failure due to excellent management and therefore the company exhibits low risk (Borde, 1998). However, high efficiency may be because of implementing aggressive business strategy (Borde, 1998), for example, the company pursues fast sales growth without paying much attention to controlling the cost. In this situation, the company is facing a higher risk (Gu and Gao, 2000). Profitability shows the company's ability of covering all costs and providing some returns relative to sales or investments (Gu, 2002). The logic behind profitability is that the higher the profitability the lower the probability of company failure (Logue and Merville, 1972).

One another aspect is to analyse the relation between risk and financial performance. There have been many papers studying the relationship between company systematic risk and size which usually figured out a negative relationship. These studies state that the large company is too large to fail. Firstly, the large company tends to diversify its business more efficiently because of strong financial ability. Secondly, diversification can lower the risk since the violation of one business section can be diversified by other sections. Thirdly, large company can achieve economies of scale,

which enable the company to maintain a lower unit cost thus increases the probability for the company to defense the distress risk (Ang, Peterson and Peterson, 1985). However, Bowman (1979) does not believe that company systematic risk is related to size because he thinks capital structure is the only financial indicator which is directly related to systematic risk. Since expanding the company size by new investments doesn't involve the capital structure of the company thus there is no necessary relationship between systematic risk and size. The results of studies on airline industry seem complicated. Lee and Jang (2007) find a positive relationship between airline systematic risk and size by US samples, meaning that the larger the airline the riskier it is. This finding is different from the results in above discussions which support the positive relationship. Company growth is often measured by asset growth and revenue growth. Empirical studies on the relationship between systematic risk and financial indicators generally hypothesize and observe the positive correlation between risk and growth (Bowman, 1979). Logue and Merville (1972) think that growing asset brings growing profit. If it is more profitable in particular business, more companies will enter the business and increase the competition which may lead to the company more sensitive to the economics fluctuations.

3. Data and Analysis

In order to measure the financial performance of the biggest airlines companies, a massive data search is conducted using Reuters Databank. All airlines companies traded in exchanges and having complete data for the period of 2011-2014 are listed. Out of this massive data search 172 companies are reached. By using the market capitalization values (marketcap) for the year 2014, the biggest 20 airlines are determined and the related data for these 20 airlines are filtered. Table 1 shows the biggest 20 airlines in alphabetical list including values of total assets and total equity for the period of 2011-2014.

Table 1. Top 20 Airlines – Total Assets and Total Equity

#	Company Name	Total Assets								Total Equity							
		2011	R	2012	R	2013	R	2014	R	2011	R	2012	R	2013	R	2014	R
1	Air China	27538	4	29762	4	33923	5	34169	5	7426	2	8071	2	8946	3	8806	3
2	Alaska Air	23186	7	24189	6	22691	9	21064	19	6257	7	6632	5	8140	5	7230	4
3	American Airlines	5167	19	5505	19	5838	19	6064	2	1174	17	1421	16	2029	18	2127	18
4	Ana Holdings	23848	6	23510	7	42278	2	43771	10	-7111	20	-7987	20	-2731	20	2021	19
5	Cathay Pasific Air	17658	13	19972	10	22128	10	22179	9	7186	4	7229	3	8111	6	6671	6
6	China Eastern Air	17829	12	19529	11	22771	8	26358	8	3247	11	2877	14	4071	13	4464	11
7	China Southern Air	20537	9	22872	8	27280	7	30574	6	5097	9	5255	8	5639	8	5730	7
8	Delta Air	43499	1	44550	1	52252	1	54005	1	-1396	19	-2131	19	11643	1	8813	2
9	Deutsche Luftansa	36296	3	37707	2	40009	3	36864	4	7291	3	6305	6	8324	4	4800	8
10	EasyJet	6964	18	6942	18	7140	18	7266	18	2657	12	2900	13	3264	14	3521	14
11	Hainan Airlines	12917	14	14882	14	18603	12	19660	12	2300	14	3820	10	4480	11	4618	9
12	Int. Consalidated Air	24775	5	25037	5	28558	6	28612	7	5194	8	3533	11	5373	9	4216	12
13	JetBlue Airways	7071	17	7070	17	7350	17	7839	17	1757	16	1888	15	2134	17	2529	16
14	Qantas Airways	12176	15	12010	15	11463	16	12134	14	4184	10	4412	9	4195	12	4525	10
15	Ryanair	19475	10	17533	13	18084	14	18009	16	11271	1	10256	1	10554	2	10528	1
16	Singapore Airlines	18068	11	18596	12	19345	11	19723	13	6877	5	6992	4	7336	7	6775	5
17	Southwest Airlines	746	20	920	20	1181	20	1593	11	467	18	583	17	769	19	1003	20
18	Sprit Airlines	22353	8	21372	9	18301	13	16331	20	6588	6	5591	7	5331	10	2699	15
19	Turkish Airways	37988	2	37628	3	36812	4	37353	15	1806	15	481	18	2984	16	2396	17
20	United Continental	8708	16	10528	16	11842	15	13660	3	2388	13	3034	12	3246	15	3923	13
	TOTAL	386798		400114		447849		457228		74659		71161		103838		97395	

Table 1 shows that Delta Airlines has the largest asset size from $43 to $54 billion from year 2011 to year 2014 while the highest value of equity is belonged to Rynair for the years 2011, 2012 and 2014 with a value range of $10-11 billion.

Table 2. Top 20 Airlines – Total Revenues and Net Income

#	Company Name	Total Revenues								Net Income							
		2011	R	2012	R	2013	R	2014	R	2011	R	2012	R	2013	R	2014	R
1	Air China	15032	8	15826	9	15881	10	17014	8	1157	1	778	3	540	6	614	9
2	Alaska Air	15852	6	17872	6	17868	6	15664	9	272	12	357	10	520	7	188	18
3	American Airlines	4318	18	4657	18	5156	19	5368	19	245	14	316	11	508	8	605	10
4	Ana Holdings	23979	4	24855	4	26743	4	42650	1	-1979	20	-1876	20	-1834	20	2882	1
5	Cathay Pasific Air	12642	12	12812	12	12955	12	13668	12	707	8	111	15	338	13	406	13
6	China Eastern Air	12995	11	13697	11	14333	11	14567	10	756	7	503	6	384	10	555	11
7	China Southern Air	14346	9	16086	8	15963	9	17580	7	785	5	417	8	308	14	288	15
8	Delta Air	35115	3	36670	3	37773	3	40362	2	854	2	1009	2	10540	1	659	8
9	Deutsche Luftansa	39962	1	38728	1	39870	1	39798	3	-19	19	1578	1	416	9	73	19
10	EasyJet	5543	15	6076	15	6644	15	7497	15	361	11	402	9	621	4	745	6
11	Hainan Airlines	4066	19	4576	19	5413	18	5850	17	407	10	306	12	351	12	421	12
12	Int. Consalidated Air	22396	5	23283	5	24656	5	26748	5	782	6	-920	19	162	18	1302	2
13	JetBlue Airways	4504	17	4982	17	5441	17	5817	18	86	16	128	14	168	17	401	14
14	Qantas Airways	4794	16	6040	16	6286	16	6750	16	495	9	771	4	733	3	701	7
15	Ryanair	10909	13	11853	13	12152	13	12112	13	820	4	268	13	305	15	286	16
16	Singapore Airlines	15658	7	17088	7	17699	7	18605	6	178	15	421	7	754	2	1136	3
17	Southwest Airlines	1071	20	1318	20	1654	20	1932	20	76	17	109	16	177	16	226	17
18	Sprit Airlines	13132	10	15507	10	16306	8	14085	11	247	13	-253	17	1	19	-2608	20
19	Turkish Airways	37110	2	37152	2	38279	2	38901	4	840	3	-723	18	571	5	1132	4
20	United Continental	7035	14	8208	14	9861	14	11049	14	11	18	643	5	359	11	832	5
	TOTAL	300459		317286		330933		356016		7081		4344		15922		10843	

Table 2 presents the total revenues and net income of airlines for the period of 2011-2014. Luftansa generates the highest revenues of nearly $40 billion in 2011, 2012 and 2013. A highest revenue in year 2014 over $42 billion is generated by Ana Holdings. Air China recorded the highest net income in 2011 with a value of $1.1 billion. Luftansa in 2012, Delta in 2013 and Ana Holdings in 2014 are registered the highest net income.

Table 3. Top 20 Airlines – Number of Employees and Number of Aircrafts

#	Company Name	Number of Employees								Number of Aircrafts							
		2011	R	2012	R	2013	R	2014	R	2011	R	2012	R	2013	R	2014	R
1	Air China	24474	11	56890	8	64854	7	68553	7	432	7	461	7	497	7	521	7
2	Alaska Air	32731	10	32884	11	32634	11	33719	11	222	12	226	12	235	12	241	13
3	American Airlines	12806	15	12932	15	13177	15	12739	15	165	17	174	17	182	17	196	17
4	Ana Holdings	80100	3	77750	3	110400	2	113300	2	907	2	868	2	1528	1	1549	1
5	Cathay Pasific Air	23015	12	29900	12	31600	12	32900	12	175	14	183	15	192	16	200	16
6	China Eastern Air	59872	5	66207	6	68874	6	69849	6	389	8	416	8	478	8	494	8
7	China Southern Air	54326	7	73668	4	80175	4	82132	4	444	6	491	6	561	6	621	5
8	Delta Air	78392	4	73561	5	78000	5	79655	5	775	3	717	3	912	3	915	3
9	Deutsche Luftansa	120055	1	116957	1	118285	1	118781	1	696	5	627	5	622	5	615	6
10	EasyJet	8288	19	8446	18	8343	19	8987	19	204	13	214	13	217	14	226	14
11	Hainan Airlines	8558	18	9476	17	10347	17	10674	17	108	19	117	19	131	19	154	18
12	Int. Consalidated Air	56791	6	59574	7	60089	8	59484	8	348	9	377	9	431	9	459	9
13	JetBlue Airways	10243	16	10573	16	11021	16	11352	16	169	15	180	16	194	15	203	15
14	Qantas Airways	8560	17	8388	19	9137	18	8992	18	272	11	294	11	305	11	297	11
15	Ryanair	22282	13	22746	13	23189	14	23716	14	125	18	133	18	139	18	142	19
16	Singapore Airlines	45392	8	45861	9	44831	9	46278	9	698	4	694	4	681	4	665	4
17	Southwest Airlines	2456	20	2767	20	3224	20	4219	20	37	20	45	20	54	20	65	20
18	Sprit Airlines	33169	9	33584	10	33608	10	33745	10	283	10	308	10	312	10	308	10
19	Turkish Airways	87000	2	88000	2	87000	3	84000	3	1256	1	1253	1	1265	2	1257	2
20	United Continental	18489	14	19109	14	23160	13	24244	13	168	16	202	14	233	13	267	12
	TOTAL	786999		849273		911948		927319		9884		9992		11182		11409	

Table 3 shows the number of employees and number of aircrafts of the companies. Luftansa has the highest number of employees for the whole sampling period with a figure of about 115,000 while the Turkish Airways has the highest number of aircrafts in 2011 and 2012, and Ana Hodings has the highest number of aircrafts in 2013 and 2014.

This reserach paper propeses a hormonic index to establish a unique way to measure comprehensive performance of airlines. The model is constructed based on overall performance which is measured by four fundamental basis namely; profitability, operating, liquidity and efficiency. Each area of performance is then measured by the following indicators presented in Table 4.

$$\text{Harmonic Index (HI)} = f(\text{profitability, operating, liquidity, efficiency}) \tag{1}$$
$$HI = w_{P1}P1 + w_{P2}P2 + w_{P3}P3 + w_{O1}O1 + w_{O2}O2 + w_{O3}O3 + w_{L1}L1 + w_{L2}L2 + w_{L3}L3 + w_{R1}R1 + w_{R2}R2 \tag{2}$$
$$HI = k_1P + k_2O + k_3L + k_4R \tag{3}$$

Where w_{Pi}'s are the equal weights for profitability indicators, Pi's are the profitability indicators, w_{Oi}'s are the equal weights for operating indicators, Oi's are the operating indicators, w_{Li}'s are the equal weights for liquidity indicators, Li's are the liqudity indicators, w_{Ri}'s are the equal weights for effiency indicators, Ri's are the effiency indicators, k_i's are equal weights for the weighted indicators.

Table 4. Harmonic Index Performance Indicators

Performance Areas	Indicator	Measurement
Profitability	P1: Return on Asset (ROA) P2: Return on Equity (ROE) P3: Net Profit Margin (NPM)	Net Income / Assets Net Income / Equity Net Income / Revenues
Operating	O1: Ave.Days for Account Receivables O2: Ave.Days for Inventories O3: Ave.Days for Acctount Payables	Revenues /(Ave. Account Receivables/360) Cost of Goods Sold /(Ave. Inventories/360) Purchases /(Ave. Account Payables/360)
Liquidity	L1: Quick Ratio L2: Debt Ratio L3: Times Interest Earned	(Current Assets-Inventories)/Current Liabilities Long Term Debt / Equity Net Income Before Interest and Taxes/Interest Expense
Effiency	R1: Revenue per Employee R2: Revenue per Aircraft	Revenues / Number of Employees Revenues / Number of Aircrafts

4. Empirical Results and Analysis

The following Table 5, 6, 7 and 8 presents the results of empirical analysis. Table 5 shows the harmonic index values and ranking for the airlines for 2011. The top three performance companies for 2011 are Delta, International Consolidated Airlines and Cathay Pasific Airlines. Turkish Airways is ranked as the 4th best performers for 2011. The worst three performance companies for 2011 are listed as American Airlines, Singapore Airlines and Southwest.

Table 5. Financial Performance by Harmonic Index for the Year 2011

#	Company	Profitability		Operating		Liquidity		Efficiency		HARMONIC	
		Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank
1	Air China	0,23	11	17,07	12	1,21	16	0,48	5	2,09	16
2	Alaska Air	0,30	4	23,50	10	1,92	8	0,30	16	2,75	9
3	American Airlines	0,19	17	14,67	14	0,81	19	0,28	19	1,43	20
4	ANA Holdings	0,20	15	15,33	13	1,40	13	0,60	3	2,35	12
5	Cathay Pacific Airways	0,24	10	10,30	18	2,83	3	0,64	2	3,81	3
6	China Eastern Airlines	0,29	5	81,67	1	1,67	9	0,28	20	3,05	6
7	China Southern Air	0,27	7	23,67	9	2,13	7	0,29	17	2,92	7
8	Delta	0,22	13	45,50	2	6,66	1	0,45	8	7,79	1
9	Deutsche Lufthansa	0,27	8	32,73	5	1,66	10	0,45	7	2,70	10
10	EasyJet	0,27	6	25,30	7	1,04	17	0,47	6	2,04	17
11	Hainan Airlines	0,17	20	8,83	19	2,66	5	0,43	10	3,34	5

12	Int. Consolidated Air	0,31	3	10,80	17	3,98	2	0,52	4	4,92	2
13	JetBlue Airways	0,19	16	21,47	11	1,45	12	0,35	15	2,20	15
14	Qantas Airways	0,18	19	13,00	16	2,17	6	0,43	9	2,91	8
15	Ryanair	0,18	18	37,10	4	1,50	11	0,37	12	2,42	11
16	Singapore Airlines	0,21	14	24,37	8	0,62	20	0,68	1	1,76	19
17	Southwest	0,25	9	13,80	15	1,23	15	0,28	18	1,90	18
18	Spirit Airlines	0,61	1	42,07	3	0,86	18	0,36	13	2,25	14
19	Turkish Airways	0,22	12	6,33	20	2,78	4	0,40	11	3,47	4
20	United Continental	0,37	2	32,43	6	1,24	14	0,36	14	2,30	13

Table 6 shows the harmonic index values and ranking for the airlines for 2012. The top three performance companies for 2012 are Hainan, International Consolidated Airlines and Rynair. Turkish Airways is ranked as the 5th best performer for 2012. The worst three performance companies for 2012 are listed as Soutwest, EasyJet and JetBlue Airlines.

Table 6. Financial Performance by Harmonic Index for the Year 2012

#	Company	Profitability		Operating		Liquidity		Efficiency		HARMONIC	
		Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank
1	Air China	0,19	14	20,47	13	1,27	12	0,31	16	1,97	16
2	Alaska Air	0,32	3	26,90	6	2,51	6	0,31	15	3,41	6
3	American Airlines	0,19	13	14,80	15	1,24	13	0,30	18	1,88	17
4	ANA Holdings	0,21	12	15,93	14	1,08	15	0,67	2	2,12	14
5	Cathay Pacific Airways	0,18	15	9,17	18	2,97	4	0,56	3	3,80	4
6	China Eastern Airlines	0,24	7	103,07	1	0,66	19	0,27	20	2,20	12
7	China Southern Air	0,23	9	25,40	8	1,40	11	0,27	19	2,15	13
8	Delta	0,23	8	42,83	2	1,83	10	0,50	4	2,99	9
9	Deutsche Lufthansa	0,34	2	34,47	5	2,21	8	0,47	8	3,37	7
10	EasyJet	0,29	5	26,57	7	0,57	20	0,50	6	1,62	19
11	Hainan Airlines	0,13	19	8,70	19	4,79	1	0,44	10	5,45	1
12	Int. Consolidated Air	0,17	17	11,20	17	4,64	2	0,50	5	5,42	2
13	JetBlue Airways	0,21	11	21,40	12	1,02	16	0,37	13	1,81	18
14	Qantas Airways	0,16	18	13,20	16	1,99	9	0,48	7	2,77	10
15	Ryanair	0,22	10	39,03	3	3,05	3	0,46	9	4,12	3
16	Singapore Airlines	0,18	16	24,93	10	1,11	14	0,71	1	2,24	11
17	Southwest	0,26	6	22,87	11	0,77	17	0,31	17	1,57	20
18	Spirit Airlines	0,52	1	37,83	4	0,77	18	0,38	12	2,05	15
19	Turkish Airways	0,31	4	6,63	20	2,73	5	0,42	11	3,52	5
20	United Continental	0,08	20	24,97	9	2,35	7	0,36	14	3,04	8

Table 7 shows the harmonic index values and ranking for the airlines for 2013. The top three performance companies for 2013 are EasyJet, Alaska Air and Delta. Turkish Airways is ranked as the 11th for 2013. The worst three performance companies for 2013 are listed as China Eastern Airlines, China Southern Air and Air China.

Table 7. Financial Performance by Harmonic Index for the Year 2013

#	Company	Profitability		Operating		Liquidty		Efficiency		HARMONIC	
		Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank
1	Air China	0,16	18	26,97	9	0,75	17	0,28	17	1,46	18
2	Alaska Air	0,36	3	7,87	18	8,91	2	0,34	15	9,69	2
3	American Airlines	0,15	19	18,23	14	1,44	13	0,21	20	1,98	16
4	ANA Holdings	0,21	12	33,60	4	2,50	7	0,65	2	3,70	7
5	Cathay Pacific Airways	0,18	17	24,90	12	1,59	12	0,54	4	2,56	12
6	China Eastern Airlines	0,21	13	29,50	7	-0,16	20	0,25	18	0,60	20
7	China Southern Air	0,19	16	23,70	13	0,33	19	0,24	19	0,99	19

#	Company										
8	Delta	0,83	1	24,97	11	4,91	3	0,45	9	6,44	3
9	Deutsche Lufthansa	0,28	7	36,10	3	1,23	16	0,49	7	2,36	13
10	EasyJet	0,35	4	11,17	17	10,55	1	0,55	3	11,56	1
11	Hainan Airlines	0,12	20	30,60	5	0,70	18	0,47	8	1,59	17
12	Int. Consolidated Air	0,25	9	78,80	1	1,70	11	0,49	6	3,23	9
13	JetBlue Airways	0,23	10	13,57	16	2,15	9	0,39	13	2,90	10
14	Qantas Airways	0,20	14	27,17	8	1,28	14	0,50	5	2,25	14
15	Ryanair	0,23	11	7,80	19	3,21	5	0,45	10	3,96	5
16	Singapore Airlines	0,19	15	43,67	2	2,54	6	0,70	1	3,86	6
17	Southwest	0,29	6	30,37	6	4,55	4	0,33	16	5,46	4
18	Spirit Airlines	0,55	2	7,30	20	2,44	8	0,41	12	3,48	8
19	Turkish Airways	0,26	8	25,10	10	1,90	10	0,42	11	2,83	11
20	United Continental	0,35	5	16,17	15	1,26	15	0,37	14	2,14	15

Table 8 shows the harmonic index values and ranking for the airlines for 2014. The top three performance companies for 2014 are EasyJet, Alaska Air and Southwest. Turkish Airways is ranked as the 13th for 2014. The worst three performance companies for 2014 are listed as Quantas Air, China Eastern Airlines and China Southern Air.

Table 8. Financial Performance by Harmonic Index for the Year 2014

#	Company	Profitability		Operating		Liquidty		Efficiency		HARMONIC	
		Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank
1	Air China	0,16	18	25,40	9	1,00	15	0,29	18	1,70	16
2	Alaska Air	0,37	3	9,07	18	11,76	2	0,35	12	12,57	2
3	American Airlines	0,26	9	14,23	16	2,45	8	0,33	16	3,18	9
4	ANA Holdings	0,20	14	32,70	4	1,80	11	0,56	8	2,89	11
5	Cathay Pacific Airways	0,18	16	24,00	10	1,79	13	0,55	11	2,76	12
6	China Eastern Airlines	0,20	13	32,13	5	0,46	20	0,25	20	1,23	19
7	China Southern Air	0,18	17	23,17	12	0,71	17	0,25	19	1,36	18
8	Delta	0,22	12	23,93	11	0,62	18	0,47	7	1,54	17
9	Deutsche Lufthansa	0,26	10	34,13	3	2,12	10	0,49	17	3,21	8
10	EasyJet	0,37	4	10,53	17	17,73	1	0,58	1	18,78	1
11	Hainan Airlines	0,13	19	30,70	6	0,82	16	0,46	3	1,71	15
12	Int. Consolidated Air	0,32	6	52,57	1	3,97	4	0,52	15	5,33	4
13	JetBlue Airways	0,27	8	15,40	14	2,24	9	0,40	4	3,06	10
14	Qantas Airways	-0,06	20	20,40	13	0,52	19	0,44	13	1,11	20
15	Ryanair	0,23	11	6,93	19	3,27	5	0,49	2	4,06	7
16	Singapore Airlines	0,19	15	44,57	2	3,22	7	0,68	6	4,54	5
17	Southwest	0,32	5	26,03	8	7,63	3	0,34	14	8,54	3
18	Spirit Airlines	0,50	1	6,57	20	3,23	6	0,38	5	4,18	6
19	Turkish Airways	0,31	7	27,80	7	1,72	14	0,43	10	2,73	13
20	United Continental	0,39	2	15,03	15	1,79	12	0,39	9	2,72	14

5.Conclusion

This research investigates the financial performance of the 20 biggest airlines in the world. The paper proposes a harmonic index to construct a unique and a comprehensive base for performance measurement of the airlines companies. The harmonic index includes more financial measurements than considering sole total revenues or net income for ranking by financial performance. Although the largest asset size is belonged to Delta, most revenues are generated by Luftansa, most number of aircrafts are employed by Turkish Airways and most number of employees work for Luftansa, none of these airlines is ranked as one of the top three performers in the period of 2011 and 2014 by harmonic index. The financial performance of airlines influences short and long term company decisions as well as

shapes strategic planning. Hence, a better comprehensive financial performance measurement mey be employed in strategic planning of airlines.

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