

ISMC 2019
15th International Strategic Management Conference

**FINANCIAL BENCHMARKING AS AN AIRLINE
COMPETITIVENESS ASSESSMENT TOOL**

Natalia Kazakova (a), Irina Kuzmina-Merlino (b)*

*Corresponding author

(a) Plekhanov Russian University of Economics, Moscow, Russia, Kazakova.NA@rea.ru,

(b) Transport and Telecommunication Institute, Riga, Latvia, Kuzmina.I@tsi.lv

Abstract

The article discusses the financial benchmarking concept as a tool for strategic marketing analysis, as well as a method for evaluating the financial component of an airline's competitiveness, including the calculation of the forecast probability of bankruptcy based on mathematical statistics and the formation of an integrated assessment. The study proposes a set of financial indicators and the method of their "borderline" values calculating. It is also should be mentioned, that an algorithm for the formation of a rating assessment of the competitive position of the airline has been developed. On the example of the airline "Ural Airlines" the study presents the results of its testing. The proposed method of financial benchmarking is intended for rating airlines. Its advantage is the use of available factual data of public reporting and industry average indicators, the low complexity of the calculations, as well as the possibility of its simple automation. The methodology can be used by the International air transport Association in forming the airline competitiveness rating along with the calculated ratings obtained during benchmarking by international consulting companies.

© 2019 Published by Future Academy www.FutureAcademy.org.uk

Keywords: Financial benchmarking, competitiveness, evaluation, aviation company.



1. Introduction

In contemporary economics any serious company that wants to break out and stay in top positions both on the domestic and international markets should analyze business processes and find functional solutions of successful business representatives in order not to miss the constantly rotating “progress wheel”. In order to do this, companies supposed to work constantly on their image and improve competitiveness by using all possible tools, including benchmarking as well. Benchmarking is a creative approach, which supposes company planning based on competitive analysis. This approach involves comparative analysis of products, services, business processes of an organization with peers from other organizations, as well as calculating and comparing reference values of comparable indicators. There is also an opinion that financial benchmarking is a management technology of intra-industry comparative analysis of company financial management processes.

This article deals with the applying financial benchmarking method (benchmarking based on financial indicators), which provides a comparative analysis of companies’ operating financial indicators in the same sector of the economy.

The purpose of the study is to develop a method of financial benchmarking for rating airlines based on the use of public reporting factual data, industry average indicators and methods of mathematical statistics. The methodology can be used by the International air transport Association (IATA) for the formation of the competitiveness rating of airlines along with the calculated ratings obtained during benchmarking by international consulting companies (Pwc.com, 2019).

During the study, the answers to the following questions were received:

- 1) What is financial benchmarking, and can this tool be useful in assessing the companies’ competitiveness;
- 2) How the analytical tools of financial benchmarking are formed (what indicators can be included in the “package” of financial benchmarking for comparative analysis of companies;
- 3) What is the way of the airline competitive position rating in terms of financial indicators and areas of assessment?

The result of the study is the development of conducting financial benchmarking methods and its approbation on the example of the Russian airline “Ural Airlines”.

2. Literature Review and Theoretical Framework

2.1. The nature of Benchmarking

Management theory and practice have long established a link between effective performance measure and effective management (Drucker, 1995). For performance measurement to have useful information for the users, it’s necessary to make comparison. The comparison evaluates progress in achieving goals or targets, assess trends in performance over time, or weigh the performance of one organization against another (Poister, 2003). Benchmarking is in the area of strategic marketing analysis, which purpose is to identify what others are doing better and to study and improve these methods (Andersen & Pettersen, 1995). After studying of the improved methods, the benchmarking method supposes the usage of the information received as a guide to action or, in other words, to introduce changes and improve the situation in order to achieve higher standards, commonly referred as best

practices. This approach is not an innovation for the majority of enterprises. It is carried out as a part of a competitive analysis, but it is functionally more detailed and streamlined (Zeng, 2018). The method involves the continuous study of the competitors' experience, the selection of effective technologies for doing business and their adaptation in a particular organization. Benchmarking method provides the increasing of the company's competitiveness indicators according to the situation on the financial and economic market (Kazakova, Bolvachev, Gendon, & Golubeva, 2016). The concept of benchmarking method is based on the analysis of the excellence (the desire to be ahead of the competition) and underlies the methodology of collecting and consolidating the information needed by the company to maintain its level of competitiveness, including resource productivity, product quality, work and services level (Kotler & Keller, 2016).

The analysis of excellence is a study of an internal functions, business processes and accumulated experience to identify the best in its market segment, obtain information for self-assessment. This study provides the analysis and identification of shortcomings in operation, as well as self-improvement work. It should be mentioned, that benchmarking method can be conducted on products, works or services, business processes, strategies, financial indicators. There are several types of benchmarking methods today, among which: internal, competitive, functional or industry, common or applicable approaches for any industry (Grant, 2011).

2.2. Financial Benchmarking

The definition of financial benchmarking is to run a financial analysis and compare the findings to other companies in order to evaluate the competitiveness, efficiency and effectiveness of their business activities. Benchmarking is a method of comparing the performance criteria and business activity processes of a company to other companies. Per the APQC (American Productivity & Quality Center), benchmarking is the process of comparing and measuring your organization against others, anywhere in the world, to gain information on philosophies, practices, and measures that will help your organization act to improve its performance (Lu, Wang, Hung, & Lu, 2012). Financial benchmarking involves defining, collecting, analyzing, and using internal and external financial data to improve financial processes, deliver cost efficiencies, and increase productivity (Ajuwon, 2018).

Financial benchmarks are key financial ratios drawn from information provided by businesses through activity statements and tax returns. Benchmarks are updated with new financial-year data on an annual basis. The update ensures benchmarks reflect the performance of businesses over time (Gaikwad, Doan, Bossy, Baude, & Abergel, 2012). Financial benchmarking was used by consulting company Frost & Sullivan in a study of 17 global airline groups and focused on the competitive profiling of these airlines. The 10-years profiling (2008 to 2017) of these airlines and airlines groups includes financial performance, major traffic, capacity metrics, and key strategic highlights (Frost.com, 2018). Financial benchmarking is very useful for developing a long-term corporate strategy, driving growth, improving financial and operational performance and developing strategic partnerships (Rai, 2013).

In our opinion, financial benchmarking is the process of analyzing and comparing of a company's financial performance using special criteria to other companies with aim to evaluate a company's competitiveness, productivity and effectiveness. Financial benchmarking is estimating and producing standard rates for leading financial indicators in the industry. Financial benchmarks standard rates

primarily used for settlement purposes in financial strategies of a company. The authors can name direct and indirect aims of financial benchmarking:

Direct aims:

- Understanding better the financial position of your company in the industry.
- Concentration on the key performance indicators;
- Comparison with others; identification of advantages and issues of the businesses;
- Learning from others based on studying the best experience and practice.

Indirect aims:

- Development of managerial skills;
- Findings innovative ideas from outside the company;
- Setting the standards of the financial and investment activities.

The methods of financial benchmarking can be following:

- 1) Assessment of the financial condition and financial performance of the company on the basis of published financial statements. This information is historical in nature; it helps to identify the main trends and features of the development of the activities of the studied company over a certain period of time. This method helps to examine a company's performance over period of time and to identify the main changes in performance within a case company and to predict its future performance.
- 2) Benchmarking to the industry rates and norms includes comparable analysis of a case company's data with survey data from other companies in the same industry sector or subsector. It's very important for identification of a case company's strengths, weak points, and for measuring related risks.
- 3) Financial ratios analysis. These ratios are calculated as measurement units of various financial and operational performance indicators that evaluate the case company financial status. They are evaluated in terms of their comparison to generally established industry rates or norms expressed as ranges of positive or negative trends for relevant industry sector.

Nevertheless, financial benchmarking method does not solve all the strategic issues of assessing business competitiveness, but it allows to quantify the company's own achievements, to understand the existing imbalances, to determine the reserves for business growth and, which is the most important, the financial benchmarking method can be carried out at relatively low cost using public information.

3. Research Method

The methodology of the conducting financial benchmarking can be summarized in the following order.

3.1. The selection of regulatory or benchmark comparable financial indicators

The algorithm for the formation of the integral assessment (rating) consists of the next steps: selection of the information base for analysis; formation of indicator groups; determination of normative or reference values - evaluation criteria; formation of a rating assessment mechanism based on a comparison of actual and reference values of financial indicators (Linebarger & Hussain, 2018). Aggregated indicators of financial statements are used for the information base for assessing the financial component of

competitiveness, that include large companies' publicity of annual reports conditions. It formats in order to taking into account the International financial reporting standards (IFRS) and mandatory independent audit, which can be a positive factor in the availability and reliability of the information used (Kazakova, 2008). Table 01 presents the scope of financial indicators for comparative analysis; Table 02 shows the algorithm for calculating financial indicators for benchmarking.

Table 01. Scope of financial indicators for comparative analysis

The Balance Sheet		The Income Statement	
Elements	Symbols	Elements	Symbols
Most liquid assets	A1	Sales	S
Quick assets	A2	Cost of Goods Sold	COS
Slow-moving assets, including current assets	A3	Gross Margin	GM
Long-term Assets	A4	Commercial Expenses	CE
Total Assets	TA	Administrative Expenses	AE
Most forward commitments	L1	Profit Margin	PM
Current Liabilities	L2	Operating Profit (Profit before Interest and Taxes)	PBIT
Long-term Liabilities	L3	Profit before Taxes	PBT
Shareholder's Equity	L4	Taxes	T
Total Equity and Liabilities (Total Capital)	TC	Net Profit (Profit after Taxes)	NP

It should be also noted, that there is no officially approved regulatory and methodological framework for determining and calculating company performance indicators. That's why analysts and practitioners offer their own, sometimes significantly different set of coefficients. By using the compilation of the extensive practical experience and the scientific research of scientific analysts this research managed to form a minimum set factors that most fully characterize the financial and economic state of companies. Table 02 presents a set of financial indicators used for comparable analysis.

Table 02. A set of financial indicators used in financial benchmarking

Financial Indicator	Symbols	Formula (Higgins, 2013)
Capital Structure ratios		
Equity to Total Assets	E/TA	Shareholder's Equity / Total Assets
Debt to Equity Ratio	D/E	Debt / Shareholder's Equity
Net Working Capital to Current Assets	NWC/CA	Net Working Capital / Current Assets
Liquidity ratios		
Current Ratio	CL	Current Assets / Current Liabilities
Quick Ratio	QL	(Current Assets – Inventories) / Current Liabilities
Acid Ratio	AL	(Cash + Cash Equivalent) / Current Assets
Operating Performance or Profitability ratios		
Return on Assets	ROA	Net Profit / Assets
Return on Equity	ROE	Net profit / Shareholder's Equity
Return on Sales	ROS	Operating Profit / Sales
Assets Usage ratios		
Ratio of Sales to Current Assets	S/CA	Sales / Current Assets
Ratio of Sales to Fixed Assets	S/LTA	Sales / Long-Term Assets
Rate of Equity turnover	S/E	Sales / Shareholder's Equity

3.2. The definition of standard or reference values of compared financial indicators

To determine the normative values of the selected indicators, this research uses the methods of mathematical statistics (Avrashkov, Grafova, Grafov, & Shakhvatova, 2014). First of all, it is necessary to start the analysis with financial sustainability indicators. The autonomy ratio has a maximum value of 1, which means that the company carries out its business activities and forms assets only on the expense of its own capital. The minimum acceptable value of the indicator is set at 0.5. The average between these values will be the upper limit of the autonomy coefficient value of 0.75. For the subsequent rationing, we will calculate the ratio of current and non-current assets, for which we will use the indicators of the leading airlines in the industry (E-disclosure.ru, 2019), which are presented in Table 03.

3.3. Assessment of the competitive position of the company

The presence of the financial indicators' matrix of normative values allows to recommend the following algorithm for the formation of a rating assessment of a company's competitive position, which includes the following five stages of the assessment:

- 1) the actual values of financial ratios are calculated for each direction of evaluation;
- 2) the actual values of coefficients are compared with normative ones, as a result of which, each indicator gets a corresponding score - "excellent", "good", "satisfactory", "unsatisfactory";
- 3) the quantitative actual assessment of each indicators' group (assessment areas) is calculated as the ratio of the sum of points to the number of indicators of this group;
- 4) the quantitative assessment of each indicators' group (assessment areas) is determined taking into account the significance of each group;
- 5) the rating assessment of the company's competitive position (rating) is formed as a sum of points for all indicators' groups (assessment areas), taking into account the significance of each indicators' group.

Thus, this approach raises the question of the significance of individual groups of indicators in the formation of a rating. In contrast to the equivalent significance of each of the four groups, the variant of their differentiated significance seems preferable, as evidenced by domestic and foreign practice. Thus, in E. Z. Altman's well-known five-factor "Z-accounts" model for predicting the probability of bankruptcy of enterprises, two out of five factors are represented by profitability indicators (Altman, & Hotchkiss, 2005). According to this approach, while assessing the significance of individual groups of indicators, the following can be taken as an indicative option (E-disclosure.ru, 2019):

- liquidity group indicators – 30%;
- capital structure or financial stability group indicators – 15%;
- operating activity or profitability group indicators – 40%;
- assets usage group indicators – 15%.

3.4. The rating assessment of the company's competitive position

The rating assessment of the company's competitive position is based on a summary of the analyzed company's comparative analysis of the financial indicators results, of the comparative analysis of the competing companies' financial indicators in a given sector of the economy for a period of at least three years. At the same time, regulatory ranges for estimating coefficients are formed on the basis of Rosstat's

average statistical data for a period, which exceeds the period of competing companies' comparative analysis (*Russian statistical yearbook*, 2019).

4. Findings

In this part of the paper we tried to apply the proposed method for evaluating the financial component of an airline's competitiveness and to evaluate the probability of the company's bankruptcy using mathematical statistics methods with the formation of an integral assessment. "Ural Airlines" has been selected as the company under investigation.

4.1. The selection of regulatory or benchmark financial indicators

Table 03. Current Assets to Total Assets ratio for the three airlines companies, billion rubles

The companies	Indicators	2012	2013	2014	Total
	Long-term Assets	39 870	41 759	60 583	142 212
PJSC "Aeroflot"	Current Assets, CA	66 941	67 115	85 297	219 353
	CA to Total Assets	0.63	0.62	0.58	0.61
OJSC "Ural Airlines"	Long-term Assets	2 583	2 662	3 187	8 432
	Current Assets, CA	4 141	4 701	7 869	16 710
	CA to Total Assets	0.62	0.64	0.71	0.66
PJSC "UTair Airlines "	Long-term Assets	16 305	7 871	26 115	50 292
	Current Assets, CA	34 145	70 121	58 257	162 523
	CA to Total Assets	0.68	0.90	0.69	0.76
The average value of CA to Total Assets		0.64	0.72	0.66	0.68

The average value of the ratio of long-term and current assets of 0.32 to 0.68 is taken as normal and sufficient for the aviation industry. In order to this statement, the calculated values of the aggregates are respectively:

$$A1 = 0.02 \times 0.68 = 0.01$$

$$A2 = 0.47 \times 0.68 = 0.32$$

$$A3 = 0.52 \times 0.68 = 0.35$$

$$A4 = 0.32$$

On the basis of the calculating algorithm for the coefficient of maneuverability of own working capital (Net Working Capital to Current Assets), we obtain:

$$NWC/CA = \frac{(A1 + A2 + A3) - (L1 + L2)}{L4} = \frac{0.68 - (L1 + L2)}{0.75} = 0.5$$

where 0.5 is the upper limit of the NWC / CA according to the Methodological Recommendations for analyzing the financial and economic activities of organizations.

$$\text{Hence, } L1 + L2 = 0.68 + 0.75 \times 0.5 = 0.08.$$

$$\text{In turn, } L3 = TC - L4 - (L1 + L2) = 1 - 0.75 - 0.08 = 0.17.$$

If we accept that $L1 = L2$, then the structure of balance aggregates will have the values presented in Table 04.

Table 04. Upper bound of balance aggregates

Symbols	A1	A2	A3	A4	TA	L1	L2	L3	L4	TC
Boundaries	0.01	0.32	0.35	0.32	1.00	0.04	0.04	0.17	0.75	1.00

On the basis of the obtained boundaries of the aggregates, it is possible to calculate almost all the boundaries of the selected indicators for company's benchmarking. Table 05 presents the dynamics of the balance sheet profit (line 2) and the return of total assets (line 1) for the period of time 2009-2014 in "Transport and Communications" industry.

Table 05. The calculation of the standard ROA for the type of activity "Transport and Communications"

	Indicator	2009	2010	2011	2012	2013	2014	Average indicator
1.	Return on Assets, ROA, %	5.7	5.3	4.9	5.5	4.4	0.9	4.1
2.	Operating profit, PBIT, billion rubles	315	670	731	878	754	179	3 527
3.	Total Assets, billion rubles	5,522	12,636	14,916	15,969	17,141	19,892	86,076

Thus, the weighted average return on assets for the period is equal to 4.1%. If we take into account the corporate income tax rate which is equal to 20% in Russia, that ROA indicators will be estimated by 3.28% ($ROA, \% = (1 - 0.2) \times 0.041 = 0.0328$, or 3.28%). Based on these data, the estimated weighted average ratio of profitability of total assets is equal to 3.28%; this will be taken as the lowest level of ROA acceptable for airline industry (see Table 06). Data for comparison: according to Airline Industry Financial Strength Information (2018) the industry average value of ROA in the period under review for the airline economic sector in the global context is 3.81%; in 2018 it is estimated as 6.27%.

The same calculation approach was applied to another financial indicators.

4.2. Calculation of standard values of financial indicators

The methodology for the formation of "borderline" values for the evaluation criteria is used in relation to the rest of the benchmarking indicators of the company. As a result of the calculations, we obtain a system of reference values for the boundaries of the assessment in the rating (Table 06).

Table 06. Regulatory values of financial performance of airlines participating in benchmarking

Group NN	Indicator (symbol)	Regulatory (recommended) values			
		Excellent (5)	Good (4)	Acceptable (3)	Non-acceptable (2)
Liquidity					
1	TL	>8.5-6.38	8.5-6.38	6.38-4.25	<4.25
	QL	>4.1-3.08	4.1-3.08	3.08-2.05	<2.05
	AL	>0.14-0.10	0.14-0.10	0.10-0.05	<0.05
Capital structure					
2	D/E	<0.23	0.23-0.28	0.28-0.33	>0.33
	NWC/CA	>0.5-0.35	0.5-0.35	0.35-0.2	<0.2

	E/LTA	>0.75-0.64	0.75-0.64	0.64-0.53	<0.53
Operating Performance or Profitability ratios					
3	ROA	> 0.072	0.0328 – 0.072	0.000 – 0.0328	<= 0.000
	ROE	> 0.082	0.041 – 0.082	0.000 – 0.041	<= 0.000
	ROS	> 0.216	0.108 – 0.216	0.054 – 0.108	<= 0.054
Assets usage ratios					
4	S/CA	>7.5	5.0 – 7.5	2.5 – 5.0	<2.5
	S/DA	>4.5	3.0 – 4.5	1.5 – 3.0	<1.5
	S/E	>6.0	4.0 – 6.0	2.0 – 4.0	<2.0

4.3. Rating of the competitive position of the airline company

Table 07 presents the calculation of the company's rating for three years using the developed methodology.

Table 07. Company rating based on financial benchmarking

Group number	Indicator (symbol)	Score factors in points		
		2012	2013	2014
Liquidity				
1	CL	2	2	2
	QL	2	2	2
	AL	2	3	2
	Group average	2.00	2.30	2.00
	Significance of the group in the overall rating, rel. units	0.30	0.30	0.30
	Evaluation of indicators based on the significance of the group, points	0.60	0.69	0.60
Capital structure				
2	D/E	2	2	2
	NWC/CA	5	5	5
	E/LTA	2	2	2
	Group average	3.00	3.00	3.00
	Significance of the group in the overall rating, rel. units	0.15	0.15	0.15
	Evaluation of indicators based on the significance of the group, points	0.45	0.45	0.45
Operating Performance or Profitability ratios				
3	ROA	3	3	4
	ROE	2	2	4
	ROS	2	2	2
	Group average	2.30	2.30	3.30
	Significance of the group in the overall rating, rel. units	0.40	0.40	0.40
	Evaluation of indicators based on the significance of the group, points	0.92	0.92	1.32
Assets usage ratios				
4	S/CA	3	3	3
	S/LA	5	5	5
	S/E	5	5	5
	Group average	4.30	4.30	4.30
	Significance of the group in the overall rating, rel. units	0.15	0.15	0.15
	Evaluation of indicators based on the significance of the group, point	0.65	0.65	0.65
Rating		2.62	2.71	3.02

5. Conclusion and Discussions

After summarising the obtained results of the calculation, it is possible to conclude that the rating of the competitive position of the considered airline for the period under review is below the satisfactory level estimated at 3 points; moreover, this result is achieved in the last year only.

Despite the positive dynamics of the rating, the management of the air company should pay attention to the problematic indicators. The airline has a substantially high debt level, which stipulates the company dangerous dependence on borrowed funds, thereby increasing the risk of insolvency in the future. This fact reduces the level of business attractiveness for investors. The airline has a relatively high equity turnover, and the return on capital and profitability of services are at the level of industry averages; it demonstrates the demand for aviation services of this company in the Russian air transport market. However, taking into account other financial indicators, it can be argued that the company should pay the most serious attention to improving financial management and financial policy. Otherwise, the company may face risks of competitiveness loss and the possibility of bankruptcy.

Therefore, the method of assessing the financial component of airlines competitiveness, offered by the authors and supplemented by the forecast calculation of the probability of bankruptcy, is aimed at computing the integrated financial assessment of the competitive position of the air company; it can also serve as a tool for benchmarking the financial performance of any airline. The proposed method of financial benchmarking allows quantitative estimation of the company achievements based on the publicly available information, to identify the possible imbalances and reserves for improving competitiveness and business development. The low complexity of calculations becomes an important advantage of the considered method of financial benchmarking; other advantages are its simple automation and availability of information base.

References

- Airline Industry Financial Strength Information (2019, March 13) Retrieved from https://csimarket.com/Industry/industry_ManagementEffectiveness.php?ind=1102
- Ajuwon, L. (2018, October 16). An Introduction to Financial Benchmarking in Biopharma Clinical Development. Retrieved from <https://www.clinicalleader.com/doc/an-introduction-to-financial-benchmarking-in-biopharma-clinical-development-0001>
- Altman, E. I., & Hotchkiss, E. (2005). *Corporate financial and bankruptcy: predict and avoid bankruptcy, analyze and invest in distressed debt*, 3rd ed., N.Y.: Wiley & Sons Inc.
- Andersen, B., & Pettersen, P. G. (1995). *Benchmarking Handbook*. London, UK: Chapman and Hall.
- Avrashkov, L., Ya. Grafova, G. F., Grafov, A. V., & Shakhvatova, S. A. (2014). *Economics of organizations*. Moscow.
- Drucker, P. F. (1995). *Managing in a Time of Great Change*. New York, N.Y.: Penguin Putnam, Inc.
- E-disclosure.ru (2019, February 13). Corporate information disclosure center, *Financial reports of case companies: PJSC Aeroflot, PJSC "UTair Aviation", Ural Airline*. Retrieved from <http://www.e-disclosure.ru/#>
- Frost.com (2018, December 19) *Global Airline Benchmarking*. Industry Experiencing an Extended Period of Growth and Profitability with Relatively Inexpensive Fuel Costs. Retrieved from <http://frost.com/sublib/display-report.do?id=9AB0-00-55-00-00>.
- Gaikwad, A., Doan, V., Bossy, M., Baude, F., & Abergel, F. (2012). SuperQuant Financial Benchmark Suite for Performance Analysis of Grid Middlewares. In *Modeling, Simulation and Optimization of Complex Processes* (pp. 103-113). Springer, Berlin, Heidelberg.
- Grant, R. M. (2011). *Modern Strategic Analysis*. 5th ed. Series: MBA Classics: Leader.

- Higgins, R. C. (2013). *Analysis for Financial Management*, McGraw-Hill, Irwin.
- Kazakova, N. A., Bolvachev, A. I., Gendon, A. L., & Golubeva, G. F. (2016). Monitoring economic security in the region based on indicators of sustainable development. *Studies on Russian Economic Development*, 27(6), 638-648.
- Kazakova, N. (2008). Comprehensive assessment of the company based on the matrix economic model of the business. M., S-Pb.: *Scientific works of the Free Economic Society of Russia*, 103, 157-163.
- Kotler F., & Keller, K. L. (2016). *Marketing. Management*. 15th Edition, Pearson Education Limited.
- Linebarger, R. S., & Hussain, A. (2018). 2018 *Global aerospace and defense industry financial performance study*. Deloitte.
- Lu, W. M., Wang, W. K., Hung, S. W., & Lu, E. T. (2012). The effects of corporate governance on airline performance: Production and marketing efficiency perspectives. *Transportation Research Part E: Logistics and Transportation Review*, 48(2), 529-544.
- Poister, T. H. (2003). *Measuring Performance in Public and Nonprofit Organizations*. San Francisco, California: Jossey-Bass.
- Pwc.com (2019, March 21). Finance Effectiveness Benchmarking: Analyze cost and performance metrics against leading companies. *Finance Effectiveness Benchmark Report 2017*. Retrieved from <https://www.pwc.com/us/en/services/consulting/finance/library/finance-effectiveness-benchmark-study.html>
- Rai, A. (2013). Measurement of efficiency in the airline industry using data envelopment analysis. *Investment Management and Financial Innovations*, 10(1), 38-45.
- Russian statistical yearbook. (2019, February, 15). Retrieved from http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog
- Zeng, M. (2018). *Smart Business: What Alibaba's Success Reveals about the Future of Strategy*, Harvard Business Review Press.