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TRIPLE BOTTOM LINE AND CORPORATE SOCIAL RESPONSIBILITY PERFORMANCE INDICATORS FOR RUSSIAN COMPANIES

Igor Varyash ^{1*}, Alexey Mikhaylov ², Nikita Moiseev ³, Kirill Aleshin ⁴

¹Financial Research Institute of Ministry of Finance of the Russian Federation, Nastasyinsky Lane, 3, 2, 127006, Moscow, Russian Federation

²Financial University under the Government of the Russian Federation, Leningradsky Ave, 49, 125167, Moscow, Russian Federation

³Plekhanov Russian University of Economics, Stremyanny Lane 36, 117997, Moscow, Russian Federation

⁴Institute for African Studies, Russian Academy of Sciences, 123001, Spiridonovka str., 30/1, Moscow, Russian Federation

E-mail: * igor.varyash@ya.ru (corresponding author)

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Abstract. This article analyses the relationship between Triple Bottom Line (TBL) and Corporate Social Responsibility (CSR) performance indicators: EBITDA, Emissions Score, Resource Use Score, Environmental, Social and Governance (ESG) Score, Environmental Innovation Score, Product Responsibility Score, CSR Strategy Score, Management Score, Shareholders Score. The paper develops the 3-overlapping-circles sustainability model in the context of CSR performance indicators. The data in this study represents scores of 34 major Russian companies, which operate domestically and abroad, in particular, in developing regions like Africa. The mathematical methods like regression has approved the link between environmental innovations and ESG level. It is the first empirical research using this approach for analysis of CSR performance indicators in Russia, because the same data was unavailable before. The paper suggests that environmental innovations and ESG level is linked to Russian largest companies. If business is stimulated towards environmental innovations and R&D. It gives more projects and make the ESG level higher. Paper proposes the concept of TBL in Russian companies for increasing level of ESG and business performance (EBITDA). Understanding how 3-overlapping-circles model implementation can improve CSR performance indicators is a significant question. In addition, we analyzed regression of CSR performance indicators in 2018 year for Russian large companies to find the optimal solution.

Keywords: score analysis; ESG; sustainability; innovations; management level; Russia; Africa

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JEL Classification: M13, O31, G11, G23

1. Introduction

Expansion of production and development of new technologies has allowed large companies to operate in global markets. For instance, the business cooperation between the EU and its TNCs with African partners is developing gradually (Aleshin, 2018; Gjølberg, 2009; Blowfield, 2005).

The paper looks through 4 main hypothesizes:

1. The link between CSR and level of product responsibility;
2. The link between environment, social and corporate governance level and emissions;
3. The link between environmental innovations and environment, social and corporate governance level;
4. The link between environment, social and corporate governance level and management quality.

The aim of the article is to identify the relationship of sustainable development and social and ethical marketing. To analyse the practice of applying this concept in marketing activities of modern large business. The first part of the work reveals the essence and content of social and ethical marketing, the second part is devoted to the consideration of the concept of sustainable development as the basis of a strategy for belt companies. The final part of the article contains an analysis of the main tools of implementation for this approach and the practice of their application (Vlachos et al., 2009; Aguinis and Glavas, 2012).

2. Literature review

Management and entrepreneurship research continues to engage in important discussions about what is triple bottom line and corporate social responsibility recuperated (Blowfield, 2005; Gjølberg, 2009; Kim et al., 2012; Sen and Bhattacharya, 2001; Galbreath, 2010; Wildes, 2008; Jones, 2003; Moore, 2003).

Surveys are recognized as an effective source of alternative information on the behavior of the economic system at short-term time intervals, for example, in public transportation (Chiabaut and Barcet, 2019; Nguyen et al., 2019; Bešinović and Goverde, 2019; Enayatollahi et al., 2019; Mohri and Akbarzadeh, 2019; Sun and Aplan, 2019; Jevinger and Persson, 2019; Czioska et al., 2019; Heyken Soares et al, 2019; Habib and Hasnine, 2019; Malucelli and Tresoldi, 2019; Downward et al., 2019; Candelieri et al., 2019).

In general, an advantage over the capabilities of traditional statistics is a more rapid identification of changes in business trends based on an analysis of the judgments and expectations of business entities regarding various aspects of their activities, including those that are not the objects of statistical observation (Sadler and Lloyd, 2009; Shamir, 2004; Carroll, 1979, 1991, 1999; Bowen, 1953; Friedman, 1970; Donaldson and Preston, 1995; Van Beurden and Gössling, 2008; Lindgreen and Swaen, 2010).

In international practice, based on surveys of corporate leaders, an index of entrepreneurial confidence, an index of economic sentiment and an index of the business climate are calculated, which characterize generalized ideas about expected entrepreneurial behavior in the economy (Devinney, 2009; Lee, 2008; Noland and Phillips, 2010; Nicolau (2009); Devinney (2009); Nikolaou et al., 2013; Owen, 2005; Godfrey, 2005; Sadler and Lloyd, 2009; Scherer and Palazzo, 2011; Brammer et al., 2012; Wood, 1991).

Such an approach is demonstrated by the companies from all over the world and Russian business is among them. The conglomerates like Rusal introduce various socially oriented programs domestically and abroad, particularly, in Africa (Aleshin, 2019; Van Marrewijk, 2003).

The development of the processes described above has led to the beginning of social and environmental goals (Vaaland et al., 2008; Siu et al. 2014; Leat, 2006; Luo and Bhattacharya, 2006; McWilliams and Siegel, 2000).

The main concept of the environmental protection was observed in details in 1972, Stockholm, at the UN Conference, as the United Nations Environment Program (UNEP). Since ecological ill-being and the development of civilization cannot be considered separately (Jones et al., 2006; Godfrey et al., 2009; Fleming and Jones, 2012; Dibb et al., 2005; Carter and Jennings, 2004; Dawkins and Ngunjiri, 2008; Carroll and Shabana, 2010; Brown and Dacin, 1997; McWilliams and Siegel, 2000; Parguel et al., 2011; Podnar and Golob, 2007; Meynkhart, 2019a; Lopatin, 2019a; Denisova et al., 2019; Mikhaylov, 2018; Mikhaylov, 2015).

3. Methods

In the paper we use data about 34 Russian Large Capital Companies from official sites for 2018 year: EBITDA, Emissions Score, Resource Use Score, environment, social and corporate governance Score, Environmental Innovation Score, Product Responsibility Score, CSR Strategy Score, Management Score and Shareholders Score (Table 1).

Table 1. Russian companies that published non-financial reports in 2018

Company Name	EBITDA (FY0, Mln. USD)	Emissions Score (FY0)	Resource Use Score (FY0)	environment, social and corporate governance Score (FY0)	Environmental Innovation Score (FY0)	Product Responsibility Score (FY0)	CSR Strategy Score (FY0)	Management Score (FY0)	Shareholders Score (FY0)
NK Lukoil PAO	16 128,60	85,39	98,15	83,79	79,63	97,33	50,00	86,76	42,65
NK Rosneft' PAO	27 827,21	96,09	89,09	80,41	39,92	81,69	98,53	89,71	89,71
AFK Sistema PAO	3 820,32	57,27	60,91	72,93	64,55	96,36	79,41	95,59	25,00
Severstal' PAO	3 071,00	84,22	81,41	70,82	41,72	68,91	79,41	66,18	83,82
Gazprom Neft' PAO	9 072,80	56,48	95,34	68,98	79,96	50,61	79,41	69,12	80,88
Bank VTB PAO	4 685,71	69,16	67,23	68,75	84,38	94,28	92,65	39,71	67,65
Sberbank Rossii PAO	18 811,71	25,20	70,61	65,33	72,14	71,10	60,29	63,24	95,59
Novolipetsk Steel PAO	3 590,00	57,97	98,28	61,80	41,72	15,00	64,71	57,35	61,76
Novatek PAO	3 726,19	67,41	62,55	59,66	0,61	50,61	26,47	80,88	27,94
Transneft' PAO	6 318,37	97,97	84,15	59,22	36,99	4,47	48,53	51,47	98,53
Gruppa LSR PAO	392,81	83,70	64,57	58,45	96,30	17,17	48,53	25,00	77,94
GMKNN	5 590,70	67,03	55,78	57,51	41,72	93,13	79,41	33,82	36,76
Gazprom PAO	38 501,92	64,98	74,70	56,90	79,55	82,19	57,35	1,47	45,59
Mobil'nye Telesistemy PAO	3 169,02	42,02	53,68	56,74	21,17	54,60	36,76	98,53	19,12

Magnitogorskiy Metallurgicheskiy Kombinat PAO	2 395,00	71,09	53,28	51,94	1,72	31,09	64,71	83,82	22,06
Tatneft' PAO	4 563,71	56,07	76,72	51,01	40,28	91,90	36,76	19,12	36,76
Inter RAO EES PAO	1 631,59	29,22	65,36	49,60	74,70	9,04	26,47	48,53	54,41
Rostelekom PAO	1 344,73	24,06	30,94	48,33	61,56	25,00	35,29	95,59	75,00
Trubnaya Metallurgicheskaya Kompaniya PAO	678,13	51,72	46,09	46,75	41,72	80,94	16,18	75,00	1,47
FSK YeES PAO	1 977,60	59,94	55,12	46,44	9,64	20,18	48,53	72,06	7,35
AK Alrosa PAO	2 342,16	58,91	72,34	45,67	41,72	15,00	48,53	16,18	72,06
Rossiyskiye Seti PAO	4 029,66	53,77	48,74	45,61	13,84	21,07	73,53	51,47	83,82
Polyus PAO	1 767,58	44,53	57,66	44,01	41,72	15,00	79,41	27,94	16,18
Mechel PAO	1 051,82	16,10	33,59	42,85	41,41	81,90	2,94	80,88	54,41
Vozrozhdenie Bank	-92,38	44,85	61,92	42,55	65,06	4,67	16,18	10,29	92,65
Uralkaliy PAO	1 336,54	43,92	52,76	42,49	4,70	3,87	73,53	54,41	95,59
Moskovskaya Birzha	394,49	20,05	47,28	42,19	27,48	9,41	10,29	48,53	60,29
PhosAgro PAO	1 088,42	8,01	48,34	38,96	9,12	9,39	95,59	30,88	11,76
Yunipro PAO	392,82	21,99	51,51	38,74	9,64	38,55	30,88	42,65	4,41
Surgutneftegaz PAO	7 278,90	67,81	59,72	38,70	40,28	12,55	16,18	36,76	42,65
MegaFon PAO	1 868,67	1,53	38,34	36,56	21,17	54,60	36,76	22,06	50,00
RusHydro PAO	1 651,65	41,82	50,00	33,71	41,82	9,43	52,94	1,47	7,35
Raspadsкая PAO	590,00	32,89	19,74	19,56	35,53	19,74	7,35	7,35	22,06
Magnit PAO	1 265,38	2,72	11,96	19,20	28,80	7,07	2,94	13,24	36,76

Source: Author calculation, Matlab.

Non-financial reports have been constantly growing (Lopatin, 2019b). Minimization of regression results is in set of normal equations, which is solved by coefficients of estimators (Podnar and Golob, 2007).

$$SSR = \sum_{i=1}^n e_i^2. \tag{1}$$

We use the simple regression. The equilibrium for the least squares estimates are:

$$\hat{\beta}_1 = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sum(x_i - \bar{x})^2} \tag{2}$$

where \bar{x} is the average of the x values and \bar{y}

is the average of the y values.

We make the assumption that the population error term has a constant variance, the estimate of the variance is:

$$\hat{\sigma}_\varepsilon^2 = \frac{SSR}{n - 2}. \quad (3)$$

The formula of standard errors is below:

$$\hat{\sigma}_{\beta_1} = \hat{\sigma}_\varepsilon \sqrt{\frac{1}{\sum(x_i - \bar{x})^2}} \quad (4)$$

$$\hat{\sigma}_{\beta_0} = \hat{\sigma}_\varepsilon \sqrt{\frac{1}{n} + \frac{\bar{x}^2}{\sum(x_i - \bar{x})^2}} = \hat{\sigma}_{\beta_1} \sqrt{\frac{\sum x_i^2}{n}}. \quad (5)$$

The environment, social and government results of large corporations in Western Europe date back to the 1970s. By this time the importance of the three components of the organization's activities was established (Meynkhard, 2019b; Nyangarika et al., 2018).

In 1993, The Institute of Social and Ethical Accountability and United Nations Environmental Program - UNEP adopted the document "Corporate Environmental Reporting: measuring the progress of business and industry towards sustainable development, guidance on environmental reporting (Nyangarika et al., 2019a), in which life needs are achieved for the current generation without depriving such an opportunity for future (Meynkhard, 2020).

The most important document in this area is the UN Global Compact. It included largest national enterprises such as Rosneft, Rusal, Lukoil, AFK Sistema, Russian Railways (Nyangarika et al., 2019b).

4. Results

4.1. CSR and Product Responsibility

The hypothesis 1 is not confirmed, CC and R² are less than 0,60 (Table 2-3).

Table 2. Regression parameters of CSR Strategy Score and Product Responsibility Score

Correlation Coefficient	0,147312553
R ²	0,021700988
Normalized R ²	-0,005473984
Standard Error	28,68015671
N	38

Source: Author calculation, Matlab.

Table 3. Regression summary of CSR Strategy Score and Product Responsibility Score

Parameter	df	SS	MS	F
Regression	1	656,8609	656,8609	0,798565
Balance	36	29611,85	822,5514	
Total	37	30268,71		

Source: Author calculation, Matlab.

It leads to a deterioration in its economic situation, since partners and clients of the company prefer to work with firms whose policies are known and complies with accepted business conduct rules (Fig. 1).

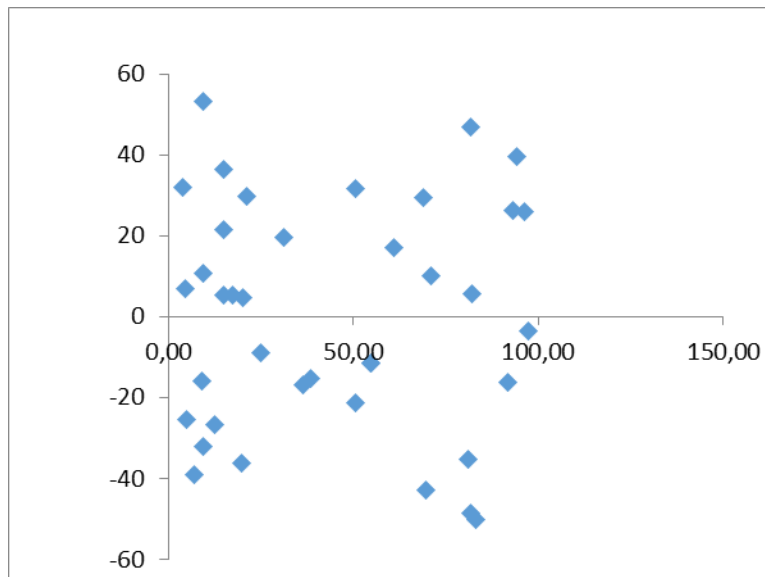


Figure 1. Regression of CSR Strategy Score and Product Responsibility Score

Source: Author calculation, Matlab.

4.2. Environment, social and corporate governance and Emission

The hypothesis 2 is confirmed, CC is 0,699204155, R² is 0,488886451. If CC is higher than 0,6, it is assumed that the approximation accuracy is sufficient but the model can be improved by introduction of new independent variables, taking into account nonlinearities (Table 4-5).

Table 4. Regression parameters of environment, social and corporate governance Score and Emission Score

Correlation Coefficient	0,699204155
R ²	0,488886451
Normalized R ²	0,472914152
Standard Error	18,63218104
N	33

Source: Author calculation, Matlab.

Table 5. Regression summary of environment, social and corporate governance Score and Emission Score

Parameter	df	SS	MS	F
Regression	1	10625,95509	10625,95509	30,60839697
Balance	32	11109,06145	347,1581704	
Total	33	21735,01654		

Source: Author calculation, Matlab.

There is a link between emissions to nature and environment, social and corporate governance level in Russian companies (Fig. 2).

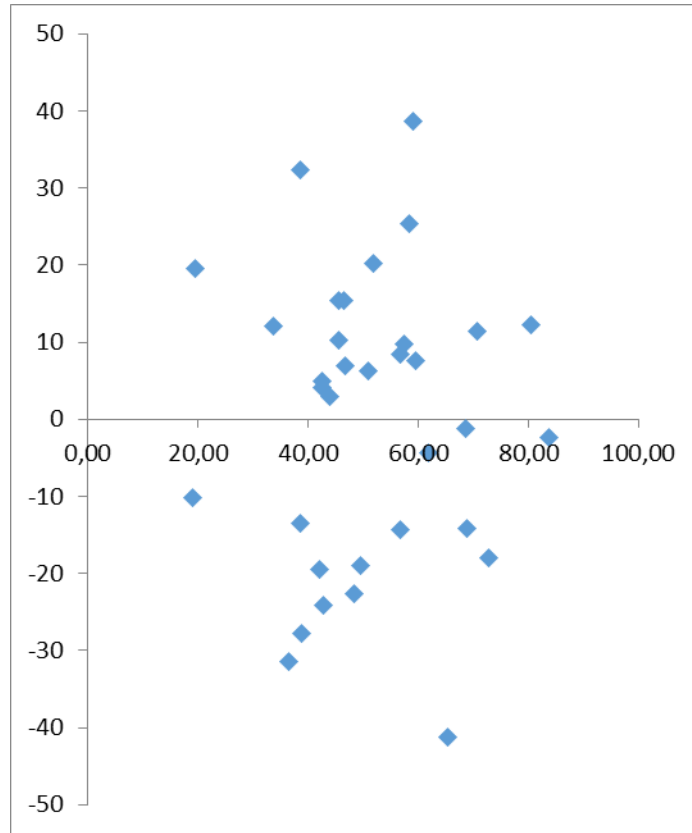


Figure 2. Regression of environment, social and corporate governance Score and Emission Score

Source: Author calculation, Matlab

4.3. Environment, social and corporate governance and Environment

The hypothesis 3 is confirmed well, CC is 0,8, R^2 is 0,488886451. If the R-square lies in the range from 0.8 to 0.95, it confirms a satisfactory approximation (the model as a whole fits adequately to the described phenomenon) (Table 6-7).

Table 6. Regression parameters of Environmental Innovation Score and environment, social and corporate governance Score

Correlation Coefficient	0,807471425
R^2	0,652010103
Normalized R^2	0,641135419
Standard Error	12,27079133
N	34

Source: Author calculation, Matlab.

Parameter	df	SS	MS	F
Regression	1	9027,818292	9027,818292	59,95669262
Balance	32	4818,314232	150,5723198	
Total	33	13846,13252		

Table 7. Regression summary of Environmental Innovation Score and environment, social and corporate governance Score

Parameter	df	SS	MS	F
Regression	1	9027,818292	9027,818292	59,95669262
Balance	32	4818,314232	150,5723198	
Total	33	13846,13252		

Source: Author calculation, Matlab.

In Russian companies we found the link between environment and environment, social and corporate governance level (Fig. 3).

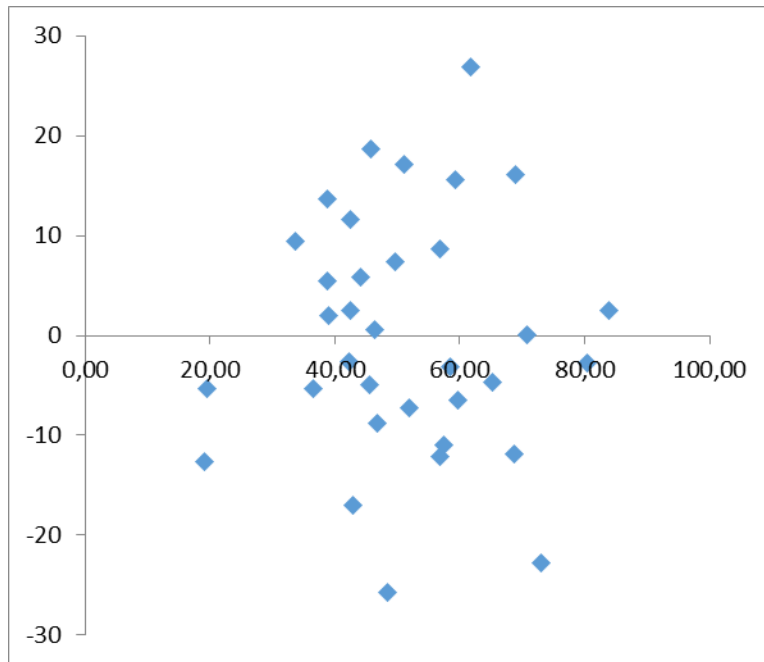


Figure 3. Regression of Environmental Innovation Score and environment, social and corporate governance Score

Source: Author calculation, Matlab.

4.4. Environment, social and corporate governance and Management

The National register of non-financial reports of Russian companies was created in 2002. At the beginning of 2018, 166 reports of organizations were registered, but only 34 reports are available in official sites. In table 8-9 there are regression parameters and summary, which reflect the link of environment, social and corporate governance and Management in Russia.

The hypothesis 4 is not confirmed at all (Table 8-9).

Table 8. Regression parameters of Management Score and environment, social and corporate governance Score

Correlation Coefficient	0,573707121
R ²	0,329139861
Normalized R ²	0,308175481
Standard Error	12,51824384
N	34

Source: Author calculation, Matlab.

Table 9. Regression summary of Management Score and environment, social and corporate governance Score

Parameter	Df	SS	MS	F
Regression	1	2460,28424	2460,28424	15,6999573
Balance	32	5014,60572	156,7064288	
Total	33	7474,88996		

Source: Author calculation, Matlab.

In Russian companies there is no link between management quality and environment, social and corporate governance level (Fig. 4).

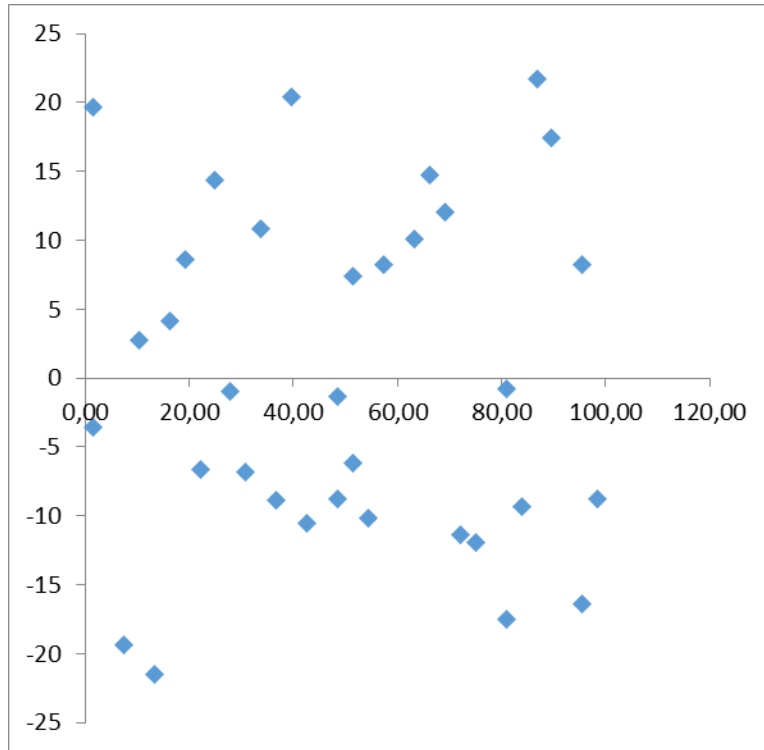


Figure 4. Regression of Management Score and environment, social and corporate governance Score

Source: Author calculation, Matlab

The impact of social responsibility on the economic situation of organizations can be considered as the leading indicator of employment. Purchasing Managers Index (PMI) data are compiled by IHS Markit for more than 40 economies worldwide.

The strength of the global economy and future demand depend on manufacturers. Expectations of employment in the mining industry are at a high level, expectations in the manufacturing industry are not declining, expectations in the construction and services sectors have risen sharply.

5. Conclusion

The paper found that environmental innovations and environment, social and corporate governance level is linked to the largest Russian companies. If business is stimulated to focus on environmental innovations and R&D, it gives more projects and makes the environment, social and corporate governance level higher (Lisin, 2020a; Lisin, 2020b).

Paper proposes the implementation the concept of TBL in Russian companies for increasing level of environment, social and corporate governance and business performance (EBITDA) (Lopatin, 2020). Along with its home

country, Russian business aims to implement these standards in various geographies, for instance, in Africa, where it promotes best practices, especially in public transport sector (Aleshin, 2019; Szlosarek et al., 2019; Covic and Voss, 2019; Dorantes-Argandar et al., 2019; Iliopoulou et al., 2019; Huang et al., 2019; Hadiuzzaman et al., 2019; Jasti et al., 2019).

6. Contribution to the Body of knowledge

This research makes at least three important contributions to the body of knowledge. The first contribution is the using of regression method to optimize environmental innovations and environment, social and corporate governance level. The second contribution is, through empirical test, making a mediating role to empirically prove that the implementation the concept of TBL in Russian companies for increasing level of environment, social and corporate governance and business performance (EBITDA). Third, environmental innovations and environment, social and corporate governance level is linked for the largest Russian companies in this study serve to be the mediating variable.

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Igor VARYASH is Head of the Analytical Center of Financial Research in Financial Research Institute of Ministry of Finance of the Russian Federation. He defended Ph.D in 1980 at Moscow State University. In 2000, he defended his doctoral dissertation at the Institute of Social and Economic Population Problems of the Russian Academy of Sciences on designing a system of leading financial and economic indicators. Research interests: macroeconomics, sociology, mega-regulation. He is conducting fundamental, applied and socio-economic studies.

ORCID ID: <https://orcid.org/0000-0002-4816-8086>

Alexey MIKHAYLOV received a Ph.D. grade in Economics in the field of Finance from Institute of Economics, Russian Academy of Sciences, Russia (2013), and a Diploma in Economics from Financial University under the Government of the Russian Federation (2009). He holds a position of assistant professor of Financial Markets and Banks Department in Financial University under the Government of the Russian Federation, Russia. He is an author of 15 scientific publications and conference papers indexed in SCOPUS and Web of Science, author of more than 40 scientific publications indexed in relevant scientific databases and author of 8 scientific monographs. He also became Deputy Director of Monetary Relations Research Center (2019) and Head of laboratory of Financial markets department (2017) in Financial University under the Government of the Russian Federation. Membership: ACI Russia.

ORCID ID: <https://orcid.org/0000-0003-2478-0307>

Nikita MOISEEV is Ph.D. in Economics and an associate professor at Plekhanov Russian University of Economics. Main scientific interests are forecasting time series of socio-economic processes; macro-level modeling; multi-factor regression analysis; Bayesian econometrics; econometric modeling; machine learning. He developed a system for numerical evaluation of economic projects based on cross-industry balance using combined methods of computer optimization. He was awarded the diploma of the European Scientific and Industrial Chamber "Di Merito" #000445 by the order of 01.11.2016.

ORCID ID: <https://orcid.org/0000-0002-5632-0404>

Kirill ALESHIN is Ph.D. in Economics, a member of the Directorate as well as Academic Council of the Institute for African Studies, Russian Academy of Sciences (RAS). He is also a group head and senior research fellow at the Centre for global and strategic studies of the same institution. Prior to obtaining his Ph.D., he graduated from MGIMO University, Russia, and University of St. Gallen, Switzerland. The scope of scientific interests: national economies and international economic relations of the African and CIS states; strategic interests of Russia and other countries in Africa; the interaction of business and state on the international arena.

ORCID ID: <https://orcid.org/0000-0002-2749-1044>

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