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Management of the Energy Business in the Countries with Developing Economies in the Conditions of the Integration Processes

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ABSTRACT

The present article describes the problems, which are connected with consequences of the ever-increasing influence of the world integration processes upon the national economies in the sphere of energy business. At the global level, this influence is evident as the dependency of governmental budgets of the oil and gas sector from commercial interests of the international corporations, which are owners of the production enterprises in the countries with developing economies. Moreover, it creates new vectors and trends of development both for entire industry and for power markets particularly. Goal of this article is to test this hypothesis on the basis of the corporate structured approach with the help of statistical and financial methods and instruments. Another goal of this article is to determine degree of influence of corporations upon national economies of developing countries in the power-generating sector. As the result, we have succeeded in improvement of the limited risk distributor, which is the model of the corporate business management. This model is topical one and it is applicable for any energy companies within corporate entities (holdings and groups of companies) in the countries with developing economies.

Keywords: Energy Business, Emerging Markets, Corporations, Limited Risk Distributor Management Business Model

JEL Classifications: F23, F36, G34, O13

1. INTRODUCTION

In the recent years, there is the trend of accelerated development of emerging markets, which become the most powerful driver of the global growth of the world economy (Deloitte.com, 2019). In principle, it can be explained by the fact that large transnational corporations of developed countries absorb industrial sector of the more weak developing economies. In addition, the prevailing part of natural resources is situated in the countries with developing economies, and these countries are becoming more and more diversified, and very attractive for external investments (IEA, 2019; Unctad.org, 2019).

Majority of the analysts and leaders of the international business, who have been taken part in the World Economic Forum in Davos during 2017-2019, stress the growing role and influence of developing economies (such as China, Russia, Central Asian countries, India, and Brazil) (Davos, 2019; Forbes, 2019). Therefore, for example, in the course of the housing crisis in the USA and 2008 credit crisis, the world markets were saved from the total catastrophe due to large emerging markets (for the most part, markets of Brazil, India, and China). Beginning from 2014, balance of payments of the emerging markets (primarily markets of China and Russia) looks much better than balance of payments in the countries with developed economies, particularly,

in the USA (Lanjudkar, 2018; World Bank, 2018; Macrotrends.net, 2019). Growth of the emerging markets is also dependent on the influence of the youthful population predominance in the total structure of population of working age in contrast to the situation in developed countries (primarily in the USA and in the Western European countries). It is also essential to recall that the major part of the world reserves and resources is situated in the countries with developing economies (although there are certain exceptions, such as Australia, Canada, and Norway). Therefore, for example, if one would pay its attention to the energy sector of the world economy, Russia is often called the “Wild East” of the large emerging markets. Although Russia is not always the favourite country for investors, this country is often used in the course of “games” of the world competition in respect of oil-and-gas. Russia is the world’s leading manufacturer and exporter of the natural gas. This country is the eighth-largest owner of the world’s oil reserves (Review of the Russian Electric Power Industry, 2017; Oil and Gas Global Industry Guide, 2018; Davos, 2019; Refinitiv Perspectives, 2019; Forbes, 2019).

Many researchers, who are engaged in analysis of influence of the corporatisation upon the energy business, emphasize that corporate management exerts fundamental influence upon the company valuation, particularly in the oil and gas sector. In order to increase value of shares in a company, it is necessary to ensure proper and flexible corporate risk management policy, which is to be based on application of hedging instruments. As an example, researchers indicate to the fact that political risks, as well as economic and political sanctions have exerted negative influence upon the size of price in respect of the shares of the Russian gas. However, they also state that namely consequences of the failed strategies in risk management at the level of the relevant company have become the main factors of this discount/fall of share prices. In addition, they state that low level of protection of shareholder rights (it is a usual phenomenon, which is inherent to many Russian oil and gas companies, including Gazprom) is one of the main problems in this business sector in Russia. This problem becomes more acute one, if a large oil and gas company operates in the strategic sector of economy and if government is the majority shareholder in this company. In this case, government can control total amount of taxes to be paid by this company in order to improve budget of the government sector of economy. This fact can also be one of the main reasons of the lower valuation of Gazprom as compared with private oil and gas companies (Fuller et al., 2002; Dayanandan and Donker, 2011; Althaqeb, 2017).

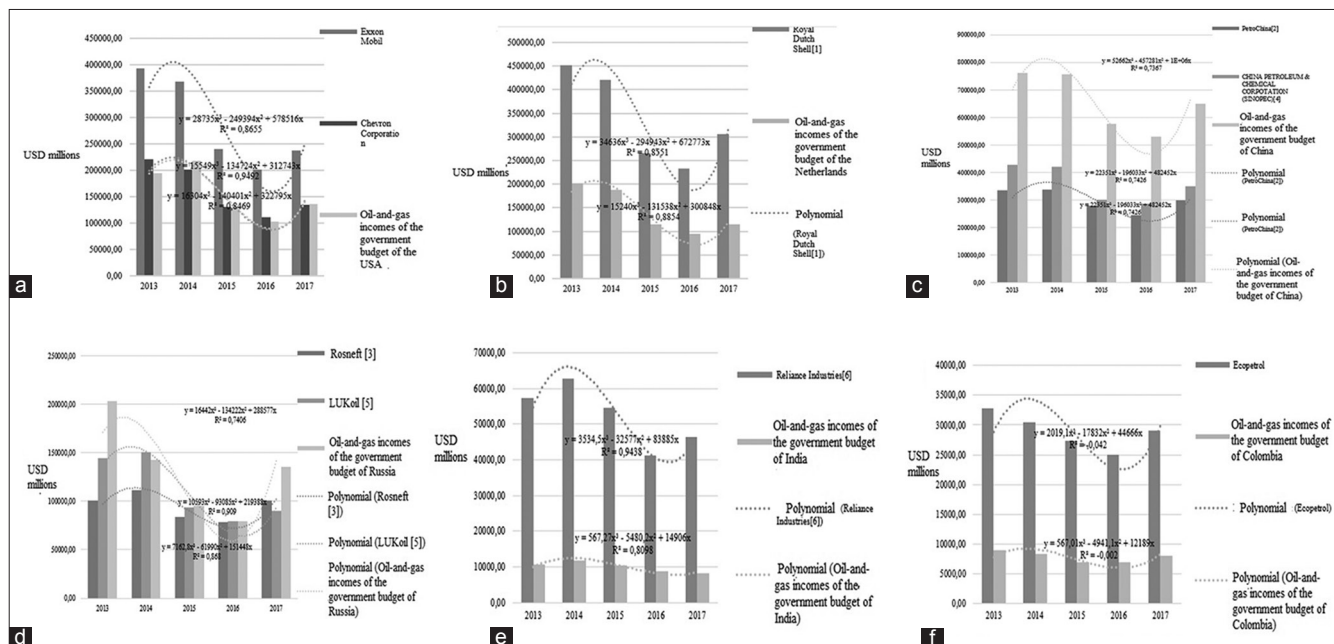
In the course of development of the profit-maximisation strategies in the corporate sector of power industry, it is necessary to take into account such important aspect, as the corporate social responsibility. This means that in those regions, within which enterprises of the fuel and energy sector are situated, a certain share of the financial resources, which were redistributed to the benefit of management companies of various holdings, must be returned back to these regions as unprofitable investments, for example, with the following purposes: Environmental improvement in the cities and towns; creation of new jobs for population; implementation of various social projects and initiatives (Tan et al., 2018).

However, it is essential to recall that (in spite of the geographic distribution of the large volume of natural resources, for example, as concerns the energy business (geographic distribution of gas and oil resources within the countries with developing economies [Russia, countries of the Middle East, Colombia, Uruguay, India etc.]), as well as taking into account the integrative nature of the world economy), nevertheless, the transnational business structures are, in fact, owners of these gas and oil resources, while central offices of these business structures are situated in developed countries (such as the USA, Canada, the Netherlands, Japan, etc.) (Figure 1). They only consider the assets, which are engaged in the oil-and-gas extraction and processing, as the cost centres. Therefore, they apply such business management models, which make it possible to shift the essential part of the profit, which was earned by the productive assets of the countries with developing economies, to the management companies, that is to their central offices, which are situated in and officially registered with developed countries (EY–Power–Russia, 2017; IEA, 2019).

Recently, corporations implement the so-called limited risk distributor (LRD)-models in order to increase efficiency of management of the assets, which are engaged in the oil-and-gas extraction and processing in the countries with developing economies, as well as in order to maximise total consolidated profits. These models ensure structuring the export-import operations of corporations in respect of the purchase and sale of goods and services (provided that such operations are transacted between the assets of the same group of companies through establishment of restrictions for distributors in respect of their business functions and risks), as well as in respect of the degree of assets implementation against each other (Lazard Asset Management, 2018). Application of this model makes it possible to maximise the corporate profit, as well as to decrease the risks of transfer of goods/services. However, there also exist negative consequences and this fact the following possibilities for corporations: They may decrease the fair amount of the profit, which is obtained by the integrated enterprises of the countries with developing economies in an artificial way. This fact, in its turn, influences upon the capability of the government budgets of the countries with developing economies to obtain the essential share of the corporate income tax. In the most cases, the tax legislation, which would properly protect budget from of such consequences, does not function in the countries with developing economies up to now (Apolonsky and Orlov, 2013; Gassmann et al., 2014; Lang et al., 2016).

Certain researchers pay special attention to the fact that the energy companies, which have a high cash flow ratio, will have more possibilities for investments in order to maximize their profits in the situations, where these companies can be restricted in monetary resources. As a rule, corporations have this figure at the higher level as compared with their competitors having lesser volumes of business. This distinguishing feature provide energy companies with possibilities to create proper financial assurance, as well as to reduce various risks in the course of implementation of the corporate schemes for taxation optimisation and profit maximisation (Jensen, 1986; Ferreira and Vilela, 2004; Al-Najjar and Belghitar, 2011; Al-Najjar, 2013; Boubaker et al., 2015; Thu and Khuong, 2018; Paradigm Shift, 2019).

Figure 1: Results of analysis of dependency of incomes of the leading oil-and-gas corporations from the sales of the main products, as well as from the budget incomes of the national economies, within which these corporations were officially registered, 2013-2017* (a) USA; (b) the Netherlands; (c) China, including Hong Kong; (d) Russia; (e) India; (f) Colombia



Source of information: Calculations of the author on the basis of the data from Tables 2-4

Another group of scientists stresses the importance of application of the econometric modelling methods in order to investigate interrelationships between financial indicators of activity of the groups of energy companies and energy holdings and dynamics of governmental budgets of the oil and gas sectors of economy in the developing countries of the world (Fullerton et al., 2015).

One of the key trends in the corporate management at the global level is connected with implementation of the Base Erosion and Profit Shifting Plan, which was developed by developing countries within the framework of the European Organization for Economic Cooperation and Development (OECD) (hereinafter to be referred to as the OECD) with the purpose to create the instruments against profit shifting by corporations from those jurisdictions, within which this profit was earned. And this is a fully justified policy, because in most cases, a significant proportion of the risks are concentrated in primary production sites (Zambrano et al., 2018). For the most part, this process is observed in the key branches of industry: Energy sector (particularly, oil-and-gas extraction), petrochemical (oil-and-gas processing), coal production, metallurgical, and machine-building sectors, which are situated (for the most part) in the countries with developing economies, due to their endowment of natural resources and absence of the strong environmental laws and regulations in respect of the industrial waste of these branches of industry. Business consultants and business analysts of the European countries have consensus that this fact compels corporations to reconsider existing models of business management. As concerns the countries with developing economies, within which these productive assets are situated, this fact opens new possibilities and creates prerequisites for beginning of the epoch of stability, growth, and sustainable development (EY, 2018; Deloitte.com, 2019; Deloitte.com, 2019; Rambler Information Agency, 2019).

In its turn, intensive development of digital and cognitive technologies (as well as utilisation of such technologies as “blockchain”) in the key business branches, changes (in the fundamental manner) the existing approaches to the main operational business processes of enterprises. This fact, in its turn, induces the pressing need in reconsideration of the existing models of business management (Driscoll et al., 2012).

Taking into attention the fact that typical structure of the traditional corporate chain of business operations includes productive (extractive) enterprises, distributors, logistics service providers, end users, management companies (within which total profit is earned), and parent companies (centres of investments), we come to conclusion that LRD-models (“models of the LRD”) are the most efficient and widely-used models (as concerns their practical implementation) (IBM, 2017; Kits et al., 2017).

It is worth to note that specific features of development and functioning of these models are the sufficiently new practices. In this connection, there are practically no investigations in respect of this problematics in the modern scientific literature. However, there exist heightened attention and intensive discussion of these problems by the leaders of the world business in the course of the global summits and fora, association with the challenging aspects of work in the sphere of the international consulting practices, reformation and optimisation of tax systems in the countries with developing economies (with the purpose of counteraction to the intensive corporate influence). All these facts indicate that there is a need in the careful analysis of the existing studies and in further improvement of the LRD models in the energy sector.

Therefore, goals of this study are as follows: To analyse the more challenging problems, which are connected with the management

of the energy enterprises, which are situated in the countries with developing economies (taking into account influence of the integration processes in the world economy), as well as to propose several directions in order to increase efficiency of management of enterprises within this sector of economy.

The research questions addressed in this study are as follows:

- To analyse the current state of and prospects for further development of the world energy carriers market provided that it is necessary to concentrate attention on the of main products of this industry: Oil, natural gas, coal etc.;
- To determine level of dependence of the energy sector profitability in the countries with developing economies from the economic and political interests of developed countries;
- To analyse influence of the leading energy corporations of the world, key activity of which is connected with the oil-and-gas extraction/processing and with transformation of these resources into incomes of the oil-and-gas sector of national economies;
- To determine share of contribution of the assets, which are situated in the countries with developing economies, into the corporate proceeds of the leading energy corporations at the global level;
- To analyse the existing corporate models of management of the international energy business, to reveal components of the negative influence of these models upon activity of the energy enterprises within the countries with developing economies (as the result of implementation of these models), as well as to propose recommendations and measures in respect of elimination of such components;

- To improve the typical corporate model of management of the international energy business through determination of those parameters, which will restrict influence of commercial interests of corporations upon the countries with developing economies (in the sphere of the oil-and-gas sector).

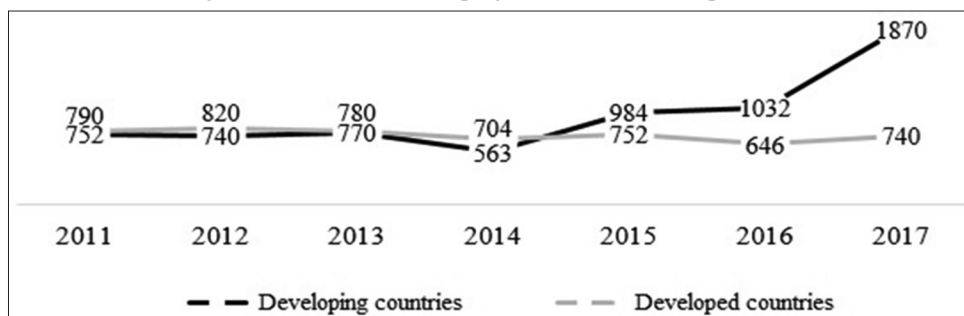
2. METHODS

In accordance with estimates of the International Monetary Fund, it is expected that developing economies will grow more quickly in the years to come (by more than two or three times) as compared with developed countries, such as the USA and countries of the Western Europe (IMF, 2019). At the same time, it is fair to say that (as concerns corporate profits at the global level) the following trend is essential: Corporate profits grow more quickly in the countries, where economic growth is more intensive and higher. Figure 2 presents changes in the volumes of direct foreign investments into developing countries and developed countries over the period of 2010-2017.

We can see that value of volumes of direct foreign investments into developing countries has considerably exceeded the same parameter of developed countries during the last few years (2015-2017). This fact confirms that there is increase in the investment appeal of the countries with developing economies from the part of external investors. In addition, this fact makes it possible to make positive forecasts.

Table 1 presents dynamics of changes in the MSCI indices of developed countries and countries with developing economies over

Figure 2: Volume of direct foreign investments into developing countries and developed countries, USD billions, 2010-2017



Source of information: This diagram was developed by the author on the basis of the following source of information: (Unctad.org, 2019)

Table 1: Dynamics of the MSCI indices in developed countries and countries with developing economies (including energy sector), 2007-2017

Parameter	Year										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
MSCI Emerging markets Energy ¹	55.11	-61.24	86.25	9.91	-18.15	5.96	-10.73	-26.81	-17.14	36.52	21.09
MSCI emerging markets ²	39.42	-53.33	78.51	18.88	-18.42	18.22	-2.60	-2.19	-14.92	11.19	37.28
MSCI ACWI ³	11.66	-42.19	34.43	12.67	-7.35	16.13	22.80	4.16	-2.36	7.86	18.97

Source of information: This diagram is structured on the basis of the following source of information: (MSCI, 2019; Internationalization of Oil and Gas Companies in Developing Countries, 2019)

¹ MSCI Emerging markets Energy is the global index of the power sector of the emerging markets (Unctad.org, 2019).

² MSCI Emerging markets is the global index of the emerging markets (Unctad.org, 2019)

³ MSCI ACWI Index is the global index, which combines MSCI World Index and MSCI Emerging Markets Index. This global index includes indices of the developed markets of the USA, countries of Europe, Middle East, and Pacific region, as well as indices of the emerging markets of the American continent, countries of Europe, Central Asia, Africa, and Asia (Unctad.org, 2019)

the period of 2007-2018. This index characterises level of growth and development of markets in the countries with developing economies (including such markets as the Colombian, Brazilian, Indian, Chinese, Russian markets, the Near Eastern and the Middle Eastern markets, and other markets) and it determines the total limit of inflow of foreign investments to the emerging markets.

Having analysed the data of the above Table 1, it is possible to state that in contrast to the negative values of the MSCI parameter in the countries with developing economies (including energy sector of these countries (MSCI Emerging markets Energy) through the year 2015), during 2016-2017, values of these parameters (2016 - 36.52 and 11.19; 2017 - 21.09 and 37.28 respectively) have exceeded the parameter, which determines growth and development of developed countries - MSCI ACWI (2016 - 7.86 and 2017 - 18.97, respectively).

At the same time, the trend of growth of the emerging markets is manifested in the changes of structure of the world gross proceeds (hereinafter to be referred to as the GDP) in favour of the latter. So, for example, the Figure 3 presents dynamics of changes in the contribution of the world GDP in respect of the purchasing-power parities by the developing and developed economies (as percentage to the total world GDP).

In accordance with the data, which are presented in Figure 3, it can be seen that beginning from the relevant period of time (2005-2010) share of contribution of the countries with developing economies to the world GDP begins to grow, as well as that this share considerably exceeds the share of contribution of developed

countries. Taking into account the fact that the per-capita GDP at purchasing power parity (hereinafter to be referred to as the PPP) is the characteristic, which determines level of the economic development (as well as level of the economic growth), this fact also confirms that there exists activation of growth of the countries with developing economies, as well as that there exists obvious overweight in favour of these countries during the last few years as compared with developed economies of the world.

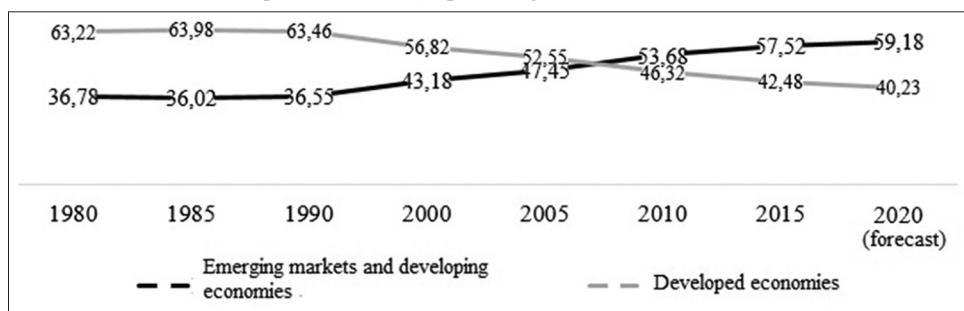
Further, we will analyse modern state, structure, and prospects of further development of the world energy carriers market during the last few years.

The world energy carriers market consists of the following markets: Petroleum and petroleum products; electric power; natural gas; coal and coal bed gases; biofuel and waste materials. Petroleum and petroleum products form the largest segment of the world sector of energy consumption, which is equal to 37.4% of the total volume of this branch of industry. Sector of electrical power supply and district heating system is equal to 22.9% of the total volume of this market. Segmentation of the energy carriers market in respect of various types of energy carriers (as of the state of 2017) is presented in Figure 4.

As concerns geographical segmentation of consumption of the energy carriers, the largest share in the market is the share of the Asian-Pacific Region: 50.8%.

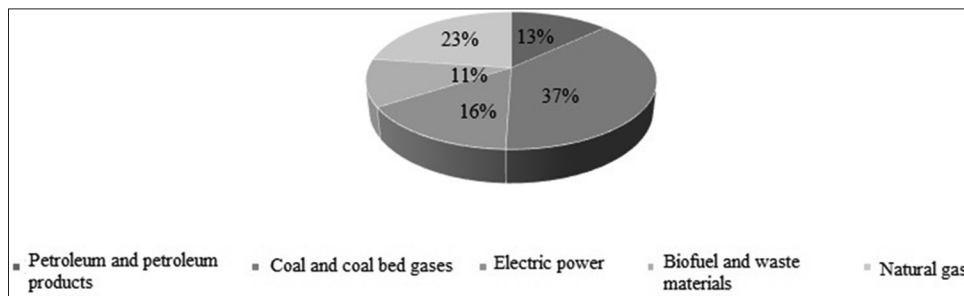
Other regions (United States of America, Europe, and the Near East) are characterised by the lesser shares of consumption; they

Figure 3: Dynamics of changes in the contribution of the world GDP in respect of the purchasing-power parities by the developing economies and developed economies (as percentage to the total world GDP)



Source of information: This diagram was developed by the author on the basis of the data from (IMF.org, 2019)

Figure 4: Segmentation of the global market of energy consumption, million tons of oil equivalent, 2017



Source of information: This diagram is structured by the author on the basis of the following information sources: (www.bp.com, 2017; Oil and Gas Global Industry Guide, 2018; IEA, 2019)

are only equal to 16.6%, 15.5%, and 2.0% of the world market, respectively (Figure 5).

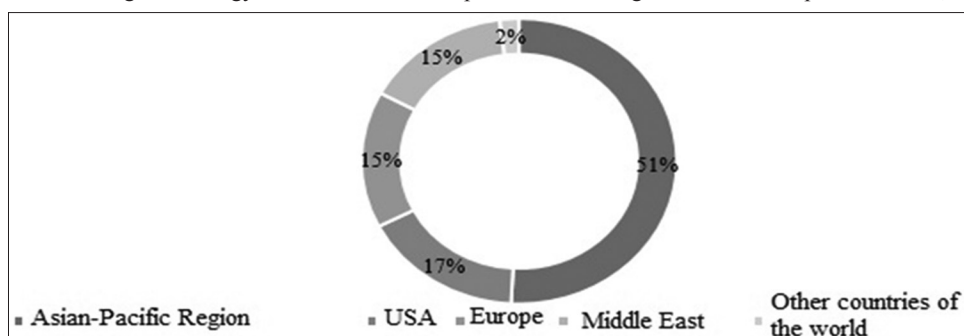
As concerns the world market of petroleum and gas, there is the trend of a certain decline in the last years. However, in accordance with the existing forecasts, positions of this market must be restored in the global structure of the world trade and they must grow considerably within the next few years. Total value of incomes from sales of the oil-and-gas products in the global energy market in 2017 was equal to 1,977.4 USD billions, while rate of growth was equal to 13.2% over the period from 2013 to 2017 (Figure 6). In its turn, the Asian-Pacific and American markets have decreased by 14% and 11.8%, respectively, and they were equal to the following values: 615.8 and 462.2 USD billions, respectively, in 2017 (Figure 7).

In principle, volume of consumption in the market has increased by 1.9% over the period from 2013 to 2017 and it has achieved the level of 54,100 million barrels of oil equivalent in 2017. It is expected that volume of this market will be equal to 59,400 million barrels of oil equivalent by the end of 2022, while the rate of growth will be equal to 1.9% over the period from 2017 to 2022.

Total volume of the oil-and-gas consumption in Europe has decreased, because of improvement of the fuel economy technology has caused decrease in the total demand for the high power-consuming equipment. A number of the European countries (including France, the Netherlands, and Germany) have imposed restrictions in respect of the hydraulic fracturing of formation, and these restrictions have decreased the total share of the market, which had the serious growth potential up to now. As the result, consumption of the petroleum products in the market has slowed down, particularly due to the increasing role of the renewable energy sector in the region. However, as concerns the Asian-Pacific Region, the restrictions in respect of the hydraulic fracturing of formation, which have been imposed by certain governments, have been influenced upon the decrease of dependency of certain countries from the imported oil-and-gas. Australia is the exception, however, government regulation in this country is being tightened year after year. Dynamics of volumes of the oil-and-gas extraction over the period from 2013 to 2017 is presented in the Figure 8.

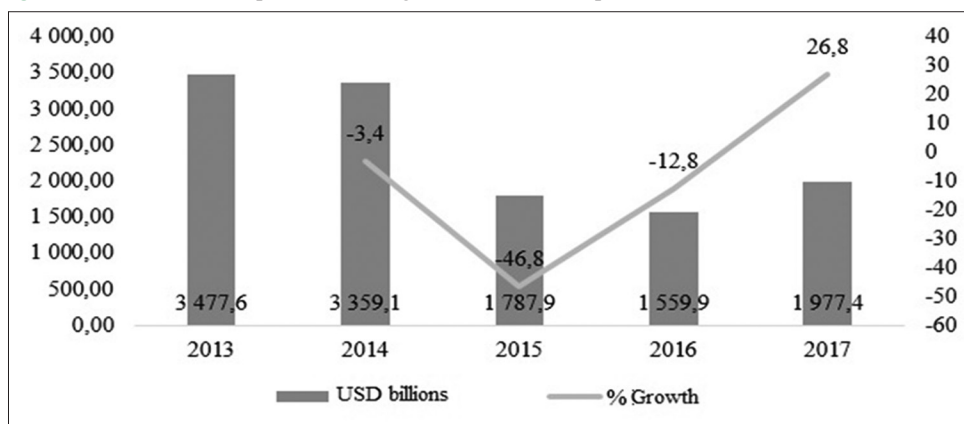
Segment of the crude oil in 2017 was the most profitable one (as compared with the last few years): Total income was at the level

Figure 5: Segmentation of the global energy carriers market in respect of various regions and consumption volumes, USD billions, 2017*⁴



Source of information: This diagram is structured by the author on the basis of the following information sources: (www.bp.com, 2017; Oil and Gas Global Industry Guide, 2018; IEA, 2019)

Figure 6: Total cost of the petroleum and gas market over the period from 2013 to 2017, USD billions⁵



Source of information: This diagram was developed by the author on the basis of the following information sources: (The World Energy Outlook, 2018; www.bp.com, 2017; Oil and Gas Global Industry Guide, 2018; IEA, 2019)

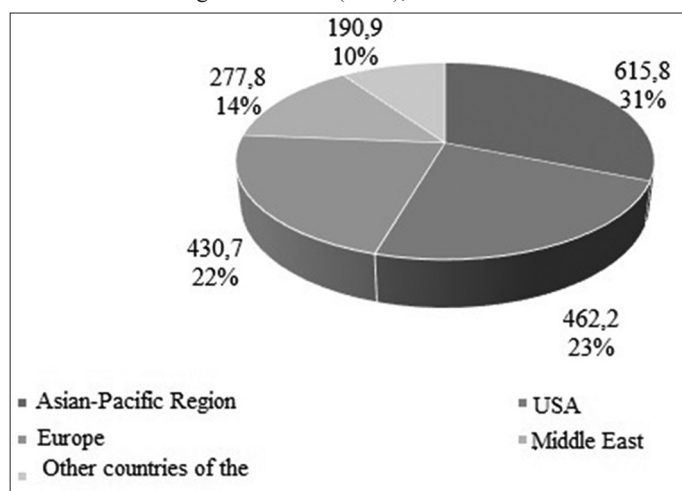
⁴ EMIS Intelligence - Global - Energy Consumption - Market Segmentation, August, 2018 (Oil and Gas Global Industry Guide, 2018)

⁵ MARKETLINE - Global - Oil & Gas, June 2018, p.5. (Oil and Gas Global Industry Guide, 2018)

of 1,627,800 USD millions; this sum is equal to 82.3% of the total cost of the market. As concerns the segment of the natural gas, total incomes were registered at the level of 349,600 USD millions in 2017; this sum is equal to 17.7% of the total cost of the market (Figure 9).

Natural gas consumption grows in many countries of the world, first of all, in the Asian-Pacific Region, because of India, Pakistan, South Korea, and Malaysia are those countries, which have declared their plans in respect of construction of new terminals of the liquefied natural gas in their countries in the years to come (Vats, 2016). At the same time, Russia and Germany are now at the stage of another gas pipeline connection, more specifically: “Nord Stream-2” pipeline system. This pipeline system will also contribute to the growth of the natural gas segment in the world oil-and-gas market.

Figure 7: Geographical segmentation of the global market of the oil-and-gas extraction (2017), USD billions⁶



Source of information: This diagram was developed by the author on the basis of the following information sources: (www.bp.com, 2017; Oil and Gas Global Industry Guide, 2018; IEA, 2019)

Share of the Asian-Pacific Region is the largest share in the oil-and-gas market (31.1%). The lesser shares belong to the USA and Europe: 23.4% and 21.8%, respectively.

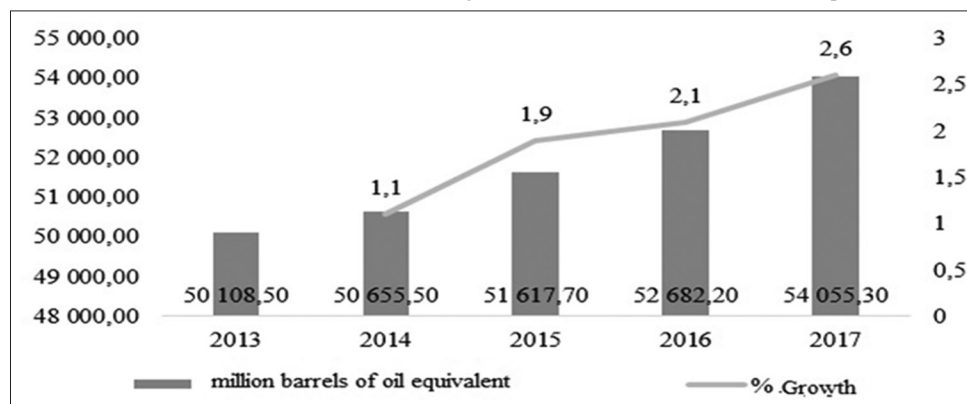
It is expected that productivity of the market will be accelerated, as well as that rate of growth will be equal to 5.8% over the 5-year period from 2017 to 2022. This fact will result in the growth of the market up to the level of 2,627,400 USD millions by 2022. The Asian-Pacific and American markets will grow by 7.7% and 4.9%, respectively, during this period, and will achieve the level of 876,100 and 588,400 USD millions, respectively, by 2022. Projected values of volume of the petroleum and gas market over the period from 2018 to 2022 are presented in the Figure 10.

In accordance with the forecasts for the period from 2020 to 2022, the European market of the oil-and-gas extraction will continue its growth, because of the oil price will be stabilised due to decrease in supply from the part of the OPEC countries. However, the trend of economic and political instability on the international scale will continue, decrease in volumes of extraction of the Venezuelan oil in the world market will continue as well, and new sanctions will be imposed against Iran.

In principle, results of the conducted study state that growth of markets in developed countries (first of all, growth of the American and European markets) depends on development of the emerging markets, resources of which are controlled by the developed markets through global instruments of mergers and acquisitions.

Among other factors, which determine development of the emerging markets in the energy sector, it is worth noting the state-of-the-art transformations in the trade of energy products, because these transformations are connected with application of the newest digital technologies. Such technologies include utilisation of algorithms for performing operations and for computer-assisted teaching, as well as blockchain technologies. So, for example, in the opinion of the leaders of the international business and consulting, at this moment of time (within the platform “Globalization 4.0”

Figure 8: Volume of the world market of the oil-and-gas extraction, million barrels of oil equivalent, 2013-2017⁷



Source of information: This diagram was developed by the author on the basis of the following information sources: (The World Energy Outlook, 2018; www.bp.com, 2017; Oil and Gas Global Industry Guide, 2018; IEA, 2019)

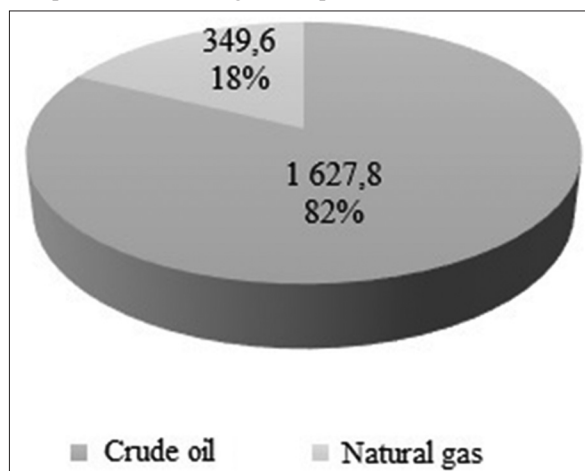
⁶ MARKETLINE - Global - Oil and Gas, June 2018, p. 8. (Oil and Gas Global Industry Guide, 2018)

⁷ MARKETLINE - Global - Oil & Gas, June 2018, p. 6. (Oil and Gas Global Industry Guide, 2018)

at the World Economic Forum in Davos), the companies, which are engaged in trading raw materials and energy reserves, are much less prepared for marketing and promotion of their own method of digital transformation as compared with various financial institutions. Interconnections between the resource-based ecological systems transform into more and more complicated relationships. However, business methods are not transformed due to insufficient flexibility of the traditional models of business in the resource-based industries (such as power industry), while many business processes are still implemented on paper only. Majority of managers have consensus of opinion that it is necessary to develop their businesses through increase in the control of and supervision over the resource-based businesses and the enterprises, which are situated in the countries with developing economies, as well as through strengthening their positions on the emerging markets of energy carriers through application of innovative technologies,

as well as through automation of the main business processes. There is a growing awareness that due to the lower margin, which is traditionally prevailing within the resource-based markets, these companies must be transformed and these companies must reconsider their methods of creating value. Large companies in the energy reserves and natural gas branches of industry (including petroleum industry) are now engaged in the rapid transfer from the traditional discrete trade to the methods of the systematic trading. This transfer ensures application of new information technologies in the sphere of trade of the energy products. In addition, it would open new possibilities for the permanent on-line control for the companies, which have no tangible assets (first of all, management companies of the energy corporations). Such companies can use geospatial analytic and positioning systems, infrared imaging systems, and Internet in order to ensure access to the very detailed data of the productive assets, which are situated anywhere in the world (including the countries with developing economies), which were inaccessible earlier or which are inaccessible today (Davos, 2019; Davos, 2019).

Figure 9: Segmentation of the world market of the oil-and-gas extraction in respect of various categories of products, USD billions, 2017⁸



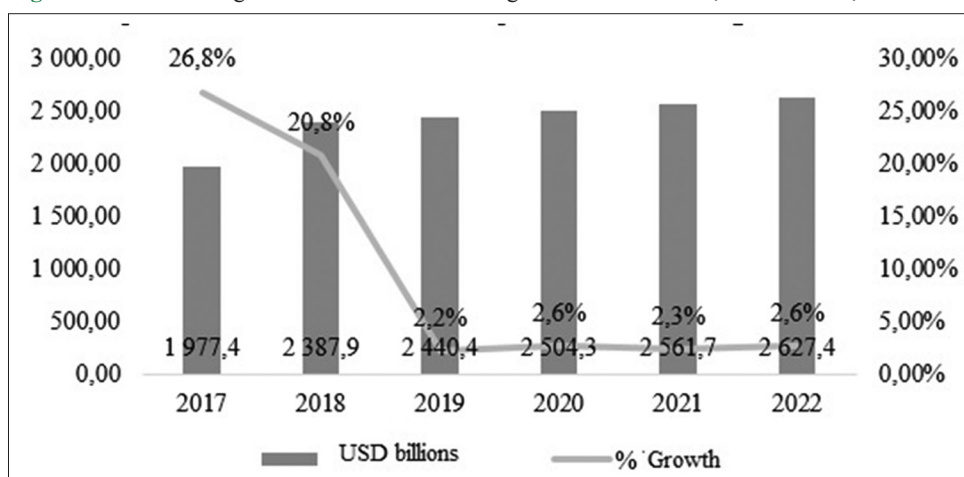
Source of information: This diagram was developed by the author on the basis of the following information sources: (www.bp.com, 2017; Oil and Gas Global Industry Guide, 2018; IEA, 2019)

The results, which were obtained in the course of the conducted study in respect of the last changes in the energy markets of developing countries and developed countries, indicate that it is necessary to reconsider efficiency and methods of optimisation of the management models in the sphere of the international energy business.

3. DATA ANALYSIS

Further, in accordance with the tasks, which were established for this study, let us determine the degree of influence of the international corporate business structures (which implement its activity in the sphere of power industry) upon the energy sector of national economies in the countries with developing economies. This analysis will make it possible to get an insight about the nature of the business model, which is used by corporations for management

Figure 10: Forecast of growth of the world oil-and-gas extraction market, USD billions, 2017-2022⁹



Source of information: This diagram was developed by the author on the basis of the following source: (Oil and Gas Global Industry Guide, 2018)

⁸ MARKETLINE - Global - Oil & Gas, June 2018, p. 7. (Oil and Gas Global Industry Guide, 2018)

⁹ MARKETLINE - Global - Oil and Gas, June 2018, p. 9. (Oil and Gas Global Industry Guide, 2018)

of the assets, which are situated in the countries with developing economies. In the course of this study, we have revealed 19 leading world corporate entities in the energy industry (in accordance with the amounts of proceeds of these corporate entities).

We have determined the following parameters for this analysis:

- Membership of these energy corporations in the categories of developed economies and developing economies depending on the data concerning official registration and domicile of the parent companies and management companies of these corporations;
- Share of the proceeds that are earned with the help of the assets, which are situated in the countries with developing economies, in the total amount of proceeds at the global level;
- Parameters of profit before taxation (EBIT), as well as cost of assets of the companies under investigation.

Table 2 presents results of this analysis.

As shown in Table 2, share of the proceeds, which were earned by the energy corporations with the help of the assets from the countries with developing economies for the corporations from developed countries (USA, Canada, and the Netherlands), exceeds 50%. Share of the proceeds from developing countries

(China, Russia, India, and Colombia) exceeds 80%. These two facts indicate high level of dependency of corporations from the results of activity of the assets from the countries with developing economies, as well as from the conditions of trade and from the presence on the emerging energy markets.

Further, in order to determine the degree of interconnection between developing economies and developed economies within the corporate energy sector at the global level, we have calculated relevant correlation coefficients (coefficients of tightness of the interconnection) between parameters of the proceeds from the sales of the main products of the energy corporations (which are the world leaders, Table 3), and the oil-and-gas incomes in the budgets of national economies, within which the corporations under investigation are officially registered (provided that these data would compose the proper statistical sample, Table 4).

As shown in Table 4, parameters of correlation have sufficiently high values (more than 80%). This fact confirms the hypothesis (which was suggested in the course of this study) concerning high degree of influence of the corporations' commercial interests (from developed economies of the world) upon developing economies in the energy sector. In addition, it confirms the hypothesis concerning integration nature of the world economy, as well as

Table 2: Results of analysis of the model of management of the assets, which are situated in the countries with developing economies, by the leading world corporations in the energy sector, operational activity of which is connected with the oil-and-gas extraction and processing

Corporation name	Parent/management company (headquarters)	Percentage of the gross proceeds, which were obtained due to the assets in the CDE ^{10,11} , 2016	EBIT ¹² , USD millions, 2016	Cost of assets, USD millions, 2016
Exxon mobil corp	USA, Texas	65.12	32,520	349,493
Chevron corporation	USA, California	68.75	19,241	266,026
Royal Dutch Shell Plc	Netherlands	71.95	14,874	353,116
China national offshore oil corporation	Hong Kong	91.95	9,711	106,930
PetroChina Co Ltd	China	89.91	17,289	388,042
Phillips 66	USA, Texas	55.52	4,049	48,741
Conoco	USA, Texas	77.92	5,738	116,539
Valero energy corporation	USA, Texas	57.92	3,692	45,550
China shenhua energy company	China	93.95	6,241	86,933
Rosneft	Russia	94.99	6,508	163,380
China petroleum and chemical corporation	China	92.22	7,496	234,129
Surgutneftegas	Russia	91.22	15,365	61,830
LUKoil	Russia	94.45	4,746	111,800
Reliance Industries Ltd	India	90.82	3,704	79,291
Marathon	USA, Ohio	65.29	2,520	30,460
Oil and natural gas corporation limited	India	83.46	2,882	53,074
Enterprise products partners LP	USA, Texas	62.45	2,782	47,101
Ecopetrol	Colombia	89.12	2,951	55,860
Canadian natural Resources limited	Canada	61.32	3,129	47,938

Source of information: Calculations of the author on the basis of the data, which were obtained from the following sources of information) (EY, 2016; Exxonmobil, 2017; Rosneft, 2017; Shell, 2017; SINOPEC, 2017; Macrotrends.net, 2019; Ril.com, 2019; ETI, 2013; EPRI, 2013; Chevron, 2017; Ecopetrol, 2017; Petro China Revenue 2006-2018, 2019)

10 The data were calculated on the basis of the 2016 consolidated financial statements of the corporations under investigation

11 CDE – country with developing economy

12 EBIT profit performance before taxation, which is used in the IFRS

Table 3: Proceeds from the sales of the main products of the energy corporations, which are the world leaders, USD millions, 2013-2017

Company	Country	Year				
		2013	2014	2015	2016	2017
Exxon mobil	USA	393,039	367,647	239,854	200,628	237,162
Chevron corporation	USA	220,160	200,490	129,930	110,260	134,670
Royal dutch shell ⁸	Netherlands	451,235	421,105	264,960	233,591	305,179
PetroChina ⁶	China	334,604	338,204	277,621	243,344	298,352
Rosneft ⁹	Russia	100,540	111,235.1	83,985.65	78,699.91	100,872.19
China petroleum and chemical corporation (SINOPEC) ¹⁰	China	426,798	418,738	299,375	286,118	349,728
LUKoil ¹¹	Russia	144,167	150,200.7	93,831.41	79,215.87	89,970.76
Reliance industries ¹²	India	57,434.9	62,771.7	54,636.5	41,248.5	46,435.4
Ecopetrol	Colombia	32,829.06	305,178.9	27,361.05	25,070.89	28,999.88

Source of information: This table was developed by the author on the basis of analysis of the following sources of information: (EY, 2016; Exxonmobil, 2017; PetroChina, 2017; Rosneft, 2017; Shell, 2017; SINOPEC, 2017; Macrotrends.net, 2019; Ril.com, 2019; ETI, 2013; EPRI, 2013; Chevron, 2017; Ecopetrol, 2017; Petro China Revenue 2006-2018, 2019)

Table 4: Results of analysis of the corporations' influence upon the oil-and-gas incomes of the government budgets of national economies, 2013-2017

Country	Type of economy	Oil-and-gas incomes of the government budgets of national economies, USD millions					Coefficient of correlation of the corporate government oil-and-gas incomes, %
		Year					
		2013	2014	2015	2016	2017	
USA	Developed	194,526	217,985	129,608	102,941	135,853	95.4
Netherlands	Developed	202,150.3	187,382.2	115,131.0	94,210.8	114,231.2	98.68
China	Developing	321,472.9	335,232.16	215,858.1	254,141.8	311,078.4	85.65
India	Developing	10,810.6	11,726.6	10,480.9	8,827.2	8,222.7	80.17
Colombia	Developing	8,912.99	8,290.42	6,924.28	6,894.49	7,974.96	95.94
Russia	Developing	202,852.6	142,777.72	95,628.77	79,637.62	135,014.58	80.17

Source of information: Calculations of the author on the basis of analysis of the following sources of information: (EY, 2016; EY–Power–Russia, 2017; www.bp.com, 2017; Oil and Gas Global Industry Guide, 2018; World Bank, 2018; Consultant.ru, 2019; Rambler Information Agency, 2019; Integrated Annual Report, 2019)

concerning the expansion policy of developed countries with the purpose of seizure of territories and management of the natural resources belonging to the countries with developing economies. Therefore, relevant business models of management of the corporate business must be developed on the basis of these two hypotheses.

Group of the figures, which is presented below, demonstrates results of analysis of the development trends in the energy sector (at the corporate and governmental levels) in respect of the countries, which were analysed above.

As we can see, trends of various countries are almost the same. In the first place, this fact confirms (once again) the hypotheses, which were suggested in the course of this study and which were mentioned above. In the second place, it indicates that activity of the world corporations in the sphere of power industry determines the following factors: Efficiency, growth, trend, and directions of development of the energy sector of national economies at the government level of each country, which was analysed in the course of this study.

4. RESULTS

On the basis of the results, which we have obtained in the course of our investigations, we have developed the LRD-model for management of the international business. This model is adapted for the energy sector of the world economy. Functioning of this model is based on the mechanism of cooperation between

the productive, trading, and management companies, which are situated both in developing countries, and in developed countries of the world within a single transnational business structure (a group of companies or a holding within such group of companies). Such mechanism of cooperation makes it possible to generate profit and maximise it in the management/parent companies of the group. It is worth to note several specific features in respect of application of the model, which is proposed:

- This model makes it possible to optimise taxation of corporation through establishment of restrictions in respect of the risks, which are assumed by the companies-counterparts (productive enterprises and trading companies/distributors) in the course of performance of the intra-group international transactions. Such risk restrictions (LRD means “limited risk distributor”) can be established both for the intra-group distributors, which are connected with the productive assets that are intended for extraction and processing of the energy products, and for the external distributors (third persons), and this fact emphasize the universality of the model, which is proposed;
- This model implies possibilities for development and implementation of the sufficiently accurate system of supervision (with the help of the information technologies and cognitive technologies, “blockchain” technologies, which were mentioned above) over the distributors from developed countries with the purpose of monitoring the logistics operations, as well as over management companies with the purpose of monitoring the daily business processes in respect of all assets, including the assets, which are situated in developed countries;

- In contradistinction to the typical LRD-model, structure of the proposed model includes additional instruments for protection against shifting of profit from the states, within which this profit was generated (because of tax legislation of the countries with developing economies is not ideal for the time being) to “the convenient” (for corporations) jurisdictions with low tax rates with the purpose of minimisation of the total taxation of corporations, because of such profit shifting is not good for the government budgets of the countries with developing economies.

The proposed model is schematized in Figure 11.

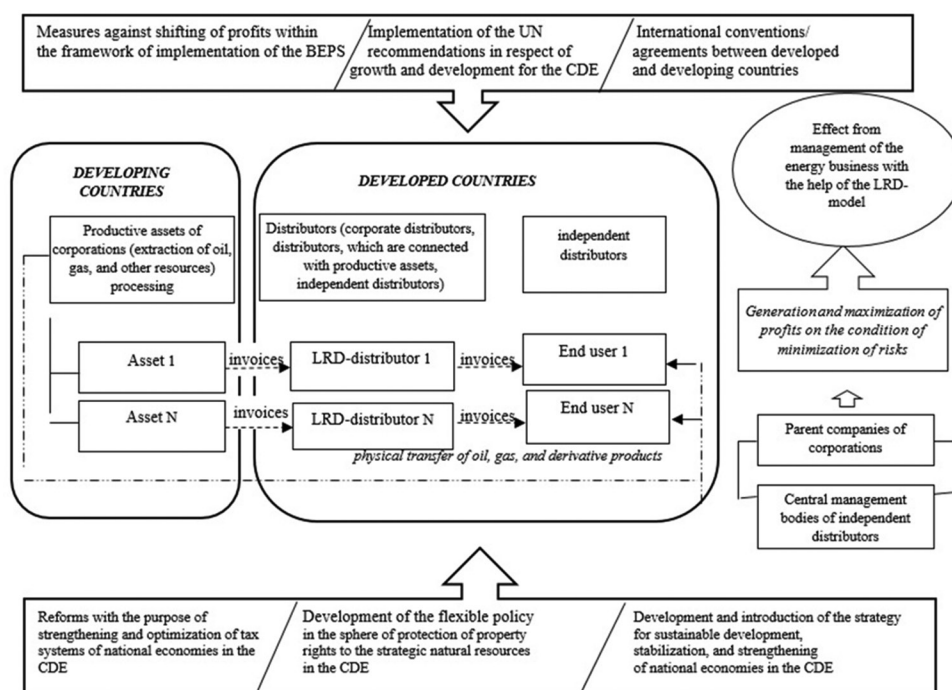
Table 5 presents results of analysis of differences between the traditional LRD-models, which are applied in the international

practice of management of the corporate business in the energy sector, and the proposed improved model.

5. DISCUSSION

The specific feature of the conducted study is as follows: Application of the corporate-structured approach to the assessment of the level of influence of corporations upon the activity of the integrated energy enterprises from the countries with developing economies. Such approach has made it possible to obtain more specific and more accurate results as compared with the results of the traditional approaches to the assessment of efficiency of activity of the productive assets within the international corporate entities (holdings and groups of companies). Traditional approaches do not

Figure 11: Effect of application of the modified LRD-model in the case of management of the energy business in the countries with developing economies



Source of information: This figure was developed by the author

Table 5: Comparison of the typical and improved LRD-models of management in the sphere of the international energy business in developed countries and in the countries with developing economies

Comparative test	Typical LRD-model	Modified LRD-model, which is proposed by this article
Growth of the volumes of production (as concerns energy sector – growth of extraction and processing of resources/products)	Developed and developing countries	Developed and developing countries
Growth of financial parameters of efficiency (both energy enterprises, and entire energy industry)	Developed countries	Developed and developing countries
Protection of political and economic interests of the countries, within which assets are situated	Only for developed countries	Developed and developing countries
Possibility of application of the wildcat taxation schemes by corporations, possibility of artificial decrease of profit of the productive assets, possibility of shifting profit to the jurisdictions with low tax rates	High probability	Lower probability
Prospects of growth of the energy sector of national economies	Essential barriers exist for developing countries	As concerns countries with developing economies: New possibilities are opened, while barriers are lower

Source of information: This table was developed by the author. LRD: Limited risk distributor

take into account “distortion of information and artificial decrease” of financial results of the main operational activity of this kind of assets. Such distorted financial results are sufficiently often used by the management companies of corporations and these results form the basis of their global financial strategies in respect of the countries with developing economies.

Results of analysis of a number scientific articles, which are connected with investigation of approaches to the management of the energy enterprises in the countries with developing economies (Nelson and Perli, 2007; Eisenmann et al., 2011; Apolonsky and Orlov, 2013; Gassmann et al., 2014; Oseni and Pollitt, 2016; Anaya and Pollitt, 2016; PetroChina, 2017) have demonstrated that, unfortunately, majority of authors of these articles do not pay proper attention to the “corporate” factor. This fact causes distortion of results of the statistical analysis and financial analysis; it creates prerequisites for incorrect forecasts and moves vectors investigations to the improper direction.

It is worth to note that certain analysts, who investigate systems of management of the corporate intangible assets, emphasize (fairly and in due manner) importance of structuring the IP-systems, which must be integrated to the general corporate business model in the right manner (Business Model Optimization, 2019; Teece, 2010). This fact will make it possible, in its turn, to rationalize relevant supply chains (this operation addresses the problems, which are connected with the LRD-models), as well as issues of the intellectual property. In addition, this operation will make it possible to centralize (if necessary) certain managerial functions, to make other changes, as well as to increase level of protection of the corporate data and level of cyber security of the entire company (Driscoll et al., 2012; Burger et al., 2016; IBM, 2017; Deloitte.com, 2019; Deloitte.com, 2019). All these operations will open new possibilities for subsequent investigations in accordance with the problematics, which was selected for this article.

Application of this approach is quite a new practice. However, this fact does not decrease its efficiency for application in the international practice in the course of development of operational models of efficiency of management of corporations in respect of management of the assets in the key branches of industry, which are situated in the countries with developing economies.

In order to increase accuracy of results of these investigations (in the cases of utilisation of this approach with the purpose of the financial analysis or with the purpose of assessment of efficiency of activity of the energy enterprises on the basis of the example in accordance with the approach, which was tested and endorsed in our article), we recommend to use those financial parameters, which would be calculated in accordance with the international financial reporting standards (IFRS) or in accordance with the US GAAP.

Experience of structuring the international business operations in the key branches of industry (particularly in the energy sector) with the help of the LRD-models is described in the particular branch reviews of developed and developing markets. In addition, such experience is described in the specialized bulletins (descriptions

of practical experience of development of models of business management in the key branches of industry of the countries with developing economies and the leading global consulting companies), which have possibility to analyse such experience (on the basis of their own practice) in various sectors of economy and business. Practically, all these reviews underline efficiency of application of the LRD-models in order to ensure structuring of operations, and international tax planning. In addition, these reviews underline pluses and effect of maximisation of the profit, which would be obtained by developed countries. They also make emphasis on the necessity of development and implementation of special measures in order to protect the countries with developing economies, and these measures must be reflected in the governmental policy of these countries, as well as in their tax laws and property legislation (EY, 2018; Deloitte.com, 2019).

6. CONCLUSIONS

Results of the conducted study have demonstrated the extremely high dependency of formation of the oil-and-gas budgets in the countries with developing economies from influence of activity, of financial and trading strategies of the international corporate business structures (that are large energy holdings and groups of companies), which own the productive assets (therefore, they are actual owners of resources in the countries with developing economies). These results have also demonstrated the extremely high dependency of the growth and development of energy business at the government level (in principle). It is absolutely obvious that energy corporations are the most affluent and powerful drivers of development of the emerging markets, which grow year after year in accordance with results of our statistical analysis. On the one hand, this fact underlines importance of development both of the entire industry and market relations within the developing economies. In addition, it makes it possible to make perfectly reasonable forecasts in respect of the changes in the global priorities in favour of the countries with developing economies (in the first turn, in respect of China). On the other hand, taking into account the instability, which is inherent to developing countries at the current moment (this instability is caused by various macroeconomic factors, such as: Dependency of national currencies from the US Dollar; various fluctuations; political uncertainty (quite often); weak tax legislation, which do not protect government budgets in order to obtain effect of maximisation of the profit of the energy enterprises, which would make it possible to implement actual models of management of the international business in developed countries and countries with developing economies, including, for example, LRD-models), it is necessary to ensure maximum protection of the economies in the countries with developing economies (these economies are weak yet; they are at the stage of formation till now). First of all, as concerns the international level, the most efficient instruments in this sphere may be the following tools and measures: Reforms and measures for strengthening and optimisation of tax systems of national economies in the countries with developing economies: Development and implementation of the sustainable development strategy; stabilisation and strengthening of economies; sufficiently flexible policy in the sphere of protection of property rights to the strategic natural resources, which, on the one hand, would attract

foreign investments, and, on the other hand, would save the right of ownership to these resources, which always belong to the countries of their origin. In addition, it is worth to note engagement (during the last years) of the countries with developing economies (first of all, it is connected with the European markets of the energy carriers and the CIS countries) into implementation and taking measures and recommendations against shifting of the profit, which was earned by the integrated productive assets, from the national jurisdictions to the zones with low tax rates. In the first place, this process results in return of the fair profit to the governmental budgets. In the second place, this process helps to implement norms of international law into the legal framework and tax system of the countries with developing economies. There are no doubts that this process strengthens these countries and helps to ensure their further development and growth. The LRD-model, which was developed in the course of this investigation, is the universal model. It is adapted for application in the course of management of enterprises of the energy sector in the countries with developing economies taking into account all the factors and parameters, which were stipulated above. It is intended for improvement of operation of the energy business at the global level.

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