

MULTIPLIERS BASED ON ASSETS AND EQUITY AS AN INDICATOR OF THE INVESTMENT ATTRACTIVENESS OF DOMESTIC VERTICALLY INTEGRATED OIL AND GAS COMPANIES

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Abstract

Subject. The article focuses on ratios of the market capitalization or enterprise value to balance sheet assets or equity of the twenty five leading publicly traded oil and gas companies within 2008 through 2018.

Objectives. The aim of the study is to trace key trends in ratios of the market capitalization or enterprise value to balance sheet assets or equity of corporations in the oil and gas industry, as well as identify the key trends in their changes within the studied period, and establish factors that caused those changes.

Methods. For the study, I used the methods of comparative, financial and economic analyses, summarizing financial reporting data.

Results. The article establishes that the multipliers studied are acceptable for assessing the value of oil and gas companies, but it is preferable to use asset-based ratios. The multiples of the ratio of market capitalization to assets or market capitalization to equity in the oil and gas industry are characterized by a decrease, and the lack of stability of values does not allow using these ratios for other dates in valuation. It is necessary to analyze in detail the results of financial and economic activities and the structure of assets in order to select an analogue company, especially in times of crisis. There is a country factor in the stock market valuation of oil and gas assets. The influence on the market capitalization of the size of the debt component in the structure of total capital has been established. An increase in the level of debt burden over time was revealed. It is advisable to use an indicator of enterprise value that includes net debt instead of market capitalization when there is a difference in debt burden between the assessed corporation and the analogue company.

Conclusions and Relevance. The overall decline in profitability and the increase in debt load in the stock market sector of the global oil and gas industry should be taken into account when using multipliers based on assets and shareholder capital in the assessment of the value of oil and gas corporations through a comparative approach. The findings can be used to appraise the value of oil and gas assets as part of the comparative approach and decide on actions for raising the market capitalization of publicly traded oil and gas corporations.

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Introduction

It should be noted that it is the oil and gas sector of the national economy that has been given quite close attention within the framework of the national economic school for a very long time. Such a high interest is dictated by the importance of the industry, which for many years has been helping to fill the country's budget and stabilization fund. This fact is also very clearly confirmed by information on industrial production and export of goods. Moreover, large publicly traded oil and gas companies also hold leading positions in the stock market segment of the Russian economy.

The authors do not bypass such an important aspect in their works as the appraisal of the value of oil and gas assets. The advantages and disadvantages of applying the income, cost and comparative approaches directly for the oil and gas sector are considered, and the possible cost of certain industry corporations is estimated based on various methods. In this context, it is required to highlight the comparative approach, which has received a fairly wide coverage in the works of the domestic scientific community [1]. It is important to note that the method of the analogue company and the industry formulas method are built on the use of special multipliers, among which there are both standard and specific indicators inherent only to corporations in the oil and gas sector. Authors usually mention ratios based on assets [2], revenues [3], net income [4], EBITDA [5] and DACF [6], and the indicators inherent in the purely oil and gas industry include the level of production [7] and reserves [8] of crude oil and natural gas are among the common multipliers.

At the same time, it is noted that one of the most frequently used multipliers in practice is the ratio of market capitalization to assets [9], which in another interpretation is called the ratio of the share price to the book value per security. Moreover, the works study the features of the cost assessment [10] and analyze the risks [11] when using the multiplier technology [12]. It is also natural that asset-based multipliers are used in a comparative analysis of the investment attractiveness of oil and gas companies both against the background of competitors [13] and in comparison with other instruments [14]. Besides, attention is paid to developing a strategy in order to form [15] and optimize the portfolio of shares of companies in the oil and gas sector [16]. In addition, this coefficient is taken into account in the comparative assessment of the efficiency of functioning [17] and the assessment of market prospects for the development of the largest oil and gas companies [18].

At the same time, despite the use of the ratio of market capitalization to shareholders' equity by publicly traded companies in the industry in their own analytical reference books, this multiplier has not received such wide coverage in the scientific works of domestic scientists as the indicator based on assets. In this case, the possibility of using this multiplier in practice for oil and gas companies deserves special attention. In turn, it is noteworthy that the scientific community has not yet fully touched upon the direction associated with the determination of the characteristic values of multipliers based on assets and equity capital at the level of the entire stock market segment of the global oil and gas industry. In addition, the key trends and main reasons for the ongoing transformations are not identified. It is important to note the complexity of carrying out this kind of research, which is associated with the need to collect and process a very significant amount of data over a long period of time and on the impressive number of

publicly traded companies in the industry. At the same time, it is possible to get the most reliable idea of the situation with the studied multipliers of the market valuation of oil and gas corporations only in this case.

But then the definition of approaches according to which the selection and inclusion of companies in the list for the subsequent formation of industry indicators is made becomes tangible. It is quite natural that for publicly traded corporations the most important characteristic is market capitalization due to the trading of their shares on world exchanges. Meanwhile, the stock market segment of the world economy includes many companies from various industries. Therefore, the key point is the availability of reliable information sources that allow making the correct selection of representatives for the list of the largest publicly traded oil and gas corporations in the world for a fairly long period of time, which ultimately makes it possible to trace the transformation of the industry's inherent multiplier values.

This criterion is matched by the Financial Times Global 500¹ rating published until 2015 and the Forbes Global 2000² list still being issued, where data on the market capitalization of the world's largest publicly traded corporations is available. It turns out that the list of publicly traded oil and gas corporations required for subsequent analysis should include companies from those lists. An important criterion is the relatively stable hit of the company in every rating that existed during the entire period under study. It was revealed according to the results of the analysis of the sources published in the period under study that twenty-five oil and gas corporations are quite consistent with such conditions. The US oil and gas sector is represented by the largest number of companies on the list. This is quite predictable, because it is in the United States, that there are more large publicly traded corporations than in any other country in the world. Thus, they include independent companies ConocoPhillips, Occidental Petroleum, Devon Energy, Anadarko Petroleum, EOG Resources, Apache and Marathon Oil, as well as the well-known transnational integrated corporations ExxonMobil and Chevron.

In addition, the resulting list includes oil and gas corporations from another country in North America, which is Canada. These are the purely independent Canadian Natural Resources and the integrated corporations Imperial Oil, Suncor Energy and Husky Energy. It should be noted that the list also includes a company from South America, which is the integrated corporation Petrobras from Brazil. China is represented on the list by the independent company CNOOC and the integrated corporations Sinopec and PetroChina. Moreover, the list includes the integrated corporations Royal Dutch Shell, BP, TOTAL, Eni and Equinor, which are based in Western Europe. At the same time, the list of integrated corporations also includes the largest domestic oil and gas companies – PJSC Gazprom, PJSC NK Rosneft and PJSC LUKOIL. The listed corporations in their totality form the list of publicly traded oil and gas companies, on the basis of which the level of multipliers inherent for the industry is then formed.

¹ FT Global 500 2015. URL: <http://im.ft-static.com/content/images/b38c350e-169d-11e5-b07f-00144feabdc0.xls>

² Forbes Global 2000 2019. URL: <http://www.forbes.com/global2000/list>

Dynamics of changes in the values of based on assets and equity multiples of the leading publicly traded oil and gas companies

It is quite natural that the dynamics of changes in the indicators of the companies under study should be considered for different countries and regions separately due to their significant number. It should be noted that there are noticeable differences between companies even at the level of the US oil and gas industry alone, despite the general trend towards a decrease in the value of the ratio of market capitalization to assets (*Table 1*) and of the ratio of market capitalization to equity (*Table 2*). Thus, the most stable performance was the integrated corporation Chevron, while ExxonMobil, which also possesses impressive refining assets, experienced a rather tangible decline. This result was facilitated by the global financial turmoil and then the industry crisis. Moreover, the company closed its 2009 acquisition of XTO Energy in 2010, which did not contribute to the year-on-year multiplier gains experienced by many of its competitors in the US oil and gas industry. In addition, ExxonMobil's multiples were influenced by such factors as the growth in debt burden (*Table 3*) and the decline in profitability (*Table 4*), which significantly exceeded the corresponding indicators of Chevron.

Meanwhile, the multipliers of independent companies also deserve quite close attention. In this context, noteworthy are the indicators of Marathon Oil and ConocoPhillips, which in 2011 and 2012, respectively, went through the procedure of withdrawing all refining assets from their structure into independent publicly traded companies. Consequently, Marathon Oil and ConocoPhillips lost their status as integrated corporations and became independent companies. It is important to note that corporations in terms of multiples were very seriously inferior to Chevron and ExxonMobil before the division of the business, but then their values settled at a level quite inherent for other leading independent US companies.

But the multiples of Marathon Oil and ConocoPhillips began to lag behind key competitors in the US oil and gas industry two years after a protracted industry crisis broke out, during which oil prices were in the low range. Such a difference arose as a result of actions on impairment, revaluation and write-off of assets produced by Occidental Petroleum, Anadarko Petroleum, EOG Resources and Devon Energy (*Table 5*), which affected their residual book value, as well as the valuation of the share capital in the balance sheet through retained earnings.

In addition, information on depreciation, depletion and amortization (*Table 6*) requires a separate consideration. There, the data for 2015 for the Apache stands out against the background of competitors. Apache performed a revaluation of its own assets and, as a consequence, share capital in this way. In addition, the revaluation of assets led to the fact that the net debt of Devon Energy, Anadarko Petroleum and Apache exceeded the book value of the share capital. Consequently, the debt component began to prevail in the total capital of companies, which is a negative factor for market valuation (*Table 7*). This circumstance contributed to the fact that in 2019 Occidental Petroleum acquired Anadarko Petroleum.

Meanwhile, it is worth mentioning that many of the leading independent oil and gas companies in the United States resorted to business restructuring through the sale of

certain assets due to the rather difficult financial and economic situation in the last two years from the period covered by the study, which affected their cost (*Table 8*) and assessment of shareholders' capital (*Table 9*). Moreover, corporations have declined in proved reserves of hydrocarbons (*Table 10*) while striving to maintain the highest possible level of production in the context of low prices, and indicators reached very low values for the industry in the case of Anadarko Petroleum and Apache, which is a negative factor for investors and therefore for market valuation.

Also noteworthy are the multiples of Occidental Petroleum and EOG Resources, which stood out rather high in comparison with other leading independent companies in the United States. Of course, along with a timely revaluation, such a feature has a positive effect on the level of Occidental Petroleum's market capitalization to assets and market capitalization to shareholders' equity ratios even in times of crisis when raw material prices are low.

In turn, EOG Resources Corporation is the only one of the largest independent US companies that has managed not only to maintain, but also to significantly increase the balance sheet valuation of shareholders' equity and assets over the period studied. At the same time, the corporation performed revaluation and impairment of its own assets on an ongoing basis. Moreover, EOG Resources also stood out for its relatively high profitability among the independent US companies studied. Such significant results of EOG Resources are directly related to the development strategy chosen by the corporation. It should be noted that the company adhered to fairly strict rules when concluding transactions for the acquisition of assets. The key criteria for EOG Resources were to acquire assets that were superior to those held by the company itself, to obtain a fair acquisition price from the corporate standpoint, and to make reasonable financing for the deal. EOG Resources was focused on being able to maintain an average annual production growth rate of 15% to 25% and pay dividends from its cash flow at oil prices in the range of 50 to 60 US dollars per barrel.

In addition, the company has set a goal to ensure profitability in the context of low oil prices. In accordance with the chosen concept, EOG Resources imposed special requirements on the wells, which were to ensure a rate of return after paying income tax of 30% at an oil price of USD 40 per barrel and a gas price of USD 2.5 per 1 000 cubic feet. These indicators of prices for hydrocarbons were minimal or close to this level according to the company's position. EOG Resources itself also noted that the corporation's wells were often among the best in the US oil and gas industry in terms of productivity, mainly due to the active use of advanced technologies.

Next, the oil and gas corporations of Canada are subject to thorough analysis. It is necessary to highlight one notable feature, which is that the companies of the country did not resort to revaluation of assets, with the exception of Canadian Natural Resources in 2011. And special attention among the multiples should be paid to the indicators of Husky Energy, which in terms of their value began to significantly inferior to competitors in the oil and gas sector of Canada in the midst of the industry shock. These results are due to the fact that the market capitalization of Husky Energy declined much more against the background of other large oil and gas companies in Canada. At the same time, the revaluation of the book value of assets reflected in the financial statements due to

depreciation, depletion and amortization in terms of its value turned out to be much less than the fall in the company's stock market valuation.

The impressive fall in market capitalization was driven by factors such as falling margins and rising debt burdens, which were more severe than those of competitors in the Canadian oil and gas sector. Accordingly, competitors turned out to be more prepared for a sharp change in the market situation. Nevertheless, the company then took a number of measures to reduce costs and improve operational efficiency. The strategic goal of Husky Energy was to achieve profitability in the context of low prices for the extracted raw materials. The benchmarks for the company were the WTI crude oil price at USD 40 per barrel and gas at CAD 3 per gigajoule.

The company made efforts to reduce its debt burden and decided not to resort to new borrowings. As a result, Husky Energy's net debt for 2016 decreased from an impressive USD 4,831 million to USD 2,994 million. In order to maintain cash flow, the board of directors approved the payment of quarterly dividends for the third quarter of 2015 in the form of ordinary shares, and for the fourth quarter, payments were not made at all. On top of that, Husky Energy has started to cut costs, including downsizing its staff and freezing wage growth. In addition, the corporation decided to focus on the development of oil and natural gas reserves in Western Canada, with no plans included the heavy oil and oil sands assets of the region. Consequently, Husky Energy was planning to invest in the highest yielding assets in the upstream sector in a low oil price environment.

But these measures turned out to be insufficient to rectify the situation. The following year, Husky Energy managed to achieve profitability mainly through the sale of part of its own assets for 2,935 million Canadian dollars, which is quite comparable to EBITDA of 3,664 million Canadian dollars. At the same time, the company's main competitors in the oil and gas industry in Canada have overcome all the difficulties of the period of low commodity prices more easily. In addition, in the midst of the industry crisis, Husky Energy worsened its previously rather weak provision of proved hydrocarbon reserves, which are almost half of bituminous oil. Besides, heavy oil and bitumen, which account for more than half of the company's total production. However, heavy oil and bitumen are the cheapest and least profitable of the liquid hydrocarbons produced by the corporation, which directly affects the level of profitability of Husky Energy.

In addition, Husky Energy has reported proved reserves in accordance with the requirements of National Instrument 51-101 Standards of Disclosure for Oil and Gas Activities used by the Canadian Securities Administrators (CSA) throughout the country. Meanwhile, the rest of the surveyed companies published data based on the rules of the US Securities and Exchange Commission (SEC). It is important to note that the SEC approach is not only the most common among publicly traded companies in the industry, but also has the most stringent requirements for the valuation of proved reserves. It turns out that lower profitability against the background of competitors amid falling oil prices, as well as low provision of proven reserves against the background of other large oil and gas companies in the country, which may also indicate an overestimated balance sheet valuation of assets, contributed to the formation of low values for the industry in the multipliers based on assets and share capital.

It should be noted in the case of oil and gas corporations in Europe that only BP has resorted to impairment, revaluation and write-off of assets on an ongoing basis, and Eni began using this tool only in the final three years of the studied period. Noteworthy are the data from Equinor. Such negative tendencies as a decrease in profitability and an increase in indebtedness began to appear in the company before the industry crisis during the period of high oil prices, which also affected the value of the multipliers. Moreover, Equinor also stands out for its rather modest indicators of total proved reserves of crude oil and natural gas. It should be noted that large companies from Europe as a whole are characterized by a higher level of debt in the capital structure compared to integrated US corporations.

It is also important to highlight the fact that Eni sold part of its assets in the midst of the industry crisis. This decision helped the company improve profitability and reduce its debt component, which also had a positive effect on multiples. In contrast, Royal Dutch Shell completed the purchase of BG Group in April 2016, which the company had announced a year earlier. It should be noted that the market capitalization of Royal Dutch Shell declined significantly more than its key competitors in the oil and gas industry in Europe in the year of the announcement of the deal. The decline was reflected in the market capitalization to assets and market capitalization to equity ratios, but in the following year the growth offset most of the decline. Meanwhile, a negative impact was also exerted by the growth of the debt component associated with the concluded transaction, which the company is gradually reducing.

At the same time, the values of the market capitalization-to-assets and market capitalization-to-equity multiples of China's PetroChina, Sinopec, and CNOOC have stabilized at the level of the leading oil and gas corporations in Europe, confirming the overall downward trend in the industry. The largest oil and gas companies in China, as well as leading integrated corporations from European countries, did not carry out a large-scale revaluation of the balance sheet value of their own assets after the onset of the global economic crisis in 2008 and a sharp drop in oil prices in 2014, but systematically increased their value. Meanwhile, the market valuation of the studied Chinese oil and gas companies reacted to the change in oil prices, and therefore the value of the multipliers of capitalization to assets and capitalization to equity capital, as expected, decreased. Meanwhile, the market valuation of the studied Chinese oil and gas companies reacted to the change in oil prices, and therefore the value of the multipliers of capitalization to assets and capitalization to equity capital, as expected, decreased. The decline in Sinopec's performance was also facilitated by a noticeable decrease in the provision of proved hydrocarbon reserves.

But special attention should be paid to the fall of Petrobras' indicators to very low values against the background of competitors during the industry crisis. Such results are mainly associated with the emergence of an impressive debt component in the structure of total capital. Petrobras hit a similar net debt-to-equity ratio to Devon Energy in the midst of the crisis, but was unable to reduce the amount to a more manageable level in contrast to it.

This increase in debt burden was the result of the impact of two key factors at once. The need to raise significant funds for the company arose in connection with the commissioning of a large number of expensive construction projects. Another important reason was the corruption scandal that broke out at Petrobras in 2014, which led to a two-month delay in the publication of the corporation's annual financial statements, as well as the revaluation of some of the assets. As a result, the decrease in their carrying value reached USD 16,823 million.

The situation with the multipliers of the leading oil and gas companies in Russia is also noteworthy, but the data of PJSC Gazprom stand out, which significantly lags behind not only foreign competitors, but also domestic corporations in terms of the values of the considered coefficients. However, the company has a not so impressive component of debt and a relatively high proved reserves life of hydrocarbons for the stock market segment of the industry. Moreover, PJSC NK Rosneft and PJSC LUKOIL are at a fairly low level in terms of market capitalization to assets ratio, which is typical for Sinopec, Petrobras and Eni. In addition, PJSC LUKOIL significantly lagged behind most foreign competitors in terms of the multiplier of market capitalization to equity capital, while this ratio of PJSC NK Rosneft was quite consistent with the indicators of companies in Canada, Europe and China. Nevertheless, PJSC NK Rosneft clearly shows a drop in multipliers a year before the industry crisis, when the company attracted significant borrowed funds, which it used to close the deal on the TNK-BP takeover.

Comparison of the considered multiples of the leading publicly traded oil and gas corporations rather eloquently testifies to the existence of significant differences in the investment assessment of the market sector of the economies of the countries affected by the study framework. The largest disparities in indicators are noted when comparing the multipliers of integrated corporations in Russia and the United States. The country factor also manifested itself when comparing companies from the USA, Canada and Europe, but the differences were not so pronounced. Consequently, the specified specifics must also be taken into account within the framework of a comparative approach when determining the possible cost of equity capital for a corporation in the oil and gas industry using the analogue company method. It is worth noting the specificity of the oil and gas sector in Canada, which consists in a high proportion of bitumen and heavy oil in the production structure not only of Husky Energy, but also of other leading corporations. This feature makes it difficult to use companies in the country's oil and gas industry as an analogue for assessing the value of the share capital of corporations in other countries.

In addition, quite interesting results are obtained by comparing data on multipliers of market capitalization (MCap) or enterprise value (EV) to assets (Assets) or equity capital (Equity) of leading oil and gas corporations for 2012 and 2016 (*Table 11*). The choice of the compared periods is quite logical. Thus, the crisis in the industry continued in 2016, as a result of which the profitability of many leading companies dropped to one of the lowest indicators. In addition, a significant part of the companies studied have already made a tangible revaluation of their assets to one degree or another. Moreover, the share of

borrowed funds in the total capital of the leading corporations in the stock market segment of the oil and gas industry has grown significantly. On the contrary, oil prices reached high levels in 2012, which made it possible to ensure an impressive return on assets, and the borrowed funds did not have a serious impact on the total capital of most of the companies studied.

Comparison of data on market capitalization to assets and enterprise value to assets multipliers clearly demonstrates that the revaluation carried out by corporations in the context of a general decline in the market valuation of the industry contributed to the restoration of the level of indicators, which had been declining for two years. It should be noted that the use of an asset-based multiplier using enterprise value instead of market capitalization is becoming very relevant in the face of increasing debt burden, illustrative examples of which are the indicators of ConocoPhillips, Devon Energy, Apache, Canadian Natural Resources, Equinor and PJSC NK Rosneft. In this case, it is possible to partially neutralize the influence of the debt factor, which makes it possible to compare companies with rather different levels of debt in the total capital.

Meanwhile, the use of the multiplier of market capitalization to the capital of shareholders, which is found in reference books of industry corporations, seems to be more difficult when assessing the value of oil and gas assets. The reason is that the range of values for this coefficient is much wider even when applying the modification that contains the indicator of the enterprise value. It turns out that the multipliers of market capitalization to equity capital or enterprise value to equity capital in the balance sheet are better used as an auxiliary indicator when evaluating corporations in the oil and gas sector.

Conclusions

As a result of the analysis, it was found that multiples based on assets and shareholders' equity are quite acceptable for assessing the value of companies in the oil and gas industry. However, asset-based ratios are preferred. It was determined that for the level of market capitalization multipliers to assets or market capitalization to equity capital in the oil and gas industry, a decrease within the covered time interval is inherent, and the lack of sufficient stability of values does not allow one to focus on the indicators of coefficients for other periods when assessing the value for a given date. It was revealed that it is required to carry out a detailed analysis of the results of financial and economic activities and the structure of assets in order to select a suitable analogue company for comparison, especially during periods of crisis for the entire global oil and gas sector.

In addition, the presence of a country factor in the stock market valuation of oil and gas assets was determined, which is very clearly manifested when comparing the values of the multipliers of the leading publicly traded oil and gas corporations of the United States and Russia. It turns out that some US oil and gas companies may face downward market capitalization adjustments in the future. Meanwhile, the assets of the largest integrated corporations in the Russian Federation currently look somewhat undervalued by the

market. It turns out that Russian oil and gas corporations have a fairly good potential for the subsequent growth of their own market valuation.

It was also found that the indicators of the studied multipliers are affected by the value of the debt component in the structure of total capital, the level of which in the stock market segment only increases over time. Therefore, it is advisable for proper comparison when calculating the multipliers to use an indicator of enterprise value that includes net debt if there is a significant difference in debt burden between the assessed corporation and the analogue company. This adjustment is not an accurate substitute for the impact that debt has on market capitalization, but the value of the enterprise can largely offset the impact of this factor in assessing the possible value of an oil and gas corporation.

Table 1

Market-capitalization-to-assets ratio of the twenty five leading publicly traded oil and gas corporations for 2008–2018

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	1.74	1.38	1.20	1.21	1.17
Chevron	0.92	0.94	0.99	1.01	0.90
ConocoPhillips	0.54	0.50	0.62	0.61	0.60
Occidental Petroleum	1.17	1.49	1.52	1.27	0.96
Devon Energy	0.91	1.11	1.03	0.61	0.48
Anadarko Petroleum	0.36	0.61	0.73	0.73	0.71
EOG Resources	1.04	1.36	1.07	1.07	1.20
Apache	0.85	1.23	1.05	0.67	0.51
Marathon Oil	0.45	0.47	0.53	0.66	0.61
Imperial Oil	2.07	1.97	1.67	1.51	1.23
Suncor Energy	0.68	0.83	0.85	0.61	0.65
Husky Energy	0.99	0.97	0.81	0.73	0.83
Canadian Natural Resources	0.62	1.00	1.13	0.88	0.64
Royal Dutch Shell	0.55	0.63	0.63	0.67	0.61
BP	0.62	0.77	0.50	0.46	0.44
TOTAL	0.74	0.73	0.66	0.56	0.51
Eni	0.52	0.55	0.45	0.41	0.48
Equinor (Statoil)	0.63	0.82	0.69	0.64	0.56
PetroChina	1.48	1.66	1.21	0.91	0.76
Sinopec	0.73	1.24	0.67	0.54	0.48
CNOOC	1.38	1.98	2.13	1.28	1.32
Petrobras	0.76	1.00	0.74	0.49	0.38
PJSC Gazprom	0.36	0.50	0.48	0.36	0.27
PJSC NK Rosneft	0.47	0.96	0.73	0.60	0.65
PJSC LUKOIL	0.39	0.60	0.53	0.45	0.50
Average value	0.84	1.01	0.91	0.76	0.70

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	1.11	0.96	1.13	1.02	0.83
Chevron	0.79	0.64	0.86	0.94	0.82
ConocoPhillips	0.73	0.59	0.69	0.88	1.01
Occidental Petroleum	1.10	1.19	1.26	1.34	1.05
Devon Energy	0.49	0.44	0.92	0.72	0.52
Anadarko Petroleum	0.68	0.53	0.84	0.68	0.53
EOG Resources	1.45	1.44	1.98	2.09	1.50

Apache	0.42	0.89	1.07	0.73	0.46
Marathon Oil	0.53	0.26	0.47	0.65	0.55
Imperial Oil	1.04	0.89	0.95	0.78	0.65
Suncor Energy	0.67	0.67	0.83	0.85	0.67
Husky Energy	0.71	0.44	0.53	0.57	0.42
Canadian Natural Resources	0.65	0.56	0.81	0.74	0.55
Royal Dutch Shell	0.61	0.43	0.56	0.68	0.61
BP	0.41	0.37	0.50	0.54	0.48
TOTAL	0.51	0.47	0.54	0.57	0.54
Eni	0.38	0.37	0.45	0.43	0.42
Equinor (Statoil)	0.42	0.41	0.57	0.64	0.63
PetroChina	0.79	0.60	0.58	0.58	0.52
Sinopec	0.50	0.40	0.43	0.44	0.38
CNOOC	0.56	0.45	0.61	0.68	0.70
Petrobras	0.16	0.11	0.26	0.26	0.37
PJSC Gazprom	0.20	0.18	0.20	0.16	0.16
PJSC NK Rosneft	0.24	0.28	0.39	0.25	0.35
PJSC LUKOIL	0.27	0.33	0.49	0.45	0.61
Average value	0.62	0.56	0.72	0.71	0.61

Source: Authoring, based on [19, 20]

Table 2

Market-capitalization-to-equity ratio of the twenty five leading publicly traded oil and gas corporations for 2008–2018

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	3.52	2.92	2.48	2.60	2.35
Chevron	1.71	1.68	1.74	1.74	1.54
ConocoPhillips	1.39	1.22	1.42	1.44	1.47
Occidental Petroleum	1.78	2.27	2.45	2.02	1.54
Devon Energy	1.70	2.13	1.75	1.17	0.98
Anadarko Petroleum	0.94	1.54	1.83	2.10	1.80
EOG Resources	1.84	2.46	2.27	2.10	2.47
Apache	1.51	2.20	1.87	1.20	0.98
Marathon Oil	0.90	1.01	1.11	1.20	1.19
Imperial Oil	3.89	3.65	3.08	2.89	2.21
Suncor Energy	1.53	1.70	1.63	1.19	1.27
Husky Energy	1.82	1.77	1.53	1.34	1.52
Canadian Natural Resources	1.44	2.12	2.31	1.83	1.29
Royal Dutch Shell	1.23	1.34	1.38	1.36	1.16
BP	1.55	1.79	1.44	1.21	1.11
TOTAL	1.78	1.79	1.58	1.34	1.21
Eni	1.36	1.40	1.16	1.05	1.12
Equinor (Statoil)	1.69	2.32	2.01	1.75	1.38
PetroChina	2.24	2.85	2.13	1.74	1.55
Sinopec	1.70	2.89	1.60	1.30	1.18
CNOOC	1.78	2.76	3.24	1.87	1.94
Petrobras	1.55	2.12	1.26	0.88	0.74
PJSC Gazprom	0.56	0.79	0.71	0.53	0.39
PJSC NK Rosneft	0.93	1.78	1.26	0.97	1.12
PJSC LUKOIL	0.55	0.85	0.75	0.61	0.68
Average value	1.64	1.97	1.76	1.50	1.37

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	2.23	1.90	2.24	1.89	1.51
Chevron	1.36	1.11	1.53	1.61	1.34

ConocoPhillips	1.64	1.45	1.77	2.11	2.22
Occidental Petroleum	1.78	2.12	2.53	2.74	2.16
Devon Energy	1.16	1.84	4.03	2.35	1.10
Anadarko Petroleum	2.12	1.93	3.15	2.66	2.53
EOG Resources	2.85	3.01	4.17	3.83	2.62
Apache	0.91	6.55	3.86	2.17	1.38
Marathon Oil	0.91	0.46	0.84	1.23	0.97
Imperial Oil	1.88	1.63	1.58	1.33	1.11
Suncor Energy	1.28	1.32	1.64	1.67	1.37
Husky Energy	1.34	0.89	0.97	1.04	0.76
Canadian Natural Resources	1.36	1.21	1.81	1.74	1.24
Royal Dutch Shell	1.25	0.90	1.23	1.43	1.22
BP	1.05	0.99	1.39	1.53	1.37
TOTAL	1.30	1.13	1.26	1.25	1.19
Eni	0.93	0.96	1.05	1.03	0.97
Equinor (Statoil)	1.10	1.11	1.69	1.77	1.64
PetroChina	1.61	1.22	1.17	1.18	1.04
Sinopec	1.23	0.85	0.90	0.98	0.85
CNOOC	0.98	0.78	1.01	1.10	1.14
Petrobras	0.41	0.40	0.84	0.82	1.14
PJSC Gazprom	0.30	0.29	0.31	0.25	0.26
PJSC NK Rosneft	0.72	0.93	1.29	0.85	1.13
PJSC LUKOIL	0.37	0.52	0.76	0.68	0.86
Average value	1.28	1.42	1.72	1.57	1.32

Source: Authoring, based on [19, 20]

Table 3
Net-debt-to-equity ratio of the twenty five leading publicly traded oil and gas corporations for 2008–2018, percent

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	-19.49	-0.98	4.9	2.83	1.21
Chevron	-0.91	1.63	-2.73	-4.81	-6.48
ConocoPhillips	48.4	45	20.62	25.82	37.73
Occidental Petroleum	5.55	5.38	7.8	5.56	15.07
Devon Energy	32.02	42.6	14.36	19.72	32.93
Anadarko Petroleum	43.84	38.23	45.12	69.22	52.34
EOG Resources	17.37	21.12	43.34	34.76	40.92
Apache	22.66	19.14	32.85	23.87	38.89
Marathon Oil	27.56	29.55	16.6	25.2	32.88
Imperial Oil	-20.2	-3.95	4.38	0.04	7.11
Suncor Energy	49.76	39.22	30.26	18.07	16.91
Husky Energy	7.26	19.68	25.4	11.65	9.88
Canadian Natural Resources	70.69	49.65	40.4	37.28	35.82
Royal Dutch Shell	6.35	18.55	20.87	15.27	10.19
BP	29.73	26.95	29.33	27.85	26
TOTAL	23.66	28.1	26.4	26.76	24.44
Eni	42.53	50.34	51.23	50.65	28.21
Equinor (Statoil)	28.37	40.94	39.89	34.76	17.7
PetroChina	11.71	17.4	20.01	25.65	37.75
Sinopec	66.53	55.8	46.03	44.5	52.38
CNOOC	-3.67	-2.26	-2.88	5.45	0.93
Petrobras	21.74	43.09	28.54	36.24	49.11
PJSC Gazprom	21.98	25.52	13.99	13.92	12.93
PJSC NK Rosneft	58.6	47.98	35.58	27.55	29.91
PJSC LUKOIL	15.04	16.16	14.91	9.37	5.06

<i>Average value</i>	24.2	26.99	24.29	23.49	24.39
<i>(Continuation of table)</i>					
Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	14.05	20.48	23.37	20.86	18.12
Chevron	9.65	18	26.82	22.86	16.25
ConocoPhillips	33.72	56.62	67.66	43.71	28.34
Occidental Petroleum	8.72	21.08	35.29	39.65	34.15
Devon Energy	45.42	153.26	138.27	83.56	38.46
Anadarko Petroleum	39.15	115.55	99.4	104.11	177.99
EOG Resources	21.58	45.91	38.53	34.1	23.38
Apache	40.39	284.88	114.89	91.91	105.05
Marathon Oil	19	32.64	27.28	42.12	33.29
Imperial Oil	29.63	35.49	19.36	16.42	17.12
Suncor Energy	18.83	28.83	32.3	28.44	34.38
Husky Energy	19.56	40.31	22.81	16.29	7.38
Canadian Natural Resources	48.38	61.08	63.91	70.52	64.18
Royal Dutch Shell	13.92	16.35	39.3	33.63	25.21
BP	22.75	30.05	38.7	39.73	44.93
TOTAL	34.59	36.42	32.82	17.26	22.08
Eni	32.26	43.62	40.66	36.11	29.46
Equinor (Statoil)	39.75	60.14	77.32	61.01	43.45
PetroChina	39.6	39.66	35.18	28.7	26.48
Sinopec	53.91	27.8	9.54	9.17	5.96
CNOOC	32.05	39.58	35.76	31.5	29.97
Petrobras	99.28	154.99	126.23	108.43	98.23
PJSC Gazprom	16.81	19.67	17.42	20.62	22.66
PJSC NK Rosneft	105.68	95.77	84.47	101.96	87.81
PJSC LUKOIL	12.97	18.7	13.57	8.21	1.04
Average value	34.07	59.87	50.43	44.43	41.42

Source: Authoring, based on [19, 20]

Table 4
Return on equity of the twenty five leading publicly traded oil and gas corporations for 2008–2018, percent

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	38.53	17.25	23.67	27.26	28.03
Chevron	29.23	11.74	19.31	23.75	20.3
ConocoPhillips	-23.58	8.26	17.34	18.59	14.89
Occidental Petroleum	27.36	10.34	14.72	19.32	11.85
Devon Energy	-11	-15.19	26.13	23.13	-0.96
Anadarko Petroleum	18.55	-0.7	3.75	-13.66	12.35
EOG Resources	30.45	5.75	1.59	9.54	4.4
Apache	4.47	-1.76	15.1	17.18	6.63
Marathon Oil	17.37	6.75	11.24	14.4	8.93
Imperial Oil	45.66	17.07	21.44	27.52	25.36
Suncor Energy	16.35	4.71	10.08	11.43	7.15
Husky Energy	28.83	9.83	7.84	13.37	10.95
Canadian Natural Resources	31.46	8.36	8.4	12.05	8.02
Royal Dutch Shell	20.92	9.49	14.15	19.47	14.86
BP	22.87	17.19	-3.78	24.9	10.08
TOTAL	22.57	16.64	18.72	19.11	15.17
Eni	20.8	9.65	12.99	12.86	13.58
Equinor (Statoil)	22.11	8.88	18.23	31.61	23.04
PetroChina	15.01	12.62	15.68	13.7	11.16
Sinopec	9.36	17.54	18.07	16.43	12.99

CNOOC	31.05	17.64	28.34	29.99	22.35
Petrobras	27.91	21.57	14.14	11.26	6.42
PJSC Gazprom	17.37	15.7	16.73	19.06	14.92
PJSC NK Rosneft	33.02	15.56	20.93	20.7	15.69
PJSC LUKOIL	19.98	13.19	15.64	16.33	15.63
Average value	20.67	10.32	14.82	17.57	13.35

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	18.67	9.36	4.64	11.1	10.98
Chevron	12.65	2.98	-0.33	6.26	9.8
ConocoPhillips	13.21	-9.66	-9.67	-2.42	20.01
Occidental Petroleum	1.58	-26.4	-2.5	6.23	19.72
Devon Energy	7.65	-101.12	-50.89	11.83	33.23
Anadarko Petroleum	-8.42	-41.13	-24.54	-3.98	6.41
EOG Resources	17.6	-29.52	-8.15	17.07	19.18
Apache	-18.21	-162.22	-31.92	19.1	0.55
Marathon Oil	15.09	-11.14	-11.86	-39.13	9.2
Imperial Oil	18	4.88	8.94	1.98	9.46
Suncor Energy	6.52	-4.95	1.04	9.91	7.37
Husky Energy	6.19	-20.72	5.39	4.42	7.75
Canadian Natural Resources	14.38	-2.26	-0.76	8.28	8.14
Royal Dutch Shell	8.45	1.16	2.62	6.81	11.88
BP	3.14	-6.21	0.12	3.5	9.48
TOTAL	4.46	5.56	6.48	8.21	10.08
Eni	2.19	-15.75	-2.79	6.68	8.33
Equinor (Statoil)	5.95	-10.2	-7.76	12.25	18.19
PetroChina	9.28	3.02	0.66	1.91	4.37
Sinopec	8	5.12	6.74	7.13	8.54
CNOOC	16.5	5.17	0.16	6.69	12.87
Petrobras	-5.56	-9.31	-6.81	-0.12	9.48
PJSC Gazprom	1.66	7.71	8.78	6.29	11.68
PJSC NK Rosneft	11.6	12.33	5.84	6.41	14.31
PJSC LUKOIL	5.94	7.48	6.42	12.49	16.41
Average value	7.06	-15.43	-4.01	5.16	11.9

Source: Authoring, based on [19, 20]

Table 5**Impairment, revaluation and write-off of assets of the twenty five leading publicly traded oil and gas corporations for 2008–2018, million USD**

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	0	0	0	0	0
Chevron	0	0	0	0	0
ConocoPhillips	0	0	0	792	680
Occidental Petroleum	647	170	275	0	1 751
Devon Energy	0	0	0	0	2 024
Anadarko Petroleum	223	115	216	1 774	389
EOG Resources	193	306	743	1 031	1 271
Apache	0	0	0	0	0
Marathon Oil	0	0	479	310	371
Imperial Oil	0	0	0	0	0
Suncor Energy	0	0	0	0	0
Husky Energy	0	0	0	0	0
Canadian Natural Resources	0	0	0	389	0
Royal Dutch Shell	0	0	0	0	0

BP	1 733	2 333	1 689	2 058	6 275
TOTAL	0	0	0	0	0
Eni	0	0	0	0	0
Equinor (Statoil)	0	0	0	0	0
PetroChina	0	0	0	0	0
Sinopec	0	0	0	0	0
CNOOC	226	1	4	3	5
Petrobras	519	319	402	0	0
PJSC Gazprom	0	0	0	0	0
PJSC NK Rosneft	0	0	0	0	0
PJSC LUKOIL	425	381	363	1 663	-30
Average value	159	145	167	321	509

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	0	0	0	0	0
Chevron	0	0	0	0	0
ConocoPhillips	856	2 245	139	6 601	27
Occidental Petroleum	7 379	10 239	825	545	561
Devon Energy	1 953	20 820	4 975	17	156
Anadarko Petroleum	836	5 075	227	408	800
EOG Resources	744	6 614	620	479	347
Apache	2 357	1 920	1 103	8	511
Marathon Oil	132	752	67	229	75
Imperial Oil	0	0	0	0	0
Suncor Energy	0	0	0	0	0
Husky Energy	0	0	0	0	0
Canadian Natural Resources	0	0	0	0	0
Royal Dutch Shell	0	0	0	0	0
BP	8 965	1 909	-1 664	1 216	860
TOTAL	0	0	0	0	0
Eni	0	0	369	315	1 106
Equinor (Statoil)	0	0	0	0	0
PetroChina	0	0	0	0	0
Sinopec	0	0	0	0	0
CNOOC	664	424	1 753	1 403	82
Petrobras	16 823	12 299	6 193	1 191	2 005
PJSC Gazprom	0	0	0	0	0
PJSC NK Rosneft	0	0	0	0	0
PJSC LUKOIL	1 753	0	0	0	0
Average value	1 698	2 492	584	497	261

Source: Authoring, based on [19, 20]

Table 6**Depreciation, depletion and amortization of assets of the twenty five leading publicly traded oil and gas corporations for 2008–2018, million USD**

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012	31.12.2013
ExxonMobil	12 379	11 917	14 760	15 583	15 888	17 182
Chevron	9 528	12 110	13 063	12 911	13 413	14 186
ConocoPhillips	9 012	9 295	9 060	7 934	6 580	7 434
Occidental Petroleum	2 710	3 117	3 153	3 591	4 511	5 347
Devon Energy	3 509	2 108	1 930	2 248	2 811	2 780
Anadarko Petroleum	3 194	3 532	3 714	3 830	3 964	3 927
EOG Resources	1 327	1 549	1 942	2 516	3 170	3 601
Apache	7 850	5 213	3 083	4 204	7 341	6 700
Marathon Oil	2 178	2 623	2 965	2 266	2 478	2 790

Imperial Oil	595	747	746	751	764	1 044
Suncor Energy	857	2 204	3 810	3 887	6 477	4 599
Husky Energy	1 497	1 725	2 071	2 477	2 591	2 825
Canadian Natural Resources	2 192	2 695	4 032	3 545	4 346	4 554
Royal Dutch Shell	13 656	14 458	15 595	13 228	14 615	21 509
BP	10 985	12 106	11 164	11 135	12 481	13 510
TOTAL	8 009	9 626	11 252	9 712	12 567	12 455
Eni	9 815	9 813	9 579	9 318	13 561	11 703
Equinor (Statoil)	6 143	9 358	8 641	8 569	10 869	11 901
PetroChina	13 842	13 511	17 094	21 913	24 179	26 812
Sinopec	6 705	7 394	8 942	10 128	11 209	13 338
CNOOC	1 474	2 336	4 195	4 849	5 281	9 326
Petrobras	5 928	7 188	8 507	10 535	11 119	13 188
PJSC Gazprom	6 638	7 314	7 993	8 547	11 002	12 803
PJSC NK Rosneft	3 983	4 350	5 597	5 996	7 474	11 977
PJSC LUKOIL	2 958	3 937	4 154	4 473	4 832	5 756
Average value	5 879	6 409	7 082	7 366	8 541	9 650

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	17 297	18 048	22 308	19 893	18 745
Chevron	16 793	21 037	19 457	19 349	19 419
ConocoPhillips	8 329	9 113	9 062	6 845	5 956
Occidental Petroleum	4 261	4 544	4 268	4 002	3 977
Devon Energy	3 319	3 129	1 792	2 074	1 658
Anadarko Petroleum	4 550	4 603	4 301	4 279	4 254
EOG Resources	3 997	3 314	3 553	3 409	3 435
Apache	10 158	29 372	2 618	2 280	2 405
Marathon Oil	2 861	2 957	2 395	2 372	2 441
Imperial Oil	945	1 048	1 213	1 731	1 140
Suncor Energy	5 293	5 420	4 556	4 465	4 206
Husky Energy	3 457	6 246	1 834	2 297	1 899
Canadian Natural Resources	4 207	3 962	3 618	4 134	3 783
Royal Dutch Shell	24 499	26 714	24 993	26 223	22 135
BP	15 163	15 219	14 505	15 584	15 457
TOTAL	19 656	17 729	13 523	16 103	13 992
Eni	11 499	14 480	7 559	8 974	8 001
Equinor (Statoil)	13 643	15 189	11 550	8 644	9 249
PetroChina	29 002	31 242	31 447	36 328	33 793
Sinopec	14 724	14 840	15 630	17 647	16 023
CNOOC	9 394	11 337	9 925	9 415	7 365
Petrobras	13 023	11 591	13 965	13 307	12 028
PJSC Gazprom	8 393	7 069	9 423	10 645	9 328
PJSC NK Rosneft	8 248	6 174	7 946	10 174	9 141
PJSC LUKOIL	8 816	4 816	5 137	5 643	4 939
Average value	10 461	11 568	9 863	10 233	9 391

Source: Authoring, based on [19, 20]

Table 7
Market capitalization of the twenty five leading publicly traded oil and gas corporations for 2008–2018, million USD

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	397 234	322 334	364 064	401 254	389 648
Chevron	148 173	154 575	183 183	210 796	210 516
ConocoPhillips	76 673	75 903	97 435	93 687	70 749

Occidental Petroleum	48 607	66 050	79 735	75 992	61 710
Devon Energy	29 058	33 092	33 775	25 054	20 767
Anadarko Petroleum	17 728	30 746	37 795	38 045	37 197
EOG Resources	16 620	24 569	23 225	26 501	32 810
Apache	24 946	34 710	45 593	34 793	30 744
Marathon Oil	19 316	22 104	26 291	20 606	21 677
Imperial Oil	28 780	32 944	34 365	37 838	36 370
Suncor Energy	18 130	55 480	59 873	45 037	50 028
Husky Energy	21 421	24 436	23 627	23 425	29 313
Canadian Natural Resources	21 547	39 399	48 336	41 140	31 408
Royal Dutch Shell	156 327	183 062	203 534	230 561	218 460
BP	141 528	181 709	136 987	135 111	131 319
TOTAL	121 510	135 270	127 687	117 850	116 195
Eni	84 391	92 888	79 092	75 046	87 664
Equinor (Statoil)	51 830	79 776	75 295	81 472	79 408
PetroChina	259 427	353 079	301 897	276 574	262 772
Sinopec	81 973	159 235	101 155	97 332	96 120
CNOOC	41 727	70 268	105 949	78 098	96 660
Petrobras	95 878	199 428	228 322	155 493	124 750
PJSC Gazprom	87 396	139 024	145 808	122 145	108 740
PJSC NK Rosneft	36 229	79 983	68 931	63 893	82 125
PJSC LUKOIL	27 710	47 462	44 405	40 972	49 933
Average value	82 166	105 501	107 054	101 949	99 083

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	388 382	323 960	374 398	354 550	288 921
Chevron	210 859	169 378	222 630	238 450	207 010
ConocoPhillips	85 037	57 709	62 037	64 611	70 976
Occidental Petroleum	62 119	51 693	54 437	56 358	45 998
Devon Energy	24 974	12 958	23 885	21 735	10 085
Anadarko Petroleum	41 799	24 693	38 435	28 472	21 455
EOG Resources	50 482	38 924	58 304	62 423	50 764
Apache	23 596	16 811	24 068	16 084	9 836
Marathon Oil	19 096	8 523	14 662	14 391	11 744
Imperial Oil	36 568	27 610	29 488	25 993	19 842
Suncor Energy	45 934	37 323	54 535	60 365	44 285
Husky Energy	23 761	10 628	12 719	14 861	10 872
Canadian Natural Resources	33 807	23 904	35 406	43 782	29 020
Royal Dutch Shell	214 484	146 704	229 004	278 281	242 175
BP	116 750	96 591	131 975	150 329	136 324
TOTAL	117 490	104 500	124 270	139 208	137 908
Eni	67 812	54 104	58 724	59 600	56 695
Equinor (Statoil)	56 102	44 622	59 426	70 719	70 389
PetroChina	309 453	222 042	201 295	215 192	183 247
Sinopec	118 952	88 396	92 620	108 356	88 517
CNOOC	60 102	46 488	55 853	64 109	68 960
Petrobras	48 014	25 950	64 256	65 322	81 589
PJSC Gazprom	53 160	42 855	56 312	50 072	48 834
PJSC NK Rosneft	36 885	36 826	70 377	53 634	65 979
PJSC LUKOIL	29 855	22 947	40 538	41 081	50 127
Average value	91 019	69 446	87 586	91 919	82 062

Source: Authoring, based on [19, 20]

Table 8
Assets of the twenty five leading publicly traded oil and gas corporations for 2008–2018,
million USD

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	228 052	233 323	302 510	331 052	333 795
Chevron	161 165	164 621	184 769	209 474	232 982
ConocoPhillips	142 865	152 588	156 314	153 230	117 144
Occidental Petroleum	41 537	44 229	52 432	60 044	64 210
Devon Energy	31 908	29 686	32 927	41 117	43 326
Anadarko Petroleum	48 923	50 123	51 559	51 779	52 589
EOG Resources	15 951	18 119	21 624	24 839	27 337
Apache	29 186	28 186	43 425	52 051	60 737
Marathon Oil	42 686	47 052	50 014	31 371	35 306
Imperial Oil	13 918	16 702	20 561	25 009	29 487
Suncor Energy	26 575	66 670	70 106	73 543	76 770
Husky Energy	21 668	25 135	29 107	31 891	35 288
Canadian Natural Resources	34 845	39 215	42 631	46 498	49 186
Royal Dutch Shell	282 401	292 181	322 560	345 257	360 325
BP	228 238	235 968	272 262	293 068	300 193
TOTAL	164 652	184 041	192 036	212 263	226 711
Eni	162 258	169 312	176 191	184 957	184 242
Equinor (Statoil)	82 645	97 433	109 796	128 257	140 917
PetroChina	174 725	212 397	250 123	304 335	345 063
Sinopec	112 344	128 561	150 264	181 645	201 526
CNOOC	30 292	35 492	49 686	61 053	73 204
Petrobras	125 695	200 270	308 683	319 410	331 645
PJSC Gazprom	243 992	276 523	303 049	338 572	397 335
PJSC NK Rosneft	77 513	83 232	93 829	105 968	127 022
PJSC LUKOIL	71 461	79 019	84 017	91 192	98 961
Average value	103 820	116 403	134 819	147 915	157 812

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	349 493	336 758	330 314	348 691	346 196
Chevron	266 026	266 103	260 078	253 806	253 863
ConocoPhillips	116 539	97 484	89 772	73 362	69 980
Occidental Petroleum	56 259	43 437	43 109	42 026	43 854
Devon Energy	50 637	29 532	25 913	30 241	19 566
Anadarko Petroleum	61 689	46 414	45 564	42 086	40 376
EOG Resources	34 763	26 975	29 459	29 833	33 934
Apache	55 952	18 842	22 519	21 922	21 582
Marathon Oil	36 011	32 311	31 094	22 012	21 321
Imperial Oil	35 195	31 195	31 024	33 160	30 387
Suncor Energy	68 676	56 021	66 065	71 336	65 661
Husky Energy	33 487	23 886	24 027	26 246	25 820
Canadian Natural Resources	51 892	42 832	43 681	58 879	52 453
Royal Dutch Shell	353 116	340 157	411 275	407 097	399 194
BP	284 305	261 832	263 316	276 515	282 176
TOTAL	229 798	224 484	230 978	242 631	256 762
Eni	177 510	146 748	131 283	137 833	135 537
Equinor (Statoil)	132 702	109 740	104 530	111 100	112 508
PetroChina	393 115	368 647	345 488	368 004	354 392
Sinopec	237 190	222 239	216 031	244 177	232 007
CNOOC	106 833	102 560	91 845	94 865	98 724
Petrobras	298 687	230 521	246 983	251 366	222 068
PJSC Gazprom	269 781	233 966	278 928	316 644	299 558

PJSC NK Rosneft	155 283	132 240	181 842	212 274	189 476
PJSC LUKOIL	111 800	68 886	82 673	90 733	82 515
Average value	158 670	139 752	145 112	152 274	147 596

Source: Authoring, based on [19, 20]

Table 9
Shareholders' equity of the twenty five leading publicly traded oil and gas corporations for 2008–2018, million USD

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	112 965	110 569	146 839	154 396	165 863
Chevron	86 648	91 914	105 081	121 382	136 524
ConocoPhillips	55 165	62 467	68 562	65 224	47 987
Occidental Petroleum	27 300	29 081	32 484	37 620	40 016
Devon Energy	17 060	15 570	19 253	21 430	21 278
Anadarko Petroleum	18 795	19 928	20 684	18 105	20 629
EOG Resources	9 014	9 998	10 232	12 641	13 285
Apache	16 509	15 779	24 377	28 993	31 331
Marathon Oil	21 409	21 910	23 771	17 152	18 283
Imperial Oil	7 406	9 023	11 167	13 101	16 446
Suncor Energy	11 865	32 607	36 688	37 963	39 388
Husky Energy	11 755	13 777	15 479	17 480	19 241
Canadian Natural Resources	15 012	18 569	20 966	22 520	24 385
Royal Dutch Shell	127 285	136 431	148 013	169 517	188 494
BP	91 303	101 613	94 987	111 465	118 414
TOTAL	68 182	75 706	80 725	88 033	96 200
Eni	61 842	66 373	68 421	71 775	78 107
Equinor (Statoil)	30 588	34 331	37 488	46 543	57 344
PetroChina	115 711	124 077	141 774	159 143	169 280
Sinopec	48 089	55 016	63 274	74 962	81 285
CNOOC	23 487	25 482	32 692	41 765	49 723
Petrobras	61 909	94 058	181 494	175 838	167 887
PJSC Gazprom	156 741	176 117	205 065	231 816	276 292
PJSC NK Rosneft	38 903	44 831	54 535	65 761	73 421
PJSC LUKOIL	50 340	55 991	59 197	67 638	73 207
Average value	51 411	57 649	68 130	74 891	80 972

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	174 399	170 811	167 325	187 688	191 794
Chevron	155 028	152 716	145 556	148 124	154 554
ConocoPhillips	51 911	39 762	34 974	30 607	31 939
Occidental Petroleum	34 959	24 350	21 497	20 572	21 330
Devon Energy	21 539	7 049	5 927	9 254	9 186
Anadarko Petroleum	19 725	12 819	12 212	10 696	8 496
EOG Resources	17 713	12 943	13 982	16 283	19 364
Apache	25 937	2 566	6 238	7 416	7 130
Marathon Oil	21 020	18 553	17 541	11 708	12 128
Imperial Oil	19 421	16 927	18 636	19 477	17 950
Suncor Energy	35 862	28 210	33 240	36 175	32 256
Husky Energy	17 736	11 985	13 120	14 313	14 368
Canadian Natural Resources	24 904	19 786	19 564	25 231	23 437
Royal Dutch Shell	171 966	162 876	186 646	194 356	198 646
BP	111 441	97 216	95 286	98 491	99 444
TOTAL	90 330	92 494	98 680	111 556	115 640
Eni	72 547	56 343	55 906	57 602	58 413
Equinor (Statoil)	51 225	40 266	35 072	39 861	42 970
PetroChina	192 171	181 674	171 403	182 657	176 927

Sinopec	96 918	103 799	102 493	111 126	104 512
CNOOC	61 182	59 595	55 073	58 401	60 703
Petrobras	116 272	65 236	76 779	79 802	71 544
PJSC Gazprom	174 491	145 296	182 906	201 893	191 448
PJSC NK Rosneft	51 050	39 598	54 553	62 830	58 341
PJSC LUKOIL	81 130	44 214	53 100	60 468	58 522
Average value	75 635	64 283	67 108	71 863	71 242

Source: Authoring, based on [19, 20]

Table 10

Proved reserves life of hydrocarbons of the twenty five leading publicly traded oil and gas corporations for 2008–2018, years

Company	31.12.2008	31.12.2009	31.12.2010	31.12.2011	31.12.2012
ExxonMobil	16.02	16.02	15.28	15.16	16.22
Chevron	12.09	11.46	10.46	11.52	11.88
ConocoPhillips	12.32	12.37	10.95	14.19	14.96
Occidental Petroleum	13.49	13.74	12.24	11.87	11.76
Devon Energy	10.20	11.73	12.60	12.51	11.87
Anadarko Petroleum	11.05	10.45	10.32	10.23	9.56
EOG Resources	11.94	13.94	13.82	13.31	10.61
Apache	12.27	11.12	12.30	10.95	10.01
Marathon Oil	8.71	11.41	10.89	12.36	11.70
Imperial Oil	16.39	26.79	28.39	36.13	40.19
Suncor Energy	22.73	21.34	14.59	17.02	17.45
Husky Energy	7.56	8.70	9.28	9.61	9.76
Canadian Natural Resources	22.07	18.56	18.45	20.71	19.20
Royal Dutch Shell	10.31	12.33	11.80	12.16	11.37
BP	12.92	12.54	12.95	14.08	13.94
TOTAL	12.21	12.59	12.32	13.34	13.50
Eni	10.03	10.18	10.33	12.75	11.51
Equinor (Statoil)	7.93	7.55	7.73	8.04	7.39
PetroChina	18.13	18.24	18.08	17.30	16.59
Sinopec	11.58	11.23	9.87	9.72	9.26
CNOOC	12.95	11.67	9.11	9.61	10.20
Petrobras	12.74	13.17	13.52	13.45	13.55
PJSC Gazprom	32.89	39.46	36.66	36.75	38.22
PJSC NK Rosneft	17.01	17.39	16.52	18.67	19.24
PJSC LUKOIL	23.67	21.24	20.70	21.30	21.13
Average value	14.37	15.01	14.37	15.31	15.24

(Continuation of table)

Company	31.12.2014	31.12.2015	31.12.2016	31.12.2017	31.12.2018
ExxonMobil	17.44	16.56	13.47	14.59	17.14
Chevron	11.83	11.67	11.71	11.72	11.27
ConocoPhillips	15.84	14.10	11.19	10.02	11.24
Occidental Petroleum	12.94	9.02	10.43	11.82	11.46
Devon Energy	11.21	8.79	9.20	10.86	9.87
Anadarko Petroleum	9.29	6.74	5.93	5.87	6.06
EOG Resources	11.50	10.14	10.47	11.37	11.15
Apache	10.03	7.67	6.87	7.04	7.26
Marathon Oil	13.12	13.81	14.57	10.00	8.36
Imperial Oil	41.24	34.16	10.61	12.84	30.35
Suncor Energy	20.59	19.29	19.35	17.09	15.36
Husky Energy	10.12	6.73	6.45	10.95	8.40
Canadian Natural Resources	18.08	17.25	19.19	24.42	23.69
Royal Dutch Shell	11.64	10.89	9.87	9.15	8.65
BP	15.24	14.36	14.89	14.05	14.84

TOTAL	14.71	13.52	12.83	12.25	11.90
Eni	11.32	10.73	11.63	10.55	10.59
Equinor (Statoil)	7.62	7.03	6.92	7.07	8.01
PetroChina	15.48	14.35	14.02	13.92	13.67
Sinopec	8.69	7.43	6.37	6.16	6.20
CNOOC	10.35	8.71	8.13	10.30	9.65
Petrobras	13.48	10.34	9.47	9.66	10.02
PJSC Gazprom	40.71	41.86	41.44	36.73	34.28
PJSC NK Rosneft	18.21	18.32	19.25	19.12	19.59
PJSC LUKOIL	20.04	18.61	19.69	19.34	18.60
Average value	15.63	14.08	12.96	13.08	13.50

Source: Authoring, based on [19, 20]

Table 11
Multipliers MCap/Assets, EV/Assets, MCap/Equity and EV/Equity of the twenty five leading publicly traded oil and gas corporations in 2012 and 2016

Company	31.12.2012				31.12.2016			
	MCap	EV	MCap	EV	MCap	EV	MCap	EV
	Assets	Assets	Equity	Equity	Assets	Assets	Equity	Equity
ExxonMobil	1.17	1.17	2.35	2.36	1.13	1.25	2.24	2.47
Chevron	0.90	0.86	1.54	1.47	0.86	1.01	1.53	1.80
ConocoPhillips	0.60	0.75	1.47	1.84	0.69	0.95	1.77	2.45
Occidental Petroleum	0.96	1.05	1.54	1.69	1.26	1.44	2.53	2.89
Devon Energy	0.48	0.64	0.98	1.31	0.92	1.24	4.03	5.41
Anadarko Petroleum	0.71	0.91	1.80	2.33	0.84	1.11	3.15	4.14
EOG Resources	1.20	1.40	2.47	2.88	1.98	2.16	4.17	4.56
Apache	0.51	0.71	0.98	1.37	1.07	1.39	3.86	5.01
Marathon Oil	0.61	0.78	1.19	1.51	0.47	0.63	0.84	1.11
Imperial Oil	1.23	1.26	2.21	2.25	0.95	1.06	1.58	1.77
Suncor Energy	0.65	0.74	1.27	1.44	0.83	0.99	1.64	1.96
Husky Energy	0.83	0.88	1.52	1.62	0.53	0.65	0.97	1.20
Canadian Natural Resources	0.64	0.82	1.29	1.65	0.81	1.10	1.81	2.45
Royal Dutch Shell	0.61	0.66	1.16	1.26	0.56	0.74	1.23	1.62
BP	0.44	0.53	1.11	1.36	0.50	0.63	1.39	1.75
TOTAL	0.51	0.62	1.21	1.45	0.54	0.68	1.26	1.59
Eni	0.48	0.60	1.12	1.40	0.45	0.62	1.05	1.46
Equinor (Statoil)	0.56	0.63	1.38	1.55	0.57	0.81	1.69	2.43
PetroChina	0.76	0.95	1.55	1.93	0.58	0.76	1.17	1.53
Sinopec	0.48	0.62	1.18	1.55	0.43	0.47	0.90	1.00
CNOOC	1.32	1.33	1.94	1.95	0.61	0.82	1.01	1.37
Petrobras	0.38	0.62	0.74	1.23	0.26	0.65	0.84	2.10
PJSC Gazprom	0.27	0.36	0.39	0.52	0.20	0.32	0.31	0.48
PJSC NK Rosneft	0.65	0.82	1.12	1.42	0.39	0.64	1.29	2.13
PJSC LUKOIL	0.50	0.54	0.68	0.73	0.49	0.58	0.76	0.90
Average value	0.70	0.81	1.37	1.60	0.72	0.91	1.72	2.22

Source: Authoring, based on [19, 20]

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Conflict-of-interest notification

I, the author of this article, bindingly and explicitly declare of the partial and total lack of actual or potential conflict of interest with any other third party whatsoever, which may arise as a result of the publication of this article. This statement relates to the study, data collection and interpretation, writing and preparation of the article, and the decision to submit the manuscript for publication.