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The Selection of Functional Currency for Oil and Gas Companies

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Abstract: Functional currency refers to the currency of the primary economic environment within which an entity operates. A strategic approach when selecting a functional currency is essential, especially in dynamically changing industries, such as the oil and gas upstream industry. This study divides companies into four groups, major oil companies, national oil companies, national flag oil companies, and independent oil and gas companies, to identify their general tendencies in terms of functional currency. The author's survey results reveal that all major oil companies use the US Dollar, while national oil companies and national flag oil companies use their respective local currencies. Independent oil and gas companies use the same currency for both their functional and presentation currencies. This study identifies three examples of changes in functional currency, which reveals that the management's discretion to change the functional currency is somewhat limited and events should be "leveraged" to implement the change.

Key words: Functional currency, presentation currency, oil and gas upstream industry, IAS21, FAS52.
JEL codes: M41, Q35.

1. Introduction

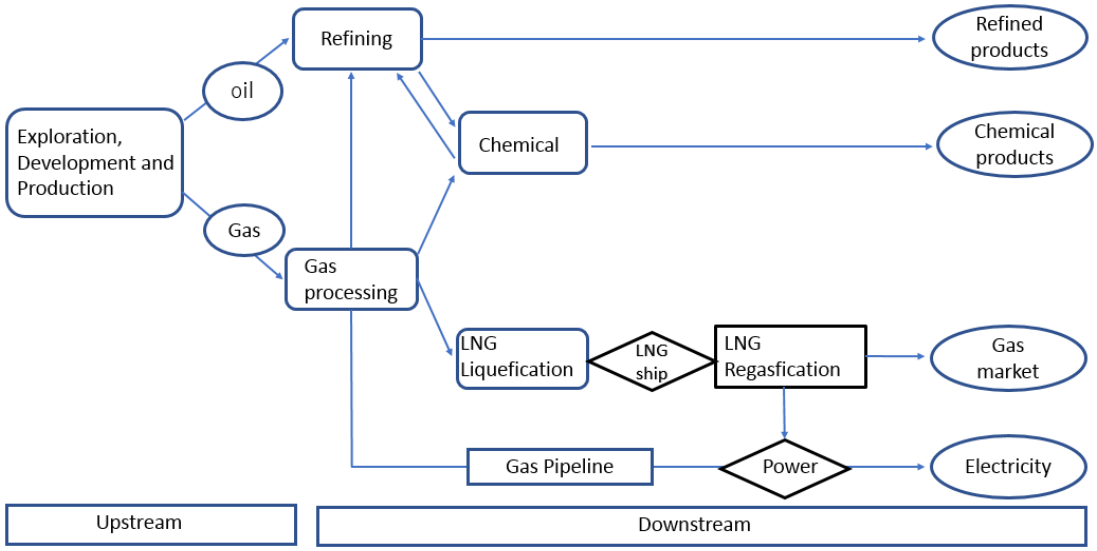
The oil and gas upstream industry continuously undergoes changes driven by new technologies (Yergin, 1990). The shale gas revolution in the US is a typical example of the global dynamic evolution of the oil and gas industry (BP Global, 2016). The participants in the oil and gas sector range from large national oil companies to small independent companies. To identify the companies that outperform the rest, it is important to determine a means of performance measurement for oil and gas upstream companies.

Functional currency is the currency of the primary economic environment in which an entity operates (Eiteman et al., 2016). It is important to adopt a strategic approach in selecting the functional currency. Both the International Financial Reporting Standards (IFRS) and the US Generally Accepted Accounting Principles (US GAAP) address the idea of "functional currency" (PwC Japan, 2016). However, issues of functional currency—especially for oil and gas upstream companies—have not been addressed. Some previous studies focused only on issues related to foreign currency translation, neglecting related issues that influence their business. Functional currency difficulties are likely to emerge as oil becomes a strategic commodity. In practice, there must be valid reasons behind choosing a functional currency.

Certain companies have vertically integrated operations from upstream to downstream, while some companies have either an upstream or downstream footprint. This study focuses on upstream companies in the oil and gas sector. Diagram 1 provides an overview of the value chain in the oil and gas industry showing upstream and

downstream sectors.

Diagram 1　Value chain of oil and gas industry Source: Appendix 1



Source: Appendix I

Customarily, crude oil, refined oil products, and liquefied natural gas (LNG) have been internationally traded largely in USD for a long time (PwC Japan, 2016). However, oil and gas upstream companies must choose a functional currency to report their financial statements in accordance with accounting principles. Statoil ASA[1], a national oil company in Norway, changed its functional currency from Norwegian krone (NOK) to USD in January 2009, while retaining the NOK as its presentation currency[2] (Statoil: Annual report on Form 20-F, 2008). This study states the following research questions: Do functional currencies differ depending on the type of oil and gas company? If so, how do they differ? Do oil and gas upstream companies consider general trends in choosing functional currencies? Do the management teams of oil and gas companies have the discretion to choose the functional currency? If so, do they also have the ability to change them at their discretion? What type of events cause changes in the functional currency? Taking these questions into account, the author believes that it is necessary to shape accounting strategies to address functional currency issues.

2. Literature Review

Past discussions regarding functional currencies are closely related to currency translation for foreign subsidiary companies. Two major currency translation methods for financial statements are the temporal method, in which translation gains and losses are included as part of the income, and the current rate method, in which translation gains and losses are taken directly to reserves (Ruland and Doupnik, 1988). The companies whose functional currency is similar to that of their parent companies' currency generally use the temporal method, while companies whose functional currency is the local currency use the current rate method.

Revsine (1984, p. 514) indicated the possibility that the misuse of Financial Accounting Standard Board (FASB)

[1] Statoil ASA renamed as Equinor ASA in 2018.
[2] The presentation currency is the currency in which the financial statements are presented (PwC Japan, 2016).

guidelines may lead to the incompatibility of financial statements and that firms would be "ill-advised to select the functional currency in order to gain near-term income enhancement."

Arnold and Holder (1986) interviewed the executive managers of 22 multinational companies in the US. They found that among the 18 companies whose functional currencies were local currencies, only five took formal steps to address the six indicators mandated by the FASB Statement 52: *Foreign Currency Translation*. These indicators include cash flow, sales price, sales market, expense, financing, and intercompany transactions and arrangements indicators. This survey indicated that—in practice—the management teams of US multinational companies exercised their discretionary power to select their functional currencies under FASB 52, especially those companies whose functional currencies were local currencies. However, scholars researching this topic did not find evidence to indicate that the choice of functional currencies or other accounting choices by management was opportunistic or deceptive (Ayres, 1986; Taylor et al., 1990; Aiken and Ardern, 2003).

Doupnik and Evans (1988) found that among the 338 multinational corporations that selected a foreign currency as their functional currency, as of 1983, only 126 made an appropriate selection under the framework determined by US GAAP. They also revealed that among 102 companies that selected the USD as their functional currency, the 99 followed the appropriate procedures when deciding to use the USD as their functional currency. Their study indicated that companies that chose the USD as their functional currency adhered to the FASB rules more strictly.

Bartov and Bodnar (1995) identified the existence of a significant lagged relation between changes in the USD and company value under FASB. Companies that report using USD as their functional currency have to report exchange-rate gains or losses on their income statement. For companies that report using a foreign currency as the functional currency, the significant lagged relation disappears, as they report an unrealized exchange-rate adjustment in the cumulative translation adjustment. According to Bartov and Bodnar, the use of a foreign currency as the functional currency enables investors to determine the true foreign currency exposure of US companies.

Mehta and Thapa (1991) discussed several US multinational companies and the functional currencies of their subsidiary companies. They discovered that the subsidiary companies of Exxon (ExxonMobil) mainly used local currencies as their functional currencies, except for operations in highly inflationary economies such as, Norway, Malaysia, and the Middle East, where they used the USD as the functional currency. However, the subsidiary companies of Texaco (Chevron) used the USD as their functional currency. Both Exxon and Texaco carried out similar operations under the US GAAP through their overseas subsidiary companies, but the former chose the local currency, while the latter chose the USD as the functional currency. Mehta and Thapa also revealed that some multinational companies in the US have changed their functional currencies in the past. An example is Exxon (ExxonMobil), who changed the functional currency of its Norway operation from the USD to the local currency in 1985. Other companies whose international subsidiaries changed to local currencies include Data General, General Electric, and Caterpillar Tractor, whose functional currency was originally the USD, but was changed to the respective local currencies in the mid-1980s.

Nobes (2006) asserted that a company's functional currency in the United Kingdom would generally be that of its country of operation. Aoki et al. (2016) discussed the same trend in Japan, indicating that 54 out of 61 companies in Japan that adopted the IFRS used the current rate method for currency translation, indicating that their functional currency must be the local currency. Taylor et al. (1990) discussed functional currency choice and currency translation methods prior to the introduction of an Australian Accounting Standard, by which an agreement was reached regarding the method of translating foreign subsidiaries' assets and liabilities. However, no such agreement

could be reached regarding the method of reporting the resulting gains or losses. Some scholars also discussed the choice of functional currency and currency translation from the view point of purchasing price parity (Ruland and Doupnik, 1998), currency risk management in US multinational enterprises (Duangploy et al., 1997; Shin and Soenen, 1999), as well as hyperinflated economic environments (Ziebart, 1985; Duangploy and Owings, 1997) and moderately inflated economic environments (Morrison and Dole, 2014).

3. Data Survey—Functional Currencies of the Top 50 Oil and Gas Companies

The data for our survey were obtained from the financial statements of oil and gas upstream companies and an industrial research paper by Petroleum Intelligence Weekly (PIW). PIW has been on the top tier of energy companies for more than 25 years. Table 1 shows the list of the top 50 companies ranked by PIW.

Table 1 Top 50 rankings of the World's Oil Companies in 2016

Rank	Company name	Country	Rank	Name of company	country
1	Saudi Aramco	Saudi Arabia	26	EGPC	Egypt
2	NIOC	Iran	27	Pertamina	Indonesia
3	CNPC	China	28	Statoil	Norway
3	Exxon Mobil	USA	29	ConocoPhillips	USA
5	PDV	Venezuela	30	CNOOC	China
6	BP	UK	30	Repsol	Spain
6	Rosneft	Russia	32	Kazmunaygas	Kazakhstan
8	Royal Dutch Shell	Netherlands	33	Libya NOC	Libya
9	Gazprom	Russia	34	PDO	Oman
10	Total	France	35	Novatek	Russia
11	Chevron	USA	36	Ecopetrol	Columbia
12	Petrobras	Brazil	37	BG	UK
12	Sonatrach	Algeria	38	CNR	Canada
14	KPC	Kuwait	39	Uzbekneftegaz	Uzbekistan
15	Adnoc[3]	UAE	40	Anadarko[4]	USA
16	Lukoil	Russia	41	YPF	Argentina
17	QP	Qatar	42	Devon	USA
18	Pemex	Mexico	43	Inpex	Japan
19	Petronas	Malaysia	44	Reliance	India
20	Sinopec	China	45	Chesapeake	USA
21	INOC	Iraq	46	EOG	USA
21	NNPC	Nigeria	47	BHP Billiton	Australia
23	Eni	Italy	47	Occidental	USA
24	Surgutneftegas	Russia	47	Suncor	Canada
25	ONGC	India	50	Tatneft	Russia

Source: Petroleum Intelligence Weekly (2016)[5]

Kikkawa (2010, 2012) divided these 50 companies into three categories and researched each company's functional and presentation currencies along with the accounting rules.

3.1 Major Oil Companies

Kikkawa (2010) categorized only four companies—ExxonMobil, Royal Dutch Shell, BP, and Chevron—as major oil companies. All four companies were transformed from companies that belonged to the "Seven Sisters"

[3] ADNOC does not disclose its financial statements, but the Abu Dhabi Accountability Report, where ADNOC is listed as a state-owned enterprise, is prepared in accordance with IFRS using AED as the functional currency. Thus, it is assumed that ADNOC uses AED as its functional currency.

[4] Chevron announced agreement to acquire Anadarko on April 12th, 2019. https://www.chevron.com/investors/press-releases

[5] Webpage of Energy Intelligence: http://www.energyintel.com/pages/pr-top100-ranking-2016.aspx

companies that once dominated the oil and gas industry (Bagheri and Minin, 2015). “Seven Sisters” refers to a group of international oil companies that included Exxon, Mobil, and Chevron, the successor entities of the Standard Oil Trust (which was dissolved by the US Supreme Court’s decision in 1911), and Gulf Oil, Texaco, British Petroleum, and Shell. They transformed over the years into the current organizations. Total in France is considered a super major oil company (PwC Japan, 2016), but it has been intentionally excluded from this study. All four major oil companies use the USD as their functional currency. Two US companies—ExxonMobil and Chevron—adopted the US GAAP, while the remaining two non-US companies—Shell and BP—adopted the IFRS as their accounting principle.

Table 2 Major oil companies

Rank	Name	Country	Currency in annual report		Govt. (%)	Conformity
			Functional	Presentation		
3	Exxon Mobil	USA	USD	USD	—	US GAAP
6	BP	UK	USD	USD	—	IFRS
8	Royal Dutch Shell	Netherlands	USD	USD	—	IFRS
11	Chevron	USA	USD	USD	—	US GAAP

Note: Functional and presentation currencies as of December 2014

Source: PIW (Table 2) and each company’s financial statements

3.2 National Oil Companies

National oil companies (NOCs) are companies in which the government holds more than 50% of shares with a surplus energy balance (exporting position) (Kikkawa 2010, p. 100). NOCs hold a dominant position in the oil and gas upstream industry, especially for the Organization of the Petroleum Exporting Countries (OPEC), holding nearly 70% of the hydrocarbon reserves in the world (PwC Japan, 2016). Some companies in Table 3 did not disclose their functional currencies because they were not listed companies in any open stock markets. The fact that they do not disclose their accounting principles may explain the mindset gap between state-owned- and non-state-owned energy companies. While privately held companies seek to maximize their shareholder value, state-owned companies do not necessarily seek the same (Penrose, 1968; Pirog, 2007). State-owned companies often need to provide job opportunities and facilitate the wealth distribution mechanism. Furthermore, they seek to become mechanisms for achieving economic growth, as well as for implementing foreign policies, by using oil as a strategic commodity. It is therefore evident that their need to maximize shareholder value has to compete against other strategic objectives (Pirog, 2007). A clear tendency to select their own national currencies as functional currencies was identified in this category, except for five companies—Saudi Aramco in Saudi Arabia, PDV in Venezuela, Pertamina in Indonesia, Statoil in Norway, and YPF in Argentina. Among the NOCs, Statoil and YPF are the only companies whose functional and presentation currencies are different. Approximately 36% of the companies in this category use the USD as their functional currency, excluding the companies that did not disclose their functional currencies.

Table 3 National oil companies

Name		Country	Currency in annual report		Govt. (%)	Conformity
			Functional	Presentation		
1	Saudi Aramco	Saudi Arabia	USD	USD[6]	100	-[7]
2	NIOC	Iran	—	—	100	
5	PDV	Venezuela	USD	USD	100	IFRS
12	Sonatrach	Algeria	—	—	100	
14	KPC	Kuwait	Kuwaiti Dinars	Kuwaiti Dinars	100	IFRS
15	ADNOC	UAE	AED	AED	100	IFRS
17	QP	Qatar	Qatar Riyal	Qatar Riyal	100	Local[8]
18	Pemex	Mexico	Mexican Peso	Mexican Peso	100	IFRS
19	Petronas	Malaysia	Ringgit	Ringgit	100	Local[9]/IFRS
21	INOC	Iraq	—	—	100	
21	NNPC	Nigeria	—	—	100	
26	EGPC	Egypt	—	—	100	
27	Pertamina	Indonesia	USD	USD	100	IFRS
32	Kazmunaygas	Kazakhstan	KZT	KZT	100	IFRS
33	Libya NOC	Libya	—	—	100	
39	Uzbekneftegaz	Uzbekistan	—	—	100	
36	Ecopetrol	Colombia	Columbian Pesos	Columbian Pesos	88.49	Local[10]
6	Rosneft	Russia	RUB	RUB	69.5	IFRS
28	Statoil	Norway	USD	NOK[11]	67	IFRS
34	PDO	Oman	—	—	60	
41	YPF[12]	Argentina	USD	Argentina Pesos	51	IFRS
9	Gazprom	Russia	RUB[13]	RUB	50.003	IFRS

Note: Functional and presentation currencies as of December 2014, except for PDV and Pemex, which are as of December 2013

3.3 National Flag Oil Companies

National flag oil companies refer to energy companies that are wholly or partially owned by governments whose origin countries' energy balances are in a position of importing oil and gas (Kikkawa, 2010). They also include some companies without governmental shares. These are representative of their country of origin from the viewpoint of export-oriented NOCs owing to the diplomacy of natural resources (Kikkawa, 2010). National flag oil companies aim to acquire strategic interests in overseas crude oil and natural gas. Victor (2007) also pointed out the

[6] Saudi Aramco changed its presentation currency from USD to SAR on January 1st, 2017. (Saudi Aramco Base Prospectus, April 1st, 2019, p. F.92.)

[7] Saudi Aramco adapted IFRS as of 2018 but is unclear what was the accounting principle as of December 2014.

[8] Qatar Petroleum's Annual Report 2014: "1974-2014 40 Years of Excellence" stated the following: "The summary consolidated financial statements have been prepared in accordance with the requirements of Emiri Decree No. 10 of 1974 (as amended by Law No. 5 of 2012), concerning the establishment of QP, the Council of Ministers' Decision No. 6 of 1976 (as amended) and QP Chairman Resolution No. 17 of 2013 related to accounting policies." (p. 120)

[9] Petronas's Annual Report 2014: "Reimaging Energy" stated the following: "The financial statements of the Group and of the Company have been prepared in accordance with Malaysian Financial Reporting Standards (MFRS), International Financial Reporting Standards and the Companies Act, 1965 in Malaysia." (p. 136)

[10] Ecopetrol's financial statements were reported according to the IFRS from January 2015.

[11] Statoil changed its presentation currency in January 1, 2016 from Norwegian kroner to USD. (Statoil Annual report, 2016, p. 9).

[12] In 2012, the Argentine government reacquired YPF. In this report, the energy balance was calculated based on data provided by the World Bank. The author took the average number of each country's energy balance between 2011 and 2013. According to the World Bank, Argentina had been in an energy exporting position until 2010 but switched to an importing position after 2011. Argentina is known to have significant shale resources; therefore, YPF is considered a NOC in this study, despite its current position being an energy importing one.

[13] Gazprom's annual report did not explicitly identify the functional currency and include an explanation on whether the presentation currency differs from the functional currency based on IAS21-53. Therefore, this study considers the functional and the presentation currencies to be the same.

fundamental difference between export-oriented NOCs and import-oriented NOCs. Generally, national flag oil companies received substantial support from governments in the past. Total in France is considered a super major oil company, but Kikkawa (2010) intentionally categorized it as a national flag oil company, because it can be considered as a company that represents France. Additionally, as the French government owned more than 30% of Total until the early 1990s, this study categorizes it as a national flag oil company.

Table 4 National flag oil companies

Rank	Name	Country	Currency in Annual Report		Government Ownership (%)	Conformity
			Functional	Presentation		
3	CNPC	China	RMB	RMB	100	Local[14]
30	CNOOC	China	RMB[15]	RMB	100	Local[16]
20	Sinopec	China	RMB	RMB	72.47	IFRS
25	ONGC	India	Rupee[17]	Rupee	68.94	Local[18]
23	Eni	Italy	Euro	Euro	30.1	IFRS
12	Petrobras	Brazil	Brazilian Real	USD	28.7	IFRS
43	Inpex	Japan	Japanese Yen[19]	Japanese Yen	18.94	Local[20]
10	Total	France	Euro	USD[21]	—	IFRS
30	Repsol	Spain	Euro	Euro	—	IFRS
37	BG[22]	UK	GBP	USD	—	IFRS

Note: Functional and presentation currencies as of December 2014, except for ONGC and Inpex, which are as of March 2015

Source: PIW (Table 2) and each company's financial statements

Scholars have previously explored international oil companies, including national flag oil companies. Although their roles are diminishing (Stevens, 2016), they are still active players in the oil and gas upstream industry. The data survey identified a clear pattern among the 10 national flag oil companies of selecting their own national currencies as functional currencies. The survey revealed that three companies, Total in France, Petrobras in Brazil, and BG in the United Kingdom, are the only companies whose functional and presentation currencies are different. None of the companies in this category use the USD as their functional currency. This study created another category for the remaining companies, namely "Others" (independent oil and gas companies).

3.4 Others (Independent Oil and Gas Companies)

The remaining companies fall into this category. These independent companies are free from government and control as their respective governments do not hold any shares.

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[14] The CNPC Annual Report 2014 stated: "CNPC (hereinafter referred to as the Company) follows *Accounting Standards for Business Enterprises—Basic Principles* and the specific rules of accounting standards, guidelines for the application of accounting standards, interpretations of accounting standards, and relevant regulations issued by the Ministry of Finance." (p. 42)

[15] CNOOC's annual report used the term of "recording currency" instead of "functional currency" (CNOOC Annual Report 2014, pp. 25).

[16] The CNOOC Annual Report 2014 stated: "The financial statements of the Company have been prepared in accordance with the going concern basis and the 'Accounting Standards for Business Enterprises - Basic Standard' issued by the Ministry of Finance on 15 February 2006 and other relevant accounting standards and regulations." (p. 25)

[17] The ONGC Annual Report (2014–2015) did not explicitly mention its functional currency, but the notes indicated it.

[18] The ONGC Annual Report (2014–2015) stated: "The financial statements are prepared under the historical cost convention on accrual basis in accordance with Generally Accepted Accounting Principles (GAAP), applying the Successful Efforts Method as per the Guidance Note on Accounting for Oil and Gas Producing Activities (Revised) issued by the Institute of Chartered Accountants of India and Accounting Standards notified under the Companies (Accounting Standards) Rules, 2014 and provisions of the Companies Act, 2013." (p. 287)

[19] Japanese accounting standards do not include the idea of "functional currency."

[20] Inpex Annual Report in 2014: "From Development to Delivery" stated that the financial statements are prepared in accordance with the Japanese accounting rules (in Japanese). (p. 85)

[21] Total has changed the presentation currency of its consolidated financial statements from the Euro to the USD, effective from January 2014, but the statutory financial statements of its parent company are prepared in Euro.

[22] Shell acquired BG in 2016.

Table 5 Independent oil and gas companies

Rank	Name	Country	Currency in annual report		Govt. (%)	Conformity
			Functional	Presentation		
29	Conoco Phillips	USA	USD	USD	—	US GAAP
40	Anadarko	USA	USD	USD	—	US GAAP
42	Devon Energy	USA	USD	USD	—	US GAAP
45	Chesapeake	USA	USD	USD	—	US GAAP
46	EOG	USA	USD	USD	—	US GAAP
47	Occidental	USA	USD	USD	—	US GAAP
44	Reliance	India	Rupee	Rupee	—	Local[23]
47	BHP Billiton	Australia	USD	USD	—	IFRS
16	Lukoil[24]	Russia	USD[25]	USD	—	US GAAP[26]
35	Novatek[27]	Russia	RUB[28]	RUB	—	IFRS
24	Surgutneftegas[29]	Russia	RUB	RUB	—	IFRS
50	Tatneft[30]	Russia	RUB	RUB	—	IFRS
47	Suncor	Canada	Canadian $	Canadian $	—	IFRS
38	CNR	Canada	Canadian $	Canadian $	—	IFRS

Note: Functional and presentation currencies as of December 2014, except Reliance, which are as of March 2014

Source: PIW (Table 2) and each company's financial statements

Five countries—the US, India, Australia, Russia, and Canada—were identified as nations with independent oil and gas companies. According to Lukoil's annual report of 2015, its accounting principles have changed from the US GAAP to the IFRS, while its functional currency has changed from the USD to the Russian ruble. The functional and presentation currencies of three other ranked Russian companies—Surgutneftegas, Novatek, and Tatneft—is the Russian ruble. As of 2014, BHP Billiton in Australia and Lukoil in Russia are the only companies whose functional currency (USD) is not their own national currency. Approximately 57% of the companies in this category use the USD as their functional currency.

3.5 Non-US Oil and Gas Companies (Except Major Oil Companies) with the USD as Functional Currency

The seven companies—Saudi Aramco, PDV, Pertamina, Statoil, Lukoil, YPF, and BHP Billiton —are all non-US companies and they are unique owing to their choice of the USD as their functional currency. Previously, scholars studied companies that have chosen to aim for higher operational efficiency by restructuring their organization. Philip (1999) revealed that Venezuelan state institutions are performing poorly, but PDV is a "special case" in the oil sector, as it has been operating relatively efficiently. Pertamina's strategy development was studied by Goentoro (2016), who discovered that it also aimed for higher operational efficiency by restructuring the

[23] Reliance Industries Limited's Annual Report 2013–14: "Growth is Life" stated: "These financial statements have been prepared to comply with Accounting Principles Generally accepted in India (Indian GAAP), the Accounting Standards notified under the Companies (Accounting Standards) Rules, 2006 and the relevant provisions of the Companies Act, 1956." (p. 172)

[24] Kikkawa (2010) categorized Lukoil as a national oil company. However, this study considers it an independent company as it is free from Russian government ownership.

[25] Lukoil changed its functional currency from the USD to the Russian ruble in 2015.

[26] Lukoil changed its accounting rule from US GAAP to IFRS in 2015.

[27] Kikkawa (2010) was unclear about this, but Novatek can be considered one of the national oil companies of Russia.

[28] The annual report of Novatek did not explicitly identify the functional currency and include any explanation on whether the presentation currency differs from the functional currency based on IAS21-53. Therefore, this study considers the functional and the presentation currencies to be the same.

[29] Kikkawa (2010) was unclear about this, but Surgutneftegas can be considered one of the national oil companies of Russia.

[30] Kikkawa (2010) was unclear about this, but Tatneft can be considered one of the national oil companies of Russia.

organization. Mergers and acquisitions are chosen by some companies as a growth strategy. The Argentine oil company YPF was acquired by the Spanish oil company Repsol in 1999, as reported by Vandenberghe (2011). Statoil merged with the petroleum operations of Norsk Hydro in 2007 (Thurber and Istad, 2010). BHP attempted to acquire Rio Tinto, but it was declined (Floris et al., 2013). Some companies have chosen to cope with a strategic alliance, an example being Lukoil that chose to cope with BP, Agip, and ConocoPhillips (Gorst, 2007).

Table 6 Non-US companies with the USD as functional currency

Rank	Name	Country	Currency in annual report		Govt. (%)	Category
			Functional	Presentation		
1	Saudi Aramco	Saudi Arabia	USD	USD[31]	100	NOC
5	PDV	Venezuela	USD	USD	100	NOC
27	Pertamina	Indonesia	USD	USD	100	NOC
28	Statoil	Norway	USD	NOK	67	NOC
41	YPF	Argentina	USD	Argentina Pesos	51	NOC
16	Lukoil	Russia	USD	USD	—	Independent
47	BHP Billiton	Australia	USD	USD	—	Independent

Source: Table 3 and 5

The author categorized seven companies into the following four categories: USD pegged, currency devaluation, globalization, and others.

USD pegged

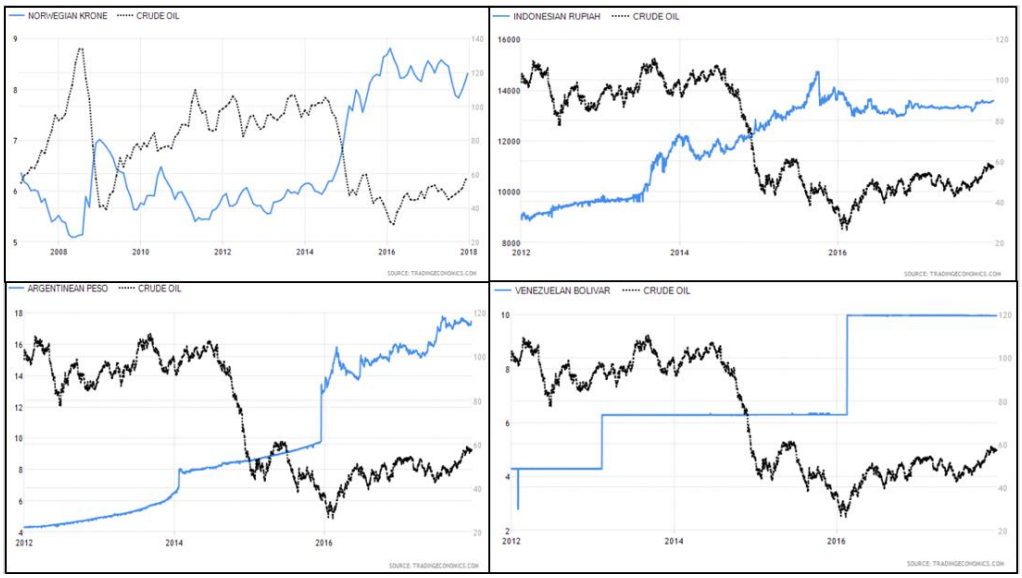
Saudi Aramco has been using USD as its functional currency. Saudi Arabia is the biggest oil producer in OPEC countries and their local currency has been pegged with USD at a fixed exchange rate.

Currency Devaluation for National Oil Companies

When the local currency is exposed to devaluation, some national oil companies have a clear tendency to rely on the USD as the functional currency for stabilizing their financial performance. Companies such as Statoil, Pertamina, PDV, and YPF follow this pattern. The charts below indicate their respective countries' currency against the USD along with the WTI crude oil price.

[31] Saudi Aramco changed its presentation currency from USD to SAR on January 1st, 2017 (Base prospectus, April 2019, p.F.92).

Chart 1. (USD/Norwegian krone and WTI crude price)[32] (USD/Indonesian rupiah and WTI crude price)[33] (USD/Argentinean Peso & WTI crude price)[34] (USD/Venezuelan Bolivar & WTI crude price)[35]

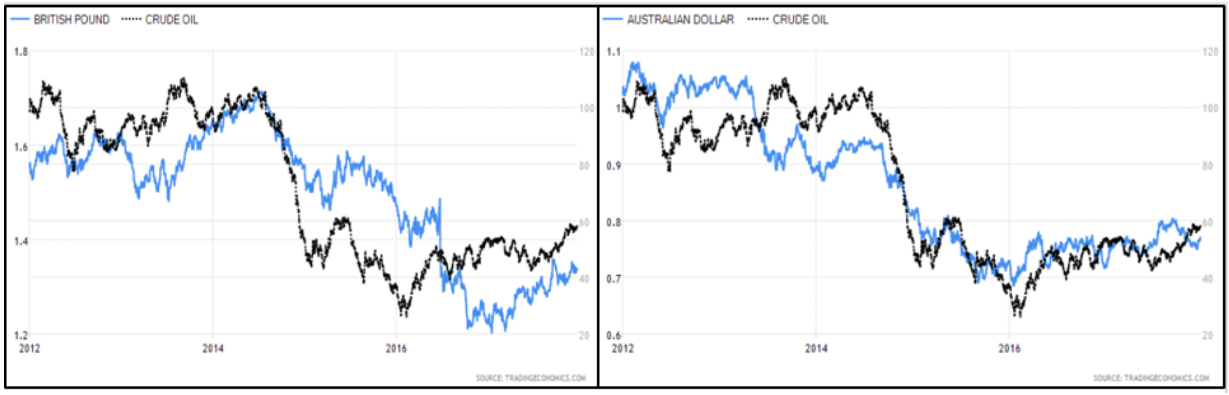


Source: Trading Economics

Globalized Operation for an Independent Oil and Gas Company

BHP Billiton is a listed company in Australia and the United Kingdom. It is one of the major mining companies in the world with approximately 60,000 employees in 87 locations (BHP Annual report 2017, p. 44), and offices in 14 countries. As indicated by the case of the major oil companies, a company with diversified business platforms rising to the global stage indicates an increase in the likelihood of choosing the USD as its functional currency. The charts below (Chart 2) indicates the pound sterling and Australian dollar (the currencies of the UK and Australia where BHP Billiton is listed) against the USD along with the WTI crude oil price.

Chart 2 (USD/GBP & WTI crude price[36]) (USD/Australian dollar and WTI crude price[37])



[32] USD/Norwegian Krone & Crude Oil Price at Trading Economics: https://tradingeconomics.com/norway/currency
[33] USD/Indonesian Rupiah & Crude Oil Price at Trading Economics: https://tradingeconomics.com/indonesia/currency
[34] USD/Argentinean Peso & Crude Oil Price at Trading Economics: https://tradingeconomics.com/venezuela/currency
[35] USD/Venezuelan Bolivar & Crude Oil Price at Trading Economics: https://tradingeconomics.com/argentina/currency
[36] USD/Pound Sterling & Crude Oil Price at Trading Economics: https://tradingeconomics.com/united-kingdom/currency
[37] USD/Australian Dollar & Crude Oil Price at Trading Economics: https://tradingeconomics.com/australia/currency

Source: Trading Economics

Others

As described in the section below, Lukoil's decision to change its functional currency from the USD to Russian ruble in 2015 is unique. Unlike some other companies, Lukoil chose Russian ruble as its functional currency during a phase of currency devaluation (see chart 3 below).

Diagram 2 indicates government ownership, PIW ranking in 2016, and each company's functional currency.

Diagram 2. Equity participation of the government (company name, ranking in 2016, and functional currency)

0%	1 - 49%	50 - 99%	100%
National Flag Total(10,€), Repsol(30,€), BG(37,£)	**National Flag** Petrobras(12,BR), Eni(23,€), Inpex(43,¥)	**National Flag** Sinopec(20,RMB), ONGC(25,RP)	**National Flag** CNPC(3,RMB), CNOOC(30,RMB)
Major Oil ExxonMobil(3, $), BP(6,$), Shell(8,$), Chevron(11,$)		**National Oil** Rosneft(6,RB), Gazprom(9,RB), Statoil(28,$), PDO(34,na), Ecopetrol(36,CP), YPF(41,$)	**National Oil** Aramco(1,$), NIOC(2,na), PDV(5,$), Sonatrach(12,na), KPC(14,KD) Adnoc(15,AED), QP(17,QR), Pemex(18,MP), Petronas(19,RM), INOC(21,na), NNPC(21,na), EGPC(26,na), Pertamina(27,$), Kazmunaygas(32,KT), Libya NOC(33,na), Uzbekneftegaz(39,na)
Independent Lukoil(16, $) Surgutneftgas(24,RB), ConocoPhillips(29,$), Novatek(35,RB), CNR(38,C$), Anadarko(40,$), Devon(42,$), Reliance(44,Rs), Chesapeake(45,$), EOG(46,$), Suncor(47,C$), Occidental(47,$), BHP Billiton(47,$), Tatneft(50,RB)			
			Source: Table 2, 3, 4, 5

4. Change in Functional Currencies

In the past, the management teams of several oil and gas companies chose to change their functional currencies. This study conducted a survey of the financial reports of the top 50 ranked companies and their subsidiary companies and identified companies that changed their functional currencies. Between 2011 and 2016, the 59 companies described above were ranked in the PIW top 50 (that is, nine companies came and went out of the top 50 ranking).

Examples of these companies are PTTEP in Thailand, Aker BP in Norway, and Lukoil in Russia. What type of events lead them to change their functional currency?

Table 7 Companies that changed their functional currencies

	(1) PTTEP	(2) Aker BP[38]	(3) Lukoil
National	Thai	Norway	Russia
Year	Jan., 2011	Oct., 2014	Jan., 2015
Category	National Flag	Independent	Independent
Old Functional Currency	THB	NOK	USD
Old Presentation currency	THB	NOK	USD
Old Accounting Rule	Thai GAAP	IFRS	US GAAP
Event	Accounting rule change	Acquisition	Accounting rule change
New Functional Currency	USD	USD	RUB
New Presentation Currency	THB	USD	RUB
New Accounting Rule	TFRS/IFRS[39]	IFRS	IFRS

Sources:

(1) PTTEP: Annual report 2011, *Challenge*

(2) The transformation of Det Norske: Annual report 2014

(3) PJSC "LUKOIL": Annual report 2015, *Always moving forward*

4.1 PTTEP

PTTEP is a national flag oil company in Thailand. It ranked 50th in the PIW top 50 in 2013. It changed its functional currency from the Thai baht to the USD in January 2011. Since then, PTTEP has complied with the Thai Financial Reporting Standards (TFRS), which conforms to the IFRS. According to PTTEP, the benefits of changing its functional currency are: (1) reporting in the USD to reflect its operation and performance, (2) the ability to benchmark against international oil and gas companies, (3) positive outlook of investors, (4) better access to the global capital market, (5) increased fund-raising capability (e.g., bond issuance), and (6) better information for strategic investment decision making.

4.2 Aker BP

Aker BP (formerly, Det Norske oljeselskap) is an independent oil and gas company in Norway and a subsidiary company of BP. It took over Marathon Oil Norge AS, a subsidiary company of Marathon Oil Corporation in the US, in October 2014. Since then, it has changed its functional currency from the NOK to the USD. It also changed its presentation currency from the NOK to the USD but did not change its accounting rules to the IFRS. Aker BP's (then, Det Norske oljeselskap) management decided to change its functional and presentation currencies as it was expected to significantly increase the revenue from petroleum products, which was mainly denominated in the USD owing to the acquisition of Marathon Oil Norge AS.

4.3 Lukoil

Lukoil is an independent oil and gas company in Russia. It changed its accounting principles from the US GAAP to the IFRS in 2015. Since then, Lukoil has also changed its functional currency from the USD to the Russian ruble. The reason for changing its accounting principle is unclear. However, among the major oil and gas companies of Russia, Lukoil was the only company who adopted the US GAAP in 2014. All other independent oil and gas companies, such as Surgutneftegas, Novatek, and Tatneft, as well as NOCs, such as Rosneft and Gazprom, in Russia chose the Russian ruble as their functional currency. Thus, the trigger for the change in Lukoil's functional currency was considered as the change in its accounting principles. Lukoil's decision to change its functional currency is

[38] BP Global Investment Limited owns 30% shares of Aker BP as of January 2018: https://www.akerbp.com/en/investor/the-share/largest-shareholders/

[39] PTTEP's annual report in 2011: "Challenge" stated: "Since January 1, 2011, PTTEP has complied with Thai Financial Reporting Standards (TFRS) in conformity with International Financial Reporting Standards (IFRS)" (p. 70).

unique, especially during a phase when the Russian ruble was devaluating (see Chart 3 below).

Chart 3 Cross-chart between USD/Norwegian krone and USD/Russian ruble[40]

Source: Trading Economics

Originally, the management teams of oil and gas companies had the ability to select their functional currency based on the indicators specified by the accounting rules. However, when the functional currency is changed, the management's discretion is limited. PTTEP and Lukoil changed their functional currencies in 2011 and 2015, along with the change in their accounting rules. Aker BP changed its functional currency upon merger and acquisition. The managements of oil and gas exploration and production (E&P) companies have some discretion in selecting their functional currency. However, when the functional currency changes, this discretion becomes limited and management needs events—such as structure changes, changes in business circumstance, and accounting principles—as leverage. It is important to recognize that this merely indicates the exercising of discretionary rights by some companies. Thus, not all companies will choose to change despite their discretionary rights. A good example is Shell, which chose not to change its functional currency from the USD when it acquired BG in 2016 and whose functional currency is the Pound Sterling.

5. Conclusions

This survey report identified the following points:

5.1 Clear tendency

All the major oil companies use the USD as their functional currency. ExxonMobil and Chevron have both adopted the US GAAP, while Royal Dutch Shell and BP have adopted the IFRS as their accounting principles. NOCs have a clear tendency of selecting their own national currencies as functional currencies, except for five companies, namely, Saudi Aramco in Saudi Arabia, PDV in Venezuela, Pertamina in Indonesia, Statoil in Norway,

[40] Webpage of Trading Economics: https://tradingeconomics.com/norway/currency

and YPF in Argentina. Among the NOCs, Statoil and YPF are the only companies whose functional and presentation currencies differ. All 10 national flag oil companies also indicated a clear tendency of using their own national currencies as functional currencies. The survey revealed that three companies, Total in France, Petrobras in Brazil, and BG in the United Kingdom are the only companies whose functional and presentation currencies differ. Among independent oil and gas companies, as of 2014, BHP Billiton in Australia and Lukoil in Russia are the only companies whose functional currency (USD) is not their own national currency.

5.2 USD to stabilize and for globalized companies

When a currency devaluates, some national oil companies have the clear tendency to rely on the USD as their functional currency to stabilize their financial performance. Companies such as Statoil, Pertamina, PDV, and YPF indicate this pattern. Considering independent oil and gas companies, a company with diversified business platforms rising to the global stage is more likely to choose the USD as its functional currency, like BHP Billiton. Lukoil's decision to change their functional currency from USD to Russian rubles is an exception to the norm.

5.3 Discretion is limited

It is unclear whether the choice of functional currency by management is truly opportunistic or deceptive, but when oil and gas companies change their functional currencies, their management teams' discretion is seemingly limited. PTTEP and Lukoil changed its functional currencies and accounting rules in 2011 and 2015, respectively. Aker BP changed its functional currency upon merger and acquisition.

The managements of E&P companies have some discretion in choosing their functional currency. However, when the functional currency changes, the management's discretion to change it becomes limited, and it requires events—such as structural changes, changes in business circumstance, and accounting principles—as leverage. It is important to recognize that this merely indicates the exercising of discretionary rights by some companies. Therefore, not all companies will choose to change despite their discretionary rights.

The limitations of this study are as follows: The study does not discuss how the original selection and subsequent changes of functional currencies by the parent companies in the oil and gas industry—especially the top 50 companies as ranked by PIW—influence functional currencies among their overseas subsidiary companies. This study used the top 50 rankings of oil and gas companies issued by PIW in 2016, and most of the financial statements used to identify each company's functional currency were issued at the end of 2014. This is because some data in PIW are not publicly accessible, and some oil and gas companies were slow in disclosing their financial statements. The time discrepancy in the data between PIW's ranking and financial statements may have had some impact on the analysis. Moreover, the study could not fully explore the issues of the functional currencies of NOCs, as they did not disclose their financial statements. Therefore, future studies should focus on these points.

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