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Review Article

Assessment of Political Risks in Nigerian Oil & Gas Investments

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Abstract *- The oil & Gas business is considered among the riskiest sectors of the African economy. This is because there are several risk factors that are synonymous to oil & gas business, in addition to political influences of the host country's government, communities, and environment, grouped together as "Political Risk". Common sources of "Excess" business risks are technical, operational, economic, and commercial in nature.*

In reality, the effects of political uncertainties areknown to dwarf these other Excess Risk factors combined. Thereason is the success of oil & gas investment hinges on the government's policies,host communities, and environment more than the economic and technical factors. Unfortunately, investors ignore these Political Risks in their valuation and continue to apply 10%-15% discount rates considered to be too low and not commensurate with the risks involved.

This paper focuses on the Nigerian Political Risk and classifies them into relevant components. It also proposes a new approach for estimating the Political Risk Premium of every oil & gas project in Nigeria. This premium can be added to WACC and Excess Risk Premiumswhencomputing a Nominal Discount Rate (NDR) for a Risk-Based Discounted Cashflow (RCF) analysis.

Keywords *- Political Risk, Country Risk, Valuations, Nigeria, Africa, Nominal Discount Rate, Risk Premium, Discounted Cashflow Analysis*

I. INTRODUCTION

Amongst the risk premiums, the most significant one facing international oil & gas projects is political risk. Since the Iran-Iraq war of the eighties and the Gulf War in the nineties, Political risk has become a major factor in financing E&P projects. The stage has also grown bigger, especially as more and more sovereign nations are beginning to nationalize their resources and switching from Joint Venture (JV) to Production Sharing Contracts (PSC), thus taking more ownership and fewer risks in E&P projects. This began with the Iranian buy-back contract established from the Indonesian-born PSC of the '60s, the first of which was awarded to Conoco in March 1995. High uncertainty due to political issues can be a major deterrent to foreign investment into African countries, causing these investors to expect 3-5 times their money in African countries. This seems to worsen the issue of rent and resource curse in third world countries of Africa. In the oil & gas universe, political risks mostly target foreign investors than domestic ones on the paradigm of rent and the resource curse. Unless recognized and managed proactively by the host nations, international institutions can grow misleading perceptionsof the host countries,which would invariably dictate the terms for inflow of capital from developed countries into third-world countries, such as Nigeria.

On the other hand, investment decisions are usually subjective when it comes to country risks, where political risk belongs. In building these perceptions, most foreign investors rely on the opinion of self-acclaimed African experts and petroleum analysts rather than facts. The result is that a misleading perception, once developed, becomesvery difficult to erase and can divert potential capital from flowing into these areas, hence, worsening the liquidity problems prevalent in Africa oil & gas marketplace. This calls for African nationsto first recognize Political Risk as a majorissue and take proactive steps to assess and mitigate them. The authors will attempt to assess Nigerianpolitical risk factors and develop a method by which political risk premiums can be estimated with theirimpactonthe valuation of Nigerian petroleum assets.

II. LITERATURE REVIEW

A substantial review of relevant literature found on the subject of political risk shows that very little study on Africa, except the publication by Gustavson (2000), who assessed the political risk ofsome Non-US PSC contracts in Chile, Iran, and Cote d'Ivoire and compared them tothat of the USA. No other literature was found dealing with political risk of any African country, including Nigeria,at the time of this study, except,of course,country risk, which is not the subject of this paper.

A. Political Risk & Country Risk

Country risk refers to the uncertainty of investing in a specific country and the degree to which that uncertainty can cause the investors to suffer loss. Such can be due to many factors, including but not limited to political, economic, exchange-rate, or technological influences and other constraints. Country risk assessments are based on relative risk factors, while Political Risk is assessing the "probabilities" of political instability in a given host country.

Political risk is broadly defined by MIGA World Bank Group (2010) as "the probability of disruption of the operations of multinational enterprises by political forces or events, whether they occur in host countries or result from changes in the international environment. In host countries, political risk is largely determined by uncertainty not only of the actions of governments and their political institutions but also of minority groups such as separatist movements".

For the purpose of petroleum investments, Proehl (1993) defines political risk as "the chance that an investor will experience unfavorable economic consequences due to unpredictable domestics events or unilateral sovereign abrogation of contract terms by the host nation originating from either legislative, executive, judicial, popular revolt or combinations thereof".The key disparity between uncertainty and risk is that while uncertainty is the unknown chance that something will occur, while on the other hand,the risk is a known chance of the same thing occurring. This is why Proehl, in his work,also concluded that risk is open to rational and objective analysis and therefore can be incorporated in Expected NPV (ENPV) computation, just as country risk is applied in project financing. A standard Income Valuation Approach leverages the Discounted Cashflow Method, which computes NPV using a Discount Rate to convert the net cashflow from real value to present value.Discount Rates chosen must be commensurate with the risks involved in doing a certain type of business in a given country, with the floor being the Weighted Average Cost of Capital (WACC).

B. Risks in Valuation of Petroleum Assets

Gustavson (2000) was the first to relate the valuation of petroleum assets in other countries to that in the US by examining some political factors that, if logically estimated, should explain the gaps seen in unit transaction costs among countries. Prior to Gustavson, many other authors like Gebelein (1978), Stauffer (1988), and Proehl (1993) had also published materials on political risk and how it can impacta country's oil & gas investments and the economy. All the authors have reached the same conclusion that the valuation approach adopted in the United States for proved producing assets using the DCF method can equally be applied elsewhere around the world after considering the host country's influence on the "Excess"uncertainty components as related to production uncertainty (Quantity), price uncertainty (Price), and cost uncertainty (Cost) perceptions. However, Gustavson's publication was first to quantify these gaps along with the three domains of quantity, price, and cost. Therefore, for international Non-US locations such as Africa, a DCF estimate could not be complete without considering the Political Risk component, which must be added to the three other Excess Risk premiums to obtain the applicable Nominal Discount Rate. This method of determination of political risk premium is purely subjective by comparing it to the United States scenario, where the political risk premium is assumed to be null. Rummel et al. (1978) confirmed that the subjective approach is more reliable than quantitative methods. Since political risk assessment relies on historical information. Hence, for African continents, it is believed that with time, a more reliable basis will be developed for quantifying political risk premium as data from more and more countries are captured in the database. So far, there is political risk data collection by IHS and Wood Mackenzie covering both North America and the UK North Sea geomarkets, thus improving the comparability of figures. Unfortunately, not many data sets are captured from Africa in these databases.

In his research, Gustavson (2000) employed the DCF technique to value some petroleum assets around the world and observed that its application could vary greatly from country to country depending on the following key factors, namely:

- Differences in fiscal and political regimes
- Local interest rates and regional lenders' appetite
- Local inflation rates in the host country
- Differences in geological and above-ground risks

His investigation further confirms the findings of other authors on the subject, including Rummel, etc. (1978), Sheldon (1953), and Gebelein (1978), which is that the political risk components can be additive to the other proven excess risk premiums, which invariably implies that investors should pay less for the same barrel of oil in politically exposed countries.

C. Components of Political Risk

Gebelein (1978) published the first known political risk matrix classification into nine-country risk domains shown below.

- Civil Disorder
- External-war losses
- Sudden expropriation
- Creeping expropriation
- Taxation changes
- Domestic price controls
- Production restrictions
- Oil-export restrictions
- Restrictions on remittances

However, the political risk matrix did not capture "Corruption" or "Evacuation Disruptions or Pipeline Vandalism," – which are predominant risks forNigeria. An

adjustment has therefore been made as shown below, to accommodate these risk components in this research by merging "Corruption" with "Civil Disorder" and creating a tenth risk component,"Evacuation Disruptions" or "Pipeline Vandalism" as a separate addition to the nine political risk domains synonymous with doing business in Nigeria.

P1. Civil Disorder &*Corruption*
P2. External-war losses
P3. Sudden expropriation
P4. Creeping expropriation
P5. Taxation changes
P6. Domestic price controls
P7. Production restrictions
P8. Oil-export restrictions
P9. Restrictions on remittance
P10.*Community & Pipeline Vandalism*

**Added to the augment the Nigerian risk profile*

D. Assessing Political Risk

Kobrin (1981) has classified two ways of classifying political risk for every kind of methodology used for assessment, namely,

- Subjective or Quantitative Methods
- Observational or Expert-Generated Method
- Unconstrained or Structured/Systematized Method

An example of a subjective technique is the Assessment of Probability (ASPRO) Method. ASPRO was first proposed by Gebelein (1978), providing an objective method to determine the political risk premium using a systematic approach that is unbiased of the opinion of the expert assessing it. In his method, several independent political experts for that region are consulted to advise and score the probability of occurrence of each of the ten component areas. These objective probabilities are then added together to the WACC and excess premiums, both of which cover the technical and economic factors.

Rummel et al. (1978), in their paper, were able to categorize four methodologies for determining political risk according to what actually happens during a period of analysis.

1. Grand Tours Method - this is based on on-site investigations made by the executives of the company or hired consultants.
2. Old Hands Method – in which the analysts rely upon the opinions and advice of experts on a given nation or region.
3. Delphi Technique – is a brainstorming methodology whereby the analysts assemble a team to evaluate a variety of factors affecting the analysis of the investment and then identify, rank and account for them in the decision-making process.
4. Quantitative Technique – employing mathematics and statistics to consolidate knowledge on historical political events in an area and use them to predict future trends.

In assessing political risk, certain assumptions are made, namely:

- That oil exploration and exploitation in the country will be successful
- Commercial quantity of oil or gas is or will be discovered over the next 10 years
- The oil company has negotiated or will negotiate an E&P contract in the country
- The contract is or will be equitable to both the company and the country

E. Additive Effect of Political Risk in DCF Valuation

In the estimation of risk premiums, this study leverages the empirical and theoretical concepts that are proven by Gustavson, Gebelein (1978) and Stauffer (1988), and Rummel et al. (1978). Stauffer (1988) proposed a quantitative approach to compare different countries and opportunities. Stauffer investigated the case of 'uncompensated expropriation' and discovered that the discount rate applicable to a given cashflow (i.e., WACC plus geological risks and business risks excluding

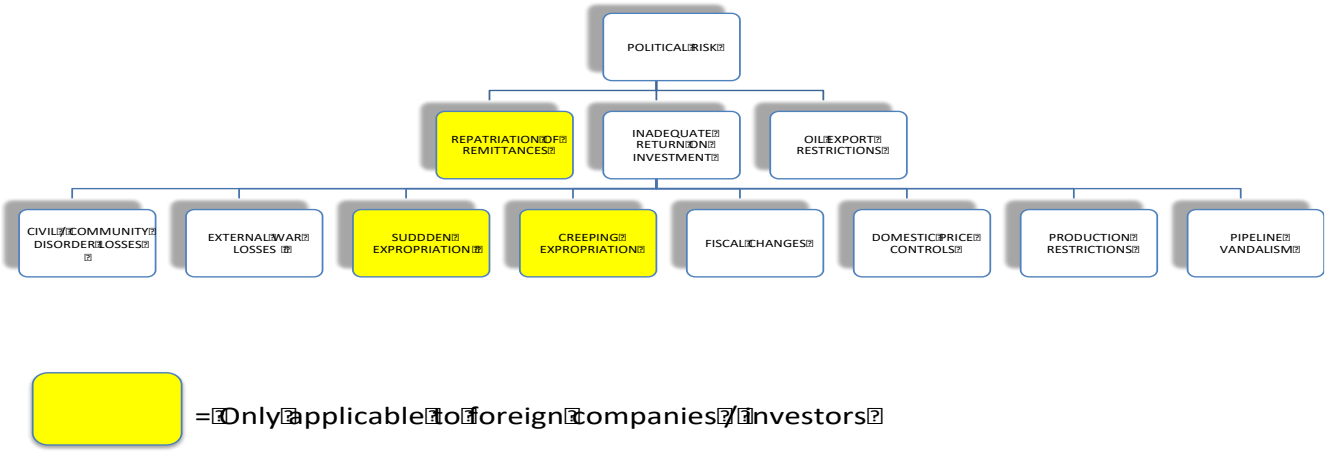

Fig. 1 Components of Political Risk

nationalization risk in particular) could be related to the discount rate to be used when nationalization is included, as follows:

$$R' = \frac{(r+p)}{(1-p)} = r + p + p(r+p) \ldots \text{Eq.1}$$

where,
R: is Adjusted Discount Rate
r: is basic Discount Rate, and
p: is the annual probability of nationalization

Further, on the additive effect of risk premium, Westin and Copeland (1986) made a remarkable discovery when they observed that a building-block approach could be used to define the discount rate. This seems to conform with observations made by Gustavson (2000) and Miller & Vasquez (1988), and also Westin & Copeland (1986), who suggested that the nominal rate of return R_N is the addition of four components, described by the following building-block relationship:

$$R_N = R_{rE} + I_E + P_{lE} + P_{rE} \ldots \text{Eq.2}$$

where,
R_N: is Nominal Discount Rate
R_{io}: is Expected Real Interest Rate
I_E: is Expected Inflation Rate
R_N: is Expected Liquidity Premium
P_{rE}: is Expected Risk Premium

The $R_{rE}$and P_{lE} are well-known components of WACC, while the I_E is already considered in the reserve estimate and DCF financial forecast. This is implied when applying an inflation factor to the operating cost estimates and the commodity price forecast, or as most analysts will do, apply inflation to the net cashflow. This, therefore, equates the Nominal Discount Rate to the Risk Premium as follows:

$$R_N = WACC + P_{rE} \ldots \text{Eq.3}$$

where,
P_{rE}: is Risk Premium (includes Political Risk)

III. METHODOLOGY

We selected a hybrid of Grand Tours Method and Delphi Technique to develop a standard risk matrix called "Subjective Risk Assessment Matrix" (SRAM) Method drawn out of the "Subjective Probabilities Assigned to International Risks" (SPAIR) technique, which was proposed by Gebelein (1978).

A. The SRAM Method

The SRAM method is a less rigorous SPAIR technique, which combines the subjective and observational approaches,which does not require expert opinion to assess Nigeria's political risk. SRAM also relies on the Grand Tours Method, which assumes that senior decision-makers or their designates could develop an opinion based on their knowledge or visit to the region and thereafter hold a brainstorming session to analyze their findings.

The SRAM approach utilizes certain assumptions. For example, SRAM assumes that as long as the performance criteria of the investment are met, that there is a unit probability of satisfaction with the investment because the performance criteria would normally specify the investor expectations. Under this scheme, an informed opinion of the executives is collated via a brainstorming session to develop an assessment of the political risk that is hinged upon:

- The likelihood of occurrence for each risk component is from 0 to 3, where the ratings represent not likely (0), somewhat likely (1), likely (2), very likely (3).
- The weight or severity 1-10 of a specific risk component relative to the rest as viewed from the investor's (or analyst's) perspective (whether foreign or domestic).

The total risk probability is calculated by multiplying the likelihood of occurrence of each risk with the weightingfactor(weight/10) and summing up the ten computed aggregate multiples. The subjective approach totally relies on the company's internal observation of trends and events in the host country or its specific operational environment in relation to a reference to Great Democratic Power like the United States.

The United States is chosen in this research because it represented the most mature democracy and capitalized oil & gas investment environment deemed by all authors and World Bank to have near-zero political risk and the most certain jurisdiction for raising investment capital for oil & gas projects compared to anywhere else in the world. The intellectual basis of this approach is that politics will follow economics and that humans or nations behave rationally in their best economic interest.

B. Case Examples

As part of the study to determine the Fair Market Value of real petroleum asset transactions in Nigeria, the authors have examined the impact of political risk on the valuation of Nigerian assets using the SRAM method of analysis. SRAM is one of the subjective methods developed forassessing politics. The seven transactions modeled were closed between 2008 and 2019 at the economic conditions of that period, including oil prices and development costs. The assets selected to cover the three common license types in Nigeria, namely,a Marginal Field (MF) license, five Joint Venture Contract (JV), and aProduction Sharing Contract (PSC).

X1 is a locally held 40% working interest (WI) in a green MF located shallow offshore Nigeria, which wasacquired by a foreign operator in 2019. Y1, Y2, Y3, Y4, and Y5 are40%-45% WI respectively held by an International Oil Company (IOC) in producing JV Oil Mining Leases (OML) in the inland basinof Nigeriaand sold to indigenous companiesbetween 2008-2014. Z1 is 90% WI in a PSC Oil Prospective License (OPL) that was sold by a different IOC operating it toan indigenous oil

company. All these seven asset transactions were individually examined to obtain the Political Risk Premium, which can be used by an analyst to derive the Nominal Discount Rate for the valuation of each transaction.

IV. RESULTS

By using the SRAM method, we have been able to estimate Political Risk Premiums that can be applied to each of the seven transactions, which, if combined with their individual Excess Risk Premiums and WACC, would cover the entire Risk Premiums necessary for a holistic account of the Ownership, Technical, Economic and Political uncertainties of executing these projects in Nigeria.

Whereas the Political Risks premiums are project and reserve sensitive, the risk premiums represented in these results cover the Proved Reserves only. The Nigerian WACC is estimated as 16.3% based on a 30% Equity-to-Value ratio, 18% applicable lending rate to local investors or 5% interest rate to foreign investors, and 20% cost of equity. The Excess Risk premiums are based on 2%, 3% & 2% for Quantity, Price (of oil), and Cost risks, respectively.

Table 1 tabulates the Risk Premiums resulting from the seven recent petroleum asset transactions. The resultant nominal discount rate is the sum of the risk premiums (Excess & Political Risks) and theirWACC. The WACC varies significantly between foreign and local investors, as can be seen with Z1 and the rest. A comparison of the Political Risksreveals a range of 9.5% - 11.6% (2.1 percentage points) across two investor profiles and the three different fiscal regimes of Nigerian contracts, namely, MF, JV, and PSC.The Excess Risk Premium of Z1 also reflects the ownership issues synonymous with PSC contracts. Finally, the lowest nominal discount rate calculated is 29.4% on the PSC project, while the highest is 33.7% on the JV project.

V. CONCLUSION

For the first time, reasonable effort has been made to quantify and assess the Political Risks of real Nigerian transactions. The results summarized inTable Iconfirm that typical values for the nominal discount rate of Nigerian valuationsmostly lieinthe 30’s range and not 10’s, depending on the applicable WACC and Risk Premiums. The actual values of thetransactions derived from the modelslie between 9.5% - 11.6%, with the highest being associated with the PSC, while the lowestis the Marginal FieldLicense. This agrees withthe lack of control in PSCstranslating to higher risk on the project, while on the other hand, lower for Marginal Field due to their inherent,sole risk terms.

The Nominal Discount Ratesfor Nigeria is2-3 times higher than the ratesof 10% to 15% presently used by investors and analysts in discounting future cashflow of oil & gas projects in Nigeria. Since an NPV estimate depends highly on the discount rate applied in DCF valuation, it means that a bigger discount rate can significantly reduce the NPV (or FMV in RCF valuation). This explains one of the root causes of overvaluation in Nigerian petroleum transactions. Thus, it isrecommendedthat oil & gas investors and analysts shouldpay close attention to their Risk Premiums when valuing oil & gas assets to avoid huge offer gaps, value erosion, and asset overprizing,which can result in liquidity problemsafter acquisitions.

Table 1. Political Risk Premium Estimation

Nigerian Transactions	Investor / Contract	Political Risk Components	Weighting Factors (1-10)	Likelihood (1-3)	Political Risk Premium (Computed)	Excess Risk Premium (Q, P & C)	WACC	Nominal Discount Rate
					%	%	%	%
X1	Indigenous / MF	PR1	9	2	9.5	7	16.3	32.8
		PR2	10	2				
		PR3	8	1				
		PR4	7	1				
		PR5	6	3				
		PR6	1	0				
		PR7	3	3				
		PR8	4	0				
		PR9	2	0				
		PR10	5	3				
Y1	Indigenous / JV	PR1	9	3	10.4	7	16.3	33.7
		PR2	10	2				
		PR3	8	1				
		PR4	7	1				
		PR5	6	3				
		PR6	1	0				
		PR7	3	3				
		PR8	4	0				
		PR9	2	0				
		PR10	5	3				
Y2	Indigenous / JV	PR1	9	3	10.4	7	16.3	33.7
		PR2	10	2				
		PR3	8	1				
		PR4	7	1				
		PR5	6	3				
		PR6	1	0				
		PR7	3	3				
		PR8	4	0				
		PR9	2	0				
		PR10	5	3				
Y3	Indigenous / JV	PR1	9	3	10.4	7	16.3	33.7
		PR2	10	2				
		PR3	8	1				
		PR4	7	1				
		PR5	6	3				
		PR6	1	0				
		PR7	3	3				
		PR8	4	0				
		PR9	2	0				
		PR10	5	3				
Y4	Indigenous / JV	PR1	9	3	10.4	7	16.3	33.7
		PR2	10	2				
		PR3	8	1				
		PR4	7	1				
		PR5	6	3				
		PR6	1	0				
		PR7	3	3				
		PR8	4	0				
		PR9	2	0				
		PR10	5	3				
Y5	Indigenous / JV	PR1	9	3	10.4	7	16.3	33.7
		PR2	10	2				
		PR3	8	1				
		PR4	7	1				
		PR5	6	3				
		PR6	1	0				
		PR7	3	3				
		PR8	4	0				
		PR9	2	0				
		PR10	5	3				
Z1	Foreign / PSC	PR1	10	3	11.6	6	11.8	29.4
		PR2	5	2				
		PR3	4	1				
		PR4	3	1				
		PR5	6	3				
		PR6	1	0				
		PR7	8	3				
		PR8	7	0				
		PR9	2	0				
		PR10	9	3				

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