

Assessment of industry risk is an essential part of credit rating process. The industry risk assessment sets the ceiling for ratings of individual entities within a given industry. It focuses on the degree of cyclicity and the strength of competitive forces along with the extent of capital intensity, vulnerability to technological change, level of regulatory interference and energy sensitivity. All these factors are assessed on a scale ranging from High to Low to assign an overall risk level to each industry. Industry risk categorization for different industries is available on our website under Sector Updates “Industry Risk Analysis” (<https://docs.vis.com.pk/docs/Industryrisk062021.pdf>).

This document explains VIS approach to assess industry risk of Oil and Gas sector of Pakistan.

Oil and Gas sector has been classified in three sub-sectors as follows:

Oil & Gas Exploration and Production (E&P)

E&P segment refers to the search process of oil and gas. The process entails identification of potential field for oil and gas exploration, digging wells to test the findings, and then extraction of the oil and gas deposits once the results are viable.

Oil & Gas Refining

Refining segment refers to the conversion of crude oil into usable petroleum products such as diesel, gasoline and heating oils using an industrial plant.

Oil & Gas Marketing (OMC)

Activities of this sub-segment entails marketing and distribution of locally refined and imported fuels and gas to the end consumers.

Industry profits for the oil and gas sector are broadly determined by the direction of international oil prices. International oil prices are considered to be more volatile in comparison to other manufactured goods on account of significant impact of geopolitical and weather related developments. The volatility is largely tied up to the inelasticity of both supply and demand to price changes in the short term. Oil supply generally remains fixed for the near term as it takes time to add new supply. Various oil shocks in the international economy arising from political events and weather imbalances such as hurricanes may impact production levels consequently affecting international oil prices.

Analyzing financial performance of each sub-sector over time to changes in economic downturns, E&P sector depict medium cyclicity, however, OMC's which remain exposed to inventory risk due to maintenance of minimum inventory levels, and refineries which have end product prices directly linked to volatility in international crude oil prices, characterize 'high' cyclicity risk.

Competitiveness of the sector is assessed through multiple factors including effectiveness of barriers to entry, risk of substitution of products/services/technologies and risk of growth trends. Pakistan is a net importer of oil and gas products with the same meeting one-third of the local demand. Across all three sub-sectors, very few players dominate the market depicting oligopolistic nature of the industry. Barriers to entry for the overall oil and gas sector are considered to be on the higher side due to extensive capital and infrastructure requirements for a start-up, requirement for patents and copyrights along with proprietary knowledge, compliance with governmental regulations and high fixed operating costs. Another factor that inhibits new entrants is compliance to environmental regulations related to refinery emissions (air, water) and oil spills. Consequently the industry's risk against the same is assigned as 'low' for all three sub-sectors.

Main alternatives of oil and gas in the production of electricity are nuclear energy, coal, hydrogen, biofuels and other renewables. In accordance to their performance and quality, these alternate sources may reduce carbon emissions in the environment making it a viable source of electricity production. In terms of prices, these alternates may be placed favorably depending on the respective demand and supply situation of each. Moreover, the usage of electric vehicles over time may shift the demand trend in the oil and gas sector, gradually. Consequently, risk of substitution for the

OVERALL INDUSTRY RISK

High
High to Medium
Medium
Medium to Low
Low

overall sector has been assigned as 'Medium to Low'.

Competitiveness of the industry is also gauged through an assessment of risk of growth trends. Growth trends in refineries and E&Ps are largely affected by technological advancements, greater lead times, variant quality of oil produced and Government imposed regulations that may hamper long-term growth. Furthermore, Government intervention in encouraging use of renewables to create a more fuel-efficient economy may also impact trends of growth in these sub-sectors. Consequently, the risk level assigned is 'High to Medium'. In comparison, risk of growth trend for OMCs is considered 'low' due to limited impact of intervention of new players given oligopolistic market structure of the sub-sector along with well-established infrastructure facilities.

Overall competitiveness factor is assigned 'Medium to Low' for refineries and E&Ps sub-sector while 'Low' for oil marketing companies.

Oil and Gas sector's risk of capital intensity is considered to be 'high' across all sub-sectors given significant capital requirement to start-up and maintain along with high fixed cost ratio in the total operating costs as reviewed on a timeline basis. On the E&P front, bringing an off-shore oil-field from discovery to initial production may take up to 10 years. Moreover, training costs of seismologists, drilling supervisors and petroleum engineers is an added cost. Apart from setting up, in order to off-set depletion of conventional oil and gas technology; consistent investment is required such as natural gas and oil production from alternate reservoirs that are costly and require more technologically advanced techniques.

Similar to E&Ps and refineries are also capital intensive industries requiring incurrence of significant maintenance costs with routine turnarounds needed every five years. Furthermore, setting up of the marketing infrastructure encompassing terminals, depots, retail outlets, air craft fueling facilities and tankages to sell the oil and gas products requires substantial amount of capital.

Industry risk analysis also encompasses assessment of technological risk. The industry's rate of innovation or the rate of a product's obsolescence, creates an expectation from customers concerning the development of new products. This requires skilled employees and an effective innovation process, which may also act as a significant hurdle for many companies. Given consistent technological advancements in the E&P and Refinery sub-sectors to operate efficiently, technological risk is assigned as 'Medium'. However, given limited avenues for technological development in the selling mechanism of the oil and gas products to the end consumer, risk level has been assigned as 'Low'.

Regulatory risk of the industry which measures the level of dependency on government-related factors such as regulation, licensing, approvals and tariffs can impact credit quality, since they affect business strategies and potential performance. In Pakistan, the oil and gas sector is governed by Oil & Gas Regulatory Authority (OGRA) and Ministry of Petroleum & Natural Resources (MP&R). At present, prices of MS, HSD and Kerosene are regulated while rates of FO, HOBC and non-energy products are unregulated. In order to capitalize on the potential of the sector, the government is working on a new petroleum policy, offering incentives to foreign E&P companies and removing impediments to undertaking smooth and profitable business ventures. Given significant GoP intervention, the risk level assigned is 'High' for all three sub-sectors.

Assessment of industry risk also encompasses evaluation of energy sensitivity. For oil and gas sector, energy sensitivity is considered as 'high' risk given limited availability of electricity in Pakistan and high energy prices. In view of all the risk parameters discussed above, overall industry risk for Oil and Ga sector is 'High to Medium'

Table 1: Summary of Industry Risk Factors

OIL & GAS									
Cyclical	Competition				Capital Intensity	Technology Risk	Regulatory Framework	Energy Sensitivity	OVERALL RISK
	Risk of Effectiveness of barrier to entry	Risk of Substitutes	Risk in Growth Trends	Overall					
Oil & Gas Exploration and Production (E&P)									
Medium	Low	Medium to Low	High to Low	Medium to Low	High	Medium	High	High	High to Medium
Oil & Gas Refining									
High	Low	Medium to Low	High to Low	Medium to Low	High	Medium	High	High	High to Medium
Oil & Gas Marketing									
High	Low	Medium to Low	Low	Low	High	Low	High	High	High to Medium

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