

# MARKET STRUCTURE AND PERFORMANCE OF DOWNSTREAM OIL INDUSTRY: A CASE STUDY OF INDIAN NATIONAL OIL COMPANIES

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## Overview

India is the third largest crude oil consumer in the world and imports 80 % of its crude oil requirements. Oil production in the country has been stagnant for the past decade. National oil companies occupy a dominant role in the Indian oil industry with 6 national companies which are active in different segments of the industry. There is no national oil company in India which is completely vertically integrated. The case studies of national oil companies in India have generally concentrated on ONGC which is the largest oil producing national oil company. India has three downstream national oil companies i.e. Indian Oil Corporation Limited (IOCL), Hindustan Petroleum Corporation Limited (HPCL) and Bharat Petroleum Corporation Limited (BPCL) which control more than 50 % of refining and 90% of the petroleum product marketing in the country. India has also emerged as a net petroleum product exporter since the last decade due to the emergence of private oil companies like Reliance Industries Limited and Essar Oil Limited. Through our case study, we study the market structure, product dynamics, performance, and non-commercial objectives of the three downstream national oil companies and come out with conjectures that could help in advancing our knowledge on downstream national oil companies. This study feeds into the contemporary debates in India on the merging of 13 national oil and gas company into a monolith as a 'national champion' as well as the previous unsuccessful attempts at the restructuring of these companies by strategic stake sales.

Al-Obaidan and Scully (1992) empirically proved that private, for-profit oil companies would be efficient than national oil companies in producing output. They concluded through two subsequent studies that backward vertical integration and multinationality in the refining industry improves scale efficiency, reduces business risk while decreasing technical and overall efficiency (Al-Obaidan & Scully, 1993; Al-Obaidan & Scully, 1995). There have been studies which have shown that considerable differences exist within national oil companies with few of them performing well and rank among the top performers in the world e.g. Statoil and Petronas. The performance of national oil companies suffers due to the pursuit of non-commercial objectives which has been highlighted by various studies. There have been various approaches like case studies and efficiency studies for comparing the performance of national oil companies with private for-profit oil companies. Victor (2013) in his paper on the future of oil highlights the difficulty of making generalised conclusions about national oil companies due to lack of a well-grounded national oil company model as well as a considerable difference in the strategy and performance of national oil companies due to local context as highlighted by various case studies. He concludes that the future of national oil companies will be of firms having the dual character of state enterprise and competitive enterprise. Stevens (2008) describes the difficulties in assessing the performance of national oil companies only on the basis of their financial performance as these companies are generally monopolies in their respective countries. He provides a range of parameters in assessing the performance of national oil companies that include non-commercial objectives. Many countries worldwide have a single national oil company or one national oil company in various segments of the value chain while many of the developed countries have a completely privatised oil and gas industry but India is among the few countries to have three national oil companies in the downstream industry and thus we study the structure and performance of the three downstream national oil companies.

## Methods

Textual analysis from company annual reports and statistical reports from ministry of petroleum and natural gas India and petroleum planning and analysis cell were used to construct the data. Market structure in the downstream industry was calculated by Herfindahl – Hirschman Index (HHI) and concentration ratio for aggregated level and product level. Descriptive analysis of market share was done to assess market share stability as well as the behaviour of national oil companies in different product segments. The performance of the downstream national oil companies in the usage of infrastructure for product sales was calculated for automotive fuels, aviation turbine fuel, liquefied petroleum gas and kerosene. The exercise gave insight on the various non-commercial objectives pursued

by NOCs in regulated product markets of kerosene and LPG while also highlighting the performance of NOCs in market priced products like aviation turbine fuel, lubricants and automotive fuel.

## Results

The variability in HHI is significant in petroleum products where private companies have entered thereby leading to fall in concentration of national oil companies. The results show that among the national oil companies IOCL has been the dominant player in every product in the market having approximately 50 % market share with HPCL and BPCL dividing the rest among them equally. Market share stability among IOCL, HPCL and BPCL has been an important characteristic of the Indian downstream oil industry. Performance analysis in various product segments like petrol, diesel, liquefied petroleum gas, kerosene and aviation turbine fuel (ATF) shows that BPCL's market share is more as compared to HPCL in most of the products and it performs better in parameters like retail outlet to automotive fuel sales, and Kerosene dealership to sales and ATF sales through aviation service facility. BPCL is performing better on these parameters as compared to its peers but despite its efficient performance the market share in products hasn't improved significantly. The market share of national oil companies suffer when they compete in an open market with IOCL losing the maximum share while they maintain market share stability in price regulated product markets. Integration or internationalisation are necessary but not sufficient conditions to feature in top 20 ranks of Platt's 250 rankings and all the three companies perform poorly in these aspects. IOCL, BPCL and HPCL have a combined share of 10.4% out of the total petroleum product exports from India in 2015-16 and backward integration still hasn't delivered any production assets for these companies. Government ownership is not a hindrance for a company to be ranked among the top performing companies which is demonstrated by China and Russia. The degree of forward and backward integration, mergers and acquisition activity per year and degree of international operations are important determinants of a refining company performance at the global level and Indian downstream national oil companies are yet to perform appreciably at these determinants.

## Conclusions

India is among the few countries globally that doesn't have a completely integrated oil and gas national oil company. The advantage of a completely integrated oil and gas company in dealing with crude price shocks is reflected by the top performers in the Platts Energy rankings every year. The expansion of Indian downstream government oil companies through Greenfield refining capacity, new subsidiaries and joint ventures in exploration and production, lubricants branding, co-operational activity in aviation service facility, city gas distribution and pipelines suggests that the government role is expanding in the oil industry. As the three government downstream companies expand separately in each of these activities, economies of scale is likely to be compromised and with the presence of large exporting private downstream companies, there is ambiguity to the economic rationale of a larger role for downstream national oil companies in the Indian oil industry which have to balance non-commercial objectives in kerosene and LPG with commercial objectives in aviation turbine fuel, lubricants and automotive fuels.

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