Saudi Exports Increasingly Tied to Downstream Investment

Network of refineries provides a captive market.

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U.S. Approach Ad Hoc

Nearly four years since the ban on most U.S. crude exports was lifted, the volumes shipped overseas continue to grow. New pipelines to the Gulf Coast and increased demand after the September attacks on Saudi infrastructure have provided recent momentum. Like any new business, U.S. shippers face competition from established players such as Saudi national oil company Aramco, the world's largest crude exporter, which is about to be listed as a private company. The Saudis' strategic approach to crude sales involves aggressive investment in a network of refineries that our analysis shows could absorb 55% of production by 2020. This note compares Aramco's strategy with the ad hoc approach taken by U.S. crude exporters.

Opportunity

Saudi Arabia is the world's largest crude exporter, shipping an annual average 7.3 million barrels/day overseas during 2018, which represented 70% of the kingdom's crude and condensate production of 10.5 mmb/d, according to Aramco. By comparison, the United States produced just less than 11 mmb/d on average in 2018 but exported only 2 mmb/d or 18% of output and additionally imported an average 7.8 mmb/d, according to the Energy Information Administration. Although U.S. crude exports are growing fast, averaging 2.9 mmb/d in the first half of 2019, they are still less than 50% of Saudi shipments. Yet, as we detailed in a note last week (see "Why Attack on Saudi Boosts U.S. Crude Exports"), the recent attacks on production infrastructure represent an opportunity for U.S. producers to expand exports at the expense of their Saudi rivals since the U.S. is politically stable and its lighter-quality crude better meets the needs of Asian refiners in the runup to IMO 2020.

Major differences exist between Saudi Arabia's crude sales process and that of U.S. producers and shippers. As the volume of U.S. exports grows, these differences will play an important part in the battle for market share. Until recently, Aramco, although independently managed, was operated as an extension of the Saudi government. Now, as part of the kingdom's Vision 2030 program of reforms, Aramco is expected to become a publicly listed company after an initial public offering in one or more financial centers in the next two years. The new Aramco remains a vertically integrated monopoly that recovers and markets all Saudi oil and gas as well as supplying the domestic market with refined products.

Long-Term Contracts

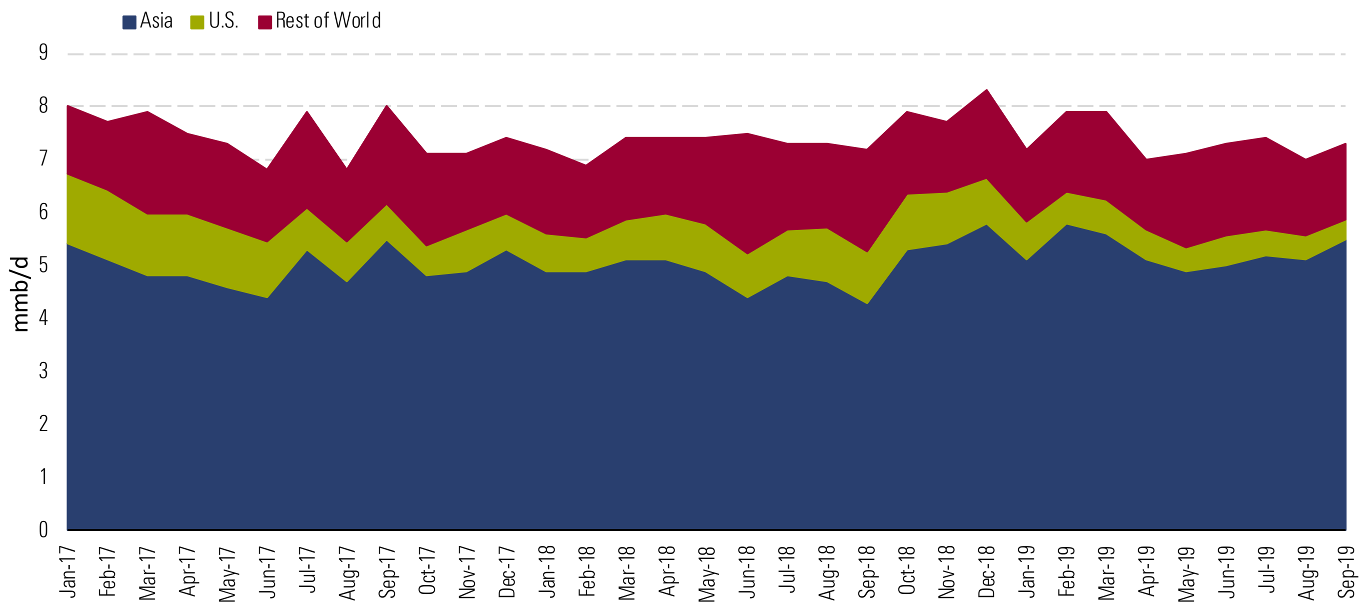
Saudi crude exports are primarily marketed under long-term agreements, although there have been occasional spot sales. Customers commit to regular purchases under yearly rolling contracts. Five grades are sold by Aramco, ranging from light sweet Arab Super Light to heavy sour Arab Heavy, with most sales being Arab Light, a medium sour crude. Pricing is determined by formulas based on the grade quality and linked to the destination region by a marker crude that is usually Brent ICE in Europe, Dubai and Oman in Asia, and the Argus Sour Crude Index in the Americas. Monthly discounts or premiums allow Aramco to adjust the formulas to changing market conditions and keep them competitive. Aramco emphasizes long0term partnerships with customers and places high importance on reliability and security of supply. The company is required by the Saudi government to keep a minimum production capacity available that was 12 mmb/d in 2018 as a buffer to increase shipments if needed to keep oil markets stable. Aramco also adjusts production as required by Saudi Arabia's membership in the OPEC cartel.

Asia Strategy

The Saudis manage fluctuating demand from customers and supply constraints set by OPEC or unforeseen outages by adjusting supply within their own network of refineries. Hence, their first response to the recent infrastructure attacks was to cut supplies to domestic refineries in favor of meeting export needs. They also use the flexibility of their refinery network more broadly to manage sales strategies.

For example, Saudi Arabia significantly increased crude exports to Asia this year compared with 2018. Last year, sales to Asia (including, China, Japan, India, and South Korea) amounted to an average 4.97 mmb/d or 67% of total exports, according to Reuters analysis. This year between January and September, sales to Asia increased to an average 5.26 mmb/d or 72% of exports. Most of the increase went to China, where Saudi sales jumped from an average 1.0 mmb/d in 2018 to an average 1.5 mmb/d between January and September 2019. Some of that increase in sales to Asia came at the expense of the U.S., which reduced imports from an average 0.9 mmb/d in 2018 to 0.5 mmb/d in 2019 through September (Exhibit 1). The Saudi shift to Asia this year has two motives. The first is to take advantage of sanctions on Iran and Venezuela by increasing sales to the Chinese market, which represents the best growth potential for refining and petrochemicals. The second is a deliberate decision to divert crude shipments away from the U.S. because of the outsize influence that weekly EIA inventory data has on market sentiment and prices. By reducing supplies to the U.S.—including to its own Motiva network of refineries—Saudi Arabia encouraged withdrawals from inventory that boosted price sentiment.

Exhibit 1 Saudi Crude Exports by Destination Region



Source: Reuters, Morningstar.

Network Investment

Although Aramco is taking advantage of current market conditions to increase sales at the expense of its competitors' troubles, such as sanctions on Iran and Venezuela, it prefers to secure market share through investment. These investments consist of a growing network of wholly owned or joint venture domestic and international refineries as well as petrochemical plants. Owning refining infrastructure secures market share for Saudi crude in the long term but also provides flexibility if those plants choose to purchase from other suppliers and free up Aramco crude for other buyers, as the U.S. Motiva strategy recently demonstrated.

Details of downstream investments were provided in an April prospectus for a successful Aramco bond offering. According to that document, about 30% of the company's crude and condensate production in 2018, or 3.2 mmb/d, was supplied to wholly owned domestic refineries or joint venture export-oriented refineries inside Saudi Arabia. Another 12% of production went to international joint venture refineries in Asia and the U.S. In total, about 42% of Saudi crude supply in both 2017 and 2018 was processed by the company's own refining network, with the rest going to third-party buyers (Exhibit 2).

Exhibit 2 Saudi Crude Disposition

Saudi Arabia Crude Disposition		**2016**	**2017**	**2018**	**2020**
		mb/d	mb/d	mb/d	Estimate
Supply	Crude Production	10445	9959	10190	10190
	Blended Condensate	116	121	125	125
	Stabilized Condensate	228	216	218	218
	Total Output	**10789**	**10296**	**10533**	**10533**
Domestic Demand	In Kingdom to Refineries - Crude	2532	2607	2567	2967
	In Kingdom to Refineries - Condensate	221	195	203	203
	Crude to Third Parties (partners)	498	459	410	450
	Total Domestic	**3251**	**3261**	**3180**	**3580**
Overseas Demand	Crude to Refineries	1286	1312	1308	2258
	Crude to Third Parties	6177	5787	6021	4671
	Condensate	7	21	15	15
	Total Overseas	**7470**	**7120**	**7344**	**6944**

Source: Aramco, Morningstar.

The proportion of Saudi crude processed in network continues to expand. Two new refineries are under construction and expected on line in 2019, and Aramco recently announced major downstream investments in Japan and India. The two new plants are the 400 mb/d Jazan refinery in Saudi Arabia and the 300 mb/d Pengerang refinery and petrochemical plant joint venture with Petronas in Malaysia. Additional Aramco investments include the purchase of a 17% stake in South Korea's Hyundai Oil, closed in June, which involves a long-term commitment to supply 150 mb/d of Saudi crude and a 20% investment in India's Reliance Industries' refining and petrochemical business announced in August and expected to close next March, which incorporates a long-term agreement to supply 500 mb/d of crude. Adding these new refineries and investments to the existing 2018 portfolio without changing crude production would increase Aramco network sales to an estimated 55% of crude and condensate output in 2020 (rightmost column in Exhibit 2). In addition, and not detailed here for lack of space, is Aramco's equally extensive downstream investment in petrochemical plants that use the company's condensate, naphtha, and natural gas liquids as feedstock.

Complex U.S. Logistics

In contrast to standardized-term crude sales and a growing fleet of Aramco refineries and joint ventures, U.S. crude exports are mostly organized by trading companies like Trafigura and Vitol putting together buyers and sellers on an ad hoc basis. Logistics complications of loading U.S. crude at the Gulf Coast involve transshipment onto very large crude carriers (see our May note "Gulf Coast Crude Exporters Navigate Port Limitations"). Shippers have to pay attention to quality as crude is shipped by pipeline from the wellhead via long-distance pipelines to numerous dock terminals on the Gulf Coast (see our May note "Quality Adds to Domestic Crude Variety"). Large producers and shippers compete for limited infrastructure with numerous smaller players. As a result, assembling regular crude cargoes for export is complex, making term supply deals to customers difficult to implement.

Disadvantage

In these circumstances, the rapid growth of U.S. exports owes a lot to the ingenuity of U.S. shippers as well as a tight market for supplies in the wake of OPEC production cuts and sanctions on Iran and Venezuela. As we discussed last week ("Why Attack on Saudi Boosts Crude Exports"), a lull in exports this summer forced U.S. shippers to offer better terms to buyers, including sales on a delivered basis. In the absence of term sales contracts and downstream investment in refinery networks, U.S. exporters remain at a disadvantage whenever international supplies exceed demand and are left negotiating discounts or favorable terms to shift excess crude.

Protecting Market Share

The U.S. crude export market is nearly four years old and has come a long way in that time. Ongoing upstream consolidation in the shale basins has winnowed down players and led to the emergence of major oil companies such as ExxonMobil, Chevron, Shell, and BP as prominent producers. Like Aramco, these major oil companies have downstream refining networks that can guarantee a home for crude exports when market conditions are tough. The expected development of deep-water single-point mooring buoy terminals off the Gulf Coast in the next three years will overcome dock infrastructure constraints and ideally facilitate the development of term sales agreements by U.S. producers. Barring these developments, U.S. exporters remain at a disadvantage to larger rivals whenever the international market is oversupplied because they can only protect their market share by discounting prices rather than relying on term sales or supplying refinery networks.

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