

IICEC Energy Market Newsletter May 4, 2018

Saudi Arabia and Russia Maintain Resolve in Current Cuts, Exit Strategy Uncertain: With global crude inventories converging on their five-year average, at least in the OECD, market attention is beginning to shift towards whether there remains the need for the agreement to extend the supply cut deal between OPEC and certain non-OPEC oil producers beyond 2018.ⁱ

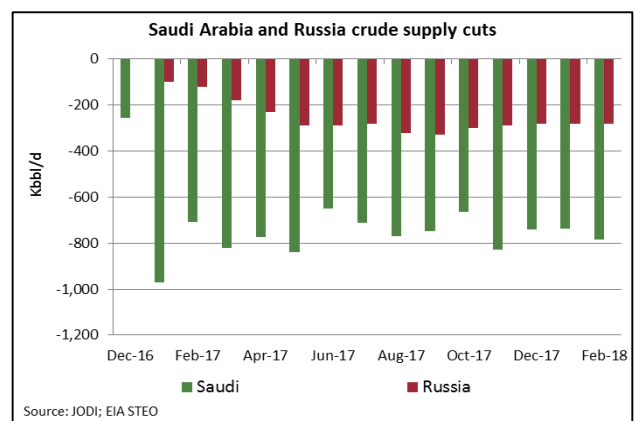
However, as these declines in production have been implemented, and the ultimate price reaction elicited through end-2017, strong supply growth from producers outside the accord are set to add substantial incremental supply in both 2018 and into 2019, complicating any prospective exit from the agreement.

Moreover, oil producers generally have reaped significant gains due to the price rally that began in mid-2017, and there remains hesitation to present the type of market uncertainty that would be associated with a discussion of scrapping the supply deal. This has spurred discussion of the potential for a framework around a more prolonged coordination of supply between the two main crude producers within the agreement: Saudi Arabia and Russia. In April, the possibility of an arrangement that could extend 10-20 years was floated by the Crown Prince of Saudi Arabia, Mohammed bin Salman, which would indeed be a historic achievement for two countries that have rarely collaborated in earnest.ⁱⁱ

This coordination has gone beyond oil markets to a broader alliance across the energy supply chain. Natural gas in particular has proven an area with high complementarity given Saudi need for further progress in eroding the amount of crude that is burned for power generation and water desalination. As such, Gazprom and Saudi Aramco signed a strategic cooperation deal in October 2017 that could see LNG imports into Saudi, and even expand to include downstream and petrochemical ventures.ⁱⁱⁱ

Nevertheless, with new capacity having been slated to come on-line in Russia before the current deal was in-place, operators have raised stern objections to capping output, some of which are in production-sharing agreements with Moscow, nominally exempted from quotas.^{iv} Executives at state oil companies have even voiced their distaste for the deal, reflecting the growing wedge that could materialize between the government and the oil sector should the Kremlin remain the deal too long.^v

This growing tension helps explain statements by Russian Energy Minister, Alexander Novak,



that put forth the possibility of revising quotas at the upcoming June meeting of participating producer nations.^{vi}

While Novak maintains that Moscow is still fully committed to the collaborative efforts in rebalancing oil markets^{vii}, a recent rise in Russian oil production to its highest levels in nearly a year has cast further uncertainty over the sustainability of the supply agreement much beyond the end of the year.^{viii}

Nevertheless, when the April meeting of the Joint Ministerial Monitoring Committee (JMMC) convened in Jeddah, a record compliance rate of 149% was announced, with all parties affirming their commitment to continued cooperation.^{ix}

Power, Renewables & Efficiency

President Tayyip Erdoğan held a joint- ceremony with President Vladimir Putin to commemorate the initial phases of construction for the Akkuyu nuclear power plant. This \$20 billion project is set to be Turkey's first nuclear power plant, located in southern Turkey's Mersin province. The Akkuyu project will consist of four individual units with a cumulative generation capacity of 4,800 MW, based on the Russian VVER-1200 design. The first of these units is scheduled to go online by 2023. The remaining three will follow in 2025.^x

The Akkuyu ceremony continued despite several delays since Turkey and Russia signed an inter-governmental agreement in May 2010. Russia's Rosatom, which is scheduled to build, operate, and own the majority stake in the power plant, will finance 51% of the project's costs through the partners and with loans from import-export banks. Rosatom had sought Turkish financing for a 49% stake in the plant. Potential Turkish investors, however, objected to the \$10 billion cost of the project, what they regarded as an inadequate stake in the project's valuable construction contracts, and their concern that the national guaranteed electricity price might be lowered, thus reducing future revenues.^{xi}

Following the collapse of negotiations between Rosatom and a consortium of three Turkish firms, the Russian nuclear energy agency announced in February that it had entered negotiations with EÜAŞ, a Turkish state-owned energy company.^{xii}

Still, the Russian firm has not signed an agreement for the remainder of the Akkuyu project, and Rosatom General Director Alexey Likhachev stated that the sale of the 49% stake would likely be postponed until 2019. With a seven-year timetable for construction of the power plant, all of these factors have postponed the completion date of the entire project by two years, from 2023 to 2025.

The Akkuyu power plant will reduce reliance on energy imports by supplying 10% of Turkey's domestic electricity demand.

Global Market Trends

Renewables see its Biggest Annual Growth and Meet More Energy Demand than Other Fuels in 2017: As net power generation grew by 0.8% across OECD economies, renewables saw its portion of the fuel mix increase 16.7% for the year in 2017. The composition of this growth, with renewables electricity production hitting over 1,000 TWh for the first time, was driven by wind development in Europe and expansion of solar capacity in the Americas.^{xiii}

The rapid acceleration in installed renewables capacity was sufficient to meet a full quarter of total energy demand growth last year, which registered 2.1% for 2017.^{xiv} The overlap of general increase in energy consumption in China met the elevated growth in Chinese renewables capacity, which constituted 40% of global non-hydro renewables expansion. After a year that brought solar PV generation capacity to 400 GW and installations of wind power to 510 GW, which seems likely to surpass a combined 1,000 GW in 2018.

Generation/Fuel Sources



Turkey Drive to Expand Wind Capacity Extends to Manufacturing of Components: In April, Turkey expanded renewables and wind power with a deal between Turkish contractor Ağaoğlu's energy group and Germany's Nordex Energy. The accord will install a 125 MW wind farm for \$180 million in the province of Balıkesir, thus continuing a 2017 partnership between the two firms in which Ağaoğlu ordered 19 Nordex wind turbines with a capacity of 68.4 MW. That

deal will power some 160,000 Turkish households.^{xv}

These deals are part of larger Turkish initiatives in wind power and developing export markets. Last December, the Turkish firm announced that it planned to spend \$245 million in 2018 on wind projects.^{xvi}

This initiative also comes as General Electric subsidiary LM Wind Power began exporting wind turbine blades from its Bergama factory to Australia. The Bergama factory became operational in July 2017, and the initial order for 99 blades will help power a 113.2 MW Bodangora Power Plant in Southeastern Australia. It will also help supplement the \$538 million in Turkish exports to Australia in 2017.^{xvii} These developments will help develop both Turkish markets in renewables and exports, both of which are important goals of Turkish President Recep Tayyip Erdoğan's economic development plan.

Jordan Tenders Advance Major Expansion of Wind and Solar Capacity: In 2018, the Kingdom's Ministry of Energy will aim to finance six major projects in renewables, including four solar and two wind power plants. In March, Jordan's Minister of Energy, Saleh Kharabsheh, stated that 45 private firms and consortia had been selected to submit bid offers. Interest from renewable energy firms and diversifying IOCs was strong. For the four solar plants, the government's list narrowed to 31 finalists, including ACWA Power, Chint Solar, and France's Total Solar. Each new facility will boast a capacity of 50 MW. If successful, bidders will receive a power purchase agreement for a term of 20 to 25 years.^{xviii} The new plants will be near Ma'an, a city in southern Jordan, some 220 km southwest of the capital city Amman.^{xix}

The initiative is part of an official target of generating 1,600 MW of renewable electricity by 2020, a figure that would increase the share of renewable energy generation in its grid from 3% to 10%.^{xx} The majority of this capacity, some 1,300 MW, have already been contracted in two bid rounds, in 2013 and 2015.^{xxi} Adding to the

incentive structure for potential investors is Jordan's feed-in tariffs (FIT) have fallen in both bid rounds. The country's first PV tender in 2013 awarded 12 projects at a fixed rate of \$0.169/kWh, whereas Jordan's second tender run in 2015 awarded four PV projects, with FITs of \$0.061 per kWh, \$0.0649 per kWh, \$0.0691 per kWh and \$0.077 per kWh, respectively. All projects under this tender are operational.



Given the lack of hydrocarbon production domestically, and the exposure to disruptions of imports from neighboring countries, the developments in local power generation are also a significant part of its quest to bolster energy security. Another facet of lowering the import bill for fuel oil and natural gas is to drive down consumption of electricity, a cornerstone of a recent national plan to boost energy efficiency across Jordan's economy.^{xxii} The government has even passed a law in 2018 to allow all public institutions to construct, operate, and own a solar plant with a capacity of less than 10 MW.^{xxiii} Such bets underscore the logic of Jordan Islamic Bank CEO Musa Shihadeh, who noted that "Jordan is a non-producing oil country, and we import it. Three hundred days are sunny days in Jordan – therefore we made that plant."^{xxiv} The Bank recently financed its own 10 MW solar PV installation.

Natural Gas

Under Modi's Energy Plan, India to Triple Natural Gas Imports by 2022: Indian Prime Minister Narendra Modi has proposed a multi-year plan to more than double natural gas supply as a share of India's energy market, from 6.5% now to 15% by 2022. Modi's plan will require a substantial growth in gas imports and LNG regasification capacity. The plan calls for increasing the number of Indian LNG terminals from 4 to 15, thus raising the country's import capacity from its current 20 MMT/y to 70 MMT/y, a dramatic increase over just 5 years.^{xxv}

Specific elements of Modi's plan to boost gas consumption include a deal between state-owned Indian Oil Corporation (IOC) and the Adani Group. In April, IOC signed a deal with Adani for the sale of 3 MMT/y of natural gas that will come from the prospective Dhamra terminal, where operations are planned to start in 2021 at which time the facility will only be the second LNG import point on the east coast of India. Total nameplate capacity at Dhamra will be 5 MMT/y, with long-term proposals to expand to 10 MMT/y. The deal between IOC and Adani will account for much of the initial capacity at the terminal, with another 1.5 MMT/y taken by the Indian utility, Gail.^{xxvi}

Furthermore, the issue of security of supply is also a factor in emerging regulation of the new LNG import facilities. India's oil regulator Petroleum and Natural Gas Regulatory Board (PNGRB) proposed two new regulations, including a rule that new import terminals reserve 20% of its capacity, or 0.5 MMT/y annually, for third-party access.^{xxvii}

As physical flows of natural gas entering India increase, infrastructure is not the only facet of the natural gas trade that must be expanded. Oil Minister Dharmendra Pradhan stated that India will set up a trading exchange to manage prices as natural gas markets undergo these step changes, with the goal of ensuring that domestic prices, currently \$3.06/mmBtu, are not aligned with or tied to international market rates,

currently \$7.50/mmBtu.^{xxviii} India instituted subsidy reform for oil products over recent years not only to make trade more dynamic but also to diminish the risk to government finances should prices rise in tandem with overall natural gas imports.

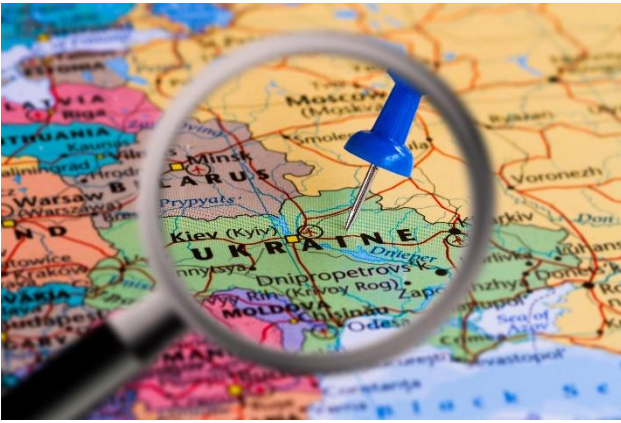


Upstream/Supply

Zohr second phase: On April 26, Eni announced the streaming of the second production unit at the Zohr gas project. This brings 800 Mcf/d of nameplate capacity to the project.^{xxix} The Egyptian government has fast-tracked production from the Zohr offshore field, seeking to bring an output target of 1.7 Bcf/d from 2019 into the end of this year. Given the large import bill Egypt still pays to meet steady energy consumption growth, this is both an economic and strategic goal for the country.^{xxx}

Midstream/LNG Transit

Merkel Places Ukraine Condition on Nord Stream 2 as Political Costs Grow: German Chancellor Angela Merkel stated that the next phase of Nord Stream, a major Russian natural gas pipeline link with Germany, would not be feasible should Ukraine see physical shortages or suffer substantial economic costs in the process.^{xxxi} The move complicates the planned expansion of the Nord Stream 2 pipeline, which is to double its existing capacity to 110 BCM/y and originally to stream in 2019 could supply as much as 30% of the EU's gas demand.^{xxxii}



The public pronouncement by Merkel constitutes the tacit acknowledgement that political factors, namely the 2014 Russian intervention in the Ukraine and last month's alleged assassination attempt of a former spy on British soil, have complicated the overall cost-benefit to Germany of the pipeline. Nevertheless, other preparations, including the issuing of proper permits by German authorities has proceeded without significant delay.^{xxxiii}

Merkel sought assurances that Russia's Gazprom would not use the Nord Stream 2 to reallocate gas from Russia's other European pipeline flows through Ukraine. Last year, Ukraine earned around \$3 billion in Russian gas transit fees.^{xxxiv}

The statement was made in a joint press conference with Ukrainian President Petro Poroshenko, comes on the heels of a ruling in a heated dispute between Gazprom and the Ukraine's Naftogaz. An international tribunal ruled that the Russian gas giant owed \$2.56 billion to Naftogaz due to a \$4.63 damage award for defaulting on its shipment obligations, Russia did not restart the gas supply, instead confirming that relative throughput would be affected.^{xxxv}

Gazprom Chief, Alexei Miller, stated that there would be a precipitous drop in the future volume of gas exported to Europe via Ukraine. Miller announced that only 10-15 BCM/y of gas would flow annually in the future. In 2017, this figure was 93 BCM/y, as Gazprom's total exports to Europe and Turkey reached an all-time high of 194 BCM/y.^{xxxvi}

The German President's announcement was also noteworthy in that she seemed to side with

Eastern European members of the EU, who are generally opposed to the project due to its geopolitical implications, bypassing other EU members such as Poland, while consumer countries in Scandinavia support the project for its economic merits.^{xxxvii}

Imports/Demand/Downstream

Turkish Firm Signs Deal with Qatar for Local Petchem Plant, Gas Cooperation Deepens:

On April 9, Turkey's MetCap Energy Investments and Fusion Dynamics of Qatar announced a 50-50 joint venture to build a \$4 billion polyethylene and polypropylene plant on Turkey's Aegean Coast. The new facility will convert feedstock natural gas and LNG into methanol, which will then be used to produce 400,000 MMT/y of polyethylene and 590,000 MMT/y of polypropylene. Both partners will finance 15% of the cost to build the new petrochemical facility. The remaining 70% will come from commercial loans.^{xxxviii}

The consummation of this deal represents a deepening relationship between Qatar and Turkey, particularly in natural gas markets. In September of 2017, Qatargas signed a three-year pact with Turkish company Botaş, with Qatargas Train 2 scheduled to deliver 1.5 MMT/y of LNG to Botaş. Turkey has two other long-term LNG import deals, one with Nigeria for 1 MMT/y, and the largest with Algeria's Sonatrach for 3 MMT/y.^{xxxix}

Oil Market

Prices/Fundamentals

As global crude markets rebalance, prices supported by geopolitics while fundamentals become less certain:

Since the implementation of the Vienna supply deal in January 2017, participants in the agreement have been using the five-year average for crude inventories as a metric to indicate a balanced market. Having started 2017 at over 300 Mb, the April Oil Market Report from the IEA showed that this overhang had been reduced to just 30 Mb by February 2018. As we enter peak demand season in much of the OECD in the second and third quarters, crude stocks should drop further overall.^{xl}

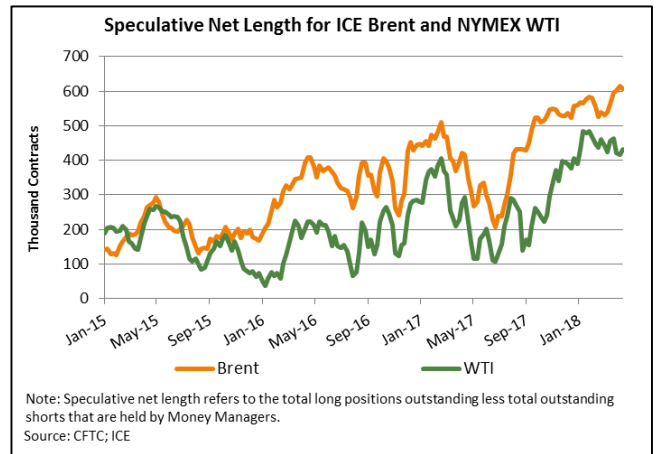
Oil prices in turn have become increasingly sensitive to rising geopolitical risk hanging over significant sources of supply, internalizing the erosion of a supply buffer that significantly elevated inventory levels provided. Now that stocks have continued to drop to near the five-year average, price formulation is getting a compounded support from both further tightening and any signs of lower output from producers such as Venezuela or Iran.^{xii}

The price support has persisted in recent weeks, buttressed by more recent weekly data from the US that is published each Wednesday, pushing prices to another high since 2014. US domestic demand, product exports, and uptick in crude exports could further boost prices in coming weeks, just as the market awaits a decision on Iran sanctions waivers from the Trump administration, slated for May 12.^{xlii}

However, should growing crude output from the US begin to induce counter-seasonal inventory growth, much like the build seen in recent EIA weekly data, then weakness could feed through to Brent and drag on oil prices generally. Geopolitical factors remain a strong enough countervailing force to support prices in the near-term.^{xliii}

Speculative futures positions hits record for Brent, US tight oil growth weighs on WTI: Positions in crude futures reflect the tightening trends in oil fundamentals, as well as a heightened risk associated with greater supply. Brent long positions has claimed new records on a regular basis over recent months, relatively insulated from gathering momentum in US production.

As Brent encompasses the global market outside the US, its dynamics have stayed relatively insulated from much of the vacillations in US tight oil that contributed to much of the global oversupply.^{xliii}



This has helped drive the relative premium that Brent has held over WTI, reflected by the overtaking of WTI in both overall open interest and speculative net length by Brent in futures markets.

These forces have also resulted in a forward curve structure that is in steeper backwardation than that for WTI, although the draw seen at Cushing, the delivery point for the NYMEX WTI contract, over the past several months has served to squeeze the differential with Brent. Still, mounting US crude supply has now started to drag on the front of the WTI forward curve, while prompt Brent months have stayed buttressed by geopolitical concerns.

A forward structure in greater backwardation allows for speculators and ETFs in crude to favor that benchmark due to a larger profit potential when rolling contracts from the prompt month as it expires, called “roll yield”.^{xliii} The roll yield occurs when investment funds roll their positions from futures contract nearing expiry to the next month’s contract, which is more profitable the steeper the forward curve slopes downward.

This profit incentive has helped to shift further capital from NYMEX WTI to ICE Brent markets, contributing another financial layer that is yet another reflection of a global crude system under a fundamental transition and market expectations that a greater proportion of global crude supply growth will come from a single play in the US.

Upstream/Supply

With greater supply from the Permian, growth will start to reverberate globally: The vast majority of near-term incremental production from the US is expected to come from a single play, the Permian, which has responsible for much of the rise in drilling activity in the US since reaching its nadir in May 2016. This reliance on a single supply source makes regional and global benchmarks, specifically WTI-Midland and WTI-Cushing, exposed to local bottlenecks that would distort price signals that could drag on NYMEX WTI as pipeline capacity to the US Gulf Coast fills and producers begin to push flows to Cushing.^{xlvi} Already regional benchmarks are exhibiting signs of offtake constraint, as prices in the Permian reached its greatest discount to WTI-Cushing since 2014.^{xlvii}



Optionality of shippers in the Permian between Houston/Gulf Coast ports, the preferred route to the closest export capacity, and Cushing, the traditional yet increasingly unrepresentative benchmark, has created a “triangle trade” between the three pricing benchmarks.^{xlviii}

Traders and producers are now using futures contracts that lock differentials between WTI benchmarks set in Midland, Cushing, and Houston. With open interest in NYMEX WTI at all-time highs, there is little sign of an imminent replacement of WTI-Cushing by a more representative benchmark, such as WTI-Houston.

The differentials between these three prices that are exposed to local infrastructural bottlenecks will have an increasing impact on global flows as growth in tight oil output goes straight to the global market. As long as infrastructure

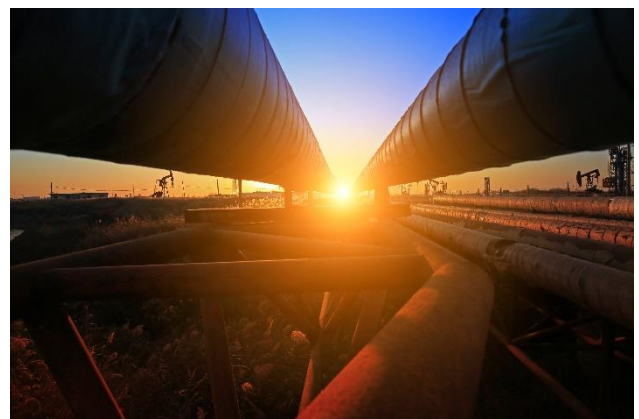
bottlenecks are averted from West Texas to the Gulf Coast, a wider differential of WTI to Brent would favor US exports.

Pipelines/Maritime Flows

As capacity of CPC pipeline sees boost, Kazakh crude loadings at record highs: After completion of an expansion program for the pipeline transporting crude volumes from the primary sources of output in Kazakhstan to a terminal at Novorossiisk, in Russia, loadings of CPC reached a record high of 1.4 Mbb/d in March. The work included the addition of pumping stations and overall infrastructure revitalization work, bringing nameplate capacity to 1.45 Mbb/d.^{xlix}

Recent production trends exhibit the associated uplift that is pushing volumes higher, as elevated supply from Tengiz and Karachaganak is joined by growing incremental production from Kashagan. This growth has been facilitated by the expansion of throughput on the CPC line, with Kazakh supply hitting 1.79 Mbb/d for the first quarter, of which 1.44 Mbb/d was exported.^l

Following upstream projects that have faced long delays and several disagreements between the government and the foreign IOCs and NOCs that operate the major oil fields. The latest row has to do with profit sharing at the Karachaganak field, co-operated by Eni and Shell. Clearing such outstanding issues could alleviate investor concern and allow for discussion of further growth.^{li}



Imports/Refining/Product Demand

As China Turns Increasingly to the US for Oil, Refiners Given Higher Crude Quotas:

Chinese crude oil demand continues to show signs of impressive growth, hitting a record 12.1 Mbb/d in March, up by 900 Kbb/d from a year earlier. While Chinese product demand also appears healthy, refinery runs will drift lower over April and May, as several facilities enter a turnaround period.ⁱⁱⁱ Maintenance will impact Chinese refining capacity of up to 1 Mbb/d, 200 Kbb/d of which comes from the Independent refining firms.

The Independents have taken a more prominent role in China's downstream sector, a rise that began in 2015 when the government started granting these refiners access to crude imports rather than being left to process fuel oil. These import volumes allocated to the Independents are dictated by quotas, of which the government continues to expand its issuance, with over 2 Mbb/d of imported crude allowed to be processed, over 25% higher than the same time last year.^{liii}

Another factor that could provide a temporary boost in crude demand out of China would potentially come from a more rapid filling of its strategic petroleum reserve as a response to the potential for greater trade and political tensions with the US. The IEA announced that it expects a rebound in crude purchases for the strategic reserve, which sat at 287 Mb by end-2017, from 75 Kbb/d to 95 Kbb/d, adding another 34.5 Mb and pushing the Chinese SPR above 300 Mb by mid-year.^{liii}

Political-Economy

Macroeconomy

Institute of International Finance Upgrades Global Growth Outlook while IMF Warns of Long-Term Risks to Expansion: While economic agencies and think tanks continue to revise up their forecasts for global growth, which the Institute of International Finance (IIF) just pushed to 3.5% for 2018, after lifting growth

prospects for the US to 2.9%, largely on the back of fiscal stimulus derived from the tax overhaul.^{lv} Nevertheless, with rising signs of protectionism globally, warnings are getting louder over the economic ramifications of trade wars and escalating implementation of tariffs, now deemed one of the largest threats to the international economy.^{lvi}

Another major risk to the economic system that was voiced at the spring annual meetings of the IMF in Washington were financial trends that harken to the lead-up to the Financial Crisis of 2008-09. Valuations have risen across asset classes, and some central bankers worry that the market is not pricing in the downside risk as much as necessary.^{lvii} Additionally, global debt levels reached \$164 trillion in 2017, a record that seems set to be broken again this year without broad de-leveraging across economies and sectors.^{lviii}

Fundamentals still seem solid, however, with US consumer spending exhibiting robust growth for March and China registering 6.8% economic growth in the first quarter, well above expectations.

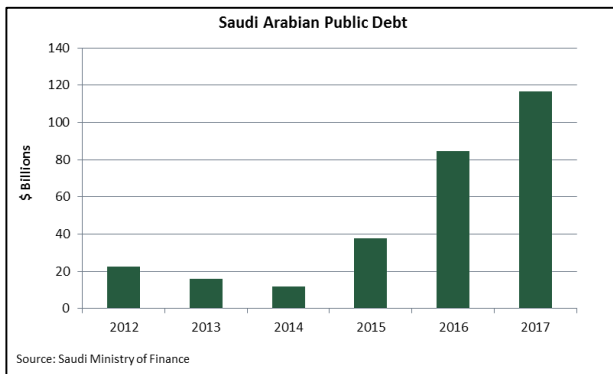
Fiscal Balances/State Financing

Saudi Rushes to International Bond Markets for another \$11 Billion, Domestic Issuances

Continue: Since prices began to collapse by end-2014, Saudi Arabia has had to fill a growing fiscal spending deficit by tapping various forms of external capital. One source of funding has come from debt markets, first through bonds issued within Saudi denominated in the domestic currency, the Saudi riyal (SAR). After the Saudi banking sector experienced a sapping of liquidity from the size of these bond issuances, Riyadh converted to continual debt raises on the international market.^{lix}

In mid-April, Saudi issued another \$11 billion in debt divided between three tranches, only slightly smaller than the \$12.5 billion raised in September 2017.^{lx} Riyadh has also returned to raising debt through sukuk issued domestically, which they have done six times since end-2017,

the most recent of which added \$1.3 billion to Saudi government coffers.^{lxvi}



The difference with this international issuance is its seeming impromptu nature, launching a same-day offer that still got oversubscribed by several times. Many in the market saw such a rushed debt raise just days before Qatar planned its own \$12.5 billion in bonds to be issued as a political play, another reflection of Riyadh's discontent with its GCC counterpart.^{lxvii}

The Saudi government is also seeking greater transparency surrounding its outstanding bonds in an attempt to expand investor interest and ultimately the size and liquidity of Saudi debt markets as the implementation of Vision 2030 approaches. Another significant development in this regard is the listing of various types of government debt on the Saudi exchange, the Tadawul.^{lxviii}

Geopolitics

Return of Iran sanctions may be fast approaching as Trump administration must decide on waivers on May 12: One of the most prominent sources of geopolitical risk in global oil markets over the past few months has emanated from US foreign policy towards Iran. Despite extending waivers on sanctions in January, US President Trump then claimed that it would be the final time unless proper alterations were made to the JCPOA.^{lxix} Iran currently produces around 3.8 Mbb/d, along with growing output of condensate from its South Pars gas development offshore, placing total liquids supply at 4.5 Mbb/d.

In the interim, prices have risen further with Venezuelan production declines accelerating, draining increasingly precious supply of heavy crude from global markets. As the May 12 deadline for waiving sanctions approach again, the prospect of a re-imposition of Iran sanctions, placing at risk another significant portion of near-term oil supply has maintained a fluctuating amount of upward pressure on prices.^{lxx} Even options markets are starting to reflect bets that Iran sanctions will be imposed starting in the third quarter.^{lxxi}



Despite threats from the Trump administration, there is no consensus among the EU allies as to the potential or need for changing the conditions of the nuclear compromise. The previous ramping of sanctions was so potent, ultimately taking over 1.1 Mbb/d off the market, because there was broad agreement within the EU on the degree to which Iran should be sanctioned for its nuclear activities.

With Iran still in compliance with the deal, according to the International Atomic Energy Agency (IAEA), and little desire outside of Washington to attempt to extend sanctions to contentious issues such as Iran's ballistic missile program or access to military sites, there remains a much bigger challenge to achieving effective sanctions this time around.^{lxxii} When President Macron visited Washington, DC last week, Macron surprised EU allies by proposing a solution to the impasse.^{lxxiii} Nevertheless, upon departing the US, Macron stated publicly that he still thought Trump would pull out of the Iran deal,

reaffirming the fears that had helped build up geopolitical risk over 2018.^{lxxix}

In Iran, the economic strain has been mounting, with the Iranian riyal falling precipitously against the US dollar over the past twelve months. The government and the Central Bank of Iran (CBI) had to intervene in early April in order to stem the fall of the riyal, banning open market rates.^{lxxx} Even if the CBI is successful in stemming the outflow of foreign exchange reserves, along with the switch to Euros, the threat of US sanctions would still carry with it the potential for heavy economic damage.^{lxxxi}

With general disappointment at the lack of economic growth after the lifting of sanctions, slight expansion which slowed further upon the arrival of the Trump administration, Iranian President Rouhani is becoming more embattled. With his legitimacy largely tied to the Iran nuclear deal, conservative figures have taken to attacking the agreement while public protests have begun demanding higher wages and against rampant political corruption. Rouhani is now attempting to strike a balance of keeping the deal together without returning to the negotiating table, while also not walking away from the accord, which would prove similarly damaging to him politically.^{lxxxii}

As Venezuelan Output Declines Further, Caracas Brings Country Closer to Political and Economic Peril: Amid the ongoing, precipitous drop in Venezuelan oil production, the management by inexperienced General Manuel Quevedo in his dual role as both Venezuela's Energy Minister, and as chief executive of PDVSA, has only served to compound the stress on the Venezuelan oil sector. Since his appointment, Quevedo has presided over a further decline in crude output by 327,000 Kbb/d, from 1.84 Mbb/d in November 2017, to 1.51 Mbb/d in March 2018, according to PDVSA statistics.^{lxxxiii}

Executive purges, mass resignations, and crime sprees on Venezuela's oil infrastructure have accompanied this drop. Since August of 2017, Maduro's acting Attorney General Tarek Saab

has imprisoned over 80 senior PDVSA executives on corruption charges, over 10,000 experienced PDVSA workers have left the company, and theft of major infrastructure components and siphoning of oil from pipelines has surged.^{lxxxiv}

For PDVSA's partners, including Russian state-controlled Rosneft, Chinese state-owned CNPC, and Chevron, Quevedo's indecisiveness as head of PDVSA, and the crime spree may have been the decisive factors in seeking his ouster.

The febrile conditions between the government and its foreign operators have deteriorated further over the past weeks. After Chevron announced on April 17 that two of its oil workers had been arrested in Venezuela over a contract dispute with PDVSA, which includes the possibility of facing charges of treason. This dramatic escalation by Caracas prompted the US Major to evacuate several executives and urge workers to avoid its facilities that are joint-operated with PDVSA.^{lxxxv}

Maduro has responded with characteristic intransigence. In April, Maduro issued a special decree allowing Quevedo to "create, annul, or modify" any deal with PDVSA and its subsidiaries. His decree gave Quevedo until December 31 to implement reforms, a mandate that came with the possibility of a year-long extension.^{lxxxvi}

Maduro will seek reelection with a vote scheduled for May 20. The US, the EU, and 12 of Venezuela's Latin American neighbors have denounced the elections as illegitimate, and two of Maduro's most formidable political opponents are barred from participating in the election.^{lxxxvii}

Maduro is risking another round of sanctions from the Trump administration. The US has threatened broader sanctions against Venezuela's oil industry itself, including a possible full ban on Venezuelan oil imports, which would prove an economic disaster for the country.^{lxxxviii}

Prospects for Libya shaken by news of Gen. Haftar suffering a stroke in Paris: While the ~1 Mbbl/d that Libya has been pumping consistently of late is well under their pre-2011 levels of 1.6 Mbbl/d, it is the highest sustained output since at least 2012. Much of these gains occurred since September 2016, when Gen. Khalifa Haftar led the Libyan National Army (LNA) to retake four main export terminals that had been shut in for years due to political stalemate.

Haftar was featuring centrally in negotiating a political framework for a viable central government in Tripoli. On April 11, however, it emerged that Haftar had suffered what was believed to be a stroke.^{lxxxix} Other reports quickly surfaced claiming that the Libyan strongman had died, however, there was later confirmation that Haftar was indeed in treatment at a Paris hospital.^{lxxx}

Haftar is a singular figure in Libyan politics who was able to bring relative stability to the east of the country after a prolonged battle with Islamist groups and other rival political factions and militias. Given this authority that Haftar had accumulated, his incapacitation and seeming effective withdrawal from political life brings with it a power vacuum that could threaten recent progress made on the political front as well as offer armed groups the opportunity to sabotage infrastructure once again.

It took little over a week for the first attack on a pipeline feeding the country's largest export terminal, Es Sider. Since the civil war, primarily Islamist terrorist groups have been responsible for violent attacks on facilities, particularly IS during 2016.^{lxxxix} Production from the central Sirte basin is estimated to be off some 70-100 Kbb/d due to the incident.^{lxxxii}

Deal between Baghdad and KRG on Crude Exports Awaits Election Results: One of the largest current disruptions in global crude supply that can return in short order is the outage of a major proportion of flows from the Kirkuk field in Iraq. While negotiations have seen progress, enough so to bring back 50 Kbb/d of the total 280 Kbb/d that was shut in after federal forces retook the fields from Kurdish Peshmerga in October 2017. Reports have emerged several times that Baghdad and Erbil were close to an agreement on resuming full output at Avana and Bai Hasan, although flows have not yet returned, a jump that could bring as much as 250-300 Kbb/d in incremental volumes.^{lxxxiii} In a bid to increase exports on its eastern border, an oil swap with Iran that envisioned 30-60 Kbb/d of trucked volumes to the border at Kermanshah^{lxxxiv}, yet this endeavor has also faltered, with Iran blaming Iraq for the delays.^{lxxxv}

The window for an immediate agreement on crude exports now seems to be closing temporarily, with parliamentary elections fast approaching in May. Many key figures in the KRG-Baghdad process are now occupied with campaigning, further constrained by the rigid political environment in the run-up to the elections.^{lxxxvi} The outcome to these elections will prove crucial to the outlook for Iraqi exports through Ceyhan, which have been languishing around 300 Kbb/d from previous highs of over 600 Kbb/d.^{lxxxvii}

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