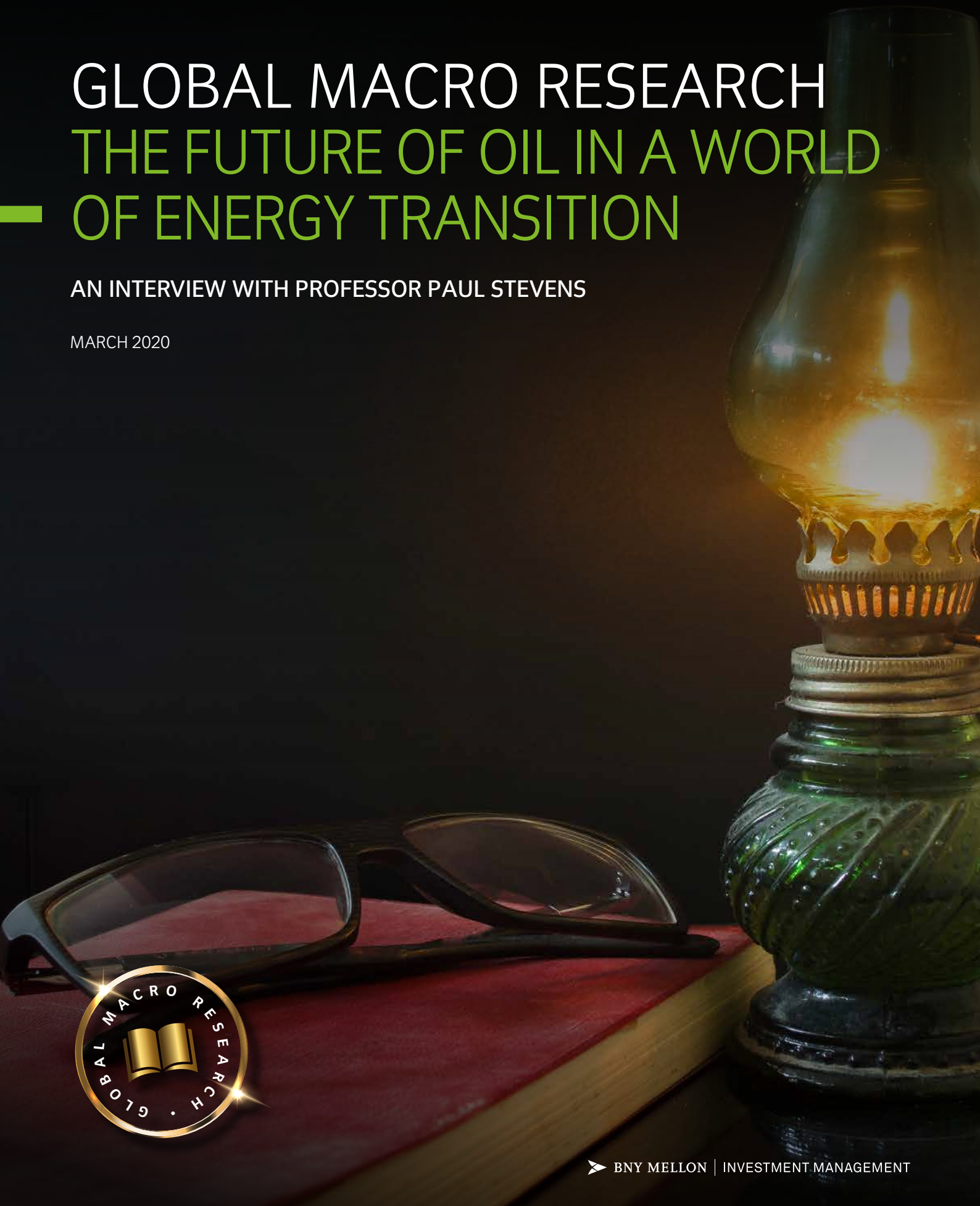
Insight INVESTMENT

GLOBAL MACRO RESEARCH

THE FUTURE OF OIL IN A WORLD OF ENERGY TRANSITION

AN INTERVIEW WITH PROFESSOR PAUL STEVENS

MARCH 2020



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PAUL STEVENS

Paul Stevens is a distinguished fellow at Chatham House, having first joined the institute in 2008. He was educated as an economist and as a specialist on the Middle East at Cambridge and the School of Oriental and African Studies.

From 1973-79 he taught at the American University of Beirut in Lebanon, interspersed with two years as an oil consultant. Between 1979-93 he was a lecturer/senior lecturer in economics at the University of Surrey. Between 1993 and 2007 he was professor of Petroleum Policy and Economics at the Centre for Energy, Petroleum and Mineral Law and Policy at the University of Dundee. He is now professor emeritus at the University of Dundee and until recently, a visiting professor at University College London (Australia). He is also a distinguished fellow at the Institute of Energy Economics Japan (IEEJ) in Tokyo.

He has published extensively on energy economics, the international petroleum industry, economic development issues and the political economy of the Gulf. He also works as a consultant for many companies and governments. In March 2009 he was presented with the OPEC Award in recognition of his outstanding work in the field of oil and energy research.

NAVIGATING GLOBAL OIL MARKETS HAS BECOME INCREASINGLY COMPLEX AS THE WORLD MOVES TO DECARBONISE, AND THE FOCUS ON CLIMATE CHANGE INTENSIFIES. WE PONDER WHAT THIS MEANS FOR INVESTORS, IN TERMS OF BOTH CORPORATE INVESTMENT AND THE WIDER GEOPOLITICAL BACKDROP. TWO OF INSIGHTS ENERGY MARKET EXPERTS, CATHY BRAGANZA AND TIM DOHERTY, SPEAK TO PROFESSOR PAUL STEVENS, A DISTINGUISHED FELLOW AT CHATHAM HOUSE AND INTERNATIONAL OIL EXPERT.

NOTE: THIS INTERVIEW TOOK PLACE BEFORE THE BREAKDOWN OF THE OPEC+ GROUP, PROFESSOR STEVENS PROVIDES SOME REFLECTIONS ON RECENT EVENTS AT THE END OF THE DOCUMENT.

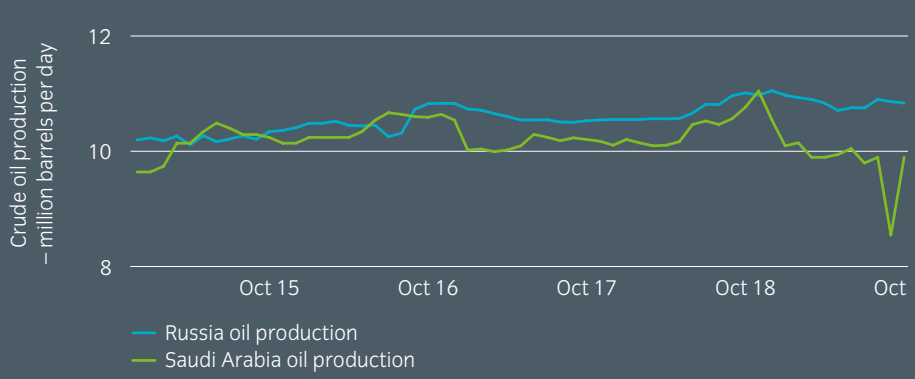
SECTION 1
SETTING THE SCENE – THE BACKDROP TO OIL MARKETS

- OPEC+ cuts have been less important for prices than lost production elsewhere
- Iran is becoming increasingly desperate, and potentially less predictable
- If oil markets are no longer controlled, China, as a large importer, gains influence

CATHY: Over the last decade we've seen some extreme price volatility in global oil markets. The price of Brent Crude averaged US$110 per barrel between 2011 to 2014, then crashed to just US$30 per barrel in early 2016, before rebounding to close to US$60 per barrel after the first round of supply cuts from the OPEC+ group[1]. We are now four years into the OPEC+ group supporting prices – what do you see as the logical endgame to the Saudi strategy?

PROFESSOR STEVENS: I'm actually quite sceptical about the impact that the OPEC+ group has had on markets. Far more important, in my view, were the involuntary cuts coming from Venezuela, Iran and Libya which in aggregate amounted to nearly four million barrels of oil a day. Then if you look at the numbers, there has been very little Russian adherence to agreed supply cuts, with both OPEC and Russia generally producing above target. The government in Russia is under pressure from its own companies, so they have made a lot of noise, but ultimately relied on the Saudis to reduce production – a situation which has become increasingly unsustainable for Saudi over time. So I don't think the OPEC+ group will survive.

Chart 1: Saudi has been behind the majority of OPEC+ production cuts[3]



> There has been very little Russian adherence to agreed supply cuts

[1] OPEC+ is a group of oil producing nations made up of OPEC plus 10 non-OPEC members including Russia, Mexico and Kazakhstan.
[2] http://data.imf.org/regular.aspx?key=60214246. [3] Source: Insight, Bloomberg and the US Department of Energy. Data as at 31 October 2019.

Saudi Arabia desperately needs higher oil prices. For 2019, the International Monetary Fund (IMF) estimated that Saudi needed an oil price of US$86.5[4] per barrel to balance its budget, and prices were nowhere near that. Then the Saudi Aramco IPO has added additional complications, as in order to ensure that the IPO was a success, the Saudi authorities relaxed bank-lending restrictions for the purchase of Saudi Aramco shares. So if the oil price declines, the Saudi Aramco share price would be expected to decline and that would then ripple through the whole banking system as speculators with leveraged exposures incurred losses. The risk is that the Saudi banking system could face the equivalent of the US subprime mortgage crisis in a worst-case scenario. The wider vulnerability of the Saudi economic system is an issue which should really be more of a focus for investors.

CATHY: How does Saudi balance this complex backdrop over the coming years? Do we ultimately see things break down and oil markets become a free market, not controlled by a large producer?

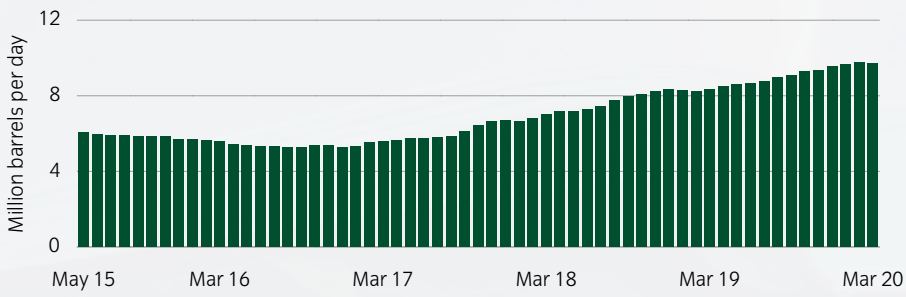
PROFESSOR STEVENS: I think Saudi is in a situation where the only thing it can do is try to support the oil price, which will mean a severe cut in production. But the problem is that in the US, production is not subject to any sort of control by the US government. In January 2020, US production was 1.2 million barrels a day higher than in the previous January. Technological advances have meant that the fall in US rig count has had virtually no impact on US production. People are starting to write obituaries for US production from the Permian Basin[5], as they've tried to do at various points in the past, but in reality there is no reason to believe that US production won't continue to rise and it is very difficult to prevent it from rising.

Unless you get better OPEC discipline, and non-OPEC producers coming to the table and actually making cuts, the risk is that the oil price will decline and it is difficult to see how this doesn't lead to a free market in oil prices over time. A consequence of that is likely to be increasing geopolitical unrest, and it's quite possible that we could see a number of oil-producing governments facing severe fiscal problems which could then lead to domestic unrest.

CATHY: Which countries do you regard as being most at risk in that scenario?

PROFESSOR STEVENS: It's a long list. Iraq and Iran are two obvious candidates. Then Nigeria and Algeria are both already facing problems in their domestic economies which are worth watching. Venezuela is also a country which is going to face significant long-term

Chart 2: US shale oil production just keeps on growing[6]



[4] http://data.imf.org/regular.aspx?key=60214246. [5] The Permian basin is a large sedimentary basin in the Southwest United States, important for US shale oil production.
[6] Source: Bloomberg and Insight. Data as at 31 March 2020.

problems. The majority of its reserves are heavy grades of crude, the extraction and refining of which have the severest environmental impact. This leaves Venezuela significantly disadvantaged in a world worried about climate change. The country also has peculiar oil fields, which need a lot of care and specialist field engineers to maintain them. Unfortunately, a lot of these specialist field engineers were dismissed by Chavez, meaning they now face a variety of technical problems.

TIM: You raised Iran as a country you are especially concerned about, could you elaborate on this? Do you anticipate further responses to the assassination of General Soleimani in January?

PROFESSOR STEVENS: My sense on Iran is that the desperation of the regime in Tehran is increasing dramatically. That is partially a result of the coronavirus, which is hitting the country hard, but also a result of the effectiveness of Trump's strategy on Iran. The strategy has been a very simple one: make the life of ordinary Iranians so miserable that they will rise up and overthrow the government. Sanctions have created extraordinary problems for the country's domestic economy.

So the regime's primary objective is likely to do anything they can to prevent Trump gaining a second term in office. They have limited options when it comes to achieving that goal, and the most realistic one is to engineer a dramatic increase in international oil prices. That would both solve their own problems and cause Trump problems, as many of the states that support Trump are those that are most vulnerable to rising energy prices. The best way to do that would be to close the Strait of Hormuz. It would produce a military response, but the regime may well be reaching a point where they are desperate enough to want a military conflict. There are also less dramatic options: for example, the use of proxies in Iraq and Lebanon, designed to stop Trump from fulfilling his pledge to stop intervening in the Middle East. As it stands though, the whole country is potentially reaching a tipping point, and there is a risk that things could get very nasty.

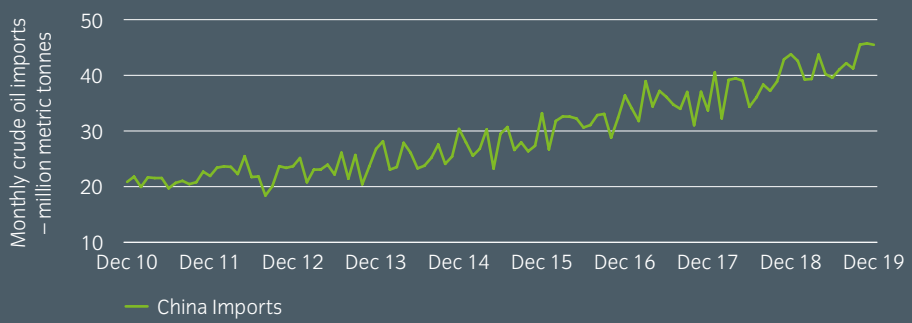
TIM: Could one outcome be that China starts to work more with Iran on a bilateral basis? My impression is that China is quite comfortable dealing with Iran, and there is a lot of history given they represent two of the longest-standing civilisations on earth.

PROFESSOR STEVENS: I certainly think that is possible, but generally speaking there is the perception that China likes to have political influence in the countries that supply them with strategic resources like oil. There is also, obviously, the question of whether the Chinese would want to upset the Americans, which is likely to be depend on how trade talks progress. It is certainly possible though that oil goes back to trading bilaterally rather than multilaterally. Bilateral trading would give China, as a major importer, significantly more influence with oil-producing countries, particularly in the Middle East.

CATHY: Do you have any thoughts on the possible impacts of the coronavirus outbreak on demand for oil?

PROFESSOR STEVENS: On a very short-term basis, oil prices are a function of sentiment rather than demand and supply. So of course, as concerns grow that the world may experience a pandemic – which would have significant consequences for global growth – it has led to lower prices. But it is still too early to have any clear assessment of the impact on demand.

Chart 3: China is now a major source of global oil demand[7]



Bilateral trading would give China, as a major importer, significantly more influence

[7] Source: Bloomberg and Insight. Data as at 31 December 2019. Monthly crude oil imports in million metric tonnes.

SECTION 2
INVESTING IN OIL – THE CORPORATE BALANCING ACT

- Environmental pressures are intense in Europe
- With renewables, supernormal profits will fade away
- Only the lowest-cost producers will survive in the long-term

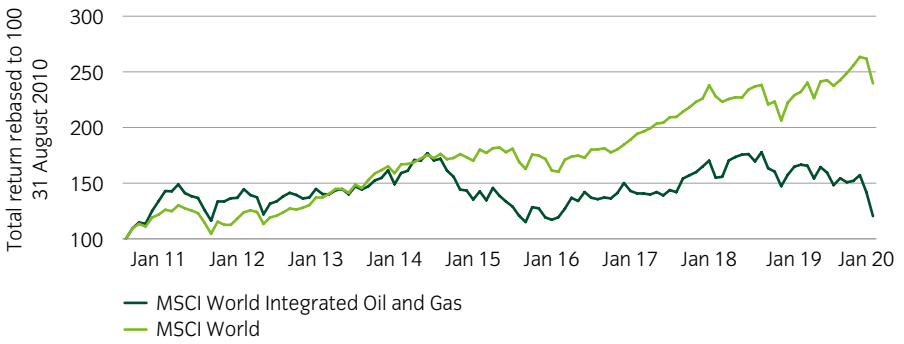
CATHY: Bond investors such as Insight are increasingly incorporating environmental, social and governance (ESG) factors into their investment decisions. How does the oil industry decarbonise quickly enough to satisfy investors? How do we choose between companies when they are all presenting different models on how they will approach decarbonisation?

PROFESSOR STEVENS: I think it's important to make a distinction here between European and American integrated oil companies (IOCs)[8]. European IOCs have faced considerable pressure from investors to become greener for quite a while, and not just to decarbonise but also to diversify, despite the fact that the history of diversification in IOCs is not good at all. Most European IOCs are now trying to diversify into renewables, but there is little economic rent[9] in renewables. The market is extremely competitive, smaller in scale and often a decentralised solution. The reason many IOCs became so large is that they were excellent at creating and capturing economic rent. This economic rent came from being able to gain access to low-cost production and, when the market is effectively manipulated at the same time, this can lead to what economists call supernormal profits.

At some stage, shareholders are going to realise that the current ability to generate cash and use that for dividends and share buybacks is not sustainable. These companies are just not going to be able to generate the same amounts of cash in renewables that investors have become used to and the result will likely be a stampede of investors away from the IOCs, certainly in Europe.

Markets have already started to reflect some scepticism I think, which is likely why the share prices of IOCs have underperformed broader equity markets for some time now.

Chart 4: The oil sector has underperformed broader equity markets for some time[10]



[8] Integrated oil companies are oil companies that participate in all parts of the oil and gas industry, including exploration, production, refining and distribution.
[9] Economic rent is the additional value earned by a resource above the amount needed by the resource owner to justify production.
[10] Source: Insight and Bloomberg. Data as at 28 February 2020. Data is total return in US dollars.

CATHY: So is there a scenario where investors, both equity and debt, particularly in Europe, effectively force the IOCs to stop exploration and run down their assets, effectively becoming an annuity?

PROFESSOR STEVENS: That pressure is definitely growing. Most large oil companies have reserve-to-production ratios of around 10 to 12 years. With the political groundswell around climate change, there is already a question mark about stranded assets – assets that will become obsolete because of energy transition. So there is already a question mark around exploration if there is a perception that some existing assets will never be produced.

In addition to climate change, we also have another issue rapidly moving up the policy agenda – urban air quality. Critically, this is moving into focus not just in Europe, but also in Asia, especially in India and China. Perceptions are changing rapidly, carrying the political agenda with it, and we shouldn't underestimate the current momentum in that process.

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CATHY: Given the clear difference between the backdrop in Europe and the US, with US IOCs under less pressure from environmental lobbying, does this ultimately lead to a scenario where European IOCs become acquisition targets for their US counterparts?

PROFESSOR STEVENS: The problem there is that historically, mergers have run into significant problems with regulators, particularly on downstream activities, such as refining, which most IOCs have. So I think that actually we have seen the last of the major takeovers for that reason.

CATHY: What happens to the small independents? Do smaller producers that are either mixed production and exploration or just outright exploration have a future?

PROFESSOR STEVENS: No, I don't think they do. Some smaller companies are likely to get snapped up and, in my view, American firms are most likely to be the buyers. But I don't see the scenario where oil demand peaks and then is followed by a plateau or gentle decline; I think it's far more likely that demand peaks and then experiences a rapid decline. As the energy transition speeds up, the small independents are likely to face the full force of that. Only the lowest-cost producers are likely to be able to survive in the longer term and they will be the national oil companies in the Middle East and other parts of the world.

SECTION 3
THE LONG-TERM OUTLOOK – DEMAND AND SUPPLY IN A TRANSITIONING WORLD

- Demand is likely to peak before supply
- Progress on oil alternatives is likely to be more rapid than currently believed
- Taxation is increasingly being used to stem demand, even in some emerging markets

TIM: Turning to the longer-term outlook for oil markets, global oil demand has grown from around 85 million barrels a day coming out of the global financial crisis to around 100 million barrels a day.[11] Almost all of that demand growth has come from the transport sector, primarily led by China and South East Asia. Can this continue, or are we already nearing an inflection point as the OECD demand degradation and electric vehicle/hybrid penetration in emerging markets overwhelms demand?

PROFESSOR STEVENS: I am definitely of the opinion that demand peaks before supply, and that peak demand will happen before 2030, not after. The question though is what happens after that peak occurs. Aviation will be the last bastion of demand, as there is no obvious alternative. You will get electric airplanes, but they are unlikely to have sufficient range for quite some time. Long-distance trucking is more interesting because there are increasingly viable alternatives to that. Liquefied natural gas (LNG) is a shorter-term risk to demand, with various experiments going on in the US. Longer term, electric trucks will also become a threat. I think people are underestimating the development of electric vehicles.

In my experience once people start to become interested in something from a technical point of view and get reinforcing factors coming into play, progress can be rapid and then change relative pricing. Climate change and urban air quality are both significant triggers for change. A number of high-profile universities are now working on battery technology. This is focused on the light-vehicle market but it's only a matter of time before that shifts to heavy transportation. There are also now question marks about where goods are made and the environmental consequences of the location of manufacturing.

I can see a scenario where oil demand for long-distance transport diminishes more rapidly than currently expected.

Then we have petrochemicals. When you think that around 40% of plastic is used for packaging and you consider the growing antipathy towards the use of plastics, it's difficult to understand how this is not vulnerable from a demand perspective.

To be clear, I'm not suggesting that oil demand is just going to disappear, but I do think it could erode far more quickly than the current consensus believes.

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[11] Source: Bloomberg. Data as at 28 February 2020.

TIM: One of the issues that I find divides opinion, especially between US and European colleagues, is the belief that we will see the implementation of a global carbon tax at some point in the future. In the US there is a lot more scepticism that this will be possible to implement in reality. For example, we've already seen the yellow jacket protests in France, and the protests in Chile when the government tried to raise the cost of Metro prices. What are your thoughts?

PROFESSOR STEVENS: I take your point about the popular reaction to governments increasing the price of energy, but to what extent will that be offset by growing concerns about climate change and urban air pollution? I would also be sceptical about a global solution, where the international community comes together to implement a tax globally, but individual governments may be able to persuade their electorates that this is in their interests.

If tax systems start to develop that penalise people supplying goods from carbon-intensive countries or industries for example, that will have a similar effect.

In the 1980s you had what was christened 'OECD disease'.

The G7 agreed that they needed to take action to reduce their vulnerability to global oil shocks, and the simplest way to do that was via sales taxes. That, combined with the growth of energy sources that are not dependent on the price of oil, led to changing demand patterns, especially in Europe. We're now seeing countries such as India and China offsetting lower crude oil prices by increasing sales taxes, which is going to change the relationship between market prices and demand over time.

SECTION 4
THE POLITICS OF ENERGY TRANSITION

- The era of energy geopolitics is drawing to a close
- This will be an extremely disruptive process for some
- There is a real risk that some oil producing nations will become failed states

TIM: One consequence of the global energy transition is that power is shifting towards consumers of energy and away from the historical producers of energy such as oil. What are the broader geopolitical consequences of this?

PROFESSOR STEVENS: Ultimately we are coming to the end of the era of energy geopolitics that has dominated much of the last 100 years. In 1912, the British Royal Navy switched from using coal to oil on its ships, partly in reaction to improvements in navel artillery. When you can be hit by a shell from 25 miles away, burning smoky coal is no longer such a great idea, plus it meant that ships could be refuelled without having to return to port. Since that point, efforts to control the supply and price of oil have been key elements of foreign policy in countries such as the UK and US. Only a few countries controlled the hydrocarbons, and getting access to them was critical. In a world of renewable energy sources that is all over. It won't disappear overnight, but we are in the final years of that era.

But that doesn't mean everyone is going to be living happily ever after. This is going to be an extremely disruptive process, especially for the Middle East, whose governments have done an abysmal job of diversifying their economies away from oil. There are moves to try and diversify, so in Saudi they have launched Saudi Vision 2030[11], for example. These are highly unlikely to succeed unless there is deeper fundamental reform to remove barriers that prevent real diversification. Property rights and the rule of law are very weak for private investors, as the ruling elite are not subject to the law. A good example of this was in October 2017 when over 100 senior Saudis were arrested and held in the Ritz Carlton hotel in Riyadh, forced to pay 'fines' before they were released. Unsurprisingly, since that episode, private-sector investment in the Kingdom has been very limited, and the country experienced huge capital outflows afterwards. It's impossible to pursue an investment-driven economic diversification strategy with that backdrop.

High levels of state interference and poor education standards compound the problem. As the demand for oil diminishes, and their revenues diminish as a result, they are going to face serious problems.

There is a real risk that some of these countries become failed states.

TIM: Some of these countries appear to be very similar to European IOCs, trying but failing to diversify into renewables, with unsustainable long-term models. Do you see similarities?

PROFESSOR STEVENS: I can see that there are. In the same way that the IOCs have used cashflows to pay dividends and buyback shares in order to placate shareholders, places like Saudi Arabia have been able to use their cashflows to placate their effective shareholders – their population. One reason I think we saw little impact in Saudi from the Arab uprisings in 2011 was that the population was relatively content or manageable. But if Saudi cashflows start to fail and they are unable to maintain that standard of living – their effective dividends – then you have a potential powder keg.

[11] For more information, please see: https://vision2030.gov.sa/en.

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TIM: Thinking of other potential areas of disruption from the energy transition, a lot of southern European countries, for example, have the potential to be very strong in solar. If the ability to store solar energy advances, could you perhaps see manufacturing shift from places like southeast Asia towards solar-rich countries so as to tap into those resources?

PROFESSOR STEVENS: I think we are looking at significant structural changes in the global economy, but it won't be all about access to energy. Energy efficiency is going to improve, with people using a lot less energy to do a variety of tasks. There will be continued advancements in technology, and in the long term the winners on questions such as where to locate industry are likely to be the countries that have people with the necessary skill-sets rather than just access to energy.

TIM: So Professor Stevens, to conclude, how do you see this energy transition and the corresponding geopolitical events playing out in terms of prices over the next five years?

PROFESSOR STEVENS: It's going to be a bumpy road, but that ultimately the trend is downwards, with reducing demand weighing on prices and technology advances beating depletion. Upheaval in the Middle East along the way has the potential to lead to an oil price shock, but I don't see this lasting for long, and if that does occur I would see it as reinforcing the long-term trend, accelerating the speed of the transition. Saudi will continue to try and control markets, but I believe they will be unsuccessful and eventually things will fall apart. In 1986, when the oil price collapsed and things fell apart they were able to pull them back together again. It will be very difficult for anyone to put things back together again.

SECTION 5
REFLECTING ON RECENT EVENTS

- In the short term, the oil market now appears to be facing a perfect storm
- A price war could prove devastating for Russia and Saudi Arabia
- Most US shale oil production is hedged, and production should continue for now

Shortly after this interview took place, the OPEC+ meeting in Vienna broke up in disarray. OPEC had asked Russia and the other non-OPEC members to cut their production by 0.5 million barrels per day to match OPEC's cut of 1 million barrels per day. Russia refused and walked out of the meeting. This has provoked a price war with Saudi Arabia threatening to dramatically increase production. The result has been a price collapse with prices falling as low as US$31 per barrel. We asked Professor Stevens to provide his thoughts on recent events.

PROFESSOR STEVENS: The problem is that this is a price war neither side can win nor can either side afford it if it goes on for any length of time. The only viable solution is for Russia to come back to the table and negotiate a revival of a version of the OPEC+ agreement, although this will have to be done in a way that does not cause Russia or Saudi Arabia to lose too much face. It was strange that Russia walked away at this point. Although I don't expect the OPEC+ group to survive in the long term, it is surprising that Russia has been the one to walk away when it could have just done what it has done in the past, namely agree to the cut and then simply ignore any agreement.

In the short term, the oil market now appears to faces a perfect storm, with excessive supply coupled with demand collapsing as the coronavirus eats into demand. Back-tracking could be embarrassing for Russia, but a continuation of a price war would be devastating to both sides. Also, lower prices are unlikely to have much of a negative effect on US shale oil production, which some see as the target of the price war. Most US shale oil production is already hedged at much higher than current prices, the larger players more recently involved have deep pockets and the industry has a strong record of lowering costs faced with lower oil prices. This makes the price war an expensive indulgence that neither Russia or Saudi Arabia can afford.

THE INSIGHT VIEW

We share many of the concerns highlighted by Professor Stevens, especially regarding the long-term sustainability of IOC business models. We have been favouring lowest cost producers with diversified businesses throughout the hydrocarbon value chain that extends through the midstream and downstream areas. ESG factors also play a key role in our analysis, as we believe they can have a material impact on investment risk. With the risk that investors start to penalise those companies that are unable to decarbonise quickly enough, the use of careful analysis and credit selection is more important than ever.

FIND OUT MORE

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IMPORTANT INFORMATION

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