Rahmaniah Occasional Paper 03

From Price Taker to Price Maker?
Saudi Arabia and the World Oil Market

Giacomo Luciani

Al-Rahmaniah Cultural Center
Abdulrahman Al-Sudairy Foundation

Rahmaniah Occasional Paper 03

From Price Taker to Price Maker? Saudi Arabia and the World Oil Market

Giacomo Luciani

A Paper Presented at
the Rahmaniah Annual Seminar

January 2010
Al–Ghat

Al-Rahmaniah Cultural Center
Abdulrahman Al-Sudairy Foundation

The Rahmaniah Occasional Paper Series *is a select presentation of papers offered at the Rahmaniah Annual Seminar, a forum on current, socio-economic and international affairs as they pertain to Saudi Arabia. The Seminar is organized by the Rahmaniah Cultural Centre and its participants include more than forty scholars, lawyers and businessmen from Saudi Arabia, the Arab countries, the U. S. and Europe. The Rahmaniah Cultural Centre is sponsored by the Abdulrahman Al-Sudairy Foundation. The Seminar is held annually in Al-Ghat.*

ISBN: 8-8-90172-603-978

First Edition
Riyadh, Saudi Arabia 1432H/ 2011

Giacomo Luciani

Director, Gulf Research Center Foundation (Geneva); Professorial Lecturer of Middle Eastern Studies at the SAIS Johns Hopkins University Bologna Centre: and Visiting Professor, Graduate Institute of International and Development Studies (Geneva) and Institut d'Etudes Politiques de Paris (Menton Campus). Prof. Luciani's career has been marked by repeated "trespassing" between academia, industry and government. He has been economist at the Bank of Italy (1972-74), founded and directed the Institute for Research on International Economics (IRECI), and worked for the Italian Institute of International Affairs (1977-86). From 1990 to 2000 he worked for ENI, the Italian Oil Company. He has taught at UCLA (1986-88), the Institut d'Etudes Politiques in Paris (1994-97), the Robert Schuman Centre of Advanced Studies at the European University Institute in Florence (2000-6), and the College of Europe (2007-8). He has consulted for various international organizations, companies and Gulf governments. His research interests include Political economy of the Middle East and North Africa and Geopolitics of energy.

From Price Taker to Price Maker? Saudi Arabia and the World Oil Market

1- Oil price volatility – old and new

Commodity prices are notoriously volatile, and oil is no exception. The structural volatility of commodity prices is a key reason why the economic development literature has concluded that specialisation in commodity exports is not a valid recipe for development. The negative effect of volatility is linked to the fact that prices, and consequently revenues, may become unpredictable, foiling the possibility of rational investment and fiscal policies. Such long-term volatility – qualitatively different from short-term volatility which occurs in a predictable pattern – constitutes a clear dilemma for commodity producers and users alike.

In the case of oil, price volatility was extreme in the early stages of the industry (at the end of the XIX century), until the market power of the leading players (initially, the Standard Oil Company in the USA; then the "Seven Sisters", controlling, through interlocking interests in upstream consortia, the bulk of global oil reserves) succeeded in maintaining "market discipline" for an extended period of time (about 1900 to 1970). "Market discipline" prevented cheap Middle East oil from rushing to the market in excessively large volumes, which would have brought prices down to levels at which oil produced elsewhere in the world would have been driven out of the market. Instead, prices were kept sufficiently low and stable to progressively

displace other primary fuels, and the share of oil expanded rapidly.

The market power of the Seven Sisters was gradually eroded, until the tables were turned in 1973, and the power to determine "posted prices" shifted to OPEC. This led to a sudden rapid increase of prices over a relatively short period of time. More importantly, OPEC never succeeded in agreeing on a "long term strategy" for prices, which would have offered a new paradigm for price predictability. Instead, prices were pushed up by a succession of political emergencies in 1973-80 (the Yom Kippur war, the Iranian revolution, the onset of the Iraq-Iran war) the organisation simply attempted to consolidate the higher price level, with little attention paid to its sustainability in the longer run.

At that time, Saudi Arabia dissented from the rest of OPEC, and for a time sold its oil at a discount to the OPEC-supported posted price, but this was not a very successful experience (it simply created an advantage for the companies that were granted access to Saudi crude).

OPEC started enforcing quotas to defend the high level of prices at the same time as non-OPEC production was rapidly increasing. By 1985 the production of Saudi Arabia, which had exceeded 11 million barrels per day in 1981, was down to less than 4 million barrels per day. At that point the Kingdom abandoned the posted price system, causing a sharp downward correction in prices. After a short episode based on netback pricing, the reference pricing regime was inaugurated, which is in force to this day.

The reference price system is therefore at least to some extent the consequence of the failure on the part of OPEC -

and Saudi Arabia specifically within OPEC - to validly play the role of price maker. This negative historical experience still weights heavily on the Kingdom's reluctance to play a more active role in the formation of global oil prices.

An additional consequence of the flawed pricing policy adopted by OPEC in the late 1970s and early 1980s was that the market for Brent developed rapidly, alongside the older market for WTI, providing an enhanced platform for reference pricing.

Reference pricing means that the price for the main OPEC crude oils, which are not freely available for trading, is indexed to the price of freely traded crude oils - which are primarily Brent and WTI - with a relatively small differential set by the producer. The differential changes over time, but the oscillations in the underlying price of the reference crude are by far more important.

Why are major crude oils not available for trading? The standard answer is that that there is only one seller, therefore no competition can exist. This is literally true if the national oil company of the producing country controls all production; in countries in which international oil companies operate and have access to equity oil, they might sell their oil at prices which differ from those practiced by the national oil company. However, this "competition" is likely to be limited and, perhaps more importantly, unlikely to be made public.

A further aspect is that major crude oils are sold to the final user (refiner) "spot", that is at the moment when the cargo is loaded on a ship or even delivered to the receiving terminal: this makes reselling a cargo rather difficult and

discourages the emergence of a secondary market, i.e. a market on which crude oil is sold not by the original producer, but by a party that bought it from the original producer. Cargos can be sold on while underway, and in some cases crude oil can be sold to other buyers (nearby refineries, entrepôt trade) once it is delivered, but such transactions are bound to be irregular and will not generate a transparent and credible price signal.

That said, it is important to underline at the outset that a market for the major crude oils does not exist not because it is impossible to set one up, but because the producers do not wish their crude oils to be traded. Between 1973 and 1985 the producers attempted to impose a price – having failed to do so, they shifted to the opposite extreme of almost entirely renouncing to exercise an influence on prices. The intermediate solution consisting in setting up a market in which producers would have a strong influence, yet falling short of total control, has not been attempted.

Once the decision was made to opt for reference pricing, a major boost was given to the existing markets, which became vehicles for hedging not just the crude oils that were traded on them, but also crude oils whose price was indexed to that of the traded crude oils. In other words, the markets for Brent and WTI became valid platform for hedging the price of the vast majority of global oil production, which is not traded.

This development was instrumental in the success of future contracts and the birth of derivatives. Since the late 1980s, investors' interest in this market has progressively increased, attracting growing liquidity. Whether the inflow

of liquidity is per se a cause of greater price instability is an issue that is hotly debated, and will not be resolved any time soon(1).

Neither there is clear consensus on whether volatility has been increasing over time. Volatility refers to the scope of oscillations of a variable around its mean or trend for a given period of time – it is indeed normally defined as the standard deviation from the trend Line (ordinary least squares line). Empirical measures of volatility will greatly differ depending on the length of time over which it is measured. In our analysis what matters is not so much short-term volatility (intra-day, inter-day or even weekly or monthly) as oscillations over longer periods.

These oscillations may follow a pattern such that it becomes very difficult to define a stable mean or trend around which the oscillations take place. The negative impact of volatility arises from the fact that we are unable to define an underlining average level of prices, or trend over time. The average level of prices changes significantly depending on the period under consideration. This is seen clearly if moving averages of prices over extended periods of time are calculated: the 10-year moving average of oil prices is far from being flat and still shows very wide swings (chart 1).

(1) The so-called "flow of funds" hypothesis, whose original proponent was, I believe, Ed Morse, has not been supported by the empirical evidence analysed in the "Interim Report on Crude Oil" published by the US Interagency Task Force on Commodity Markets in July 2008. The report confirms that there has been a huge inflow of liquidity and increase in open interest, but denies that this has been the cause of the 2008 price spike. In contrast, Roger Diwan in a paper published in this same series conclusively argues that the financialisation of the oil market does influence the price of crude oil: Roger Diwan "The financialisation of the oil market and the increasing impact of financial institutions in the pricing of crude oil " Rahmania Occasional Paper #?, 2010.

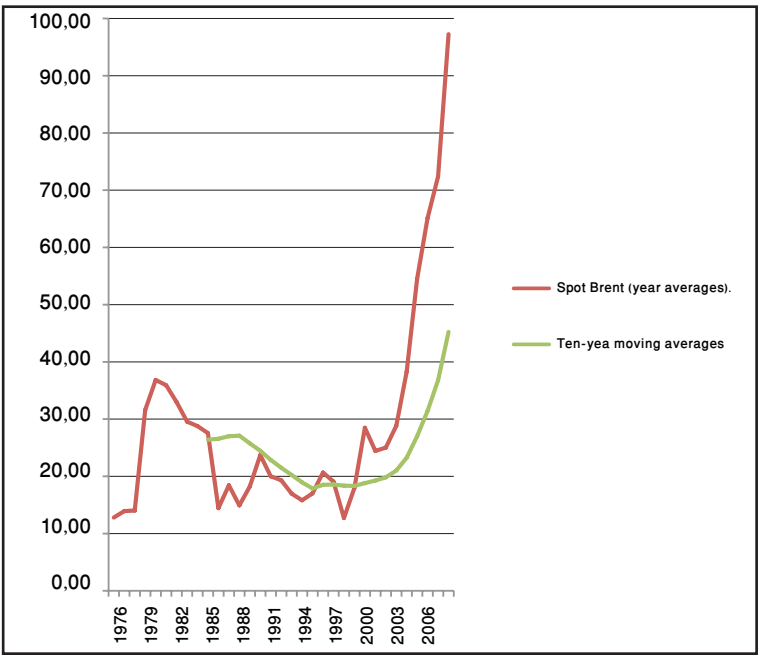


Chart 1: Spot Brent (year averages) and ten-year moving averages

Moving averages are not a very sophisticated way to predict prices, but let me note that when you hear company managers arguing "today prices are x, but only three years ago the were y, so we cannot be confident…" they are implicitly using moving averages.

Trend lines, even when computed over 20 year periods, have dramatically different slopes depending on the time interval included in the calculation. This is shown in Chart 2, where the trend for the period 1976-1985 (in purple) is strongly negative, and becomes even more so for the period 1980-1999 (in red). However, the trend for 1985-2004 (in yellow) is positive, and even more so for the period 1989-2008 (in green). Computing trend lines over shorter periods would strengthen the impression of instability.

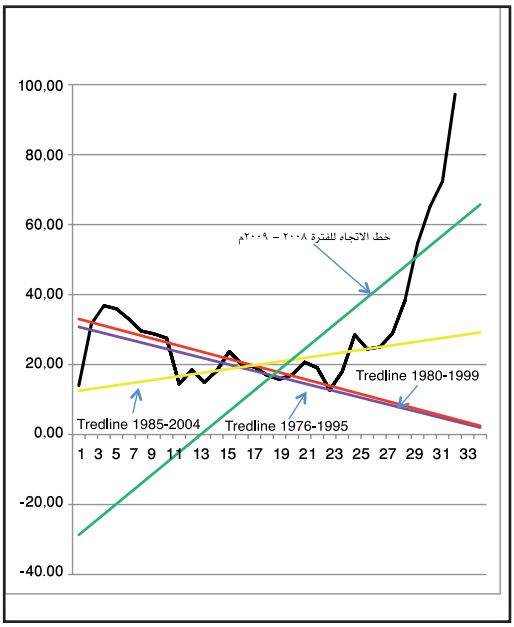


Chart 2: 20-year trendlines of Brent spot yearly averages

Statistically, our ability to model or project prices into the future is essentially nil.

It is through the resulting unpredictability of prices that long-term volatility negatively affects the industry. If we had intense volatility around a well understood trend line, the latter could serve to shape our expectations of future prices. But the amplitude of recent price swings over months and years has been such that no reliable rule for predicting future prices is available.

The rigidity of both demand and supply to prices is probably the most important underlying cause of the volatility. If neither demand nor supply reacts to price changes, the adjustment mechanism which governs prices is inhibited. Prices can grow to very high levels and little effect will be seen in terms of diminishing demand or

increasing supply. Conversely, prices can precipitate to very low levels, and very little effect will be visible in terms of increasing demand or decreasing supply.

The inflow of liquidity, the increasing role played by the futures market (paper barrels) over the spot (wet barrels), and the proliferation of derivatives - all contribute to worsen the situation, amplifying price oscillations. In fact, investors are attracted by instability, because their return on investment will be potentially much greater: thus the structural, underlying instability which is the inevitable consequence of rigid demand and supply becomes amplified and attracts ever more financial investment.

One can hardly find justification(1) in supply or demand disequilibrium for the increase of prices from about 50$/b at the beginning of 2007 to triple this level in July 2008, followed by a collapse to less than 40 in December of the same year: there was no major shift in either of the two sides of the physical market. Rather, the long upward run was fuelled by the expectation that prices would continue to increase indefinitely, or, in Paul Horsnell's words, by the market's search for an elusive upper limit(2). When finally the market turned around it was not because this upper limit had been hit, but because the crisis on an entirely different market – US mortgages – eventually led to precipitous disintermediation and hit the global economy and aggregate demand.

(1) Not everybody would agree with this statement. The reader might remember that during the Spring of 2008, as prices were climbing and climbing, the US government was putting pressure on Saudi Arabia to increase production, while the Saudi Minister of Petroleum was arguing that the market was well supplied and all demand was satisfied. So: truth is elusive.

(2) Paul Horsnell "The Dynamics of Oil Price Determination" Oxford Energy Forum #71, November 2007 page 13-15

2- The cost of long-term price volatility

Believers in the efficiency of markets argue that volatility is not a problem - because there is a flourishing futures market which allows efficient hedging. In fact, the main function of the futures market is precisely to allow parties that have a structural exposure to price risk (because they are structural sellers or buyers of oil-related products) to manage their risk and "sell" it, in part or in full, to other parties that are keen to underwrite such risk (parties that have a "risk appetite"). In this vision, the futures paper barrels market is a tool to provide insurance against unavoidable risk.

The other side of the coin – which cannot be separated from the desire of some to reduce their risk – is the speculation or betting on the part of parties that are in the market to take up risk. In this sense, the beneficial role of the market is indissoluble from the speculation: if there were no speculators, parties exposed to structural risk could not mitigate their position(1).

However, the net outcome of the process, as was said, is to amplify the underlying volatility of the market. Through successive, ever wider oscillations, the market only increases the risk that it is supposed to mitigate. In other words, the market allows some parties to mitigate their risk – at a cost – but at the same time increases the overall risk in the industry.

It is important to note that it is difficult for a party to be a pure risk seller, without simultaneously acquiring other risk.

(1) Robert Mabro has expressed this with the statement that the futures market is at one and the same time a tool for insurance and a betting casino: the two functions cannot be separated.

Participating in the market in a purely defensive position may have equally disastrous consequences if the wrong line of defence is chosen. Consequently, whoever enters the market is eventually drawn into shifting positions in the attempt of maximising his profit or minimising his losses: there is no point in limiting oneself to an inferior trading strategy and ignore the direction of the market. Companies have gone bankrupt because of wrong hedges. Therefore, companies tend to belong to either one or the other of two very separate groups: those that are not active on the market at all, and do not attempt to mitigate their structural risk; and those that are active traders and seek to maximise their trading profit.

The down side of long-term volatility is also clear. In essence, the impossibility of predicting future prices on the basis of demand and supply trends frustrates rational investment decisions. In an industry in which investment costs are the major component of total costs; and investment projects have long gestation periods; how can a corporation decide whether a project is likely to generate sufficient return? In theory, hedging is possible even for very distant maturities, however liquidity becomes rapidly thinner and only small deals may be envisaged.

Faced with the unpredictability of prices, the aggregate reaction of real investors is to adopt a prudent attitude and only undertake such projects that have very strong rationale and are essentially guaranteed to return very good profit. But the fact that investment will be slowed down and capacity increases delayed until demand for them is clearly apparent will lead to an industry that is more fragile overall, with

reduced capacity to react to extraordinary or unforeseen circumstances. As external shocks are an unavoidable fact of life, this also means that the physical market will itself be more likely to become unbalanced, further feeding into price instability.

Much of the concern for security of oil supplies which is so prominent in the political discourse of all major importing countries, including the Chinas and India of this world, is purely a reflection of insufficient investment and lack of flexibility in the supply chain to cope with unforeseen circumstances. Only a somewhat redundant supply system can be flexible and reliable: but corporations or oil producing countries must be able to calculate the return on marginal investment as exactly as possible, otherwise they will simply wait.

3- A political consensus on prices?

The experience of the oil price yo-yo of 2007-2009 has been sufficiently traumatic to lead to the emergence of a degree of political consensus on the need to dampen volatility and agree on a price that may be acceptable to all sides. Expressions of concern have been voiced not only by the major OPEC exporters, but also by leaders of the major industrialised countries, notably Prime Minister Brown, President Sarkozy(1) and President Obama. It has been said that a consensus may be emerging to the extent that a "fair" price might be in the region of 65-80$/b.

On the basis of this impression, the proposal has

(1) Gordon Brown and Nicholas Sarkozy "Oil Prices Need Government Supervision" Wall Street Journal, July 8th 2009

been put forward to establish an international committee that would decide on prices[1] or a price band[2], similarly to what happens with interest rates (at the national level, though). But how would such a consensus be implemented and enforced? How could producers and major consumers agree on sharing the burden of implementation (which presumably would require active market intervention[3])?

The emergence of this fledging consensus is important, yet for all awareness of interdependence the bottom line remains that in a sale the interests of the seller always are opposed to that of the buyer. We have ample experience of the fact that high oil prices worry importers more than exporters and low prices the opposite. It is only the experience of violent fluctuations in a short span of time that has crafted the consensus: the same would rapidly evaporate if prices tended to more gently evolve monotonously in one direction, be it upward or downward.

Dialogue and the awareness of interdependence certainly are useful and should be pursued, yet no attempt at dampening price fluctuations will be credible unless it is based on clear and effective market institutions. If market

(1) Robert Mabro has proposed the creation of an independent commission backed by significant research capability and an international convention that would be expected to set a reference price for oil once a month. ENI has proposed the creation of a global energy agency "which might possess the tools to implement concrete initiatives as needed to stabilise the price of oil" (my translation of Scaroni's original speech, available in Italian from http://www.eni.com/en_IT/attachments/media/speeches-interviews/italian-version-speech-scaroni-G8-energia-25-maggio-2009.pdf)

(2) In particular: Bassam Fattouh and Christopher Allsopp "The Price Band and Oil Price Dynamics", Oxford Energy Comment July 2009

(3) The experience of currency markets and other commodity markets in which attempts were made to enforce price bands or minimum prices shows that at some point the market will "test" the credibility of these price limits. In the absence of credible intervention mechanisms, the band will become irrelevant. OPEC's band in the earlier part of this decade finally had little meaning at all, as prices could move outside the band and there was no tool to enforce it.

institutions remain prone to generating fluctuations, it will be difficult to resist them. The alternative cannot be a rule which is based on non-market institutions, because in the end what is a fair price today is unlikely to remain so forever: prices must be allowed to adapt to changing market conditions. Here lies the challenge: devising a set of institutions (exchanges, regulators, storage facilities, trading rules) that are sufficiently responsive to changing market circumstances, and at the same time do not generate wide fluctuations but smoother, progressive price changes more in line with the fundamental equilibrium of demand and supply.

4- OPEC's stunted weapons

It is often not fully realised how very limited OPEC's opportunities to influence prices are in a reference pricing regime. The situation might be different if OPEC countries actively traded themselves, selling or buying paper barrels whenever they see prices going in a direction which they do not approve of – however it would be in many ways paradoxical that major producers should attempt to influence prices by trading paper Brent or WTI, when they could more easily do so by trading in their own oil[(1)].

(1) Some major producers, notably Mexico, have actively hedged their production, in some cases successfully so – but their purpose has been guaranteeing a minimum level of prices rather than influencing prices. In 2008 Mexico hedged its oil production at $70 per barrel, and reportedly gained $5bn out of this trade when prices collapsed in the latter part of the year. At the end of 2009 Mexico again invested $1bn to buy a put option for its entire expected 2010 production at $57 per barrel. This means that if prices fall below that level Mexico will be able to exercise the option and sell at $57 per barrel. However, if prices stay above the strike level Mexico will lose the money it has invested in buying the option. Mexico's behaviour may be described as buying insurance, but the same trade represent a pure bet on the part of the banks selling the option.

Short of actively trading, OPEC countries can only influence the market through a signalling strategy that aims at influencing "market sentiment". The key tool of this signalling strategy – besides statements and declarations by the various oil ministers and in some cases higher political authorities – is the management of OPEC quotas. However, experience shows that the reaction of "market sentiment" is not always what OPEC would like it to be.

When quotas are reduced in an attempt to shore up prices, the market may deem that the cuts are not sufficient, or it might speculate that compliance on the part of OPEC members will be low – in other words, that some countries will produce in excess of quotas. It is only when compliance is seen to be high and smaller quotas actually provoke a decline in commercial stocks that the market may finally be convinced that demand is in excess of supply and prices should be higher. Even so, restrictions to production will inevitably mean that a higher share of producers' capacity will remain unused, and this is generally interpreted as a bearish sign, especially for future prices.

OPEC has - paradoxically - still more limited influence when prices are on an upward trend. In this case, OPEC countries will obviously announce an increase in quotas, but again the market is unlikely to take such decision at face value. Several countries may not be able to increase their production to the point of filling their new quotas, and available unused capacity will appear to be dangerously low.

Specifically, the erosion of Saudi unused capacity weakens the influence of the Kingdom and strengthens

that of the hawks within OPEC. The market then fears that global oil production may fall short of global demand, and becomes convinced that prices must inevitably rise in the future. This is the state in which the market has been for most of the period 2004-2008, and is again today.

When the market expects that prices in the distant future may be higher than in the close future, it will move to contango, which is the condition opposite to backwardation, i.e. when prices for the front month are lower than prices for subsequent months. In a contango, it pays to accumulate and hold physical stocks: filling the tanks will further increase global aggregate demand, encouraging bullish sentiment.

It is very difficult to envisage OPEC taking drastic action to quench an upward price rally. After all, OPEC countries are sellers, and draw an immediate benefit from higher prices. Even Saudi Arabia will be reluctant to open the taps in full, because their bargaining position is very weak if their production capacity is fully used.

Paradoxically, the Kingdom is more likely to open taps when prices are weak whenever it feels the need to re-establish production discipline, and has done so in 1985 and again in 1999. But when prices are rising and the world is anxious because of potential political disturbances, the Kingdom generally aims at maintaining a reserve which will be used only if conditions further worsen. In practice, this reserve is almost never used: it was used in 1980-81, when Iraq attacked Iran, and again in 1990-91, when Iraq invaded Kuwait: in short, in conditions of open warfare.

We conclude that OPEC may not have sufficiently credible tools to manage the market in case it was decided to implement a price band –even assuming that they might

agree on a target band which would please all.

It is only if the reference price system is effectively abandoned, and some of the key producing countries establish a well-designed market for their own crude oil that the influence of the Brent and WTI futures markets will be downsized, and a reasonable chance to achieve more stable, yet market-responsive prices may emerge.

5- Saudi Arabia: from price taker to price maker

What is required is for Saudi Arabia to shift from the position of price taker to the position of price maker. By this I do not mean that prices should be unilaterally set by Saudi Arabia, but the Kingdom should have the greatest influence in the process. The Kingdom should sit in the driver's seat in this market – which is where it belongs, as the largest global oil exporter and owner of the largest share of global proven reserves.

Saudi Arabia may not be alone in this role – in fact it should preferably not be alone. But no other producer can credibly play the role of price maker unless Saudi Arabia supports and delegates this role (e.g. choosing another Gulf crude as the benchmark[1]) – but why should the Kingdom do so?

It seems much more logical that Saudi Arabia takes itself the initiative in shaping a new global oil market, although it should seek allies and other countries' support in doing so.

Being the price maker does not mean stamping out the

(1) This may happen if, for example, Saudi Arabia decided to price its sales to Asia on the basis of the Dubai Mercantile Exchange's Oman contract, rather than the Dubai Platts assessment, as is done today. The latter is the outcome of very thin physical trading, and in practice ends up mirroring Brent almost perfectly.

market and deciding prices unilaterally. The new market must be designed in such a way that the Kingdom has strong, yet not sole influence on the price discovery process.

It is a commonly repeated fallacy that a market in Saudi Arabian oil cannot exist because there is only one seller. This is certainly not true, as there exist numerous markets in which there is only one seller, and sales are conducted by auction. The parallel that interests me most is with the market for government bonds, through which the interest rate is eventually set. There is indeed a strong parallel and affinity between oil and money – a point to which we shall return towards the end of this article. Government bonds are, by definition, only sold by the government, and the Treasury does so through an auction; once sold, bonds can be traded in the secondary market.

A market for Saudi oil may be established by conducting regular auctions of Saudi crude oil. Auctions must per force take place some time in advance of delivery, so an auction-based market is necessarily a physical forward market(1). This means that a secondary market is possible between the time the auction is conducted and the time delivery takes place: how long this time should be is one of the key parameters of designing a well-functioning market.

The longer the time which is allowed between the auction and the actual delivery of lots sold through it, the more important is the price discovery function that the secondary market will play. In the government bonds market, the secondary market has a very extended life

(1) This would be similar to the Brent market, which is composed of a spot market (dated Brent), a physical forward market (21-day Brent) and a futures market. However some key parameters of the structure I propose would differ, I believe substantially – this is discussed in footnote 15 below.

(equal to the maturity of the bonds); it then plays a very important role and generates signals which feeds back into the primary auction. Monetary authorities intervene in the secondary market through open market operations to influence the interest rate, and create or destroy money through purchases or sales of government bonds.

Because of the crucial importance of the secondary market, it is appropriate to start our discussion from its design; in a successive paragraph the preferred organisation of the auctions will be discussed, so as to best serve trading in the secondary market.

Allowing a secondary market

The first step that the Kingdom should take is creating conditions allowing for a secondary market in its own crude oils. Such market can be established in the Kingdom or elsewhere provided that destination restrictions are lifted. Today, Saudi oil is sold at different prices depending whether it is directed to the Far East, to the Mediterranean, to North-West Europe or finally to North America. Obviously, a secondary market could not possibly be segmented by destination, and this differentiation would have to be abandoned. Furthermore, the regular lifters of Saudi oil should be allowed to sell the oil they lift on to third parties, at prices which might differ from what they paid to Saudi

Aramco.[1] This would be tantamount to appointing regular lifters as marketing agents – the Kingdom would have control of the price at which it sells to them, but no control of the price at which they might sell on to other parties.

If these conditions were respected, a market could be established, which might be based on standardised contracts (rather than contracts for variable quantities, as in the spot market) and an exchange (rather than bilaterally and over-the-counter); that is in desirable conditions of transparency and liquidity[2].

It is crucially important that the physically deliverable contracts on this market be of standard size, preferably sufficiently small to facilitate trading. Trading should take place through an exchange, and OTC transactions should be discouraged. The exchange is best organised by an entity independent from the primary seller (Saudi Aramco). In fact, if Saudi Arabia is not alone in accepting

(1) In the summary of the discussion at the OIES October 2009 conference cited earlier it is related: "One of the participants argued that allowing some of the crudes with large underlying physical supply to be re-traded in the market would create a very liquid and transparent market, and would cause the imperfect WTI benchmark to wither away. However, such an argument did not receive wide support" (OEF #79 page 5). I tend to share this participant's opinion; however, as is explained in this article, I believe the matter is much more complicated than simply allowing secondary trading.

(2) This is how the Oman crude contract on the DME works. When the contract starts trading, the sellers are either term lifters, who know that they will receive crude from Oman to deliver on their sales; or shorters (speculators who sell something they do not have). There is only secondary trading, no primary sales from Oman to "start the game". At the end of the game, when contracts reach maturity, crude oil is delivered to net buyers (holders of long open positions) and Oman prices the oil on the basis of the DME contract price. In theory, it may happen that more oil is sold than Oman is able to deliver – however current trading volumes are very far from that. In a sense, Oman "delegates" the task of discovering the price of its oil entirely to traders and term lifters, and has no influence on price discovery. Traders obviously are in it because they make a profit: this is their compensation for the "service" they render to Oman – finding the price that will balance demand and supply.

to play the role of price maker, we may think of a Gulf Oil Exchange which will trade several physically deliverable contracts simultaneously, allowing for market-determined discovery of the best quality differentials, and potentially even blending strategies on the part of the final buyer. This would be very similar to a currencies market.

If the individual contract is relatively small, you will need many contracts to fill a ship when the moment comes to take delivery. Small contracts facilitate the task of accommodating ships of different sizes, but it is possible that at the time of delivery a buyer will be left with a difference between the number of contracts he has bought and the size of the ship he has at hand. Hence, the smooth functioning of this market certainly is enhanced if abundant storage is made available, providing the alternative of holding in storage rather than loading. Providing for abundant storage facilities is an important component of designing a well-functioning crude market.

The smooth functioning of this system would also gain if the maturity of contracts – i.e. the time when physical delivery must be taken by the buyer – is referred to a week rather than a full month. A week provides sufficient flexibility for the scheduling of loading slots for incoming ships, while a full month may create conflicts (if all lifters prefer early or late delivery). Weekly contracts also would allow for easier combination of contracts with different maturities (shorter time in storage) and smoother adjustment of prices. Obviously, this requires primary sales also to be conducted weekly.

The time gap between primary sale and maturity will

determine for how long the contract will be available for trading on the exchange. In order for secondary trading to generate a valid price signal, it is necessary that this gap be sufficiently long. Also, if the objective is to compete with the existing Brent and WTI futures markets, it is preferable for the proposed contract to extend sufficiently into the future – although admittedly this is not strictly necessary, as a future market may develop also on the basis of a short-lived physical forward contract. Hence the question of the desirable life duration of the contract is one that may require further research and discussion: our working hypothesis here for illustrative purposes will be that the contract will extend over three months, i.e. that the weekly primary auctions are conducted for oil to be delivered 12 weeks later.(1)

As mentioned, the Gulf Oil Exchange would also launch a future contract which might be traded for many more months ahead. If several physically delivered Gulf crude contracts are traded simultaneously on the exchange, the futures contract is likely to either be pegged to one specific crude oil stream or to an index of several crude oil streams. This future contract would be automatically converted in one of the physically delivered contracts (or a basket of the same in proportion to the composition of the index) immediately after the primary auction is concluded: it would, therefore, be a form of betting on the outcome of the auction.

(1) The secondary market I propose is similar to the physical forward Brent market, but some key differences need to be stressed: firstly, I propose a market based on small contracts traded on an exchange, while the Brent physical forward is based on large contracts and trading takes place bilaterally; secondly I propose contracts for a specific week, while Brent has contracts for a month; finally, I propose contracts that are in existence for three months (12 weeks) as opposed to contracts that are traded just one month. The merits/demerits of all these details certainly deserve further analysis and discussion.

Launching an auction-based primary market

The methodology chosen for the conduct of the auction is of crucial importance.

Reluctance to use auctions for price discovery is intuitively connected to the perception that the outcome of an auction is very unpredictable: it is feared that by resorting to auctions the producing countries would be exposed to even greater uncertainty than under the existing reference pricing system. This however does not need to be the case at all.

A more technical discussion of the way in which the auction should be conducted is proposed in the Appendix. Here I shall give a more discursive explanation.

The auction should be for standard parcels – e.g. 1000 barrels. Bidders should be invited to submit several bids indicating the number of parcels (contracts) they would be willing to purchase at various prices. So, for example, a first bidder may offer to buy 100 contracts at $70 per barrel, a further 100 at $65 per barrel, and a further 100 at $60 per barrel. This means, that if the auction is adjudicated at $60 this bidder will acquire a total of 300 contracts; if the auction is adjudicated at $65 he will buy 200 contracts; and if the auction is adjudicated at $70 he will buy only 100 contracts(1).

As bids are received from several bidders, they can be aggregated to form a demand curve which will indicate how many contracts may be sold at each price.

The task of receiving bids might be left to an independent

(1) This is a fairly standard way to conduct an auction, and already occurs in the Brent market in the Platts window. It also occurs in auctions of government bonds, in IPOs of equity of companies going public etc.

authority, which will then construct the demand curve through aggregation of individual bids. The seller is notified the demand curve, and then simultaneously decides on the volume to be sold and the price at which the auction is adjudicated.

It is important that the seller does not commit to sell a fixed number of contracts in advance of the auction. If the seller commits to a definite sale volume, it will have to accept the price that clears that volume – which might not be the price that he prefers. Furthermore, if the seller is committed to a fixed volume, bidders might collude to lower the price. Therefore, it is important to maintain some uncertainty on the volume that will be sold through each auction.

In this way, the seller maintains a degree of control on the price: if confronted with bids that he believes are too low, it can reduce the volume sold through the auction, and vice versa. The volume sold through the auction will give an immediate signal of the seller's price target and his willingness to adjust volume to achieve the same.

Indeed, it is possible to take this to an extreme, and manage the volume sold through the auction so as to maintain the price at a fixed level: this would be equivalent to a return to posted prices – not a desirable solution. The suggested auction methodology allows market trends to emerge, and at the same time allows the seller to dampen price movements through variations in volumes sold.

It is also advisable that, in order to preserve the required uncertainty about the seller's supply, the auction shall not be the only method of sale, but it should be paired with

term sales to established customers at prices, which will be referenced (indexed) to the prices established through the auction (more on this later).

The proportion of the total export volume that is sold through the auction will depend on the interest among bidders. In theory, the more interest there is for the auction, the better are the results for the seller. The seller should, therefore, adopt incentives to encourage even term customers to participate in the auction, and progressively increase the proportion of total exports that are directly allocated through the auction.

In order to better visualise the potential outcome of an auction system, we should keep in mind its recurrent nature (e.g. one auction per week) and the mutual influence of auctions for different crude oils from different producers conducted at different times during the week. A repetition of numerous smaller auctions would provide the market with almost continuous information with respect to market conditions; bids and prices would much more directly and immediately be influenced by fundamentals.

Concretely, we should visualise a Gulf Oil Exchange established in, for example, Bahrain and offering a trading platform for all major Gulf crude oils. Thus the exchange might conduct an auction for – again as a way of example – Arabian Light on Sundays; Abu Dhabi Murban on Mondays; Kuwait Export Crude on Tuesdays; Arabian Heavy on Wednesdays; and Basrah Light on Thursdays. The standard parcel should be the same for all to facilitate swap trading and market determination of quality differentials.

In this scenario, and if auctions are conducted 12 weeks

forward, the exchange would be trading (via auctions and the secondary market) 60 contracts at any moment in time (5 crude oil times 12 maturities), allowing for considerable flexibility and influence of fundamentals on price discovery. Liquidity on each contract is likely to be relatively limited (a majority of the trades would take place among actual lifters rather than "investors") but an index might be constructed on the basis of the 60 contracts which may serve as the basis for a futures contract (as is common for equities) which may well be expected to attract considerable interest.

6- Timing the shift from reference to direct pricing

Whenever Saudi Arabia - alone or in association with other major producers - decides to shift to direct pricing through auctions and a secondary market, some time will elapse before the focus of global oil trading shifts from the existing benchmarks and their related paper markets to the new market. This time needs not be very long – in fact I expect that it would be quite short – but a transition phase is inevitable and is a delicate passage.

Ideally, a shift to direct trading should be implemented at a time when prices for the existing benchmarks are rising and possibly exceeding the wishes of the Kingdom. Prices initially set through the auctions may be somewhat lower than those prevailing on the existing paper markets, because buyers entering bids for the auction will enjoy the alternative of buying paper barrels on the existing markets: although contracts sold through the auction will have the advantage of being eventually deliverable in physical oil, this may not justify bids at a premium with respect to the

three months forward future Brent or WTI.

At the beginning of 2010, Saudi Aramco abandoned WTI as the reference for its sales into the United States, and adopted instead the Argus Sour Crude Index (ASCI). This decision is a very clear indication of the dissatisfaction with WTI as a valid reference, and may lead to prices which will significantly diverge from WTI. Kuwait and Iraq have announced that they will follow the example of Saudi Arabia. Press reports have speculated that Saudi Aramco may soon also abandon the reference to Oman/Dubai Platts assessment for sales to the Far East and adopt instead the DME Oman contract. The implications of all these changes are very difficult to predict, and we shall have to wait and see how the market responds.

That said, all such actual or potential changes affect the definition of the reference, but keep the reference pricing regime in place. There have been several such adjustments to the reference in the past, in the face of declining availability of the original reference crude oils, but these are simply plugs to prevent a badly leaking boat from sinking.

What this means is that a new regime must be studied and readied to be put in place at the right time. This, as mentioned, is likely to be a time when prices are relatively stable or rising, because the immediate impact of shifting to the proposed new system may be a slight weakening of prices in conjunction with the initial auctions.

However, as soon as trading in the secondary market begins, and if volumes for term sales are somewhat reduced, prices on the Gulf Oil Exchange will firm up, and mutual influence will arise between price signals originating in this

market and price signals originating on the old paper markets. Lifters that are interested more in physical Gulf crude oils rather than in Brent or WTI or ASCI will obviously start hedging on the new secondary markets rather than using the old contracts.

Once the shift has occurred, there is no reason why the regime proposed in this paper should generate prices that are systematically lower than those generated by the old paper markets. Volatility would be reduced through the producers' control of prices and volumes at the auctions – although secondary trading would then generate price signals that the producers do not control(1).

Producers should normally abstain from intervening in the secondary market, because if they intervened frequently market participants would simply try and guess the producers' price preferences. However, interventions in the secondary market should be expected in cases of extreme trading conditions or political crises. Once again, this would not be dissimilar from the preferred behaviour of central banks in money or currency markets, where interventions are nor ruled out, but are rare and unpredictable.

Launching the new market mechanism should obviously be preceded by careful preparation and extensive consultations, including among major producers and with major oil importing countries. There is every benefit to be

(1) It may be objected that the degree of control afforded to the producers by their handling of the primary auctions is small relative to the influence of trading on the secondary market, which eventually may lead to the birth of many complex layers (futures, swaps, derivatives OTC …) I don't think it is possible to reach a definite conclusion on this short of experimenting the system in practice. I tend to believe, however, that primary trading would be very influential, especially if refiners and large volume product buyers were encouraged to buy directly at the auctions – for example through the requirement that products prices changes be announced 12 weeks in advance of being implemented, as discussed on page 18 of this paper.

derived from establishing as wide a consensus as possible on the desirability of a market based on much more credible physical volumes. However, the Kingdom should make its firm intention to establish a new regime clear from the beginning, and identify the key components of the proposed alternative (the primary auctions, the secondary market, the end to reference pricing) to prevent the very numerous interests that are vested in the current system from succeeding in boycotting the initiative through a well coordinated barrage of objections.

7- Establishing demand security

As explained in a previous paragraph, it is essential that producers do not ex ante commit to selling a predetermined volume through the auctions. This means that the volume to be sold through the auctions will remain uncertain, and should be seen to be variable, in order to keep the market guessing.

In other words, the proposed mechanism may to some extent aggravate the lack of demand security which the producers frequently complain about.

The issue of demand security may in parallel be addressed through the modification of existing "evergreen" lifting arrangements with regular customers – which however do not constitute a firm obligation either on the part of the seller or on the part of the buyer – into proper long-term take or pay contracts, modelled on the experience of the gas industry.

It may be paradoxical to propose this, because take or pay contracts are not very popular with the governments of importing countries wishing to see gas markets develop in a more competitive direction – but in fact they are a perfectly rational solution for producers wishing to guarantee themselves at least a minimum level of sales and utilisation of capacity, especially at times when they are called to engage in large scale projects to increase their capacity.

The Kingdom should take note of the desire of major importers – especially the large Asian emerging countries – to have access to guaranteed supplies of crude oil, and should offer a guarantee to supply in exchange for a guarantee to lift. Recent arrangements with China and India point in this direction, and may be very useful as a tool to stabilise the market and address the feeling of insecurity of both buyer and seller. The price for volumes sold through take or pay contracts would be tied to that "discovered" in the secondary market.

The combination of developing domestic refining (and exporting petroleum and/or petrochemical products) and entering into long-term take or pay supply contracts will leave a flexible smaller margin to be sold through the auctions. How important each segment should be, only experience can tell; as was said, we would expect volumes sold through the auctions to increase gradually, yet remain the smaller component of total sales. If the Kingdom succeeded in selling ten percent of its current production through auctions, the market would be based on a wider physical base than it has ever been before.

8- How major importers may help

The evolution to a redesigned global oil market has better chances of succeeding if importers also participate in the effort. The key for achieving this collaboration would be to leverage the almost universal dissatisfaction with the market as it exists, in order to muster sufficient goodwill for cooperation. In this context, while leadership must be taken by the producing countries - to which the major task of price making inevitably belongs - the importing countries must also act in support of the proposed new market structures. Realistically, this should not require a continuing agreement on the desirable level of prices, nor active market intervention on the part of the governments of importing countries; and it should not entail a financial burden on their budgets.

Within these limitations, however, important steps might be taken by the importing countries which would contribute to limiting oil price volatility.

Regulating price changes at the retail level

A first initiative that should be considered is limiting the freedom of marketing companies to change their retail prices. This may come under the form of either imposing upper limits to the extent of price changes in a given period of time or, and I believe preferably, as an obligation to give significant advance notice of any intended change in retail

prices.[1]

The current system of total freedom in retail price determination notoriously translates in extraordinary promptness in increasing product prices to the final consumer when crude oil prices are on the increase, while movements in the opposite direction are much slower. The ease with which refiners and marketers can transfer crude oil price increases to the final customer contributes to the absence of demand resistance to such increases. Indeed, refiners and marketers frequently appear to welcome crude oil price increases – an impression supported by the consideration that many are also crude oil producers and stand to gain from the increase.

In contrast, marketers should be asked to announce intended price changes at least three months in advance of being allowed to implement the same. This is a step that would be entirely feasible also in the absence of initiatives on the part of the producers, and would simply force refiners and marketers to hedge their crude purchases on the future market to lock their prices.

The obligation to announce price changes with considerable advance notice would introduce price stability as a competitive tool between companies. In other words, the market would tend to reward those companies that are better capable of resisting price increases through hedging or other tools.

(1) Oil products are heavily taxed in many industrial countries. The discussion in this paragraph assumes no changes in this taxation policy – simply introducing administrative limitations to the speed of price changes on the part of sellers (wholesalers/retailers). Indeed, it would be possible to use management of the excise taxes on oil products as a tool to stabilise prices to the final consumer. This is however not the concern of this paper which focuses on reducing long-term volatility of crude oil prices.

If, in parallel, the major oil producers also resort to auctions for physical sales three months forward, as proposed, a link would be established between the primary sales and price changes on the final retail market. The secondary market would then deal with short-term disequilibria, and may be characterised by oscillations which might not display any strong trend. Refiners would have a strong incentive to acquire their crude supplies directly at the primary auctions.

Encouraging NOC's integration downstream

A second potential line of action on the part of the major importers might be to encourage the downstream integration of the major producers' NOCs. To the extent that the NOCs become more vertically integrated, and own their own refineries and marketing outlets, their ability to compete at the retail level and resist undesirable price changes would be enhanced.

More direct control of their market outlets on the part of the producers will enhance both security of demand and security of supply – because producers will always supply their own refineries and these refineries will not purchase crude from other sources is there is too much crude oil around.

Better vertical integration of the major producers may shift some of the burden for adjusting production from OPEC to non-OPEC. Non-OPEC countries are simply volume maximisers with no commitment to price stability, and through their actions make the task of OPEC countries for price stability more difficult. The current attitude of

Russian producers, which are maximising exports at a time when OPEC is attempting to carefully manage supplies, is a case in point.

Increasing global oil stocks

A third potential approach would be to create conditions for a substantial increase of global storage capacity. This is an important component in ENI's proposed approach to reducing price volatility, and one which obviously deserves support.

Currently the major importing countries maintain strategic stocks under the IEA or EU or national schemes: these are expected to be entirely separate from commercial stocks and not to be used for market intervention, i.e. to offset unwelcome movements in prices. At the same time the common definition of supply security also includes an element of price stability, meaning that it is not entirely clear whether strategic stocks may or may not be used to counteract price volatility: in practice, they have not been used.

To address volatility, it is not necessary to increase strategic stocks; what is needed is to invest in increased storage capacity, which might be made available to producers or traders at convenient cost conditions, or for free. The Saudi Minister of Petroleum has announced a deal along these lines with Japan, whereby Saudi Aramco will store oil in Japan in facilities freely made available by the Japanese.

The rationale for providing such storage capacity would be that oil that would be stored might be used as

strategic stock in case of an emergency. In other words, an appropriate agency of the importing countries (or each importing country individually, as Japan is doing) would invest in storage facilities and offer storage services: the stored oil would remain the property of whoever uses the service, but the importing countries might appropriate the oil under predetermined price conditions in case of an emergency threatening their security of supply. (This may not be spelled out clearly in the Saudi-Japanese case, but is at least implied by the deal).

Storage facilities might be established in the territory of the importers but also in third countries or possibly even in the producing countries if significant logistical differentiation is thereby possible (e.g. on the West coast of Saudi Arabia, which does not have the same risk profile as the East coast, where the fields are located).

The provision of storage services may be accompanied by the creation of a credit facility whereby parties depositing crude oil may then use this as collateral for loans. The stored oil would obviously be valued at a price lower than the going market price, which in turn may come to represent the minimum price "guaranteed" by the importing countries. Such guarantee would disappear only if the storage capacity came to be fully utilised, and excess oil still is present on the market.

Obviously no amount of storage capacity will be enough to stabilise prices completely and maintain prices at unrealistic levels, but a substantial increase in available storage would certainly contribute to creating conditions facilitating the responsiveness of prices to fundamentals.

At present, the market is unduly influenced by storage data from the central United States. This is due also to the extraordinary reticence and/or inefficiency of the EU in promptly communicating data on volumes of crude oil in storage. The creation of a network of storage facility administered by an autonomous agency along the lines described above would greatly enhance our information on fundamentals and promote efficient market responses.

9- Saudi Arabia's coming of age in a multipolar world

The reasons why the Kingdom might be reluctant to embark in the proposed transformation of the international oil market are not difficult to guess. Inevitably, performing the role of price maker would require making crucial decisions for the correct management of the market, decisions about price and volumes of oil to be offered at the primary auctions and many more related to the regulation of the market, the additions to capacity, the diversification into refining and marketing.

This would be quite a tall order for the Kingdom's technocracy, although in the opinion of this writer one that the country's technical intelligentsia would be perfectly able to perform.

But it is not to be denied that the potential for criticism, from internal as well as international sources, would be very substantial. In other words, the Kingdom would very much acquire a visible profile on the global stage, while its traditional preference has been for maintaining a rather low profile.

In recent years, the Kingdom's leadership has demonstrated growing readiness to engage in major foreign

policy initiatives and has not shunned controversy. The world is rapidly evolving towards multipolarity, and emerging actors must correspondingly be ready to assume increasing responsibilities in policy making. The transition from the G8 to the G20 is symptomatic of the transformation. In the context of the G20 the emerging economic powers will inevitably be asked and expected to contribute their share.

The status of Saudi Arabia as one of the emerging world economic powers is linked to its position as the key provider of oil to the world and, to a lesser extend, a surplus country with continuing large oil revenues. The role of the Kingdom must be related to the management of the international oil market. Its standing and influence in the G20 will be linked to the effectiveness with which the Kingdom will manage the international oil market and contribute to global economic stability and growth.

This historical responsibility cannot be delegated to an imperfect, unregulated market based on some rapidly disappearing streams of crude oil. The collapse of the international oil market as it exists today is just a matter of time: the more we wait to put in place an alternative, the more we shall have to endure price shocks and diplomatic conflict.

Creating an alternative is not an easy task, but is nevertheless one that must be undertaken urgently. It will necessarily be part and parcel of the coming of age of Saudi Arabia in the emerging multipolar world order.

Appendix

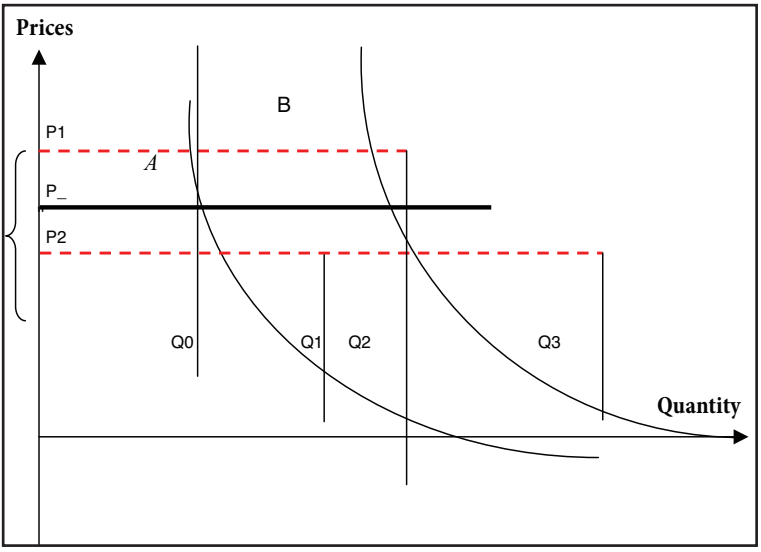
The essence of a well-designed auction is in the details[1]. What could be the best way to organise an auction for crude oil? The answer is relatively simple:

1. the auction would certainly be organised as a descending bid auction, in which the highest price, at which all the volume of oil is sold which is available for sale, would be accepted;
2. the auction would be a multi-unit one, as the available volume of oil would be sold in parcels (each parcel equal to one physically delivered contract), not as a single indivisible unit;
3. the auction should preferably be conducted through sealed bids, or book building through an exchange or independent intermediary (our proposed Gulf Oil Exchange);
4. finally, the auction should be of the uniform-price type - that is, all accepted bids would pay the same price, which is the lowest accepted bid, even if all other bidders, except the lowest accepted, bid a higher price. The alternative is to allow for price discrimination, that is have each bidder actually pay the price that he has bid: this alternative is more efficient in theory, as it foils the danger of collusion, but may lead to confusion because of simultaneous trading at several different prices.

(1) Paul Klemperer "What Really Matters in Auction Design" CEPR Discussion Paper #2581, October 2000

An auction designed in this way is vulnerable to implicit collusion(1), but this problem can be solved(2) if the seller does not commit to selling a given volume of oil in advance of the auction. The total volume sold must be defined only ex post, once the seller has received all the bids, and can on this basis construct a demand curve for his oil on a given date. He will then choose the combination of volume sold and price accepted that most suits his marketing strategy, and the purpose of the auction will in essence be to determine to whom the oil should go.

It is also clear that recurrent multiple-unit sealed-bid auctions of a uniform good with uncertainty in the seller's supply may, at the limit, translate into a fixed (albeit strictly speaking not "posted") price and variable volumes sold. This case is represented in the following Figure:



(1) Ibid. page 3.
(2) Klemperer "Auction Theory: a Guide to the Literature" CEPR Discussion Paper #2163, June 1999

Here we have two different demand curves, each representing the result of one auction. The seller is free to select any combination of price and quantity along the line. In practice, the seller wishes to maintain the price within the band P1P2, and will thus determine the volume to be sold in the first auction, represented by A, in the interval Q0Q1; in the following auction, represented by B, in order to maintain the price within the band the adjudicated volume will need to be between Q2 and Q3. In practice, it is unlikely that we might witness such significant demand shifts, and the seller will need to implement much smaller changes in quantities sold and/or prices accepted. The limit case is one in which the price is kept fixed at P, represented by the bold black line, and only quantities are adjusted. This would be equivalent to imposing a fixed price: even if it is not publicly announced, the market will soon find out.

This extreme case would of course defeat the purpose of the auction, by preventing the price discovery function of it. Yet, it is clear that the possible alternative of reverting to "posted" prices, as it is sometimes proposed, would have exactly this meaning and impact: establish full producers' control over prices, and give up control over volumes.

In this respect, an auction simply is a strategy that allows for greater flexibility in trading, and acquiring greater information, than straight posted prices. It is also clear where the major weakness of the posted prices alternative lies: it prevents the seller from acquiring information

over market conditions. In order to gain this information, the seller must allow for a trading mechanism and some uncertainty, as in an auction, otherwise buyers simply will keep the information to themselves.