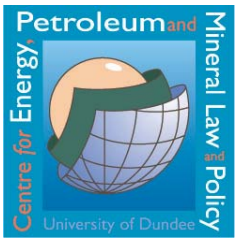

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"Who Set International Oil Price? A View From Russia"

Dr. Andrey A. Konoplyanik
Doctor of Economics (International Energy Economics), Consultant to the Board, Gazprombank, and Professor, Russian State Oil and Gas University, Moscow, Russia

Abstract: Soaring oil prices since 2004, with especially fast growth in late 2007 — first half of 2008 to their historical maximum at 147 USD/bbl of WTI in July 2008, followed by their collapse afterwards, are the logical result of evolution of the contractual structure of the global oil market and its pricing mechanisms within established anglo-saxon model of global open, liquid, self-regulating and competitive commodities' and financial markets. Oil markets represents nowadays represents only a small segment of global financial market. This structural changes and price fluctuations stipulated a rising tide of debate as to what (or who) is setting the price for "black gold" today, on what is the correlation between fundamental and speculative drivers of price fluctuations, between oil crisis and world financial crisis, and also about future oil price fluctuations, and in particular – around what level they will most probably fluctuate in the future. The author has already had a chance to express his opinion in writing (mostly in Russia and in Russian, including "Neft Rossii" (Oil of Russia) magazine) concerning the objective logic of international oil markets developments, evolution of their contractual structures, pricing mechanisms, etc. In this article, drawing on his previous analyses, including those published in "Neft Rossii" magazine, the author would like to share his new considerations regarding the reasons for the above-mentioned processes.

WHO SETS INTERNATIONAL OIL PRICE?
A VIEW FROM RUSSIA.

From the editor:

A year ago, in July 2008, international oil price has reached its historical peak at 147 USD/bbl for WTI. At this anniversary we decided to publish analysis of oil price increase and its collapse presented within historical evolution of contractual structures of international oil market and of oil pricing mechanisms by Dr. Andrey A. Konoplyanik from Russia. This article presents slightly modified English version of his paper "Who sets international oil price" originally published early this year in Russia in Russian in the magazine "Oil of Russia" ("Neft Rossii", 2009, NN 3 & 4,). Original manuscript was written in December 2008.

Andrey KONOPLYANIK,

Doctor of Economics (International Energy Economics), Consultant to the Board, Gazprombank, and Professor, Russian State Oil and Gas University, Moscow, Russia[1].

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Soaring oil prices since 2004, with especially fast growth in late 2007 — first half of 2008 to their historical maximum at 147 USD/bbl of WTI in July 2008, followed by their collapse afterwards, are the logical result of evolution of the contractual structure of the global oil market and its pricing mechanisms within established anglo-saxon model of global open, liquid, self-regulating and competitive commodities' and financial arkets. Oil markets represents nowadays represents only a small segment of global financial market. This structural changes and price fluctuations stipulated a rising tide of debate as to what (or who) is setting the price for "black gold" today, on what is the correlation between fundamental and speculative drivers of price fluctuations, between oil crisis and world financial crisis, and also about future oil price fluctuations, and in particular – around what level they will most probably fluctuate in the future.

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[2] See, e.g.: Putting a Price on Energy: International Pricing Mechanisms for Oil and Gas. – Energy Charter Secretariat, Brussels, 2007, 277 pp. (R.Dickel, G.Gunul, T.Gould, J.Jensen, M.Kanai, A.Konoplyanik, Yu. Selivanova) (www.encharter.org); А.Конопляник. Россия на формирующемся Евроазиатском энергетическом пространстве: проблемы конкурентоспособности. – М.: «Нестор Академик Паблишерз», 2004, 655 с. (A.Konoplyanik. Russia at the Emerging Eurasian Energy Space: Issues of Competitiveness . — M.: Nestor Academic Publishers, 2004, 655 pp.); А.Конопляник. "Мировой рынок нефти: возврат эпохи низких цен? (последствия для России)". – Институт Народнохозяйственного Прогнозирования Российской Академии Наук, Открытый семинар «Экономические проблемы энергетического комплекса», Второе заседание, 26 мая 1999 года. – Москва, Изд-во ИНП РАН, 2000 г., 124 с. (A.Konoplyanik. Global Oil Market: Back to the Era of Low Prices? (Implications for Russia). — Institute for Macroeconomic Forecasting, Russian Academy of Sciences (INP RAS), Open seminar "Economic Issues of the Energy Industry", Second meeting, May 26, 1999. — M.: INP RAS, 2000, 124 pp.)

See also the following publications of the author in "Neft Rossii" magazine: Эволюция структуры нефтяного рынка

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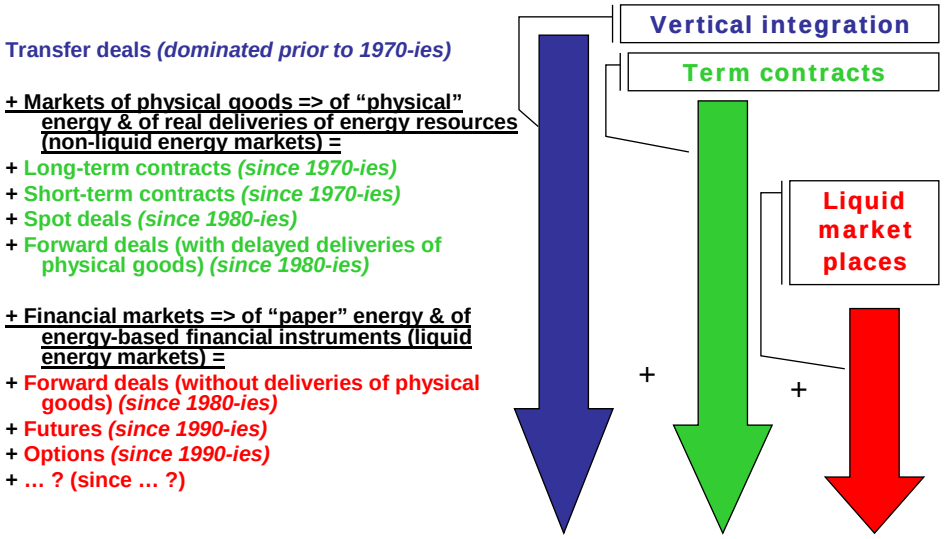
Key words: oil pricing. Russia, energy pricing, economics of energy

In the Shadow of the “Seven Sisters”

The modern contractual structure of the global oil market and its pricing mechanisms have been developing over the past 80 years as part of the Anglo-Saxon model of an open, competitive, liquid, self-regulating global markets. In the last 20—25 years the global oil market has become an integral part of the much broader global financial market, with all key characteristics of the latter now being transferred to the world of oil deals. The key stages of global oil market developments and evolution of its key characteristics are presented at the following illustrations: historical evolution of contractual structure of oil market and its correlation with key organisational forms of market space - at Figure 1; historical development of oil market structure and dominant types of transactions - at Figure 2; and evolution of international oil pricing mechanisms – in Table 1.

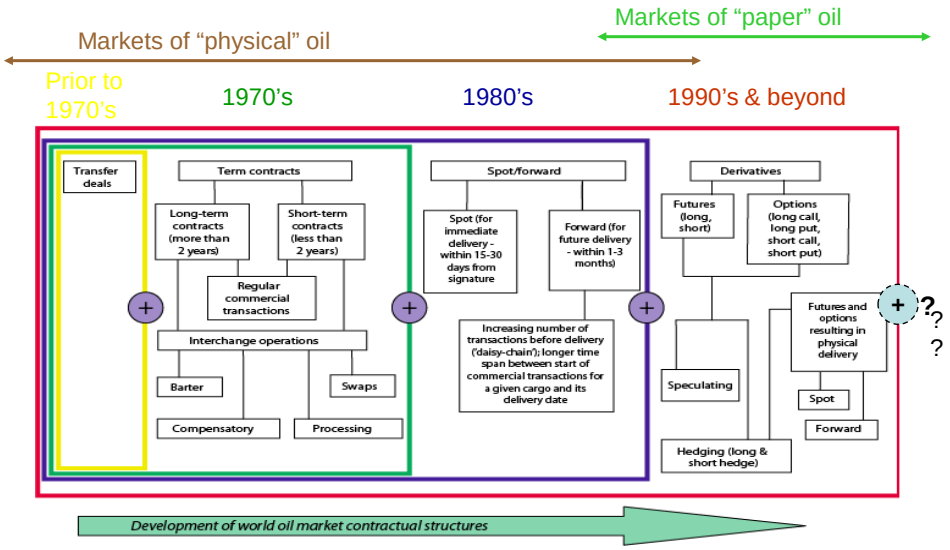
(от сделок с реальным сырьем – к сделкам с «бумажным» товаром). – «Нефть России», 2000, № 4, с. 76-81 (Evolution of Oil Market Structure: From Trade with “physical” Goods to “Paper” Deals. — 2000. — No. 4. – Pages 76-81); Куда исчезли справочные цены? (эволюция механизма ценообразования на нефтяном рынке). – «Нефть России», 2000, № 7, с. 76-80 (Where Did Posted Prices Go? Evolution of Pricing Mechanism in the Oil Market. — 2000. — No. 7. — Pages 76-80); От прямого счета к обратному (эволюция формулы ценообразования). – «Нефть России», 2000, № 8, с. 78-81 (From Counting Forward to Counting Down: Evolution of Pricing Formula. — 2000. — № 8. — Pages 78-81); И при низких ценах можно остаться с прибылью (уровни издержек при нефтедобыче, динамика и факторы их изменения). – «Нефть России», 2000, № 9, с. 84-87 (One Can Receive Profit at a Time of Low Prices As Well: Levels of Oil Production Costs, Their Dynamics and Drivers. — 2000. — No. 9. — Pages 84-87); Новые роли открытий и переоценки запасов (научно-технический прогресс и снижение издержек). - «Нефть России», 2000, № 11, с. 75-77 (New Roles of Discoveries and Revaluation of Reserves: Technological Progress and Cost Reduction.) — 2000. – No. 11-Pages 75-77); Когда спрос опережает предложение (стимулы и слагаемые процесса снижения издержек). - «Нефть России», 2001, № 1, с. 64-67 (When Demand Exceeds Supply: Drivers and Components of Cost Reduction. — 2001. — No. 1. — Page 64-67); Налоговый режим как фактор ценовой конъюнктуры (чем компенсировать ухудшение природных условий добычи?). – «Нефть России», 2001, № 2, с. 96-97 (Tax Regime as Driver of Pricing Environment: How to Compensate Deterioration of Natural Conditions of Oil Production? - 2001. — No. 2. — Pages 96-97); От монополии к конкуренции. Об основных закономерностях развития рынков нефти и газа. – «Нефть России», июнь 2002 г., № 6, с. 19-22 (From Monopoly to Competition: Concerning Key Objective Trends of Oil and Gas Market Developments. — 2002. — No. 6. — Pages 19-22); And (in cooperation with Maria Belova): Почем и почему? Некоторые причины роста цен на нефть и прогнозы дальнейшего развития событий. – «Нефть России», август 2004, № 8, с. 106-109 (How Much and Why? Some Reasons for Oil Price Growth and Forecasts of Future Developments. — 2004. — No. 8. — Pages 106-109); Неудержимые издержки. Мировые цены на нефть идут на поводу у научно-технического прогресса. - «Нефть России», сентябрь 2004, № 9, с. 80-83 (Uncontainable Costs: Global Oil Prices are under the Thumb of Technological Progress. — 2004. — No. 9. — Pages 80-83.)

Figure 1. Historical evolution of contractual structure of global oil market & its correlation with key organisational forms of market space



Source: А.Конопляник. «Повышение конкурентоспособности России на мировых энергетических рынках через инструменты Энергетической Хартии». Выступление на пленарном заседании «Глобальная энергетическая безопасность» 8-го Петербургского Международного Форума ТЭК, 8-10 апреля 2008 г., Санкт-Петербург, Россия

Figure 2: Historical development of international oil market structure and dominant types of transactions



Compiled by the author on the basis of : Putting a Price on Energy: International Pricing Mechanisms on Oil and Gas. – Energy Charter Secretariat, Brussels, 2007, p.64.

Table 1. Historical evolution of international oil pricing mechanisms

Periods	1928-1947	1947-1971	1971-1986	1986-nowadays
Pricing principle and key players	Oligopolistic: CIF selling prices set by oligopoly (Seven Sisters = 7 major VIOCs) established by the Achnacarry agreement in 1928; FOB buying prices set de facto unilaterally by the Seven Sisters as posted prices (usually at low cost-plus levels) within their concession agreements with host states		Oligopolistic: FOB selling prices set by an oligopoly (13 OPEC countries) established by OPEC agreement in 1960, and used in the long-term deals and at the spot market for spot transactions; spot quotations were later used by OPEC as a reference point for establishing its official selling prices	Competitive: Prices set by competition at liquid marketplaces (on market exchanges), at first, mainly by oil traders, then by oil speculators, and nowadays mostly by non-oil speculators – players from non-oil segments of the global financial markets

Character of competition	"Horisontal" (between the companies controlling the whole vertical oil chain): between different VIOCs and other producers		"Vertical" (between the companies controlling individual segments of the integral oil chain): between upstream (newly established NOCs) and downstream (former VIOCs) companies and new independent upstream & downstream companies	"Vertical" + "horizontal"
Points of competition	Only in the end-user market		In the end-user market and for crude deliveries	At all parts of the oil delivery chain
Trends in demand	Stable growth		Growth/short temporary decline	Slowed growth
Trends in production costs (major factor of their dynamics)	Decline (natural: moving to larger fields in favourable environment)		Growth (natural: moving to smaller fields and to more challenging areas) / decline (technical progress)	Decline (technical progress) / increase as of early 2000's (inflation of production costs factors, e.g. steel, etc.)
Prices: trends and levels (USD/bbl, current prices)	Around 2		From 2 to 40 (1981), then to 30 (1985), then to 10 (1986)	Within 15-20 (prior to 1997), within 10-30 (prior to 2004), since then up to historical maximum of 147 (July 2008), then to 30+ (end-2008), then within 50-70
CIF price calculation at the delivery points worldwide	CIF = FOB Mexican Gulf plus factual or virtual freight from Mexican Gulf ("Single-base pricing" based on Achnacarry agreement)	CIF = FOB Mexican Gulf plus factual or virtual freight: (a) either from Mexican Gulf, if to the West of the "neutral point", or (b) from Persian Gulf , if to the East from the "neutral point" ("Double-base pricing" based on modified Achnacarry agreement)	Until end-1985: CIF = Light Arabian FOB Persian Gulf (Ras-Tanura) plus freight; End-1985-1986: Light Arabian FOB Ras-Tanura = spot prices of petroleum products netted back to Ras-Tanura (net-back pricing)	CIF & FOB futures quotations from key liquid marketplaces, mostly from NYMEX, IPE/ICE, and SIMEX (until 1999)
Marker crudes	West Texas	West Texas, Light Arabian	Light Arabian, West Texas	West Texas Intermediate (NYMEX), Brent (IPE/ICE), Dubai (SIMEX, until 1999)
Dominant trade contracts	Long-term (volume & price)		Long-term (volume) + spot (price)	Spot (volume) + long-term (volume) + exchange (price)
Dominant types of prices	Transfer (used as VIOC posted price)		OPEC official selling, market (spot), transfer (posted)	Market
Type of the market	"Physical" oil market (physical oil deliveries dominate in international oil pricing)			"Paper" oil market (oil financial derivatives dominate in international oil pricing)

Based on: *Putting a Price on Energy: International Pricing Mechanisms for Oil and Gas*. – Energy Charter Secretariat, 2007, p. 56; А.Конопляник. *Россия на формирующемся Евроазиатском энергетическом пространстве: проблемы конкурентоспособности.* – Москва, «Нестор Академик Паблишерз», 2004, с. 105.

Active internationalization of oil trade started at the turn of 19th-20th centuries. I believe that 1901

should be considered the starting point of this process at the interregional level, when the first actually working Middle East oil concession – well-known “D’Arcy concession” – was signed. The dominant types of transactions gradually replaced one another in the international oil market (see Figure 1), and the contractual structure of the market developed accordingly (see Figure 2). It is worth mentioning that new types of deals did not cancel the previously dominated ones, they did not substitute the previous ones, but they were added to the existing contractual mix thus making contractual structure of the international trade more and more competitive. Initially, international trade transactions were an integral part of internal corporate (transfer) operations between different operating units of vertically integrated oil companies (VIOCs) — between the production branches of VIOCs located in the developing host countries (where VIOCs either owned the reserves under traditional concession agreements with the host-states, or possessed the rights for subsoil use under modernized concessions and/or production-sharing agreements) and refining and distribution branches of the same VIOCs located in their mother-countries where VIOC were registered and where their profit centers were placed.

This system, which was formalized by the so-called “Achnacarry Agreement” in 1928 (under which an international cartel of major oil companies, known as the “Seven Sisters”, was formed), determined the pricing structure in international oil operations — “single-base” (1928—1947) and “double-base” (1947-1969/70) pricing systems (see Table 1). Before the early 1970s, non-market transactions of major VOICs within the framework of their concession agreements with the governments of host countries (usually - developing economies) accounted for approximately 70% of oil traded internationally. Prices at that time were underpriced, they have a fixed nominal value and remained unchanged for a long period of time in the middle of the 20th century. Nevertheless, this allowed the VIOC’s cartel members to derive growing excessive profit, because up to the turn of 1960s-1970s a long-term decreasing trend of marginal and average exploration and production costs has existed (this trend has been first substantiated by J.-M.Chevalier [3] and was subsequently confirmed by our own calculations later on[4]). So the difference between the stable international oil price (supported artificially by Seven Sisters) and declining E&P costs (due to discoveries and development of huge oilfields, mostly in the Middle East) resulted in increasing extra profits of the majors.

Subsequently, corporate (transfer) deals were replaced by long-term contracts between legally independent business entities — producing and refining companies. At first, this was due to the penetration of new producing companies of industrialized nations (so-called “independent” companies, i.e., companies not connected with the Seven Sisters’ cartel and “non-integrated”, that is, without their own refining capacities) into the markets of emerging economies access to which was earlier blocked by the majors. Later, it was the result of nationalization of the production assets of VIOCs in these resource-rich developing states and setting up of national oil companies on the basis of upstream assets of the majors; at that time NOCs did not possess their own refining capacities abroad.

These processes coincided with the failure of the Bretton Woods System, abolition of the gold standard and fixed dollar rate, and the start of the growth of marginal and average E&P costs in the international oil market, which eventually made it impossible to further maintain fixed prices for “black gold” and resulted in rapid price jumps.

From “physical” oil to “paper” oil

In this environment, long-term trade contracts with fixed prices were becoming clearly unfavorable for the exporters. At the same time, nationalization of the production assets of VIOCs in the 1970s put an end to traditional and modernized concession agreements (which sometimes, e.g., in the

[3] Chevalier J.-M. Oil Crisis (translated from French). — M.: Mysl, 1975.

[4] Куренков Ю.В., Конопляник А.А. Динамика издержек производства, цен и рентабельности в мировой нефтяной промышленности. - "Мировая экономика и международные отношения", 1985, № 2, с. 59-73 (Kurenkov Yu.V., Konoplyanik A.A. Dynamics of Production Costs, Prices and Profitability in the World Oil Industry // “World Economy and International Relations”. - 1985. – No. 2.- Pages 59-73).

Middle East, were to continue up to the end of the 20th century and even beyond it) under which the "Seven Sisters" had to kind of purchase the raw materials produced from themselves[5]. Then refining units of VIOC were forced to purchase oil from national companies (OPEC member states), which started to dictate terms on the market, including contractual terms and prices.

This resulted in a reduction of duration of contract terms and replacement of fixed prices with formula-based pricing mechanisms. That is, the parties did not agree on the price of shipped goods per se, but rather on a formula indexing their price to marker grades and/or alternative (replacement) energy sources.

As the range and frequency of price fluctuations increased, long-term contracts have been replaced with shorter-term ones. A logical end to this process was the wide use of spot transactions — at first with prompt deliveries. After that (as is usually the case in the economy) the pendulum moved in the opposite direction — contractual mix has further evolved from spot contracts to futures transactions, which can be considered as term-deals but of different nature as initial long-term contracts.

At this stage of evolution of oil market contractual structure, one producer was not any more linked to one consumer "forever" (whether within one single vertically integrated VIOC's structure, or based on long-term contractual relations between independent business entities), as used to be the case earlier. Diversification of the infrastructure of the international oil supply system allowed buyers to count on guaranteed receipt of required volumes of crude oil even without having their own production facilities and relying only on "segmented" international chains of trade in "black gold", where separate links were controlled by different agents and jurisdictions (and not by "Seven Sisters", as was the case before the early 1970s).

The first to appear were spot contracts with deferred delivery of actual goods, secured by adequate volumes of such goods in commercial stock (forward deals)[6], followed by forward transactions under which observance of this condition was not required[7]. This predetermined the appearance of futures and options, which do not assume the sale of actual goods, but the sale of liabilities to sell them[8].

New types of deals did not replace, but supplemented the ones that had dominated the market at previous stages, which is why the contract structure of international oil trade is constantly changing and becoming more and more sophisticated (see Figure 2).

As new instruments to buy and sell oil emerge, the contractual structure has been constantly changing becoming more sophisticated and more competitive. This presents competitive reconfiguration of contractual structure of international oil market. In the course of "physical" oil market development, the term of subsequent types of contractual deals was usually shorter than

[5] The fact of presenting the oil transferred within the internal VIOC structures as a sales and purchase transaction was based on the need to determine the posted price of oil — a virtual (nominal) indicator used for the calculation of the "tax" allocations of cartel members (more specifically – payments for the right to use subsoil) to the host country-owner of the subsoil. That is why I used an expression "kind of purchased".

[6] In 1974, the official policy of accumulating crude inventories in industrialized importing states was formulated (which, among other things, was the driver for the establishment of the International Energy Agency, whose functions include monitoring and maintaining crude stocks at a level which was legally established by IEA member states). This was the commercial basis for the development of forward transactions, whose duration (time horizon) expanded as OECD/IEA member states accumulated higher volumes of crude stocks (both governmental and commercial).

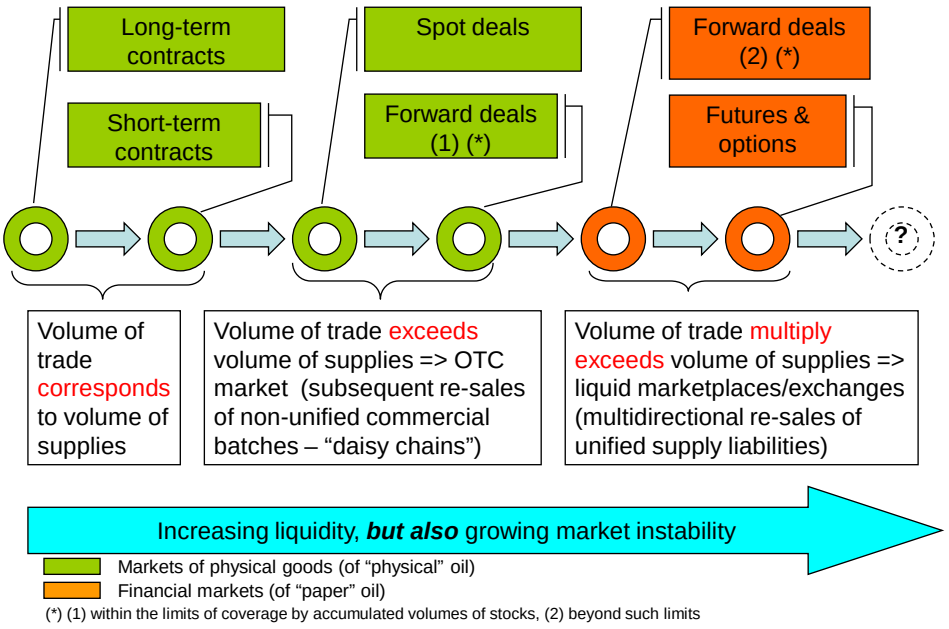
[7] Development of these transactions was driven by intensive diversification of oil market infrastructure (pipelines, import terminals, increasing ability for mutual substitution of supplies and suppliers) and its stable operation, which made it possible to count not only on available volumes of accumulated stocks, but also on uninterruptable flow of oil within the framework of acceptable risks.

[8] Forward contracts were usually pegged to the volume of a commercial batch, which, for example, in case of tanker supplies, meant a discrete series of standard sizes of tankers of different classes (Aframax, Suezmax, VLCC, ULCC, etc.). This was not convenient from the point of view of transaction liquidity.

the previous ones (evolution from long-term contracts to spot deals with immediate delivery). The “paper” oil market developed the other way around – terms of futures contracts grew longer, now reaching 72 months (however 80—85% of all futures mature within the first three months). Thus, the geography expanded and the set of instruments to arrange international market space grew as well: from transfer deals via term contracts to liquid marketplaces (see Figure 1).

As international oil trade developed (as the term of futures /option contracts increased and operations in this segment grew at an advanced rate), the gap between volume of trade and physical supply volumes grew as well (Figure 3). On the “physical” oil market (under term contracts), the sales volume corresponded to the volume of actual supplies (with account taken of adjustments to allowable partial takeoff of contractual volumes — clauses like “take and/or pay”). Due to the continuing switch to spot transactions and abolition of the ban on arbitrage operations (such as destination clauses) in long-term contracts, buyers were able to resell specific commercial batches. As a result, so-called “daisy chains” emerged. This means that one tanker could (legally), on its way from the load port (let us say, in the Persian Gulf) to the port of final destination (let us say, in the Atlantic Basin), change hands several times and even change the destination point. That is why there was a gap, which expanded as forward transactions developed, in the physical market between the volumes of oil trade and physical supplies volumes. Consequently, more universal trade instruments were needed rather than a short discrete series of standard oil tanker sizes. At this point, standardized contracts started to dominate the market.

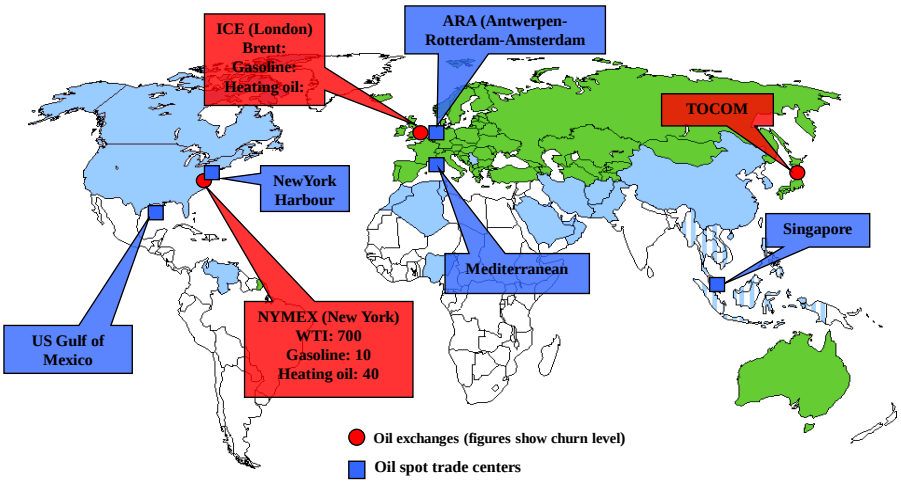
Figure 3. Evolution of oil market: volumes of trade vs. volumes of physical supplies



Stock Exchange Runs the Show

Currently the key centers of the spot oil trade, where major facilities for commercial stock storage are concentrated (which provide for both immediate and deferred supplies of spot transactions) include the ARA triangle (Antwerp — Rotterdam — Amsterdam) in Europe (marker grade — Brent), Singapore in Asia (marker grades — Dubai and Oman) and New York (West Texas Intermediate — WTI) (see Figure 4).

Figure 4. Key international petroleum exchanges and spot trade centers



Note: by green colour the Energy Charter Treaty member-states (51 in total) are indicated at the map, by blue – observer-states (23 in total)

Two major international petroleum exchanges are the New York Mercantile Exchange (NYMEX) and the International Petroleum Exchange (IPE, now ICE Futures[9]) in London (see Figure 4 and Table 1). On NYMEX, deals are made on the "trading floor" by voice. Since 2005, IPE has been conducting only electronic trade. WTI grade traded on NYMEX is the most liquid energy commodity in the world. The so-called "churn" indicator used to assess the liquidity level (total volume of open exchange positions to the volume of factual supplies of physical goods) is approximately 700 for WTI (against 40 for gasoline and 10 for heating oil on NYMEX). "Churn" levels for Brent (marker grade for ICE Futures) are below that level. Thus, on the "paper" oil market, the trading volume exceeds underlying physical supplies by many times (see Figure 3).

Along with evolution of the contractual structure of the oil market, the prevailing pricing system also changed(see Table 1). Virtual "posted" prices (the key element of transfer pricing system within concession system of "Seven Sisters" companies with corresponding host states), which were needed to optimize tax allocation of international transactions and to transfer the profit center to the mother-countries of VIOCs[10], and which dominated in the international oil trade until early 1970's, were replaced in the 1970's with official selling prices (OSP) of OPEC member-states. At first OSP were fixed, and then they appeared to be pegged to spot quotations. They were to make up a major part of the economic (price) rent in the producing states. After that, spot quotations (selling prices on the one-off deals market) became, in effect, the only and determining price benchmark.

Later on, as financial managers from financial market came to the oil market, they formed a new framework of oil transactions in the image and likeness of transactions in various segments on international financial markets. Since then, futures quotations from key petroleum exchanges were established as price indicators for physical trade in all contractual structures, including spot, short- and long-term deals.

Today, pricing under all types of contractual transactions is pegged to the price levels established at the exchange, that is to quotations of oil futures for marker oil grades, which give prices for

[9] In 2001, the International Petroleum Exchange was acquired by Intercontinental Exchange Ltd (USA) and renamed in 2005.

[10] Application of the transfer pricing mechanism to optimize tax allocations of the Russian newly established VIOCs within the federal structure of the Russian state (in order to decrease the base for rent payments at the region of oil production by escaping/minimizing payments of the revenue-based royalty and geology tax) was widely and effectively used by Russian oil companies in the 1990s.

other grades via a differentials system (taking into account differences in quality of different oil grades — usually density and sulfur content). This reference is utilized both in long-term contracts, which are widely used for supplies of crude from OPEC states via pipelines and by tankers, and in the spot transactions, which are usually made using maritime transportation.

This system has its material disadvantages. In the first place, it does not rely on oil economy per se and its connection with macroeconomics, but on global expectations of exchange players. As a result, the prices represent an instrument for affecting processes in the oil industry rather than actually reflecting the economics of the industry. There is a gap between oil prices and the value of oil, and in addition to such economically-proven and calculated components as technical and financial expenses with consideration of risks and tax components, the price also includes such virtual (although simulated) parameters as subjective expectations of a huge and inconstant pool of speculators (financial players at the exchange).

Hedgers and Speculators

Thus, since the late 1980s, the global oil market has actually been a financial derivatives market rather than a commodity (goods) market. The key roles are played by two groups of players having opposing interests: hedgers and speculators.

Hedgers are usually producers and traders in actual goods, i.e., “physical” oil. They include oil producing companies and physical oil traders; both groups generating profit on the basis of the “money – goods – money” scheme, if terminology proposed by Karl Marx is used. Hedgers use futures and other financial derivatives to mitigate the risk they bear in connection with potential future oil price fluctuations. They are interested in minimizing price fluctuations, at best – in stabilizing price behaviour, making its changes monotonous and thus easily predictable in the long-term. This groups of market participants (especially producers) generate their profit on a long investment leverage, within long-term investment cycle of financing projects with a life-cycle of approximately 30—50 years (in many countries licensing period according to legislation is established at the level of at least 20 years with possibility for prolongations), investment period of 5-7 years or more and payback period (with capital expenditures generally worth billions and dozens of billions of dollars) also of about 5—7 years. This means that at least 10-15 years will pass before the investments of producing companies would be recouped (especially if mega-projects in the Greenfields are involved). Under current organization of the oil market, being the participants of the “physical” oil market, oil hedgers are usually pegged to the “paper” oil market. They are not mobile and do not tend to migrate outside the oil market (its “physical” and “paper” segments), except the cases when they go outside oil market (to financial market) if they need to raise debt (project) financing. Working in the oil derivatives segment (in “paper” oil) is less important for them compared to operations in the field of “physical” oil.

Speculators are traders in oil contracts (“paper” oil) and their derivatives. This category includes investment banks and other financial investors generating their profit on the basis of the “money – money” scheme, if terminology proposed by Karl Marx is used. Speculators make money on short leverage of financial transactions. Unlike hedgers, who want to avoid price risks, speculators bet on a price increase or decrease. They do not buy or sell actual goods, they assume risk with a view to making a profit on price fluctuations. Speculators’ money usually consists of highly liquid financial resources, which are highly mobile and tend to migrate rapidly to those segments that ensure the highest returns at the moment. Thus speculators as a group of market players usually is not strongly linked to particular segments of financial markets, paper oil market being one of such segments.

Hedgers represent a relatively stable group in terms of its size and structure. Speculators are characterized by changing and unstable size and structure of players depending on the changes in the oil and macroeconomic environments. Usually, in a relatively calm oil environment, the ratio of speculators to hedgers is 25—30/70—75. However, if the market begin to grow, their share can increase — dynamics of this process is wavelike (especially recently) depending on the inflow and outflow of new players from other segments to the “paper” oil market. In this case, both inflow and outflow of speculative capital can be of an explosive nature.

Thus, according to the data of the US Commodity Futures Trading Commission (CFTC), in February 2007, the share of speculators on NYMEX amounted to 30%; and in June 2008, was already 70%. According to the results of informal polls of European oil brokers, the share of speculators on the oil market has reached 70-80% at the time this article was written (in December 2008). A strict correlation between activity of speculators and oil price is evident (see Figure 5). According to some estimates[11], speculative dealers may be responsible for an additional USD 30-40 per barrel in the oil price of USD 125 per barrel at the time the report referred to was presented, i.e., approximately 25—30% of oil price.

Figure 5. **Nymex Crude Oil prices vs open interest**

Source: Deutsche Bank, CFTC Commissions of Traders report for w/e 02-Dec-08, p.1 (based on CFTC, NYMEX data)

Role of Non-Petroleum Players

Many analysts tend to correlate soaring oil prices in late 2007 — first half 2008 with speculators' activities, i.e., those specializing in dealing in oil derivatives[12]. In my opinion, it is not quite like that.

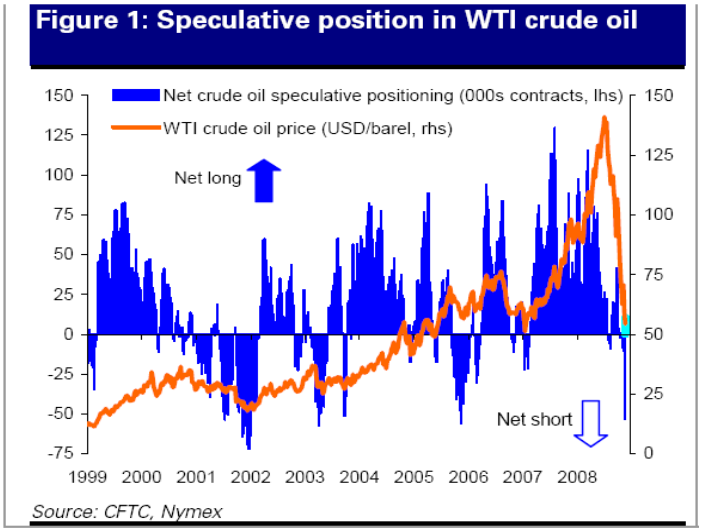
At the beginning of the current decade, prerequisites were created for the entrance of a new group of speculative players with big and "long" money into the "paper" oil market, namely, American pension funds and insurance companies whose financial resources multiply exceed the funds of other participants of this market segment. In 2003, the American government lifted a ban on using resources of these funds in speculative futures transactions. At the same time, electronic trade gained momentum on oil exchanges, which allowed a considerable increase in the number of market participants. In 2004, global demand for oil increased sharply, primarily due to China and India, which generated forecasts of high, stable growth rates of "black gold" quotations for subsequent years. At the same time, production costs increased due to underinvestment of the global oil industry in previous years (a consequence of relatively low prices in the 1990s, which disincentived investment in new projects, and the Asian financial crisis) and cost inflation. Spare production capacities decreased drastically (almost down to 1% of global production), and almost all of them were concentrated in one country — Saudi Arabia. This level of capacity utilization (almost 100%) makes oil price soar. The US invasion of Iraq contributed an additional "war premium". Expectations of an early and considerable excess of demand over supply brought about a global oil price hike.

[11] Iledare O.O. Global Petroleum Supply & Pricing: Economic Characterization of Key Players. Presentation at the 31st IAEE Annual Conference, Istanbul, Turkey, June 16-20, 2008.

[12] This issue became the subject of a special hearing in the US Senate in June 2008.

Under these conditions, the “paper” oil market was flooded with “long” money of American institutional investors, which created additional demand for oil derivatives and caused the development of a new class of financial instruments (derivatives on derivatives) to satisfy this demand. This drove oil prices even higher and stimulated a “paper oil price” spiral. According to CFTC data, from January 2004 to June 2008, the number of positions opened by speculators on NYMEX increased from 900 000 to 2.9 million. Over the same period, the number of big players also increased — from 220 to approximately 400. The number of net opened long positions (although the amplitude was wide) tended to grow stably from the beginning of the century up to the second half of 2008. This correlated well with oil price dynamics and drove their further growth (see Figure 6). Much of the speculative money was injected via commodity-index funds linked to performance of commodity markets including energy, precious and industrial metals, agricultural products and live stocks. The returns are calculated based on the composite of benchmarks from these commodity markets. Since the oil portion weighs heavily in the composite, the movement of the index looks very much like that of oil prices. Some estimates suggest that commodity-index funds account for more than 20% of the entire crude oil futures market. During recent five years investments in all types of commodity-index funds has grown from 13 to 260 bln USD. However, all of these derivative indexes (and, most likely, the entire exchange trade) are based not so much on real long-term oil economy as on expectations (more often — short-term) of stock gamblers aiming at generating profit from price fluctuations.

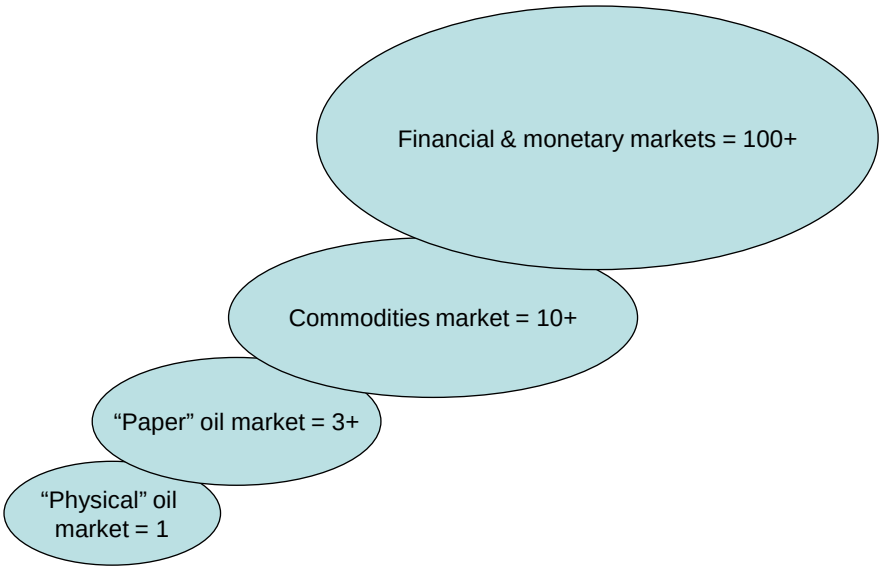
Figure 6. NYMEX: Speculative position in WTI crude oil



Source: Deutsche Bank, Commodities Weekly, 14 November 2008, p.14

New derivative instruments (including second and third derivatives — that is derivatives on derivatives) made the process of financial investment in oil (to be more specific – exchange speculations on the oil market) attractive for non-professionals and stimulated investment in oil derivatives from non-petroleum segments of the global financial market, whose capacity multiply exceeds the “paper”, and the more so the actual scope of the “physical” oil market itself. When we are speaking about correlation of the scales of the markets, taking the size of “physical” oil as a unit, the “paper” oil market can be estimated at more than 3, that of commodities at more that 10, and financial and monetary markets as exceeding 100 units (see Figure 7).

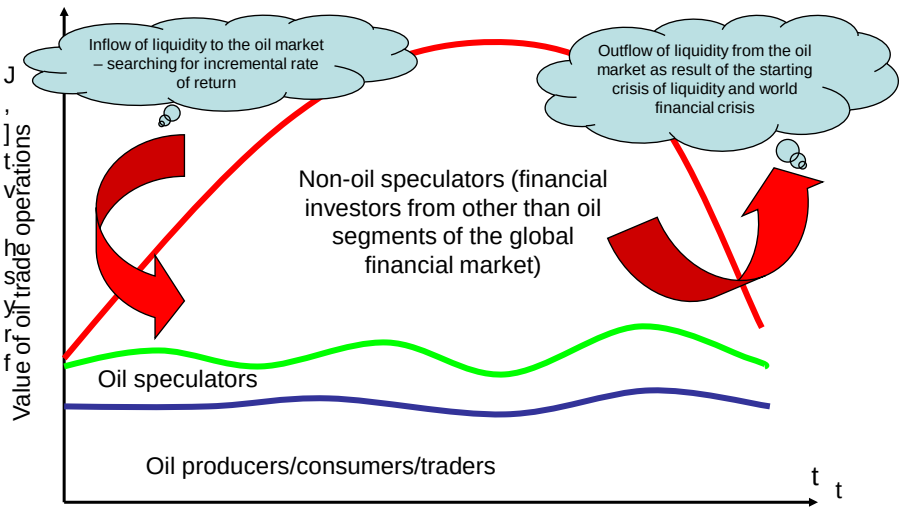
Figure 7. Correlation of the scales of oil, commodities and financial & monetary markets (order of the figures)



Separation from the “Physical” Market... and Fall

Thus, the growing inflow of the so-called “financial investors” (speculators) from other segments of the global financial and monetary markets to the “paper” oil segment of financial market was caused by the situation prevailing after 2004, when investing (making money) in petroleum derivatives appeared to be relatively attractive and simple. Inflow of speculative capital to this sphere multiply exceeded capital inflows and outflows before 2003, and this liquid capital was able to flow quickly in both directions (as a result of purposeful market development to ensure its liquidity). I believe that this predetermined soaring oil prices in late 2007 — early 2008 and their recent slump (see Figure 8).

Figure 8. Role of non-oil speculators (global “financial investors”) in forming “price bubble” at the global oil market in 2007-2008 (principal scheme)



Such quick capital migrations testify to the fact that the global oil price, which is being currently established within the framework of futures trading, is no longer determined by economic trends (fundamental development drivers) in the oil industry per se. Moreover, it is not a result of actions

of petroleum speculators or arbitrators on the “paper” oil market. Today, the oil price is determined outside the oil sector by financial investors for whom petroleum derivatives do not represent “backbone” securities.

For hedgers and oil speculators (two groups of players of the oil market itself), the oil price has been and still remains a target for optimization. For financial investors (speculators) at the global financial and monetary market, who are far from the oil industry, it does not represent such a target. Derivatives — not first, but second and third derivatives from oil contracts — represent only a small part of the diversified securities package of these financial investors. And it is these diversified packages of global financial and monetary instruments which are managed by such financial investors with the aim to maximize rate of return on their whole financial and monetary portfolios.

Proceeding from the above, the evolution of pricing mechanisms in international oil trade can be presented as follows. At earlier stages the price is determined on a “cost plus” and “replacement value” basis on the “physical” oil market. These principles are implemented as part of transfer pricing (usually in relations of a VIOC with the host country) and contractual relations between independent market participants. “Physical” oil competes at this stage with other energy resources.

At a later stage the price is determined through oil-to-oil competition at the “physical” oil market first and then at the “paper” oil market. Today, it is generated on the global market of financial instruments as a result of competition between oil (to a lesser degree) and non-oil (to a greater degree) derivatives. In the period of “stock-exchange” pricing [13], the vector moved from confrontation between oil hedgers and speculators (the oil price represents a target for both groups) to the struggle of global financial players for maximum return on their diversified and mostly non-oil investments (for them, “black gold” quotations are a consequence, a “by-product”).

All this reflects a new stage of globalization characterized by instability of liquid financial markets based on trade in derivatives, which are separated from actual goods. That is, the oil price has become a “hostage” of speculative non-oil capital migration.

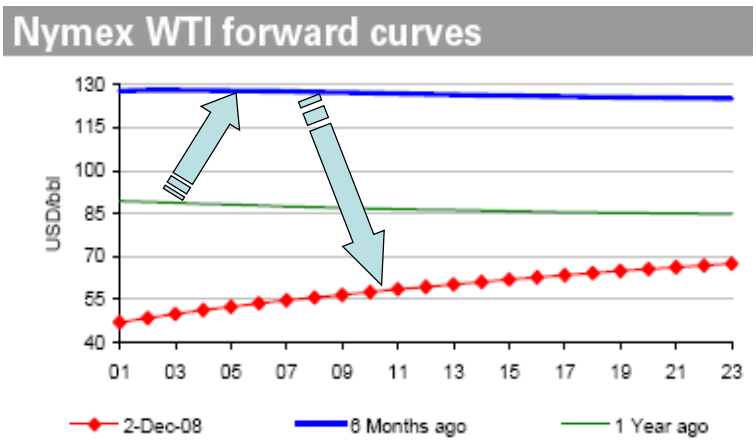
In the middle of the current decade, the global market saw the formation of a financial pyramid resting upon expectations of oil price growth. Its construction was triggered by objective processes – an increase in costs and growing demand against the background of a shortage of producing and refining capacities resulting from previous underinvestment in them. However, as Avicenna wrote, “*everything is poison and everything is medicine, and it is only dose that turns one into the other”.* Vast injections of speculative (primarily American) capital spurred on the initial price surge and heated up the market. This widened the price spiral, further increasing the inflow of speculative capital into oil. However, the looming global financial crisis and liquidity problems of American investment banks (which represent an important and large group of players on the petroleum market and which were the authors of many oil derivatives) made speculators withdraw their money from this sector. This happened quickly and had an avalanche effect — the natural end of any “bubble”, which is usually not blown off, but bursts.

Speculative non-oil factors are the only way to account for the recent amplitudes of oil quotations. For example, the level of spot prices changed three times in a year 2008 — from USD 50 to USD 140 plus and back down to USD 50 per barrel. Expectations of future prices were also equidirectional: as of the beginning of December 2008, the 24-month forward curve of oil quotations on NYMEX was one and half to two times *lower* than one year before that in December 2007. Although half a year earlier (in June 2008), it was approximately one and a half to two times *higher* than the same curve of late 2007 (see Figure 9). Apparently, under the influence of numerous statements of officials of oil producing states that the “fair” price should not be less than USD 70—75 per barrel, the forward curve of recent days (December 2008) is heading in the two-year horizon to this pricing mark, which is close to the consensus forecast of oil prices provided by Reuters in late November 2008 (see Figure 10). And we cannot say which of these estimates is

[13] At the stage of pre-exchange pricing (up to the middle of the 1980s), this competitive fight was between actual producers/exporters and buyers/importers — both between companies and governments.

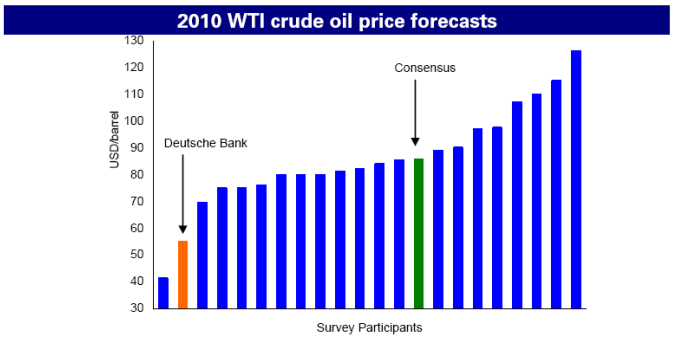
the cause and which is the effect.

Figure 9. NYMEX WTI forward curves as of December 2007, June and December 2008



Source: Deutsche Bank, Global Commodities Daily, 4 December 2008, p.1

Figure 10. Variation of 2010 WTI crude oil price forecasts and its "consensus-forecast" according to Reuters Oil Poll as of 26 November 2008



Source: Reuters Oil Poll (As of 26-Nov-08) DB Global Markets Research (Forecast as of 05-Dec-08)

Source: Deutsche Bank. Commodities Weekly. 5 December 2008, p.1.

Where is the Bottom Line for Prices?

How low can oil prices sink? There are a lot of opinions, judgments and estimates concerning this. It should be noted here that once oil quotations stay at a certain level or demonstrate a certain dynamics for some period of time, there will be experts trying to prove that this is their equilibrium level and/or their current trend is a new objective and long-term one. Such statements can be heard today as well. In particular, a price of USD 70 and more per barrel is being justified as "fair" (as follows from recent statements of OPEC officials)[14].

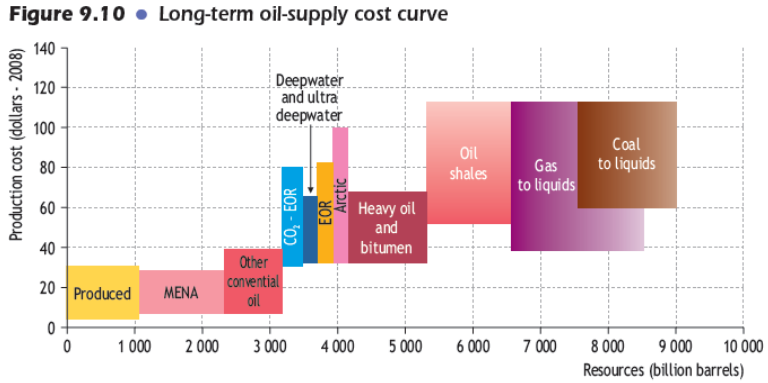
However, I believe that the bottom line for oil quotations (not the pointwise lower limit, but the average for the period determined by the payback period of an oil production project) could be twice as low. It should not be lower than long-term (marginal) production costs for existing and

[14] For reference: 2009 oil price forecasts under base, optimistic and pessimistic scenarios carried out by the Ministry of Economic Development of Russia are USD 50, 60 and 30 per barrel, respectively.

prospective reserves and resources. And the spread in estimates of such costs is rather large. Let me give just one example of a threefold spread.

According to a recent forecast of global energy industry development[15] of the International Energy Agency[16], marginal long-term costs of producing oil from conventional and unconventional sources (on the basis of the IEA's calculations for 580 major fields) are approximately USD 110 per barrel (see Figure 11). And the global resource potential is approximately 10 trillion barrels.

Figure 11. Long-term oil-supply cost curve from conventional & unconventional resources (IEA assessment based on 580 major fields)



Source: International Energy Agency. World Energy Outlook 2008, p.218

At the same time, according to the results of joint research[17] of experts from the Colorado School of Mines (USA), Pontificia Universidad Catolica de Chile and the International Institute for Applied Systems Analysis (Austria)[18], marginal production costs for conventional and non-conventional resources, including heavy oil, tar sands and oil shale (on 937 discovered and unexplored oil and gas provinces of the world) do not exceed USD 35 (in 2006 prices) per barrel of oil equivalent (see Figure 12). And the global resource potential of estimated hydrocarbons is approximately 30 trillion barrels.

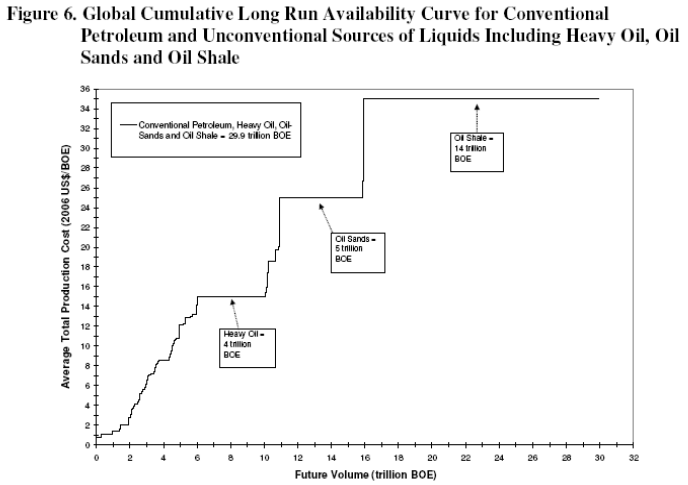
[15] International Energy Agency. World Energy Outlook 2008.

[16] The organization is perhaps one of the most reputable in forecasting global demand and supply of energy resources, as well as investments required for proper development of the global energy industry.

[17] RF.Aguilera, R.G.Eggert, G.Lagos C.C, J.E.Tilton. Depletion and the Future Availability of Petroleum Resources. Colorado School of Mines/Pontificia Universidad Catolica de Chile/International Institute for Applied System Analysis. Version 20 May, 2008; they also presented a report of the same name at the 31st Annual Conference of the International Association for Energy Economics, June 16-20, 2008, Istanbul, Turkey.

[18] Equally reputable institutions whose experts, among other things, relied in their calculations on the statistics of the U.S. Geological Survey (which is a still more reputable organization in estimating reserves).

Figure 12. Global cumulative long-run availability curve for conventional petroleum and unconventional sources of liquids including heavy oil, oil sands and oil shale (CSM/PUCC/IIASA assessment based on 937 petroleum provinces)



Source: R.F.Aguilera, R.G.Eggert, G.Lagos C.C., J.E.Tilton. Depletion and the Future Availability of Petroleum Resources. Colorado School of Mines/Pontificia Universidad Catolica de Chile. Version 20 May, 2008, p.20.

Thus, there is a threefold spread between the above-mentioned calculations of production costs and the scope of the resource base (although the IEA took into account a wider range of non-conventional oil resources). It appears that results of these calculations are mutually exclusive. The research carried out by the International Energy Agency in fact assumes that the price maximum of USD 147 per barrel reached in July 2008 is just slightly higher than the level that is economically justified by marginal costs. And December 2008 quotations are below the marginal cost level[19]. So IEA de facto suggests that this level (fluctuating within the range of up to 80 USD/bbl) is a real diminishment (or even collapse) of the oil price below the (as if) economically substantiated marginal costs level.

This means another price rise should be expected to a level not lower than USD 110 per barrel, which is even higher than market expectations at the time this article was prepared (Figure 9). However, the consensus forecast (Figure 10) does not assume such a forecast price level. The IEA calculations actually establish long-term benchmark oil prices at a level close to the price maximums in 2008 (that corresponds to market expectations of the middle of 2008, at the period of highest oil prices – Figure 9). Thus, the IEA calculations actually provide a fundamental economic background for the level and expectations of high oil prices. Thereby, IEA calculations de facto level down (neutralize) the role of oil-speculators, and especially of non-oil speculators, at the oil market and their role in the recent (2007-2008) quick and sharp rise and fall of oil prices.

If we proceed from the numbers provided in the second analysis, it can be assumed that the potential for a further price drop has not been fully realized yet. At least current[20] quotations with consideration of a moderate tax component are closer to the “economically justified” level than the figures of USD 70—75 per barrel (see below), not to mention IEA forecasts. That is, results of CSM/PUCC/IIASA analysis, contrary to the IEA calculations, are in line with the foregoing theory of a “price bubble” at the oil market in 2007-2008.

Joint calculations of the American, Chilean and Austrian scientists point to the possibility of maintaining moderate prices, provided there is no massive speculative pressure from outside of the oil market. In this case, the high oil market of 2007—2008 is more an exception to the rules. And it will not likely occur again due to the failure of the Anglo-Saxon model of global financial

[19] As well as the current ones, in July 2009, – at the period of editing English version of this article.

[20] As of the time this article was prepared — in December 2008.

market organization[21] (the global crisis is a natural result of the evolution of this model) and the intentions of the global community to reorganize the existing global financial system.

Based on the above, we can say that two described forecasts, in principle, as if de facto proved two different levels of the "fair" oil price and different reasons for oil price rise and fall in 2007-2008.

It appears that some other analysis share the author's view on a possible lower bottom line for oil prices in the medium-term outlook. For example, the global market research department of Deutsche Bank came to the conclusion in October 2008 that reaching a level of USD 30-35 per barrel by WTI oil would mean unsustainable development of the market for this marker grade in the medium-term outlook[22]. That is, the price of other grades traded on the global market will be lower still (taking into account that most of them are traditionally priced lower than WTI). Therefore, Deutsche Bank believes that the spectrum of relatively low oil prices, which nevertheless exceed USD 30—35 per barrel (in WTI equivalent), is not destructive for the global economy.

Why estimates of production costs differ?[23]

As was mentioned above, it appears that results of IEA analysis and of CSM/PUCC/IIASA calculations are mutually exclusive. Resource base for CSM/PUCC/IIASA calculations is three times *higher* than of IEA, though IEA has considered within its analysis broader spectrum of non-conventional oil resources. But production costs estimates resulted from CSM/PUCC/IIASA calculations are three times *lower* than similar ones from IEA. At the same time, the highest figure of production costs from IEA refers to one of the types of unconventional oil (e.g. oil shale) which was considered also by CSM/PUCC/IIASA and which analysis provides much lower costs estimates for this energy resource. This means that as if we face the reverse correlation between the volume of hydrocarbon resources considered for production costs estimation, and the resulted marginal value (means: at the worst fields) of production costs.

But we need to remember that after end-1960's-early 1970's, correlation between volume of newly developed hydrocarbon resources and their (marginal) E&P costs is not a reverse one (as was the case before this date) but a direct one. This means that there is no adequate clarity (transparency) in the cost-estimation issues/methodologies, and if so – in answering the question of the economically proven depth of oil price fall and/or its "justified" or "fair" level, despite the fact that significant portion of such estimates voiced by OPEC representatives or managers of Russian/international VIOCs is placed at the 65-75 USD/bbl and higher level[24].

Why estimates of production costs can differ? One needs to remember the following important ingredients of marginal production costs estimation: spectrum of the oil fields involved in the marginal cost estimation; similar or differing approaches to the cost estimation methodologies; correlation between the spectrum of the fields involved in the cost estimation (and volume of proved reserves of these fields) with prospective oil demand estimates. Proved reserves of the fields involved in marginal costs estimation need to exceed the future demand volumes. To what

[21] One of its minor segments being the global oil market.

[22] In March 2008, Deutsche Bank carried out a similar analysis with respect to the upper extremum and came to the conclusion that it should be a price of USD 150 per barrel of WTI (Deutsche Bank, Commodities Weekly, 5 December 2008, p. 19).

[23] For this chapter two other author's publications were used: О причинах взлета и падения нефтяных цен. - «Нефть и газ», 2009, № 2, с. 2-4, 6-8, 10-11 *(Украина)* (On reasons of oil price rise and fall. – "Oil and Gas" (Ukraine), 2009, N2, p.2-4, 6-8, 10-11); О ценах на нефть и нефтяных деривативах.- *«Экономические стратегии»*, 2009, № 2, с. 2-9 (On oil prices and oil derivatives. – "Economic Strategies" (Russia), 2009, N2, p.2-9).

[24] The most recent example was presented at the ad hoc poll, organized in the course of energy session of St.Petersburg Economic Forum (Russia) in June 2009, which mean "guestimates" of the poll participants (participating in this session high-level managers of Russian and international VIOCs) resulted in 70-80 USD/bbl range.

extent? The bigger the volume of reserves involved in cost estimation, the more hard-to-get-to fields need to be developed and involved in such estimation, the higher the level of marginal costs would be. This means that future prospective demand at optimistic scenario need to be over-covered with guarantee by the future production from existing fields currently in exploitation plus from those fields which need to be developed and exploited at the given time to provide requested volume of supplies. Plus reasonable operating reserve (safety cushion) needs to be added as well to these figures. How big can be such safety cushion? 10-15%? Or less or more than that? This depends on forecasters, first of all, and on conservative level of their estimates.

This means that not necessarily all known hard–to-get-to fields with high marginal costs are to be considered in the *today's* economic estimates of *future* production costs. But the volume of proved reserves and resources with worst (highest) costs involved in cost estimation depends on how optimistic the forecast of demand is and how big is chosen safety cushion in this forecast.

I would like to underline that this is true for *economic assessment* – i.e. for the spectrum of fields necessary for economic development (including consideration on pay-backs of required investments) according to the principle of reasonable sufficiency, and not for technical assessment of all existing projects with existing spectrum of today's technologies resulting in today's technical costs of production at the fields to be developed tomorrow or after tomorrow.

Under 'economic assessment" some other important issues need to be mentioned. Firstly, diminishment of today's technical costs within the time-frame according to the "learning curve" principle. This principle leads to the cost diminishment as the result of improvements in existing technologies, and this is an objective process for all types of technologies. So the later is the starting date for development of this or that field, the bigger downgrading ratio need to be attributed to the growing (within the time-frame) value of marginal costs of the individual projects which are added on a one-by-one basis to the cumulative volume of the reserves involved in cost estimation.

Under "evolutionary" scientific & technical progress correlation between worsening natural conditions of the marginal fields, on the one hand, and technological improvements, on the other hand, could lead just to slow-down of marginal costs increase. But it might be possible that another correlation between factors of growth and factors of diminishment of marginal costs will take place if, for instance, "break-through" technologies (so-called "revolutionary" achievements in scientific and technical progress) will be implemented. Such revolutionary technologies could overweight negative effect of continuous worsening, within the time-frame, of natural conditions of newly developed fields[25].

Secondly, the issues related to financing projects. All major upstream projects are mostly financed from companies debt based on project financing techniques[26]. This is why the cost of financing (financing costs) needs to be added, according to economic logic, to the technical costs in order to receive the real value of production costs. So the forecast of project financing costs (cost of capital) is needed in the marginal costs estimation.

[25] A good example of such technologies was a shift from fixed-platform-based offshore petroleum development in the deep offshore, which was dominant prior to and until mid-1970's (fixed steel-pillow and/or concrete-gravity platforms plus jack-up rigs), to first semi-submersible platforms of different types (with either tension-legs and/or dynamic positioning) since 1970's-1980's, and finally to subsea well-completion which need no platform at all. This shift has broken the existing in the "fixed platform era" correlation between the increasing depth of the sea and growing production costs at the given field.

[26] When project investments are to be paid-back by the future revenues provided by this project itself. Up to 60-80% of such project investments is usually raised at the international capital market by the project company (specially established by the project's participants – project sponsors) as the "special purpose company" for developing this particular project.

Thirdly, possibility of access to this or that energy resources worldwide. The more cheep oil resources, which are attributed to the OPEC member-states and which are located in the lower ranges of the marginal costs diapason in the IEA forecast (left part of their spectrum – see Figure 11), are mostly closed for access for foreign companies. If so, this requires involvement in economic development of more expensive marginal resources/reserves (from the right part of their spectrum – see Figure 11). Such reserves/resources and more expensive economically, but they are politically accessible for development not only for domestic, but for international companies as well[27]. So dependent on whether this issue was considered or not in marginal production costs forecasts, the corresponding costs levels would be higher or lower by this only fact.

The above-mentioned considerations are the key components which influence the resulted level of marginal costs assessment. These components (their different consideration in two above-mentioned analyses of marginal costs, or their non-consideration at all in one of the forecasts) might be one of possible/supposed explanations of such big differences in the levels of marginal costs estimates provided by the IEA and CSM/PUCC/IIASA. This proves the importance of yet unresolved issue of transparency of the forecasts, including the issue regarding to similarity (adequacy) of the understanding and methodological comparability and compatibility of the calculations.

What does oil crisis means for Russia?

From my view, the most important task for Russia is not so much to understand at which particular level above 100 USD/bbl the oil price should stay based on forecast of marginal production costs from respectful and authoritative IEA, but to decide on what can be the lowest level (within the reasonable spectrum of valid calculations) of marginal production costs internationally. Russia then will need to break-through this level with its technological innovations to the lower production costs levels (firstly – with technical costs, and then – with financing costs as well) so Russian oil will be competitive at the world oil market, and investment projects in Russian oil – at the world capital market, even at the low oil price state of the market.

The current global financial crisis puts an end to the modern global financial market, with one of the segments being the “paper” oil market in its current form — with multiple derivatives. It is generally recognized that the global financial system must be revised and reorganized, which is why it will hardly be reproduced in its pre-crisis form. One class of key players — American investment banks — has gone bankrupt and has practically ceased to exist. It remains to be seen what structures will replace these financial institutions, which accelerated and overheated the global oil market, and what consequences it will have. However, one needs ensure stable operation of the mechanisms of financing the real economy. It is most important In the case of Russia, especially if the oil prices will stay at the low levels.

The fuel and energy industry can and should serve as innovative driver of Russian economic development. But it needs support and investment stimuli from the government to ensure that the financial component of costs does not become burdensome (and/or prohibitive) for implementing the relevant innovative projects. For example, development of Russian offshore and Thule fields could contribute to a scientific and technical and technological spurt and enhance the country’s competitive ability in many associated industries in the same way as the following programs once contributed to, say, US economic development[28] [11]: US automobilization program (1920s—1930s), highway construction program (Roosevelt’s New Deal in the 1930s), the Manhattan (1940s) and Lunar (1960s) projects. Efficient utilization of financial resources for innovative development of the Russian fuel and energy industry will make it possible to ensure the marketability of Russian oil on

[27] One needs to remember that despite the fact the oil demand is global by nature (due to liquid global oil market), oil supply in major oil-producing areas is national by nature due to state sovereignty on natural resources. This principle was established by UN General Assembly Resolution N 1803 as of 1962 and is incorporated in the international law by the Energy Charter Treaty on 17 December, 1994, the ECT came in force on 16 April, 1998.

[28] To be more specific, started to contribute and continues to contribute to a lesser or greater degree.

commodity markets (as well as competitiveness of Russian oil development investment projects on international capital markets), in spite of possible moderate quotations for “black gold”. This task is more easily start implementing when the oil price is high. But it need to start implementing (impossible not to start implementing) when (and if) the oil price will stay around its current levels or below them, having passed through the spiral of rise and fall as a result of disfigured financial architecture of global oil market.

It is well-known that reforms are undertaken not at the time, when the best conditions exist for this, but when it is impossible not to implement them.