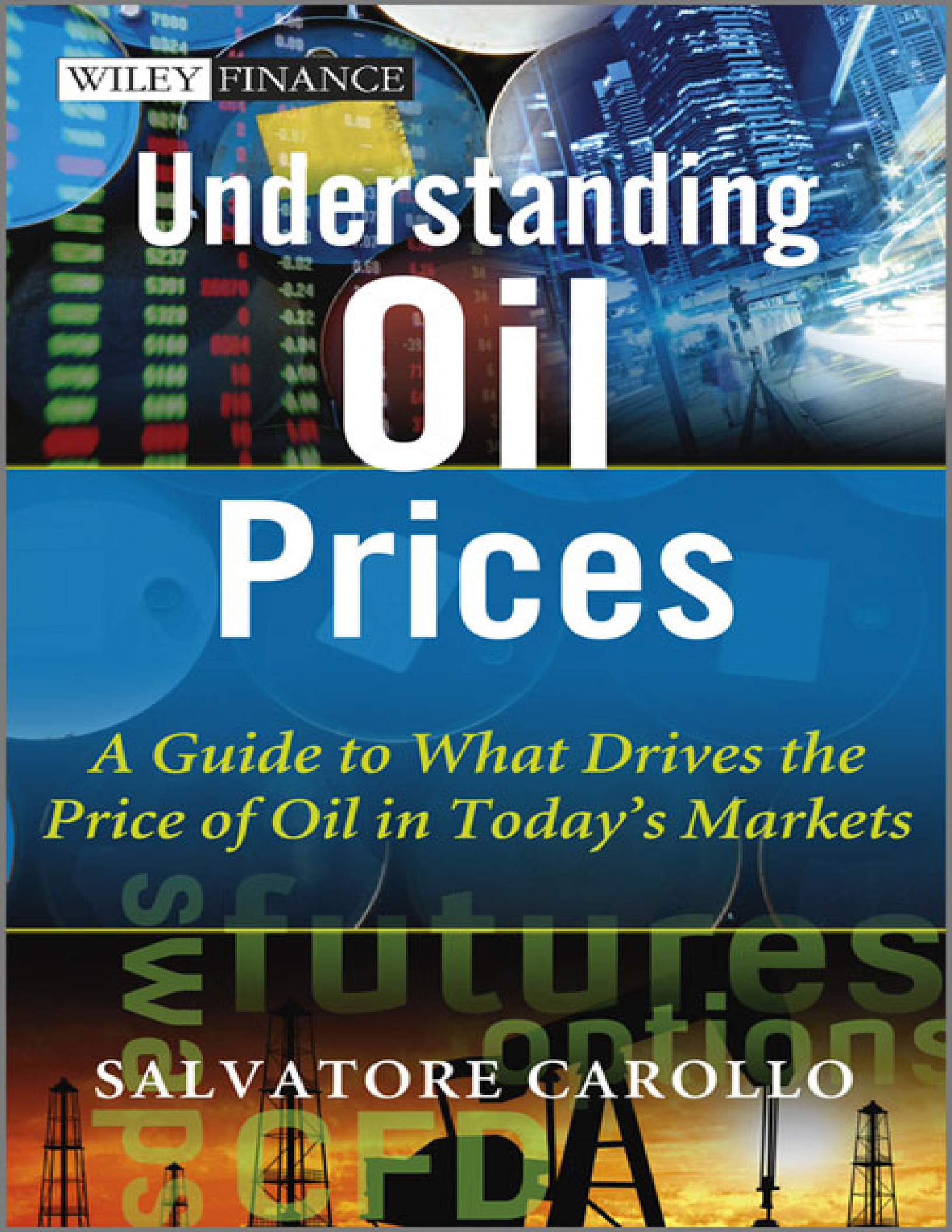
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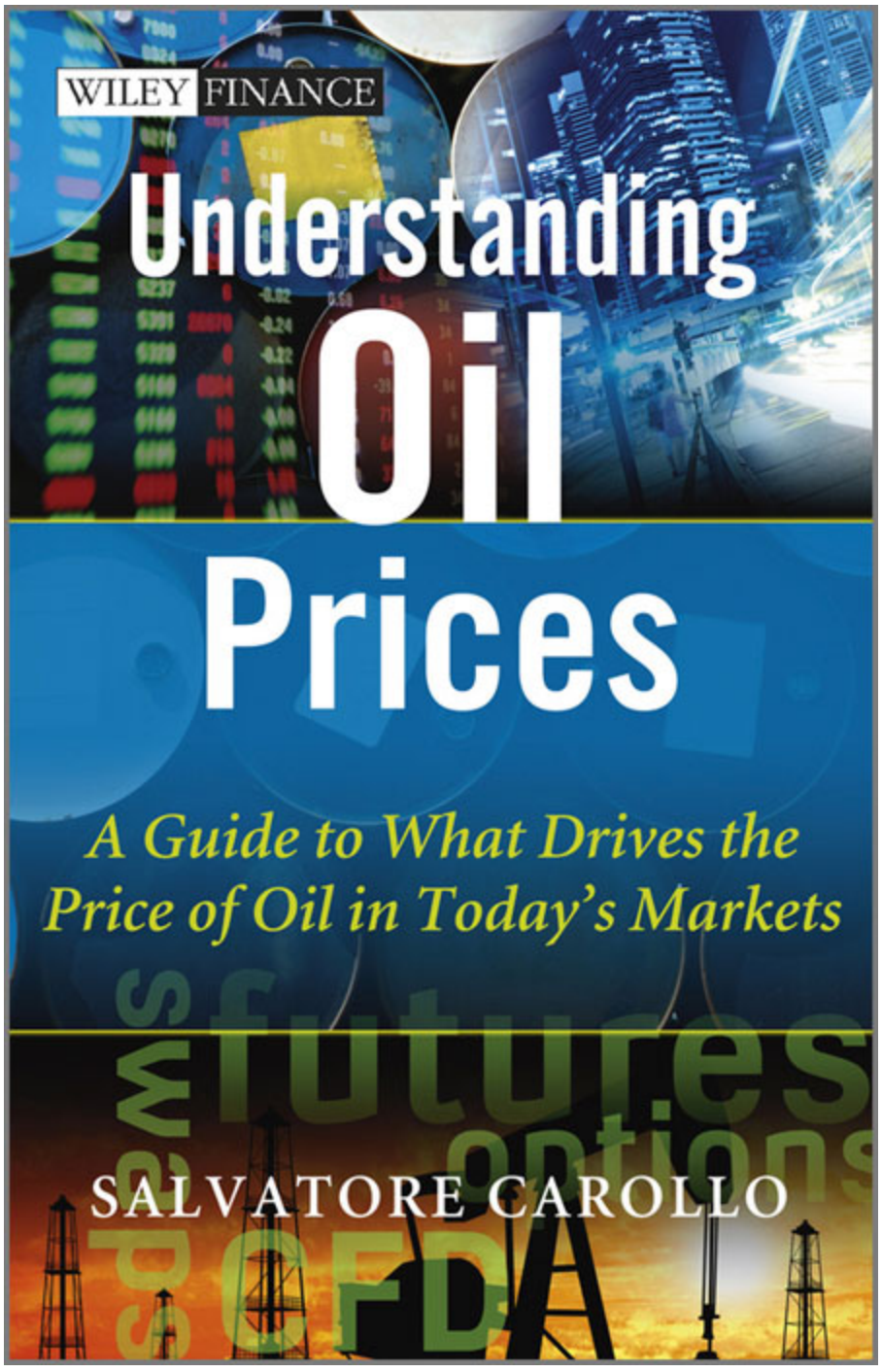
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Understanding Oil Prices

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A Sofia e Riccardo

Parmi d'aver per lunghe esperienze osservato
tale essere la condizione umana
intorno alle cose intellettuali,
che quanto altri meno ne intende e ne sa,
tanto più risolutamente voglia discorrerne;
e che, all'incontro, la moltitudine delle cose conosciute ed intese
renda più lento e irresoluto al sentenziare circa qualche novità.

It seems to me, after long experience
in observing the human condition
as regards intellectual matters,
that some persons, the less they understand and know,
all the more forcibly wish to hold forth;
and that, when we encounter something new,
the myriad things known and understood
make any judgement regarding it slower and less conclusive.

Galileo Galilei

Foreword

This book was conceived after a critical re-reading of the lectures I gave at the Eni Corporate University (ECU) for the Master MEDEA and for the Annual Seminar on oil marketing.

It is therefore the result not only of my elaborations and market models developed over the years to interpret the international oil market, but also of the discussions in the lecture hall with the students of the Master MEDEA and with the representatives of those producing countries who have taken part in the various editions of the Annual Seminar.

My thanks are due above all to these persons.

I also wish to thank Prof. Enzo Di Giulio, president of ECU, who desired to be present in these lectures and encouraged me to put the content of my presentations in book form.

Finally, I owe particular thanks to Dr Caterina Marmorato who, apart from helping me with notable professional commitment in the delivery of the lectures for the Master course, dedicated a good part of her free time for several months in preparing the technical annexes and in the task of editing.

Preface

The title of the book you are holding – *Understanding Oil Prices: A Guide to What Drives Oil Prices in Today's Markets* – brings to mind the telling of a story. Now, we know that for a story to be a good story it should meet three conditions: a) there are certain events to relate; b) these events run in order, that is, their sequence has some sense and, if possible, succeeds in holding the attention of the reader; c) there is a voice that narrates the story effectively and clearly. We feel that Salvatore Carollo's book satisfies all three of these conditions, and it tells a story of great interest to all of us.

The world of oil seems to be cloaked by a form of disparity in comprehension. Without oil, our entire existence – as we know it today – would not be possible. Despite the countless discussions regarding the oil peak and the end of the oil era, this fuel still represents, by far, the primary energy source. According to the last World Energy Outlook of the IEA, the proportion of oil as a source of energy stands at 34% against the 26% of coal and 21% of gas. According to the IMF's World Economic Outlook (WEO) reference scenario, in 2030 it will still be the primary source: 30% as against the 29% of coal and 22% of gas. Oil has, and continues to have, a profound influence on the lives of westerners and perhaps even more so on that of the peoples of the east. Certainly, it is a non-renewable source and this means that its days, in the long term, are numbered. But that is not the point here: the heart of the matter is that we are dealing with a material that shapes, changes, models, directs and configures the history of the world. And this is destined to carry on for a long time – true even when the lusty flames of oil, ephemeral like all the things in this world, fade away in the great emptiness of time. Just as the Hellenistic or Roman

worlds still influence our lives despite their decline – consider for a moment our language – in the same way, oil has given the world a development and geopolitical model, which is destined to last for the coming centuries. But this is the future. Today, rather, we are in the midst of the oil era. And yet, as we said earlier, there is a depressingly inadequate awareness of the significance of this essential source. This very book has come to your hands, reader, thanks to oil. Here we are not talking about a technical knowledge of the complex work of exploration, or oilfield production, or of the transport of crude oil across the oceans of the globe. Rather, we refer to those three words that millions, if not billions, of times stand out in the media: the 'price of oil'. This expression, the content of which has such a powerful influence on our lives, is the synthesis of immense forces – costs, decisions regarding investments and expenses, use of reserves, operations to cover risks, speculations, transactions, the policies of contracting companies, the policies of nations, oil companies and so on – that interact to form it. At the same time, from the price itself stem innumerable chains of actions that influence variables of fundamental importance for the entire economy: the quotations of the dollar and the euro, the balance of payments, the price of gasoline and gasoil, the cost of electricity, the rate of inflation, employment and so on. Thus, the price of oil has a vast and forceful impact on our existence. And despite all this, the issue is not adequately discussed. Rather, it is mentioned, hinted at and at times journalists try to explain it; but beyond the inner circle of specialists no one talks much about it. And this circle, to tell the truth, is very restricted. This is a destiny that oil shares, unfortunately, with all the sources of energy. Just reflect on the scarce availability of courses in energy economics in universities across the world. A similar reflection applies to books on energy economics that are a *rara avis* on this planet, particularly if we compare them

with the plethora of texts on environmental economics. Paradoxically, energy – which represents perhaps the central axle around which the entire economy rotates – is almost never an issue to dissect in our degree courses, in particular those regarding economics. Thus, tethered within the strict boundaries of a territory for specialists, the price of oil remains an abstruse, esoteric matter. When an attempt is made to pass from the esoteric to the exoteric, it is often done in a misguided, amateurish way. The media advances information that evokes horrific scenarios – until last year some were predicting a price of around $200 per barrel – they talk of an oil peak and the end of oil. Alternatively, OPEC is indicted as being responsible for the high prices, inflating its role disproportionately. In this way, public opinion tends to form biased opinions based on explanations that draw attention to just one main force, as the only one responsible for what happens.

This book by Salvatore Carollo speaks of all this. It tells a story, as we said, and it does so starting from the end, namely the crude oil price collapse of last year from almost $150 to under $40 per barrel. Why did this happen? To what extent can the fundamentals explain it? Starting from these questions, the book offers an examination of the phenomenon that takes us nimbly through the essential phases of the evolution of crude oil price. The volume deals with relevant aspects – some quite technical – such as purchase contracts, the structure of world supply, the evolution of environmental regulations and, naturally, the refining process for crude oil. But at its core remains the key question of the price and its formation. The various issues discussed serve as fodder for the exploration of the primary question, as if they were pieces of a jigsaw to be completed. Certainly, as regards the role of the various forces that drive prices up or down, the book offers a very clear explanation. In one sense, it tracks down some of those guilty. We will

not reveal them here, so as not to deprive the readers of the pleasure of discovering them in due course. We will only declare that the text materializes from the vast experiences of the author. As we read, we hear the voice of a professional, namely a man who works in the oil arena and whose main task is, for his part, to contribute towards the formation of prices, and not explain them. And yet, the author belongs to that class of professionals that master, thanks to their deliberation, whatever they do, in this way succeeding to unify thought with action. Unfortunately, their class is very rare: it is hard to say whether it is more or less rare than that of the academic who follows the inverse route, passing from theory to practice. What is certain is that the marriage of practice and reflection has produced a stimulating and enjoyable book. Some readers will appreciate its structure, which alternates the narration with the technical aspects, others the voice, still others will find it an interesting and nimble introduction to the world of oil, and others, finally, may see it as a sort of text book. Some will agree with its propositions, others not: we can be certain of that. But the function of a book is precisely this: to stimulate reflection and nurture knowledge with thought. To quote the celebrated words of a troubled writer of the 1900s, Franz Kafka – as troubled as the oil market! – ‘a book must be a pickaxe for the frozen sea that resides within us’. And the frozen sea is not only the existential and interior one as navigated by the writer from Prague. Often, the ice on the sea is created by prejudices, the knowledge fossilized inside us and never seen again, by the ready-made explanations, by their nebulosity which is never questioned. This book has the honour and duty to be a robust pickaxe.

Enzo Di Giulio
President, Scuola Enrico Mattei

Quick Reference Guide

To assist the reader a glossary of the technical terms that have been only briefly considered in the text has been added. Other terms have been described in some detail in the pertinent chapters.

- **ASSESSMENT:** this term is used in the text to mean estimate and/or valuation.
- **AUTHOR'S SOURCE:** when this reference is indicated, the source of data and graphs should be intended as a personal elaboration of data available in the market and from public sources.
- **BENCHMARK:** in the crude oil sector, a benchmark provides a reference parameter based on which other crudes are evaluated or priced. Some benchmarks are localized in specific geographic areas (e.g. Dubai in the Middle East or Tapis in the Asia-Pacific area) while others have global application, e.g. Brent Dated.
- **BLENDING of GASOLINES:** final operations in a refinery for mixing semi-finished products arriving from various plants. Actually, with very few exceptions, for technical/economic reasons, gasoline as a finished product is not directly obtained in a refinery from one sole plant, but usually through mixing various components.
- **DOWNSTREAM/UPSTREAM:** downstream is the part of the oil cycle that embraces transport, refining and marketing. The preceding operations, i.e. exploration and production of crude, represent the upstream.
- **DRIVING SEASON:** this term indicates the season for gasoline in America. Normally this phase starts in

late May and continues for the entire summer season; in other words, as a result of summer travel, it is the period of greatest gasoline consumption in the USA.

- **ICE:** acronym for the Intercontinental Exchange, previously known as the International Petroleum Exchange (IPE), one of the major exchange markets for physical products and their derivates. The contracts dealt with on ICE include the following products: exchange rates, stocks and shares, crude and refined products, natural gas, coffee, cotton, sugar and so on. When reference is made to ICE futures, this signifies the futures contract for ICE Brent, dealt with in Europe on the London Exchange.
- **IEA:** Acronym for the International Energy Agency, an international organization founded by the Organization for Economic Cooperation and Development (OECD) with headquarters in Paris.
- **JET-FUEL** or **JET-KERO:** aviation fuel.
- **JOINT VENTURE:** a contract between organizations for the implementation of a project that involves notable technical and financial risks. The obligations and responsibilities of each partner are shared proportionately on the basis of each partner's participation quota in the project. Joint ventures between oil companies occur frequently in the exploration and exploitation of oilfields (in particular offshore ones).
- **OCTANE NUMBER:** the index of resistance to detonation of a fuel. If the octane number is too low the speed of combustion of the gasoline is too high and this causes shock waves in the combustion chamber of the engine (‘pinking’) and dispersion of energy.

- **NYMEX:** acronym for the New York Mercantile Exchange, one of the biggest commodity markets. Founded in 1872 for trading eggs, butter and cheese, it is now the reference bourse for oil. When the text refers to NYMEX futures this means the WTI futures contract.
- **OPEC:** acronym for the Organization of the Petroleum Exporting Countries.
- **OPEN INTEREST/OPEN POSITIONS**: in the futures market, this indicates the aggregate of the purchase and sale operations that have not been closed by operations in the opposite side.
- **TERMINAL OPERATOR:** the body that manages and administers a production terminal for crude oil (loading tankers, administration of production data, allocation of barrels). Normally this body coincides with the partner that has a majority shareholding in the project.
- **OSP:** Acronym for Official Selling Price. This provides one of the many ways for determining crude prices. The OSPs are normally fixed unilaterally and published by the producing countries.
- **SPARE CAPACITY:** in general, this refers to the unused capacity of a refinery (namely the capacity to produce greater quantities of refined products as compared with those already in production), or the unused production capacity of an oilfield (namely the capacity to produce greater quantities of crude oil as compared with those already in production).
- **SWING PRODUCER**: a producing country or association of such countries likely to adjust its offer of crude to the demand so as to control price movements.
- **ARMS-LENGTH TRANSACTIONS:** those between related parties but whose contractual terms reflect

market conditions between independent and unrelated parties.

- **WTI:** acronym for West Texas Intermediate, also called Texas Light Sweet. This crude is used as a benchmark throughout America. The WTI derived contract is traded on the NYMEX.

List of Figures