

WILEY FINANCE

Understanding Oil Prices

*A Guide to What Drives the
Price of Oil in Today's Markets*

SALVATORE CAROLLO

Understanding Oil Prices

For other titles in the Wiley Finance series
please see www.wiley.com/finance

Understanding Oil Prices

*A Guide to What Drives the Price of Oil
in Today's Markets*

Salvatore Carollo



A John Wiley & Sons, Ltd., Publication

This edition first published 2012
© 2012 Salvatore Carollo

Registered office

John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ,
United Kingdom

For details of our global editorial offices, for customer services and for information about how to apply for permission to reuse the copyright material in this book please see our website at www.wiley.com.

The right of the author to be identified as the author of this work has been asserted in accordance with the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, except as permitted by the UK Copyright, Designs and Patents Act 1988, without the prior permission of the publisher.

Wiley publishes in a variety of print and electronic formats and by print-on-demand. Some material included with standard print versions of this book may not be included in e-books or in print-on-demand. If this book refers to media such as a CD or DVD that is not included in the version you purchased, you may download this material at <http://booksupport.wiley.com>. For more information about Wiley products, visit us at www.wiley.com.

Designations used by companies to distinguish their products are often claimed as trademarks. All brand names and product names used in this book are trade names, service marks, trademarks or registered trademarks of their respective owners. The publisher is not associated with any product or vendor mentioned in this book. This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold on the understanding that the publisher is not engaged in rendering professional services. If professional advice or other expert assistance is required, the services of a competent professional should be sought.

Library of Congress Cataloging-in-Publication Data

Carollo, Salvatore.

Understanding oil prices : a guide to what drives the price of oil in today's markets / Salvatore Carollo.

p. cm.—(The wiley finance series)

Includes bibliographical references and index.

ISBN 978-1-119-96272-4 (hardback)

1. Petroleum products—Prices. 2. Petroleum industry and trade—History. I. Title.

HD9560.4.C37 2012

338.2'3282—dc23

2011039266

A catalogue record for this book is available from the British Library.

ISBN 978-1-119-96272-4 (hardback) ISBN 978-1-119-96289-2 (ebk)

ISBN 978-1-119-96290-8 (ebk) ISBN 978-1-119-96291-5 (ebk)

Set in 11/13pt Times by Aptara Inc., New Delhi, India

Printed in Great Britain by TJ International Ltd, Padstow, Cornwall, UK

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

Contents

Foreword	xiii
Preface	xv
Quick Reference Guide	xix
List of Figures	xxiii
List of Tables	xxvii
List of Boxes	xxix
1 The World Crude Oil Paradoxes	1
2 The Market Events from 2008 to 2011	7
World Energy Policy	8
The Financial Crisis and the Oil Market	10
Fundamentals or Financial Speculation?	17
Demand/Supply of Gasoline and Gasoil	21
WTI – Brent Differential	24
3 Evolution of the Price of Crude Oil from the 1960s up to 1999	29
1960–1980: The Oil Monopoly and the Two Crises in the 1970s	30
The 1980s: The Gradual Disappearance of OPEC	33
The Price War	35

1985–2000: From the Introduction of Brent as an International Benchmark to the Clean Air Act	37
The Suicide of OPEC	40
The Start of the Free Market	41
The Consequences of the Environmental Turnaround	44
4 Changes in the Market for Automotive Fuels	45
Evolution of Environmental Demand	45
Gasoline and its Components	50
Reforming	51
Cracking	52
Alkylation	53
Isomerization	53
Refiners Walk the Tightrope	53
The Fiscal Policy of the Industrialized Countries Regarding Fuels	55
5 World Oil Flow	63
Transformations in the Downstream	66
World Supply Structure	70
6 The Classical Model of the International Oil Market	73
7 The Short-term Model of the International Oil Market	81
8 The Brent Market	89
The Sale and Purchase Contract	90
The Forward Market for Brent (15 day Brent Contract)	94
The IPE Brent Market	100
The Divorce Between Oil Price and Oil	102
9 Principal Uses of the Forward and Futures Markets	105
Tax Spinning	105
Benchmarking	105
Hedging the Price Risks	106
Speculations on Operational Flexibilities at Loading	114
Market Structure: Contango and Backwardation	117
Procedures at the Loading Terminals	119

10 Problems of the Brent Forward Market	123
11 The European Refinery Crisis	131
12 Conclusions: We are Ourselves OPEC	155
Bibliography	163
Index	165

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