



Energy and Value Letter

October 2012 – Volume 4, Number 2

- **John Simpson discusses timely issues on energy, economics and financial markets and introduces a new CEVI book**
- **CEVI president André Dorsman celebrates the lustrum of a progressive energy and value issues association**
- **Call for Papers 4th CEVI conference, Northern Illinois University, Chicago, May 15-17, 2013**
- **A preview on the 2nd CEVI book on energy economics and financial markets with all of the chapter abstracts**

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Energy and Value Letter

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The Energy and Value Letter brings together academics and practitioners worldwide to discuss timely valuation issues in the energy sector. It publishes news from the Centre for Energy and Value Issues (CEVI), its linked organizations and others (including calls for papers), practitioners' papers: short articles from institutions, firms, consultants, etcetera, as well as peer-reviewed academic papers: short articles on theoretical, qualitative or modeling issues, empirical results and the like. Specific topics will refer to energy finance in a broad sense. All of the papers are peer reviewed. The journal welcomes unsolicited contributions. Please e-mail to energyandvalue@gmail.com, c/o Özgür Arslan, a copy of a news item or a completed paper. Include the affiliation, address, phone, and e-mail of each author together with appropriate JEL classifications with your contribution. A news item should not have more than 400 words and a paper should not exceed 3.000 words.



Energy and Value Letter

ENERGY, ECONOMICS AND FINANCIAL MARKETS

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The first book edited by CEVI, “Financial Aspects of Energy” has been well received and the association seeks to continue its work in publishing worthwhile research on the energy issues particularly from the perspectives of macro and micro economics and financial economics. The cooperation of CEVI with Springer Verlag has led to a new book, called Energy Economics and Financial Markets (<http://www.springer.com/978-3-642-30600-6>). The editors of this book are John Simpson, André Dorsman and Wim Westerman and these editors are not coincidentally also the authors of the introductory chapter.

The first chapter of the new book discusses many of the points raised in the following few pages. There are of course many critical areas of interest in areas that relate either generally or specifically to fossil fuels and alternatives, energy efficiency, the impact of energy on political economics, safety issues, climate change, sustainability and renewables, energy independence and security, the transportation of energy resources, electricity generation and so on. This current book in some way touches all of those broad issues either explicitly or by implication. The book cannot hope to deal with all of the current global energy issues in detail, but it still represents a genuine effort to draw the attention of those interested in applied research in several important areas of energy economics.

The issues of the day may be quite specific and not covered directly by this book. For example, one of the important recent newsworthy events in oil production and exploration was the approval by the United States Bureau of Ocean Management and the anticipated approval by other environmental regulatory bodies of the re-entry by BP into oil exploration in the Gulf of Mexico. Up to four wells have been approved and this is will be the first exploration activity by the company in the Gulf since the explosion aboard the Deep-water Horizon rig in April 2010. This example raises issues of a political, economic and environmental nature.

Such developments in the real world will drive research. The above events have important impact in oil supply at another point when issues relating to peak oil keep coming to the fore-front of thinking in those markets. The events in the Gulf of Mexico also triggered questions relating to the prices and price movements in oil markets and in individual oil companies and supply and demand aspects, but overwhelmingly, questions arise on the real world issue of environmental damage, sustainability, the desirability of fossil fuels in general in preference to a more rigorous development of renewable energy resources. Another real world issue may be one where there has not been a large amount of focus.

For example, again in the United States the issue of the regulation and control of fracking waste water has more recently arisen. The disposal of the water from hydraulic fracturing in shale gas and coal bed methane operations has raised not only positive news about alternative cleaner burning fossil fuels and methods of extraction that add to the supply of energy resources in an era of rapidly increasing demand, but it is very important that the environmental impact be considered and in this case the impact on water resources.

Again another recent topical issue in the United States (which incidentally is the largest relative energy consumer and therefore figures strongly in examples of global issues) is the political and economic effect of the recent financial problems of the solar firm Solyndra, which experienced problems despite a substantial government guarantee from the Obama administration. Apart from the blow to renewables advocates in practice and in research, the Republicans appear to feel that they have gained some political advantage to help them push hard for the desirability of an “addiction” to fossil fuels.

Yet another specific topical issue might relate to the drawing of attention to the broad issue of the economics of pipeline gas when a specific issue is raised at a time in the global economy and certainly in the developed economies where interest rates are low, stock markets are volatile, but weak. Yet in taxation effective environments the attractiveness of low risk, low return pipeline gas might be an attractive investment in some countries where it is appropriate.

For countries such as Australia, an increasingly important exporter of natural gas, the issues considered by many are whether or not Australia should “sell the mine” or focus on “selling the product”. Australia is a wealthy, developed, low political risk country and is very much part of the globalization process, but questions are arising from many economists as to the cost benefits of excessive foreign direct investment in the form of equity. Cost may not only be economic in nature. There is a strategic and a political consideration. Does dividend outflow outweigh the economic benefit if foreign equity grows too large? Should not debt investment be on offer and encouraged with attractive coupon rates on the bond instruments, rather than raising the funds through sale of equity? Clearly such research from financial economists and macro economists is desirable.

Another issue for Australia and other fossil fuel exporters is the important need to diversify exports away from an excessive reliance on only two or three importing countries. On the importer’s side it is important for energy importers such as countries in Western and Eastern Europe and also in Turkey to consider the diversification of their pipeline gas supplies from one or two countries that from all possible considerations have to be considered as high political risk countries. Stability and security of supply is an important research issue. In the Netherlands, where it is estimated that the Groningen gas area has about 30 years only of supply, the energy alternatives being considered must include importation of coal, oil and gas, nuclear solutions, wind and solar power generation. However, in such a developed and democratic country the people may be balking at the excessive costs of wind power and also the visual and noise pollution associated. Nuclear power, since the Japanese tsunami impact, is less attractive as an alternate source.

It is clear that there are many issues that are topical and require investigation by researchers. The new CEVI book will touch on many of the central issues in real life and some of the aforementioned issues in some way, but overall the book deals with attempted resolution of the issues with worthwhile applied research. In this way the book itself is organised into four parts with a total number of fourteen chapters. Part one covers supply and demand for energy. Part two examines the dynamics of the energy derivatives markets. The third part of the book has a theme of environmental issues and renewables. The final part of the book has the theme of finance and energy.

I trust that the book represents good reading for researchers, practitioners and policy makers.



Energy and Value Letter

A SHORT NOTE FROM THE CEVI BOARD

André Dorsman
President of CEVI

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In September 2012, we corrected the last print proofs of the book *Energy Economics and Financial Markets* that will be published by the end of this year. The book exists of four parts, part 1: Supply and Demand, part 2: Environmental issues and Renewables, part 3: The dynamics of energy derivatives trading, and part 4: Finance and Energy. Authors from several countries authored the chapters. You will find abstracts of this book elsewhere in this e-journal.

Finalizing one book gives space for starting up another one. The title of the third book is *Perspectives on Energy Risk*. This third CEVI book will also be published by Springer and exists of three parts: part 1: Global risks; part 2: Geopolitical risks and part 3: Local risks. All authors have sent us the abstracts of their chapters and we expect to receive the drafts of their chapters later this year. All chapters will be double blinded reviewed to secure the quality of the CEVI book series.

The fourth CEVI conference will be held in Chicago, May 2013. It is the first time we cross the ocean to keep our conference. Hopefully this will lead to new CEVI members. The organization of that conference is in the hands of Paul Prabhaker. Paul is associate dean of the NIU (Northern Illinois University) College of Business. Paul gives us information on this conference in this issue of the EVL. I invite you to submit a paper to this conference and hope to meet you next year in Chicago.

Maybe you did not realise it, but we celebrated our unofficial fifth anniversary in the summer of this year. In June 2007, we had our first conference in Amsterdam, followed by a second one in Istanbul (2009) and a third one in Groningen (2011). Since our start CEVI organized many energy schools in Turkey (with Mehmet Bah Karan taking the lead) and CEVI is also well known due to the book series with Springer (I honour our cooperation with Barbara Fess here).

As president of CEVI, I thank everybody who contributes in the activities of CEVI. Energy is an important topic and after five years CEVI has shown to be a good platform in the energy area for scientists and practitioners.



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4TH MULTINATIONAL ENERGY AND VALUE CONFERENCE

CEVI (CENTRE FOR ENERGY AND VALUE ISSUES), NORTHERN ILLINOIS UNIVERSITY

www.cob.niu.edu/energyconference2013/

MAY 15-17, 2013, CHICAGO, USA

CALL FOR PAPERS

The objective of the conference is to bring together academics and practitioners from all over the world to focus on (a) timely valuation issues in the energy sector and (b) scientific developments in the fields of traditional and alternative energy. Papers dealing with developed as well as developing countries are welcome. Specific topics must refer to energy issues and include, but are not limited to:

Financial Regulation – Energy Security – Scientific Advances in Energy – Financial Markets – Financial Risks – Asset Pricing – Value at Risk – Capital Structure – Corporate (Re)Structuring – Alternative Energy Developments – Corporate Governance – Behavioral Finance – Financial Performance – Cost Control – Financial Accounting – Fiscal and Legal Issues.

Please submit your paper online at <http://www.cob.niu.edu/energyconference2013/submitpaper.asp> or e-mail to prabhaker@niu.edu and to orслан@uic.edu by the 17th January 2013, a copy of a completed or nearly completed paper. The title page should include the affiliation, address, phone, and e-mails of each author. Each participant agrees to serve as a discussant of a paper of his/her own area of interest, if needed.

Selected papers may be submitted for possible publication in the following;

- Frontiers in Finance and Economics
- A CEVI book to be published by Springer Verlag.

The third day of the conference includes practitioner presentations on Silk-Road related topics such as; energy logistics and energy security. Senior government leaders from different countries will be participating by sharing energy-related business opportunities in their markets. Updates on the conference will be regularly announced to the conference participants and other parties.

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ABSTRACTS ENERGY ECONOMICS AND FINANCIAL MARKETS

The below gives a preview of André Dorsman, John Simpson and Wim Westerman (editors), “Energy Economics and Financial Markets” (Heidelberg, 2012), by means of the abstracts of the 13 individual chapters. The Energy and Value Letter gratefully recognises the permission by Springer Verlag and the individual chapter contact authors to publish these abstracts. More information can be found on: <http://www.springer.com/978-3-642-30600-6>.

Ch. 1 Introduction: Energy Economics and Financial Markets

John Simpson, Wim Westerman and André Dorsman

Abstract

Energy issues feature frequently in the economic and financial press. It is argued that the importance of energy production, consumption and trade and raises fundamental economic issues that impact the global economy and financial markets. Specific examples of daily energy issues stem from various countries and can often be related to economics and finance. It is shown that energy economics and financial market research issues can be grouped under the themes of supply and demand, environmental impact and renewables, energy derivatives trading, as well as finance and energy.

Keywords: supply and demand, environmental issues and renewables, energy derivatives trading, finance and energy

Ch. 2 Energy Security in Asia: The Case of Natural Gas

Helen Cabalu and Cristina Alfonso

Abstract

Natural gas consumption in the future is expected to increase due to its low environmental impact, ease of use and rise in the number of natural gas-fired power plants. This chapter measures natural gas supply security in six Asian economies including Japan, Korea, China, India, Singapore and Thailand from 1996 to 2009. Disruptions to long term security of supply can be caused by inadequate investments in production and transmission infrastructure, lack of supply diversity and import dependency. A composite gas supply security index is derived from four indicators of security of gas supply, with a higher index indicating higher gas supply vulnerability. Results show that China and India are the least vulnerable in terms of natural gas security because of their significant domestic gas production and small share of gas in the energy mix. Thailand is the most vulnerable among the countries studied due to its high reliance on natural gas to power its electricity generation industry as well as its greater exposure to geopolitical risks. With these analyses, governments can target possible sources of supply disruptions and mitigate their effects. Diversification is highly encouraged to spread the risk across different import and energy sources.

Ch. 3 Buyer Credit Pricing for Natural Gas Exports using Country Risk Ratings

John L Simpson

Abstract

It is important for exporters of commodities, including natural gas, to price their exports correctly in times of excess demand. It is equally important for providers of buyer credit for importers of natural gas to price the finance for the shipments correctly. Pricing buyer credit is vital for the lender's goals, which includes shareholder wealth maximization if the lender is a bank or a corporation, but, more importantly pricing credit is important for the optimization of the risk and return relationship and the diversification of unsystematic risks in export loan assets. In this chapter, the price of natural gas from a gas exporting country, such as Australia, is deemed to be the amount of export finance that might be required as buyer credit. Export returns thus represent the change in the amount of export finance required by buyers. A higher buyer credit change means a greater amount of credit required. Using country risk ratings, a risk premium is ascribed to this buyer credit in order to avoid mispricing of exports and buyer credit in times of excess demand for gas and thus buyer credit. Importer country examples of the US and China are investigated. It is posited that country risk ratings can determine the magnitude of the risk premium to be applied to buyer credit, consistent with risk/return trade-off theory.

Keywords: Export, pricing, buyer credit, risk, ratings, gas, China, United States.

Ch. 4 The Drivers of Energy Consumption in Developing Countries

Ayhan Kapusuzoglu and Mehmet Baha Karan

Abstract

This paper examines the issues associated with the causal relationships between the energy consumption and the factors (rural population, total population, gross domestic product, consumer price index and carbon dioxide emission), with the greatest impact on energy consumption as demonstrated in the literature, for 30 developing countries. Data for the period 1971-2007 are used with a Granger causality test. In the light of obtained findings, the present study reveals common relationships in various directions between energy consumption and the other factors. These results can be explained by factors such as energy markets, resources, population etc. for individual countries. The findings of the study have significant policy implications and are therefore of potential interest to policymakers.

Keywords: Energy Consumption, Macroeconomic Indicators, Cointegration, Causality, Developing Countries

Ch. 5 Renewable Energy Production Capacity and Consumption, Economic Growth and Global Warming

Henk von Eije, Steven von Eije and Wim Westerman

Abstract

This chapter estimates the interrelationships between growth in Gross Domestic Product (GDP), carbon dioxide (CO₂) emissions in interaction with the consumption of fossil fuel and renewable energy consumption in a global context. In such a system the variable of renewable energy production capacity is introduced. It is found that growth in this variable has a significant effect on the growth of renewable energy consumption. This is the case for instantaneous unilateral regressions as well as for a vector error regression model. For the latter model the finding is that renewable capacity reduces fossil fuel use in the long run, while it also reduces economic growth. This suggests a difficult trade-off between applying renewables capacity for CO₂ reductions, while also trying to maintain economic growth.

Ch. 6 Economics Instruments for Pollution Abatement: Tradable Permits versus Carbon Taxes

Anthony D Owen

Abstract

Contemporary energy policy issues are dominated, directly and indirectly, by major concerns at both local and global levels of environmental degradation arising from combustion of fossil fuels. The advent of “carbon pricing” (either through an emissions trading scheme or a carbon tax) represents an attempt to impose a cost on consumers that will limit such degradation (i.e. the deleterious impacts of climate change) to scientifically-determined “acceptable” levels. The resulting higher cost of fossil fuel combustion for power generation should induce a reduction in the demand for power (the “demand effect”) whilst simultaneously stimulating investment in competitively-priced low carbon power generation technologies (the “supply effect”). At least in theory, the trading of emission permits can be shown to be a least-cost economic instrument for meeting a specified level of reduction of carbon dioxide. However, a carbon tax possesses the same property. In this chapter the relative merits of these two instruments will be assessed, paying particular attention to factors that could, in practice, lead to significant levels of inefficiency for one instrument relative to the other.

Ch. 7. Emissions Trading and Stock Returns: Evidence from the European Steel and Combustion Industries

Jeroen Bruggeman and Halit Gonenc

Abstract

This chapter examines the impact of price changes of European Union Emission Allowances (EUAs) on stock returns of a sample of firms operating in the European steel and combustion industries. After the introduction of an EU-wide CO₂ emissions trading system in 2005, the first phase of the emission plans was completed in 2007 and the process of the second phase is still evolving. The empirical analysis of this paper covers both the first and second phases to deal with capturing time variances for the importance of the trading scheme. It is found that EUA price changes are positively correlated with stock returns of firms operating only in combustion industries over the first phase (2005-2007). However, there is evidence of a significant impact of EUA price changes on stock returns of firms from both combustion and steel industries during the sample period in the second phase (2008-2010). Firm size, age and leverage are also examined to explain the size of emission trading exposures across firms. The finding is that neither of these variables appears to be a significant determinant. This evidence indicates that EUA exposure is independent of firms’ characteristics.

Keywords: EU emission allowance, emission trading, stock returns, energy-intensive industries.

Ch. 8 Energy Derivatives Market Dynamics

Don Bredin, Éamonn Ó Ciagáin, and Cal B. Muckley

Abstract

This chapter examines the EU Emissions Trading Scheme options and futures markets dynamics during the period 2005 to 2011. Observations on returns, volatilities and volumes on derivative instruments are studied. In addition, spot/future correlations, term structures and option implied volatility smiles and surfaces are examined. The aim is to ascertain whether the behavior of the EU ETS derivatives markets can be compared to that of commodity markets, specifically the developed West Texas Intermediate (WTI) crude oil derivatives market. The results indicate that the EU Emissions Trading Scheme derivatives markets have matured markedly since the start of Phase 2 of the Scheme, with rising volumes and declining return volatilities. Spot/future correlations, term structures and option volatility smiles and surfaces exhibit comparable behavior over time, albeit with certain discrepancies, with that found in the developed WTI crude oil derivatives market. These results are valuable

both for traders of EU allowances and for those policy makers seeking to improve the design of the EU Emissions Trading Scheme.

Keywords: EU ETS, Options, Futures, Market Dynamics, Returns, Volatility, Volume, CO₂.

Ch. 9 The Dynamics of Crude Oil Spot and Future Markets

Özgür Arslan-Ayaydin and Inna Khagleeva

Abstract

This chapter centers on the question of whether futures markets can be used in the competitive price discovery in crude oil markets. On the one hand, the survey in this chapter uncovers considerable evidence on the theoretical perspective that future prices of crude oil is equal to the spot price of crude oil, plus the cost of carry plus the endogenous convenience yield. On the other hand, through the empirical findings built on the Alquist and Kilian (2010) model, this chapter concurs with the previous studies documenting that future crude oil prices are uninformative for forecasting spot crude oil prices.

Keywords: crude oil market, price discovery
JEL-Code: C32, C51, G13, G14.

Ch. 10 Natural Gas Market Liberalization: An Examination of UK and US Futures and Spot prices.

John L Simpson

Abstract

The study reported in this chapter builds on previous studies of the extent of decoupling of oil and gas markets and thus the degree of deregulation of the gas sector in each country. It examines both UK and US oil and gas spot and futures market data. Spot gas and gas futures data from the respective domestic markets represent domestic factors and oil prices from global datasets represent global factors. Cointegration and exogeneity tests indicate that US markets have achieved a greater degree of decoupling with domestic gas price factors dominating global oil price factors in the determination of the future spot gas price. Therefore, it can be concluded that whilst progress in liberalization has been made in both markets, US deregulation policies have been more effective than those in the UK.

Keywords: Gas, oil, pricing, futures, spot, cointegration, causality, decoupling, deregulation.

Ch. 11. Adding Oil to a Portfolio of Stocks and Bonds?

André Dorsman, André Koch, Menno Jager and André Thibeault

Abstract

The work of Markowitz in the early 1950s triggered a revolution in the investment management world. The concept of efficient portfolios and efficient frontier gave an important impulse to the development of modern finance. Ever since, the concept of efficient portfolios has been widely applied in many environments. While originally restricted to stock markets, applications have been developed in the field of e.g. the optimisation of energy distribution (Letzelter, 2005). In the last decade, asset managers look at the opportunity to improve their expected return-risk trade off by adding commodities to their portfolio of stocks and bonds. In this chapter we look at the contribution of oil to such a portfolio.

The goal of this paper is to investigate if the addition of oil to an investment portfolio can improve an efficient set of traditional investments in stocks and bonds. We believe that given the counter cycli-

quality of oil returns compared to the stock market, that the inclusion of such assets should improve the risk-return trade-off. It appears that oil is not a safe haven for stockholders and bondholders. Oil is not a hedge for stockholders, but it does present a hedge for bondholders. When adding oil to the portfolio we see a change in efficient frontier and market portfolio. Holders of portfolios of bonds and stocks can improve their risk-return trade off by enlarging their portfolio with an investment in oil.

Keywords: safe haven, hedging portfolios, efficient frontier

Ch. 12 Imperfection of Electricity Networks

André Dorsman, Geert Jan Franx and Paul Pottuijt

Abstract

In the past, energy networks (grids) were nationally organized. The grids were linked by interconnectors. The capacities of the interconnectors were limited and only used to counter an imbalance in one of the grids. Governments fixed the prices and there was no energy price risk. Liberalization of the market introduced prices that fluctuate every moment; with the liberalization, energy price risk was introduced. The more volatile the energy prices, the larger the risk for market participants. Market coupling links the former nationally organized markets, which may cause a reduction in the volatility of the energy prices. At first the TSOs (Transmission System Operators) sold connector capacity by so called explicit auction, separate from the electricity auction. With the mechanism of explicit auction it was relatively easy to realize a market based allocation of scarce limited interconnector capacity on adjacent borders. Explicit auctions however do not realize the optimal result. In due time, they are replaced by so-called implicit auctions where the interconnectors' capacities are automatically allocated in such a way that electricity price differences between countries are minimized. This implicit mechanism is also referred to as market coupling. In this chapter the effect of market coupling on market prices is investigated in the observed period, 1 January 2005 to 31 March 2011, for Scandinavia (South), The Netherlands, Belgium and France. It is found that due to market coupling the price differences between the markets diminish.

Keywords: Electricity market, interconnectors, coupling, perfect market

Ch. 13. Initial Public Offerings of Energy Companies

Bill Dimovski

Abstract

This study analyses 158 energy company initial public offerings (IPOs) in Australia from January 1994 to December 2010, including the period of the global financial crisis (GFC). The study finds that energy company IPOs had an average 22.0% underpricing and that those IPOs that sought to raise more equity capital and engaged underwriters had lower underpricing. There is also evidence that suggests energy company IPOs that offered options to their underwriters had higher underpricing returns, effectively cancelling the lower underpricing effect of the underwriting itself. The energy IPOs that raised equity capital after the 2007/8 global financial crisis do not appear to have offered on average, significantly different underpricing returns to their investors compared to those energy IPOs that raised capital prior to this GFC period. The findings of this study offer insights for issuers who seek to lower underpricing, for underwriters involved in the capital raising and for investors who are looking to invest in Australian energy company IPOs.

Keywords: underpricing, energy, IPOs