

BOOK REVIEWS

The World for Sale: Money, Power, and the Traders Who Barter the Earth's Resources, by Javier Blas and Jack Farchy (Oxford University Press, 2021). 410 pages, ISBN: 9780190078959 hardback, 9780190074265 paperback.¹

Since the end of the Cold War, commodity markets have become more integrated, fueling global economic growth, especially in emerging markets. However, Russia's 2022 war in Ukraine has reversed this trend. Russia has used cuts to natural gas and grain exports to exert pressure, while a broad coalition of countries has imposed sanctions on Russian exports of oil and some other commodities. This has led to fragmentation of oil, natural gas, and other commodities markets that leads to price dispersion. For example, Russian Urals crude oil trades at a 20-30 \$/b discount compared to international Brent crude oil prices since the imposition of sanctions in spring 2022.

How fast can markets adjust to such trade frictions? Based on historical evidence, Javier Blas and Jack Farchy show that markets may adjust faster than expected due to the actions of commodity traders, softening the impact of fragmentation. Based on interviews and research, the authors describe how traders conduct arbitrage, why Western commodity trading houses ascended over the last 50 years, and the factors that shape their future. While the book mostly focuses on oil markets, it also provides examples in metals, coal, and agricultural goods markets. I highly recommend this book to any policy maker, academic, or market watcher who wants to understand how commodity markets work.

This book's main point is that traders are key to arbitrage when there are large supply and demand imbalances in commodity markets. These imbalances can result from negative supply shocks due to wars, sanctions, and other factors, but can also be caused by the unexpectedly fast expansion of global demand. The authors describe historical examples of traders' conduct that can be summarized by three key mechanisms. First, traders establish and maintain global networks of suppliers, customers, and logistics companies, allowing them to act fast in response to market frictions. For example, when the Soviet Union stopped trading with Cuba in the early 1990s, traders would jump in and deliver oil from Mexico and Venezuela to Cuba, swap it there against sugar, and sell the sugar in the Americas. Second, traders are risk takers. When WTI oil prices dived below zero in 2020, for example, traders purchased large quantities of oil and financed storage. Third, traders find workarounds for sanctions and other fragmenting factors—some legal, some illegal, and most in between. For example, the authors cite that one trading house had "...a whole cabinet filled with stamps and customs forms from every country in the world..." to "...produce documentation, showing that oil and metals had come from a different place than they had actually done" (p. 91).

The book describes how the ascent of Western commodity trading houses was influenced by historical events, the "democratization" of information, and financialization. The authors explain that the breakup of the Seven Big Sisters and the nationalization of oil production in many countries in the 1960s and 1970s opened the space for the trading houses. Traders helped nationalized oil companies in the Middle East and elsewhere to connect to refineries in the industrialized world. The break-up of the Soviet Union, as well as the increasing use of sanctions against countries such as South Africa and Iran, provided further opportunities for traders to benefit from organizing workarounds. In the last decade, commodity traders lost some of their informational advantages because of the digitalization of trade, satellite tracking, and other technologies that lowered costs of information. Consequently, commodity trading houses became more involved with financing trade and directly investing in commodity production around the world.

1. I am grateful for comments and suggestions by Christian Bogmans, Rachel Brasier, Andrea Pescatori, and Ervin Prifti. The views expressed in this paper are those of the author and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

The authors discuss four major headwinds for trading houses. First, corruption probes and the introduction of “secondary” sanctions regimes have reduced the “grey” legal space in which Western commodities trading houses worked and flourished. The authors describe the role of bribes in commodities trade and that “...it was only in 2006 that Swiss companies stopped being able to claim tax credits against the bribes they had paid to businesspeople abroad, with the approval of new legislation.” (p. 310) Second, growth in commodities demand has slowed as Chinese real GDP has decelerated from growing 14% in 2007 to 6% just before the pandemic, reducing profitability for commodity traders. Third, customer companies in emerging markets have become active in trading. This reduces the potential for Western trading firms to sell to emerging markets, but the “new” traders in emerging markets may also be in a better position to find workarounds for Western sanctions. Finally, the authors argue that commodity traders are less able to buy from just anywhere and sell to just anyone due to an increasing fragmentation of markets due to consumers’ preferences for ethical and sustainable sourcing of raw materials.

I recommend this book because it is timely and based on solid investigation. The book provides a wealth of information related to the current war in Ukraine. It explains how Western trading houses became invested in Russia and how they have helped regimes to evade sanctions in the past. The authors are two of the world’s most well-known and trusted journalists in the industry. Before covering commodities at Bloomberg, they worked for the Financial Times in London. They based the book on anonymous interviews with most key figures in the industry and included more than 60 pages of sources and notes.

The book opens new avenues for investigations, namely into the “new” traders from emerging economies, traders’ motivations, and what makes commodities trade different from others. First, the book mentions that new traders from emerging markets are increasingly competing with the established Western commodity trading houses. Who are these “new” trading houses, and do they operate differently than their established competitors? What is the role of the state? Shedding light on these questions in a follow-up book would help readers to better grasp the margins of adjustments in oil and other commodity markets faced with current frictions. Second, I would have liked to learn more about the motivations of commodity traders. The book suggests that traders are mostly driven by money, power, and adventure. However, I am left wondering if there are also more intrinsic motives at play. For example, traders could believe that they provide consumers with affordable commodities base on their demands. Finally, I would have liked to learn more about commodity traders’ legal environment in the most important jurisdictions and its differences to the legal environment that traders of other assets and products face, for example, on Wall Street.

To conclude, the effects of Russia’s war in Ukraine and its fallout on commodity markets make this well-researched book very timely. I recommend it to anyone who wants to learn more about the inner workings of these markets. Traders and their capabilities are key to understanding the scope and speed of market adjustment in times of sanctions and supply disruptions.

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The Environment and Externality: Theory, Algorithms, and Applications, by Zili Yang (Cambridge University Press, 2021). 276 pages, ISBN: 978-1-108-70830-2 paperback.

Many economists find the externality framework useful for understanding interesting problems. Externalities are included in undergraduate curricula and are a mainstay of theoretical training for graduate students interested in environmental allocations. There are a great many clear presenta-

tions of both basic and nuanced externality theory. The classic reference work in the environmental literature is Baumol and Oates (1975), with other more technical treatments in Conrad and Clark (1987). Generalist approaches are presented in Cornes and Sandler (1996) and Laffont (1988). Almost every Ph.D. student in recent decades will recall chapter 11 of Mas-Colell, Whinston, and Green (1995). There are many other adequate presentations. It might appear that diminishing returns have taken hold and that the need for another volume is minimal. Zili Yang has defied that presumption and presents a careful and sophisticated analysis appropriate for training an advanced researcher in the nuances of externality theory as applied to the environment. Given the reliance on this model by researchers across a variety of environmental and energy topics, the book provides a technical guide to the current frontier and is a reference for anyone interested in a formal approach to the topic.

The crux of the presentation is to distinguish between four models of externality: the two idealized baseline models are the static model for efficient provision of an environmental externality (SEEE) and the dynamic model for efficient provision of an environmental externality (DEEE). These contrast with the Nash provision of environmental externality in the static (SEEN) and dynamic (DEEN) settings. Instead of the social planner problem, these models outline the outcome in the presence of a spillover when there are N generalizable agents. This terminology was unfamiliar, but is helpful and may become a standard to distinguish between alternative settings. One way of thinking about the cost of an externality is to examine the differences between the efficient and Nash outcomes. This leads to consideration of alternative mechanisms to approach SEEE and DEEE in a world that otherwise furnishes SEEN and DEEN. This opportunity for intervention can give rise to a number of candidate solutions.

One of the main contributions of the book is to renominate the Lindahl equilibrium as a central concept in externality theory, wherein every agent makes an individualized contribution. A formal presentation of the Lindahl solution for the SEEE model is complemented by alternative solution concepts. The most familiar is the Benthamite solution in which all agents are weighted equally, motivating a greatest good for the greatest number criterion. Another alternative is the Negishi solution, which weights agents by the inverse of marginal utility of income. The discussion is technical, buttressed by proofs and clear narrative. The graphical depiction of the alternative solutions on a Pareto-efficient simplex is helpful, emphasizing how alternative solution concepts change the equilibrium. While considerable time is devoted to the SEEE model, a thorough understanding of the welfare implications translates easily to the DEEE model.

The Lindahl equilibrium is theoretically appealing but plagued by implementation problems in a world of imperfect and costly information. Greater emphasis could be placed on the impossibility of actualizing the Lindahl equilibrium and the resultant second-best nature of whatever externality policy is implemented. The compelling logic of externality and the appeal of devising alternate solutions attracts many to these problems who often ultimately lack the humility to recognize the imperfection of any attainable solution (Demsetz 1969). Hopefully the reader walks away with a greater consideration of the theory of second best rather than a renewed faith in implementing a Lindahl equilibrium. That said, the renewed emphasis on Lindahl allocations draws the reader's attention to the tradeoffs inherent in addressing any externality.

Yang provides more detail on alternative solutions than many economists would typically absorb. One motivation for this focus is the clarity that it provides in constructing models including externalities, such as integrated assessment models.

The discussion of strategic provision is quite rich and helpful. In particular, the treatment moves beyond strategic under-provision to explore cooperative game theory and coalition formation. This is a particularly helpful theoretical bridge to strengthen. Again, the presentation is formal but a graphical simplification that provides the key insight into the tradeoff between a non-cooperative and cooperative outcome, and how a cooperative outcome with Lindahl welfare weights lies on the frontier.

Climate change, described as the “mother of all externalities” is used as an instructive setting for a series of helpful extensions to the baseline models. Four issues are explored. The first is an externality with heterogeneous impacts, termed a “mixed externality.” This complicates analysis because some agents may be better off because of the externality while others are worse off. The second extension is the correlated externality, in which multiple externalities may be present and interact with one another. Importantly, the correlation could be positive or negative. This framework can also be applied to local and global externalities, creating a model with wide application. The third extension is to consider the existence of increasing returns to scale. This is an issue particularly for integrated assessment models, which typically rely on constant returns to scale assumptions. The final extension is the incorporation of an environmental externality in an exhaustible resource extraction problem; while this is fairly straightforward in the context of fossil fuels, it offers a starting point for further analyses of exhaustible resources that are related to environmental externalities.

The author provides appendices after the main chapters with simulation code in GAMS to help the interested reader relate the theoretical results with numerical analysis. Given the importance of numerical solutions to the applications and extensions, this is a welcome addition.

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