

BOOK REVIEWS

Commodity Exchanges, Concepts, Tools and Guidelines, by Issouf Soumare (Edward Elgar, 2022). 307 pages, ISBN: 978 1 8088 (cased). ISBN: 978 1 8088 (eBook).

In a recent report, staff of the World Bank Group make the important observation: “Commodity markets are integral to the global economy. Understanding what drives developments of these markets is critical to the design of policy frameworks that facilitate the economic objectives of sustainable growth, inflation stability, poverty reduction, food security, and the mitigation of climate change.” (Baffes and Nagle, 2022, pg. 1). Commodities of all stripes and flavors serve our needs every single day either directly or indirectly, indeed they are crucial to our very existence. The focus of the author is that the efficient organization and functioning of markets in which commodities and contracts involving commodities are traded is essential to the achievement of optimal public welfare. I happen to agree with this perspective.¹ Professor Soumare provides the reader with an introduction to the present state of commodity market organization around the world. Importantly, the author is careful to distinguish between markets for agricultural commodities, metals, and energies, and likewise between renewable and non-renewable commodities. The author poses that the content of the book will be of interest to a wide audience, including commodity market participants as well as policy makers. Interspersed throughout the text are brief “case” examples related to different trading venues around the world.

The book is organized in four parts.

Part I (Chapters 1-3) describes what a commodity is and gives three broad classifications: agricultural commodities, metals, and energies. There is a brief review of spot, forward and futures markets (Ch. 1), with a further breakdown between renewables (Ch. 2) and non-renewables (Ch. 3). The author chooses to classify agricultural commodities as renewable, but interestingly, while classifying energies (oil, natural gas and coal) and metals as non-renewable, also chooses to include power (electricity) in his chapter on non-renewables. This may be because he includes nuclear generated electricity in his discussion, but other sources of power generation generally thought of as “renewable” sources are also included. Chapter 2 provides a brief review of production, processing and transportation of agricultural commodities. Chapter 3 provides a discussion of oil, natural gas, coal and metals in general, but oddly, also includes a discussion of power generation and transportation as well as carbon.

Part II (Chapters 4-8) presents a review of the organization and operation of some of the main spot and futures commodities exchanges around world. The author provides a brief history of each exchange, the commodities that are traded on the exchange, and which financial instruments are traded (the emphasis is on organized futures markets). Chapter 4 includes a table that lists the exchanges discussed in the text along with summary information. Chapter 5 presents a discussion of the underlying economic benefits of an organized, and efficiently operating, commodity futures exchange. Absent however are any references to the theoretical or empirical literature on this topic. Rather, the discussion is a distillation of the author’s views on the role of futures markets in price discovery, the provision of liquidity, transaction security, risk management, and the overall welfare benefits of such markets. The author then introduces the basics of the architecture of a generic organized futures market, including the important part played by the clearinghouse and goes on to further discuss specific details for the exchanges featured in Chapter 4. A short discussion of the two primary trading environments is provided (pit versus electronic trading). The emphasis is on the distinction between the two methods but the author does not provide the reader with a clear view of which should be preferred and why. The author closes Chapter 6 with a discussion of settlement

1. This view is of course in contrast to the alternative view that ‘command and control’ public policy regarding commodities is to be favored.

and delivery practices along with the regulatory environment. Again, it would be useful in a future edition of the book if the author helped the reader understand which systems and regulations might be preferred. Chapter 7 takes up the important topic for agricultural commodities of the warehouse receipt system and provides an overview of how commodities are stored. The treatment of storage is at an introductory descriptive level and does not touch on the storage problem from the perspective of the user of storage. The author rounds out Chapter 7 with a review of the quality standards of deliverables and insurance. Chapter 8 expands on exchange organization with a discussion of the principal players in commodity futures markets and the general objectives of each (for example hedgers versus speculators).²

Part III of the book returns to a discussion of the distinction between a spot market and a futures market and the topics of settlement and delivery (Chapter 9). The discussion is at a high level as what can be delivered against a futures contract depends upon both the exchange as well as the commodity and the fact that futures contracts are standardized. This contrasts to a forward or swap contract that may be characterized by specific non-standard details. Chapter 10 provides an introductory discussion of futures versus forwards for several example cases, as well as margin. The chapter concludes with a short presentation of the cost-of-carry model of the relation between spot and futures prices (albeit without discussion of the concept of the convenience yield). Chapter 11 presents the basics of the theory behind the pricing of options on futures contracts. Chapter 12 shifts our focus to sources of funding for the agricultural sector and provides a discussion of both public (government sponsored) and private funding. An introductory discussion of the development of the market for ‘climate’ and ‘green’ finance is provided.³

Part IV begins with a review of central clearing and the role of margin. After laying out the basic function of a central clearinghouse, the author presents case examples of the organization and operation of central clearinghouses from across the globe. Intermixed with the discussion are synopses of the risks faced by central clearinghouses and examples of how different exchanges have attempted to mitigate those risks. Chapter 13 ends with a compilation of risk management and operational best practices advocated by the International Swaps and Derivatives Association. The author points out that best practices call for risk-management decisions of the clearinghouse (central counterparty) to be based on “the risk profile of a given derivative product.” (p. 231). Chapter 14 lays out a set of principles for the organization and structure of a financial market and goes on to continue the discussion of risk management practices. The primary risks faced and a framework for organizing and operating the risk management function are outlined along with examples. One issue that typically arises in any discussion of a risk management program is the clear delineation of the objective you are shooting for, how to measure success and whether the benefits of a particular arrangement exceed the costs. The author touches this issue indirectly. Chapter 15 extends the discussion to best practices regarding the regulation of commodity exchanges and clearing houses and presents numerous examples of practices from across the globe. The final chapter of the book is a condensed summary of the author’s views on the optimal organization and operation of a commodities exchange and clearinghouse, including the optimal regulatory environment. The emphasis throughout the book is on organized derivatives exchanges with a much smaller focus on the spot market.⁴

Summarizing, the author provides us with an overview of the organization and operation of modern commodity exchanges with attention to not only energy markets but also their brethren,

2. An excellent, albeit now dated, discussion of an important class of traders in commodities markets not discussed in the book, private commodities traders, is the treatise by Pirrong (2014).

3. I direct the reader to the recent research publication by Giglio, Kelly and Stroebe (2021) for an in-depth review of ‘climate’ finance.

4. Refer again to Pirrong (2014)

agricultural and metals markets. The reader who seeks a deeper dive into several of the topics emphasized in the book is directed to McDonald (2013) and Hull (2018).

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Electricity Capacity Markets, by Todd S. Aagaard and Andrew N. Kleit (Cambridge University Press, 2022). 300 pages, ISBN: 978-1108489652 hardcover, 9781108747424 paperback, ISBN: 9781108809832 ebook.

Capacity markets—the markets in which the readiness of power plants, storage facilities, etc., to deliver electricity is traded with the goal of ensuring resource adequacy—have been the object of controversy in the US. Given the administrative character of these markets, their optimal design is non-trivial, resulting in frequent changes of the market rules. Because these markets also create substantial revenue, changes have the potential to significantly affect the energy mix. And there have been concerns that both the underlying design and some of the recent reforms of capacity markets create a major obstacle for low-carbon technologies, thus hampering climate goals.

In the light of these conflicts, understanding capacity markets—whether you like them or not—is necessary for staying abreast of energy sector developments. Currently, however, relevant debates tend to be confined to a narrow group of energy experts. A likely reason for these debates failing to reach a broader audience is their complexity. Capacity markets rarely find a comprehensive treatment: existing materials either cover their individual aspects of the markets (e.g., regulatory proceedings, materials circulated by market operators or economics papers) or discuss general principles of the markets (e.g., chapters in energy economics textbooks). The subject matter is technical and convoluted and a blizzard of abbreviations and jargon terms make the discussions even less comprehensible. That creates a potentially prohibitively high fixed cost for joining the debates around capacity markets.

This is where Aagaard and Kleit come to the rescue. Their book gently introduces readers to US capacity markets, guiding them step by step through the various aspects. Topics such as institutional setup, market design elements implemented in the markets’ twenty years of history, and the arguments for implementing the markets in the first place are covered in a comprehensive yet accessible way. The book combines factual descriptions of the capacity markets’ history and design details with the (rather skeptical) evaluation of the markets’ role and functioning. It can be read sequentially, chapter by chapter, or used as a resource for individual topics. It requires no prior familiarity with energy markets, even though such knowledge is helpful.

Capacity markets can be designed in various ways: in the US alone, four wholesale trading regions rely on capacity markets, each of them with many unique design features. Consequently,

the authors face the challenge of choosing a geographic focus for their book. As their focal point, they select the biggest capacity market: the Reliability Pricing Model, operated in the PJM trading region. However, they also provide information related to ISO New England and the New York ISO. They also devote some attention to ERCOT, the Texas wholesale region, which uses an energy-only market design that is frequently considered an alternative to the capacity market design. The authors argue that its setup is more rooted in economics and, thus, has the potential to be superior.

After two introductory chapters, chapter 3 describes an institutional setting in which the markets operate. It sketches out the emergence of restructured wholesale electricity markets in the US, introduces the market operators as well as the oversight authorities, and explains market governance. Chapters 4 and 5 discuss why deregulated electricity markets may result in inadequate generation capacity, i.e., too little capacity being built and kept ready, leading to reliability problems. They also review potential solutions. These include the creation of new policy markets, i.e., markets whose sole aim is to achieve a policy goal of electricity market reliability. Capacity markets are an example of such policy markets.

Chapter 6 builds on the information about the institutional setting to present the early history of capacity markets. It is particularly helpful for energy market practitioners, as it combines many interesting details about the first implementations of capacity markets that are hard to find elsewhere. Chapter 7 gives an overview of current capacity markets and, in conjunction with the preceding chapter, helps explain why the design of capacity markets may seem erratic and deviate from first-best design principles. Initially, capacity markets were set up to assist vertically-integrated utilities cover their capacity deficiencies. With very small amounts of capacity traded (of which a vanishingly small amount was non-dispatchable) and the narrow aim, there was no need for in-depth thinking on how capacity markets could ensure resource adequacy. Thus, a basic market design was sufficient. While the markets expanded over time, their deficiencies such as extreme price volatility, market power abuses, and inability to appropriately account for resources' contribution to resource adequacy became clear. These were met with a series of incremental adjustments to individual market design elements instead of a major overhaul of the market rules, resulting in many of the current complexities and inefficiencies.

The fact that capacity markets are constructed to achieve policy objectives implies that their design is not market-driven but rather set administratively; the fact best known due to the controversies surrounding the regulatory process of setting the capacity demand curve. Chapters 8-12 review the design choices made for individual aspects of the market, discussing in depth the associated trade-offs. The authors explain capacity demand curves (Chapter 8), capacity products traded and capacity measurement (Chapter 9), capacity market auctions (Chapter 10), and market power mitigation mechanisms (Chapter 11). They also describe and critically evaluate the controversial Minimum Offer Price Rules (MOPR) (Chapter 12). These rules put limits on how resources that receive subsidies from states can participate in capacity markets. Such rules effectively precluded such resources from receiving capacity payments and decreased their competitiveness. This was problematic because in many northeastern states, subsidies to low-carbon resources are the instrument of choice for achieving climate goals. Therefore, MOPR was in a direct conflict with state policies and threatened to undermine carbon reduction efforts. Despite MOPR policies being largely withdrawn, they became the symbol of tension between capacity markets and climate policies.

Chapter 13 focuses on the alternative of ERCOT's energy-only market design, which is widely viewed as the most important alternative to capacity markets. Here, the authors address two contentious questions that inevitably appear when thinking about ERCOT and capacity markets: Which approach to ensuring resource adequacy is superior and could a capacity markets design in Texas have prevented the dramatic February 2021 outages. While they do not provide definitive answers, the authors seem to lean towards the energy-only design. However, they also argue that energy-only markets are plagued by political manipulations similar to those in capacity markets and thus cannot be viewed as a panacea.

Finally, Chapter 14 synthesizes the past two decades of experience with capacity markets and their increased usage, emphasizing the still unsettled question of their justification. They also warn that lack of understanding of capacity markets means that despite the markets' growing significance, the developments around them go largely unchecked. This is one more reason for the journal's readers to familiarize themselves with capacity markets.

While the book claims to examine economics, law, and politics, the authors focus on the economic intuition behind the markets and their regulatory history, with lots of observations being made through an institutional lens. Legal aspects are mostly ignored along with the associated political aspects. The latter is particularly surprising as capacity markets created tensions between market operators and states, especially due to the markets' conflict with states' climate policies. For instance, after introduction of the MOPR, New Jersey, Maryland, and some other states considered directing their utilities to opt out of capacity mechanisms. The inclusion of such political developments would have benefited the reader by illustrating a more comprehensive picture of the tradeoffs inherent in capacity market design and regulations.

The treatment of economics issues is somewhat superficial and geared towards a less technical audience. The authors excel at sketching out the broad economic arguments underpinning both the markets as a whole as well as individual design elements. However, a reader interested in the economics of capacity markets will feel unsatisfied. There is little discussion of what optimal market design would entail, for instance in terms of the capacity demand curve. Many nuanced economic aspects are also simplified or ignored. Consequently, important aspects such as expectation formation for new investments in capacity and incentives to meet capacity obligations are missing. The authors also cite very few refereed studies, even though many relevant ones have been published in recent years (see for instance Schwenen 2015, Mays et al. 2019, Ambec and Crampes 2019, Fraunholz 2021, Bialek and Ünel 2022), making it hard for the interested reader to learn where the current edge of research is.

This book is very timely. It is also much needed, given the vacuum of resources around capacity markets. In general, the book is highly readable and a useful resource. I highly recommend it for capacity market practitioners and economists who want to learn more about the implementation of the markets.

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