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"Professor Scopino artfully examines the intersection of three important areas in law and finance: derivatives, regulation, and technology. Advances in artificial intelligence and automation have created new challenges for practitioners and regulators, and Scopino, with his broad experience, brings a rare combination of skills to describe and assess them. He's also a clear, engaging, conversational writer. This book provides detailed background on the markets and rules, and assesses a wide range of misconduct, including spoofing and disruptive trading, flash crashes, market manipulation, and fraud; it also assesses and proposes regulatory changes responsive to technology changes. This a comprehensive and definitive, yet accessible, book."

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ALGO BOTS AND THE LAW

The trillion-dollar markets for futures, swaps, commodity options, and related derivatives are extremely important to the global economy because, among other things, they influence the prices that people pay for everything from heating oil and bread to the interest rates connected to mortgages and student loans. Due to technological advances in automation and artificial intelligence, these markets have recently undergone a dramatic transformation away from human-centered trading and operations to control by high-speed automated systems. In this work, Gregory Scopino explains how such changes present challenges to the oversight of these markets and discusses potential ways for authorities to address issues presented by computerized trading and related systems. This book should be read by anyone interested in learning how artificial intelligence is used in the financial markets and how those markets are – and should be – regulated.

GREGORY SCOPINO is an adjunct professor of law at Georgetown University Law Center and the author of several academic articles about algorithmic trading. A former attorney with two private New York City law firms, he has more than a decade of experience as a US financial regulator in Washington, DC. His research and teaching interests focus on legal and regulatory policy related to the financial markets and artificial intelligence.

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TECHNOLOGY, AUTOMATION, AND THE REGULATION OF FUTURES AND OTHER DERIVATIVES

GREGORY SCOPINO
Georgetown University Law Center

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Preface

They say that every journey begins with a single step. The journey that led to this book began with Anne Lukingbeal, the former Dean of Students at Cornell Law School, encouraging me to pursue legal scholarship and teaching. At her suggestion, I developed a course about the US laws and regulations of financial derivatives. I cotaught the course at Cornell for four years with the help of a colleague, Gary Barnett, who was then Director of the Division of Swap Dealer and Intermediary Oversight (DSIO) at the US Commodity Futures Trading Commission (CFTC), where I was (and am) a Special Counsel. After having spent time researching materials for the course, I realized that I had gathered information and ideas that could serve as the basis for academic legal articles. I then wrote six articles that were published in law journals affiliated with law schools at Columbia University, the University of Connecticut, and elsewhere. Those articles, which primarily (although not exclusively) examined how algorithmic trading and other technological advances were presenting challenges for the existing regulatory framework for the markets for derivatives, along with materials developed for a course I began teaching in 2017, served as the underlying foundation for this book. Much of this book describes and examines the US laws and regulations that govern futures and other derivatives, with an emphasis on how the existing legal and regulatory structure applies – or does not apply – to the automated technologies that are changing these markets. While this book does not have a single, overarching thesis, I go beyond simply restating existing legal and regulatory concepts and interject myself into the debate about these topics in several areas. For example, in Chapter 10, I discuss how I believe that, consistent with time-tested approaches to financial market oversight, Congress likely will need to expand the regulatory perimeter to cover persons and firms who develop software programs and automated systems for certain categories of derivatives market participants lest regulatory gaps arise. Additionally, in Chapter 16, I suggest that one effective way to deal with fighting market abuse by algorithms would be to use existing supervisory requirements for financial market intermediaries – judged under a reasonableness, or negligence, standard – to penalize firms that

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do not adequately supervise their automated systems and algorithms. Likewise, in Chapter 17, I cover flash events – that is, rapid, extreme price movements – "flash crashes" – in futures contracts and other financial instruments. With this topic, I connect a proposal to establish a financial market disruption fund to calls for universal insurance for robots and distributed artificial intelligences. I show that the proposed market disruption fund to address flash crashes is analogous to regulatory efforts elsewhere to create insurance-style solutions to address the harms caused by fast-moving, complex, automated computer-controlled systems.

This book would never have come into existence without the help of a great many people. Accordingly, I must thank them. First and foremost is my wife, Aušra, whose patience helped make this book possible. Next, I thank Chris Brummer, who assisted in bringing me over from Cornell Law School to Georgetown University Law Center (GULC) as an adjunct professor of law starting in 2017 and whose enthusiasm for my efforts never fails to lift my spirits. Although I greatly miss my regular visits to Ithaca, NY, where Cornell is located, GULC's campus in DC is a short drive, as opposed to a plane ride, from my home and work. I benefitted from the fact that I had a terrific group of people at Cornell, led by Jeff Rachlinski, who encouraged my research, writing, and teaching, and I cannot thank them enough. They included Bob Hillman, Valerie Hans, Michael Dorf, Chuck Whitehead, Odette Lineau, Josh Chafetz, Zachary Clopton (who is now at Northwestern), and Dean Eduardo M. Peñalver. Last, but not least, I want to thank Andrew Verstein (UCLA Law), Yesha Yadav (Vanderbilt Law), Frank Partnoy (Berkeley Law), James Kwak (UConn Law), Ramsi Woodcock (University of Kentucky College of Law) and Tom C.W. Lin (Temple Law). They have been extremely generous with their time, talking with me whenever I needed advice or counsel. In the event that I have forgotten to thank someone, I apologize. I was aided by the efforts of many remarkably capable people; all errors in this book are my own.

Additionally, I am required to state that the research presented in this book was authored by a CFTC employee writing in his personal capacity and not writing in his official capacity as a CFTC employee. The analyses and conclusions expressed in this book are those of the author and do not reflect the views of other members of the DSIO, other CFTC staff, the CFTC itself, or the United States.

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