Preface to the first edition

This first edition of *Financial Regulation and Technology* concentrates on recurring issues in financial services law and regulation relevant to the use of technology. I am a financial regulation lawyer who has been tackling technology issues for more than 20 years. My first practitioner-focused article, produced in 2001 whilst working as an associate at Allen & Overy, involved collaborating with IBM engineers and UK financial regulators to examine prosecuting fraud over the Internet. I have since contributed a wide range of financial regulation and technology articles, published by Butterworths, Kluwer Law International, Oxford University Press and the Royal Society, as well as a chapter on commercial contracts and machine learning in another Edward Elgar book entitled *Artificial Intelligence and Law*.

My motivation for writing this guide was the lack of any source providing a comprehensive survey of cutting-edge technologies from the angle of financial regulation. This guide provides an initial one-stop reference source for both legal counsel and compliance officers. Every topic in this guide requires substantial effort to digest, because each involves understanding the relevant financial services law, regulatory guidance and the fundamental aspects of technology. Unsurprisingly, one topic can have several connections to another topic, which can be challenging even for experienced practitioners. My insights derive from completing legal and compliance tasks inside a number of leading asset managers and investment banks. Additionally, I have also advised consumer credit businesses, hedge funds, private equity managers and trading platforms. Legal and compliance professionals analysing these key technology topics within or instructed by any of these regulated firms can gain from reading and referring to it.

For all readers cooperating with or overseeing legal and compliance functions, its contents will also be illuminating, saving many hours of research and analysis. This wider readership includes business strategy directors, entrepreneurs, innovators seeking to protect intellectual property, public service officials, all relevant senior management functions, risk specialists and software engineers. In sum, it is written to benefit experienced legal and compliance practitioners, as well as anyone seeking to expand their knowledge on technology-driven opportunities and risks.

To keep pace with financial regulation requires continuously checking detailed rules, applying the precise rules then re-checking for any subsequent changes. Further, contract clauses need to be regularly updated to reflect changes in both rules and emerging technology. The frequency and size of regulator fines make neglecting these processes an irrational diseconomy to not only the balance sheet, but also the long-term reputation of any asset manager, investment bank, platform or FinTech SME. To spot existing issues and pre-emptively adjust for imminent changes to law and regulation are complex tasks. This guidebook attempts to provide an initial grounding in the main themes. The specific substance includes algorithmic trading, cloud computing, crypto assets, cyber security, databases, data engineering, data protection, machine learning, payment services, quantum computing and trading platforms.

Once the Introductory and Accountability chapters are digested, anyone reading subsequent individual topics should gain a better understanding of how English law and EU regulation treat key technology topics. Many UK financial services transactions are governed by transposed EU directives and regulations, or UK equivalent versions have been implemented. Therefore, EU law also forms a significant part of the analytical framework. Further, when helpful, comparisons are made between the UK and other individual technologically innovative jurisdictions, such as China, Hong Kong, Singapore, Sweden and the US.

From a form and style viewpoint, nearly all statute and case law citations are confined to the footnotes. Thus any chapter can be fluidly read. An initial perusal of each chapter does not get slowed down because of long titles to multifarious legislation and case law names. Each chapter assumes no advanced knowledge of computers and related technology topics, and, where necessary, encapsulates the essential aspects. Any reader should come away with an understanding of the key case law, regulation, author-

itative financial services regulator guidance and international standards governing these specific themes.

Given even the most formidable legal memories can be forced to pause for thought to make an impromptu application of all the salient aspects of what can often be complex topics, this guide also attempts to make memorable the essential features of each topic by including diagrams, graphs and also a few simple text formulae to highlight the fundamental elements. As the pioneering Dutch software engineer, Edsger Dijkstra, once said ‘a picture may be worth a thousand words, a formula is worth a thousand pictures’.¹

Finally, I would like to acknowledge my gratitude to the editorial team at Edward Elgar who made this all happen.

The law is stated as of 4 January 2022.

Iain Sheridan
London, UK

¹ Krzysztof, R, and Hoare, T (2021) Edsger W. Dijkstra: a Commemoration, at 5. See www.cs.utexas.edu/users/EWD/commemoration/EWD-commemoration-2021.pdf.