Edited by Carol Alexander and Douglas Cumming

CORRUPTION AND FRAUD IN FINANCIAL MARKETS

MALPRACTICE, MISCONDUCT AND MANIPULATION

WILEY

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Malpractice, Misconduct and Manipulation

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Douglas Cumming

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Carol Alexander is Professor of Finance at the University of Sussex and Co-Editor of the *Journal of Banking and Finance*. Carol has been back at Sussex (her alma mater) since 2012. She was appointed the John von Neumann Chair at TU Munich for the year 2018 and in January 2019 she became visiting professor at the Oxford campus of Peking University Business School.

Prior academic appointments were as Chair of Financial Risk Management at the ICMA Centre in the Henley Business School at Reading (1999–2012) and lecturer in Mathematics and Economics at the University of Sussex (1985–1998). She holds degrees from the University of Sussex (BSc First Class, Mathematics with Experimental Psychology; PhD Algebraic Number Theory) and the London School of Economics (MSc Econometrics and Mathematical Economics). She also has an Honorary Professorship at the Academy of Economic Studies in Bucharest, Romania.

Carol has also held several positions in financial institutions: Fixed Income Trader at UBS/Phillips and Drew (UK); Academic Director of Algorithmics (Canada); Director of Nikko Global Holdings and Head of Market Risk Modelling (UK); Risk Research Advisor, SAS (USA). She also acts as an expert witness and consultant in financial modelling. From 2010–2012 Carol was Chair of the Board of PRMIA (Professional Risk Manager's International Association).

She publishes widely on a broad range of topics, including volatility theory, option pricing and hedging, trading volatility, hedging with futures, alternative investments, random orthogonal matrix simulation, game theory and real options. She has written and edited numerous books in mathematics and finance and published extensively in top-ranked international journals. Her four-volume textbook on Market Risk Analysis (Wiley, 2008) is the definitive guide to the subject.

Douglas Cumming

Douglas Cumming, J.D., Ph.D., CFA, is the DeSantis Distinguished Professor of Finance and Entrepreneurship at the College of Business, Florida Atlantic University in Boca Raton, Florida. Douglas is also a Visiting Professor of Finance at Birmingham Business School, University of Birmingham, UK, and the Royal Melbourne Institute of Technology, Australia. Previously, Douglas was a Professor and the Ontario Research Chair at the Schulich School of Business, York University, in Toronto, Canada from 2007–2018. He has held prior visiting appointments at Essex Business School, Kobe University, University of Bergamo, and EMLyon, among others.

Douglas has published over 180 articles in leading refereed academic journals in finance, management, and law and economics, such as the *Academy of Management Journal, Journal of Financial Economics, Review of Financial Studies, Journal of Financial and Quantitative Analysis*, and *Journal of International Business Studies*, and has been cited over 15,000 times according to Google Scholar. He is the Editor-in-Chief of the *British Journal of Management* (2020–2022) and the *Journal of Corporate Finance* (2018–2020). He is the Founding Editor-in-Chief of *Review of Corporate Finance*, and a former Co-Editor of *Finance Research Letters and Entrepreneurship Theory and Practice*.

Douglas has published 18 academic books. His most recent book is *Crowdfunding: Fundamental Cases, Facts, and Insights* (Elsevier Academic Press, 2019) complete with companion materials. He is the coauthor of *Venture Capital and Private Equity Contracting* (Elsevier Academic Press, 2nd Edition, 2013), and Hedge Fund Structure, Regulation and Performance around the World (Oxford University Press, 2013). He is the Editor of the *Oxford Handbook of Entrepreneurial Finance* (2013), the *Oxford Handbook of Private Equity* (2013), the *Oxford Handbook of Venture Capital* (2013), the *Oxford Handbook of Sovereign Wealth Funds* (2018), the *Oxford Handbook of IPOs* (2019), the *Research Handbook of Finance and Sustainability* (2018), and the *Research Handbook of Investing in the Triple Bottom Line* (2019).

Douglas has consulted for various private and governmental organizations in Australia, Canada, China, Europe, and the U.S. on projects ranging from stock market regulation, mutual fund fees, valuation, damages, and venture capital, among others. Douglas is a regular speaker at academic and industry conferences around the world. He has given recent keynote speeches at the British Academy of Management Corporate Governance Conference, Entrepreneurial Finance Association, Financial Research Network Corporate Finance Conference, French Finance Association, Infiniti Conference on International Finance, Vietnam Symposium in Banking and Finance, the Budapest Liquidity and Financial Markets Conference, and the Humbolt University of Berlin Fintech Conference, among numerous others.

Douglas' work has been reviewed in numerous media outlets, including the *Chicago Tribune*, *The Economist*, *The New York Times*, the *Wall Street Journal*, the *Globe and Mail*, *Canadian Business*, the *National Post*, and *The New Yorker*.

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Foreword

This book is intended for finance practitioners, regulators, lawyers, academics, and students in advanced undergraduate and graduate business school programs. Financial market manipulation and fraud covers all aspects of finance. The book includes chapters written by academics in finance, management, and law, as well as by practitioners with experience in trading, surveillance, and regulation. All the chapters are digestible by a wide audience and not written specifically for one type of reader. The timely nature of the material in this book is perhaps exhibited by the fact that one of the chapters had to be removed a few months before going to print due to a gag order associated with ongoing litigation; as such, we made sure to cover the pertinent material in other ways to ensure as timely and comprehensive examination of fraud and manipulation as possible.

At a broad level, the book has two main parts: (1) market manipulation and (2) other types of fraud. Market manipulation refers to a wide array of trading practices on stocks, bonds, derivatives, commodities and currencies (including cryptocurrencies). These practices include price manipulation, volume manipulation and insider trading. Other types of fraud are money laundering, credit card fraud, financial statement fraud, options backdating, breach of contract, self-dealing, financial and intellectual property theft, procurement fraud, regulatory or compliance Breach, Ponzi schemes, and computer-intrusion fraud and hacking.

The coverage is very comprehensive: identifies and defines the full array of manipulative activities; discusses the different markets in which manipulation most commonly occurs; analyses misconduct amongst different types of players such as banks and advisors; deals with detection methods including quantitative techniques and surveillance; and describes regulation and enforcement.

Everyone with an interest in financial markets should be concerned with fraud and market manipulation. Navigating financial markets necessarily involves the assessment of risks, of which fraud and manipulation are the most serious and pronounced. An understanding of the causes and consequences of fraud and manipulation is a necessary step to investing in financial markets, studying the behaviour of players in these markets and designing appropriate surveillance systems and regulatory structures.

The concern with fraud and manipulation is particularly timely as this book goes to print in March 2020 with the COVID-19 pandemic spreading over the world. Panic and hysteria are the fuel of financial market volatility and Wall Street's fear gauge, the VIX, has just hit an all-time high as we write, exceeding the peak of the so-called 'great financial crisis' of 2008-9. The financial bomb of US toxic debt (or, more specifically, its derivatives) that was launched by the collapse of Lehman brothers seems nothing compared with consequences of the market activity at this time.

Since 2008 most central banks have employed quantitative easing, raising cash by issuing government securities and selling them to domestic and foreign investors. The US has about $19 trillion debt of which about $7 trillion is held by foreigners and of that over $2 trillion is held by China and Japan. However, since the US trade wars began in 2019 the demand for US government securities has fallen. China, for instance, built up their gold bullion reserves by 6% during 2019. So, in September 2019 the Federal Reserve re-introduced repurchase (repo) operations for the first time since the 'great financial crisis'. That is, they buy their own securities from banks, hedge-funds and this way, they inject liquidity to financial markets for a limited period. At the time of writing, in March 2020, the Federal Reserve have cut benchmark rates and announced an unprecedented level and duration of repo operations that are worth trillions of US dollars. But still, as we write this forward and the book goes to press, the seventh circuit-breaker this month has been applied to attempt to limit the losses on the New York Stock Exchange.

As funds flow out of equities one would expect demand for safe havens like gold and bitcoin to increase. But gold and bitcoin have fallen at the same time. Manipulating the price of gold downwards by dumping huge naked shorts on COMEX gold futures has been documented for years yet, despite the Market Abuse Directive (which is described in Chapter 10) it still continues. With high-frequency trading algorithms now the norm, manipulation techniques are becoming even more advanced. For instance, on Friday 13 March 2020 a distributed denial of service attack, very similar to the Kraken attack documented in Chapter 8 during 2017, occurred on the BitMEX cryptocurrency derivatives exchange. Indeed bitcoin, originally termed 'digital gold' because of its safe-haven properties, has fallen well over 50% on the openly manipulative spoofing trades that are explained in many chapters in this book. The layering, spoof and pinging techniques described Chapter 7, on foreign exchange markets, could also be associated with the astonishing rise in the US dollar. This seems counter-intuitive because the US economy is struggling to cope with the impact of COVID-19 just as China appears to have recovered from the virus.

We encourage you to explore in detail each one of the chapters in this book. We hope this book will help improve the state of knowledge amongst investors, lawyers, regulators, students and academics alike. In turn, we hope that improved an understanding facilitates better due diligence amongst investors and better surveillance to mitigate the frequency and severity fraud and market manipulation. And we hope the material will inspire more in-depth analyses of fraud and market manipulation in the future.

Acknowledgements

We are foremost indebted to the authors of each of the chapters of this book. The authors are, alphabetically, Michael Aitken, Anita Anand, Sam Baker, Christina Bannier, Jonathan Batten, Gennaro Bernile, Mary Condon, Ryan Davies, Ai Deng, Alexander de Roode, Steve Dimmock, Arman Eshraghi, Corinna Ewelt-Knauer, Joseph Farrizo, Michael Firth, Priyank Gandhi, Will Gerken, Jens Hagendorff, Shan Ji, Jonathan Karpoff, Ann Leduc, Johannes Lips, Chelsea Liu, Igor Lončarski, Andrew Mann, Joe McCahery, Duc Duy Nguyen, Stefano Paleari, Tālis Putniņš, Oliver Rui, Alexis Stenfors, Johan Sulaeman, Andrea Signori, Peter Szilagyi, David Twomey, Silvio Vismara, Peter Winker, Wenfeng Wu, and Alfred Yawson. These authors are all world-leading experts on the subject matter covered in their chapters. It was a privilege working with them and having the opportunity to integrate their timely analyses into this book.

Carol Alexander would like to thank the University of Sussex Business School, and her colleagues in the Department of Accounting in Finance in particular, for such a friendly and supportive workplace. Douglas Cumming wishes to thank Sofia Johan for helpful comments on some of the work prepared here. Douglas Cumming is grateful to the Florida Atlantic University College of Business, and Dean Dan Gropper in particular, for offering a professional work environment consistent with the best practices in university administration.

Carol Alexander and Douglas Cumming, March 2020.

Chapter 1
Introduction

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This book covers two general areas of financial market misconduct:

1. Market manipulation in the course of financial trading on stock exchanges (hereafter referred to as "market manipulation" in this chapter), and
2. Financial fraud, or non-trading related fraud (hereafter referred to as "financial fraud" in this chapter).

The CFA Institute (2014) survey of its members shows that most practitioners believe that market manipulation and financial fraud are among the most important issues facing financial markets around the world. Indeed, market manipulation and both types of financial fraud are commonplace. For instance, Cumming, Dannhauser and Johan (2015) report that roughly 1.9%, 4.5%, and 5.1% of NYSE, NASDAQ, and pink sheet companies, respectively, face enforcement actions from the Securities and Exchange Commission (SEC) each year. Similarly, detected fraud cases affect approximately 3.8% of listed companies in China each year. But detected fraud is just the tip of the iceberg, so to speak, and Dyck, Morse and Zingales (2010, 2014) estimated that up to 14% of all US firms have engaged in fraud.

Enforcement varies significantly across countries. In fact, there are enormous differences in enforcement rates in Europe, despite countries having similar market misconduct rules (Cumming, Groh, and Johan, 2018). And there is scant enforcement in some emerging markets such as Brazil, which had its first ever reported insider trading case in 2011. Even in Germany, the (now defunct) Neur Markt, a small-company growth market, reported only four cases of fraud (Cumming et al., 2015).

The consequences of fraud are extremely severe to managers and shareholders alike. Karpoff et al. (2008a) shows that fraud costs firms 20–38% of a firm's long-term stock market value. Karpoff et al. (2008b) show significant negative career consequences to managers that engage in market manipulation and financial fraud: 93% lose their jobs, and 28% face criminal prosecution, serving an average of 4.3 years of jail time.

This book offers a unifying look at the different types of market manipulation and financial fraud. The chapters in this book:

- Explain the various types of market manipulation and financial fraud;
- Describe the factors that mitigate or exacerbate their occurrence;
- Discuss their consequences in terms of penalties and/or financial market impact;
- Provide evidence for the presence of fraud in specific markets, such as cryptocurrencies, LIBOR and foreign exchange;
- Summarize the lessons to be learned about detection and enforcement of market manipulation and financial fraud.

The book is organized into five sections. Part I provides a general overview, where different types of market misconduct and financial fraud are defined, and the market and reputational penalties are explained. Part I comprises 5 chapters (Chapters 2–6) from leading authors around the world. The scope of the chapters is explained in Table 1.1, Panels A (for market manipulation) and B (for financial fraud). Chapter 2 by Tālis J. Putniņš provides a comprehensive overview of the different types of market manipulation. Chapter 3 by Ai Deng and Priyank Ghandi includes additional information on market manipulation and extends the discussion to financial fraud. Chapter 4 by Chelsea Liu and Alfred Yawson offers a comprehensive review of the market and reputational penalties associated with market manipulation and financial fraud. Chapter 5 by Jonathan Batten, Igor Lončarski and Peter Szilagyi provides detailed explanations of various issues in price manipulation and insider trading and describes detected cases of such misconduct. Chapter 6 by Jonathan Karpoff offers critical insights into the consequences of financial fraud based on findings from precisely compiled large-sample evidence.

Part II provides analyses of specific contexts and markets. Chapter 7 by Alexis Stenfors provides insights into the foreign exchange market based on his first-hand practical experience as well as his research on topic. Chapter 8 by David Twomey and Andrew Mann examines the cryptocurrency market. Chapter 9 by Ryan Davies offers a detailed look at the context of closing prices, which are frequently the subject of manipulation, since closing prices are used in determining various other things in financial market, such as executive compensation, whether options trade in or out of the money, and M&A prices and terms. Chapter 10 by Sam Baker provides insights into market manipulation and financial fraud cases from the experience and perspective of a financial market trader who has dealing with regulations on a daily basis for many years.

Part III considers different financial market players that engage in market manipulation and financial fraud. Chapter 11 by Duc Duy Nguyen, Jens Hagendorff and Arman Eshraghi analyses fraud among banks. Chapter 12 by Steven Dimmock, Joseph Farizo, and William Gerken examines fraud by investment advisors. Chapter 13 by Johan Sulaeman and Gennaro Bernile discusses how options backdating is a form of fraud. Stefano Paleari, Andrea Signori and Silvio Vismara provide an empirical analysis of misconduct in the context of pricing Initial Public Offerings, in Chapter 14. And in Chapter 15, Joseph McCahery and Alexander Roode examine the role of financial fraud through financial outsourcing to third parties and provide comprehensive survey evidence of the extent of the problems.

Part IV covers detection of market manipulation and financial misconduct. Chapter 16 by Mike Aitken, Anne Leduc and Sian Ji describes computer surveillance and technologies for detecting manipulation, and the computer software that is used by exchanges and their regulators. Chapter 17 by Ai Deng and Priyank Ghandi explains econometric and statistical tools to detect financial fraud. Chapter 18 by Professors Bannier, Ewelt-Knauer, Lips, and Winker provides an empirical review of Benford's Law and its application to detecting financial misconduct, with an illustration using data pertaining to the LIBOR scandal.

Part V provides an overview of financial market regulation relating to manipulation and fraud. Chapter 19 by Anita Indira Anand explains that empirical evidence around the world is consistent with the view that financial market regulation improves market efficiency and integrity and provides an in-depth analysis of regulation and enforcement issues in Canada and the UK. Chapter 20 by Mary Condon reviews issues surrounding registrant misconduct. Finally, Chapter 21 by Michael Firth, Oliver Rui and Wenfeng Wu provides empirical evidence supporting differential rates of enforcement depending on potential institutional biases, such as a "home court" advantage.

The coverage of each area of market manipulation and financial fraud in this book is summarized in Table 1.1. The range of topics is not completely exhaustive in this book. In some cases topics were excluded because authors faced confidentiality restrictions that precluded their publication. Nevertheless, we hope the broad range of materials in this book better informs and guides financial market participants, regulators, students, and academics alike. Individual cases of misconduct and outright fraud are reported frequently, whereas price and volume manipulation are so common that their occurrence is not usually conveyed to the general public. However, it is important to inform everyone about these practices, not only those directly participating in financial markets, because prices of final assets have a direct effect on the well-being of the global economy. We are, therefore, extremely indebted to the world leading authors that have contributed herein. We expect their analyses will continue to guide practice and policy for years to come.

Table 1.1 Summary of Coverage in Chapters

This table summarizes the topics in each chapter, and the scope of the chapters in terms of definitions, analyses of causes and/or consequences of fraud and misconduct, and case analyses or data. Panel A summarizes topics in financial market misconduct, Panel B summarizes topics in fraud. The different types of misconduct and fraud in the table are explained in detail in the chapters enumerated here.

Panel A. Topics in Financial Market Misconduct

Chapter	Authors	Topics	Price Manipulation, Reference Price Manipulation, and Benchmark Rigging	Circular Trading (e.g., wash, pool, matched or compensation trades; painting the tape; or warehousing), or Spoofing	Insider Trading, Collusion and Information Sharing	Improper Order Handling and Frontrunning	Misleading Customers	Abuse of Market Power, Corners, or Squeezes	Momentum Ignition, Pump and Dump, or Slur and Dump	Marking the Open (or Close or Set), Pegging or Capping	Layering, Advancing the Bid, Quote Stuffing, “Abusive liquidity detection”, “pinging”, or “phishing”
Section I. General											
2	Putnins	Defining Fraud, Causes, Consequences	×	×	×	×		×	×	×	×
3	Deng and Ghandi	Defining Fraud, Causes, Consequences	×	×	×	×	×				
5	Batten, Lončarski and Szilagyi	Definitions, Case Studies, and Regulations	×								

Section II. Markets											
7	Stenfors	Foreign Exchange Markets	x	x	x	x				x	
8	Twomey and Mann	Cryptocurrency Markets	x	x	x	x	x	x	x	x	x
9	Davies	Closing Prices	x							x	
10	Baker	Regulator's Perspective and Case Studies	x	x	x	x	x	x	x	x	x
Part III. Players											
12	Dimmock, Farizo and Gerken	Investment Advisors. Data: SEC filings, Form ADV filing	x								
13	Sulaeman and Bernile	Causes and Consequences of Options Backdating	x								
14	Paleari, Signori and Vismara	IPO Valuation Bias: Data: Euronext, Germany, and Italy, from the EurIPO Database	x								
15	McCahery and Roode	Third Party Financial Outsourcing; Authors' Survey Data	x					x			

(continued)

Section II. Markets											
7	Stenfors	Foreign Exchange Markets	x	x	x	x				x	
8	Twomey and Mann	Cryptocurrency Markets	x	x	x	x	x	x	x	x	x
9	Davies	Closing Prices	x							x	
10	Baker	Regulator's Perspective and Case Studies	x	x	x	x	x	x	x	x	x
Part III. Players											
12	Dimmock, Farizo and Gerken	Investment Advisors. Data: SEC filings, Form ADV filing	x								
13	Sulaeman and Bernile	Causes and Consequences of Options Backdating	x								
14	Paleari, Signori and Vismara	IPO Valuation Bias: Data: Euronext, Germany, and Italy, from the EurIPO Database	x								
15	McCahery and Roode	Third Party Financial Outsourcing; Authors' Survey Data	x					x			

(continued)