Call for Contributions

Big Data in Finance:

Opportunities and Challenges of Financial Digitalization

An edited collection to be published by Palgrave Macmillan

Co-edited by:
Thomas Walker, PhD
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Tyler Schwartz

The John Molson School of Business at Concordia University kindly invites contributions to the forthcoming edited book ***Big Data in Finance – Opportunities and Challenges of Financial Digitalization*** to be published by **Palgrave Macmillan**.

ABOUT THE BOOK

In the financial sector, the term Big Data is associate with the analysis of vast amounts of data to make better informed investment decisions, improve corporate operations, and to enhance decision-making processes on both the buy and supply sides of transactions. Big data analysis frequently draws on artificial intelligence (AI) models and has resulted in a paradigm shift in the operations of financial institutions. Big data and its impact on the financial industry has thus become a highly prominent topic in current research, with many publications, reports, books, and conventions dissecting and comparing different applications and techniques within the domain, and attempting to envision what the movement means for the future of finance.

In the financial industry, AI has been successfully employed in such areas as automated lending, portfolio construction and management (robo-advising), risk management, fraud detection, quantitative and high frequency trading, and customer support, among others. As the complexity of algorithms increases due to deep learning and other technological advancements, the role of AI in finance is certain to increase as well, making the field a rapidly developing frontier in the financial technology (FinTech)/banking nexus and opening room not only for profound opportunities but also substantial risks.

Big data, as a discipline, is what allows AI to develop complex pattern-detecting algorithms. The massive troves of information collected can be anything from customer information for banking, historical prices of stocks for investing, or past fraudulent transactions for fraud detection. The data can be structured (organized, classified data), unstructured (text, social media activity), or semi-structured (incorporating both structured and unstructured elements). Currently, many critical questions dominate the big data space, including how data is collected (consumer privacy and ethical concerns), how it is stored (environmental impacts), how it is secured, and how it is analyzed and used.

Big Data in Finance – Opportunities and Challenges of Financial Digitalization is an edited collection that will explore the unique risks, opportunities, challenges, and societal implications associated with big data developments within the field of finance, both for today and for the future. While a general use of big data has often been the subject of discussion, this book will take a more focused look at big data applications in the financial sector. Additionally, the edited book will not only focus on the positive opportunities of these new developments but will also critically explore and assess the potential risks and

challenges involved in their implementation. These include the ethical and storage issues involved in collecting and storing big data as well as the barriers to implementation in financial institutions. The book will explore the possible policy solutions to these questions and will propose strategies to overcome these barriers.

CALL FOR CONTRIBUTIONS

Big Data in Finance – Opportunities and Challenges of Financial Digitalization aims to explore and present new developments and advancements made in the financial sector as a results of the advancements made in big data.

The editors are accepting contributions by experts in both the **academic** and **practitioner** communities in finance, big data and artificial intelligence, as well as related fields such as economics, computer science, business technology management, supply chain management, policy, sustainability, and entrepreneurship. The editors are inviting contributions that:

- Review and critically analyze new developments at the intersection of big data and finance,
- Explore the theory and mechanisms behind the algorithms using big data, and exploring their use in a finance context,
- Explain and demonstrate the predictive capabilities of big data in finance using different model types, and/or
- Present recent advancements made in deep learning and how they can be leveraged in combination with big data to innovate the financial sector in different aspects.

Moreover, because the use of big data in finance has many implications that go beyond their use in financial institutions, the co-editors will also be accepting chapters that go beyond the fields of artificial intelligence, big data, and finance. These fields will include both policy and sustainability, where contributors from these fields will look at possible policy and sustainability-oriented solutions and implications of the use of big data in finance. In addition, chapters that use case studies or comparative studies (between different solutions, applications in different industries, or variations between regions) are strongly encouraged. The submissions will be reviewed with an open mind and with a particular focus on the relevance of the chapter with respect to big data in finance.

POTENTIAL TOPICS FOR CHAPTERS

1. **FINANCIAL MARKETS**
    a. High frequency trading
    b. Automated (algorithmic) trading
        i. Predictive algorithms
    c. Factor models
    d. Historical analysis
    e. Forecasting
    f. Fixed income
        i. Risk ratings
        ii. Interest rate decisions

   g. Social investing
      i. ESG scores
   h. Portfolio management
      i. Robo-advisors

2. FINANCIAL SERVICES

   a. The application programming interface (API) economy
   b. Online banking
   c. Digital/mobile payments
   d. Digital/mobile lending
      i. Credit scoring
      ii. Mortgage assessment
      iii. Risk management
         1. Background checks
         2. Default and bankruptcy predictions
      iv. Micro finance
   e. Insurance
   f. Digital currencies

3. **OPERATIONAL APPLICATIONS**

   a. Risk management
      i. Fraud detection
      ii. Privacy protection
      iii. Regulatory compliance
      iv. Cybersecurity
      v. Behavioural biometrics
   b. Customers services
      i. Chatbots
      ii. Virtual assistants

4. CHALLENGES AND OPPURTUNITIES

   a. Challenges
      i. Barriers to implementation
      ii. Storage and computational costs
      iii. Environmental impact
      iv. Privacy regulations
      v. Unorganized data
      vi. Personal biases in algorithms
   b. Opportunities
      i. Computation advancements
      ii. Technological innovations
      iii. Financial inclusion

IMPORTANT DATES

- Abstract and CV submission deadline – **September 30th, 2021**
- Selection of abstracts and notification to successful contributors – **October 31st, 2021**
- Full chapter submission – **January 31st, 2022**
- Revised chapter submission – **March 31st, 2022**

GUIDELINES FOR CONTRIBUTORS

Submissions should be written in English using a non-technical writing style. The contributions may include diagrams/illustrations in order to present data, or photographs/figures (all in black & white) to better illustrate the topic of discussion. Submitted chapters should be original and exclusively prepared for the present book. No part of the article should be published elsewhere. Chapters must not exceed 7,000 words (including all references, appendices, biographies, etc.), must use 1.5-line spacing and 12 pt. Times New Roman font, and must use the APA 7th edition reference style.

Researchers and practitioners are invited to submit abstracts of no more than 500 words, a bibliography for their proposed chapter, and a CV. Abstract submissions are expected by September 30th, 2021. Submissions should be sent via email to big.data@concordia.ca.

Authors will be notified about the status of their proposals and will be sent complete chapter guidelines. Full chapters are expected to be submitted by **October 31st, 2021**.

Please note there are no submission or acceptance fees for the manuscripts.

ABOUT THE EDITORS

Thomas Walker[1]

Dr. Walker holds a BSc in Management Information Systems from the Technical University of Darmstadt, Germany, and an MBA and PhD degree in Finance from Washington State University. Prior to his academic career, he worked for several years in the German consulting and industrial sector at such firms as Mercedes Benz, Utility Consultants International, Lahmeyer International, Telenet, and KPMG Peat Marwick. His research interests are in emerging risk management, corporate finance, venture capital, sustainability & climate change, FinTech, corporate governance, securities regulation and litigation, insider trading, and institutional ownership, and he has published over 70 articles, book chapters, and edited books in these areas. He is the lead editor of seven books on sustainable financial systems, sustainable real estate, sustainable aviation, environmental policy, emerging risk management, innovations in social finance, and water risk management. Dr. Walker currently serves as the principal investigator on research grants by the Social Sciences and Humanities Research Council (SSHRC), the Autorité des marchés financiers, and the Global Risk Institute. In 2018, he founded the Emerging Risks Information Center (ERIC, https://emerging-risks.com) which conducts targeted research on environmental, technological, and societal risks that affect our world today. In 2021, he became the inaugural director for the Jacques Menard/BMO Center for Capital Markets Research at Concordia University and the Concordia University Research Chair in Emerging Risk Management (Tier 1).

Fred Davis[2]

Dr. Davis has been a professor at the John Molson School of Business since 2011, having received his PhD shortly prior from Queen's University. Prior to his academic career, he worked for several years in the government sector focusing on economic development for communities. His research interests include mergers and acquisitions, insider trading, and other aspects of corporate finance. He has published in the Journal of Corporate Finance, European Financial Management, the International Review of Financial Analysis, and other high-quality journals.

Tyler Schwartz[3]

Tyler is an MSc candidate at HEC Montreal where he studies Data Science and Business Analytics. He currently serves as a research assistant in the Department of Finance at Concordia University and is the co-author of an edited book collection on climate change adaptation (commissioned by Palgrave-Macmillan, submission date on July 31) and a working paper on social impact bonds (revise/resubmit at World Development). Tyler completed his undergraduate degree at the John Molson School of Business where he received an Honors in Finance. He was also presented with a Concordia University Student Research Assistant (CUSRA) scholarship in 2016, which is awarded to undergraduate students who have an interest in pursuing research activities. His research interests include predictive modelling, bio-statistics, sports analytics, FinTech, cognitive science and machine learning.

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