Introduction

AI at the Intersection of Money and Power

Monika Zalnieriute and Zofia Bednarz

Artificial intelligence (AI) and automated decision-making (ADM) tools promise money and unmatched power to banks and governments alike. As the saying goes, they will know everything about their citizens and customers and will also be able to predict their behaviour, preferences, and opinions. Global consulting firm McKinsey estimates that AI technologies will unlock $1 trillion in additional value for the global banking industry every year.[1] Governments around the world are getting on the AI bandwagon, expecting increased efficiency, reduced costs, and better insights into their populations.

AI, apart from being a fashionable term that many organisations and researchers like using, denotes a set of related techniques and tools, ranging from machine learning, natural language processing, and computer vision to speech recognition and robotics.[2] AI systems, incorporating these tools and techniques, on their own or combined, into hardware and software, have been described as 'systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals'.[3] In this book, we are mostly interested in AI tools, which are a subset of ADM. The ADM technology, including AI, is used to make decisions that affect individuals as citizens or consumers. The degree to which humans are involved in such decisions may vary, but the 'autonomy' of the AI tools should not be overestimated. Ultimately, they are only tools, or means to achieve certain goals, which are set by humans.

[1] McKinsey & Company, 'Building the AI Bank of the Future' (Global Banking Practice Report, May 2021) 5 <www.mckinsey.com/industries/financial-services/our-insights/building-the-ai-bank-of-the-future> accessed 29 April 2022.

[2] Michael Guihot and Lyria Bennett Moses, *Artificial Intelligence, Robots and the Law* (LexisNexis, 2020) 19.

[3] European Commission High-Level Expert Group on Artificial Intelligence, 'A Definition of AI: Main Capabilities and Disciplines' (8 April 2019) <https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=56341> 1. Note, however, the Expert Group's disclaimer that its description and definition of AI 'is a very crude oversimplification of the state of the art'.

Many of the ADM and AI tools, which governments are eagerly applying today, have been developed and experimented with for decades in the private sector. Technology tools, along with the broader managerial culture, are often transferred from corporations to government departments. Governments also often fund the initial development of these tools, which are later commercialised by corporations. These interactions are often shielded from public eye with the help of legal rules and market practices, which prevent us from knowing how the latest technology is used by the industry and what new tools are being developed, let alone how to regulate their use. For example, China's Social Credit System has roots in automated credit scoring in the financial industry. Similarly, data-enabled fraud detection, used in the Australian 'Robo-debt' system, has long been a common practice in the banking industry. However, governments are not just the copycats in this relationship; they typically fund for the development of such ADM technologies, which are often shielded with trade secrecy laws.

This book explores the use of AI and ADM tools in the financial industry and public administration. Designing and applying AI and ADM tools in a close and mutually reinforcing relationship between the financial industry and governments – or what we call *Automated Banks* and *Automated States* – pose new threats to the accountability of public institutions and the regulation of financial industry alike. We understand *Automated Banks* as financial institutions investing in, and using, new technologies for increased efficiency and profits. Public administration, established to serve communities, closely follows the 'banks', adopting similar procedures, aims, and technology, resulting in *Automated States*. With an increasingly blurred line between public and private authority, this book aims at identifying new safeguards to ensure the rule of law, the protection of fundamental rights, and corporate and state accountability in the age of AI.

Financial industry, which has always been concerned with collecting data and analysing the information to be able to predict the future as accurately as possible, thus maximising their wealth (what we refer to as 'money'), has traditionally been regarded as private actors, as opposed to public governments. But the power that financial industry has over people in most societies can be compared to that of governments. Governments and financial industry have always been collaborating closely, engaging in a mutually reinforcing causal relationship, exchanging information and managerial culture, and participating in policy-making. That relationship is now evidenced in development and deployment of the AI and ADM technologies, which is at the core of this book.

The aim of this book is to encourage a dialogue between 'public' and 'private' legal scholars on accountability, better regulation, new safeguards, and scrutiny of AI applications in the financial industry and public administration. Drawing on socio-legal and critical studies, the book provides a platform for discussion of the use of AI and ADM tools by financial industry and government agencies and, importantly, their close interaction in this space. With its conceptual focus, not being tied to a

specific jurisdiction, and diverse authors from Australia, Asia, the United States, and Europe, the book will appeal to wide audiences in research, policy and regulatory spheres, as well as general readers interested in knowing the new dynamics of power and wealth enabled by AI.

The book is organised into three main parts.

Titled *Automated Banks*, Part I examines how AI and ADM are used in the financial industry. The four chapters in Part I analyse the benefits, challenges, and opacity brought about by the use of AI and ADM tools, exploring how legal systems and market practices in financial industry often prevent effective control, scrutiny, and accountability of *Automated Banks*. In Chapter 1, Associate Professor Teresa Rodríguez de las Heras Ballell sets the scene for the discussion of AI in financial sector, discussing the trends in AI regulation using the example of the most recent developments in the European Union. The author argues that increasingly extensive automation of the financial industry flourishes under technology-neutral regulation. At the same time, the application of existing rules may not always lead to desired outcomes such as prevention of misconduct and resulting harms. Professor Jeannie Paterson, Professor Tim Miller, and Henrietta Lyons then analyse in Chapter 2 the notion of 'fintech innovation'. The authors demystify the kinds of capacities that are possible through the fintech technologies being offered to consumers, exploring the methods deployed by fintech solutions and interests behind them, in particular challenging a popular assumption that fintech innovation is of great benefit to marginalised communities with lower socio-economic backgrounds. Dr Doron Goldbarsht's analysis in Chapter 3 shows how legal rules aimed at preventing wrongdoing in the financial system and the use of AI tools by inter-governmental bodies fighting money laundering and terrorism financing vest the industry with unprecedented power. The author sheds light on the benefits and challenges of adopting AI to mitigate risks of financial crimes. Part I ends with Chapter 4 which analyses how the opacity surrounding the use of AI and ADM tools by financial entities is enabled, and even encouraged by the law. The co-editor of the book, Dr Zofia Bednarz, and Associate Professor Linda Przhedetsky unpack how financial entities often rely on rules and market practices protecting corporate secrecy, as well as those incentivising the use of AI and ADM tools, showing how the legal systems allow the technology to become a shield behind which corporations can hide their consumer scoring and rating practices. The authors then explore potential regulatory solutions that could break the opacity and ensure transparency, introducing direct accountability and scrutiny of ADM and AI tools, and reducing the control of financial corporations over people's data. Together, the chapters in Part I reveal the trends in the use of ADM and AI by the *Automated Banks*, how they are intertwined with the legal system, and lay the foundations for understanding their close interactions with the public sector, discussed in Part II.

Titled *Automated States*, Part II examines how AI and ADM tools are used in the public sector. In Chapter 5, Professor Terry Carney looks at the use of AI and ADM

tools in welfare administration, and examines new challenges to the fundamental rights of the most vulnerable. Carney argues that existing safeguards for deployment of automated tools in public administration do not ensure decision-making values of transparency, quality, and responsiveness to the interests of citizens and communities. In Chapter 6, Paul Miller, an ombudsperson for community services in the Australian state of New South Wales, explores how the use of AI and ADM tools is shaping public administration, its impact on citizens, and how it affects scrutiny of public administration from a regulator's perspective. Dr José Miguel Bello y Villarino then focuses on legal challenges that incorporation of AI tools will bring in the *Automated State* in Chapter 7. The author discusses the distinct nature of AI technology through an exploration of the dual role of public administration: a state that executes policy and a state that designs policy. In the final chapter of this part, Chapter 8, Dr Aitor Jiménez and Ainhoa Douhaibi analyse the use of AI and ADM tools in welfare and surveillance through the lens of critical race studies. The authors use the example of Catalonia (Spain) to argue that AI and ADM technologies employed to control and monitor immigrant populations are rooted in colonial punitive governmental strategies. Together, the chapters in Part II explore the origins of the use of AI by public administration, the challenges it poses to fundamental rights of the vulnerable and marginalised, and the role of the administrative law in the *Automated State*. Part II lays the foundations for critical discussion and regulatory proposals for future regulation in Part III.

Titled *Synergies and Safeguards*, Part III asks how money, power, and AI tools are entwined and what new safeguards could ensure that *Automated Banks* and *Automated States* are accountable to their customers, citizens, and communities. This part is opened by Professor Cary Coglianese, with his Chapter 9 focusing on AI tools fulfilling administrative law's core values of expert decision-making and democratic accountability. Using the example of the US administrative law, the author points to a new challenge posed by a large-scale shift to the use of AI tools by government, ensuring that an *Automated State* is also an empathic one. Chapter 10 by Professor Ching-Fu Lin explores the blurred line between public and private authority in designing and applying AI tools. The author refers to important consequences resulting from ADM tools sorting individuals out, and citing the US case of *Houston Federation of Teachers v. Houston Independent School District* as a starting point, asks critical questions about the role of judicial review in scrutinising the use of ADM and AI tools. In Chapter 11, Associate Professor Tatiana Cutts critiques the broad consensus that human supervision holds the key to sound ADM and the resulting focus of academic and judicial spheres on ensuring that humans are equipped and willing to wield this ultimate decision-making power. The author argues that opaque ADM tools obscure the reasons for any given prediction, thus depriving the human decision-makers of appropriately weighing that prediction in their reasoning process and making a policy of using such opaque tools unjustified, however involved humans are along the way. In the concluding chapter of the book,

Chapter 12, co-editor Dr Monika Zalnieriute offers a counter-perspective in arguing that the traditional emphasis on procedural safeguards alone – or what she calls procedural fetishism – is insufficient to confront the unprecedented power of the *Automated States*. The author argues that only by shifting our perspective from procedural to substantive, can we search for new ways to regulate the future of *Automated States* and keep them accountable to their citizens and communities.

Collectively, the chapters in the book challenge the 'AI novelty' discourse, prevalent in both the financial industry and public administration. The authors look at the *Automated Banks* and *Automated States* – rather than the technology itself – to specifically emphasise the interests and actors behind the ADM and AI technology. The common theme of the contributions is the focus placed on practices or behaviours, of both government administration and private corporations, that technology enables or encourages, pointing to the recent socio-technological developments being a continuation of, rather than a radical departure from, earlier practices and technologies used. The innovation, so often cited by financial industry and governments, is neither really new nor that beneficial, especially from the point of view of the end-users subjected to it.

At the intersection of money, power, and technology, it becomes clear how the systematic use of ADM tools, which are neither reliable nor transparent, widens the gap in power asymmetry between the *Automated Banks* and *Automated States* on the one hand, and their customers, citizens, and communities on the other. Opacity and proneness to bias emerge as the most prominent characteristics of AI tools, impeding scrutiny of the practices of public administration and industry, and their accountability. The chapters in the book suggest that public and private collaboration becomes a black box barrier to enforcement where proprietary ADM systems are used.

The artificiality of divisions between private and public sectors, as well as public and private law disciplines, is at the heart of this book, which brings together different disciplines, different points of view, different arguments and jurisdictions. The book illustrates how money, power, and AI lead to blurred distinction between private and public sectors. And while the technology and the behaviour it enables are not new *per se*, the authors convincingly argue that new rules, frameworks, and approaches are necessary to prevent harms that increasingly common deployment of AI and ADM tools ultimately leads to.

PART I

Automated Banks

<div align="center">1</div>

AI in the Financial Sector

Policy Challenges and Regulatory Needs

Teresa Rodríguez de las Heras Ballell

1.1 SETTING THE SCENE: AI IN THE FINANCIAL SECTOR

The progressive, but irrepressible, automation of activities, tasks, and decision-making processes through the systematic, pervasive application of AI techniques and systems is ushering in a new era in the digital transformation of the contemporary society and the modern economy.[1] The financial sector, traditionally receptive and permeable[2] to technological advances, is not oblivious to this process of intense and extensive incorporation of AI, for multiple purposes and under variegated forms.[3] The advantages and opportunities that AI solutions offer in terms of

---

[1]   This marks the beginning of a second generation of digital transformation. The terminology 'first and second generation' to refer to the successive waves of emerging technologies is used and explained by the author in other previous publications. T Rodríguez de las Heras Ballell, *Challenges of Fintech to Financial Regulatory Strategies* (Madrid: Marcial Pons, 2019), in particular, pp. 61 et seq.

[2]   Financial markets have been incorporating state-of-the-art digital communication channels and technological applications for more than two decades – International Finance Corporation (IFC), *Digital Financial Services: Challenges and Opportunities for Emerging Market Banks* (Report, 2017) footnote 42, p. 1. Regulation has been gradually accommodating these transformations: J Dermine, 'Digital Banking and Market Disruption: A Sense of déjà vu?' (2016) 20 *Financial Stability Review, Bank of France* 17.

[3]   The study resulting from the survey conducted by the Institute of International Finance – *Machine Learning in Credit Risk*, May 2018 – revealed that traditional commercial banks are adopting technological solutions (artificial intelligence and machine learning and deep learning techniques) as a strategy to gain efficiency and compete effectively with new fintech entrants (Institute of International Finance, *Machine Learning in Credit Risk* (Report, May 2018). PwC's *2021 Digital Banking Consumer Survey* (Survey 2021) confirms this same attitude of traditional banks to rethink their sales, marketing and customer interaction practices, models, and strategies (PwC, *Digital Banking Consumer Survey* (Report, 2021) <www.pwc.com/us/en/industries/banking-capital-markets/library/digital-banking-consumer-survey.html>. In this overhaul and modernisation strategy, the incorporation of digital technologies – in particular, the use of AI and machine learning models to deliver highly accurate personalised services – is a crucial piece.

<div align="center">9</div>

efficiency, personalisation potential, risk management, and cost reduction have not gone unnoticed by the financial sector. On the contrary, the characteristics of AI systems seem to perfectly fit in with the features of financial services and to masterly address their most distinctive and challenging needs. Thus, the financial industry provides a receptive and conducive environment to the growing application of AI solutions.

Despite the spotlight on AI, the fact that AI solutions are usually applied, implemented, and incorporated in the financial activity in synergetic combination with other transformative and emerging technologies should not be disregarded. These are technologies such as big data, Internet of Things (IoT), cloud computing, distributed ledger technology (DLT), quantum computing, platform model, virtual reality, and augmented reality[4] that are synchronously present in the market, with similar levels of technical maturity,[5] commercial viability, and practical applicability. In fact, the multiplying effects triggered by such a combination of sophisticated technological ecosystems largely explain the perceived disruptive nature of AI and its actual impact.

With very diverse uses and applications, AI has penetrated financial markets across the board in an increasingly visible way.[6] Its alliance with analytical and predictive processing of big data by financial institutions[7] is perhaps the most telling dimension of a profound transformation of the industry, business strategies, risks, and operations.[8]

The perception of their usefulness[9] and, above all, of the timeliness and desirability of their increasingly pressing incorporation has been encouraged by markedly

---

[4] Capgemini, *World Fintech Report 2018* (Report, 2018) highlights the possibilities offered by emerging technologies for the delivery of customer-facing financial services – artificial intelligence, data analytics, robotics, DLT, biometrics, platforms, IoT, augmented reality, chatbots, and virtual assistants – pp. 20 et seq. Capgemini, *World Fintech Report 2021* (Report, 2021) confirms how the synergistic combination of these transformative technologies has opened up four routes for innovation in the financial sector: establishing ecosystems, integrating physical and digital processes, reorienting transactional flows, and reimagining *core* functions.

[5] World Economic Forum, *Forging New Pathways: The next evolution of innovation in Financial Services* (Report, 2020) 14 <www.weforum.org/reports/forging-new-pathways-the-next-evolution-of-innovation-in-financial-services>.

[6] According to the European Banking Authority (EBA), 64 per cent of European banks have already implemented AI-based solutions in services and processes, primarily with the aim of reducing costs, increasing productivity, and facilitating new ways of competing. EBA, *Risk assessment of the European Banking System* (Report, December 2020) 75.

[7] Joint Committee of the European Supervisory Authorities, *Final Report on Big Data* (Report JC/2018/04, 2018) <www.eba.europa.eu/sites/default/documents/files/documents/10180/2157971/77590961-de6f-4207-bb48-0797ce154ed9/Joint%20Committee%20Final%20Report%20on%20Big%20Data%20%28JC-2018–04%20%29.pdf?retry=1>.

[8] EBA, *Report on Big Data and Advanced Analytics* (Report EBA/REP/2020/01, 2020) <www.eba.europa.eu/sites/default/documents/files/document_library//Final%20Report%20on%20Big%20Data%20and%20Advanced%20Analytics.pdf> .

[9] European Securities and Markets Authority (ESMA), European Banking Authority (EBA), European Insurance and Occupational Pensions Authority (EIOPA), *Joint Committee*

different competitive conditions, precisely because of the impact of technology on market architecture and exceptional circumstances arising from the pandemic.[10] Indeed, this process of intense digital migration has altered the structure and conditions of competition in the market with the opening of new niches for the emergence of innovative fintech firms[11] and the sweeping entry of Big Tech in the financial services sector. The essential function of financial markets as mechanisms for the efficient allocation of savings to investment can take many different forms. Technological innovation has endowed the sector with new architectures[12] on a continuum that shifts from platform models[13] based on a centralised structure to decentralised or distributed models[14] – to varying degrees – that DLT[15] allows to articulate.[16]

Changes in market architecture and opportunities for the provision of new services and intermediation in the distribution of new financial assets and products have driven the emergence of new market players – crowdfunding platform operators, aggregators, comparators, robo-advisers, algorithm providers, social trading platform operators, and multilateral trading system operators – encouraged by low barriers to entry, promising business opportunities, cost reduction, and economies of scale.

Discussion Paper on automation in financial advice, (Discussion Paper JC 2015 080, 4 December 2015) <https://esas-joint-committee.europa.eu/Publications/Discussion%20Paper/20151204_JC_2015_080_discussion_paper_on_Automation_in_Financial_Advice.pdf>.
PwC, *Global Fintech Survey 2016, Beyond Automated Advice. How FinTech Is Shaping Asset & Wealth Management* (Report, 2016) 8, <www.pwc.com/gx/en/financial-services/pdf/fin-tech-asset-and-wealth-management.pdf>.

[10] Capgemini, *World Fintech Report 2021* (Report, 2021) <https://fintechworldreport.com/>: 'The consequences of the pandemic have made the traditional retail banking environment even more demanding'.

[11] According to the definition of the Financial Stability Board (FSB), *Financial Stability Implications from Fintech* (Report, June 2017) 7 <www.fsb.org/wpcontent/uploads/R270617.pdf>, fintech is defined as 'technology-enabled innovation in financial services that could result in new business models, applications, processes or products, with an associated material effect on the provision of financial services'.

[12] TF Dapp, 'Fintech Reloaded-Traditional Banks as Digital Ecosystems' (2015) *Deutsche Bank Research* 5.

[13] T Rodríguez de las Heras Ballell, 'The Legal Anatomy of Electronic Platforms: A Prior Study to Assess the Need of a Law of Platforms in the EU' (2017) 1 *The Italian Law Journal* 3, 149–76.

[14] IH-Y Chiu, 'Fintech and Disruptive Business Models in Financial Products, Intermediation and Markets – Policy Implications for Financial Regulators' (2016) 21 *Journal of Technology Law and Policy* 55.

[15] A Wright and P De Filippi, 'Decentralized Blockchain Technology and the Rise of Lex Cryptographia' (2015) <https://ssrn.com/abstract=2580664> .

[16] R Lewis et al, 'Blockchain and Financial Market Innovation' (2017) *Federal Reserve Bank of Chicago, Economic Perspectives* 7.

In this new landscape, complex relationships of cooperation[17] and competition[18] are established between entrants and incumbents.[19] The presence of new players in the market – offering complementary or instrumental services, creating new environments and channels of communication and intermediation, and adding value to traditional services and products – challenges the traditional scope of regulation and the classical limits of supervision.[20]

On the other hand, mobility restrictions, with closures, confinements, and limitations on travel aimed at containing the spread of the Covid-19 pandemic from the first quarter of 2020, although temporary, have turned the opportunity of digital banking into a survival necessity and even an obligation, in practice, for the proper provision of service and customer care. In a fully digital context for all customer interactions and operations, the use of AI for optimisation, personalisation, or recommendation is key. The processing of increasing amounts of data requires automated means. At this forced and exceptional juncture, many digitalisation initiatives have been prioritised to meet the needs of the changed circumstances. A bank that has completed its digital migration is in a very favourable and receptive position for AI solutions.

This trend, as a response to market demands, is met with increasing regulatory attention seeking to unleash the possibilities and contain the risks of AI. The European Union (EU) provides a perfect illustration. Efforts to define a harmonised regulatory framework for the market introduction, operation, and use of AI systems under certain prohibitions, requirements, and obligations crystallised in the proposed Regulation known as the AI Act.[21] From a sectoral perspective, the European

---

[17] According to the KPMG-Funcas report, *Comparison of Banking vs. Fintech Offerings* (Report, 2018) <https://assets.kpmg/content/dam/kpmg/es/pdf/2018/06/comparativa-oferta-%20banca-fintech.pdf> 48 per cent of domestic fintech firms are complementary to banks, 32 per cent are collaborative, and 20 per cent are competitors. It is estimated that 26 per cent of financial institutions have partnered with Big Tech or technology giants and a similar percentage plan to do so within the next twelve months – KPMG – Funcas, *La banca ante las BigTech* (Report, December 2019), presented in the framework of the Observatorio de la Digitalización Financiera (ODF).

[18] World Economic Forum, *Beyond Fintech: A Pragmatic Assessment of Disruptive Potential in Financial Services* (Report, 2017) <www.weforum.org/reports/beyond-Fintech-a-pragmatic-assessment-of-disruptive-potential-in-financial-services>.

[19] G Biglaiser, E Calvano, and J Crémer, 'Incumbency Advantage and Its Value' (2019) 28 *Journal of Economics & Management Strategy* 1, 41–48.

[20] Spanish Fintech and Insurtech Association (AEFI), *White Paper on Fintech Regulation in Spain* (White Paper, 2017) <https://asociacionfintech.es/wp-content/uploads/2018/06/AEFI_LibroBlanco_02_10_2017.pdf>. Basel Committee on Banking Supervision, *Sound Practices. Implications of Fintech Developments for Banks and Bank Supervisors* (Report, 2018).

[21] Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules in the field of artificial intelligence (Artificial Intelligence Act) and amending certain legislative acts of the Union, {SEC(2021) 167 final}. – {SWD(2021) 84 final}, {SWD (2021) 85 final}. – {SWD(2021) 85 final}, Brussels, 21.4.2021, COM(2021) 206 final, 2021/0106(COD). References to draft provisions will be made in this Paper to the drafting of the compromise text adopted on 3 November 2022 submitted to Coreper on 11 November 2022