



## Editorial

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Since the great financial crisis in 2008 and the near collapse of the global financial system, two themes have dominated policy-making, law reform and the academic debate: taming systemic risk and harnessing technological innovation. Both themes have been incredibly complex and multi-faceted and to some extent inter-linked. The promise of technological innovation in terms of more efficient, speedier and more cost-effective markets has been great from the outset. Even more so since the recent emergence of financial technology firms (Fintechs) which have made great inroads in the payments sector. The same applies to the application of new technology in the sphere of financial intermediation by means of new business models/techniques such as peer-to-peer (P2P) lending, crowdfunding platforms, or the emergence of initial coin offerings (ICOs) as part of the controversial cryptoassets industry. Great are also the risks and perils emanating from these rapid developments, especially risks to the consumer, the integrity of financial markets, and the protection of financial user data from commercial exploitation or worse, e.g., behavioural profiling in the context of loan approvals.

Today, the combination of financial and technology innovation is experienced by consumers and markets mainly in the form of: (a) the provision of automated investment advice (or robo-advice); (b) the use of algorithmic and artificial intelligence

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systems for market trading and for making resource allocation (investment and lending) decisions; (c) the ability to conduct payments using a smartphone; (d) the utilisation of blockchain (distributed ledger) technology to create decentralised means of investment and payment; (e) the use of application programming interfaces (APIs) to facilitate information sharing; and (f) the creation of digital IDs that can be used to facilitate access to finance for the unbanked. These developments signal, in some cases, a leap forward in terms of density of cover and form of use of financial services. In this context, disruption or the threat of disruption is witnessed across the spectrum of credit and capital markets, be it in the form of P2P lending and equity crowdfunding or the advent of ‘open banking’ markets. Naturally, the roll-out of innovations that challenge well-established markets and thinking continues. The development of distributed ledger technology is poised to reach into well-established post-trade processes and we already observe disruptions in the world of capital formation, as, for example, the use of ICOs which are not easy to classify within a particular asset class.

There are questions of a fundamental nature that policy-makers, regulators and practitioners in the fields of law and regulation have already been called to answer, including questions about the legal nature/standing of smart contracts, the policy approach towards distributed ledger technology, the right response to new forms of financial dis-intermediation like crowdfunding, online lending and ICOs, and fundamental alterations in the processes used to exercise corporate monitoring and governance. Clearly the task of harnessing the benefits of technological innovation whilst safeguarding against its pitfalls is a challenge for policy-makers and regulators. The latter are at the frontline, interfacing with incumbents, Fintech firms and consumers. Some of them have sought to rise to the challenge by offering innovation-supportive initiatives such as regulatory sandboxes. The UK Financial Conduct Authority (FCA), for example, has operated a regulatory sandbox since 2016 in order to support its objective of promoting innovation and competition in the interests of consumers. The sandbox offers eligible firms access to regulatory expertise and enables them to test their products and services in a regulatory ‘safe space’. It has seen firms trialling a variety of technologies, including distributed ledger technology, application programming interfaces or biometric technology such as facial recognition software in a variety of fields: payments, retail banking, insurance, pensions, etc.<sup>1</sup> Of the first cohort of firms that were given access to the sandbox, around 90% have, according to the FCA, continued towards ‘a wider market launch’.<sup>2</sup> But the FCA’s approach has not been without critics among incumbents, with some accusing it of double standards. Nevertheless, initiatives such as sandboxes, accelerators and the like continue to have currency. The FCA only recently announced the creation of a Global Financial Innovation Network of likeminded authorities.<sup>3</sup> The network will see the FCA collaborate with authorities in eleven jurisdictions (including France, Canada, Australia, Hong Kong, Singapore, and the US) on issues

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<sup>1</sup> FCA (2017).

<sup>2</sup> FCA (2017), p 5.

<sup>3</sup> FCA (2018).

relating to financial innovation. Among other things, the network is expected to explore the concept of a global sandbox.<sup>4</sup>

However, it is not only the regulatory or policy community that is grappling with the impact of technology on the future of finance. There is also a burgeoning academic literature that seeks to address the impact of technological innovations on market access, market processes, market governance and liquidity, and market regulation. This special issue aims to offer additional purpose and clarity to the ongoing debate. It is curated on the basis of a conference on ‘The Transformation of Finance and Investment: Information and Technology Revolutions’ that was held at University College London on 23 March 2018 as a joint effort of the organising institution and of the universities of Durham and Edinburgh and held under the auspices of UK Fintech Week 2018, a series of events convened by HM Treasury. Both the conference and the special issue brought together academic authors of a high calibre and established expertise in the field. The selected papers examine not only current disruption but also the potential impact of certain dynamic innovations. They often canvass and formulate new or otherwise missed perspectives from the current debate on the integration of big data and technology capabilities into financial markets and especially the fields of financial infrastructure, payments, lending, and investment. Requisite contributions not only highlight opportunities and risks but also offer forward looking recommendations about how further advancements in the integration of finance, big data, and technology will impact on risk allocation, systemic risk containment, and investor and market welfare. These contributions are preceded by a high-level overview on the relationship between lawyers and innovation, which was the subject of the conference keynote address by Professor Roger Brownsword. His keynote address and contribution to this special issue crucially posits that lawyers often adopt an attitude of needing to fit innovations within existing legal paradigms (a ‘coherentist’ approach) in order to understand their legal positions and implications. However, there is scope for lawyers to take a different approach, to critically appraise the purposes and functions of innovations in order to consider the normative—i.e., how the law should treat them. This role is not confined to policy-makers and regulators and over the years the judiciary has shown great aptitude in making sense of contractual and commercial innovations. In this context, Brownsword focuses on the legal nature of smart contracts, setting the tone of this special issue, which comprises an interdisciplinary, exploratory and critical collection of essays.

In discussing the integration of information and technology, Schammo’s contribution and Arner et al.’s paper share similarities in addressing the welfare potential of data sharing. However, Schammo’s contribution, which deals with data sharing by banks in order to facilitate access to alternative credit for rejected small and medium-sized enterprise (SME) bank customers, highlights the limits of information innovations if left unsupported by market participants or users. In particular, Schammo is critical of some of the processes that are meant to support information sharing. His paper offers suggestions for improvement. Meanwhile, the paper by Arner et al. discusses the potential of information revolutions, such as the advent of digital IDs, for financial institutions’ due diligence and anti-financial crime obligations. This is an area of critical importance for

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<sup>4</sup> FCA (2018), p 3.

the financial sector given the pressures and costs of compliance with requisite regulatory and legal regimes. Can we envisage an extent of consolidation or convergence in key information hubs and how would the power of such hubs be governed? The paper teases out issues that remain to be considered.

Two papers in this special issue are devoted to examining the potential of blockchain (or distributed ledger) technology. Both are forward-looking in nature. The first explores the technological and legal aspects of applying blockchain technology in capital markets and OTC derivatives markets (Avgouleas and Kiayias). The second investigates the impact of blockchain technology on corporate governance participation (Lafarre and van der Elst). Blockchain technology has garnered interest worldwide due to its potential to bring together real-time participation by many constituents and by achieving speed and certainty in the execution of decisions. The two applications canvassed here—overcoming traditional obstacles for shareholder voting in company annual general meetings, and systemic risk diversification and enhanced investor control in securities and derivatives markets—are a sample of the potential transformative uses of distributed ledger technology in global markets.

The remaining two papers, although different in subject matter, are dedicated to exploring gaps in legal categorisation, treatment and thinking in relation to certain innovations. Chiu's and Greene's paper raises questions with regard to unpacking the innovative aspects of unregulated ICOs so as to develop thinking about transforming and creating new asset classes. This new approach may benefit sectors that experience challenging conditions when it comes to fund-raising, such as sustainable and social finance. In their paper, innovations such as ICOs are not immediately seen as creating regulatory arbitrage but are analysed for the functional and purposeful differences they create, in order for their potential and drawbacks to be properly appraised. The paper by Fenwick et al. raises the issue of innovations outpacing legal categorisation or treatment. For the authors, corporate governance frameworks seem increasingly incompatible with the realities of technologically driven businesses which adopt new structures and are able to exploit digital capabilities for integration. Gaps in law need to be reconsidered in a manner that is purposeful and gives rise to forward-looking policy thinking.

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