

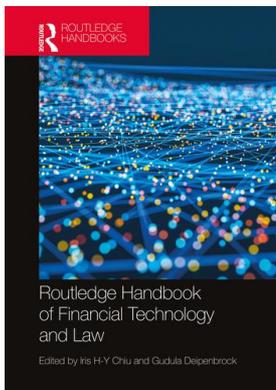
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3 Fintech and the limits of financial regulation

A systemic perspective

Saule T Omarova

1 Introduction

Fintech is the hottest topic in today's finance. An umbrella term for a wide range of recent technological innovations – digital crowdfunding, cryptocurrencies, blockchain or distributed ledger technology (DLT), artificial intelligence and machine learning, 'Big Data' analytics, and so on – fintech is rapidly transforming the methods of delivery and use of financial services.¹ In the mainstream discourse, fintech is seen primarily as a force of market innovation and social progress, a means of making finance both more efficient and more democratic. New technologies offer cheaper and faster access to making payments, borrowing and lending money, managing investments, and keeping financial records – all of it on a single electronic device, without having to go through traditional financial intermediaries.² In short, fintech promises to make the presently dysfunctional financial system work much better for the ordinary people.

This rhetoric of transactional efficiency and financial inclusion, however, masks the fundamental normative and political implications of the fintech disruption.³ Technology is merely a tool that private market actors can use either to advance or to undermine the public's interest in a stable and socially efficient functioning of the financial system. Which path would the unfolding fintech 'revolution' take? And how can we ensure that technological advances, in fact, produce broadly shared public benefits, as opposed to highly concentrated private rents?

To date, the academic and policy discussions of fintech have not produced clear answers to these fundamental questions. In part, this is a reflection of the relative novelty and complexity of fintech as a market phenomenon. In part, however, it is a result of the intellectual framing of the debate, which defines the principal challenge of the fintech era in terms of adapting the existing framework of financial regulation to accommodate specific technological advances in financial markets. The many strands in this debate, accordingly, seek to identify specific 'gaps' in specific regulatory schemes designed for specific financial products or transactions. RegTech, or

1 Financial Stability Board, 'Financial Stability Implications from Fintech' (27 June 2017) <https://www.fsb.org/2017/06/financial-stability-implications-from-fintech/>.

2 See US Department of the Treasury, *Report to President Trump: A Financial System That Creates Economic Opportunities: Nonbank Financials, Fintech, and Innovation* (July 2018) <https://home.treasury.gov/sites/default/files/2018-07/A-Financial-System-that-Creates-Economic-Opportunities—Nonbank-Financi....pdf>.

3 Saule T Omarova, 'New Tech v. New Deal: Fintech as a Systemic Phenomenon' (2019) 36 *Yale Journal on Regulation* 735.

‘regulatory technology’ – a massive move towards relying on technological solutions in the daily supervision and regulation of financial institutions – is often presented as an integral part of this regulatory adjustment strategy.⁴

This chapter seeks to broaden the analytical lens beyond the common preoccupation with the piecemeal revision of specific legal rules that do not map neatly onto fintech developments. It argues that fintech is a fundamentally systemic regulatory challenge, a macro-level force disrupting the currently dominant technocratic paradigm of modern financial regulation. Exploring the key fintech-driven changes in the overall structure and operation of the financial system, the chapter shows how recent technological advances make the financial markets grow ever bigger, move ever faster, and get ever more complex and difficult to manage. These macro-level changes, in turn, exert an insurmountable pressure on the regulatory system built on technocratic principles that strongly favour organisational compartmentalisation, narrow targeting of isolated micro-level phenomena, and normatively neutral decision-making by expert-bureaucrats. From this perspective, the rise of fintech does not merely create discrete regulatory gaps – it threatens to render the entire regulatory system practically ineffectual.

Given these dynamics, a truly effective regulatory response to fintech requires more than simply trying to keep pace with the industry’s high-tech campaign to turn finance into a mere application of computer science and Big Data analytics. First and foremost, it necessitates a fundamental shift in our collective understanding of what financial regulation is meant to achieve – and what tools are necessary for these purposes. It requires a deep *normative*, rather than technical or technological, reassessment and re-wiring of the functional definition, structure and operation of today’s finance. Ultimately, what fintech is putting on our public policy agenda is a potentially systematic move beyond the traditional confines of technocratic rulemaking and oversight, towards a more explicitly and deliberately *participatory* mode of public action directly within financial markets. In that sense, the rise of fintech presents an inherently political challenge on a systemic scale.

The chapter proceeds as follows. Section 2 describes the key elements of the currently dominant technocratic paradigm of financial regulation. Section 3 identifies and examines five key fintech-driven changes in the structure and dynamics of today’s financial system. Section 4 discusses the inherent inability of the existing technocratic regulatory model to accommodate these systemic changes and outlines the core changes in the underlying philosophy of financial regulation necessary in order to meet the fintech challenge. Section 5 concludes.

2 Where we are now: the technocratic paradigm of financial regulation

A sustained inquiry into the systemic meaning and impact of fintech as a regulatory phenomenon must start with an analysis of the defining features of the current system of financial regulation.

4 Douglas W Arner, Janos Barberis, Ross P Buckley, ‘FinTech, RegTech, and Reconceptualization of Financial Regulation’ (2017) 37 *Northwestern Journal of International Law and Business* 371; Tom Butler, ‘Towards a Standards-Based Technology Architecture for RegTech’ (2017) 45 *Journal of Financial Transformation* 49; UNSGSA ‘Early Lessons on Regulatory Innovations to Enable Inclusive Fintech: Innovation Offices, Regulatory Sandboxes, and RegTech’ (2018).

Despite its many unique characteristics, the US system of financial regulation provides a good reference point for distilling the principal features of the currently dominant paradigm of financial regulation.⁵ At the core of this paradigm is the fundamental division of powers and responsibilities between private market participants and the sovereign public acting through various government agencies.⁶ Reflecting the essential hybridity of the modern financial system, this arrangement – which I define elsewhere as the New Deal settlement in finance – institutionalises certain politically derived judgments about the optimal balance of private freedom and public control in the financial market.⁷ Under its terms, private market actors retain control over substantive decisions on how to *allocate* financial capital to various productive uses – and thus the power to determine the overall volume and structure of financial claims in the system. The public, in turn, bears the primary responsibility for *modulating* credit-money aggregates and maintaining the overall stability of the financial system.⁸

In this arrangement, private market participants are presumed to play the *primary, proactive, risk-generating* role, while the public is relegated to performing inherently *secondary, reactive, risk-accommodating* functions.⁹ This structural primacy of the private side is justified by reference to micro-informational efficiencies: private actors control the allocation of capital because of their putatively superior ability to gather and process vital market information at the micro-level. The government acts primarily as an outside regulator, a largely exogenous force with a limited mandate to influence private market actors' presumptively better-informed decisions on channeling credit and investment flows to specific uses. Accordingly, government regulation serves as the principal mechanism through which the public manages the inevitable moral hazard built into this system. Its primary purpose is to constrain private market participants' ability to generate excessive system-wide risks in pursuit of private profits.¹⁰

Importantly, however, the underlying public–private dynamics tend to favour the emergence of a particular model of financial sector regulation: a *technocratic* model. For present purposes, this term denotes a cluster of certain core features of regulatory design and philosophy that systematically shape the substance and direction of regulatory action in the financial sector. Identifying these basic features, therefore, helps to expose the internal logic of the existing regulatory process, which makes certain regulatory outcomes more likely than others – and certain regulatory problems inherently more intractable than others.

On the most basic level, the substantive choice of where and how to draw the line between the public and private roles in finance explains an inherently *micro*, rather than *macro*, bias built into the existing regulatory paradigm. Because private market participants, with their

5 Saule T Omarova, 'One Step Forward, Two Steps Back? The Institutional Structure of U.S. Financial Services Regulation After the Crisis of 2008' in Robin Hui Huang and Dirk Schoenmaker (eds), *Institutional Structure of Financial Regulation: Theories and International Experiences* (London: Routledge, 2014) 137.

6 See Robert C Hockett and Saule T Omarova, 'The Finance Franchise' (2017) 102 *Cornell Law Review* 1143.

7 Omarova (n 3) 746–747.

8 Hockett and Omarova (n 6); Omarova (n 3).

9 It is worth noting that this dominant narrative fundamentally mischaracterises the sovereign public's role as the ultimate source of financial flows in modern financial systems. See Hockett and Omarova (n 6); Robert C Hockett and Saule T Omarova 'Public Actors in Private Markets: Toward a Developmental Finance State' (2015) 93 *Washington University Law Review* 103.

10 Omarova (n 3) 749.

micro-informational advantages and individualised economic incentives, are presumed to be superior decision-makers ‘on the ground’, their judgments on risks and returns of particular financial transactions and products are generally presumed to be superior to those of the regulators. To the extent that regulators’ judgments are driven by generalised public interest considerations rather than by any specific transactional ‘efficiencies’, however, this normative choice leads to the systematic prioritising of *micro-transactional* factors over *macro-systemic* ones – and of *individual* action over *collective* agency. An implicit assumption here is that, if the former is taken care of, the latter will necessarily follow.¹¹

This deeply engrained tenet of the currently dominant regulatory philosophy profoundly affects the structure and operation of today’s system of financial regulation.

Structurally, the current system is built on the principle of regulating individual financial firms, licensed and supervised under clearly identified regimes, which is based on the types of products they offer and activities they engage in. The regulatory boundaries among financial institutions (banks, securities broker-dealers, insurers, etc.) and financial products (securities, banking products, insurance, commodity futures, etc.) are drawn in clear categorical terms. An institutional embodiment of this approach is the silo-based regulatory architecture, in which separate government agencies oversee formally separate financial sub-sectors under separate statutory schemes. Within each administrative silo, the relevant regulator operates under a clearly defined set of policy priorities, reflecting the legislative assessment of the core risks posed by the specific regulated entities and activities.¹²

This compartmentalisation has far-reaching implications. Most immediately, it makes formalistic legal categorisation exercises critical for determining substantive regulatory outcomes. Thus, the history of the US financial regulation in recent decades has been marked by the continuing efforts of various regulated entities – including banks, investment banks, fund managers, insurance companies – trying to move into one another’s territory by creatively circumventing the definitional product lines.¹³ With any novel financial product, the threshold question is always that of its legal and regulatory status as a security, banking product, commodity, insurance contract and so on.

Importantly, regulatory segmentation also sharpens the predominantly micro-transactional focus of regulatory action. Confined within their respective silos, regulatory agencies are structurally conditioned to avoid taking open-ended system-wide actions likely to cross jurisdictional boundaries. There is a strong built-in regulatory preference for the narrow, technically precise targeting of concrete ‘market failures’ or specifically observed inefficiencies in the operation of a particular market. In effect, financial regulators are incentivised – or even required – to use the minimally invasive tools, precisely tailored to the specific problem at hand. The same factors, moreover, lead them to define regulatory

11 Ibid. 747–748.

12 Even in countries with a streamlined bureaucratic structure, different financial products and markets are regulated under substantively and operationally different schemes. Securities regulation, for example, is concerned primarily with protecting investors in capital markets from fraud and overreach by the informationally advantaged issuers of securities and their agents. The principal objective of bank regulation, by contrast, is preservation of systemic stability via ensuring the safety and soundness of individual banking firms. Unlike securities regulation seeking to correct various informational asymmetries in capital markets, bank regulation aims to impose specific conditions on individual banking entities’ balance sheet composition and riskiness. These differences are as profound as they are common across jurisdictions.

13 See Saule T Omarova, ‘The Quiet Metamorphosis: How Derivatives Changed the “Business of Banking”’ (2009) 63 University of Miami Law Review 1041.

problems primarily in the more granular and easily cabined *transactional* terms, as opposed to the more diffused and multi-faceted *structural* ones.

Finally, a strong preference for regulatory solutions based on, and explicitly justified by reference to, the economic theory or empirical data is one of the most salient and familiar manifestations of the technocratic bias built into the existing system of financial regulation. ‘Good’ financial regulation must reflect not only judgments that are carefully limited and minimally invasive but also facially objective, politically neutral and technically expertised. Even decisions with obvious distributional effects are typically framed in the terms of economic efficiency or necessity. An increasingly specialised bureaucratic expertise – a natural product of the fragmented approach to regulating financial services and licensed service providers – functions as the principal legitimising mechanism in this system. This renders financial regulators inherently uneasy with any potential choices that involve overtly political determinations or require taking aggressive normative stands – another factor that reinforces their preference for micro-level, transaction-oriented regulatory solutions over the macro-level, structural ones.

In sum, today’s model of financial regulation systematically prioritises technical expertise over normative commitment and the micro-transactional perspective over the macro-structural one. Its preferred methods of operation involve identifying and isolating discrete micro-level phenomena and decision points, and using minimally invasive technical tools to address specific market inefficiencies. As a technocratic enterprise, financial regulation is apolitical in aspiration and incrementalist in temperament.

This regulatory philosophy, however, is inherently limited in its ability to accommodate and manage the systemic effects of technology-driven financial innovation. These limitations became evident in the run-up to the financial crisis of 2008.¹⁴ But it is the post-crisis rise of fintech that brings the fundamental tension between technocratic regulation and technological change, built into the current finance-regulatory paradigm, into a particularly sharp relief.

3 The impact of fintech on the financial system: five key trends

Fintech is fundamentally changing the way financial services are delivered and transactions are conducted. Today, individuals can transfer money, pay for purchases, borrow and invest – all of it without ever visiting any bank office or speaking with any financial professional. Less visibly, technology is also transforming the broader financial market dynamics. These macro-level changes may be grouped into five closely related but analytically distinct categories.¹⁵

3.1 *Scale and scope of the financial system*

To begin with, new technology is making today’s financial universe bigger, both as a structural matter and in terms of transactional volumes.

¹⁴ See Cristie Ford, *Innovation and the State: Finance, Regulation, and Justice* (Cambridge: CUP, 2017).

¹⁵ For a more detailed analysis of these trends and their impact on the regulatory enterprise, see Saule T Omarova, ‘Technology v. Technocracy: Fintech as a Regulatory Challenge’ (2020) 6 *Journal of Financial Regulation* 75.

Increasingly, technology firms are able to offer various financial services, including payments, credit extension, investment advice and unified account management.¹⁶ Smaller fintech firms typically enter particular markets for financial services as a way to commercialise specific technological tools they had developed or adapted to meet perceived customer demand. Big Tech companies, on the other hand, expand into financial services as a way of capitalising on the network effects generated by their non-financial business operations: e-commerce platforms, messaging applications, search engines and so forth.¹⁷

Fintech innovations are also broadening the menu of financial services and products. As new entrants in a well-established market, fintech companies rely primarily on their ability to keep developing new financial products for customers seeking greater convenience and speed of transacting. This, in turn, prompts incumbent financial institutions either to roll out competing products or to form partnerships with fintech firms and channel new tech-enabled services to their existing customer base.

By creating new, more easily accessible and affordable financial products and services, fintech firms are potentially able to reach out to large swaths of previously under-served population. In fact, financial inclusion is often touted as one of the principal public goods associated with the growth of the fintech sector.¹⁸ Even the traditionally well-served customers are likely to channel more of their money into various new asset classes and tech-enabled trading strategies. In short, fintech innovations operate as a powerful tool of scaling up the financial system by bringing more people – and, more importantly, *more money* – into the ever-growing universe of transactional finance.

3.2 *Speed of financial transactions*

In addition to making the financial system bigger and more diverse, fintech is making it faster, by dramatically increasing the sheer speed of trading in financial markets.

In general, increasing transactional speed and velocity – or *acceleration* of finance – is one of the core mechanisms through which modern financial markets grow and proliferate.¹⁹ Faster trades mean more trading – and, therefore, deeper, more liquid and more informationally efficient markets. To the extent new digital technology and machine learning can make trading faster than ever before, they promise to make financial markets more efficient and more liquid than ever before. Powerful new technical tools allow financial service providers to collect and process increasingly high volumes of data in an increasingly short time. This, in turn, enables them to compress the time required for making business decisions, completing transfers of value or updating transaction records. Big Tech companies, in particular, are well-situated to utilise their access to immense quantities of highly individualised and continuously gathered consumer data for purposes of automating and accelerating – with the help of AI and machine learning – their credit-underwriting, investment advice and other financial services.

16 Jon Frost, Leonardo Gambacorta, Yi Huang, Hyun Song Shin and, Pablo Zbinden, ‘BigTech and the Changing Structure of Financial Intermediation’ (2019) BIS Working Paper 779.

17 Dirk A Zetsche, Ross P Buckley, Douglas W Arner and Janos N Barberis, ‘From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance’ (2017) EBI Working Paper Series No. 6.

18 Alliance for Financial Inclusion, ‘Fintech for Financial Inclusion: A Framework for Digital Financial Transformation’ (2018) https://www.afi-global.org/sites/default/files/publications/2018-09/AFI_FinTech_Special%20Report_AW_digital.pdf.

19 Omarova (n 3) 764–765.

The potential for speed-related efficiency gains in the fintech era are especially salient in cross-border payments, clearing and settlement of securities and other financial assets. Currently, most transfers of money and securities across jurisdictional borders are time-consuming and expensive, mainly because they involve multiple banks and other regulated entities complying with multiple legal requirements.²⁰ Fintech innovations – including, most prominently, DLT – seek to eliminate ‘frictions’ in this process by enabling real-time asset transfers. In fact, one of the most frequently cited potential benefits of using DLT for payments, clearing and settlement include its ability to reduce complexity in cross-border transactions and improve ‘end-to-end processing speed and thus availability of assets and funds’.²¹

3.3 *Techno-centricity of finance*

Furthermore, fintech is fundamentally redefining the nature of financial decision-making by placing computer programming and technical data analysis at the centre of that process.

Thus, in today’s tech-driven financial universe, algorithms increasingly replace human judgment. Bitcoin and other cryptocurrencies provide a clear example of this shift. Instead of a traditional central bank, a piece of open-source software determines the aggregate supply of a particular crypto-currency in the economy. A computer program releases new coins into the system, provides the process for verifying and thus legitimising transactions, executes transfers of value and keeps an immutable record of who owns what. Smart contracts take this computerisation of human capacity further by enabling counterparties to encode in a particular program their agreed upon economic and governance rights and obligations.

Crypto enthusiasts view this ‘trustless trust’ system as a practically and normatively superior alternative to the traditional financial system, in which transacting parties depend on third-party intermediaries, such as banks and broker-dealers. To the extent such intermediaries pursue their own private interests, the argument goes, replacing their discretion with a computer program eliminates potential for abuse of trust by a powerful middleman.²²

Of course, this argument reflects, at best, a naïve view of the sources and dynamics of power in finance. While computer code does not possess humans’ subjective capacity for greed, it is written by humans prone to making mistakes – and, importantly, *for* humans driven by greed and other subjective motives. In this new, tech-driven finance, the ability to determine what exactly the code does, and what it does not do, becomes a source of potentially immense power. This power, moreover, is often hidden from the vast majority of market participants who have no means of evaluating the technical qualities of the algorithm that executes their financial transactions and governs their economic relationships.²³

20 Committee on Payments and Market Infrastructures (CMPI), ‘Distributed Ledger Technology in Payment, Clearing and Settlement’ (2017) Bank for International Settlements.

21 *Ibid.* 1.

22 Kevin Werbach, *The Blockchain and the New Architecture of Trust* (Cambridge, MA: MIT Press, 2018) 95–111.

23 Shaanan Cohny, David Hoffman, Jeremy Sklaroff and David Wishnick, ‘Coin-Operated Capitalism’ (2019) 119 *Columbia Law Review* 591.

3.4 *Transparency and governability*

An increasingly central role of algorithms and other technical inputs in structuring and executing financial transactions also makes the financial system potentially less transparent and less governable.

Part of the reason for this is the inherent difficulty of understanding the inner workings of specific computer programs powering specific products and relationships in financial markets. As discussed above, most market participants are simply not equipped to see, let alone understand or manipulate, the precise choices or modelling assumptions behind each particular market outcome. Another part of the reason for this is the increased customisation of financial products, services, transactions.²⁴ The use of Big Data, for example, enables financial firms – or Big Tech companies offering financial services – to tailor prices and other terms of their products to individual customers' risk and wealth profile.²⁵ This is routinely portrayed as a consumer-friendly, efficiency-enhancing application of new technologies. What goes unnoticed, however, is that, in this context, it becomes potentially difficult (if not impossible) to form a meaningful basis for comparing different financial assets' relative value and performance record.

This lack of true comparability fundamentally undermines the efficiency and integrity of financial markets. In the world of infinite atomisation, there is no common basis for market participants to make their autonomous value judgments or to assess the 'fairness' of any particular transactional terms. There is also more space for hidden manipulation of consumer choices and behaviour by the private entities who collect, control and monetise vast swaths of highly individualised data.²⁶ Thus, ironically, an unprecedented degree of micro-level data availability may result in an equally unprecedented degree of macro-level opacity in financial markets.

Of course, a significantly less transparent financial system is bound to be less predictable and more difficult to control or steer. Identifying and monitoring, in a timely and effective manner, the complex patterns of interconnectedness and channels of contagion across the much bigger, much faster-moving, simultaneously increasingly fragmented and increasingly concentrated universe of algorithm-driven finance may be an inherently impossible – rather than strictly resource-dependent – task. This is the essence of what I call the 'governability' problem that arises from the subtle interplay among these multiple factors and fundamentally alters the context in which both private governance and government regulation of financial markets operate. Without a reliably full and deep insight into complex market dynamics, neither private nor public actors are in a position to manage, guide or

24 Cary Coglianese, 'Optimizing Regulation for an Optimizing Economy' (2018) 4 *University of Pennsylvania Journal of Law & Public Policy* 1, 13 (describing smart regulation as 'regulating just enough and in the right ways').

25 Alberto Cavallo, 'More Amazon Effects: Online Competition and Pricing Behaviors' (10 August 2018) <https://kansascityfed.org/~media/files/publicat/sympos/2018/papersandhandouts/825180810cavallopaper.pdf?la=en>; Rana Foroohar, 'Amazon's pricing tactic is a trap for buyers and sellers alike' *Financial Times* (2 September 2018).

26 This new form of market power explains why the problem of tech (or fintech) platform regulation transcends the rigid boundaries of US antitrust laws. Lina Khan, 'The Separation of Platforms and Commerce' (2019) 119 *Columbia Law Review* 973; Frank Pasquale, 'Privacy, Antitrust and Power' (2013) 20 *George Mason Law Review* 1009.

even respond effectively to fintech-led transformation.²⁷ In this sense, the financial system's increasing opacity and complexity are inversely related to its overall governability.

3.5 *Boundary-blurring*

To make things even more complicated, new technology is blurring jurisdictional and market boundaries in potentially unprecedented ways.

Financial innovation often shifts the established legal boundaries among financial products, activities or entities.²⁸ Fintech, however, presents a challenge to the very concept of spatial and sectoral organisation of financial activities. Digitised financial instruments and transactions exist in cyberspace, which renders geographic borders and power divisions among territorially based sovereign states largely irrelevant.²⁹ In contrast to the more familiar derivatives and structured products of the pre-fintech era, which were offered and sold to clients by specific financial institutions, many of these new financial instruments and services are delivered via distributed networks. This novel infrastructure fundamentally alters the organisational and transactional patterns that anchor traditional jurisdictional claims.

For example, crypto-assets residing on truly distributed ledgers – or permissionless blockchain networks – are created and tracked by an open-source computer software, downloadable by anyone anywhere in the world. This technical design makes it inherently difficult to determine the exact physical location of the ledger or of the specific 'issuer' of the crypto-asset in question. It also raises conceptually thorny questions about the legally relevant identities of the key elements in the network. Is there a legally cognizable 'entity' that 'issues' Bitcoin and that can be subject to meaningful oversight by any particular state? Who are the intended beneficiaries of regulatory protections, where are they 'located' and which sovereign should have the right to act on their behalf?

Fintech also erodes the legal lines delineating different segments of financial markets. A crypto-token is a fluid, category-defying asset type that creates significant 'gaps' in today's rigidly category-dependent legal and regulatory framework of financial oversight. Not surprisingly, much of the currently ongoing regulatory debate on fintech revolves around the questions of proper legal product, activity and entity classifications that would most closely reflect the functional content and economic substance of new tech-driven financial products and market actors. The regulatory system makes these questions absolutely critical, yet many of them cannot produce fully satisfactory answers.

Even more fundamentally, new technologies blur the legal and economic boundary separating the financial system from the broader commercial markets. Today, it is often difficult to draw clear definitional lines between a financial service and a technology offering, especially from a consumer's perspective. The entry of Big Tech companies into financial services, in particular, reveals the crucial link between the sheer market power these companies yield in purely commercial markets and their potential to emerge as a new breed of

27 On the role of systemic complexity as a challenge for financial regulators, see Dan Awrey, 'Complexity, Innovation and the Regulation of Modern Financial Markets' (2012) 2 *Harvard Business Law Review* 235; Saule T Omarova, 'License to Deal: Mandatory Approval of Complex Financial Products' (2012) 90 *Washington University Law Review* 64, 68–84.

28 Ford (n 14).

29 Jason Grant Allen and Rosa Maria Lastra, 'Border Problems: Mapping the Third Border' (2020) 83 *Modern Law Review* 505.

‘too big to fail’ financial institution. Facebook’s plan to launch Libra (later renamed Diem) as the world’s leading currency, built on top of the world’s most ubiquitous social media platform, illustrates how politically salient these dynamics can be.³⁰

4 The impact of fintech on financial regulation: what has to change?

As shown above, the fintech explosion is not merely revolutionising the means of *individual transacting* in financial markets: it also has profound *systemic* implications. Adopting an explicitly systemic perspective on fintech, in turn, reveals how the ongoing tech-driven changes in the financial market increasingly exert pressure on the existing system of financial regulation – and thus necessitate a fundamental revisiting of the regulatory philosophy underlying it.³¹

4.1 Why the technocratic regulatory paradigm is no longer adequate

Taken as a whole, the five tech-driven systemic shifts, discussed above, both magnify the existing and create new demands on financial regulators.

On the most basic level, the rapidly growing size of the financial system means a potentially dramatic expansion in the scale and scope of the regulatory oversight zone. Increasing the regulatory perimeter to include a wide variety of tech firms presents both quantitative and qualitative challenges for the agencies set up along the familiar ‘functional’ lines to license and regulate banks, securities firms, insurers, fund managers and other traditional financial service providers. New entrants in financial markets often lack the requisite resources or even appreciation for their new regulatory compliance duties. The growing spectrum of financial services offered by fintech firms and incumbent financial institutions striving to compete with them also presents regulatory problems. For example, selling a greater number of finance-related apps and other products to a greater number of individuals, who may not be able to verify the quality or veracity of the information provided to them, dramatically heightens the specter of potentially abusive, deceptive or fraudulent market conduct.

By enabling fully or nearly frictionless trading, new technology also unlocks potentially unprecedented opportunities for massive growth in financial asset speculation.³² The super-fast and low-cost trade processing directly incentivises speculative trading, compresses the timeframe for trading decisions, and allows trading signals travel through the market in near-real time. As a result, a system built on instantaneous trading in digital assets is inherently more volatile and prone to more violent cycles than a system with built-in transactional frictions. These dynamics magnify the systemic role of, and amplify the pressure on, central banks and other public instrumentalities charged with ensuring financial stability. The financial system’s increased vulnerability to sudden – potentially instantaneous – asset price fluctuations requires a public market-making entity that is fully capable of taking instantaneous and decisive countercyclical action on a truly market-wide scale. In simple

30 Saule Omarova and Graham Steele, ‘There’s a Lot We Still Don’t Know About Libra’ *New York Times* (4 November 2019).

31 For an in-depth examination of the issues discussed below, see Omarova (n 15).

32 Omarova (n 3).

terms, hyper-fast and hyper-expansive financial markets demand a hyper-fast and hyper-capacious public actor backing them up.³³

In the fintech era, however, financial regulators and supervisors are increasingly forced to operate outside of their professional zone of comfort. To detect and counteract potential risks to systemic stability, or to protect consumers from abusive and unfair practices, financial regulators will need to understand, isolate and target the limitations and vulnerabilities of various computer programs and complex technical choices built into them. The increasingly techno-centric nature of financial markets and practices decreases the practical efficacy of the traditional bureaucratic expertise. To regulate tech-powered finance, technocrats have to become, or give way to, technologists.

The relentless boundary-blurring impact of fintech also disrupts the core technocratic principle of regulatory compartmentalisation. In the current regulatory system, key jurisdictional and substantive regulatory lines are drawn among the principal categories of financial product – securities, commodities, banking products, insurance contracts – tying their economic substance to their legal form. By contrast, new technological tools allow reducing tradable financial assets to a *pure token form*. By creating a seamlessly unified transactional space for trading an infinite variety of substantively different economic claims in a universally recognised digital form, fintech potentially renders the current approach to financial regulation outdated as a matter of *principle*, rather than *degree*.³⁴

The *de facto* cross-pollination of financial and commercial markets – and private firms operating in them – raises particularly salient concerns in this respect. Thus, the heightened potential for cross-sectoral concentration of market power in the hands of a few dominant Big Tech companies makes it impossible to ignore that financial regulators' domain is also extending far beyond the traditional confines of the financial market.³⁵ To protect the financial system's stability and integrity in the fintech era, financial regulators must continuously monitor developments in other sectors of the economy. They also must learn to incorporate a much more explicit and broader economy-wide view into their decision-making.

Even a brief recitation of these challenges makes it clear that the rapid tech-driven transformation of finance requires a corresponding surge in the legal and institutional capacity of financial regulators overseeing it. Simply to keep up with market developments and to enforce the rules of the game under constantly changing conditions requires significantly greater human, technological and economic resources than those currently available to most regulatory agencies. This part of the fintech challenge is widely acknowledged.³⁶

It is equally important, however, to acknowledge that financial regulators also need more extensive and flexible legal tools and administrative powers that would enable them to address emerging systemic problems and cross-sectoral interdependencies in a timely

33 For in-depth discussions of what this type of a capacious public instrumentality might look like, see Hockett and Omarova (n 6); Hockett and Omarova (n 9).

34 Although derivatives and other complex financial instruments of the pre-fintech era exhibited the same tendency towards virtualisation of economic substance, the institutional context in which they were traded was qualitatively different from today's crypto-markets. Omarova (n 3). Even so, the high degree of adaptability of derivative contracts to substantively different economic transactions rendered these instruments notoriously difficult to regulate. Omarova (n 13).

35 See generally Financial Stability Board, 'Big Tech in Finance: Market Developments and Potential Financial Stability Implications' (2019), <https://www.fsb.org/2019/12/bigtech-in-finance-market-developments-and-potential-financial-stability-implications/>.

36 See Arner, Barberis and Buckley (n 4); Zetzsche et al (n 17).

and effective manner. In the borderless and hyper-fast world of tech-powered finance, the value and riskiness of individual firms' assets and liabilities increasingly directly depend on the systemic, market-wide dynamics. By rendering the reliance on clearly drawn legal and administrative lines largely ineffectual in practice, fintech has created an urgent need for significantly broadening – and potentially qualitatively redefining – financial regulators' substantive and jurisdictional mandates.

Mandates, however, do not exist in a vacuum: they reflect important normative choices and political decisions. In other words, they reflect fundamental value judgments on the part of the polity. At present, the entire edifice of financial regulation continues to rest on a particular political settlement that explicitly limits the sovereign public's role in finance to providing critical infrastructural support for private markets' otherwise uninhibited operation.³⁷ The technocratic model of financial regulation is both a direct product of and a principal tool of implementing this nearly century-old arrangement. As private innovation continues to push financial markets beyond the technocrats' capacity to deliver the expected level of oversight, it increasingly calls into question the practical efficacy and social desirability of the technocratic regulatory model – and the political settlement underlying it.

In this sense, fintech poses a truly paradigmatic, or philosophical, regulatory challenge. Yet, to date, there has been little public or academic discussion of what this big-picture challenge involves.

4.2 Bringing normativity back in: towards a new regulatory philosophy

So far, the limited efforts to articulate the essence of fintech as a systemic regulatory challenge have proceeded mainly under an aspirational heading of 'smart' financial regulation.³⁸ In the pre-2008 era, 'smart' regulation was a popular metaphor for a wide range of market-friendly, minimally intrusive and often outright deregulatory strategies of the kind that enabled the unchecked growth of complex derivatives and other structured products.³⁹ Having disappeared from the academic and policy discourse in the wake of the crisis, the notion of 'smart' regulation is undergoing resurgence in the context of today's fintech debate. As applied to fintech, 'smart' regulation is re-emerging as a marker of politically neutral, surgically precise targeting of specific known tech-driven risks, while at the same time explicitly pre-committing to promoting innovation.⁴⁰ While cognizant of – and often explicitly concerned with – various forms of systemic risk, proponents of 'smart' regulation generally strive to offer narrowly tailored and individually customised legal rules for specific fintech products and activities. By equating regulatory

37 Omarova (n 3); Hockett and Omarova (n 6).

38 In this chapter, I use 'smart regulation' as an umbrella term referring to a broad range of fundamentally similar approaches to fintech regulation. Specific labels used for these various approaches may include 'principles-based', 'risk-based', 'flexible', 'tailored', 'responsive' regulation and so forth. For present purposes, the key is not to enumerate all of these variations on the same theme but to highlight the core elements they have in common.

39 Ford (n 14).

40 Thus, 'smart regulation' is often described as a sequenced set of 'proportionate' regulatory responses to identified fintech-driven risks, which explicitly aim to promote financial innovation. See eg, Dirk A Zetzsche, Ross P Buckley, Douglas W Arner and Janos Nathan Barberis, 'Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation' (2017) 23 *Fordham Journal of Corporate & Financial Law* 31.

efficacy with technical micro-optimisation, ‘smart’ regulation effectively supplies a normative blueprint for adapting an old technocratic paradigm to the demands on new tech-driven finance, an ideal mode of ‘regulating just enough and in the right way’.⁴¹

A closely related strand in this debate focuses on RegTech.⁴² Unlike the familiar notion of ‘smart’ regulation, RegTech is a new term of art that denotes a trend towards ‘the automation and streamlining of regulatory processes’, including digitised data collection and compliance monitoring.⁴³ By utilising the latest technological tools, RegTech promises to lower both the administrative costs of overseeing an increasingly fast and complex financial system and the industry’s private costs of complying with applicable regulations.⁴⁴

Without a doubt, adoption of new tools for purposes of simplifying and facilitating production, collection and processing of regulatory data is both a reasonable and socially desirable response to technological progress. At the same time, however, it is important not to overstate the benefits of RegTech as an efficiency-enhancing regulatory strategy. Excessive reliance on computer software by financial regulators and supervisors may lead to socially undesirable outcomes. In addition to increasing potential cybersecurity and other operational risks, this trend threatens to undermine the critically important ability of financial regulators and supervisors to conduct dynamic and flexible *qualitative* assessments of quantitative performance metrics in the overall context of individual firms’ and the broader market’s operation.⁴⁵

This potential loss of embedded flexibility is especially dangerous given the heightened salience of the regulators’ ability to keep a keen eye on the wide range of hyper-fluid systemic factors that shape, often non-transparently, individual market actors’ behaviour in the hyper-fast and techno-centric financial universe. In the worst-case scenario, an over-optimistic embrace of RegTech can significantly dilute the present capacity of the technocratic regulatory model to generate substantively valuable micro-level information.⁴⁶ On a deeper level, a widespread belief in the superiority of technological management of financial markets and activities may effectively preclude the emergence of an alternative regulatory paradigm.⁴⁷

The search for a new, more effective philosophy of fintech regulation has to move beyond the limits of today’s discourse on RegTech, ‘smart’ regulation and other efforts to rejuvenate the old technocratic model. A fintech-ready regulatory philosophy should seek to

41 Coglianese (n 24) 13.

42 For purposes of this discussion, RegTech refers to the government’s use of new technologies for regulatory and supervisory purposes; it does not include private firms’ use of technology for purposes of regulatory compliance.

43 Arner, Barberis and Buckley (n 4) 376.

44 Arner, Barberis and Buckley (n 4); Zetzsche et al (n 40); UNSGSA (n 4).

45 Whether or not an algorithm is better at detecting troublesome signs than a human bank examiner, for instance, depends on the myriad of specific technical choices embedded in its operation. Preventing, catching and correcting potential errors encoded in the program would require either an exceptionally high level of technical expertise on the part of financial regulators or an equally exceptional level of knowledge of finance and its regulation on the part of software engineers and programmers.

46 It is, of course, impossible to define in the abstract the optimal balance between human judgment and data-led automation in the process of financial supervision. The point here is merely to highlight the danger of allowing the latter to supplant rather than supplement the former, either intentionally or inadvertently.

47 For a recent book-length discussion of the interaction between ‘technological management’ and traditional regulation aiming to shape human conduct, see Roger Brownsword, *Law, Technology and Society: Re-Imagining the Regulatory Environment* (Abingdon and New York: Routledge, 2019).

conform not to the internal dictates of an outdated paradigm but to the practical demands and realities of technological change.

To this end, it is critical to overcome the fundamentally *micro-transactional*, as opposed to *macro-structural*, focus of the traditional technocratic regulatory model. The pervasive micro-level bias, built into the existing regulatory paradigm, explains the persistent conceptual framing of today's policy debate in terms of specific transactional 'efficiencies' associated with specific technologies. This is the case even where the discussion on its face is prompted by, or focused on, fintech's potential to create or exacerbate certain forms of systemic risk in financial markets. Such an inherently fragmented, technology-by-technology approach inhibits financial regulators' ability to identify and understand the key structural trends that make fintech a systemic regulatory challenge.⁴⁸

More broadly, an explicitly macro-systemic approach to fintech enables us to see and appreciate a potentially decisive shift in the underlying *public-private* balance of power in finance.⁴⁹ If left unaddressed, this shift threatens to put the sovereign public in an untenable position of having to back up and stabilise a rapidly expanding, diverse and non-transparent financial system, in which speculation is frictionless and market power is fluid to an unprecedented degree. Micro-optimising, technology-focused regulatory approaches are not directly responsive to this fundamental disruption at the core of the system.

The growing imbalance of the sovereign public's and private market actors' relative powers and competencies in the financial sphere also heightens the significance of *normative*, as opposed to *technical*, factors in guiding regulatory strategy in the fintech era. In contrast to the increasingly popular rhetoric of 'smart' regulation, a truly effective systemic response to the fintech challenge should explicitly recognise the primacy of normative judgment over purely technological tools in determining specific regulatory choices.

This is a critically important point that, despite its apparent simplicity, often gets lost in the current policy discourse. Reintroducing normativity as the key input in the regulatory process requires more than an acknowledgement of standard systemic stability concerns that the financial crisis of 2008 made impossible to ignore. On a more fundamental level, it requires an explicit recognition that financial regulation nearly always involves difficult trade-offs and politically salient choices.⁵⁰ The supposed normative neutrality of technocratic regulation merely operates to obscure the substance and practical effects of these tradeoffs and choices. The seductive rhetoric of objectively 'smart' approach to technological innovation, for example, may effectively disguise regulatory passivity and acquiescence. It may also create a false hope of finding 'win-win' solutions to specific problems,

48 The increasingly popular 'fintech sandbox' strategy exemplifies how this micro-transactional conceptual framing translates into regulatory practice. A typical regulatory 'sandbox' is explicitly geared towards controlled live-testing of individual fintech products offered by individual firms under individually tailored (and significantly relaxed) regulatory conditions. See Hilary J Allen, 'Regulatory Sandboxes' (2019) 87 *George Washington Law Review* 579; UNSGSA (n 4). For a critical assessment of the 'regulatory sandbox' response to the distinctly systemic challenges posed by fintech, see Saule T Omarova, 'Dealing with Disruption: Emerging Approaches to Fintech Regulation' (2020) 61 *Washington University Journal of Law & Policy* 25.

49 For an in-depth analysis of specific mechanisms and manifestations of this shift, see Omarova (n 3).

50 For a discussion of some of these trade-offs in modern finance, see Saule T Omarova, 'Ethical Finance as a Systemic Challenge: Risk, Culture, and Structure' (2018) 27 *Cornell Journal of Law and Public Policy* 797.

conveniently redefined as a matter of optimally aligning micro-level private incentives with the macro-level public interest.⁵¹

Of course, such a perfect public–private incentive alignment is rarely attainable in practice. Simply acknowledging this basic reality, however, necessitates a clear articulation of the core principles that should guide policy-makers’ and regulators’ choices. It requires a principled basis for making social value judgments.

In the context of today’s tech-driven finance, this means, first and foremost, that the ‘innovativeness’ of newly created financial products should not be reduced or evaluated by reference to their purely technical, or micro-level, transactional aspects – such as, for example, the use of DLT or digital tokens to eliminate specific ‘frictions’ in a particular setting. This standard technocratic approach produces only a superficial understanding of what a particular market ‘innovation’ signifies from the viewpoint of transacting counterparties. By contrast, the social value of individual innovations in financial markets should be determined on *normative* grounds, by reference to their *macro-level* impact. Importantly, this macro-level analysis must encompass new technologies’ impact not only on the financial system but also on the broader non-financial, or ‘real’, economy.⁵²

In this framing, the decisional basis is easy to define, at least in principle. Thus, a well-functioning – or ‘good’ – financial system continuously allocates capital to productive non-financial enterprise. A malfunctioning – or ‘bad’ – financial system continuously misallocates capital to unproductive financial speculation, thus undermining the real economy’s capacity for long-term growth and development.⁵³ It follows, therefore, that the task of evaluating and regulating financial innovation from a systemic perspective requires explicit prioritising of the potential macro-level benefits (or losses) over private counterparties’ micro-level transactional gains. That a particular technology helps to optimise certain forms of interaction in financial markets is merely the starting point in the inquiry. Ultimately, the key factor in this process should be the degree to which any particular tech-powered financial product is likely to improve the flow of capital from the financial system to the productive enterprise in the real economy.⁵⁴

An explicit normative commitment to promoting innovation *in the public interest* lays the necessary foundation on which to build a qualitatively new model of fintech – or, more broadly, financial – regulation. This new regulatory model would bear three principal characteristics.

First, in direct contrast to the increasingly outdated technocratic paradigm, it would empower financial regulators to take a fundamentally *proactive* – as opposed to presently reactive – approach to technological developments. Second, it would explicitly prioritise *structural* – as opposed to transactional – regulatory measures and solutions to emerging problems and imbalances in the financial system. Finally, and perhaps most importantly, this shift in the underlying philosophy of financial regulation would open much-needed

51 This is not to say that the rhetoric of ‘smart’ regulation invariably reflects or deliberately channels an anti-regulatory ideology or intent. On the contrary, the point here is to highlight the implicit framing effects of adopting this particular conceptual vocabulary, even in the absence of any political agenda or subjective intent to undermine public oversight of finance.

52 Saule T Omarova, ‘What Kind of Finance Should There Be?’ (2020), 83 *Law & Contemporary Problems* 195.

53 *Ibid.*; Robert C Hockett and Saule T Omarova, ‘Private Wealth and Public Goods: A Case for a National Investment Authority’ (2018) 43 *Journal of Corporation Law* 437.

54 Omarova (n 52).

policy space for developing new – and restoring old – tools of direct *public participation* in financial markets.⁵⁵ Adding more proactively participatory tools to the existing arsenal of financial regulation and supervision is a critical part of an effective systemic response to fintech disruption discussed in this chapter. Only by acting directly within the frictionless and borderless digital finance can the sovereign public successfully ‘keep up’ with tech-driven changes in the structure and operation of financial markets – and maintain these markets’ stability.

These three defining elements of a comprehensive new strategy of fintech regulation – its fundamentally proactive posture, emphasis on structural solutions and creative use of market participation mechanisms – are key to redefining the public–private balance of power in modern finance. In this sense, they form the building blocks of a *post-technocratic* regulatory philosophy as an indispensable guide in our search for concrete solutions to system-level frictions caused by the continuing growth of fintech.⁵⁶

5 Conclusion

This chapter examines fintech as a systemic challenge to the continuing efficacy of the currently dominant technocratic model of financial regulation. New financial technologies are dramatically increasing the scale and scope of the financial system, making it move at humanly imperceptible speed, putting computer programs at the centre of financial decision-making, rendering financial markets less transparent and more complex and blurring traditional jurisdictional boundaries. In this algorithm-driven financial universe, it is increasingly difficult to isolate and target in a controlled manner specific product types, entities, functions or effects – and presume that a desired system-wide result will follow, naturally and unavoidably. It is no longer possible to sustain the illusory ideal of a normatively neutral regulatory process seamlessly translating various micro-transactional efficiencies into macro-systemic stability. Boosting financial regulators’ technological capabilities, lowering entry barriers for presumptively ‘innovative’ fintech offerings, rewriting legal rules in machine-programmable language, and similar measures currently on the fintech regulatory agenda do not, and are not designed to, address this underlying conflict between an old-era regulatory paradigm and the new-era market realities.

Effectively meeting systemic challenges posed by fintech requires deeper and more comprehensive rethinking of the fundamental goals and tools of financial regulation – a complex and demanding undertaking well beyond the scope of this chapter. The crucial first step towards this goal, however, is to reassert the primacy of *normative* over purely technical factors in organising, managing and regulating today’s increasingly technology-dependent finance. Accordingly, this chapter outlines a few normative principles at the core of the new, fintech-ready regulatory philosophy. Explicitly articulating and further operationalising these normative principles would significantly broaden the scope of public policy choices and tools. It would provide a solid normative basis for developing more assertive and proactive macro-level (as opposed to micro-level), structural (as opposed to

55 For detailed analyses of the existing experience with, and potential future design of, certain key tools of direct public participation in financial markets, see Omarova (n 15); Hockett and Omarova (n 53); Hockett and Omarova (n 9).

56 For a discussion of what some of these concrete regulatory measures may look like, see Omarova (n 15).

transactional) and comprehensive (as opposed to piecemeal) tools of, and approaches to, regulating fintech – or finance, more generally.

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