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**BigTech and Platform Finance:
Governing FinTech 4.0 for
Sustainable Development**

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Abstract:

Over the past 150 years, finance has evolved into one of the world's most globalized, digitized and regulated industries. Digitalization has transformed finance but also enabled new entrants over the past decade in the form of technology companies, especially FinTechs and BigTechs. As a highly digitized industry, incumbents and new entrants are increasingly pursuing similar approaches and models, focusing on the economies of scope and scale typical of finance and the network effects typical of data, with the predictable result of the emergence of increasingly large digital finance platforms. We argue that the combination of digitization, new entrants (especially BigTechs) and platformization of finance – which we describe as FinTech 4.0 and mark as beginning in 2019-2020, – brings massive benefits and an increasing range of risks to broader sustainable development. The platformization of finance poses challenges for societies and regulators around the world, apparent most clearly to date in the US and China. Existing regulatory frameworks for finance, competition, data, and technology are not designed to comprehensively address the challenges to these trends to broader sustainable development. We need to build new approaches domestically and internationally to maximize the benefits of network effects and economies of scope and scale in digital finance while monitoring and controlling the attendant risks of platformization of finance across the existing regulatory silos. We argue for a principles-based approach that brings together regulators responsible for different sectors and functions, regulating both on a functional activities based approach but also – as scale and interconnectedness increase – addressing specific entities as they emerge: a graduated proportional hybrid approach, appropriate both domestically in the US, China and elsewhere, as well as for cross-border groups, building on experiences of supervisory colleges and lead supervision developed for Globally Systemically Important Financial Institutions (G-SIFIs) and Financial Market Infrastructures (FMIs). This will need to be combined with an appropriate strategic approach to data in finance, to enable the maximization of data benefits while constraining related risks.

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TABLE OF CONTENTS

I. INTRODUCTION	2
II. FINTECH 4.0: TOWARDS DIGITAL FINANCE PLATFORMS	5
III. GOVERNING BIGTECHS AND THE PLATFORMIZATION OF FINANCE: CHALLENGING EXISTING REGULATORY FRAMEWORKS	9
A. FINANCIAL REGULATION	10
1. <i>Objectives</i>	11
2. <i>Obstacles to Effective Financial Regulation of Digital Finance</i>	12
3. <i>Contribution to Innovation and Competition in Financial Services?</i>	13
B. ANTITRUST AND COMPETITION REGULATION	14
C. TELECOMMUNICATION AND INTERNET REGULATION	16
D. DATA PROTECTION AND PRIVACY REGULATION	18
IV. A PRINCIPLES-BASED APPROACH TO GOVERNANCE OF FINTECH 4.0	20
A. PRINCIPLE ONE: ENSURING FOUNDATIONAL FINANCIAL REGULATORY OBJECTIVES	21
B. PRINCIPLE TWO: DEVELOPING REFLEXIVE AND ITERATIVE REGULATION	21
C. PRINCIPLE THREE: FOSTERING RESPONSIBLE, LONG-TERM ORIENTED ACTORS	24
D. PRINCIPLE FOUR: ENSURING OVERSIGHT AND ENFORCEMENT	25
E. PRINCIPLE FIVE: INSTILLING A COMMITMENT TO SUSTAINABLE DEVELOPMENT	28
V. BUILDING A BALANCED PROPORTIONAL GRADUATED RISK-BASED APPROACH TO DIGITAL FINANCE PLATFORMS	28
A. PERMISSIVE AND FACILITATIVE APPROACHES: LAISSEZ-FAIRE, ENCOURAGEMENT, TEST-AND-LEARN	30
B. FOUNDATIONAL REGULATION: DATA APPROACHES	32
C. DESIGNATION AS A REGULATED INDUSTRY	34
1. <i>Command-and-Control Regulation</i>	34
2. <i>Self-Regulation</i>	35
3. <i>Co-Regulation</i>	35
D. PUBLIC UTILITY REGULATION	36
E. UNBUNDLING	37
F. PROHIBITION	38
VI. GOVERNING FINTECH 4.0 THROUGH REGULATORY COOPERATION AND COORDINATION	39

I. Introduction

Over the past 20 years, new technology and data giants have evolved. These giants – “BigTechs”, especially Google, Apple, Facebook, Amazon and Microsoft (GAFAM) in the United States and Baidu, Alibaba and Tencent (BATs) in China – now permeate all aspects of society and the economy in their respective countries and increasingly globally. BigTechs have developed from the combination of technological evolution (digitization, datafication, digitalization), conducive regulatory approaches in the US and China in particular (at least prior to 2019-2020), and network effects which characterize data industries. While the resulting concentration and dominance have long been a source of concern in the European Union, the recent concentration and dominance in the US and China have emerged as major social, political, regulatory and legal foci, trying to balance the emergent benefits of these dominant

platforms for consumers against concerns about abuses of data and market position.¹ These pre-existing trends have been amplified and reinforced by the digitalization driven by COVID-19 across 2020 and 2021. Subsequently, the governance of BigTech and the role of data are emerging as major issues for the twenty-first century and lie at the heart of balancing the benefits and risks of the “digitization of everything” in the Fourth Industrial Revolution.²

The focus of this paper is the intersection of these trends with finance. Over the past 150 years, finance has evolved into one of the most globalized, digitalized and regulated industries. Over the past decade, BigTech has likewise expanded into finance.³ In finance, BigTech joins a range of existing large dominant players (Big Finance)⁴ as well as a range of other new entrants (FinTechs and TechFins)⁵ seeking scale and evolving into Big FinTechs.⁶ All of these focus on leveraging network effects and economies of scope and scale to maximize their market share, data pools, income and profitability. These trends express themselves in the platformization of finance and in digital finance platforms that combine technology and finance.

Finance has long been characterized by a tendency towards scale and concentration. This was reflected in the 2008 Global Financial Crisis and its resulting regulatory frameworks for systemically important financial institutions (SIFIs) and experiences with “too-big-to-fail”, “too-complex-to-govern” and “too-big-to-jail”.⁷ The emergence of digital finance platforms⁸ over the past 20 years reflects fundamental changes in economies and societies across the world. Digitization and datafication offer tremendous potential for network effects and economies of scope and scale, and these have duly emerged in the platform economy and more

¹ SHOSHANA ZUBOFF, *THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER* (2019).

² Klaus Schwab, *The Fourth Industrial Revolution: What it Means, How to Respond*, WORLD ECONOMIC FORUM (Jan. 14, 2016), <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>.

³ Agustín Carstens et al., *Regulating Big Techs in Finance*, BIS (Aug. 2, 2021) <https://www.bis.org/publ/bisbull45.pdf>; Juan Carlos Crisanto et al., *Big Techs in Finance: Regulatory Approaches and Policy Options*, BIS (Mar 2021) <https://www.bis.org/fsi/fsibriefs12.pdf>.

⁴ Dirk A. Zetsche et al., *Digital Finance Platforms: Toward a New Regulatory Paradigm*, 23 J. BUS. L. 1 (2020).

⁵ Douglas W. Arner et al., *The Evolution of Fintech: A New Post-Crisis Paradigm?*, 47 GEO. J. INT’L L. 1271 (2016); Dirk A. Zetsche et al., *From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance*, 14 N.Y.U. J. L. & BUS. 393 (2018); Dirk A. Zetsche et al., *Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation*, 23 FORDHAM J. CORP. & FIN. L. 31 (2017).

⁶ Katherine Foster et al., *BigFintechs and Their Impacts on Sustainable Development*, UNDP (Jun. 2021), <https://www.undp.org/sites/g/files/zskgke326/files/2021-06/UNDP-UNCDF-TP-1-1-BigFintechs-and-Their-Impacts-on-Sustainable-Development-EN.pdf>; Katherine Foster et al., *BigFintechs and Their Impacts on Macroeconomic Policies*, UNDP (Jun. 2021), <https://www.undp.org/sites/g/files/zskgke326/files/2021-06/UNDP-UNCDF-TP-1-1B-BigFintechs-and-Their-Impacts-on-Macroeconomic-Policies-EN.pdf>; Artem Sergeev et al., *Policymakers, BigFintechs and the United Nations Sustainable Development Goals*, UNDP (Jun. 2021), <https://www.undp.org/sites/g/files/zskgke326/files/2021-06/UNDP-UNCDF-TP-3-1-Policymakers-BigFintechs-and-the-United-Nations-SDGs-EN.pdf>; Kuzi Charamba et al., *BigFintechs and International Governance, Policymaking and the United Nations Sustainable Development Goals*, UNDP (Jun. 2021), <https://www.undp.org/sites/g/files/zskgke326/files/2021-06/UNDP-UNCDF-TP-3-1-Policymakers-BigFintechs-and-the-United-Nations-SDGs-EN.pdf>.

⁷ Steven L. Schwarcz, *Too Big to Fool: Moral Hazard, Bailouts, and Corporate Responsibility*, 102 MINN. LAW REV. 761 (2017); DOUGLAS W. ARNER ET AL., *SYSTEMIC RISK IN THE FINANCIAL SECTOR: TEN YEARS AFTER THE GREAT CRASH* (2019); ROSS P. BUCKLEY & DOUGLAS W. ARNER, *FROM CRISIS TO CRISIS: THE GLOBAL FINANCIAL SYSTEM AND REGULATORY FAILURE* (2011).

⁸ In this paper we will refer to FinTechs, Techfins, and BigTechs that operate in finance as “digital finance platforms” collectively.

recently in the platformization of finance. We identify this new stage of evolution as FinTech 4.0⁹ -- the era of digital finance platforms.

The emergence of this latest fintech era, FinTech 4.0, can be seen clearly in the announcement of Libra by a Facebook-led consortium, a clear example of a BigTech seeking to build an extraordinary digital finance platform,¹⁰ and the halting of the planned initial public offering (IPO) of Ant in 2020 as a result of regulators' concerns about its model of platformization and related risks.¹¹

In the developing world, these recent innovations present tremendous opportunities for sustainable development through new business models that provide access to alternative finance and greater financial inclusion. Most recently, governments have begun to consider the roles they can play in the context of platformization of finance, with central bank digital currencies (CBDCs) being an example of governments joining tech and finance firms in seeking to leverage the benefits of digital finance platforms.¹² The question, thus, is how these new innovations should be governed to maximize positive returns while minimizing risk and negative impacts.

The governance of digital finance platforms – regardless of their genesis – and their impacts requires granular, nuanced and targeted policies and regulations. Platform-based models of finance require regulation across multiple fields, including data protection, competition and antitrust, telecommunications and finance in ways that do not easily allow for coherence in regulatory approach and scope, both nationally and internationally. The antecedent step, however, requires appreciation of the broader system and the actors that can contribute towards the development of such policy and regulation. Our current era, FinTech 4.0, is characterized by the increasing dominance of a small number of ever more pervasive digital finance platforms operating across borders with network effects and economies of scope and scale. Concerted collaboration across public and private sectors will be critical for producing cohesive regulatory policies and practices for this new era.¹³ Consequently, we argue for a principles-based approach towards the governance of digital finance platforms and their impacts, built around core regulatory objectives across finance, antitrust / competition, data, security, innovation and broad sustainable development. Pivotal to achieving these broader objectives are coordination among regulators, domestically and internationally, and the implementation of a proportional, graduated and risk-based hybrid regulatory approach

⁹ This concept builds on typologies developed and discussed in a previous paper – Arner et al., *supra* note 5. FinTech 1.0 was about building the technology to support the financial system. The groundwork for much of the developments that we see today began in 1867 with the laying of the first trans-Atlantic telegraph cable. This allowed for communication between London and New York, and further expansion of the lines connected other capitals. FinTech 2.0 took off in 1967. It was marked by the introduction of the ATM and the launch of the first handheld calculator by Texas Instruments. The global financial crisis marked the beginning of FinTech 3.0 – the era in which fintech startups emerged from the crisis to address inadequacies and shortcomings of legacy banking institutions; to leverage the introduction of the iPhone; and to respond to the extensive new financial regulation. FinTech 3.0 was also marked by the launching of the iPhone and M-Pesa in 2007; the Global Financial Crisis in 2008; and Bitcoin and blockchain in 2009.

¹⁰ Dirk A. Zetzsche et al., *Regulating Libra*, 41 OXF. J. LEG. STUD. 80 (2021).

¹¹ See a robust discussion on reasons for Ant's IPO crackdown in Angela Huyue Zhang, *Agility Over Stability: China's Great Reversal in Regulating the Platform Economy* (July 28, 2021), <https://ssrn.com/abstract=3892642> or <http://dx.doi.org/10.2139/ssrn.3892642>.

¹² Ross P. Buckley et al., *Sovereign Digital Currencies: Reshaping the Future of Payments and Money*, 15 J. PAYM. STRATEGY SYST. 7 (2021).

¹³ Carstens et al., *supra* note 3.

crossing both activities and entity regulation, which seeks to encourage innovation while addressing risks. This must be joined with a strategic approach to digital infrastructure and data use within each economy so as to minimize risks and maximize the positive contribution to sustainable development.

The paper is in six parts. Part Two provides an overview of the rise of digital finance platforms and situates them within FinTech 4.0. In doing so, we discuss the major drivers that have led to the current state of affairs as well as corollary risks and opportunities. Part Three takes a step back from the developments discussed in Part Two, and presents the various regulatory fields and issues involved in addressing platformization of finance at various levels of governance and regulatory competence. We analyze in this context the complexity of the governance challenge facing regulators and policymakers, highlighting that platformization of finance extends across multiple regulatory areas. Part Four explores the key principles necessary for the governance of digital finance platforms with a focus on their impact on sustainable development, seeking to maximize positive impact while minimizing negative outcomes. Part Five considers the tools and range of regulatory approaches available to regulators and policymakers seeking to effect change within various scenarios. We argue that the central approach is based on proportionality, with regulation graduated in order to support new entrants, technologies and business models but increasing as participants move from “too-small-to-care” to “too-large-to-ignore” to “too-big-to-fail”. Part Six concludes by highlighting the necessity of cooperation for effective governance and the various organizational approaches available to international regulators and policymakers. Part Six also explores how to better deploy the existing institutional structures and the potential of new structures, such as a global Digital Stability Board.¹⁴

II. FinTech 4.0: Towards Digital Finance Platforms

FinTech 4.0 is marked primarily by the platformization of finance, both from the disruptive entry of BigTech firms as well as in the context of incumbents and the scaling of FinTechs.¹⁵ The central point is that digitization and datafication of finance over a period of decades combined with network effects, and economies of scope and scale are resulting in ever-greater concentration and dominance not only in technology but also in finance.

BigTechs, which include Facebook, Google, Amazon, Tencent, and Alibaba, to name but a few, represent a broader group of firms in which technology has come to dramatically drive their growth, scale, diversification and dominance. Their entrance is significant because of the scale at which they operate and the means through which they can engage with large numbers of people, including unbanked, underbanked, and otherwise financially excluded people. In credit markets, for example, it is estimated these firms lent nearly \$600 billion in 2019 globally, and were important lenders in China, the US and an increasing number of emerging markets.¹⁶

¹⁴ The case for a Digital Stability Board is very well made in Robert Fay, *Digital Platforms Require a Global Governance Framework*, CENTER FOR INTERNATIONAL GOVERNANCE INNOVATION (Oct. 28, 2019), <https://www.cigionline.org/articles/digital-platforms-require-global-governance-framework/>.

¹⁵ Erik Feyen et al., *FinTech and the Digital Transformation of Financial Services: Implications for Market Structure and Public Policy*, BIS (Jul. 13, 2021), <https://www.bis.org/publ/bppdf/bispap117.htm>.

¹⁶ Giulio Cornelli et al., *FinTech and Big Tech Credit: A New Database*, BIS (Sep. 22, 2020), <https://www.bis.org/publ/work887.htm>.

This is all the more staggering because BigTechs are not traditional financial institutions. Rather, they are large companies whose primary activities encompass a broader set of more general digital services, such as online search engines, social media, e-commerce, ride-hailing, and telecommunications. Data is their primary currency and few suspected that their platform-based models would be the medium through which they could also become financial intermediaries, offering a growing range of digital financial services, generally starting with payment then moving to credit and investment and from there to an ever-wider range of areas. Indeed, by leveraging their large customer bases, troves of data from those customers, and sophisticated technology applications (such as artificial intelligence and cloud computing), BigTechs have been able to provide payments, credit, insurance, and digital wallets in ways that traditional financial institutions have failed to do. This trend has been driven by several factors.

First, BigTechs enjoy increasing numbers of users on their platforms as more people around the world gain access to smartphones and internet browsing capabilities. With user-friendly application programming interfaces (APIs), firms are able to offer a series of services through a platform-based model that connects users across a vast global network. The connections vary depending on the type of website, as they can be on social media sites or comprise buyers and sellers across a range of industries and enterprises. The use of these platforms increased significantly during the Covid-19 pandemic, as governments mandated lockdowns and forced people indoors to try and manage the spread of the virus.¹⁷ This increase fuelled the success of the BigTech business model, which is founded upon the “DNA” model.

The DNA model, which is the second factor driving BigTech’s entry into the financial services space, refers to the reinforcing cycle of data analytics, network effects, and interwoven activities.¹⁸ As users realize that a platform offers a valuable product or service, over time they are likely to encourage or attract other users onto the platform. For example, sellers on an e-commerce site may realize that the platform provides an easy to use and secure site to sell merchandise to buyers in a global marketplace. This ease of business is likely, in turn, to attract more sellers onto the site. As the number of sellers or merchants increase, there is a concomitant increase in the number of buyers on the site, attracted by the diversity of merchants and the competitive prices available from the growing pool of merchants. As this network of buyers and sellers increases, the platform begins to generate ‘network effects’. Network effects arise whenever greater numbers of users participating on a platform render it more useful to all users. Rising numbers of participants in turn generate new troves of data for the platform. The data is a key input into the platforms’ algorithms and data analytics and allows them to create better products and services, tailored more specifically to their users and consumers. As the products and services become better, this attracts more users and also enables the platform to create new services and products for its users – which we term interwoven activities. This cycle can lead

¹⁷ See, e.g., *The Big Tech Boom Marks a Lasting Change*, FINANCIAL TIMES (Jul. 31, 2021) https://www.ft.com/content/36fd57a0-52bb-4bed-b9a9-46dfb69b2f52?accessToken=zWAAAXsdzj8IkC82_VegUrtL7dO5qUbftpsvUg.MEYCIQChZGrk8TLX6eUXAe70IK32aP1OoevAvHnytfAOPNzO_glhALcobeSJD5UqUwZbul5C5tGhy73Hhh6cG6Jt8nxIts_w&sharetype=gif?token=49c89b97-ac20-4011-bb02-02c983a343e8; *How COVID-19 Has Pushed Companies Over the Technology Tipping Point—And Transformed Business Forever*, MCKINSEY (Oct. 5, 2020), <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever>.

¹⁸ *Big Tech in Finance: Opportunities and Risks*, BIS (Jun. 2019), <https://www.bis.org/publ/arpdf/ar2019e3.htm>.

to a platform's rapid growth and dominance within a particular sector and helps to explain how BigTechs came to dominate their respective sectors in such relatively short periods of time. It also helps explain how BigTechs have been able to move into financial services. As they attracted more users onto their platforms and were able to analyze more data from their activities, BigTechs were able to create and offer complementary services, such as payments, in order to better facilitate interactions and transactions across the network, particularly valuable in the context of e-commerce and gaming as well as enabling monetization of social media. Ant's Alipay and Tencent's TenPay are two prominent examples from China, emerging from e-commerce and social media enterprises, as is Facebook's more daring proposal of a global stablecoin for its platform, first introduced as Libra and now known as Diem. Eventually, BigTech firms expanded further into other areas of interest for users, such as credit, insurance and money market funds by playing a matchmaking or intermediary role for consumers and various financial product vendors.

The third enabling driver for BigTechs' expansion into financial services is the application of relatively new technology and tools which have of late matured significantly. These technologies consist primarily of artificial intelligence, big data, cloud computing, and distributed ledger technologies, often shortened to 'ABCD'.¹⁹ For example, using a combination of these technologies, BigTechs can extend credit to individuals in ways beyond traditional financial institutions. Such institutions typically determine whether to make a loan on the basis of collateral, earning potential or business plans. BigTechs, on the other hand, are able to use alternative and unconventional data sources amassed in large quantities from activities on their platform and other accessible sources (big data), and then processed using advanced analytical methods such as machine learning and network analysis (artificial intelligence). The big data used can include any combination of (i) transactions (sales volumes and average selling prices); (ii) reputation-related information (claim ratio, handling time, reviews, and complaints); and (iii) industry-specific characteristics (sales seasonality, demand trends and macroeconomic sensitivity). This can be enriched by using non-traditional data obtained via social media and other channels.²⁰ These multiple data points, taken together, can provide a better picture of a borrower's financial health and ability to repay a loan, and is applicable to both individuals and businesses. These applications of technology are more efficient and effective than traditional methods. It is efficient as BigTechs can make quicker and more accurate determinations of credit allocation than traditional banks, and it is more effective because they are able to reach and service the large numbers of unbanked and underbanked people and businesses (particularly micro- and small-and-medium-size enterprises, or 'MSMEs') typically neglected by traditional banks. These efficiencies can be further enhanced by cost savings using cloud computing and data servers which can reduce or remove the need for traditional brick-and-mortar branches and staff who meet individual customers in person. Rather, BigTechs simply invite individuals and institutions to log on to their platforms and interact with user-friendly APIs from the comfort of their smartphones or computers.

The entrance of BigTechs into financial services has been a boon for financial inclusion globally, and particularly in emerging market and developing economies ('EMDEs'). By acting as intermediaries, BigTech platforms have opened the doors to digital payments, savings and

¹⁹ Dirk A. Zetzsche et al., *Decentralized Finance*, 6 J. FINANC. REGUL. 172, 179-82 (2020).

²⁰ BIS, *supra* note 18, at 66.

investment opportunities, and alternative sources of finance. Some of these alternative finance models include platform-based lending (as described above), debt and equity crowdfunding, peer-2-peer ('P2P') lending, and invoice-based lending. Further, by developing and deploying sophisticated payments tools and infrastructure, such as the Quick Response (QR) code-based systems which have gained popularity rapidly in several Asian and Latin American countries,²¹ BigTechs contribute to economic growth and development.

The best examples are in China. Alibaba created Alipay, a payments service in 2004 to enable electronic payments to support e-commerce, and spun it off into a separate subsidiary / affiliate (Ant Financial) in 2010. By 2020, Alipay was used by almost a billion people (similar to TenPay). From payments, Ant expanded into money market funds (Yu'eobao) in 2013 as an alternative saving and investment tool, and by 2018 Yu'eobao had become the largest such fund in the world. Ant also expanded into platform lending, becoming by 2018 one of the largest consumer and MSME lenders in China and one of the largest issuers of asset-backed securities (to finance these lending operations). By 2020, Ant had expanded across payments, wealth management, lending, insurance, credit scoring and data sales services. Ant's only major competitor is the tech giant Tencent (which owns the dominant messaging and social network app WeChat), and the two firms between them account for 94% of the payments market.²² As seen in China, BigTechs are able to generate and command such significant economies of scope and scale so as to existentially threaten traditional financial institutions.

The entrance of any new actor or activity in financial services can pose risks to financial stability, market integrity, competition and consumer protection.²³ This is particularly so where the new actors do not operate primarily within the financial industry. As e-commerce, telecommunication, or social media platforms, the new actors typically engage a multitude of other regulatory issues, such as data privacy and cybersecurity.

Moreover, the sheer size and global spread of BigTechs pose systemic and cross-border risks that can be perplexing and daunting for regulators and policymakers. For example, regulators now have to grapple with BigTechs accumulating vast amounts of data in ways that raise barriers to entry, support anticompetitive practices, and present novel risks to consumers' data privacy and protection.²⁴ These issues arise from the DNA model and network effects and economies of scope and scale that all combine to drive the platformization of finance and also from the pursuit of 'ecosystem' models, based on the exclusive acquisition and control of data and its benefits, that seek to lock customers into corporate 'walled gardens'. This approach is characteristic of GAFAM, BATs and most tech firms engaging in financial services. Most FinTech startups seek to build ecosystems and platforms so as to grow into Big FinTechs, as occurred with earlier FinTechs such as Bloomberg, Visa and PayPal. Financial institutions transforming into data platforms have followed similar paths, such as Blackrock in asset

²¹ *BigTech Firms in Finance in Emerging Market and Developing Economies*, Financial Stability Board (FSB) (Oct. 12, 2020), <https://www.fsb.org/2020/10/bigtech-firms-in-finance-in-emerging-market-and-developing-economies/>.

²² *Digital Disruption in Banking and its Impact on Competition*, OECD (2020), <http://www.oecd.org/daf/competition/digital-disruption-in-financial-markets.htm>.

²³ See Jon Frost et al., *BigTech and the Changing Structure of Financial Intermediation*, BIS (Apr. 8, 2019), <https://www.bis.org/publ/work779.htm>; BIS, *supra* note 18.

²⁴ BIS, *supra* note 18.

management,²⁵ Ping An in insurance, and Citadel and Robinhood in trading. This is the TechFin model of applying a data-centered approach to finance.²⁶ It is even the approach of DLT platforms such as Ethereum, with decentralization in time requiring platformization.²⁷

This evolutionary growth results in a cycle of concentration and dominance. Thus, data and technology businesses are often characterized as ‘winner-takes-all’ or ‘winner-takes-most’ industries, in which oligopolies or even monopolies are a natural result. While there are enormous potential benefits to customers as a result of such platformization of finance, the tendency towards concentration and dominance brings a range of risks and concerns, ranging from reductions in competition and innovation, security (both of personal data and in financial and national security), and inequality.

Further, a recent IMF study found that firms with significant market power and cash reserves, such as Apple and Alphabet (parent of Google) with \$200 billion and \$150 billion, respectively, are less sensitive to regulatory efforts through monetary policy changes.²⁸ Consequently, policymakers and regulators need to respond thoughtfully, strategically and with growing urgency. The benefits and challenges are such that governments are looking to market based responses such as CBDCs.

In the next section, we consider the major regulatory issues applicable to BigTechs and other large digital finance platforms and their global operations, starting with the question of whether existing frameworks are sufficient to address the rising challenges and opportunities from platformization of finance.

III. Governing BigTechs and the Platformization of Finance: Challenging Existing Regulatory Frameworks

In considering possible governance approaches to the platformization of finance and the evolution of BigTechs and other large digital finance platforms, we begin with existing regulatory approaches. Of the existing frameworks four are most relevant: financial regulation, antitrust and competition regulation, telecommunications / internet regulation, and data protection regulation.²⁹ Each of these four areas is broad and includes requirements relating to establishment, consumer protection, disclosure and reporting, and other regulations.³⁰ Our

²⁵ Zetsche et al., *supra* note 4.

²⁶ Zetsche et al., *From FinTech to TechFin*, *supra* note 5.

²⁷ Zetsche et al., *supra* note 19.

²⁸ Romain Duval et al., *Market Power and Monetary Policy Transmission*, IMF (Jul. 9, 2021), <https://www.imf.org/en/Publications/WP/Issues/2021/07/09/Market-Power-and-Monetary-Policy-Transmission-461332>.

²⁹ *See, e.g.*, BIS, *supra* note 18, at 71. It is worth mentioning that tax law is another relevant area applicable to digital finance platforms. Tax law is particularly relevant in the context of sustainable development where inconsistent compliance with tax obligations can negatively affect developing economies. *See, e.g.*, *Corporate Tax Reform Must Focus on Developing Countries’ Needs, Combating Inequality, Speakers Tell Special Meeting of Economic and Social Council*, ECOSOC (Apr. 29, 2019), <https://www.un.org/press/en/2019/ecosoc6978.doc.htm>.

³⁰ BIS, *supra* note 18, at 68.

analysis highlights that none of the existing regulatory frameworks are sufficient to cover the range of opportunities and risks raised by the emerging platformization of digital finance.

A. Financial Regulation

The first area of regulatory activity relevant to the platformization of finance and BigTech evolution is financial regulation. Over an extended period (150 years), financial regulation has evolved to address issues of financial stability, market functioning and efficiency, financial integrity, consumer and investor protection, and fairness. This scope is premised upon the underlying view that finance is essential for sustainable development, as access to finance may support long-term thinking and planning by individuals, and thus that its regulation enhances the public good.³¹ Regulation has generally arisen in response to societal harms that legislators do not want to see repeated – namely financial crises, bank failures, fraud and money laundering, abuse of consumers, and unfair outcomes. Regulators are the representatives of society who are “paid to worry” and mitigate these risks.³²

With ‘international’ financial regulation international actors, including regulators, develop voluntary regulatory standards that are then implemented by individual jurisdictions.³³ A prominent example are the Basel Capital Accords, developed by the Basel Committee on Banking Supervision of the BIS, that set standards regarding capital and liquidity risks to improve the resilience of the banking sector.³⁴ Similar voluntary standards can be found in other areas of financial regulation such as securities (e.g. IOSCO Objectives and Principles of Securities Regulation), financial market infrastructure (e.g. CPMI-IOSCO Principles for Financial Market Infrastructures), investment (e.g. IOPS Principles of Private Pension Supervision), and others.³⁵

At the national level, regulators take a range of approaches to implementing international financial regulatory standards into their national legal systems, depending on the nature of the

³¹ Johannes Ehrentraud et al., *Policy Responses to FinTech: A Cross-Country Overview*, BIS (Jan. 30, 2020) <https://www.bis.org/fsi/publ/insights23.htm>.

³² Thanks to Jon Frost for this. See BUCKLEY & ARNER, *supra* note 7, for detailed discussion.

³³ The process of adoption normally includes high-level meetings and consultations among regulators and central banks. See, e.g., *The Basel Process – Overview*, BIS (2021), https://www.bis.org/about/basel_process.htm. Moreover, regional organizations often have jurisdiction to adopt directives and regulations with the latter being strictly enforceable and the former being open to state interpretation.

³⁴ Basel Committee on Banking Supervision, *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems*, BIS (Dec. 2010). The Basel Committee on Banking Supervision (BCBS) is the primary global standard setter for the prudential regulation of banks and provides a forum for regular cooperation on banking supervisory matters. Its 45 members comprise central banks and bank supervisors from 28 jurisdictions.

³⁵ See the review of international financial standards in the context of sustainable development in Toby A. A. Heaps & Danyelle Guyatt, *A Review of International Financial Standards as They Relate to Sustainable Development*, UNITED NATIONS ENVIRONMENT PROGRAMME 5-6 (Feb. 2017), http://unepinquiry.org/wp-content/uploads/2017/02/A_Review_of_International_Financial_Standards_as_They_Relate_to_Sustainable_Development.pdf.

financial activities in question.³⁶ Implementation is monitored closely by the G20 and FSB for their members and by the IMF, World Bank, and individual standard setters more broadly.³⁷

1. Objectives

At the core of financial regulation, particularly since the Global Financial Crisis (GFC) of 2008, is financial stability.³⁸ Financial stability can be seen as the absence of financial crises and more positively as a system which is resilient to shocks and supports wider sustainable development.³⁹ Financial stability regulation takes a wide range of forms, with a focus on macroprudential and microprudential regulation. Macroprudential regulation involves seeking to prevent crises and focuses on interconnections across the financial system.⁴⁰ Microprudential regulation focuses on the safety and soundness of individual financial institutions.⁴¹ Financial institutions are prone to risks of contagious losses of confidence which can result in panic (i.e. a ‘bank run’) and potentially the collapse of that individual institution and others from contagion across the wider financial system. This is broadly acknowledged as ‘systemic risk’. Systemic risks are tackled by both macroprudential and microprudential regulation.

International financial regulation has tended to focus on the identification of systemic risks and systemically important financial institutions (SIFIs), and related regulatory and supervisory approaches, including capital, liquidity and leverage requirements, enhanced supervision and disclosure, crisis contingency planning, and failure resolution mechanisms. Such approaches extend beyond traditional financial institutions to a range of financial market infrastructure providers (FMIs) as well, such as payment and settlement systems.

From the standpoint of systemic risk, platformization is resulting in the emergence of new SIFIs in the form of BigTechs. Clearly a starting proposition is that these need to be governed by the regulatory framework as they emerge.

As a second objective, consumer protection seeks to protect consumers from overreach by financial institutions, to drive wider confidence in the financial system and to reduce financial crime. This is typically addressed by a combination of disclosure and behavioural requirements, enforced through public agencies via criminal and/or civil penalties (e.g. warnings, financial license suspensions, bans on products).⁴² Consumer protection has

³⁶ See, e.g., Developing countries and their commitments to Basel regulations in Thorsten Beck et al., *Basel Standards and Developing Countries: A Difficult Relationship*, C.E.R.P. (Oct. 15, 2018), <https://voxeu.org/article/basel-standards-and-developing-countries>.

³⁷ See, e.g., BUCKLEY & ARNER *supra* note 7.

³⁸ See Steven L. Schwarcz, *Systemic Risk*, 97 GEORG. L. J. 193-249, 208 (2008); Jacek Osiński et al., *Macroprudential and Microprudential Policies: Toward Cohabitation*, IMF Staff Discussion Note, (2013), <https://www.imf.org/external/pubs/ft/sdn/2013/sdn1305.pdf>.

³⁹ Schwarcz, *supra* note 38, at 248.

⁴⁰ Osiński et al., *supra* note 38, at 7.

⁴¹ *Id.*

⁴² See, e.g., *ESMA Renews Binary Options Prohibition for a Further Three Months from 2 April 2019*, ESMA (Feb. 18, 2019), <https://www.esma.europa.eu/press-news/esma-news/esma-renews-binary-options-prohibition-further-three-months-2-april-2019>.

traditionally focused on disclosure and conduct rather than possible abuses of data or dominance.

The third objective – market integrity – focuses on preventing the criminal and terrorist use of the financial system, fraud and market manipulation. It focuses on a range of financial crimes (in particular fraud), but also money laundering, terrorist financing and market abuse. This is an area where platformization potentially provides real opportunities to better achieve regulatory and supervisory objectives.

2. Obstacles to Effective Financial Regulation of Digital Finance

Financial regulation generally requires companies to obtain special licenses from relevant regulators to provide financial services. For example, companies that wish to provide banking services need to obtain a banking license and comply with a range of related regulatory standards.⁴³ Most jurisdictions apply existing regulatory standards to govern the activities of digital finance platforms in the financial sector.⁴⁴ Hence, if digital finance platforms want to engage in regulated activities that require a license, they typically can do so by applying for general (i.e. non-tech specific) financial licenses.⁴⁵

Two problems arise with this approach for digital finance platforms. First, such firms often do not apply for banking or other licenses. To limit their regulatory compliance costs, these firms typically provide financial services through existing financial institutions without the need to apply for their own licenses (e.g. branded credit cards).⁴⁶ This means platforms can potentially affect financial markets while remaining beyond regulatory supervision.⁴⁷ Second, it is not always apparent whether the financial activities of digital finance platforms fall within the scope of relevant licensing or other financial regulations.⁴⁸ This is further exacerbated by the platforms' combination of digital technologies and business model innovations which raise challenges around which regulations might apply and how they might apply. For example, money balances in wallets or P2P lending, might not fit under traditional approaches to deposits and lending activities. Similarly, some blockchain-based financial products such as digital tokens may fall under securities regulation. However, how, when and where these new digital products fall under existing rules is often far from clear in many jurisdictions.⁴⁹

Another major risk is 'regulatory arbitrage', structuring to avoid regulation by transferring risk outside the regulated sector.⁵⁰ Prevention of regulatory arbitrage has emerged as a major financial regulatory objective since 2008.

⁴³ Saule T. Omarova, *Technology v Technocracy: FinTech as a Regulatory Challenge*, 6 J. FINANC. REGUL. 75, 112 (2020).

⁴⁴ Ehrentraud et al., *supra* note 31, at 11; Crisanto, *supra* note 3.

⁴⁵ Ehrentraud et al., *supra* note 31.

⁴⁶ *BigTech in Finance: Market Developments and Potential Financial Stability Implications*, F.S.B. 14 (Dec. 9, 2019), <https://www.fsb.org/wp-content/uploads/P091219-1.pdf>.

⁴⁷ Zetzsche et al., *From FinTech to TechFin*, *supra* note 5.

⁴⁸ Ehrentraud et al., *supra* note 31, at 29.

⁴⁹ See, e.g., Robert A. Schwinger, *Changing Securities Laws and Regulations for the Digital Token Age*, NEW YORK LAW JOURNAL, 1 (Mar. 18, 2019).

⁵⁰ One potential way to address this problem is the adoption of a functional approach to regulation, see Robert C. Merton, *A Functional Perspective of Financial Intermediation*, 24 FINANC MANAGE 23, 24 (1995).

To improve the licensing process and enhance competition, some regulators have amended their regulatory frameworks to govern the activities of digital finance platforms. For example, the US Office of the Comptroller of the Currency (OCC) approved special national bank charters for FinTech companies.⁵¹ The charters would contain a similar regulatory framework to that which applies to banks but with several relaxations such as exemptions from deposits requirements and state money-transmitter laws.⁵² Meanwhile, other requirements that apply to banks in the US would extend to the special bank charters for FinTech companies (including digital finance platforms).⁵³ Similar developments can be found in other jurisdictions, such as Australia, United Kingdom (UK) and the EU, where regulators allow FinTech companies to provide limited financial services without fully complying with all regulatory standards.⁵⁴ Reacting to the emergence of regulatory arbitrage and non-bank finance in the context of digital finance platforms, most recently, China has implemented a unified regulatory regime for firms engaging in financial services-related business, without distinctions from a technological platform standpoint or otherwise.⁵⁵

Besides licensing, other financial regulatory requirements may be applicable to digital finance platforms, such as KYC/AML obligations and securities regulations.⁵⁶ These regulations are likewise designed to secure the stability of the financial sector, deter criminal activities, and protect consumers.

3. Contribution to Innovation and Competition in Financial Services?

The promotion of innovation and competition in financial services supports broader sustainable development.⁵⁷ To support these goals, a range of regulators have adopted ‘regulatory sandboxes’ and ‘innovation hubs’.⁵⁸ Regulatory sandboxes include a wide range of programs run by financial regulators to facilitate controlled testing of innovative financial products or services on the market and thus to examine their impact.⁵⁹ In particular, regulatory sandboxes allow FinTech companies and financial firms to offer their products to customers while benefiting from a waiver of, or reduction in, applicable regulations.⁶⁰ Regulatory sandboxes

⁵¹ See *OCC Begins Accepting National Bank Charter Applications from Financial Technology Companies*, OFFICE OF THE COMPTROLLER OF THE CURRENCY (Jul. 31, 2018), <https://www.occ.gov/news-issuances/news-releases/2018/nr-occ-2018-74.html>.

⁵² Omarova, *supra* note 43, at 113; *Policy Statement on Financial Technology Companies’ Eligibility to Apply for National Bank Charters*, OFFICE OF THE COMPTROLLER OF THE CURRENCY (Jul. 31, 2018), https://www.occ.gov/news-issuances/news-releases/2018/pub-other-occ-policy-statement-fintech.pdf?utm_campaign=ABA-Newsbytes-080118&utm_medium=email&utm_source=Eloqua.

⁵³ Omarova, *supra* note 43, at 113.

⁵⁴ *Id.* at 111.

⁵⁵ Zhong Xu and Ruihui Xu, *Regulating Fintech for Sustainable Development in the People’s Republic of China*, A.D.B.I WORKING PAPER SERIES, at 14 (2019).

⁵⁶ BIS, *supra* note 18, at 68; Johannes Ehrentraud, et al., *Regulating Fintech Platform Financing: Digital Banks and Fintech Platforms*, B.I.S. (Aug. 27, 2020), <https://www.bis.org/fsi/publ/insights27.pdf>.

⁵⁷ See Sasin Kirakul et al., *The Universe of Supervisory Mandates - Total Eclipse of the Core?*, B.I.S. (Mar. 9, 2021), <https://www.bis.org/fsi/publ/insights30.htm>.

⁵⁸ Ross P. Buckley et al., *Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond*, 61 WASH. U. J. L. & POL’Y 55 (2020).

⁵⁹ Omarova, *supra* note 43, at 110; *FInsight: Regulatory Sandboxes*, Baker McKenzie (Oct. 31, 2018), <https://financialinstitutions.bakermckenzie.com/2018/10/31/finsight-regulatory-sandboxes/>.

⁶⁰ Omarova, *supra* note 43, at 111.

usually seek to foster innovation and competitiveness in financial services, test the effects of new products and technologies on financial markets, and measure the effects of regulatory burdens.⁶¹ Regulatory sandboxes are becoming increasingly popular as a way to support sustainability in financial services.⁶²

B. Antitrust and Competition Regulation

The second area of regulatory activity relevant to the platformization of finance is antitrust and competition law. The purpose of antitrust and competition law is to protect consumers and small businesses from abusive business practices caused by a concentration of market power in the hands of dominant firms.⁶³ These laws help to maintain a competitive market environment by limiting predatory business practices such as market allocation, bid-rigging, price-fixing, and others.⁶⁴ As such, antitrust and competition laws apply to various economic activities that can intentionally or unintentionally stifle competition. Since the late 1970s, approaches have been increasingly dominated by considerations of consumer cost and benefit, especially in the US.

Similarly to financial regulation, competition laws and policies are developed nationally, regionally, and internationally. At the international level, bodies such as the Organisation for Economic Cooperation and Development (OECD), the International Competition Network (ICN), and the United Nations Conference on Trade and Development (UNCTAD) develop voluntary recommendations, best practices, and policy guidelines aimed at harmonization of competition laws across different jurisdictions.⁶⁵ In addition to multilateral cooperation, regulators from different jurisdictions can adopt bilateral Memoranda of Understanding (MoU) or collaboration agreements to harmonize the enforcement of competition laws.⁶⁶

At the national and regional level, regulators have broad discretion in their approaches to competition policy and its goals. For example, the US and the European Union (EU) often pursue different goals with their competition policies. In the US, antitrust law is primarily focused on the protection of consumer welfare; whereas, in the EU, competition law is aimed

⁶¹ Giulio Cornelli et al., *Inside the Regulatory Sandbox: Effects on Fintech Funding*, B.I.S. (Nov. 9, 2020) <https://www.bis.org/publ/work901.htm>. Further, regulatory sandboxes can pursue additional goals such as female empowerment, *see, e.g.*, FCA's TechSprint initiatives, available at *Global AML and Financial Crime TechSprint*, FCA (2018) <https://www.fca.org.uk/events/techsprints/aml-financial-crime-international-techsprint>.

⁶² *See, e.g.*, Phoebe Higgins & Timothy Male, *Sandboxing Nature: How Regulatory Sandboxes Could Help Restore Species, Enhance Water Quality and Build Better Habitats Faster*, THE ENVIRONMENTAL POLICY INNOVATION CENTER 9-10 (Oct. 2019) http://policyinnovation.org/wp-content/uploads/2019/10/Sandboxing_Nature.pdf.

⁶³ J.D. Wright & D.H. Ginsburg, *The Goals of Antitrust: Welfare Trumps Choice*, 81 *FORDHAM L. REV.* 2405, 2406 (2013).

⁶⁴ *See, e.g.*, *Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What To Look For*, US DEPARTMENT OF JUSTICE, at 2.

⁶⁵ *See, e.g.*, O.E.C.D., *Recommendation of the Council on Competition Assessment*, OECD/LEGAL/0455 (Dec. 11, 2019), <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0455>; *International Co-Operation in Competition*, OECD (2014), <https://www.oecd.org/competition/internationalco-operationandcompetition.htm> (last visited, Aug. 21, 2021).

⁶⁶ *See, e.g.*, O.E.C.D., *Inventory of Provisions in Inter-Agency Co-Operation Agreements (MoUs)*, at 3, DAF/COMP/WP3(2016)1/REV2 (Jul. 26, 2016) [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WP3\(2016\)1/REV2&docLanguage=En](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WP3(2016)1/REV2&docLanguage=En).

at both protecting consumers and facilitating market integration.⁶⁷ The difference in competition policy goals translates into different regulatory requirements, e.g. the EU has a much lower threshold for qualifying economic activities as anticompetitive than does the US.⁶⁸

Competition laws are becoming increasingly relevant for platform finance. From the standpoint of consumer benefit, platform finance is challenging dominant paradigms, particularly when considered against wider questions of competition, innovation, inequality and other aspects of balanced sustainable development. In particular, BigTechs can have significant advantages in data collection and digital infrastructure control.⁶⁹ These advantages can lead to conflicts of interest and can allow platforms to undermine market competition.⁷⁰ For example, digital finance platforms can maintain digital monopolies by acquiring smaller competitors, thus solidifying their market position.⁷¹ Moreover, digital finance platforms can raise entry barriers into financial and other markets, use their data and dominant digital platforms to suppress competition, and engage in other anticompetitive practices.⁷² Facebook, for example, has faced antitrust scrutiny and investigations in India, Turkey, Argentina, the UK, and the EU for changes to its privacy policy and terms of service which would allow them to collect data in a permissionless fashion from its WhatsApp users in order to enhance activities on the main Facebook platform.⁷³

These risks attract the attention of regulators in both developed and developing countries. In the US, for example, the Subcommittee on Antitrust, Commercial, and Administrative Law recently released a report on the state of competition in US digital markets.⁷⁴ The report concluded that major tech companies have significant market power that can undermine competition, thus warranting antitrust reforms.⁷⁵ Shortly after the report, the US Department of Justice filed an antitrust lawsuit against Google for maintaining a monopoly in internet search and search advertising markets.⁷⁶ Similar developments are also happening in the EU where the European Commission proposed a legislative initiative called “the Digital Services Act Package”, which consists of the “Digital Markets Act” and the “Digital Services Act”. The

⁶⁷ See *Approach of the European Commission to Competition in the High Technology Sector*, EUROPEAN COMMISSION TO COMPETITION IN THE HIGH TECHNOLOGY SECTOR 4 (2018), https://ec.europa.eu/competition/information/digitisation_2018/contributions/epicenter.pdf

⁶⁸ *Id.*; M. Coppola & R. Nazzini, *The European and U.S. Approaches to Antitrust and Tech: Setting the Record Straight*, COMPETITION POLICY INTERNATIONAL 10 (May 4, 2020) <https://www.competitionpolicyinternational.com/the-european-and-u-s-approaches-to-antitrust-and-tech-setting-the-record-straight-a-reply-to-gregory-j-werden-and-luke-m-froeb-antitrust-and-tech-europe-and-the-united-states-differ/>.

⁶⁹ BIS, *supra* note 18, at 73.

⁷⁰ *Id.*

⁷¹ See, e.g., the acquisition of Instagram and WhatsApp by Facebook. See also Subcommittee on Antitrust, Commercial and Administrative Law of The Committee on the Judiciary, *Investigation of Competition in Digital Markets* 11 (2020) https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf?utm_campaign=4493-519.

⁷² BIS, *supra* note 18, at 67.

⁷³ Apurv Pratap Singh & Hrishav Kumar, *Antitrust Regulators v. Big Tech: The Battle Reaches India*, OBLB (Jul. 22, 2021) <https://www.law.ox.ac.uk/business-law-blog/blog/2021/07/antitrust-regulators-v-big-tech-battle-reaches-india>.

⁷⁴ The Subcommittee on Antitrust, Commercial and Administrative Law of The Committee on the Judiciary, *Investigation of Competition in Digital Markets*, Majority Staff Report and Recommendations (2020).

⁷⁵ *Id.*, at 20.

⁷⁶ *Justice Department Sues Monopolist Google for Violating Antitrust Laws*, US DEPARTMENT OF JUSTICE (Oct. 20, 2020) <https://www.justice.gov/opa/pr/justice-department-sues-monopolist-google-violating-antitrust-laws>.

acts are designed to foster competitiveness among digital services providers and to enhance the protection of digital consumer rights by identifying “gatekeepers” and imposing new obligations on digital service providers.⁷⁷

In a similar vein, China’s State Administration for Market Regulation has also initiated related processes, including new draft guidelines on e-commerce and internet platforms. The guidelines pursue several aims including the protection of fair competition, a reduction in operator compliance costs, and the improvement of anti-monopoly supervision in the internet sector.⁷⁸ The regulations are likely to affect China’s major companies, such as Tencent and Alibaba, by imposing more restrictions on the use of subsidies, discounts, and other business practices that can affect competition. India recently prohibited e-commerce platforms from selling products from affiliated companies to avoid potential conflicts of interest and concentration of market power.⁷⁹ Mexico’s FinTech law is intended to foster competition and innovation through regulatory sandboxes and API-based open access to data.⁸⁰ These developments suggest that regulators around the world will continue to re-examine their existing competition laws to tackle the risks arising from digital finance platforms.

Competition laws remain relevant for sustainable development where they can serve to limit the negative impacts of digital finance platforms. For example, while competition can decrease costs of financial services, thus potentially contributing to economic growth and the reduction of poverty,⁸¹ the concentration of market power due to platform finance can undermine the resilience of incumbent business models.⁸² Additionally, the dominant market position of multinational digital finance platforms can undermine investment in, and development of, emerging local enterprises. These challenges mean that regulators need to strengthen their antitrust competition policies to limit the potential negative impacts of digital finance platforms on sustainable development.

Thus, antitrust and competition law are being called on to play an increasing role in balancing the advantages and risks of platform finance.

C. Telecommunication and Internet Regulation

Telecommunications and internet regulation are also highly relevant. At the international level, the International Telecommunication Union (ITU) sets general principles regarding telecom services and the interconnection and interoperability of telecom facilities.⁸³ The main objectives of the ITU are the facilitation of global telecom interconnection and interoperability, the promotion of efficient and accessible telecom services, and the standardization of general

⁷⁷ *The Digital Services Act Package*, EUROPEAN COMMISSION (2020) <https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package>.

⁷⁸ Leo Xin, *China Drafts New Antitrust Guideline for Internet Companies*, PINSENT MASONS (Nov. 19, 2020) <https://www.pinsentmasons.com/out-law/news/china-drafts-new-antitrust-guideline-for-internet-companies>; *Antitrust Guidelines on the Platform Economy Field (Draft for Solicitation of Comments)*, CHINA JUSTICE OBSERVER (Nov. 11, 2020) http://www.samr.gov.cn/hd/zjdc/202011/t20201109_323234.html.

⁷⁹ BIS, *supra* note 18, at 73.

⁸⁰ O.E.C.D., *Digital Disruption in Banking and its Impact on Competition*, 27 (2020) <http://www.oecd.org/daf/competition/digital-disruption-in-banking-and-its-impact-on-competition-2020.pdf>.

⁸¹ *BigTech Firms in Finance in Emerging Market and Developing Economies*, FSB, 16 (Oct. 12, 2020).

⁸² *Id.*

⁸³ See, e.g., *Final Acts of the World Conference on International Telecommunications*, INTERNATIONAL TELECOMMUNICATIONS UNION (2012) <https://www.itu.int/en/wcit-12/Documents/final-acts-wcit-12.pdf>.

principles on the provision and operation of international telecoms.⁸⁴ To achieve these goals, the ITU facilitates the adoption of international treaties on telecom regulation such as the International Telecommunication Regulations (ITRs) and develops non-binding recommendations on telecom operations for national implementation by states. Besides the ITU, international organizations such as the United Nations Commission on International Trade Law (UNCITRAL) and the OECD develop policy recommendations and treaties on internet governance and e-commerce.⁸⁵ Their initiatives are designed to ensure greater consistency across national and international telecoms laws and policies.

In respect of the internet, non-profit organizations play an important role. For example, the Internet Corporation for Assigned Names and Numbers (ICANN) is a non-profit corporation that works with internet registries and registrars to promote greater competition on the internet (e.g. accessible domains), to facilitate dispute resolution over domain ownership, and to promote new top-level domains.⁸⁶ Unlike top-down governance models, ICANN operates on a community-driven consensus model to monitor how the internet domain system functions and develops.⁸⁷ Similarly to domain regulation, other areas of the internet are governed by organizations such as the American Registry for Internet Numbers (IP-address management), the Internet Governance Forum (promotion of stakeholder cooperation), and the Internet Engineering Task Force (a voluntary internet protocol suite).⁸⁸

At the regional and national levels, telecoms regulators pursue diverse tasks such as consumer protection, interoperability of telecom services, fair competition among telecom service providers, data security and data privacy, and cybersecurity.⁸⁹ For example, the EU adopted a range of directives on electronic communications networks and services to facilitate competition in the telecommunications sectors.⁹⁰ Similar regulatory developments are found in other regional and national jurisdictions.⁹¹

Digital finance platforms' activities can sometimes fall within the scope of telecommunication laws. A number of telecommunication companies, such as mobile network operators (MNO), have ventured into the provision of digital financial services.⁹² In developing countries, in

⁸⁴ *Id.*, art. 1.

⁸⁵ See, e.g., United Nations Convention on the Use of Electronic Communications in International Contracts, entered into force Mar. 1, 2013, 2898 U.N.T.S. 3; *OECD Principles for Internet Policy Making*, OECD (2014), <https://www.oecd.org/digital/ieconomy/oecd-principles-for-internet-policy-making.pdf>.

⁸⁶ *What's the Effect of ICANN's Role and Work on the Internet?*, ICANN (2012), <https://www.icann.org/resources/pages/effect-2012-02-25-en>.

⁸⁷ *Beginner's Guide to Participating in ICANN*, ICANN 2 (Oct. 2012).

⁸⁸ *What is Internet Governance?*, THE INTERNET GOVERNANCE PROJECT (2021), <https://www.internetgovernance.org/what-is-internet-governance/#:~:text=Internet%20governance%20refers%20to%20the,UDP%2C%20DNS%20and%20BGP>.

⁸⁹ OECD, *supra* note 85, at 4.

⁹⁰ See, e.g., Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC (Aug. 28, 2014) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2014.257.01.0073.01.ENG.

⁹¹ See generally Hunter Whaley, *Research Guide: International Internet Law*, COLUMBIA UNIVERSITY (Nov. 22, 2019), http://library.law.columbia.edu/guides/International_Internet_Law#Agreements.

⁹² Leon Perlman, *Role of the Telecommunications Regulator in Digital Financial Services*, THE COLUMBIA INSTITUTE FOR TELE-INFORMATION (Nov. 2018) <http://www.citicolumbia.org/wp-content/uploads/2018/11/Role-of-telco-regulator-in-DFS-for-publication.pdf>; and RP Buckley & L Malady,

particular, MNOs have provided financial services at scale to previously unbanked populations.⁹³ One of the most prominent examples is M-PESA, a mobile money service originally launched in Kenya by Safaricom.⁹⁴ The importance of such innovative MNOs for sustainable development is their ability to broaden the ecosystem of financial services available to neglected populations in rural areas through the creation of digital wallets for transactions, the ability to deposit or withdraw cash through vast networks of physical agents, and the offering of credit and insurance services.⁹⁵

While the financial services provided by MNOs are typically governed by financial, competition, and data regulations, telecommunications authorities play a supporting role.⁹⁶ For example, telecommunication authorities license the provision of telecommunication services and thus regulate the non-financial elements of MNOs' business models. Moreover, telecommunication authorities can supervise network security, assist in KYC via subscriber identity modules (SIM) or other authentication regulation, and monitor the service quality and fair competition in the telecommunication services, all of which are relevant for the underlying infrastructure of digital finance.⁹⁷

The provision of financial services by MNOs raises questions about the role of telecommunication authorities in the governance of digital finance. In most countries, financial and telecommunication regulators need to work more closely together than they do, to realise the potential of technology to advance financial inclusion, and hence sustainable development. In particular, regulatory supervision of broadband standards and prices, combined with accessible and clear regulatory requirements for the provision of digital financial services by MNOs, offer great potential to significantly contribute to financial inclusion.⁹⁸ In general, therefore, greater attention needs to be given to the role of telecommunication authorities in facilitating the provision of digital financial services.

D. Data Protection and Privacy Regulation

Data protection and privacy regulation is the fourth area of regulatory activity relevant to digital finance platforms.⁹⁹ The purpose of data regulation is the protection of personally identifiable information from unlawful or unethical use.¹⁰⁰ To protect personal data, relevant regulations can, among other things, impose restrictions on the collection and processing of personal

Building Consumer Demand for Digital Financial Services – The New Regulatory Frontier -- Part I, Nov./Dec. 2014 BANK. L. J. 834.

⁹³ Perlman, *supra*, note 92, at 12.

⁹⁴ See *What is M-Pesa?* VODAFONE, <https://www.vodafone.com/what-we-do/services/m-pesa>.

⁹⁵ See generally Van Hove & A. Dubus, *M-PESA and Financial Inclusion in Kenya: Of Paying Comes Saving?*, 11 SUSTAINABILITY. 2 (2019); and E. Gibson, F. Lupo Pasini and R.P. Buckley, *Regulating Digital Financial Services Agents in Developing Countries to Promote Financial Inclusion*, (2015) SING. J. LEG. STU. 26.

⁹⁶ Perlman, *supra* note 92, at 15. See, e.g., China's recent e-commerce law that imposes business registration, IP and data liability, and other obligations on both telecom and non-telecom companies that provide e-commerce services. See *China Passes New E-commerce Law - a "Safe Harbour" with Chinese Characteristics*, DEACONS (Oct. 18, 2018), <https://www.deacons.com/news-and-insights/publications/china-passes-new-e-commerce-law-a-safe-harbour-with-chinese-characteristics.html>.

⁹⁷ Perlman, *supra* note 92, at 46.

⁹⁸ *Id.*, at 15.

⁹⁹ BIS, *supra* note 18, at 69.

¹⁰⁰ See, e.g., General Data Protection Regulation, Regulation (EU) 2016/679, European Parliament and the Council of European Union, 2016 O.J. (L 119) 1, art. 5.

information, require firms to comply with data security standards, and confine data collection to specific purposes.¹⁰¹

Contrary to competition and financial regulations that aim to govern economic activities, data privacy laws often originate from human rights law and the right to privacy.¹⁰² As a result, the scope of privacy law was traditionally confined to the protection of individuals and their private life from public and private interference.¹⁰³ However, the use of data in financial and other markets pushed regulators to consider the economic implications of data privacy and widen their regulatory approaches.

In particular, recent cases involving the unethical collection and use of data by BigTech companies pushed regulators around the world to re-examine their existing data protection policies.¹⁰⁴ One of the most notable developments in this area is the EU's General Data Protection Regulation (GDPR) which imposes data privacy protection obligations on companies that hold, collect, or process the data of natural persons within the EU.¹⁰⁵ Among various other obligations, the GDPR requires companies to process data in a "lawful and transparent manner" and solely for specific purposes.¹⁰⁶ Moreover, companies must ensure that the collected data is sufficiently secure and that the scope of data collection is limited to only what is absolutely necessary to conduct business activities (i.e. the "data minimization" principle).¹⁰⁷ The GDPR also contains strict sanctions and companies can be fined for up to 4 percent of their revenue for data privacy and security violations.¹⁰⁸

While the GDPR is arguably one of the most robust data privacy regulations in the world, other countries and jurisdictions have adopted or are planning to adopt their own data privacy regulations. Among notable developments, China has recently released a draft of its new Personal Information Protection Law which resembles the GDPR and outlines the rules regarding collection, transfer, and use of personal data in China or that relates to China's residents.¹⁰⁹ Combined with previous data privacy regulations and new antitrust guidelines,

¹⁰¹ *Id.*

¹⁰² For example, the international right to privacy is enshrined in Article 12 of the Universal Declaration of Human Rights (UDHR) and Article 17 of the International Covenant on Civil and Political Rights (ICCPR). Regionally, the right is enshrined in, for example, Article 8 of the European Convention on Human Rights (ECHR) and Article 11 of the American Convention on Human Rights. *See generally* Oliver Diggelmann & Maria Nicole Cleis, *How the Right to Privacy Became a Human Right*, 14 HUM. RIGHTS LAW REV. 441 (2014).

¹⁰³ *See, e.g.*, the *European Convention on Human Rights* (Nov. 4, 1950) and the relevant case law.

¹⁰⁴ *Cambridge Analytica, GDPR - 1 Year On - a Lot of Words and Some Action*, PRIVACY INTERNATIONAL (Apr. 30, 2019),

<https://privacyinternational.org/news-analysis/2857/cambridge-analytica-gdpr-1-year-lot-words-and-some-action>

¹⁰⁵ GDPR, *supra* note 100, at art 3. It should be noted that one of the principal architects of the GDPR, Axel Voss, recently called for an overhaul of the data protection regime to better account for the post-pandemic world. *See* Javier Espinosa, *EU Must Overhaul Flagship Data Protection Laws, Says a 'Father' of Policy*, FINANCIAL TIMES (Mar. 3, 2021) <https://www.ft.com/content/b0b44dbe-1e40-4624-bdb1-e87bc8016106>.

¹⁰⁶ GDPR, *supra* note 100, at art. 5.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*, at art. 83; Natasha Lomas, *French Court Slaps Down Google's Appeal Against \$57m GDPR Fine*, TECH CRUNCH (Jun. 20, 2020), <https://techcrunch.com/2020/06/19/french-court-slaps-down-googles-appeal-against-57m-gdpr-fine/>.

¹⁰⁹ Gil Zhang & Kate Yin, *A Look at China's Draft of Personal Information Protection Law*, INTERNATIONAL ASSOCIATION OF PRIVACY PROFESSIONALS (IAPP) (Oct. 26, 2020), <https://iapp.org/news/a/a-look-at-chinas-draft-of-personal-data-protection-law/>.

China is likely to continue its push for stronger data and data monopoly governance in the financial sector. Similarly, other major economies, including the US, are considering the adoption of new data security legislation.

In the context of sustainable development, data privacy regulations can mitigate the risks associated with the broad adoption of technology by digital finance platforms and other companies. The ability of digital finance platforms to collect and analyse private data on a large scale combined with their control of major digital platforms can severely undermine fair competition and decrease market contestability.¹¹⁰ For example, unregulated digital finance platforms can have unfair data advantages over traditional financial institutions. The unfair advantages arise from the digital finance platforms' ability to track consumer habits and transactions online, and sometimes offline, in a way that enables them to offer better tailored products and access to financial services, such as credit or insurance. This can lead to volatility in financial markets due to the inability of incumbent financial institutions to compete with the digital finance platforms and their data advantages.¹¹¹ Moreover, digital finance platforms' unchecked data monopoly can lead to price and client discrimination in financial services.¹¹² The problem of data and market power concentration is particularly relevant for developing economies where major companies can undermine local competition and innovation. In this context, data privacy laws can help to address the risks of data monopolies by limiting the rights of private companies regarding the collection and use of data.

In addition to addressing economic and financial risks, data privacy regulations can help to maintain the integrity of and trust in public institutions. The recent scandals with Facebook and Cambridge Analytica show that unchecked data collection and analysis can lead to the spread of misinformation and manipulation of public opinion with significant negative repercussions.¹¹³ The integrity of public institutions can be intentionally or unintentionally undermined by the unchecked use of private data.¹¹⁴ To mitigate these risks, data privacy regulations can play an important role in limiting the data advantages of digital finance platforms.

IV. A Principles-based Approach to Governance of FinTech 4.0

As the Bank for International Settlements concluded in 2021, no one of the existing regulatory approaches is sufficient to address all of the issues raised by platform finance.¹¹⁵ It will be necessary to build mechanisms capable of bridging these regulatory silos and their disparate objectives and approaches.

¹¹⁰ BIS, *supra* note 18, at 73.

¹¹¹ *Id.*

¹¹² *Id.*, at 67. For example, digital finance platforms can use private data to detect clients who are willing to pay higher premiums for financial services.

¹¹³ Karen Kornbluh, *Could Europe's New Data Protection Regulation Curb Online Disinformation?*, COUNCIL OF FOREIGN RELATIONS (Feb. 20, 2018), <https://www.cfr.org/blog/could-europes-new-data-protection-regulation-curb-online-disinformation>.

¹¹⁴ *Id.*

¹¹⁵ Carstens et al., *supra* note 3.

We argue that the layers of this complexity, across subject matter and regulatory scope and competence, necessitate a flexible approach to regulation – one that can encourage, accommodate and temper rapid innovation in FinTech 4.0. Such flexibility is more likely found in a principles- based approach.¹¹⁶

Principles, as opposed to rules, provide greater flexibility for all participants within an ecosystem, including both regulators and regulatees.¹¹⁷ They can provide guidance for normatively good conduct that minimizes negative impact while promoting positive outcomes.¹¹⁸ Moreover, a principles-based approach provides a means for regulators and policymakers to allow and encourage rapid innovation, as we find with FinTech, while retaining the capacity to temper it, through the imposition of appropriate guardrails, so to speak.

Consequently, in this section, we suggest five principles as the basis on which to build digital finance platform governance frameworks: (1) ensuring foundational financial regulatory objectives; (2) developing reflexive and iterative regulation; (3) fostering responsible actors; (4) ensuring appropriate, balanced and proportional oversight and enforcement; and (5) instilling a commitment to sustainable development.

A. Principle One: Ensuring Foundational Financial Regulatory Objectives

As discussed in Section III above, financial regulation is built upon four key foundations: financial stability, consumer protection, market integrity and fair competition.¹¹⁹ As BigTechs provide financial services and enter financial markets, it is imperative that regulators and policymakers remain focused on these foundational objectives, particularly with new actors that are not native to the financial sector. While data protection and telecommunications regulation are highly relevant in FinTech 4.0, the focus on these factors needs to be in addition to, not substitution for, the foundational factors.

B. Principle Two: Developing Reflexive and Iterative Regulation

Policymakers and regulators need to adopt an approach to regulation that is both reflexive and iterative. This is underlined by two realities of digital finance platforms: first, the technology they employ is developing rapidly; and second, the societal capacity to engage with that technology varies widely (particularly in developing countries). This includes the capacity of regulators, consumers and infrastructure. Subsequently, regulatory interventions will need to be targeted, with mechanisms that allow for rapid review and adaptation.

¹¹⁶ Julia Black, *Paradoxes and Failures: 'New Governance' Techniques and the Financial Crisis*, 75 MOD. L. REV. 1037 (2012); *Principles-Based Regulation - Focusing on the Outcomes That Matter*, FSA (Apr. 2007) <https://webarchive.nationalarchives.gov.uk/20081112165843/http://www.fsa.gov.uk/pubs/other/pprinciples.pdf>.

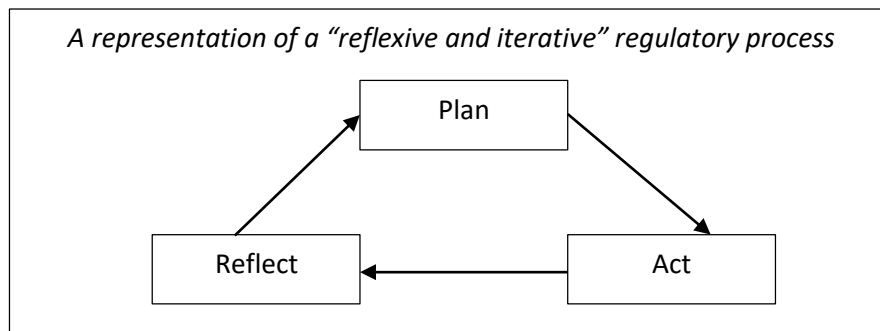
¹¹⁷ See Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L. J. 557 (1992); Dan Awrey, *Regulating Financial Innovation: A More Principles-Based Proposal?*, 5 BROOK. J. CORP. FIN. & COM. L. 273, 278 (2011).

¹¹⁸ Awrey, *supra* note 117, *Regulating Financial Innovation*.

¹¹⁹ Carstens et al., *supra* note 3.

Within societal capacity, regulatory capacity is the ability of regulators to oversee and manage these activities. The capacity of users and consumers is linked to their ability to engage with the technology. For example, segments of the population in all countries (especially developing ones) may be financially illiterate or excluded, or technologically illiterate or excluded. Finally, capacity includes the infrastructure necessary to support the technology upon which digital finance platforms operate, from data servers to telecommunication networks and electric power grids. Developing countries may be lacking in these areas relative to the more advanced economies in which digital finance platforms may be domiciled. As such, all countries, but particularly developing countries, will need to deploy a reflexive and iterative approach to policy and regulation. This should entail an appropriate mix of substantive regulation coupled to mechanisms that give authorities sufficient flexibility to reflect on, and adapt to, developments as required.

Substantively, national regulators will need to adopt relevant regulations that promote public welfare through efficiency and fair competition, financial stability, market integrity and consumer protection. The important corollary to the substantive regulations, however, are the regulatory mechanisms that allow for reflexivity and iteration.



There are several ways regulators can embed feedback loops into their process as they develop policy and regulate. These include innovation hubs, regulatory sandboxes and transnational regulatory networks.

Innovation hubs usually provide a specific portal by which firms can engage with regulators to raise questions and seek clarifications or non-binding guidance about fintech-related issues and compliance with the regulatory framework, licensing or registration requirements and regulatory and supervisory expectations.¹²⁰

Regulatory sandboxes, as discussed above, go a step further and provide a safe harbor in which companies can test innovative financial products, services or business models with actual customers in a controlled environment (a “sandbox”) pursuant to a specific testing plan agreed with the supervisor and subject to the application of distinct safeguards.¹²¹

¹²⁰ Ross P. Buckley et al., *Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond*, 61 WASH. J. L. & POL’Y 55, 55 (2020).

¹²¹ Definitions drawn from EUROPEAN SECURITIES AND MARKETS AUTHORITY ET AL., FINTECH: REGULATORY SANDBOXES AND INNOVATION HUBS (2018), <https://www.esma.europa.eu/sites/default/documents/files/documents/10180/2545547/154a7ccb-06de-4514-a1e3-0d063b5edb46/JC%202018%2074%20Joint%20Report%20on%20Regulatory%20Sandboxes%20and%20Innovation%20Hubs.pdf?retry=1>

The utility of these mechanisms is their ability to facilitate a collaborative partnership between the regulators and the technology firms. As financial service provision may be relatively nascent in developing countries, there is great opportunity to innovate and create financial services and products to enhance financial inclusion and promote sustainable development. Innovation hubs and regulatory sandboxes are useful as they can both support industry innovation and enable regulators to anticipate, and prepare for, proposed innovations.¹²²

Innovation hubs and regulatory sandboxes require highly skilled staff with expertise in fintech regulation and the local regulatory schema. Some sort of exchange program, for example, may well assist both developed and developing countries. For the developing country, it would be an opportunity to learn about more mature or advanced regulatory practices, policies and procedures. For the developed country regulators, it would be an opportunity to learn about some of the innovative developments in developing countries and to consider the likely impacts in global markets and transactions. This could be a mutually beneficial, and hopefully ongoing, collaborative endeavor.

Transnational regulatory networks can be of further assistance to the extent that they allow regulators in both developed and developing economies to interact in a more informal manner and to share techniques, approaches and lessons learned. One example of a prominent transnational regulatory network is the Financial Action Task Force (FATF). The FATF is the global money laundering and terrorist financing watchdog. It draws its membership from financial regulatory authorities across 37 jurisdictions and other international organizations. Its reach, however, goes far beyond its membership. Collectively, the body sets standards and promotes the effective implementation of legal, regulatory and operational measures for combating money laundering, terrorism financing and other related threats to the integrity of the international financial system.¹²³ More recently, this has come to include the threat posed by virtual assets such as cryptocurrencies. By developing appropriate standards to match new practices that pose financial market risks, the FATF helps its members to implement matching regulatory standards to manage risks as they arise.

Another example of a prominent transnational regulatory network is the Global Financial Innovation Network (GFIN), formally launched in early 2019 by a group of international regulators. It now comprises “a network of over 60 organizations committed to supporting financial innovation in the interests of consumers. It seeks to provide a more efficient way for innovative firms to interact with regulators, helping them navigate between countries as they look to scale ideas.”¹²⁴ The GFIN works to assist firms to pilot products in more than one market, and seeks to build bridges between markets for innovative FinTechs.

¹²² Dirk A. Zetsche et al., *Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation*, 23 FORD. J. CORP. & FIN. L. 31 (2017).

¹²³ *What We Do*, FATF, <https://www.fatf-gafi.org/about/whatwedo/> (last visited Aug. 21, 2021). One of the potential drawbacks of the FATF or other similar organizations is selective membership that often excludes LDCs. This, in turn, can lead to the proliferation of regulatory standards that can be implemented by developed economies but not by LDCs. This could exacerbate the vulnerable position of LDCs that may struggle to enter into developed markets due to a lack of resources to ensure regulatory compliance with international standards. To remedy this situation, international regulatory frameworks should include or consult regulators from LDCs to ascertain that international standards do not negatively affect financial or other institutions in LDCs.

¹²⁴ See *THE GLOBAL FINANCIAL INNOVATION NETWORK* (2021), www.thefin.com (last visited Aug. 21, 2021).

As developing countries grow in their regulatory capacity, there will also be more room to increase the use of technology for regulatory and supervisory purposes as well as to build fundamental digital infrastructure through Regtech and Suptech and their increasingly powerful and sophisticated capabilities.¹²⁵ Regtech and Suptech describe the use of technology and technological processes to implement, comply with and monitor regulatory requirements and objectives. Implementing regulation through technology requires resources and trained staff. Doing so will also require developing countries to have much more sophisticated digital infrastructure e.g., digital identities, e-KYC initiatives and robust data protection.

Finally, for each of the mechanisms discussed in this section, it is worthwhile for regulators and policymakers to contemplate the form or configuration that each mechanism should take. Different configurations can enhance efficiencies, capacity building and overall effectiveness. We discuss this further in Principle Four below, on Oversight and Enforcement.

C. Principle Three: Fostering Responsible, Long-term Oriented Actors

As the world becomes more attuned to the impacts of corporations on the environment and society, it is increasingly important to ensure that such actors, including digital finance platforms, work to minimize and mitigate their negative impacts. This is particularly in light of the many inequities made manifest by the Covid-19 pandemic and the climate crisis facing the world as whole. Given the variance of national regulatory systems and the opportunities for arbitrage, there is merit in considering the direct application of transnational standards of responsible business conduct on digital finance platforms. Examples of relevant and pertinent instruments include the *UN Guiding Principles on Business and Human Rights*¹²⁶ and the *OECD Guidelines for Multinational Enterprises*.¹²⁷

The benefit of the UN Guiding Principles is their universal, global scope. However, they are limited to human rights. On the other hand, the OECD Guidelines, while limited in scope primarily to companies whose home states are OECD members, offer a broader swathe of standards for responsible business conduct. As well as human rights, the OECD Guidelines provide standards on responsible conduct in relation to tax, anti-corruption and anti-bribery, the environment, labor rights, and others. Other standards and initiatives, such as the UN Global Compact, could also be considered.

¹²⁵ Douglas W. Arner et al., *FinTech, RegTech and the Reconceptualization of Financial Regulation* 37 NW. J. INT'L L. & BUS. 371 (2017).

¹²⁶ Special Rep. of the Secretary-General, *Report of the Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises*, U.N. Doc. A/65/310 (Mar. 21, 2011), <https://undocs.org/en/A/65/310>.

¹²⁷ One definition of a supervisory college is that employed by the European Central Bank, which defines a supervisory college as “a permanent, though flexible, structure comprised of an international bank’s “home” and “host” supervisors.” However, the term allows for a variety of other flexible configurations that allow for the oversight of a cross-border entity or activity. *See, e.g., What are Supervisory Colleges?*, ECB (Dec. 12, 2018), https://www.bankingsupervision.europa.eu/about/ssmexplained/html/supervisory_colleges.en.html#:~:text=A%20supervisory%20college%20is%20essentially,it%20in%20the%20form%20of. *See also Good Practice Principles on Supervisory Colleges*, BIS (Oct. 2010), <https://www.bis.org/publ/bcbs177.pdf>; Duncan Alford, *Supervisory Colleges: The Global Financial Crisis and Improving International Supervisory Coordination*, 24 EMORY INT'L L. REV. 57 (2010).

In line with the adage that “justice must not only be done ... but must also be seen to be done”,¹²⁸ digital finance platforms should engage in two further practices to enhance their business conduct: due diligence and reporting. Due diligence involves implementing appropriate risk assessment and management systems (policies, procedures, and processes) across a company’s operations. This process should enable a company to identify, assess, manage and address risks with respect to various environmental and social impacts. Relatedly, digital finance platforms should be required to disclose and report on the results of their due diligence exercises, highlighting salient risks and their plans to manage or remediate consequential negative impacts.

D. Principle Four: Ensuring Oversight and Enforcement

The application of standards to digital finance platforms directly as proposed in the principle above should be matched with appropriate oversight and enforcement mechanisms, which ideally would benefit from Regtech and Suptech solutions. Given the complexity of the actors and the activities in discussion, oversight and enforcement mechanisms should be deployed at various levels of digital finance platform operation and impact. This will affect actors and regulators at the entity, national, international and transnational levels, and means that regulators and policymakers need to consider the two guiding features of form and function. Put another way, authorities should consider what they are trying to achieve, how they should organize themselves to do so and who will be important in helping them do so.

On the matter of form, various configurations are possible:

- **Entity-based** – this involves action within the firm itself. Potential initiatives can include independent advisory councils, such as the Facebook Oversight Board.¹²⁹
- **Intra jurisdiction** – this involves collaboration among different regulatory authorities within a particular jurisdiction that all have a role to play in the regulation of financial markets e.g., competition, finance and telecommunications supervisors.
- **Inter-jurisdiction** – this involves regulatory authorities separately or collectively within a jurisdiction, collaborating with other regulators across borders. This could be developed country-to-developing country or developing country-to-developing country.
- **Regional** – this could involve regional collaboration (such as within the European Union (EU), African Union (AU), the Association of Southeast Asian Nations (ASEAN), or the Southern Common Market (MERCOSUR)) or inter-regional collaboration.
- **Global** – this entails fora such as the UN, G20, IMF, BIS, OECD, and FSB.

This range of configurations gives policymakers the flexibility to develop appropriate regulation and oversight mechanisms in light of geographic, cultural, political and economic considerations. Countries should be encouraged, and given the opportunity, to participate directly. The idea and spirit should be to facilitate high levels of collaboration, learnings and, where appropriate, harmonization. Supervisory colleges could be useful, formalized oversight

¹²⁸ *R v Sussex Justices, ex parte McCarthy* [1924] 1 KB 256; [1923] All ER Rep 233 is a leading English case on the impartiality and recusal of judges which brought into common parlance this oft-quoted aphorism.

¹²⁹ OVERSIGHT BOARD, <https://www.oversightboard.com> (last visited Aug. 21, 2021).

bodies to the extent they can be operationalized at any governance level with relevant actors and a systemwide purview. They have been effectively deployed within the EU, for example, to enhance information sharing among national banking supervisors, to share best banking practices and to build confidence more broadly in the international financial system.¹³⁰

In terms of regulatory function, the regulator's objectives matter. This does not merely involve public authorities. Effective governance often requires collaboration with the private sector in the determination and implementation of appropriate regulatory functions. Potential regulatory functions that should be considered include:

- **Third party audits** of digital finance platform activity and adherence to relevant standards.
- **Dispute resolution** facilitated through a range of mechanisms, such as ombudsmen, national contact points, grievance mechanisms and arbitration.
- **Remedies** to provide relief for people who, for example, may have had their data abused (through the establishment of insurance schemes, escrow funds, trust funds or other means).

Many of these functions can be conducted by or in collaboration with the private sector. For example, consulting firms can conduct external audits of companies, and private associations can facilitate dispute resolution processes e.g., the International Chamber of Commerce (ICC). Existing standards setting bodies can also be leveraged. For example, the OECD has the *Guidelines for Multinational Enterprises*.¹³¹ While the Guidelines themselves are not binding on corporations in the absence of legislation adopting them with direct effect,¹³² they are an annex to the *OECD Declaration on International Investment and Multinational Enterprises* and thus binding upon OECD member states and participating governments. As a result of this binding nature, the *OECD Guidelines* provide for the establishment of National Contact Points (NCPs) in each adhering state to facilitate and promote adherence to the Guidelines.¹³³ More importantly, though, the NCPs, as a system of national offices, are meant to provide access to remedies for people harmed by companies' noncompliance with the Guidelines. This role was strongly endorsed by the G7 in June 2015 when the group's communiqué stated that the G7 "commit[s] to strengthening mechanisms for providing access to remedies including the

¹³⁰ Alford, *supra* note 127.

¹³¹ The guidelines themselves are a part of the Declaration on International Investment and Multinational Enterprises, OECD, Jun. 21, 1976, OECD/LEGAL/0144, <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0144>. This is an international legal framework established to govern investment activity among the OECD's member states and adhering governments. As such, the framework addresses matters such as national treatment, conflicting requirements, and issues pertaining to investment incentives and disincentives.

¹³² For instance, Article 18 of the EU Taxonomy Regulation on sustainable investments requires compliance with the OECD Guidelines as a precondition for qualifying an investee company as a sustainable investment. See *Establishment of a Framework to Facilitate Sustainable Investment*, THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION (Jun. 18, 2020), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852&from=EN>.

¹³³ Section I of the Decision of the OECD Council on the OECD Guidelines for Multinational Enterprises, OECD, Jun. 27, 2000, OECD/LEGAL/0307 provides that: "Adhering countries shall set up National Contact Points for undertaking promotional activities, handling inquiries and for discussions with the parties concerned on all matters covered by the Guidelines so that they can contribute to the solution of problems which may arise in this connection, taking due account of the attached procedural guidance. The business community, employee organisations, and other interested parties shall be informed of the availability of such facilities."

National Contact Points ... for the OECD Guidelines for Multinational Enterprises. In order to do so, the G7 will encourage the OECD to promote peer reviews and peer learning on the functioning and performance of NCPs. We will ensure that our own NCPs are effective and lead by example.”¹³⁴

The NCPs are particularly interesting because of their role in helping to facilitate more responsible business conduct, and because of their structure. Although all NCPs are government offices, they are not all structured the same way. Some are housed in a single agency or ministry, such as the ministry of economy or trade. Other NCPs are inter-agency bodies, and some others have tripartite or quadripartite structures involving business, labor unions or civil society stakeholders.¹³⁵ This type of flexibility and creativity in regulatory structure and performance of function can be instructive in potential ways to govern the operations of digital finance platforms.

While the OECD and its NCP mechanism serve as a useful example of potential regulatory configurations and associated functions, it is important to highlight the underrepresentation of developing countries in most international regulatory fora and standard setting bodies. A study of public consultations on the Basel banking standards, for example, shows that official and private actors from developing countries rarely account for more than 20% of respondents.¹³⁶ This is due to a series of factors such as limited regulatory knowledge and resources in developing countries; the focus and agenda-setting of an elite network of developed country regulators; and limited engagement by developing country private sector actors in the deliberations and resultant proposals of international standard setting bodies.¹³⁷ This should concern regulators and policymakers in both developing and developed countries. It should concern developing country regulators because without participating in these fora, they limit their ability to determine the rules by which international economic actors must abide when they operate on a transnational basis. When not in the “regulation-setting room”, developing country regulators are left to fend for themselves within their own jurisdictions with limited resources in the face of corporate behemoths.¹³⁸ Conversely, developed country regulators should be concerned that developing country regulators are not participating in their standard setting fora because (a) non-involvement of developing country actors generally in rule and standard setting will not support compliance in those countries, and (b) rapidly growing, innovative firms are emerging from these countries which may, in time, pose risks to financial stability in developed countries or even globally. As such, there needs to be a collective effort to enhance the skills and capacity of developing country regulators, and to increase their engagement in standard setting and regulatory processes at all governance levels.

¹³⁴ *Leaders’ Declaration*, G7 SUMMIT (Jun. 7-8, 2015), https://sustainabledevelopment.un.org/content/documents/7320LEADERS%20STATEMENT_FINAL_CLEAN.pdf.

¹³⁵ *National Contact Points*, OECD WATCH, <https://www.oecdwatch.org/oecd-ncps/national-contact-points-ncps/> (last visited Aug. 21, 2021).

¹³⁶ ANDREW WALTER, *Emerging Countries and Basel III: Why is Engagement Still Low*, in *NEW THINKING AND THE NEW G20 SERIES* (Centre for International Governance Innovation, 2015), <https://www.cigionline.org/publications/emerging-countries-and-basel-iii-why-engagement-still-low/>.

¹³⁷ *Id.*

¹³⁸ See, e.g., Milan Babic et al. *States versus Corporations: Rethinking the Power of Business in International Politics* 52 *IT. J. OF INT’L AFF.* 20, 27 (2017) (reporting that twenty-six out of the top fifty largest economies were corporations).

E. Principle Five: Instilling a Commitment to Sustainable Development

To enhance the responsible conduct of digital finance platforms and to better support sustainable development, most notably through attainment of the United Nations Sustainable Development Goals (SDGs), governance frameworks and initiatives should require the board-level commitment of digital finance platforms to incorporate the SDGs into business plans and models, particularly when operating in developing countries. This can be facilitated (and sometimes manifested) by greater multistakeholder coordination and collaboration. Some regulators may even mandate it. As already discussed, regulators carry heavy burdens and so there needs to be complementary action by the private sector. This action includes their assumption of responsibility for their impacts and their roles in facilitating sustainable development. Through a process of education, due diligence, and disclosures, as discussed above, digital finance platforms can support the attainment of the SDGs by:

- (1) Developing an awareness of digital finance platform impacts on the SDGs;
- (2) Promoting positive and mitigating negative impacts on attaining SDGs; and
- (3) Integrating (1) and (2) into their core business models and operations.

Board level engagement is important for two primary reasons. First, engagement at senior levels enables action by individuals with the authority to commit resources and drive the agenda. Second, board level engagement communicates to stakeholders that the company takes the matter seriously. In the drive towards sustainable development, concerted and collaborative action by all stakeholders is pivotal. This also applies to relevant regulators that should consider how their policies might affect the attainment of SDGs.

It is important to note a fine distinction between this Principle and Principle Three, ‘Fostering Responsible Actors’. While the latter may take on more of a compliance and regulatory flavor, this Principle should generate more of an opportunity for digital finance platforms and corporate actors more broadly. The *UN Guiding Principles* and *OECD Guidelines* are frameworks which seek to mitigate the potential negative impacts of corporate activity. They are sets of proscriptions and guard rails for corporate actors. The SDGs, on the other hand, are aspirational and actionable. They are state set and supported targets for the collective betterment of individuals, communities, and the environment by 2030. Achieving those goals requires concerted effort and entrepreneurialism across the public and private sectors, and considerable funding. As such, while they seek to drive positive impacts and outcomes broadly, they also represent opportunities for corporations. This win-win scenario is worth promoting in devising a principles-based approach to the governance of digital finance platforms.

V. Building a Balanced Proportional Graduated Risk-based Approach to Digital Finance Platforms

As can be gathered from our exposition thus far, it is evident that digital finance platforms can pose significant challenges to policymakers and regulators, firstly from a conceptual standpoint, and then from an execution standpoint. The sprawling cross-border nature of their business models that impact a multitude of distinct yet related sectors, such as telecommunications, finance and data protection, require authorities to consider the question

of how to regulate along several axes and dimensions. This is particularly so as digital finance platforms can be global in scope and have widely differing local impacts. As such, while the principles that we propose in the section above provide the foundations upon which regulators and policymakers should seek to design their governance frameworks, we appreciate the need for much more concrete guidance. Moreover, that guidance will need to be to be context specific as regulators and economies will all have differing resources and realities. In these final two parts of the paper, we attempt to walk that fine line by presenting, first, a toolkit of regulatory approaches and considerations that authorities could implement and, second, a more specific set of prescriptions for what a global governance framework for digital finance platforms could entail.

The first step towards the formulation of an appropriate governance strategy is for regulators and policymakers to consider a series of applicable factors that are constituted by axes and categories. These include:

- **Governance level:** at what level are regulators looking to intervene? e.g. national, regional (e.g., EU), or international (cross-border, public-private mix of regulatory action).
- **Governance actor:** which actors do regulators think would be most capable and appropriate to assume regulatory functions? Are they within the public or private sector? Should they contemplate creating new institutions?
- **Subject matter:** which sector is the regulator looking to focus on? These can include data privacy, telecommunications, finance, etc. And is the regulator looking to focus on the entity, the entity's activity, or a combination of the two?
- **The state of local/national fintech ecosystem development:** how advanced is it? Is it still nascent with a few actors, or are there a range of actors from startups to large firms with significant market share? How well regulated is the ecosystem? Is there already adequate and appropriate legislation?
- **Regulatory capacity:** what levels of expertise and experience do relevant regulators have? Are they able to comprehend the complexity of the issues and to develop appropriate approaches to reach specified public policy objectives? Do they have the competence to provide effective oversight?
- **Political buy-in:** to what extent is there sufficient political will among regulators and policymakers to develop strategies (e.g., a national strategy or vision would be very helpful in terms of setting direction and aligning actors), draft legislation, and implement/execute with sufficient resources?

This kind of preliminary self-assessment by regulators can help them to reflect on the risks and opportunities within their economies and thus determine how to develop a balanced, proportional, and graduated risk-based approach to the governance of digital finance platforms. Such a risk-based approach is desirable as it allows regulators to tailor their interventions to their local circumstances in ways that can promote growth and innovation while tempering and containing specific risks. We anticipate that such an approach will require concerted and coordinated collaboration among relevant actors within the ecosystem.

Armed with this preliminary assessment, we now provide a spectrum of regulatory approaches that authorities can deploy specifically to govern actors and activities within FinTech 4.0 and the platformization of finance. Bearing in mind that regulators will all be starting at different

points and operating under different circumstances, our proposed toolkit of approaches is designed to be used in different contexts as necessary.¹³⁹

Regulatory approaches can be seen on a spectrum from permissive to restrictive, with *laissez-faire* at one end of the spectrum and prohibition at the other. In between lie a range of approaches: active encouragement such as industrial policy, infrastructure development or innovation hubs; test-and-learn approaches, such as piloting or sandboxes; self-regulation; minimal registration or licensing; disclosure; co-regulation; internal governance requirements; external monitoring via penalties and enforcement; graduated proportional regulation; public utility regulation; and structural reform, such as unbundling or nationalization. These approaches can apply in the context of market failures, public goods and externalities across the range of policy considerations raised by digital finance platforms, including financial sector policy, competition and antitrust policy, communications and technology policy, data protection policy and sustainable development policy. With the entry of BigTech into finance, the rise of Big FinTechs and TechFins, and the emergence of platformization of finance as the central characteristics of FinTech 4.0, approaches to digital finance platforms – based on the principles advanced in the previous section and involving the major regulatory regimes considered in Part II – are now becoming clear.

A. Permissive and Facilitative Approaches: *Laissez-faire*, encouragement, test-and-learn

The first possible approach to digital finance platforms would simply be not to regulate them. By doing nothing, the result would be either rigorous or *laissez-faire* depending upon whether current financial regulation applies to the operations of a particular platform. Doing nothing might involve requiring new entrants to comply with existing financial regulation, often with highly restrictive results and adverse effects on financial innovation.

Alternately, a do-nothing approach could simultaneously accelerate financial innovation *and* exacerbate data-driven market dynamics. China, especially before 2015, is often highlighted as the leading, and a highly successful, example of the permissive approach to FinTech.¹⁴⁰ While the soundness of the Chinese financial system prior to the FinTech boom may explain the benefits of doing nothing for innovation and development in this particular case,¹⁴¹ and while non-legal means allowed political control over the emerging providers of financial ecosystems,

¹³⁹ See Zetzsche et al., *supra* note 4.

¹⁴⁰ See Weihuan Zhou et al., *Regulation of Digital Financial Services in China: Last Mover Advantage?*, 8 TSINGHUA CHINA L. REV. 25, 27–28 (2015) (arguing that the Chinese regulations of digital financial services before 2015 lack detailed and comprehensive provision); Douglas Arner et al., *The Evolution of FinTech: A New Post-Crisis Paradigm?*, 47 GEO. J. INT’L L. 1271, 1298–99 (2017) (arguing that due to the adoption of a largely commercialized financial system, there is a rapid growth of P2P lending platforms in China since 2009); Weihuan Zhou et al., *China’s Regulation of Digital Financial Services: Some Recent Developments*, 90 AUSTL. L.J. 297 (2016) (arguing that the regulatory work has progressed slowly to enable the rapid growth of digital financial service in China).

¹⁴¹ See Christian Haddad & Lars Hornuf, *The Emergence of the Global FinTech Market: Economic and Technical Determinants* 20 (CESifo, Working Paper No. 6131, 2016), <https://ssrn.com/abstract=2830124> [<https://perma.cc/Y528-7U79>] (arguing that the soundness of the financial system has a negative effect on FinTech start-up dynamics; *i.e.* financial systems with many deficits provide a vibrant environment for start-ups).

the Chinese example also demonstrates the systemic risks that can arise from unexpected and uninhibited growth of certain market participants. That growth has led, since 2015, to a much more cautious regulatory approach.¹⁴² Most notably, during its unregulated period, Alibaba laid the foundation for the world’s largest financial ecosystem (measured by number of clients).

In the context of digital finance platforms, however, a laissez-faire approach would be likely to further the growth of existing platforms. This approach has been taken in most countries so far but has the potential to result in undesirable winner-take-all outcomes. Going forward, policymakers and regulators need to provide supporting frameworks to maximize the benefits of data aggregation and use in finance and platformization of finance while at the same time monitoring its evolution and building proportional regulatory approaches to both support positive aspects and minimize emerging risks, particularly from scale and dominance.

Beyond simply a permissive approach, governments around the world are increasingly considering ways in which to directly support innovation, typically through early-stage research and development investment. In addition, recognizing the importance of data to future innovation, development and competitiveness, regulators and policymakers are considering ways in which to support the role of data in sustainable development. The most developed of these relate to “open banking”, “open finance” and “open data”, with the EU, UK and, particularly, Australia having the most developed approaches so far. Others – such as China – are considering ways to maximize the benefits of data for future innovation and development, for instance, by recognizing data as a public good or commons which can then be used across society. Similar discussions are taking place in the technological context, particularly in discussions of the potential role of decentralization and blockchain. In the specific context of FinTech innovation, test-and-learn approaches – including piloting, regulatory sandboxes, and special charters and licenses¹⁴³ – have been discussed as methods to support balanced innovation.¹⁴⁴ As discussed in Principle Two (developing reflexive and iterative regulation) above, these tools, while far from being a panacea, do enhance the flow of information between

¹⁴² Zhou et al., *Regulation of Digital Financial Services*, *supra* note 140, at 27.

¹⁴³ A regulatory sandbox is a safe space in which innovative FinTech applications can be tested with sharply reduced regulatory requirements (subject to certain pre-conditions). An innovation hub is a portal that facilitates access of industry to regulators and seeks to promote bespoke regulation, no-action letters, and other dispensations on a case-by-case basis. Special charters are authorizations to conduct FinTech type businesses without having to comply with the full panoply of financial regulation, though subject to special limits. *See generally* Buckley et al., *supra* note 120, at, 56–61 (2020) (introducing regulatory sandboxes and innovation hubs in fintech regulations).

¹⁴⁴ *See* Hilary J. Allen, *Regulatory Sandboxes*, 87 GEO. WASH. L. REV. 579, 579–645 (2019) (“Regulatory sandboxes offer an environment in which fintech entrepreneurs can conduct limited tests of their innovations with fewer regulatory constraints, real customers, less risk of enforcement action, and ongoing guidance from regulators.”); Chris Brummer, *Disruptive Technology and Securities Regulation*, 84 FORDHAM L. REV. 977, 1047–51 (2015) (arguing that innovation hubs provide businesses with individual guidance and additional support in order to help developers understand the regulatory framework); Chris Brummer & Yesha Yadav, *FinTech and the Innovation Trilemma*, 107 GEO L.J. 235, 235–307 (2019) (offering a general introduction of innovative regulatory strategies to navigate the policy trilemma in regulating fintech); Kathryn Judge, *Investor-Driven Financial Innovation*, 8 HARV. BUS. L. REV. 291, 334–341 (2018) (providing an overview of the different innovative regulations in FinTech); Saule Omarova, *New Tech v. New Deal: FinTech As A Systemic Phenomenon*, 36 YALE J. ON REG. 735, 735–793 (2019) (introducing how fintech has eroded the New Deal settlement and the need for a novel conceptual framework); W.J. Magnuson, *Regulating FinTech*, 71 VANDER. L. R. 1168, 1168–1226 (2018) (calling for a wide-ranging reconceptualization of financial regulation in fintech); Zetzsche et al., *supra* note 4, *passim* (discussing new regulatory approaches in fintech).

innovative firms and their regulators. Some may argue that in the face of BigTechs or digital finance platforms, these tools may prove of little value since they are designed to promote testing of new technologies and business models rather than to regulate global players. However, the countervailing argument is that such initiatives promote new financial services by smaller players which could have disproportionately large impacts in advancing particular sustainable development goals in developing countries. Moreover, digital finance platforms will most likely continue to innovate and provide new offerings that would ideally be tested within sandboxes to minimize potential negative impacts.

B. Foundational Regulation: Data Approaches

A second regulatory approach focuses on enhancing competition to ensure that competitive market forces play a beneficial role rather than contribute to an already concentrated financial sector. Pro-competition measures have been considered with regard to IT/software,¹⁴⁵ critical financial market infrastructure (FMI) such as payment, clearing and settlement systems,¹⁴⁶ and in “open banking” initiatives.¹⁴⁷ This section will review some of the pro-competition strategies that regulators can choose to adopt in their pursuit of digital finance platform governance.

Regulation should aim at securing objective, transparent and fair risk-based rather than profit-based conditions of access. Open interfaces, open-source code of the technology core, fair and non-discriminatory access requirements, and a transparent fee structure enable third-party developers to write proprietary applications for platform clients.¹⁴⁸ In this regard, Principle 18 of the International Organization of Securities Commission (IOSCO) principles on access to the services of critical infrastructure providers is relevant:

[a]n FMI’s participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI’s specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavor to set requirements that have the least-restrictive impact on access that circumstances permit.¹⁴⁹

¹⁴⁵ See, e.g., MICROSOFT ON TRIAL: LEGAL AND ECONOMIC ANALYSIS OF A TRANSATLANTIC ANTITRUST CASE, *passim* (Luca Rubini ed., 2010) (introducing the pro-competition measures used to regulate dominant technology players like Microsoft).

¹⁴⁶ See, in particular, BANK FOR INT’L SETTLEMENTS & INT’L ORG. OF SEC. COMM’NS, PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES 101 (2012) <https://www.bis.org/cpmi/publ/d101a.pdf> [<https://perma.cc/9VH5-5TQK>] (discussing access conditions by providers of Financial Market Infrastructure).

¹⁴⁷ See Markos Zachariadis & Pinar Ozcan, *The API Economy and Digital Transformation in Financial Services: The Case of Open Banking* 2–23 (SWIFT Inst., Working Paper No. 2016-001, 2017), <https://ssrn.com/abstract=2975199> [<https://perma.cc/5N4L-VHFV>] (discussing the challenges and opportunities that open application programming interfaces bring to the open banking sector).

¹⁴⁸ See, e.g., *United States v. Microsoft Corp.*, 231 F. Supp. 2d 144 (D.D.C. 2002) (settling the year-long U.S. Department of Justice’s antitrust litigation against Microsoft on abusive terms for third-party web browser software and requiring Microsoft to make available for use by third parties on reasonable and non-discriminatory terms certain technology used by Microsoft server operating system products to interoperate with Windows operating system products).

¹⁴⁹ BANK FOR INT’L SETTLEMENTS & INT’L ORG. OF SEC. COMM’N, *supra* note 146.

One special feature that would allow for competition while keeping the benefits of digital finance platforms intact is subjecting dominant firms to an open data requirement that allows innovative competitors to offer services, making use of existing data pools rather than building new (and expensive) data pools.

Regulators should mandate that digital finance platforms and other incumbents grant new entrants access to client account data; the new entrant could then reduce a client's switching costs by securing smooth tech migration. While standardization of client data is a crucial precondition for smooth migration,¹⁵⁰ doubts remain about whether in fact small innovative new entrants would benefit from such a rule. For example, there is some evidence from the EU's Open Banking Initiative that suggests that access to client data appears to facilitate the market access of large technology companies that have resources to (1) attract a sufficient number of new clients *and* (2) program large scale data transfer interfaces.¹⁵¹

We thus propose requiring open client data from firms with a strong, potentially dominant position, regardless of their sector of origin. In an effort to hamper the further concentration of financial service provision, an open data requirement paired with a data governance requirement that enables data administration on a standardized basis, could be attached once the market share exceeds, say, five percent in any given financial market, in order to break into the data-based economies of scale and allow easier entry for smaller competitors.

Regulators should also ask potential users of digital finance platform platforms to diversify their own risks from their dependency on the platform. For example, regulation could require that any *financial* firm must employ at least two or more unrelated providers or systems. While mandatory diversification has some positive effects on market structure, it also comes with increased costs, imposed redundancy, additional cybersecurity risks (given that multiple systems would have access to the consumer data) and reduced benefits of datafication (because of slowed IT processes). Most importantly, mandated diversification could reduce platform benefits for platform users by moving away from one look and feel, one service level and one service quality, as well as the accumulation and best use of a client's liquidity for ensuring lower costs on the back end. Mandatory diversification, if imposed, might work only on the back end. Further, mandatory diversification may not be applicable to developing economies that lack a sufficient number of service providers for diversification. An alternative to this mandatory diversification suggestion might be limiting a platform's maximum share of clients in a given market.

In markets where there are more than one significant digital finance platform or other platform service, users would be required to switch providers every few years. Rotation would likely be costly: all weblinks, data interfaces and, in some cases, brokerage connections, would need readjustment after each switch, giving the institution's clients even more reason to contract directly with the platform provider. Providers will also find it difficult to negotiate fee reductions based on revenues earned if the law mandates regular displacements of the very

¹⁵⁰ See Giuseppe Colangelo & Oscar Borgogno, *Data, Innovation and Transatlantic Competition in Finance: The Case of the Access to Account Rule 22–26* (Eur. Union Law Working Paper, Paper No. 35, 2018) (observing that an EU-wide FinTech market requires standardization to simplify data transmission and facilitate competition and interoperability).

¹⁵¹ See Dirk A. Zetsche et al., *The Evolution and Future of Data-Driven Finance in the EU*, 57 COMMON MARKET L. REV. 331 (2020) (analyzing the facilitation of open banking in the EU to enhance competition in banking and payments).

revenue for which the discount provides an incentive to stay. Further, if the technology of *their* consumers is linked – either technically or economically – to the platform, an institution’s users will have even more reason to contract directly with the platform, thereby exacerbating, rather than slowing, market concentration.

Merger control is the standard competition/antitrust approach to overly concentrated markets. Though competition/antitrust law’s main rationale is market efficiency, our analysis of digital finance platforms suggests that merger control can also be justified from a financial regulation perspective: mergers of very large platforms could be prohibited not only because of competition concerns, but also for client protection, innovation and, especially, financial stability concerns.

C. Designation as a Regulated Industry

As moderate regulatory interventions, regulators have at their disposal various types of command-and-control, self-regulatory, and co-regulatory approaches. The approach will depend on the stage of evolution of any given platform. As a general matter, the greater the scale and/or significance of a digital finance platform, the stronger the case for an intervention.¹⁵²

1. Command-and-Control Regulation

A standard response of regulators to increasing concentration within a given industry includes adding an additional layer of regulation upon firms, particularly through licensing as a regulated activity. In doing so, they enhance control over the sector and obtain better data for regulatory decisions. The difficulty in submitting digital finance platforms to regulation is finding a common denominator of activities that accurately describes the range of activities involved in a platform.

Given that the core of platform activity is data collection and processing, regulators could define “financial data gathering and analytics” as a regulated activity and exempt participants that do not meet certain size or scope requirements. The result of such regulation could be a differentiated regime with tiered rules for large platforms, similar to the rules applicable to systemically important financial institution (SIFIs), moderate reporting requirements for mid-size platforms and a mere registration requirement for small ones. Such a regime would probably have to state expressly that it does not apply to regulated banks and financial institutions for otherwise of course it would so apply, given the extent of data gathering and analysis in a modern bank, and the undesirability of regulatory overlaps.

A different regulatory approach could focus on the underlying code, *i.e.*, its technical functionality. Supervisory agencies could seek to understand the technology and require additional code aimed at meaningfully balancing private incentives with public interests. For example, regulators can choose to monitor credit risk assessment software for hidden gender,

¹⁵² For guidance, see BANK FOR INT’L SETTLEMENTS & INT’L ORG. OF SEC. COMM’NS, *supra* note 146, at 12–13 (discussing applicability and proportionality of the FMI principles).

race or other biases and require companies to amend the underlying code if such biases are detected. Such a code-focused approach would ask much from regulators trained in financial and legal matters yet will almost certainly be necessary.¹⁵³

2. Self-Regulation

Self-regulation is a critical means of drawing upon the knowledge of participants when regulators reach the limits of their own expertise. FMI providers thus typically establish a common set of rules and procedures for all participants, a technical infrastructure and a specialized, customized risk management framework.¹⁵⁴ While these rules and procedures often take a contractual format, a self-regulatory approach could formalize the adoption and amendment of these rules and establish a minimum publication and notice period. Regulators could use these frameworks to enhance control over platforms.

The downside of self-regulation is the dependency of the “self-regulated constituency” on adopting rules. Where the collective private and public interests collide, we might expect few serious efforts at self-regulation. In particular, although we might see the establishment of basic investor protections, the provider and its participants have little interest in slowing growth by curtailing the network effects from which they benefit, and so will do little to combat antitrust concerns and size-based systemic risk. Self-regulatory organizations thus face the tension between remaining light-touch and interest-friendly or turning, like the Financial Industry Regulatory Authority (FINRA),¹⁵⁵ into more of a public oversight body focused on technicalities *in addition to* mandatory regulation.

3. Co-Regulation

Regulators could also pursue a co-regulation strategy. Co-regulation has been defined as a:

mechanism whereby [a] legislative act entrusts the attainment of the objectives defined by the legislative authority to parties which are recognized in the field (such as economic operators, the social partners, non-governmental organizations, or associations) by setting objectives to be attained but their achievement is entrusted to non-public actors in economic and social domains.¹⁵⁶

¹⁵³ We have considered the issues of how regulators can address cyber risks elsewhere, *see* Buckley et al., *TechRisk*, SING. J. LEG. STU. 35 (2020) (offering ways to address the emerging security risks that result from technical innovation and digitization of finance).

¹⁵⁴ BANK FOR INT’L SETTLEMENTS & INT’L ORG. OF SEC. COMM’NS, *supra* note 146, at 7 (defining FMIs and describing their function and the range of their features).

¹⁵⁵ *See* William A. Birdthistle & M. Todd Henderson, *Becoming a Fifth Branch*, 99 CORNELL L. REV. 1, 12–23 (2013) (analyzing the evolution of FINRA from a self-regulatory organization to a quasi-governmental organization).

¹⁵⁶ *See* Michèle Finck, *Digital Co-Regulation: Designing a Supranational Legal Framework for the Platform Economy* 15 (LSE Legal Stud., Working Paper No. 15, 2017), <https://ssrn.com/abstract=2990043> [<https://perma.cc/55E5-EQUD>] (defining co-regulation).

Co-regulation has been discussed as potentially effective for non-financial platform industries, through its inclusion of a broad pool of innovators “in the articulation, execution and evolution of policy, law, norms development, oversight and regulation,”¹⁵⁷ leading to more balanced views. An example is agreements between local authorities and Airbnb on the collection of tourist tax.¹⁵⁸

For digital finance platforms, regulators could seek to enter into co-regulation agreements with operators that reflect public concerns such as systemic risk, customer protection, market integrity and national security. As with any other regulatory tool, however, co-regulation has its limits when the public interest collides with the provider’s profit-seeking behavior. Thus, although co-regulation could be a way to implement moderate investor protection and national security measures, it may be less effective with regard to the competition and financial stability concerns we have outlined.

D. Public Utility Regulation

In line with scholarship on platform industries,¹⁵⁹ digital finance platforms could be regulated as public utilities. Regulation characteristics of public utilities include, for instance, rate regulation, minimum service level and quality assurance prescriptions, and a defined or capped rate of return on investments. This list demonstrates that traditional public utility regulation fits best for highly standardized services such as energy and water supply. Regulators seeking to set the aforementioned limits in a highly innovative, rapidly growing environment such as digital financial services will face potentially insurmountable challenges.

A less intrusive form of public utility status is the designation of certain systems as Financial Market Utilities, requiring advanced risk-management methods, intensified supervision and advance notice of rule changes.¹⁶⁰ These rules were drafted for clearing organizations and central counterparties and would need amendments to reflect, among others, the data and liquidity dimension of digital finance platforms. This is the approach being taken in China in the context of Ant and other digital finance platforms: designating them as systemically important financial institutions and subject to higher regulatory and supervisory attention.

As a form of indirect regulation, supervisory authorities could become significant shareholders or operators of a digital finance platform. Examples include real-time gross settlement (RTGS) payment systems in which the technology core is developed with the involvement of central

¹⁵⁷ See Raymond Brescia, *Regulating the Sharing Economy: New and Old Insights into an Oversight Regime for the Peer-to-Peer Economy*, 95 NEB. L. REV. 87, 134 (2015) (recognizing the benefits of decentralized policymaking and regulatory pluralism).

¹⁵⁸ See the list of examples by Finck, *supra* note 156, at 15–18.

¹⁵⁹ See K. Sabeel Rahman, *The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept*, 39 CARDOZO L. REV. 1621, 1634 (2018) (arguing that public utility concepts offer a framework for understanding and contesting private power in a variety of sectors, including the financial and platform markets); K. Sabeel Rahman, *Regulating Informational Infrastructure: Internet Platforms as the New Public Utilities*, 2 GEO. L. TECH. REV. 234, 240–46 (2018) (detailing how the utility concept applies to internet platforms).

¹⁶⁰ *Designated Financial Market Utilities*, BD. OF GOVERNORS OF THE FED. RESRV. SYS., <https://www.federalreserve.gov/paymentsystems/title-viii-dfa.htm> [<https://perma.cc/G7PQ-WDP3>] (last visited Aug. 21, 2021).

banks that, in some cases, also engage in operations. Similar approaches are now being seen in an increasing number of jurisdictions at the retail level with “fast payment systems”.¹⁶¹ Putting aside the obvious capacity constraints of many competent authorities, having a stake in a digital finance platform at the same time brings potential informational advantages for a central bank or other regulatory agency.

On the downside, authority stakes in a platform create a potentially undesirable outcome: the platform in which a central bank or other authorities take a stake is likely to be a monopolist. This monopolist will likely leave little room for additional market-led innovation. Governmental investment makes the most sense in markets where competition is unlikely to develop in the first place, such as where existing financial institutions are insufficiently funded or tech expertise is scarce,¹⁶² or where competition is undesirable because all financial institutions must meet the same standard to reduce *their customers’* transaction costs (such as in payment systems).

E. Unbundling

A more interventionist approach would mandate unbundling. Unbundling is well established as a competition/antitrust measure, yet financial law also frequently imposes it. Some contend, indeed, that a “core principle” of banking law is the “separation of banking and commerce.”¹⁶³ At least in the US, firms that own or control a US bank are prohibited from engaging in business activities other than banking or managing banks.¹⁶⁴

Another regulatory strategy would be to mandate separate service pricing and an option for consumers to source distinct and separate services from different digital finance platforms. Unbundling seeks to separate fees for different services previously sold as a package and prohibit hidden bundling rebates (“tying”). Unbundling aims at two different goals. First, the price of a single service becomes transparent, allowing new entrants to review whether they can compete by offering a better single service, if they cannot compete with the whole platform.

¹⁶¹ Anton Didenko et al., *After Libra, the Digital Yuan and Covid-19: Central Bank-Linked Cryptocurrencies* (Eur. Banking Inst. Working Paper, Paper No. 036, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3622311.

¹⁶² These preconditions are often met in developing and emerging economies. This explains why India’s central bank has developed and operates core infrastructure for financial services through public-private partnerships such as the National Payments Corporation of India. See *About Us*, NAT’L PAYMENTS CORP. OF INDIA, <https://www.npci.org.in/who-we-are/about-us> [<https://perma.cc/G8NR-TU6M>] (last visited Oct. 28, 2020) (describing NPCI as a not-for-profit umbrella organization for all retail payments in India).

¹⁶³ See Saule T. Omarova, *The Merchants of Wall Street: Banking, Commerce, and Commodities*, 98 MINN. L. REV. 265, 268, 274–75 (2013) (outlining the policy rationale for separating banking from certain commercial activities); see also Lina M. Khan, *Amazon’s Antitrust Paradox*, 126 YALE L.J. 710, 794 (2017); Bernard Shull, *Banking and Commerce in the United States*, 18 J. BANKING & FIN. 255, 267 (1994), reprinted in Bernard Shull, *Banking and Commerce in the United States*, 27 J. REPRINTS ANTITRUST L. & ECON. 359, 371 (1997) (reviewing the historical relationship between banking and commerce and the policies underlying their separation).

¹⁶⁴ See Khan, *supra* note 164 (stressing the similarity of these rules with antitrust and competition policy objectives and stating that the main justifications for preserving the separation between banking and commerce include “the needs to preserve the safety and soundness of insured depository institutions, to ensure a fair and efficient flow of credit to productive [businesses], and to prevent excessive concentration of financial and economic power in the financial sector”).

Second, unbundling prohibits the cross-subsidization of some services from the proceeds of other services for which there may be more competition.

Unbundling as a regulatory requirement, however, must be handled with care. Unbundling reduces some efficiencies that stem from bundled consumer contacts and the better data inherent in handling services simultaneously.¹⁶⁵ After all, unbundling involves ripping the integrated platform apart, though its very integration is one of its main benefits. Regulators imposing unbundling requirements face the further difficulty of determining which part of a service may be untied at what point in time, without impeding innovation based upon *disintermediation*. The more interventionist variant of unbundling in which the offering of some services together with others would be prohibited is a stronger alternative.

Applying this to the context of digital finance platforms, regulators may wish to adopt unbundling rules that limit the financial or other services that digital finance platforms can provide. For example, digital finance platforms that provide IT infrastructure services to financial institutions may be prohibited from branching out into financial services themselves to avoid conflicts of interest or market concentration. This would prevent major cloud service providers, such as Amazon, from also providing financial services.

A softer form of unbundling and separation would require segregation. For instance, an investment advisor might be prohibited from booking mutual fund assets in its own accounts and be required to hold them in an account earmarked as the investors'. A softer form would merely manage conflicts: two functions could be provided by one entity, but an information barrier would have to be erected and conflicts monitored and managed.

Along these lines, regulation could require the unbundling and separation of functions not only legally – as the law currently does by requiring separate legal entities to perform these tasks – but also *technically*. A technical unbundling requirement would prohibit a platform from simultaneously providing fund manager, custodian and investor functions, or offering insurance in addition to banking functions, and/or using data and liquidity access to secure control over the whole fund value chain.

F. Prohibition

Given that digital finance platforms can provide both crucial infrastructure for financial markets and enormous benefits for sustainable development, prohibition is unlikely to be an appropriate option in most cases.¹⁶⁶ With that said, many jurisdictions have sought to prevent or limit the entry of foreign digital finance platforms. Nonetheless, while various regulatory

¹⁶⁵ There is a wide body of antitrust literature discussing tying practices and unbundling requirements. See Keith N. Hylton & Michael Salinger, *Tying Law and Policy: A Decision-Theoretic Approach*, 69 ANTITRUST L.J. 469, 469–526 (2001) (reviewing post-Chicago tying law and theory and analyzing tying doctrine using decision theory); see also Nicholas Economides & Ioannis Lianos, *The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft Cases*, 76 ANTITRUST L.J. 483, 483–567 (2009) (analyzing the bundling approaches of Europe and the United States and advocating a unified test for bundling and tying).

¹⁶⁶ See Zetzsche et al, *The ICO Gold Rush: It's a Scam, It's a Bubble, It's a Super Challenge for Regulators*, 63 HARV. INT'L L.J. 305, 305-306 (2019) (discussing prohibition as one policy choice regarding initial coin offerings).

approaches may be valid, generally prohibition will not be in the interests of sustainable development.

VI. Governing FinTech 4.0 through Regulatory Cooperation and Coordination

The rapid rise of digital finance platforms and the dawn of FinTech 4.0 have taken many by surprise. This is particularly so in relation to their impacts on achieving sustainable development. There is general recognition of the many advantages their innovation can bring, particularly as the world grapples with the global Covid-19 pandemic and accepts the onset of a digitalized world much sooner than expected. Existing development agendas and initiatives, such as the SDGs, the Addis Ababa Action Agenda, and the Bali FinTech Agenda, acknowledge the importance of sustainable development and the role that FinTech can play in achieving it. However, there has not yet been a broader and more systematic consideration of the associated impacts that FinTech and digital finance platforms, more specifically, can have on social, economic and political domains. There has also not been a discussion and strategy developed as to how those impacts can either be enhanced if positive or mitigated and avoided if negative. This article contributes to these gaps by providing an overview of the pertinent issues that regulators and policymakers should consider for digital finance platform governance. More specifically, in this paper, we have argued for a principles-based approach to the development of appropriate governance frameworks and presented a range of more specific regulatory techniques that can be deployed.

In the balance of this conclusion, we propose a series of broad and more specific recommendations for potential regulatory pathways moving forward.

Broadly, regulators will have to tailor their policies to their specific spheres of influence and regulatory capacities. Some jurisdictions may benefit from rapid financial and technological innovation where a *laissez-faire* approach or adoption of regulatory sandboxes may be most appropriate. Other jurisdictions with more developed financial and technology markets may benefit from more moderate approaches with compulsory licensing and publicly mediated self-regulation.¹⁶⁷ In this context, our Principles One and Two are important as they highlight the need for foundational financial regulation and reflexive and context-sensitive regulatory policies.

Next, we suggest that governance should be developed at all applicable levels – national, regional and international – guided from the international level. The development of an international regulatory standard would outline the general principles of digital finance platform governance. Such a framework could initially be developed by the IMF, World Bank, BIS, or other such organizations. It would include appropriate principles and standards for regulators to then implement domestically. The specific ways to implement the international standards could then be developed nationally and regionally and involve development of more specific requirements regarding digital finance platforms conduct. Such a framework would be significantly strengthened in effect and legitimacy if produced in a collaborative and coordinated fashion with a broad multistakeholder constituency from both the Global North and South. Such a general international framework would help alleviate problems of regulatory

¹⁶⁷ See generally BUCKLEY & ARNER, *supra* note 7.

fragmentation and extraterritoriality by providing general regulatory policy directions while leaving leeway for national and regional regulators to tailor their regulations to national and regional needs.

Going further, in choosing an appropriate regulatory strategy, financial, data and competition regulators should attempt to balance out their mandates with the aspirations of sustainable development. Different approaches to regulation can directly impact sustainable development by contributing to, among other things, financial inclusion, labor development, infrastructure development and economic growth more broadly.¹⁶⁸ In this context, regulators should take into account how their decisions affect broader economic and social indicators, and implement regulatory policies that facilitate or, at the very least, do not harm the society and environment. This is particularly relevant in the context of reflexive regulation since some regulatory strategies can lead to different results in different jurisdictions.

More specifically, we recommend, first, that international financial supervisory organizations should consider forming a joint standing committee or working group whose principal focus is to galvanize and coordinate action towards the realization of the Bali FinTech Agenda. The 12 policy elements of this Agenda form a broad umbrella which captures many of the financial inclusion and developmental issues discussed herein. The Agenda is an existing and underutilized policy and regulatory launch pad through which global coordination can be effected. The standing committee or working group could be truly effective by:

- Having diverse and appropriate membership, drawing on expertise and participation from relevant sectors and geographies in the Global North and South and including both public and private sector entities, and international, regional and national bodies.
- Issuing authoritative (non-binding) regulatory guidance and training curricula, and serving as a repository of relevant and useful resources.
- Becoming the focal point for regular meetings and fora for topical discussion and technical exchange.

Second, national governments should consider the establishment of interagency teams and units that can work congruently on issues that relate directly to digital finance platform governance. For example, these could entail representatives from the ministries of finance, justice, competition, privacy and international affairs, among others, coordinating relevant policy and regulation that address the full gamut of digital finance platform activity within their jurisdictions. Further, these teams could become the national focal point through which interjurisdictional engagement is facilitated. For example, these could be the units which engage with the international Bali FinTech Agenda working group/committee. As such, there would be clear and effective channels through which both global and local action can be taken in the rapidly developing space of digital platforms.

Regional organizations and national governments should support industry adoption of responsible business frameworks, such as the UN Global Compact and the Paris Agreement Climate Targets, and seek stronger public-private collaboration for their implementation. National governments should consider requiring adherence to these frameworks as conditions

¹⁶⁸ See, e.g., Jayoung James Goo & Joo-Yuen Heo, *The Impact of the Regulatory Sandbox on the Fintech Industry, with a Discussion on the Relation between Regulatory Sandboxes and Open Innovation*, 6 J. OP. INN'TION: TECH. MARK. COMPL'XITY 43 (2020); L. Van Hove & A. Dubus, *M-PESA and Financial Inclusion in Kenya: Of Paying Comes Saving?*, 11 SUSTAINABILITY. 2 (2019).

of granting digital finance platform licenses to operate within their jurisdiction. After all, the UN Guiding Principles, for example, were unanimously endorsed by the UN Human Rights Council when first introduced in 2011. This will support implementation of Principles Three (fostering responsible actors) and Five (instilling a commitment to sustainable development).

Lastly, the complexity and challenges of digital finance platform governance mean that this is a subject upon which developing countries may well need assistance. Many such countries may lack the capacity to effectively monitor digital finance platforms domestically or enforce international and transnational regulations. As Principles Three and Four highlight, cooperation among regulators will be important to avoid “regulatory arbitrage” and to achieve effective and consistent regulation of digital finance platforms.