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Governing FinTech 4.0: BigTech, Platform Finance, and Sustainable Development

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GOVERNING FINTECH 4.0: BIGTECH, PLATFORM FINANCE, AND 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 digitalized industry, incumbents and new entrants alike 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. Predictably, this has resulted in the emergence of large digital finance platforms. We argue that the combination of digitalization, new entrants (especially BigTechs), and the evolution of dominant digital finance platforms—which we describe as FinTech 4.0 and mark as beginning in 2019-2020—brings both massive benefits and an increasing range of risks to growth and broader sustainable

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development. The emergence of concentration and dominance in digital finance poses challenges for societies and regulators around the world that, thus far, are most clearly evident in the United States and China. Existing regulatory frameworks for finance, competition, data, and technology are not designed to comprehensively address the challenges these trends pose. Instead, 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. At the same time, we need to monitor and control the attendant risks of concentration and dominance in digital finance across existing regulatory silos. We argue for a principles-based approach that brings together regulators responsible for different sectors and functions, both overseeing on a functional activities-based approach but also – as scale and interconnectedness increase – addressing specific entities as they emerge. This graduated proportional hybrid approach is appropriate both domestically in the United States, China, and elsewhere, as well as for cross-border groups, building on the experiences of supervisory colleges and 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 the benefits of data aggregation while constraining related risks of concentration and dominance.

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I. INTRODUCTION

Over the past 20 years, new technology and data giants have evolved. These giants–“BigTechs,” especially Meta (formerly Facebook), Apple, Google, Microsoft, and Amazon (“MAGMA”) 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 United States and China in particular (at least prior to 2019-2020), and the network effects that characterize data industries. While the resulting concentration and dominance have long been a source of concern in the European Union, they have now also emerged as major social, political, regulatory, and legal foci in the United States and China, with both countries trying to balance the benefits of these dominant platforms for

consumers against concerns about abuses of data and market position.¹ The COVID-19 pandemic fostered increased digitization across 2020 and 2021, amplifying and reinforcing these pre-existing trends. Subsequently, the governance of BigTech and the role of data are emerging as major issues for the 21st 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 Article 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. Importantly, in the last decade, BigTech has likewise expanded into the financial sector.³ In finance, BigTech joins a range of existing large and dominant players (“Big Finance”),⁴ as well as a gamut of other new entrants (FinTechs and TechFins)⁵ seeking to scale and evolve into Big FinTechs.⁶ All of

1. See SHOSHANA ZUBOFF, *THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER* 8 (2019).

2. See Klaus Schwab, *The Fourth Industrial Revolution: What it Means, How to Respond*, WORLD ECON. F. (Jan. 14, 2016), <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/> [<https://perma.cc/D6CN-V6GN>].

3. See Agustín Carstens et al., *Regulating Big Techs in Finance*, BIS (Aug. 2, 2021), <https://www.bis.org/publ/bisbull45.pdf> [<https://perma.cc/4XRK-4224>]; Juan Carlos Crisanto et al., *Big Techs in Finance: Regulatory Approaches and Policy Options*, BIS (Mar. 16, 2021), <https://www.bis.org/fsi/fsibriefs12.pdf> [<https://perma.cc/RC5H-6YQR>].

4. See Dirk A. Zetsche et al., *Digital Finance Platforms: Toward a New Regulatory Paradigm*, 23 UNIV. PA. J. BUS. & L. 273, 275-76 (2020).

5. See Douglas W. Arner et al., *The Evolution of Fintech: A New Post-Crisis Paradigm?*, 47 GEO. J. INT’L L. 1271, 1273 (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, 393, 400 (2018); Dirk A. Zetsche et al., *Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation*, 23 FORDHAM J. CORP. & FIN. L. 31, 31, 34 (2017).

6. Katherine Foster et al., *BigFintechs and Their Impacts on Sustainable Development*, UNDP (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> [<https://perma.cc/RLQ6-XT9U>]; Katherine Foster et al., *BigFintechs and Their Impacts on Macroeconomic Policies*, UNDP (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> [<https://perma.cc/G9DW-UAZE>]; Artem Sergeev et al., *Policymakers, BigFintechs and the United Nations Sustainable Development Goals*, UNDP (2021), <https://www.undp.org/sites/g/files/zskgke326/files/2021-06/UNDP-UNCDF-TP-3-1->

these entities are focused 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 the evolution of large 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 (“GFC”) and the resulting regulatory frameworks developed for systemically important financial institutions (SIFIs) and reckoning with “too-big-to-fail,” “too-complex-to-govern,” and “too-big-to-jail” banks.⁷ The emergence of digital finance platforms over the past 20 years reflects fundamental changes in economies and societies across the world.⁸ Digitization and datafication offer tremendous potential for network effects and economies of scope and scale, and have duly emerged in the platform economy and more recently in the platformization of finance. We identify this new stage of evolution as FinTech 4.0⁹—a new era of dominant digital finance platforms.

Polymakers-BigFintechs-and-the-United-Nations-SDGs-EN.pdf
[\[https://perma.cc/83Y3-XL7B\]](https://perma.cc/83Y3-XL7B); Kuzi Charamba et al., *BigFintechs and International Governance, Policymaking and the United Nations Sustainable Development Goals: the SDGs in the International Governance of Finance*, UNDP (2021), <https://www.undp.org/sites/g/files/zskgke326/files/2021-06/UNDP-UNCDF-TP-3-1-Polymakers-BigFintechs-and-the-United-Nations-SDGs-EN.pdf>
[\[https://perma.cc/EN4R-KXSC\]](https://perma.cc/EN4R-KXSC).

7. See Steven L. Schwarcz, *Too Big to Fool: Moral Hazard, Bailouts, and Corporate Responsibility*, 102 MINN. L. REV. 761, 763 (2017); Howell E. Jackson, *Introduction: Thinking Hard About Systemic Risk*, in SYSTEMIC RISK IN THE FINANCIAL SECTOR: TEN YEARS AFTER THE GREAT CRASH 1, 2 (Douglas W. Arner et al. eds., 2019); ROSS P. BUCKLEY & DOUGLAS W. ARNER, *From Crisis to Crisis: The Global Financial System and Regulatory Failure*, in INTERNATIONAL BANKING AND FINANCE LAW SERIES 1, 14-15 (Joseph J. Norton et al. eds., 2011).

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

9. This concept builds on typologies developed and discussed in a previous paper. See 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 start-ups emerged from the crisis to address inadequacies and shortcomings of legacy banking institutions; to leverage the introduction of the iPhone;

The emergence of FinTech 4.0 is marked by two significant events. The first was the announcement of Libra (now called Diem) by a Meta-led consortium, a clear example of a BigTech seeking to build an extraordinary digital finance platform.¹⁰ The second was the halting of the planned initial public offering (IPO) of Ant in 2020 due to regulators' concerns about its model of platformization and related risks concentration and dominance.¹¹

These major trends present tremendous opportunities for sustainable development—particularly in emerging markets and developing countries—through new business models that provide access to novel sources of 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 how governments can join tech and finance firms in seeking to leverage the benefits of digital finance platforms.¹² Thus, the question is how these new innovations should be governed to maximize positive returns while minimizing risk and negative impacts.

The governance of FinTech 4.0's digital finance platforms—regardless of their genesis—and their impacts require 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 actors that can contribute towards the development of such policy and regulation. Our current era, FinTech 4.0, is characterized by the expanding dominance of a small number of increasingly pervasive digital finance platforms operating

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. See Dirk A. Zetsche et al., *Regulating Libra*, 41 OXFORD J. LEG. STUD. 80, 81 (2021).

11. For a robust discussion on reasons for Ant's IPO crackdown, see Angela Huyue Zhang, *Agility Over Stability: China's Great Reversal in Regulating the Platform Economy*, 63 HARV. INT'L L.J. (forthcoming 2022), <https://ssrn.com/abstract=3892642> [<https://perma.cc/SK7M-S5SQ>].

12. See Ross P. Buckley et al., *Sovereign Digital Currencies: Reshaping the Future of Payments and Money*, 15 J. PAYMENT STRATEGY & SYS. 7, 9 (2021).

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 and competition, data, security, innovation, and broad sustainable development. Pivotal to achieving these wide-ranging objectives are coordination among regulators, domestically and internationally, and the implementation of a proportional, graduated, and risk-based hybrid regulatory approach, 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 to minimize risks of concentration and dominance while maximizing the positive contribution to sustainable development.

The Article is in six parts. Part II provides an overview of the rise of digital finance platforms in the context of the evolution of 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 III takes a step back from the developments discussed in Part II and presents the various regulatory fields and issues involved in addressing the platformization of finance at various levels of governance and regulatory competence. Within this context, we analyze the complexity of the governance challenges facing regulators and policymakers, highlighting that concentration and dominance in digital finance extends across multiple regulatory areas. Part IV explores the key principles necessary for the governance of digital finance platforms, focusing on how these affect sustainable development, seeking to maximize positive impact while minimizing negative outcomes. Part V 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 to support new entrants, technologies, and business models but calibrated to steadily increase as participants move from “too-small-to-care” to “too-large-to-ignore” to “too-big-to-fail.” Part VI concludes by highlighting the necessity of cooperation for effective governance and the various organizational approaches available to international regulators and policymakers. Part VI also explores how to

13. See Carstens et al., *supra* note 3.

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 A NEW DIGITAL “TOO-BIG-TO-FAIL” IN FINANCE

FinTech 4.0 is marked primarily by the emergence of scale in the context of platformization of finance, both from the disruptive entry of BigTech firms as well as in the context of Big Finance incumbents and the scaling of FinTechs and TechFins.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 an ever-greater concentration and dominance not only in technology but also in finance: the emergence of a new “too-big-to-fail” and possibly even “too-big-to-regulate”.

BigTechs, which include Meta, Google, Amazon, Tencent, and Alibaba, to name a few, represent a broader group of firms in which technology has come to dramatically drive their growth, scale, diversification, and dominance. Their entrance into finance 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 persons.¹⁶ In credit markets, for example, it is estimated these firms lent nearly \$600 billion globally in 2019 and were important lenders in China, the United States, and an increasing number of emerging markets.¹⁷ This is all the more staggering because BigTechs are not traditional financial institutions. Rather, they are large companies whose primary activities encompass a

14. The case for a Digital Stability Board is very well made in Robert Fay, *Digital Platforms Require a Global Governance Framework*, CTR. FOR INT’L GOVERNANCE INNOVATION (Oct. 28, 2019), <https://www.cigionline.org/articles/digital-platforms-require-global-governance-framework/> [<https://perma.cc/4MQN-4A6F>].

15. See Erik Feyen et al., *FinTech and the Digital Transformation of Financial Services: Implications for Market Structure and Public Policy*, BIS (July 13, 2021), <https://www.bis.org/publ/bppdf/bispap117.htm> [<https://perma.cc/MH8A-E5PB>].

16. See *BigTech Firms in Finance in Emerging Market and Developing Economies*, FSB (Oct. 12, 2020), <https://www.fsb.org/wp-content/uploads/P121020-1.pdf> [<https://perma.cc/3QN6-RYTM>] [hereinafter *BigTech Firms in Finance*].

17. Giulio Cornelli et al., *FinTech and Big Tech Credit: A New Database 1-2*, (BIS, Working Paper No. 887, 2020), <https://www.bis.org/publ/work887.htm> [<https://perma.cc/MPC3-P5FC>].

broad set of more general digital services, including online search engines, social media, e-commerce, ride-hailing, and telecommunications.¹⁸ Data is their primary currency, and few suspected that these platform-based models would be the medium through which these entities could also become financial intermediaries, offering a growing range of digital financial services.¹⁹ This generally starts with payment, then moves to credit and investment, and from there to an ever-wider range of areas.²⁰ 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.²¹ 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 smartphone and internet access. 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.²² The connections vary depending on the type of digital platform. From social media apps to e-commerce websites, there are a variety of platforms that bring together buyers and sellers across a range of industries and enterprises.²³ The use of these platforms has increased significantly during the COVID-19 pandemic, as governments mandated lockdowns and forced people indoors to control the spread of the virus.²⁴ This

18. FIN. STABILITY BOARD, *BIGTECH IN FINANCE: MARKET DEVELOPMENTS AND POTENTIAL FINANCIAL STABILITY IMPLICATIONS* 16 (2019).

19. *Id.*

20. *Id.* See also Jon Frost et al., *BigTech and the Changing Structure of Financial Intermediation* 62 (BIS, Working Papers No. 779, 2019), <https://www.bis.org/publ/work779.pdf> [<https://perma.cc/UEW9-PYRH>].

21. *Id.*

22. BANK FOR INT'L SETTLEMENTS, *BIG TECH IN FINANCE: OPPORTUNITIES AND RISKS* 62 (2019), <https://www.bis.org/publ/arpdf/ar2019e3.htm> [<https://perma.cc/7HVN-TFK5>].

23. *Id.*

24. See, e.g., Financial Times Editorial Board, *The Big Tech Boom Marks a Lasting Change*, FIN. TIMES (July 31, 2021), <https://www.ft.com/content/36fd57a0-52bb-4bed-b9a9-46dfb69b2f52> [<https://perma.cc/497Y-HLJZ>]; Laura LaBerge et al., *How COVID-19 Has Pushed Companies Over the Technology Tipping Point—And Transformed Business Forever*, MCKINSEY & CO. (Oct. 5, 2020), <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how->

increase fueled the success of the BigTech business model, which is itself founded upon the “DNA model.”²⁵

The DNA model, which is the second factor driving BigTech’s entry into finance, refers to the reinforcing cycle of data analytics, network effects, and interwoven activities.²⁶ 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.²⁷ 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 vendors. As this network of buyers and sellers increases, the platform begins to generate “network effects,” which arise whenever greater numbers of users participating on a platform render it more useful to all users.²⁸ Rising numbers of participants in turn generate new troves of data for the platform.²⁹ The data is a key input into the platforms’ algorithms and data analytics, and allows them to create better products and services that are tailored more specifically to their users and consumers.³⁰ As the products and services become better, they attract more users and enable the platform to create new services and products for those users—which we term “interwoven activities.”³¹ This cycle can lead to a platform’s rapid growth and dominance within a particular sector and helps to explain how BigTechs came to dominate their respective categories in such relatively short periods of time.³² It also accounts for how BigTechs have been able to move into financial services. As they attract more users onto their platforms and analyze the increasing data from their activities, BigTechs are able to create and offer complementary services, such as payments,

covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever [https://perma.cc/QRE3-PJAY].

25. BANK FOR INT’L SETTLEMENTS, *supra* note 22.

26. *Id.*

27. *Id.*

28. *Id.*

29. *Id.*

30. *Id.*

31. *Id.*

32. *Id.*

in order to better facilitate interactions and transactions across the network, which is particularly valuable in the context of e-commerce and gaming, as well as enabling monetization of social media.³³ Ant's Alipay and Tencent's TenPay are two prominent examples from China, emerging from e-commerce and social media enterprises respectively.³⁴ Another notable example is Meta's more daring proposal of a global stablecoin for its platform, first introduced as Libra and now known as Diem, enabled via WhatsApp/Facebook/Instagram Pay, Novi digital wallets, and related identification frameworks.³⁵ BigTech firms are expanding further into other areas of economic 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 or by providing loans or investments directly, enabled by automated analytics supported by their massive pools of data.³⁶

The third enabling driver for BigTechs' expansion into financial services is the application of relatively new technology and tools that have matured significantly in recent years. These technologies consist primarily of artificial intelligence, big data, cloud computing, and distributed ledger technologies, often shortened to "ABCD."³⁷ For example, using a combination of these technologies, BigTechs can extend credit to individuals in ways beyond traditional financial institutions.³⁸ Traditional financial institutions typically determine whether to make a loan on the basis of collateral, earning potential, or business plans.³⁹ BigTechs, on the other hand, are able to use alternative and unconventional data sources amassed in large quantities from activities on their platforms and other accessible sources (Big Data), and then process this data using advanced analytical methods such as machine learning and network analysis (artificial intelligence).⁴⁰ 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

33. See FIN. STABILITY BOARD, *supra* note 18, at 11.

34. Frost et al., *supra* note 20.

35. Zetzsche et al., *supra* note 10.

36. Frost et al., *supra* note 20.

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

38. Frost et al., *supra* note 20.

39. *Id.*

40. *Id.*

macroeconomic sensitivity).⁴¹ This can be enriched by using non-traditional data obtained via social media and other channels, in addition to credit and payment history data.⁴² These multiple data points, taken together, can provide a better picture of a borrower's financial health and ability to repay a loan, and are applicable to both individuals and businesses.⁴³ These applications of technology are more efficient and effective than traditional methods.⁴⁴ 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.⁴⁵ 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 universal financial inclusion, particularly in emerging market and developing economies ("EMDEs").⁴⁶ By acting as intermediaries, BigTech platforms have opened the door to digital payments, savings and investment opportunities, and alternative sources of finance.⁴⁷ 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.⁴⁸ Further, by developing and deploying sophisticated payment tools and infrastructure, such as the

41. *Id.*

42. BANK FOR INT'L SETTLEMENTS, *supra* note 22.

43. Frost et al., *supra* note 20.

44. *Id.*

45. *Id.*

46. Karen Croxson et al., *Platform-based Business Models and Financial Inclusion*, DIGIT. FRONTIERS INST. (Oct. 5, 2021), https://www.dcfintechweek.org/wp-content/uploads/2021/10/Jon-Frost-Karen_Croxson-et-al-Platform-based-business-models-and-financial-inclusion-Oct-2021.pdf [<https://perma.cc/YN4P-5Q98>]; Frost et al., *supra* note 20; *BigTech Firms in Finance*, *supra* note 16.

47. *BigTech Firms in Finance*, *supra* note 16.

48. *Id.*

Quick Response (QR) code-based systems, which have gained rapid popularity in several Asian and Latin American countries,⁴⁹ BigTechs have contributed to economic growth and development.⁵⁰

The best examples are in China. In 2004, Alibaba created Alipay, a payment service, to enable electronic payments that support e-commerce and spun it off into a separate affiliate (Ant Financial) in 2010.⁵¹ By 2020, almost a billion people used Alipay, with similar numbers using TenPay.⁵² From payments, Ant expanded into money market funds (Yu'ebao) in 2013 as an alternative saving and investment tool, and by 2018 Yu'ebao had become the largest of any such fund in the world.⁵³ Ant also branched into platform lending, becoming 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 2018.⁵⁴ Coming into 2020, Ant had expanded across payments, wealth management, lending, insurance, credit scoring, and data sales services.⁵⁵ Ant's only major competitor was fellow BigTech Tencent (which owns the dominant messaging and social network app WeChat), and the two firms accounted for 94 percent of the payments market.⁵⁶ As seen in China, BigTechs are able to generate and command such significant economies of scope and scale that they existentially threaten traditional financial institutions.⁵⁷ At the same time, this dominance triggered a comprehensive regulatory response across 2020 and 2021 which continues to evolve.

The entrance of any new actor or activity in financial services can pose risks to financial stability, market integrity, competition, and

49. *Id.*

50. *Id.*

51. Lambert Bu et al., *The Future of Digital Innovation in China*, MCKINSEY & CO. (Sept. 30, 2021), <https://www.mckinsey.com/featured-insights/china/the-future-of-digital-innovation-in-china-megatrends-shaping-one-of-the-worlds-fastest-evolving-digital-ecosystems> [<https://perma.cc/U5Q7-W4B9>]; Aaron Klein, *China's Digital Payments Revolution*, BROOKINGS (Apr. 2020), <https://www.brookings.edu/research/chinas-digital-payments-revolution/> [<https://perma.cc/K8AA-AWWA>].

52. *Id.*

53. *Id.*

54. *BigTech Firms in Finance*, *supra* note 16.

55. *Id.*

56. *See Digital Disruption in Banking and its Impact on Competition*, OECD (2020), <https://www.oecd.org/daf/competition/digital-disruption-in-financial-markets.htm> [<https://perma.cc/XD26-6FL9>].

57. *See BigTech Firms in Finance*, *supra* note 16; Carstens et al., *supra* note 3.

consumer protection.⁵⁸ This is particularly so where the new actors do not operate primarily within the financial industry.⁵⁹ 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.⁶⁰ This is also the case as incumbents seek to pursue similar approaches and models on the basis of digitalization of finance.

Moreover, like G-SIFIs but perhaps more so, the sheer size and global spread of BigTechs pose systemic and cross-border risks that can be perplexing and daunting for regulators and policymakers.⁶¹ 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.⁶² These issues arise from the DNA model, network effects, and economies of scope and scale that all combine to drive the emergence of concentration and dominance via platformization of finance.⁶³ Problems also stem 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."⁶⁴ This approach is characteristic of MAGMA, BATs, and most tech firms engaging in financial services.⁶⁵ Most FinTech start-ups seek to build ecosystems and platforms with the intention of growing into Big FinTechs, as occurred with earlier FinTechs such as Bloomberg, Visa, and PayPal.⁶⁶ Financial institutions transforming into data platforms have followed similar paths, such as BlackRock in asset management,⁶⁷ Ping An in insurance, and Citadel and Robinhood in trading.⁶⁸ This is the TechFin model of applying a data-centered approach to finance.⁶⁹ It

58. See Frost et al., *supra* note 20; BANK FOR INT'L SETTLEMENTS, *supra* note 22.

59. See Carstens et al., *supra* note 3.

60. *Id.*

61. *Id.*

62. See BANK FOR INT'L SETTLEMENTS, *supra* note 22.

63. See Carstens et al., *supra* note 3. See also Croxson et al., *supra* note 46.

64. See, e.g., Qian Tong, *China's Assault on Big Tech's 'Walled Gardens'*, NIKKEI ASIA (Sept. 28, 2021), <https://asia.nikkei.com/Spotlight/Caixin/China-s-assault-on-Big-Tech-s-walled-gardens> [<https://perma.cc/PR97-NH6H>].

65. *Id.*

66. Croxson et al. *supra* note 46.

67. See Zetzsche et al., *supra* note 4, at 275.

68. *Id.*

69. See Zetzsche et al., *supra* note 5, at 405.

is even the approach of DLT platforms such as Ethereum, with decentralization in time requiring platformization.⁷⁰

This evolutionary growth results in a cycle of concentration and dominance. Yet still, according to a recent report by University College London's Institute for Innovation and Public Purpose, it is likely that we are underestimating the true extent of this dominance and its resulting wealth because of how disclosure frameworks are currently designed.⁷¹ At present, reporting rules mandated by the U.S. Securities and Exchange Commission provide Big Tech firms with significant discretion as to which product financials they disclose and when.⁷² This enables them to keep large products, often with dominant user bases, hidden from investors and potential competitors, limiting the ability of regulators to police highly profitable digital platforms.⁷³ These large user bases, typically generated from "free" services, are a critical source for data aggregation, cross subsidization, and further monetization strategies.⁷⁴ For example, Google Chrome and the Android mobile operating system both contribute significantly towards Google's user acquisition and retention, thus driving revenue generation on its other products including online ads, Google Search, and the Android App Store.⁷⁵ 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.⁷⁶ Consequently, while the platformization of finance as an extension of BigTech ecosystems can deliver considerable benefits for consumers, the tendency towards concentration and dominance brings a range of risks and concerns. These can span from reductions in competition and innovation, to security (both of personal data and in financial stability and national security), and eventually to inequality.⁷⁷ This is the new "too-big-to-fail."

70. See Zetsche et al., *supra* note 37, at 179.

71. ILAN STRAUSS ET AL., CROUCHING TIGER, HIDDEN DRAGONS: HOW 10-K DISCLOSURE RULES HELP BIGTECH CONCEAL MARKET POWER AND EXPAND PLATFORM DOMINANCE 1 (2021).

72. *Id.* at 1.

73. *Id.* at 4.

74. *Id.* at 6-17.

75. *Id.* at 15.

76. See generally Joost Rietveld & Melissa Schilling, *Platform Competition: A Systematic and Interdisciplinary Review of the Literature*, 47 J. MGMT. 1528 (2021).

77. See Carstens et al., *supra* note 3.

It is also potentially the catalyst for the emergence of firms which are “too-big-to-regulate.” For example, a recent International Monetary Fund (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 of cash reserves respectively and market capitalizations over \$1 trillion, are less sensitive to regulatory efforts through monetary policy change.⁷⁸ Consequently, policymakers and regulators need to respond thoughtfully, strategically, and with growing urgency. The benefits and challenges are such that governments are looking to develop their own digital finance platforms in response, such as CBDCs.⁷⁹

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 THE NEW “TOO-BIG” IN FINANCE: CHALLENGING EXISTING REGULATORY FRAMEWORKS

In considering possible governance approaches to the emergence of the new “too-big” in finance via platformization and the evolution of BigTech and other large digital finance platforms, we begin with existing regulatory approaches. Of the current frameworks available, four are most relevant: financial regulation, antitrust and competition regulation, telecommunications and internet regulation, and data protection regulation.⁸⁰ Each of these four areas is broad and includes

78. Romain Duval et al., *Market Power and Monetary Policy Transmission* 3 (IMF, Working Paper No. 2021/184, 2021), <https://www.imf.org/en/Publications/WP/Issues/2021/07/09/Market-Power-and-Monetary-Policy-Transmission-461332> [<https://perma.cc/88TX-UMF5>].

79. See *CBDCs: An Opportunity for the Monetary System*, BIS (June 23, 2021), <https://www.bis.org/publ/arpdf/ar2021e3.htm> [<https://perma.cc/83JG-H2UY>].

80. See, e.g., BANK FOR INT’L SETTLEMENTS, *supra* note 22, 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., Press Release, Econ. & Soc. Council, Corporate Tax Reform Must Focus on Developing Countries’ Needs, Combating Inequality, Speakers Tell Special Meeting of Economic and Social Council, U.N. Press Release ECOSOC/6978 (Apr. 29,

requirements relating to establishment, consumer protection, disclosure and reporting, and other regulations.⁸¹ Our analysis highlights that none of the existing regulatory frameworks are sufficient to cover the range of opportunities and risks raised by the emerging concentration and scale of digital finance of FinTech 4.0.

A. FINANCIAL REGULATION

The first area of relevance is financial regulation. Over the past 150 years, financial regulation has evolved to address issues of financial stability, market functioning and efficiency, financial integrity, consumer and investor protection, and fairness.⁸² This scope is premised upon the underlying view that finance is essential for sustainable development but it is also necessary to control the various risks that finance presents; thus, its regulation is a public good.⁸³ Regulation has generally arisen in response to societal harms that policymakers and the public do not want to see repeated – namely financial crises, bank failures, fraud and money laundering, abuse of consumers, and unfair outcomes.⁸⁴ Regulators are the representatives of society who are “paid to worry” and mitigate these risks.⁸⁵

With international financial regulation, international actors, including regulators, coordinated and led by the G20 and the Financial Stability Board (FSB) develop voluntary regulatory standards that are then implemented by individual jurisdictions.⁸⁶ A prominent example are the Basel Capital Accords, developed by the Basel Committee on

2019), <https://www.un.org/press/en/2019/ecosoc6978.doc.htm> [<https://perma.cc/F4SK-43AG>].

81. See BANK FOR INT’L SETTLEMENTS, *supra* note 22, at 68.

82. *Id.*

83. See Johannes Ehrentraud et al., *Policy Responses to FinTech: A Cross-Country Overview*, BIS (Jan. 30, 2020), <https://www.bis.org/fsi/publ/insights23.htm> [<https://perma.cc/U6WW-8FAM>].

84. BUCKLEY & ARNER, *supra* note 7, at 14-15.

85. Thanks to Jon Frost for this. For a detailed discussion, see BUCKLEY & ARNER, *supra* note 7, at 9.

86. The process of adoption normally includes high-level meetings and consultations among regulators and central banks. See, e.g., *The Basel Process – Overview*, BIS, https://www.bis.org/about/basel_process.htm [<https://perma.cc/4Q4C-FQ8W>] (last visited Oct. 14, 2021). 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.

Banking Supervision of the Bank for International Settlements (BIS), that sets standards regarding capital and liquidity risks to improve the resilience of the banking sector.⁸⁷ Similar voluntary standards can be found in other areas of financial regulation such as securities (e.g., International Organization of Securities Commissions (IOSCO) Objectives and Principles of Securities Regulation),⁸⁸ financial market infrastructure (e.g., Committee on Payments and Market Infrastructure (CPMI)-IOSCO Principles for Financial Market Infrastructures),⁸⁹ investment (e.g., International Organization of Pension Supervisors (IOPS) Principles of Private Pension Supervision),⁹⁰ and others.⁹¹

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 financial activities in question.⁹² Implementation is monitored closely by the G20 and the FSB for their members and by the IMF, World Bank, and individual standard setters more broadly.⁹³

87. Basel Committee on Banking Supervision, *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems* (June 2011). 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. *Id.*

88. *Objectives and Principles of Securities Regulation*, FSB (May 31, 2017), https://www.fsb.org/2017/05/cos_100601/ [<https://perma.cc/P8H2-AU2B>].

89. *Principles for Financial Market Infrastructures*, BIS (Apr. 16, 2012), <https://www.bis.org/cpmi/publ/d101.htm> [<https://perma.cc/SJ5L-88AX>].

90. *IOPS Principles and Guidelines*, INTERNATIONAL ORGANISATION OF PENSION SUPERVISORS, <http://www.iopsweb.org/principlesandguidelines/> [<https://perma.cc/9XK8-D645>] (last visited Jan. 17, 2022).

91. For a review of international financial standards in the context of sustainable development, see U.N. ENVIRONMENT INQUIRY, *A REVIEW OF INTERNATIONAL FINANCIAL STANDARDS AS THEY RELATE TO SUSTAINABLE DEVELOPMENT* (2017).

92. For a discussion of developing countries and their commitments to Basel regulations, see Thorsten Beck et al., *Basel Standards and Developing Countries: A Difficult Relationship*, VOXEU (Oct. 15, 2018), <https://voxeu.org/article/basel-standards-and-developing-countries> [<https://perma.cc/379F-YU28>].

93. See, e.g., BUCKLEY & ARNER, *supra* note 7, at 16.

1. Objectives

At the core of financial regulation, particularly since the 2008 GFC, is financial stability.⁹⁴ 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.⁹⁵ 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.⁹⁶ Microprudential regulation focuses on the safety and soundness of individual financial institutions.⁹⁷ 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.⁹⁸ This is broadly acknowledged as “systemic risk.”⁹⁹ Such risks are tackled by both macroprudential and microprudential regulation.¹⁰⁰

International financial regulation has tended to focus on the identification of systemic risks, SIFIs, and related regulatory and supervisory approaches, including capital, liquidity and leverage requirements, enhanced supervision and disclosure, crisis contingency planning, and failure resolution mechanisms.¹⁰¹ Such approaches extend beyond traditional financial institutions to a range of financial market infrastructure providers (FMIs) as well, such as payment and securities settlement systems.¹⁰²

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

94. See Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 208 (2008); JACEK OSIŃSKI ET AL., MACROPRUDENTIAL AND MICROPRUDENTIAL POLICIES: TOWARD COHABITATION 9 (2013), <https://www.imf.org/external/pubs/ft/sdn/2013/sdn1305.pdf> [<https://perma.cc/ZP9J-RD8E>].

95. See Schwarcz, *supra* note 94, at 248.

96. See OSIŃSKI ET AL., *supra* note 94.

97. *Id.*

98. *Id.*

99. *Id.*

100. *Id.*

101. See generally Douglas Arner & Cyn-Young Park, *Global Financial Regulatory Reforms: Implications for Developing Asia* (ADB, Working Paper No. 57, 2010).

102. *Id.*

As a second objective, consumer protection seeks to safeguard consumers from overreach by financial institutions, drive increased confidence in the financial system, and reduce financial crime.¹⁰³ This is typically addressed by a combination of disclosure and behavioral requirements, enforced through public agencies via criminal or civil penalties (e.g., warnings, financial license suspensions, and bans on products).¹⁰⁴ Consumer protection has traditionally focused on disclosure and conduct rather than possible abuses of data or dominance.¹⁰⁵

The third objective – market integrity – focuses on preventing the criminal and terrorist use of the financial system, fraud, and market manipulation.¹⁰⁶ It focuses on a range of financial crimes, in particular fraud, but also money laundering, terrorist financing, and market abuse.¹⁰⁷ 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

103. See, e.g., *Good Practices for Financial Consumer Protection*, WORLD BANK GROUP (June 2012), <https://openknowledge.worldbank.org/handle/10986/26861> [<https://perma.cc/4W3V-4CJT>].

104. See, e.g., Press Release, European Securities and Market Authority, ESMA Renews Binary Options Prohibition for a Further Three Months from 2 April 2019 (Feb. 18, 2019), <https://www.esma.europa.eu/press-news/esma-news/esma-renews-binary-options-prohibition-further-three-months-2-april-2019> [<https://perma.cc/96WR-KSVR>].

105. See, e.g., Brian Johnson, Deputy Dir., Consumer Fin. Prot. Bureau, Address at the Consumer Empowerment Conference: Toward a 21st Century Approach to Consumer Protection, (Nov. 15, 2018), <https://www.consumerfinance.gov/about-us/newsroom/toward-21st-century-approach-consumer-protection/> [<https://perma.cc/CE45-FZ5S>].

106. See e.g., Janet Austin, *What Exactly is Market Integrity? An Analysis of One of the Core Objectives of Securities Regulation*, 8 WM. & MARY BUS. L. REV. 215, 227 (2017).

107. *Id.*

standards.¹⁰⁸ Most jurisdictions apply existing regulatory standards to govern the activities of digital finance platforms in the financial sector.¹⁰⁹ 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.¹¹⁰

Two problems arise with this approach for digital finance platforms. First, such firms often do not apply for banking or other licenses.¹¹¹ 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).¹¹² This means platforms can potentially affect financial markets while remaining beyond regulatory supervision.¹¹³ 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.¹¹⁴ This is further exacerbated by the platforms' combination of digital technologies and business model innovations that raise challenges around which regulations might apply and how they might be executed.¹¹⁵ For example, money balances in wallets or P2P lending might not fit under traditional approaches to deposits and lending activities.¹¹⁶ Similarly, some blockchain-based financial products such as digital tokens may fall under securities regulation.¹¹⁷ However, how, when, and where these new digital

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

109. See Ehrentraud et al., *supra* note 83; Juan Carlos Crisanto et al., BIG TECHS IN FINANCE: REGULATORY APPROACHES AND POLICY OPTIONS 5 (2021), <https://www.bis.org/fsi/fsibriefs12.pdf> [<https://perma.cc/Y4WQ-N6DR>].

110. See Ehrentraud et al., *supra* note 83, at 25.

111. FIN. STABILITY BOARD, *supra* note 18.

112. *Id.*

113. See Zetsche et al., *supra* note 5, at 413.

114. See Ehrentraud et al., *supra* note 83, at 29.

115. Croxson et al. *supra* note 46.

116. See, e.g., Johannes Ehrentraud et al., *Denise Garcia Ocampo & Camila Quevedo Vega, Regulating Fintech Financing: Digital Banks and Fintech Platforms*, BIS (Aug. 2020), <https://www.bis.org/fsi/publ/insights27.htm> [<https://perma.cc/TP5K-ZRUR>].

117. See, e.g., Robert A. Schwinger, *Changing Securities Laws and Regulations for the Digital Token Age*, N.Y.L.J. (2019), <https://www.law.com/newyorklawjournal/2019/03/18/changing-securities-laws-and-regulations-for-the-digital-token-age/> [<https://perma.cc/9LRQ-HU6N>].

products fall under existing rules is often far from clear in many jurisdictions.¹¹⁸

Another major risk is “regulatory arbitrage,” structuring to avoid regulation by transferring risk outside the regulated sector.¹¹⁹ Prevention of regulatory arbitrage has emerged as a major financial regulatory objective since 2008.¹²⁰

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 U.S. Office of the Comptroller of the Currency (OCC) approved special national bank charters for FinTech companies.¹²¹ The charters would be subject to 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.¹²² Meanwhile, other requirements that apply to banks in the United States would extend to the special bank charters for FinTech companies (including digital finance platforms).¹²³ Similar developments can be found in other jurisdictions, such as Australia, the United Kingdom, and the European Union, where regulators allow FinTech companies to provide limited financial services without fully complying with all regulatory standards.¹²⁴ Reacting to the emergence of regulatory arbitrage and non-bank finance in the context of digital finance platforms, China has recently

118. *Id.*

119. 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 FIN. MGMT. 23, 39 (1995).

120. Danièle Nouy, Chair, ECB Supervisory Bd., Speech at the 33d SUERF Colloquium, Helsinki: Gaming the Rules or Ruling the Game? – How to Deal with Regulatory Arbitrage (Sept. 15, 2017), <https://www.bankingsupervision.europa.eu/press/speeches/date/2017/html/ssm.sp170915.en.html> [<https://perma.cc/EBY3-HAAF>].

121. See News Release, OCC Begins Accepting National Bank Charter Applications from Financial Technology Companies (July 31, 2018), <https://www.occ.gov/news-issuances/news-releases/2018/nr-occ-2018-74.html> [<https://perma.cc/FB63-GK6S>]. See generally JOSEPH M. OTTING, POLICY STATEMENT ON FINANCIAL TECHNOLOGY COMPANIES’ ELIGIBILITY TO APPLY FOR NATIONAL BANK CHARTERS (2018), https://www.occ.gov/news-issuances/news-releases/2018/pub-other-occ-policy-statement-fintech.pdf?utm_campaign=ABA-Newsbytes080118&utm_medium=email&utm_source=Eloqua [<https://perma.cc/P3GM-STFT>].

122. See Omarova, *supra* note 108, at 113.

123. *Id.* at 113.

124. *Id.* at 111.

implemented a unified regulatory regime for firms engaging in financial services-related business without distinctions from a technological platform standpoint or otherwise.¹²⁵

Besides licensing, other financial regulatory requirements may be applicable to digital finance platforms, such as Know Your Customer (KYC) and Anti-Money Laundering (AML) obligations and securities regulations.¹²⁶ These regulations are likewise designed to secure the stability of the financial sector, deter criminal activities, and protect consumers.¹²⁷

3. Contribution to Innovation and Competition in Financial Services?

The promotion of innovation and competition in financial services supports broader sustainable development.¹²⁸ To bolster these goals, many regulators have adopted “regulatory sandboxes” and “innovation hubs.”¹²⁹ 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 examine their impact.¹³⁰ 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.¹³¹ Regulatory sandboxes usually seek to foster innovation and competitiveness in financial services, test the effects of new products and technologies on financial

125. See Zhong Xu & Ruihui Xu, *Regulating Fintech for Sustainable Development in the People’s Republic of China* 14 (Asian Dev. Bank Inst., Working Paper No. 1023, 2019).

126. BANK FOR INT’L SETTLEMENTS, *supra* note 22, at 68; Ehrentraud et al., *supra* note 83, at 32.

127. Dirk Zetsche et al., *Digital ID and AML/CDD/KYC Utilities for Financial Inclusion, Integrity, and Competition*, 47 CAPCO INST. J. FIN. TRANSFORMATION 133, 134 (2018).

128. See Sasin Kirakul et al., *The Universe of Supervisory Mandates - Total Eclipse of the Core?*, BIS (Mar. 9, 2021), <https://www.bis.org/fsi/publ/insights30.htm> [<https://perma.cc/HC55-37SC>].

129. See Ross P. Buckley et al., *Building Fintech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond*, 61 WASH. U. J.L. & POL’Y 55, 55-56 (Mar. 31, 2020).

130. See Omarova, *supra* note 108, at 110 (2020); *FInsight: Regulatory Sandboxes*, FIN. INST. HUB (Oct. 31, 2018), <https://financialinstitutions.bakermckenzie.com/2018/10/31/finsight-regulatory-sandboxes/> [<https://perma.cc/US9E-5YFF>].

131. See Omarova, *supra* note 108, at 110-11.

markets, and measure the effects of regulatory burdens.¹³² Regulatory sandboxes are becoming increasingly popular as a way to support sustainability in financial services.¹³³

B. ANTITRUST AND COMPETITION REGULATION

The second area of regulatory activity relevant to the concentration and dominance of finance via platformization 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.¹³⁴ These laws help to maintain a competitive market environment by limiting predatory business practices such as market allocation, bid-rigging, price-fixing, and others.¹³⁵ As such, antitrust and competition laws apply to various economic activities that can intentionally or unintentionally stifle competition.¹³⁶ Since the late 1970s, considerations of consumer cost and benefit have dominated the antitrust conversation, especially in the United States.¹³⁷

Similar to financial regulation, competition laws and policies are developed nationally, regionally, and internationally. At the international level, bodies such as the Organization for Economic Cooperation and Development (OECD), the International Competition Network (ICN), and the U.N. Conference on Trade and Development

132. See Giulio Cornelli et al., *Inside the Regulatory Sandbox: Effects on Fintech Funding* 1 (BIS, Working Paper No. 901, 2020), <https://www.bis.org/publ/work901.htm> [<https://perma.cc/L6NC-VEH8>]. Further, regulatory sandboxes can pursue additional goals such as female empowerment, like FCA's TechSprint initiatives. *Global AML and Financial Crime TechSprint*, FIN. CONDUCT AUTH. (2018), <https://www.fca.org.uk/events/techsprints/aml-financial-crime-international-techsprint> [<https://perma.cc/63PB-AA63>].

133. See, e.g., PHOEBE HIGGINS & TIMOTHY MALE, *SANDBOXING NATURE: HOW REGULATORY SANDBOXES COULD HELP RESTORE SPECIES, ENHANCE WATER QUALITY AND BUILD BETTER HABITATS FASTER* 9-10 (2019), https://static1.squarespace.com/static/611cc20b78b5f677dad664ab/t/6178421d680175273724ebbb/1635271202429/Sandboxing_Nature.pdf [<https://perma.cc/A7ZV-2DEK>].

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

135. See, e.g., ANTITRUST DIV. DEP'T JUST., *PRICE FIXING, BID RIGGING, AND MARKET ALLOCATION SCHEMES: WHAT THEY ARE AND WHAT TO LOOK FOR* 1 (2005).

136. Wright & Ginsburg, *supra* note 134, at 2406.

137. *Id.*

(UNCTAD) develop voluntary recommendations, best practices, and policy guidelines aimed at harmonizing competition laws across different jurisdictions.¹³⁸ 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.¹³⁹

At the national and regional level, regulators have broad discretion in their approaches to competition policy and its goals. For example, the United States and the European Union often pursue different goals with their competition policies. In the United States, antitrust law is primarily focused on the protection of consumer welfare;¹⁴⁰ whereas, in the European Union, competition law is aimed at both protecting consumers and facilitating market integration.¹⁴¹ The difference in competition policy goals translates into different regulatory requirements, for example, the European Union has a much lower threshold for qualifying economic activities as anticompetitive than does the United States.¹⁴²

138. See, e.g., *Recommendation of the Council on Competition Assessment*, OECD (Dec. 10, 2019), <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0455> [<https://perma.cc/CC5K-UWHA>] (last visited Jan. 17, 2022); *International Co-Operation in Competition*, OECD, <https://www.oecd.org/competition/internationalco-operationandcompetition.htm> [<https://perma.cc/XW33-8NAM>] (last visited Jan. 17, 2022); UNITED NATIONS CONF. ON TRADE & DEV., UNCTAD PERSPECTIVE ON COMPETITION LAW AND POLICY 19 (2013), https://unctad.org/system/files/official-document/diteclpmisc2013d2_en.pdf [<https://perma.cc/8G5Z-D8NA>].

139. See, e.g., OECD, INVENTORY OF PROVISIONS IN INTER-AGENCY CO-OPERATION AGREEMENTS (MOUs) 3 (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) [<https://perma.cc/Q8GP-BJD3>].

140. *The Antitrust Laws*, FED. TRADE COMM'N, <https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/antitrust-laws> [<https://perma.cc/G5MX-LKDC>] (last visited Dec. 9, 2021).

141. See SHANKER SINGHAM, APPROACH OF THE EUROPEAN COMMISSION TO COMPETITION IN THE HIGH TECHNOLOGY SECTOR 4 (2018), https://ec.europa.eu/competition/information/digitisation_2018/contributions/epicenter.pdf [<https://perma.cc/2PZD-426Q>].

142. See *id.*; Maria Coppola & Renato Nazzini, *The European and U.S. Approaches to Antitrust and Tech: Setting the Record Straight – A Reply to Gregory J. Werden and Luke M. Froeb's Antitrust and Tech: Europe and the United States Differ, and It Matters*, COMPETITION POL'Y INT'L (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-warden-and-luke-m-froebs-antitrust-and-tech-europe-and-the-united-states-differ/> [<https://perma.cc/52ZC-AC3T>].

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.¹⁴³ In particular, BigTechs can have significant advantages in data collection and digital infrastructure control.¹⁴⁴ These advantages can lead to conflicts of interest and allow platforms to undermine market competition.¹⁴⁵ For example, digital finance platforms can maintain digital monopolies by acquiring smaller competitors, thus solidifying their market position.¹⁴⁶ 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.¹⁴⁷ Meta, for example, has faced antitrust scrutiny and investigations in India, Turkey, Argentina, the United Kingdom, and the European Union for changes to its privacy policy and terms of service, which would allow it to collect data without permission from its WhatsApp users in order to enhance activities on the main Facebook platform.¹⁴⁸

These risks attract the attention of regulators in both developed and developing countries. In the United States, for example, the Subcommittee on Antitrust, Commercial, and Administrative Law recently released a report on the state of competition in U.S. digital markets.¹⁴⁹ The report concluded that major tech companies have significant market power that can undermine competition, warranting antitrust reforms.¹⁵⁰ Shortly after the report, the U.S. Department of Justice filed an antitrust lawsuit against Google for maintaining a

143. Croxson et al., *supra* note 46.

144. BANK FOR INT'L SETTLEMENTS, *supra* note 22, at 73.

145. *Id.*

146. See, e.g., Mark Glick et al., *Big Tech's Buying Spree and the Failed Ideology of Competition Law*, 72 HASTINGS L.J. 465 (2021) (analyzing the acquisition of Instagram and WhatsApp by Meta). See also SUBCOMM. ON ANTITRUST, COM. & ADMIN. L. COMM. ON JUDICIARY, INVESTIGATION OF COMPETITION IN DIGITAL MARKETS 11 (2020) [hereinafter, INVESTIGATION OF COMPETITION IN DIGITAL MARKETS].

147. See BANK FOR INT'L SETTLEMENTS, *supra* note 22, at 67.

148. See Apurv Pratap Singh & Hrishav Kumar, *Antitrust Regulators v. Big Tech: The Battle Reaches India*, OXFORD BUS. L. BLOG (July 22, 2021), <https://www.law.ox.ac.uk/business-law-blog/blog/2021/07/antitrust-regulators-v-big-tech-battle-reaches-india> [https://perma.cc/98MA-956Z].

149. INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 146.

150. *Id.* at 20.

monopoly in internet search and search advertising markets.¹⁵¹ Similar developments are also happening in the European Union, 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”.¹⁵² The 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.¹⁵³

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.¹⁵⁴ 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.¹⁵⁵ 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.¹⁵⁶ Mexico’s recent FinTech law is intended to foster competition and innovation through regulatory sandboxes and API-based open access to data.¹⁵⁷ These developments suggest that regulators around the

151. See Press Release, Dep’t Just., Justice Department Sues Monopolist Google for Violating Antitrust Laws (Oct. 20, 2020), <https://www.justice.gov/opa/pr/justice-department-sues-monopolist-google-violating-antitrust-laws> [<https://perma.cc/HM3M-RVQS>].

152. See *The Digital Services Act Package*, EUR. COMM’N, <https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package> [<https://perma.cc/XPM2-EGSX>] (last updated Oct. 21, 2021).

153. *Id.*

154. See Leo Xin, *China Drafts New Antitrust Guideline for Internet Companies*, PINSENT MASON (Nov. 19, 2020, 5:30 AM), <https://www.pinsentmasons.com/out-law/news/china-drafts-new-antitrust-guideline-for-internet-companies> [<https://perma.cc/Z66L-SGBU>]; Press Release, Anti-Monopoly Bureau, Announcement of the State Administration for Market Regulation on Public Consultation on the “Guidelines for Anti-Monopoly in the Field of Platform Economy (Draft for Comment),” (Nov. 11, 2020), http://www.samr.gov.cn/hd/zjdc/202011/t20201109_323234.html [<https://perma.cc/L5FE-9QS8>].

155. *Id.*

156. BANK FOR INT’L SETTLEMENTS, *supra* note 22, at 73.

157. See *Digital Disruption in Banking and its Impact on Competition*, *supra* note 56, at 27.

world will continue to re-examine their existing competition laws to tackle the risks arising from digital finance platforms.¹⁵⁸

Competition laws remain relevant for sustainable development where they can serve to limit the negative impacts of digital finance platforms.¹⁵⁹ For example, while competition can decrease costs of financial services, thus potentially contributing to economic growth and the reduction of poverty,¹⁶⁰ the concentration of market power due to platform finance can undermine the resilience of incumbent business models.¹⁶¹ Additionally, the dominant market position of multinational digital finance platforms can undermine investment in, and the development of, emerging local enterprises.¹⁶² These challenges mean that regulators must strengthen their antitrust competition policies to limit the potential negative impacts of digital finance platforms on sustainable development.¹⁶³

Consequently, 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 regulations 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.¹⁶⁴ 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 principles on the provision and operation of international telecoms.¹⁶⁵ 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

158. See, e.g., Croxson et al. *supra* note 46.

159. *Id.*

160. *BigTech Firms in Finance*, *supra* note 16, at 16.

161. *Id.*

162. See Feyen et al., *supra* note 15.

163. See, e.g., Croxson et al. *supra* note 46.

164. See, e.g., INTERNATIONAL TELECOMMUNICATION UNION, FINAL ACTS OF THE WORLD CONFERENCE ON INTERNATIONAL TELECOMMUNICATIONS 1 (2012).

165. *Id.* at 1-2.

recommendations on telecom operations for national implementation by states.¹⁶⁶ Besides the ITU, international organizations such as the U.N. Commission on International Trade Law (UNCITRAL) and the OECD develop policy recommendations and treaties on internet governance and e-commerce.¹⁶⁷ Their initiatives are designed to ensure greater consistency across national and international telecoms laws and policies.¹⁶⁸

In respect to 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.¹⁶⁹ Unlike top-down governance models, ICANN operates on a community-driven consensus model to monitor how the internet domain system functions and develops.¹⁷⁰ Similarly, 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 (voluntary internet protocol suite).¹⁷¹

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

166. *Focus on ITU's Areas of Work*, INT'L TELECOMM. UNION, <https://www.itu.int/en/history/Pages/FocusOnITUAreasOfWork.aspx> [<https://perma.cc/Z9UK-6U5M>] (last visited Dec. 9, 2021).

167. See, e.g., United Nations Convention on the Use of Electronic Communications in International Contracts, Mar. 1, 2013, 2898 U.N.T.S. 3; OECD, *PRINCIPLES FOR INTERNET POLICY MAKING 2* (2014), <https://www.oecd.org/sti/ieconomy/oecd-principles-for-internet-policy-making.pdf> [<https://perma.cc/598Y-G3H3>].

168. See, e.g., United Nations Convention on the Use of Electronic Communications in International Contracts, *supra* note 167; OECD, *supra* note 167.

169. See *What's the Effect of ICANN's Role and Work on the Internet?*, ICANN (Feb. 25, 2012), <https://www.icann.org/resources/pages/effect-2012-02-25-en> [<https://perma.cc/52JN-FDZR>].

170. ICANN, *BEGINNER'S GUIDE TO PARTICIPATING IN ICANN 2* (2012), <https://www.icann.org/en/system/files/files/participating-08nov13-en.pdf> [<https://perma.cc/ER8V-RQLY>].

171. See *What is Internet Governance?*, INTERNET GOVERNANCE PROJECT (2021), <https://www.internetgovernance.org/what-is-internet-governance/#:~:text=Internet%20governance%20refers%20to%20the,UDP%2C%20DNS%20and%20BGP> [<https://perma.cc/8ZCC-KE4N>].

security and data privacy, and cybersecurity.¹⁷² For example, the European Union adopted a range of directives on electronic communications networks and services to facilitate competition in the telecommunications sectors.¹⁷³ Similar regulatory developments are found in other regional and national jurisdictions.¹⁷⁴

Digital finance platforms' activities can sometimes fall within the scope of telecommunication laws.¹⁷⁵ A number of telecommunication companies, such as mobile network operators (MNOs), have ventured into the provision of digital financial services.¹⁷⁶ In developing countries in particular, MNOs have provided financial services at scale to previously unbanked populations.¹⁷⁷ One of the most prominent examples is M-PESA, a mobile money service originally launched in Kenya by Safaricom.¹⁷⁸ 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.¹⁷⁹

While the financial services provided by MNOs are typically governed by financial, competition, and data regulations,

172. OECD, *supra* note 139, at 4.

173. See, e.g., European Parliament and Council Regulation 910/2014 of 23 July 2014, Electronic Identification and Trust Services for Electronic Transactions in the Internal Market and Repealing Directive 1999/93/EC, 2014 O.J. (L 257) 73-114.

174. See generally Hunter Whaley, *Research Guide: International Internet Law*, COLUM. U. (2019), http://library.law.columbia.edu/guides/International_Internet_Law#Agreements [<https://perma.cc/3HFB-7ZZ7>] (last modified Nov. 22, 2019, 4:36 PM).

175. See LEON PERLMAN, *ROLE OF THE TELECOMMUNICATIONS REGULATOR IN DIGITAL FINANCIAL SERVICES* 7-8 (2018); Ross P. Buckley & Louise Malady, *Building Consumer Demand for Digital Financial Services – The New Regulatory Frontier - Part I*, 131 BANKING L.J. 834, 836 (2014).

176. *Id.*

177. See PERLMAN, *supra* note 175, at 10.

178. See *What is M-Pesa?*, VODAFONE, <https://www.vodafone.com/what-we-do/services/m-pesa> [<https://perma.cc/3HFB-7ZZ7>] (last visited Dec. 7, 2021).

179. See Evan Gibson et al., *Regulating Digital Financial Services Agents in Developing Countries to Promote Financial Inclusion*, 2015 SING. J. LEGAL STUD. 26, 26 (2015). See generally Leo Van Hove & Antoine Dubus, *M-PESA and Financial Inclusion in Kenya: Of Paying Comes Saving?*, 11 SUSTAINABILITY 568 (2019).

telecommunications authorities play a supporting role.¹⁸⁰ For example, telecommunication authorities license the provision of telecommunication services and thus regulate the non-financial elements of MNOs' business models.¹⁸¹ 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.¹⁸²

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 to develop technology that can advance financial inclusion, and, therefore, sustainable development.¹⁸³ 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.¹⁸⁴ 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.¹⁸⁵ The purpose of data privacy regulation is the protection of personally identifiable

180. See PERLMAN, *supra* note 175, at 15; Annie Tsoi et al., *China Passes New E-commerce Law - A "Safe Harbour" with Chinese Characteristics*, DEACONS, <https://www.deacons.com/news-and-insights/publications/china-passes-new-e-commerce-law-a-safe-harbour-with-chinese-characteristics.html> [<https://perma.cc/G58D-DVWP>] (last updated Oct. 15, 2018) (illustrating 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 as described).

181. PERLMAN, *supra* note 175.

182. *Id.* at 46.

183. THE UNITED NATIONS SECRETARY-GEN.'S TASK FORCE ON DIGIT. FIN. SUSTAINABLE DEV. GOALS, PEOPLE'S MONEY: HARNESSING DIGITALIZATION TO FINANCE A SUSTAINABLE FUTURE (2020), https://www.un.org/sites/un2.un.org/files/df_task_force_-_full_report_-_aug_2020.pdf [<https://perma.cc/KY6B-R9ND>].

184. *Id.* at 15.

185. BANK FOR INT'L SETTLEMENTS, *supra* note 22, at 69.

information from unlawful or unethical use.¹⁸⁶ In addition to data privacy, data regulation increasingly extends more broadly to other forms of data as well as to cybersecurity considerations.¹⁸⁷ To protect personal data, relevant regulations can, among other things, impose restrictions on the collection and processing of personal information, require firms to comply with data security standards, and confine data collection to specific purposes.¹⁸⁸

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.¹⁸⁹ As a result, the scope of privacy law has traditionally been confined to the protection of individuals and their private life from public and private interference.¹⁹⁰ 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.¹⁹¹

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.¹⁹² One of the most

186. See, e.g., European Parliament and Council Regulation 2016/679 of 27 April 2016, Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of such Data, and Repealing Directive 95/46/EC, 2016 O.J. (L 119) 1, art. 5 [hereinafter G.D.P.R.].

187. See, Douglas W. Arner, et al., *The Transnational Data Governance Problem*, BERKLEY TECH. L.J. (forthcoming 2022); Ross P. Buckley et al., *The Dark Side of Digital Financial Transformation: The New Risks of FinTech and the Rise of TechRisk*, SING. J. LEGAL STUD. (forthcoming).

188. PERLMAN, *supra* note 175, at 14.

189. For example, the international right to privacy is enshrined in Article 12 of the Universal Declaration of Human Rights (U.D.H.R.) and Article 17 of the International Covenant on Civil and Political Rights (I.C.C.P.R.). Regionally, the right is enshrined in, for example, Article 8 of the European Convention on Human Rights (E.C.H.R.) 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. RTS. L. REV. 441 (2014).

190. See, e.g., European Convention on Human Rights, Nov. 4, 1950, 213 U.N.T.S. 222.

191. See YAN CARRIÈRE-SWALLOW & VIKRAM HAKSAR, *THE ECONOMICS AND IMPLICATIONS OF DATA: AN INTEGRATED PERSPECTIVE* 36 (2019); Feyen et al., *supra* note 15.

192. See *Cambridge Analytica, GDPR - 1 Year On - a Lot of Words and Some Action*, PRIV. INT'L (Apr. 30, 2019),

notable developments in this area is the European Union'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 European Union.¹⁹³ Among various other obligations, the GDPR requires companies to process data in a "lawful and transparent manner" and solely for specific purposes.¹⁹⁴ 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).¹⁹⁵ 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.¹⁹⁶

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 similarly strong data privacy regulations. Among notable developments, China has recently enacted a new Personal Information Protection Law which resembles the GDPR and outlines the rules regarding the collection, transfer, and use of personal data in China or that relates to China's residents.¹⁹⁷ Combined with previous data privacy regulations and new antitrust guidelines, China is likely to continue its push for stronger data and data monopoly governance in the financial sector.¹⁹⁸ Similarly, other major economies,

<https://privacyinternational.org/news-analysis/2857/cambridge-analytica-gdpr-1-year-lot-words-and-some-action> [<https://perma.cc/LY79-FX8G>].

193. G.D.P.R., *supra* note 186, 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*, FIN. TIMES (Mar. 3, 2021), <https://www.ft.com/content/b0b44dbe-1e40-4624-bdb1-e87bc8016106> [<https://perma.cc/83LR-EZUZ>].

194. G.D.P.R., *supra* note 186, at art. 5.

195. *Id.*

196. *Id.* at art. 83; Natasha Lomas, *French Court Slaps Down Google's Appeal Against \$57M GDPR Fine*, TECH CRUNCH (June 19, 2020, 10:04 PM), <https://techcrunch.com/2020/06/19/french-court-slaps-down-googles-appeal-against-57m-gdpr-fine/> [<https://perma.cc/9WPR-LRSP>].

197. Gil Zhang & Kate Yin, *A Look at China's Draft of Personal Information Protection Law*, IAPP (Oct. 26, 2020), <https://iapp.org/news/a/a-look-at-chinas-draft-of-personal-data-protection-law/> [<https://perma.cc/PK9E-C5EA>].

198. See, e.g., *Xi's Next Target in Tech Crackdown Is China's Vast Reams of Data*, BLOOMBERG NEWS (Apr. 23, 2021, 2:00 PM), <https://www.bloomberg.com/news/articles/2021-04-23/xi-s-next-target-in-tech-crackdown-is-china-s-vast-reams-of->

including the United States, are considering the adoption of new data security legislation.¹⁹⁹

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.²⁰⁰ The ability of digital finance platforms to collect and analyze private data on a large scale, combined with their control of major digital platforms, can severely undermine fair competition and decrease market contestability.²⁰¹ For example, unregulated digital finance platforms can have unfair data advantages over traditional financial institutions.²⁰² 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.²⁰³ This can lead to volatility in the financial markets due to the inability of incumbent financial institutions to compete with the digital finance platforms and their data advantages.²⁰⁴ Moreover, digital finance platforms' unchecked data monopoly can lead to price and client discrimination in financial services.²⁰⁵ The problem of data and market power concentration is particularly relevant for developing economies where major companies

data [<https://perma.cc/8EYN-4MBS>]; Arjun Kharpal, *In a Quest to Rein in Its Tech Giants, China Turns to Data Protection*, CNBC (Apr. 11, 2021, 10:57 PM), <https://www.cnbc.com/2021/04/12/china-data-protection-laws-aim-to-help-rein-in-countrys-tech-giants.html> [<https://perma.cc/QPQ7-DJ28>].

199. See e.g., OECD, OECD DIGITAL ECONOMY OUTLOOK 2020 (2020), <https://www.oecd-ilibrary.org/sites/153ac49f-en/index.html?itemId=/content/component/153ac49f-en> [<https://perma.cc/9H4Z-B73L>]; DEP'T FOR DIGIT., CULTURE MEDIA & SPORT, *Data: A New Direction* (Sept. 10, 2021), <https://www.gov.uk/government/consultations/data-a-new-direction> [<https://perma.cc/SRT3-K5ZW>] (proposing a new data security approach in the United Kingdom).

200. See Feyen et al., *supra* note 15.

201. BANK FOR INT'L SETTLEMENTS, *supra* note 22, at 73.

202. *Id.*

203. *Id.*

204. *Id.*

205. *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.

can undermine local competition and innovation.²⁰⁶ 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.²⁰⁷

In addition to addressing economic and financial risks, data privacy regulations can help maintain the integrity of and trust in public institutions. The recent scandals with Meta and Cambridge Analytica show that unchecked data collection and analysis can lead to the spread of misinformation and manipulation of public opinion, both of which have significant negative repercussions.²⁰⁸ The integrity of public institutions can be intentionally or unintentionally undermined by the unchecked use of private data.²⁰⁹ To mitigate these risks, data privacy regulations can play an important role in limiting potentially negative corollary impacts of digital finance platforms.

IV. A PRINCIPLES-BASED APPROACH TO GOVERNANCE OF FINTECH 4.0

As the BIS concluded in 2021, none of the existing regulatory approaches are sufficient to address all of the issues raised by the emergence of dominant digital finance platforms.²¹⁰ It is necessary to build mechanisms capable of bridging these regulatory silos and their disparate objectives and approaches.

We argue that the layers of this complexity, across subject matters 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.²¹¹

206. See, e.g., Kristalina Georgieva et al., *Rising Market Power – A Threat to the Recovery?*, IMF BLOG (Mar. 15, 2021), <https://blogs.imf.org/2021/03/15/rising-market-power-a-threat-to-the-recovery/> [<https://perma.cc/3MEH-HXPS>].

207. See Feyen et al., *supra* note 15.

208. See Karen Kornbluh, *Could Europe's New Data Protection Regulation Curb Online Disinformation?*, COUNCIL ON FOREIGN RELS. (Feb. 20, 2018, 10:00 AM), <https://www.cfr.org/blog/could-europes-new-data-protection-regulation-curb-online-disinformation> [<https://perma.cc/6EFX-4DSM>].

209. *Id.*

210. See Carstens et al., *supra* note 3, at 4.

211. See Julia Black, *Paradoxes and Failures: 'New Governance' Techniques and the Financial Crisis*, 75 MOD. L. REV. 1037, 1059 n.101 (2012); FIN. SERV. AUTH., PRINCIPLES-BASED REGULATION: FOCUSING ON THE OUTCOME THAT MATTERS 2 (2007),

Principles, as opposed to rules, provide greater flexibility for all participants within an ecosystem, including both regulators and regulatees.²¹² They can provide guidance for normatively good conduct that minimizes negative impacts while promoting positive outcomes.²¹³ 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 against risks and negative externalities.

Consequently, in this Section, we suggest five principles upon 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 Part III above, financial regulation is built upon four key foundations: financial stability, consumer protection, market integrity, and fair competition.²¹⁴ 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 elements should supplement, but not replace, the foundational factors.

<https://webarchive.nationalarchives.gov.uk/ukgwa/20081112165843/http://www.fsa.gov.uk/pubs/other/principles.pdf> [https://perma.cc/Y5J5-5EXY].

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

213. See Awrey, *supra* note 212, at 287.

214. See Carstens et al., *supra* note 3, at 3.

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 large 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 emerging market and developing countries).²¹⁵ This includes the capacity of regulators, consumers, and infrastructure.²¹⁶ Subsequently, regulatory interventions will need to be targeted and includes mechanisms that allow for rapid review and adaptation.

When discussing societal capacity, we refer to three constitutive parts: that of regulators, consumers, and infrastructure. Regulatory capacity is the ability of regulators to oversee and manage these activities and entities.²¹⁷ The capacity of users and consumers is linked to their ability to engage with the technology.²¹⁸ For example, segments of the population in all countries (and especially EMDEs) may be financially illiterate or excluded, or technologically illiterate or excluded.²¹⁹ Finally, capacity includes the infrastructure necessary to support the technology which and upon which large digital finance platforms operate, from data servers to telecommunication networks to

215. *Technology & Innovation Report 2021*, UNCTAD (2021), <https://unctad.org/page/technology-and-innovation-report-2021> [<https://perma.cc/SC2T-5E2G>]. See also MARIANNA MAZZUCATO ET AL., COVID-19 AND THE NEED FOR DYNAMIC STATE CAPABILITIES: AN INTERNATIONAL COMPARISON (Apr. 2021), <https://www.undp.org/sites/g/files/zskgke326/files/publications/UNDP-UNCL-IIPP-COVID-19-and-the-Need-for-Dynamic-State-Capabilities.pdf> [<https://perma.cc/SSP2-NHV7>].

216. *Technology & Innovation Report 2021* *supra* note 215; MAZZUCATO ET AL. *supra* note 215.

217. Colin Scott & Ciara Brown, *Regulatory Capacity and Networked Governance* 1 (UCD Greary Institute Rsch. Paper Series, 2010), <https://www.ucd.ie/geary/static/publications/workingpapers/gearywp201043.pdf> [<https://perma.cc/6YW8-9GSB>].

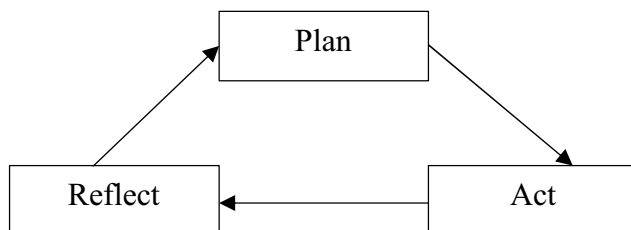
218. *Technology & Innovation Report 2021*, *supra* note 216. PEOPLE'S MONEY: HARNESSING DIGITALIZATION TO FINANCE A SUSTAINABLE FUTURE, *supra* note 183.

219. *Id.* See also Meetings Coverage, General Assembly, Nearly Half of World's Population Excluded from 'Benefits of Digitalization', Speaker Stresses as Second Committee Debates Information Technology for Development, U.N. Meetings Coverage GA/EF/3523 (Oct. 18, 2019), <https://www.un.org/press/en/2019/gaef3523.doc.htm> [<https://perma.cc/7FZ3-9RZH>].

electric power grids.²²⁰ Often, EMDEs are lacking in these areas relative to the more advanced economies where digital finance platforms may be domiciled, and BigTechs may in fact be a major source to increase digital and financial access and inclusion via technology platforms in EMDEs.²²¹ As such, all countries, but particularly EMDEs, will need to deploy a reflexive and iterative approach to policy and regulation. This should entail an appropriate mix of substantive regulation coupled with 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, fair competition, financial stability, market integrity, and consumer protection. The important corollary to substantive regulations, however, is the regulatory mechanisms that allow for reflexivity and iteration.

A representation of a “reflexive and iterative” regulatory process



There are several ways regulators can embed feedback loops into the process as they develop policies and regulations. These include innovation hubs, regulatory sandboxes, and transnational regulatory networks.²²²

Innovation hubs usually provide a specific place where firms can engage with regulators to raise questions and seek clarifications or non-binding guidance about FinTech-related issues. This can include compliance with the regulatory framework, licensing or registration

220. *Technology & Innovation Report 2021*, *supra* note 215.

221. *See id.*; PEOPLE’S MONEY: HARNESSING DIGITALIZATION TO FINANCE A SUSTAINABLE FUTURE, *supra* note 183.

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

requirements, and regulatory and supervisory expectations, for example.²²³

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. Such testing is done with actual customers and in a controlled environment (the “sandbox”) pursuant to a specific testing plan agreed upon with the regulatory supervisor and subject to the application of distinct safeguards.²²⁴

The utility of these mechanisms is their ability to facilitate a collaborative partnership between regulators and 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 that enhance financial inclusion and promote sustainable development.²²⁵ Innovation hubs and regulatory sandboxes are useful as they can both support industry innovation and enable regulators to anticipate, and prepare for, proposed innovations.²²⁶

Innovation hubs and regulatory sandboxes require highly skilled staff with expertise in FinTech regulation and the local regulatory schema.²²⁷ 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 study some of the innovative strategies EMDEs are implementing 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 share techniques, approaches, and lessons learned.²²⁸ One example of a prominent transnational regulatory network is the Financial Action Task Force

223. *Id.*

224. See EUR. SEC. & MKT. AUTH. ET AL., FINTECH: REGULATORY SANDBOXES AND INNOVATION HUBS 5 (2018), https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf [https://perma.cc/Y7MA-SX98].

225. PEOPLE’S MONEY: HARNESSING DIGITALIZATION TO FINANCE A SUSTAINABLE, *supra* note 183.

226. See Zetzsche et al., *supra* note 5, at 31.

227. Buckley et al., *supra* note 222.

228. See, e.g., Scott & Brown, *supra* note 217.

(FATF).²²⁹ The FATF is the global money laundering and terrorist financing standard-setting organization.²³⁰ It draws its membership from financial regulatory authorities across 37 jurisdictions and other international organizations.²³¹ 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.²³² Most recently, this has come to include the risks posed by virtual assets such as cryptocurrencies.²³³ By developing appropriate standards to match new practices that pose financial market risks, the FATF helps its members implement matching regulatory standards to manage risks as they arise.²³⁴

Another example of a prominent transnational regulatory network is the Global Financial Innovation Network (GFIN), which was formally launched in early 2019 by a group of international regulators.²³⁵ 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,

229. Stavros Gadinis, *Three Pathways to Global Standards: Private, Regulator, and Ministry Networks*, 109 AM. J. INT’L L. 1, 5 (2015).

230. *About*, FIN. ACTION TASK FORCE, <https://www.fatf-gafi.org/about/> [<https://perma.cc/6WDG-4LYK>] (last visited Dec. 9, 2021).

231. *Id.*

232. *See What We Do*, FIN. ACTION TASK FORCE (2020), <https://www.fatf-gafi.org/about/whatwedo/> [<https://perma.cc/QM7B-TDAQ>] (last visited Dec. 10, 2021). One of the potential drawbacks of the FATF or other similar organizations is selective membership that often excludes least developed countries (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 ensure that international standards do not negatively affect financial or other institutions in LDCs.

233. FIN. ACTION TASK FORCE, *UPDATED GUIDANCE FOR A RISK-BASED APPROACH TO VIRTUAL ASSETS AND VIRTUAL ASSET SERVICE PROVIDERS* (2021), <https://www.fatf-gafi.org/media/fatf/documents/recommendations/Updated-Guidance-VA-VASP.pdf> [<https://perma.cc/577S-ZFM4>].

234. FIN. ACTION TASK FORCE, *supra* note 233.

235. *See The Global Financial Innovation Network (GFIN)*, GFIN, www.thegfin.com [<https://perma.cc/E25T-KGHY>] (last visited Jan. 17, 2022).

helping them navigate between countries as they look to scale ideas.”²³⁶ The GFIN assists firms that are piloting products in more than one market, and seeks to build bridges between markets for innovative FinTechs.²³⁷

As EMDEs 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.²³⁸ RegTech and SupTech describe the use of technology and technological processes to implement, comply with, and monitor regulatory requirements and objectives.²³⁹ Implementing regulation through technology requires resources and trained staff. It will also require countries to have significantly more sophisticated digital infrastructures, such as digital identities, e-KYC initiatives, and robust data protection.²⁴⁰

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

236. *Id.*

237. *Id.*

238. See Douglas W. Arner et al., *FinTech, RegTech, and the Reconceptualization of Financial Regulation*, 37 NW. J. INT’L L. & BUS. 373, 381 (2017).

239.

Technology and innovation are transforming the global financial landscape, presenting opportunities, risks and challenges for regulated institutions and authorities alike. A significant area of innovation is the application of new technologies to help authorities to improve their supervisory capabilities – known as ‘SupTech’ --- [sic] and by institutions to meet their regulatory requirements – known as ‘RegTech.’

FIN. STABILITY BOARD, THE USE OF SUPERVISORY AND REGULATORY TECHNOLOGY BY AUTHORITIES AND REGULATED INSTITUTIONS 1 (2020), <https://www.fsb.org/wp-content/uploads/P091020.pdf> [<https://perma.cc/WY9Y-A7UN>].

240. Nora Gurung & Leon Perlman, *Use of Regtech by Central Banks and Its Impact on Financial Inclusion*, SSRN (Nov. 16, 2018), <https://dfsobservatory.com/sites/default/files/REGTECH%20%26%20Central%20Banks%20-%20PUBLIC.pdf> [<https://perma.cc/VHF9-PLD6>].

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 true in light of the many inequities manifesting during the COVID-19 pandemic and other evolving sustainability crises, including global climate change.²⁴¹ 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 U.N. Guiding Principles on Business and Human Rights²⁴² (“UN Guiding Principles”) and the OECD Guidelines for Multinational Enterprises (“OECD Guidelines”).²⁴³

Having been endorsed unanimously by the U.N. Human Rights Council in 2011, the benefit of the U.N. Guiding Principles is their universal, global scope.²⁴⁴ 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.²⁴⁵ In addition to human rights recommendations, the OECD Guidelines

241. *Reimagining the Global Economy: Building Back Better in a Post-COVID-19 World*, BROOKINGS (Nov. 17, 2020), <https://www.brookings.edu/multi-chapter-report/reimagining-the-global-economy-building-back-better-in-a-post-covid-19-world/> [<https://perma.cc/UKT8-78AV>].

242. See U.N. Secretary-General, *Report of the Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises*, ¶ 6, U.N. Doc. A/65/310 (Aug. 19, 2010).

243. ORG. FOR ECON. COOP. & DEV., OECD GUIDELINES FOR MULTINATIONAL ENTERPRISES (June 27, 2000), <https://www.refworld.org/docid/425bd34c4.html> [<https://perma.cc/NS5C-GFYF>] [hereinafter OECD GUIDELINES].

244. U.N. Hum. Rts. Off. High Comm’r, *Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework*, U.N. Doc. A/HRC/17/31 (Mar. 21, 2011), https://www.ohchr.org/documents/publications/guidingprinciplesbusinessshr_en.pdf [<https://perma.cc/4943-3ZKQ>] [hereinafter *Guiding Principles on Business and Human Rights*].

245. OECD GUIDELINES, *supra* note 243. See also *The OECD Guidelines*, OECD WATCH (2011), <https://www.oecdwatch.org/oecd-ncps/the-oecd-guidelines-for-mnes/> [<https://perma.cc/F54V-RW8T>].

provide standards on responsible conduct in relation to tax, anti-corruption and anti-bribery, the environment, labor rights, and others.²⁴⁶ Regulators could also consider other standards and initiatives, such as the U.N. Global Compact.²⁴⁷

In line with the adage that “justice should not only be done, but should manifestly and undoubtedly be seen to be done,”²⁴⁸ 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.²⁴⁹ These methods enable a company to identify, assess, manage, and address risks with respect to various environmental and social impacts.²⁵⁰ 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. 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, which means that regulators and policymakers need to consider two guiding features: form and function.

246. *Id.*

247. *The Ten Principles of the UN Global Compact*, U.N. GLOB. COMPACT, <https://www.unglobalcompact.org/AboutTheGC/TheTenPrinciples/index.html> [<https://perma.cc/K7JM-BBCB>] (last visited Dec. 10, 2021).

248. *See R v. Sussex Justices, ex p McCarthy* [1924] 1 KB 256, [1923] EWHC KB 1. *McCarthy* is a leading English case on the impartiality and recusal of judges which brought into common parlance this oft-quoted aphorism.

249. *Guiding Principles on Business and Human Rights*, *supra* note 244, at 16-20 (Principles 17-21). *See also* Jonathan Bonnitcha & Robert McCorquodale, *The Concept of ‘Due Diligence’ in the UN Guiding Principles on Business and Human Rights*, 28 EUR. J. OF INT’L L. 899, 900 (2017).

250. *Guiding Principles on Business and Human Rights*, *supra* note 244, at 16-20 (Principles 17-21); Bonnitcha & McCorquodale, *supra* note 249.

Put another way, authorities should consider what they are trying to achieve, how they should organize themselves, and who will be important in helping them.

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.²⁵¹
- **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 between country-to-developing country or developing country-to-developing country.
- **Regional** – this would involve regional collaboration (such as within the European Union, African Union, the Association of Southeast Asian Nations, or the Southern Common Market) 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 while keeping in mind 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, formalized oversight bodies, could be useful to the extent they can be operationalized at any governance level with relevant actors and a systemwide purview.²⁵² They have been effectively

251. *Oversight Board*, OVERSIGHT BOARD, <https://www.oversightboard.com> [<https://perma.cc/4KNK-BQPG>] (last visited Dec. 10, 2021).

252. 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.” *What are Supervisory Colleges?*, EUR. CENT. BANK (Dec. 12, 2018), <https://www.banking>

deployed within the European Union, 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.²⁵³

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.²⁵⁴ 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.²⁵⁵
- **Remedies** to provide relief (through the establishment of insurance schemes, escrow funds, trust funds, or other means) for people who, for example, may have had their data abused.

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, such as the International Chamber of Commerce (ICC), can facilitate dispute

supervision.europa.eu/about/ssmexplained/html/supervisory_colleges.en.html [https://perma.cc/4KNK-BQPG]. However, the term allows for a variety of other flexible configurations that allow for the oversight of a cross-border entity or activity. *See id.* *See also* BASEL COMM. ON BANKING SUPERVISION, GOOD PRACTICE PRINCIPLES ON SUPERVISORY COLLEGES 1-2 (2010); Duncan Alford, *Supervisory Colleges: The Global Financial Crisis and Improving International Supervisory Coordination*, 24 EMORY INT'L L. REV. 57, 57-58 (2010).

253. *See* Alford, *supra* note 252, at 58.

254. *See, e.g.*, Fabrizio Cafaggi & Andrea Renda, *Public and Private Regulation Mapping the Labyrinth* 1 (CEPS Working Document No. 370, 2012), http://aei.pitt.edu/36811/1/ceps_1.pdf [https://perma.cc/XD8P-4C6N].

255. *See, e.g.*, STEFAN ZAGELMEYER ET AL., NON-STATE BASED NON-JUDICIAL GRIEVANCE MECHANISMS (NSBGM): AN EXPLORATORY ANALYSIS: A REPORT PREPARED FOR THE OFFICE OF THE UN HIGH COMMISSIONER FOR HUMAN RIGHTS (2018), <https://www.ohchr.org/Documents/Issues/Business/ARP/ManchesterStudy.pdf> [https://perma.cc/MJR9-ALVP].

resolution processes.²⁵⁶ Existing standards-setting bodies can also be leveraged. For example, the OECD has the OECD Guidelines.²⁵⁷ While the Guidelines themselves are not binding on corporations in the absence of legislation adopting them with direct effect,²⁵⁸ they are an annex to the OECD Declaration on International Investment and Multinational Enterprises,²⁵⁹ and thus binding upon OECD member states and participating governments.²⁶⁰ 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.²⁶¹ More importantly, though, as a system of national offices, the NCPs are meant to provide access to remedies for

256. *Dispute Resolution Services*, INT'L CHAMBER OF COM., <https://iccwbo.org/dispute-resolution-services/> [https://perma.cc/4U4K-N3Z] (last visited Dec. 10, 2021).

257. The guidelines themselves are a part of the Declaration on International Investment and Multinational Enterprises. *See* Declaration on International Investment and Multinational Enterprises, June 20, 1976, OECD/LEGAL/0144. This is an international legal framework established to govern investment activity among the OECD's member states and adhering governments. *Id.* As such, the framework addresses matters such as national treatment, conflicting requirements, and issues pertaining to investment incentives and disincentives. *Id.*

258. For instance, Article 18 of the E.U. Taxonomy Regulation on sustainable investments requires compliance with the OECD Guidelines as a precondition for qualifying an investee company as a sustainable investment. *See* European Parliament and Council Regulation 2020/852 of 18 June 2020, Establishment of a Framework to Facilitate Sustainable Investment, and Amending Regulation 2019/2088, 2020 O.J. (L 198) 13-43.

259. Declaration on International Investment and Multinational Enterprises, *supra* note 257.

260. *Id.*

261. Section I of the Decision of the OECD Council on the OECD Guidelines for Multinational Enterprises 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.

OECD, *supra* note 243.

people harmed by corporate noncompliance with the Guidelines. This role was strongly endorsed by the G7 in June 2015 when the group's communiqué stated that the G7 is committed:

[T]o strengthening mechanisms for providing access to remedies including the [NCPs] for the [Guidelines]. 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.²⁶²

The NCPs are particularly interesting because of their structure and role in facilitating more responsible business conduct.²⁶³ Although all NCPs are government offices, they are not all structured the same way.²⁶⁴ Some are housed in a single agency or ministry, such as the local ministry of economy or trade.²⁶⁵ Other NCPs are inter-agency bodies, and even others have tripartite or quadripartite structures involving business, labor unions, or civil society stakeholders.²⁶⁶ 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 percent of respondents.²⁶⁷ This is due to a series of factors such as limited regulatory knowledge and

262. See LEADERS' DECLARATION, G7 SUMMIT 5 (2015).

263. ORG. FOR ECON. CO-OPERATION & DEV., NATIONAL CONTACT POINTS FOR RESPONSIBLE BUSINESS CONDUCT- PROVIDING ACCESS TO REMEDY: 20 YEARS AND THE ROAD AHEAD 1 (2020), <http://mneguidelines.oecd.org/NCPs-for-RBC-providing-access-to-remedy-20-years-and-the-road-ahead.pdf> [<https://perma.cc/D9HW-SMSB>].

264. What are National Contact Points for Responsible Business Conduct?, OECD, <https://mneguidelines.oecd.org/ncps/what-are-ncps-for-rbc.htm> [<https://perma.cc/4VEC-YQ2N>] (last visited Jan. 17, 2022). See also *National Contact Points*, OECD WATCH, <https://www.oecdwatch.org/oecd-ncps/national-contact-points-ncps/> [<https://perma.cc/9GMN-ZDVK>] (last visited Jan. 17, 2022).

265. *Id.*

266. *Id.*

267. See ANDREW WALTER, EMERGING COUNTRIES AND BASEL III: WHY IS ENGAGEMENT STILL LOW 8 (2015), https://www.cigionline.org/static/documents/new_thinking_g20_no.4.pdf [<https://perma.cc/KJ7E-ARZ2>].

resources in developing countries;²⁶⁸ the focus and agenda-setting of an elite network of developed country regulators;²⁶⁹ and limited engagement by developing country private sector actors in the deliberations and resultant proposals of international standard setting bodies.²⁷⁰ This should concern regulators and policymakers in both developing and developed countries. It should worry 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.²⁷¹ Conversely, developed country regulators should be troubled that developing country regulators are not participating in their standard setting fora because (a) the non-involvement of developing country actors 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.²⁷² 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.

E. PRINCIPLE FIVE: INSTILLING A COMMITMENT TO SUSTAINABLE DEVELOPMENT

To enhance the responsible conduct of digital finance platforms and better support sustainable development, most notably through attainment of the United Nations’ Sustainable Development Goals (SDGs), governance frameworks and initiatives should require board-level commitment of digital finance platforms to incorporate the SDGs into

268. *Id.*

269. *Id.*

270. *Id.*

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

272. See, e.g., Marcello Pericoli & Massimo Sbracia, *A Primer on Financial Contagion*, 17 J. ECON. SURV. 571 (2003).

business plans and models, particularly when operating in developing countries. This can be facilitated (and sometimes manifested) by greater multistakeholder coordination and collaboration, and some regulators may even mandate it.²⁷³ As already discussed, regulators carry heavy burdens, so there needs to be complementary action by the private sector.²⁷⁴ This action would include 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;²⁷⁵
- (2) Promoting positive and mitigating negative impacts on attaining SDGs;²⁷⁶ 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.²⁷⁷ Second, board level engagement communicates to stakeholders that the company takes the matter seriously.²⁷⁸ In the drive towards sustainable development,

273. See, e.g., Errol Meidinger, *Multi-Interest Self-Governance Through Global Product Certification Programs* 17 (Buffalo Legal Stud., Research Paper No. 2006-016, 2006).

274. See, e.g., Fabrizio Cafaggi & Andrea Renda, *Public and Private Regulation Mapping the Labyrinth* 1 (C.E.P.S., Working Paper No. 370, 2012), http://aei.pitt.edu/36811/1/ceps_1.pdf [<https://perma.cc/38BG-272M>].

275. For further guidance on these impacts, see the technical papers completed for the Dialogue on Global Digital Finance Governance. *Towards an Inclusive, SDG-Aligned Governance of BigFintech*, UNDP SUSTAINABLE FIN. HUB, <https://sdgfinance.undp.org/digital-finance/towards-inclusive> [<https://perma.cc/2JF9-MY4T>] (last visited Jan. 17, 2022).

276. *Id.*

277. See, e.g., Moo Jun Hao & Rashad Yazdanifard, *How Effective Leadership can Facilitate Change in Organizations through Improvement and Innovation*, 15 GLOB. J. MGMT. BUS. RSCH. 1, 1 (2015), https://globaljournals.org/GJMBR_Volume15/1-How-Effective-Leadership.pdf [<https://perma.cc/7VU3-7Q2Q>].

278. GLOB. CORP. GOVERNANCE F., *STAKEHOLDER ENGAGEMENT AND THE BOARD: INTEGRATING BEST GOVERNANCE PRACTICES* 1 (2009).

concerted and collaborative action by all stakeholders is pivotal.²⁷⁹ This also applies to relevant regulators that should consider how their policies might affect the attainment of SDGs.²⁸⁰

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 speaks more to an opportunity for digital finance platforms and corporate actors more broadly. The U.N. 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.²⁸¹ The SDGs, on the other hand, are aspirational and actionable.²⁸² They are targets set and supported by the state for the collective betterment of individuals, communities, and the environment by 2030.²⁸³ Achieving those goals requires concerted effort, entrepreneurialism across the public and private sectors, and considerable funding.²⁸⁴ As such, while the SDGs 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

The emergence of scale, concentration, and dominance in digital finance platforms poses significant challenges to policymakers and regulators, firstly from a conceptual standpoint, and secondly from an

279. *The Sustainable Development Agenda*, UNITED NATIONS, <https://www.un.org/sustainabledevelopment/development-agenda/> [<https://perma.cc/Z9NT-247R>] (last visited Dec. 10, 2021).

280. PEOPLE’S MONEY: HARNESSING DIGITALIZATION TO FINANCE A SUSTAINABLE FUTURE, *supra* note 183.

281. OECD GUIDELINES, *supra* note 243; *Guiding Principles on Business and Human Rights*, *supra* note 244.

282. PEOPLE’S MONEY: HARNESSING DIGITALIZATION TO FINANCE A SUSTAINABLE FUTURE, *supra* note 183.

283. *Id.*

284. *Id.*

execution standpoint.²⁸⁵ The sprawling cross-border nature of their business models impacts a multitude of distinct yet related sectors, such as telecommunications, finance, and data protection, and requires authorities to consider the question of how to regulate along several axes and dimensions.²⁸⁶ This is particularly so as digital finance platforms can be global in scope and have widely differing local impacts.²⁸⁷ 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, guidance will need to be context specific, as regulators and economies will all have differing resources and realities. In these final two parts of the Article, we address this 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 (the European Union), 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. Further, is the regulator looking to focus on the entity, the entity's activity, or a combination of the two?

285. See Carstens et al., *supra* note 3; Juan Carlos Crisanto et al., *Big Techs in Finance: Regulatory Approaches and Policy Options* 1 (Bank for Int'l Settlements F.S.I. Briefs, Paper No. 12, 2021), <https://www.bis.org/fsi/fsibriefs12.pdf> [<https://perma.cc/YTZ7-CUU7>].

286. *Id.*

287. *Id.*

- **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 start-ups 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 and execute with sufficient resources?

This kind of preliminary self-assessment by regulators can help them reflect on the risks and opportunities within their economies.²⁸⁸ Thus, it is imperative to 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.²⁸⁹

Regulatory approaches can be seen on a spectrum from permissive to restrictive, with *laissez-faire* at one end and prohibition at the other.

288. See ARNER ET AL., INNOVATIVE REGULATORY APPROACHES TOOLKIT 29 (2021), https://www.afi-global.org/wp-content/uploads/2021/04/AFI_DFSWG_AW_Innovative-Regulatory-Approaches.pdf [<https://perma.cc/2N9C-GBLL>].

289. See generally Zetzsche et al., *supra* note 4, at 275-76.

In between lies a range of techniques: 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 dominance and concentration in digital finance – 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, AND 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.²⁹⁰ 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.²⁹¹ China, especially before 2015, is often highlighted as a leading and highly successful example of the permissive approach to FinTech.²⁹²

290. Dirk Zetsche et al., *Digital Finance Platforms: Towards a New Regulatory Paradigm*, 23 U. PA. J. BUS. L. 273, 325 (2020).

291. *Id.*

292. 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) [hereinafter Zhou et al., *Regulation of Digital Financial Services in China*]; Arner et al., *supra* note 4, at 1298-99 (arguing that due to the

Most notably, during its unregulated period, Alibaba laid the foundation for the world's largest financial ecosystem (measured by number of clients). 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,²⁹³ and while non-legal means allowed political control over the emerging providers of financial ecosystems, the Chinese example also demonstrates the systemic risks that can arise from unexpected and uninhibited growth of certain market participants.²⁹⁴ That growth has given way, since 2015, to a much more cautious regulatory approach.²⁹⁵

In the context of digital finance platforms, however, a laissez-faire approach would be likely to further the growth of existing platforms.²⁹⁶ Although this is the approach most countries have taken so far, it has the potential to result in undesirable winner-take-all outcomes.²⁹⁷ 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. At the same time, they need to monitor its evolution and build proportional regulatory approaches to both support positive aspects and minimize emerging risks, particularly from scale and dominance.

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, 300 (2016) (arguing that the regulatory work has progressed slowly to enable the rapid growth of digital financial service in China).

293. See Christian Haddad & Lars Hornuf, *The Emergence of the Global FinTech Market: Economic and Technical Determinants* 18 (CESifo, Working Paper No. 6131, 2016), <https://ssrn.com/abstract=2830124> [<https://perma.cc/C6DN-4AX5>] (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).

294. See e.g., Eric Levitz, *China's Sweeping Crackdown on Big Tech Is a Wake-Up Call for the U.S.*, N.Y. MAG. (Aug. 6, 2021), <https://nymag.com/intelligencer/2021/08/chinas-sweeping-crackdown-on-big-tech-is-a-wake-up-call.html> [<https://perma.cc/6FA6-BNPR>]; Megha Bahree, *What's behind China's Big Tech crackdown and what does it mean?*, AL JAZEERA (Nov. 13, 2020), <https://www.aljazeera.com/economy/2020/11/13/china-is-clamping-down-on-its-tech-companies-heres-what-we-know> [<https://perma.cc/3JWP-SH8R>].

295. See Zhou et al., *Regulation of Digital Financial Services in China*, *supra* note 292, at 27.

296. See Feyen et al., *supra* note 15.

297. *Id.*

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.²⁹⁸ In addition, in 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.²⁹⁹ The most advanced of these relate to “open banking,” “open finance,” and “open data,” with the European Union, United Kingdom, and, particularly, Australia having the most developed approaches so far.³⁰⁰ Others—such as China—are considering ways to maximize the benefits of data for future innovation and development by, for instance, recognizing data as a public good or commons which can then be used across society.³⁰¹ Similar discussions are taking place in the technological context, particularly in discussions of the potential role of decentralization and blockchain.³⁰² In the specific context of FinTech innovation, test-and-learn approaches – including piloting, regulatory sandboxes, and special charters and licenses³⁰³—have

298. OECD, *OECD SCIENCE, TECHNOLOGY AND INNOVATION OUTLOOK 2021: TIMES OF CRISIS AND OPPORTUNITY CRISIS* (2021).

299. UNITED NATIONS CONFERENCE ON TRADE & DEV., *TECHNOLOGY & INNOVATION REPORT 2021: TASK FORCE ON DIGITAL FINANCING OF THE SUSTAINABLE DEVELOPMENT GOALS, PEOPLE’S MONEY: HARNESSING DIGITALIZATION TO FINANCE A SUSTAINABLE FUTURE* (2020), https://www.un.org/sites/un2.un.org/files/df_task_force_-_full_report_-_aug_2020.pdf [<https://perma.cc/Z8Q3-LPUA>] [hereinafter TASK FORCE ON DIGITAL FINANCING OF THE SUSTAINABLE DEVELOPMENT GOALS].

300. Douglas Arner et al., *Open Banking, Open Data and Open Finance: Lessons from the European Union* 38 (UNSW Law, Research Paper No. 21-69, 2021).

301. See, e.g., U.K. NATIONAL INFRASTRUCTURE COMMISSION, *DATA FOR THE PUBLIC GOOD* 8, <https://nic.org.uk/app/uploads/Data-for-the-Public-Good-NIC-Report.pdf> [<https://perma.cc/BU6L-QVLD>]. See also WORLD ECONOMIC FORUM, *WORLD ECONOMIC FORUM LAUNCHES INITIATIVE TO ENABLE EQUITABLE AND TRUSTED USE OF DATA FOR GLOBAL COMMON GOOD* (2020), <https://www.weforum.org/press/2020/12/world-economic-forum-launches-initiative-to-enable-equitable-and-trusted-use-of-data-for-global-common-good/> [<https://perma.cc/BC88-JZAG>].

302. UNITED NATIONS DEV. PROGRAM, *THE FUTURE IS DECENTRALISED* 7 (2018), <https://www.undp.org/publications/future-decentralised> [<https://perma.cc/RH7F-AV MR>].

303. 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,

been discussed as methods to support balanced innovation.³⁰⁴ As discussed in Principle Two (developing reflexive and iterative regulation),³⁰⁵ these tools, while far from being a panacea, do enhance the flow of information between 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 the creation of new financial services by smaller players, which could have disproportionately large impacts in advancing particular SDGs in developing countries.³⁰⁶ 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.

though subject to special limits. *See generally* Buckley et al., *supra* note 222, at 56-61 (introducing regulatory sandboxes and innovation hubs in fintech regulations).

304. *See* Hilary J. Allen, *Regulatory Sandboxes*, 87 GEO. WASH. L. REV. 579, 580 (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.”). *See also* Chris Brummer, *Disruptive Technology and Securities Regulation*, 84 FORDHAM L. REV. 977, 1047-49 (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, 283-85 (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, 335-38 (2018) (providing an overview of the different innovative regulations in FinTech); Saule T. Omarova, *New Tech v. New Deal: FinTech as a Systemic Phenomenon*, 36 YALE J. ON REG. 735, 756-59 (2019) (introducing how fintech has eroded the New Deal settlement and the need for a novel conceptual framework). *See generally* William Magnuson, *Regulating FinTech*, 71 VANDER. L. REV. 1168 (2018) (calling for a wide-ranging reconceptualization of financial regulation in fintech); Zetzsche et al., *supra* note 4 (discussing new regulatory approaches in fintech).

305. *See supra* Section IV.B.

306. Sharmista Appaya & Mahjabeen Haji, *Four Years and Counting: What We’ve Learned from Regulatory Sandboxes*, WORLD BANK BLOGS, (Nov. 18, 2020), <https://blogs.worldbank.org/psd/four-years-and-counting-what-weve-learned-regulatory-sandboxes> [<https://perma.cc/N3FZ-ZZS5>].

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 in regard to IT and software,³⁰⁷ critical financial market infrastructure such as payment, clearing, and settlement systems,³⁰⁸ and in “open banking” initiatives.³⁰⁹ This Section will review some of the pro-competition strategies that regulators can choose 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.³¹⁰ Principle 18 of the IOSCO principles on access to the services of critical infrastructure providers is relevant here:

An 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

307. See, e.g., LUCA RUBINI, MICROSOFT ON TRIAL: LEGAL AND ECONOMIC ANALYSIS OF A TRANSATLANTIC ANTITRUST CASE 39-43 (Luca Rubini ed. 2010) (introducing the pro-competition measures used to regulate dominant technology players like Microsoft).

308. See COMM. ON PAYMENT & SETTLEMENT SYS., BANK FOR INT'L SETTLEMENTS, PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES 101 (2012) (discussing access conditions by providers of Financial Market Infrastructure).

309. See Markos Zachariadis & Pinar Ozcan, *The API Economy and Digital Transformation in Financial Services: The Case of Open Banking* 10-12 (SWIFT Inst., Working Paper No. 2016-001, 2017) (discussing the challenges and opportunities that open application programming interfaces bring to the open banking sector), <https://ssrn.com/abstract=2975199> [<https://perma.cc/PMS5-KHLD>].

310. See *United States v. Microsoft Corp.*, 231 F.Supp. 2d 144, 191 (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).

standards, an FMI should endeavor to set requirements that have the least-restrictive impact on access that circumstances permit.³¹¹

One special feature that would enable competition while retaining the benefits of digital finance platforms is an open data requirement for dominant firms that would allow innovative competitors to offer services that make use of existing data pools rather than building new ones at a great expense.

Regulators should mandate that digital finance platforms and other incumbents grant new entrants access to client account data; this would result in a reduction of client switching costs because the newcomer could ensure a smooth tech migration. While standardization of client data is a crucial precondition for smooth migration,³¹² doubts remain about whether in fact small, innovative, new entrants would benefit from such a rule.³¹³ For example, some evidence from the European Union's Open Banking Initiative 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.³¹⁴

Thus, we propose requiring open client data from firms with a strong, potentially dominant position, regardless of their sector of origin. In an effort to hamper any further concentration of financial service providers, 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, for example, 5 percent in any given financial market. This would break into the data-based economies of scale and allow easier entry for smaller competitors.

Regulators should also ask potential users of digital finance platforms to diversify their own risks deriving from their dependency on

311. BANK FOR INT'L SETTLEMENTS, *supra* note 308.

312. See Giuseppe Colangelo & Oscar Borgogno, *Data, Innovation and Transatlantic Competition in Finance: The Case of the Access to Account Rule 22* (Transatlantic Tech. L.F., European Union Law Working Paper, No. 35, 2018) (observing that a European Union-wide FinTech market requires standardization to simplify data transmission and facilitate competition and interoperability), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3251584 [<https://perma.cc/H9QW-G4NN>].

313. See Dirk A. Zetsche et al., *The Evolution and Future of Data-Driven Finance in the EU*, 57 COMMON MKT. L. REV. 331, 342-46 (2020) (analyzing the facilitation of open banking in the European Union to enhance competition in banking and payments).

314. *Id.*

a certain platform. For example, a 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-specific benefits for users by moving away from one look and feel and one quality and level of service, 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 under this proposal 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 change, 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 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.

Finally, merger control is the standard competition approach to overly concentrated markets.³¹⁵ Though 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.

315. INT'L COMPETITION NETWORK, ICN MERGER GUIDELINES WORKBOOK 6 (2006), https://www.internationalcompetitionnetwork.org/wp-content/uploads/2018/05/MWG_MergerGuidelinesWorkbook.pdf [<https://perma.cc/MU76-3BHE>].

C. DESIGNATION AS A REGULATED INDUSTRY

Regulators have at their disposal moderate regulatory interventions such as various types of command-and-control, self-regulatory, and co-regulatory approaches. The most effective approach will depend on the platform's stage of evolution. As a general matter, the greater the scale and/or significance of a digital finance platform, the stronger the case for an intervention.³¹⁶

1. *Command-and-Control Regulation*

A standard response of regulators to increasing concentration within a given industry is adding an additional layer of regulation upon the firms, particularly through requiring licensing for regulated activities. 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.³¹⁷

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 SIFIs, moderate reporting requirements for mid-size platforms, and a mere registration requirement for small ones.³¹⁸ Such a regime would probably have to state expressly that it does not apply to regulated banks and financial institutions or otherwise 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

316. See BANK FOR INT'L SETTLEMENTS, *supra* note 308, at 12-13 (discussing applicability and proportionality of the FMI principles).

317. See Feyen et al., *supra* note 15.

318. See *e.g.*, SCO40 – Global Systemically Important Banks, Basel Framework, BIS, https://www.bis.org/basel_framework/chapter/SCO/40.htm?inforce=20211109&published=20211109 [https://perma.cc/9U5Q-L2V2] (last updated Nov. 9, 2021).

example, regulators can choose to monitor credit risk assessment software for hidden gender, 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 but will almost certainly be necessary.³¹⁹

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. Thus, FMI providers typically establish a common set of rules and procedures for all participants, including a technical infrastructure and a specialized, customized risk management framework.³²⁰ While these rules and procedures often take a contractual form,³²¹ 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.³²² 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 into more of a public oversight body focused on technicalities *in addition to*

319. We have considered the issues of how regulators can address cyber risks elsewhere. See Ross P. Buckley et al., *TechRisk*, SING. J. LEGAL STU. 35, 43-44 (2020) (offering ways to address the emerging security risks that result from technical innovation and digitization of finance).

320. See COMM. ON PAYMENT & SETTLEMENT SYS., BANK FOR INT'L SETTLEMENTS, PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES 7 (2012), <https://www.bis.org/cpmi/publ/d101a.pdf> [<https://perma.cc/EP3Z-683M>] (defining FMIs, their function, and the range of their features).

321. *Id.*

322. JAN SAMMECK, A NEW INSTITUTIONAL ECONOMICS PERSPECTIVE ON INDUSTRY SELF-REGULATION 60 (2012).

mandatory regulation, like the Financial Industry Regulatory Authority (FINRA).³²³

3. Co-Regulation

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

[M]echanism 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.³²⁴

Co-regulation has been discussed as potentially effective for non-financial platform industries; its inclusion of a broad pool of innovators “in the articulation, execution and evolution of policy, law, norms development, oversight and regulation,”³²⁵ elicits more balanced views. An example is when local authorities and Airbnb agreed on the collection of tourist tax.³²⁶

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 than some of the other strategies suggested in

323. See William A. Birdthistle & M. Todd Henderson, *Becoming a Fifth Branch*, 99 CORNELL L. REV. 1, 12–15 (2013) (analyzing the evolution of FINRA from a self-regulatory organization to a quasi-governmental organization).

324. See Michèle Finck, *Digital Co-Regulation: Designing a Supranational Legal Framework for the Platform Economy* 15-16 (London Soc’y Econ., Society and Economy Working Paper No. 15/2017, 2017), <https://ssrn.com/abstract=2990043> [<https://perma.cc/2A6J-G4K6>] (defining co-regulation).

325. See Raymond H. 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 (2016) (recognizing the benefits of decentralized policymaking and regulatory pluralism).

326. See Finck, *supra* note 324, at 16-18 (list of examples).

combating the competition and financial stability concerns outlined above.³²⁷

D. PUBLIC UTILITY REGULATION

In line with scholarship on platform industries,³²⁸ 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 which require advanced risk-management methods, intensified supervision, and advance notice of rule changes.³²⁹ The Financial Market Utilities rules were drafted for clearing organizations and central counterparties and would need amendments to reflect, among other things, the data and liquidity dimension of digital finance platforms.³³⁰ This is the approach being taken in China in the context of Ant and other digital finance platforms: designating them as SIFIs and subjecting them to higher regulatory and supervisory attention.³³¹

327. See, *supra* Sections V.A.–C.2.

328. See K. Sabeel Rahman, *The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept*, 39 CARDOZO L. REV. 1621, 1634–35 (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). See also K. Sabeel Rahman, *Regulating Informational Infrastructure: Internet Platforms as the New Public Utilities*, 2 GEO. L. TECH. REV. 234, 240–42 (2018) (detailing how the utility concept applies to internet platforms).

329. See *Designated Financial Market Utilities: Title VII of the Dodd-Frank Act*, FED. RESRV., <https://www.federalreserve.gov/paymentsystems/title-viii-dfa.htm> [<https://perma.cc/6YHU-GDA5>] (last updated Jan. 29, 2015).

330. *Id.*

331. See, e.g., Xinmei Shen, *China Amends Anti-Monopoly Law for the First Time Amid Tech Crackdown, Increasing Penalties and Regulatory Control*, SOUTH CHINA MORNING POST (Oct. 27, 2021, 7:00 PM), <https://www.scmp.com/tech/policy/article/3153881/china-amends-anti-monopoly-law-first-time-amid-tech-crackdown> [<https://perma.cc/GHZ5-9FAS>].

As a form of indirect regulation, supervisory authorities could become significant shareholders or operators of a digital finance platform. One example is real-time gross settlement (RTGS) payment systems in which the technology core is developed with the involvement of central banks that, in some cases, also engage in operations.³³² Similar approaches are now being seen in an increasing number of jurisdictions at the retail level with “fast payment systems.”³³³ Putting aside the obvious capacity constraints of many competent authorities, having a stake in a digital finance platform brings potential informational advantages for a central bank or other regulatory agency.³³⁴

On the downside, authority stakes in a platform create a potentially undesirable outcome. The platform in which a central bank or other authority might take a stake is likely to be a monopolist that will plausibly 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, tech expertise is scarce,³³⁵ or 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 measure, yet financial

332. See, e.g., Morten Linnemann Bech et al., *The Quest for Speed in Payments*, BIS Quarterly Review, BIS (Mar. 6, 2017), https://www.bis.org/publ/qtrpdf/r_qt1703g.htm [<https://perma.cc/8WR2-33T7>].

333. Anton Didenko et al., *After Libra, the Digital Yuan and Covid-19: Central Bank-Linked Cryptocurrencies* 1, 9-10 (EBI Working Paper Series, Paper No. 2020/036, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3622311 [<https://perma.cc/5X5B-3HBR>].

334. *Id.*

335. 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*, NPCI, <https://www.npci.org.in/who-we-are/about-us> [<https://perma.cc/2X2P-QTVH>] (describing NPCI as a not-for-profit umbrella organization for all retail payments in India).

law also frequently imposes it.³³⁶ Indeed, some contend that a “core principle” of banking law is the “separation of banking and commerce.”³³⁷ At least in the United States, firms that own or control a U.S. bank are prohibited from engaging in business activities other than banking or managing banks.³³⁸

Another regulatory strategy would be to mandate separate service pricing and require 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, it elucidates the price of a single service, allowing new entrants to review whether they can compete by offering a better single service, if they cannot compete with the whole platform.³³⁹ Second, unbundling prohibits the cross-subsidization of some services from the proceeds of other services for which there may be more competition.³⁴⁰

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.³⁴¹ After all, unbundling involves ripping the integrated

336. Dan Awrey, *Unbundling Banking, Money, and Payments* (Eur. Corp. Governance Inst., Working Paper No. 565/2021, 2021), <https://ssrn.com/abstract=3776739> [<https://perma.cc/RJN4-5R3C>].

337. 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, 794–95 (2017); Bernard Shull, *Banking and Commerce in the United States*, 18 J. BANKING & FIN. 255, 267–68 (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).

338. See Khan, *supra* note 337, at 794 (stressing the similarity of these rules with antitrust and competition policy objectives and finding 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” (brackets in original)).

339. Awrey, *supra* note 336.

340. *Id.*

341. 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, 470 (2001) (reviewing

platform apart when, oftentimes, its 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 concept to 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, regulations may prohibit an investment advisor from booking mutual fund assets in its own accounts and require the advisor to hold such assets in an account earmarked for the investors. This 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 and banking functions, or using data and liquidity access to secure control over the whole fund value chain.

post-Chicago tying law and theory and analyzing tying doctrine using decision theory); 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, 486 (2009) (analyzing the bundling approaches of Europe and the United States and advocating a unified test for bundling and tying).

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.³⁴² With that said, many jurisdictions have sought to prevent or limit the entry of foreign digital finance platforms.³⁴³ Nonetheless, while various regulatory approaches may be valid, generally, prohibition will not be in the interests of sustainable development.

VI. GOVERNING FINTECH 4.0

The rapid emergence of concentration and dominance in digital finance via platformization and the dawn of FinTech 4.0 have taken many by surprise.³⁴⁴ This is particularly so in relation to their impacts on achieving sustainable development.³⁴⁵ There is a general recognition of the many advantages that the evolution of digital finance platforms can bring, particularly as the world grapples with the COVID-19 pandemic and related acceleration of the digitalization of everything.³⁴⁶ Existing development agendas and initiatives, such as the U.N. 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.³⁴⁷ However, there has not yet been a broader and more systematic consideration of the associated impacts that FinTech,

342. See Zetzsche et al., *The ICO Gold Rush: It's a Scam, It's a Bubble, It's a Super Challenge for Regulators*, 60 HARV. INT'L L.J. 267, 305-06 (2019) (discussing prohibition as one policy choice regarding initial coin offerings).

343. See Ehrentraud et al., *supra* note 83.

344. See Feyen et al., *supra* note 15; EUR. BANKING AUTH., REPORT ON THE USE OF DIGITAL PLATFORMS IN THE EU BANKING AND PAYMENTS SECTOR 15 (2021).

345. PEOPLE'S MONEY: HARNESSING DIGITALIZATION TO FINANCE A SUSTAINABLE FUTURE, *supra* note 183.

346. See, e.g., ITAI AGUR ET AL., DIGITAL FINANCIAL SERVICES AND THE PANDEMIC: OPPORTUNITIES AND RISKS FOR EMERGING AND DEVELOPING ECONOMIES 1 (2020).

347. UNITED NATIONS, ADDIS ABABA ACTION AGENDA OF THE THIRD INTERNATIONAL CONFERENCE ON FINANCING FOR DEVELOPMENT 19 (2015), https://sustainabledevelopment.un.org/content/documents/2051AAAA_Outcome.pdf [https://perma.cc/2KL5-CDB8]; IMF, THE BALI FINTECH AGENDA: A BLUEPRINT FOR SUCCESSFULLY HARNESSING FINTECH'S OPPORTUNITIES (2018), <https://www.elibrary.imf.org/view/journals/007/2018/050/article-A003-en.xml> [https://perma.cc/8DYX-BQFE].

and digital finance platforms more specifically, can have on social, economic, and political domains. There has also not been a strategy developed on how those impacts can either be enhanced if positive or mitigated and avoided if negative. This Article fills these gaps by providing an overview of the pertinent issues that regulators and policymakers should consider for digital finance platform governance. More specifically, we have argued for a principles-based approach to the development of appropriate governance frameworks and presented a range of 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* strategy combined with test-and-learn may be most appropriate. Other jurisdictions with more developed financial and technology markets might find more moderate approaches with compulsory licensing and publicly mediated self-regulation to be the right fit.³⁴⁸ Regardless of the context, the central strategy needs to follow a balanced proportional risk-based approach, covering major functional activities but bringing in entity-based approaches as the risks of individual firms increase with size and scale. In this context, this Article's Principles One and Two are important as they highlight the need for foundational financial regulation and reflexive and context-sensitive regulatory policies.

We further suggest that governance should be developed at all applicable levels—national, regional, and international—and 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 FSB, IMF, World Bank, BIS, or OECD. It would include appropriate principles and standards for regulators to implement domestically. The specific ways to execute the international standards could then be developed nationally and regionally, and involve the development of more specific requirements regarding digital finance platforms' conduct. Such a framework would be significantly strengthened in effect and legitimacy if it were produced in a collaborative and coordinated fashion with a broad multistakeholder constituency from both the Global North

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

and South. Such a general international framework would help alleviate problems of regulatory fragmentation and extraterritoriality by providing general regulatory policy directions while leaving leeway for national and regional regulators to tailor their approaches to national and regional needs.

Going further, in choosing an appropriate regulatory strategy, financial, data, and competition regulators should attempt to balance their mandates with 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.³⁴⁹ 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 society and the 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 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.³⁵⁰ The 12 policy elements of this Agenda form a broad umbrella which captures many of the financial inclusion and developmental issues discussed herein.³⁵¹ The Agenda is an existing and underutilized policy and regulatory basis through which global coordination can be effected. The standing committee or working group could be truly beneficial 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.

349. See, e.g., Jayoung James Goo & Joo-Yuen Heo, *Between The Impact of the Regulatory Sandbox on the Fintech Industry, with a Discussion on the Relation Regulatory Sandboxes and Open Innovation*, 6 J. OPEN INNOVATION: TECH., MKT., & COMPLEXITY 43, 57-58 (2020); Leo Van Hove & Antoine Dubus, *M-PESA and Financial Inclusion in Kenya: Of Paying Comes Saving?*, 11 SUSTAINABILITY 568, 569 (2019).

350. IMF, *supra* note 347.

351. *Id.*

- 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. These could, for example, incorporate representatives from the ministries of finance, justice, competition, privacy, and international affairs, among others, and coordinate 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 standing committee or working group. As such, there would be clear and effective channels through which both global and local action could 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 U.N. Global Compact and the Paris Agreement Climate Targets,³⁵² and seek stronger public-private collaboration for their implementation. National governments should also consider requiring adherence to these frameworks as conditions of granting digital finance platform licenses to operate within their jurisdiction. After all, the U.N. Guiding Principles, for example, were unanimously endorsed by the U.N. Human Rights Council when first introduced in 2011.³⁵³ 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 an area where developing countries may well need assistance. Many such countries may lack the capacity to effectively monitor digital finance platforms domestically or enforce

352. Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, 2016 WL 9281227, T.I.A.S. No. 16-1104.

353. U.N. Secretary-General, *Report of the Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises*, ¶ 6, U.N. Doc. A/65/310 (Mar. 21, 2011).

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.