Unlocking Public and Private Finance for the Poor

Technical Paper 3.3

A Principles-based Approach to the Governance of BigFintechs

Douglas Arner, Ross Buckley, Kuzi Charamba, Dirk Zetzsche and Artem Sergeev

The findings of the Dialogue on Global Digital Finance Governance are packaged into three thematic areas:

Theme 1

BigFintechs and their impacts on sustainable development

- Technical Paper 1.1 BigFintechs and their impacts on sustainable development
- Technical Paper 1.1B BigFintechs and their impacts on macroeconomic policies
- Technical Paper 1.2 Digital currencies and CBDC impacts on least developed countries

Theme 2

Corporate governance innovations

- Technical Paper 2.1 BigFintechs and the UN SDGs: the role of corporate governance innovations

Theme 3

BigFintechs and international governance, policymaking and the SDGs

- Technical Paper 3.1 Policymakers, BigFintechs and the United Nations Sustainable Development Goals
- Technical Paper 3.2 BigFintechs and international governance, policymaking and the UN Sustainable Development Goals: the SDGs in the international governance of finance
- Technical Paper 3.3 A principles-based approach to the governance of BigFintechs

Executive summary

This paper is the final paper in a series of technical papers from the Dialogue on Global Digital Finance Governance, an initiative hosted by UNDP/UNCDF. It addresses various aspects of large digital finance platforms ('BigFintechs'), their evolution, role and governance. Previous papers have discussed the evolution of BigFintechs (BFTs) (including BigTechs, Fintechs, digital finance platforms, global stablecoins and central bank digital currencies); BFT corporate governance; existing regulatory approaches and processes relevant to BFTs (financial, competition and antitrust, data protection, and technology and Internet regulation); and lessons from across the United Nations Sustainable Development Goals (SDGs), as well as specific policy areas such as human rights, climate change and gender. This paper builds on that body of work to present an analysis of possible approaches to the governance of the SDG impacts of BFTs.

The emergence of BigTech digital platforms and BFTs over the past 20 years reflects fundamental changes in our economies and societies around the world, in particular the impact of digitization and datafication at the heart of the Fourth Industrial Revolution. Digitization and datafication offer tremendous potential for network effects and economies of scope and scale, which have duly emerged in the context of the platform economy and more recently in the context of finance: Fintech 4.0. It is clear today that BFTs—like digital platforms and the platform economy generally—bring both opportunities for and risks to attaining the SDGs.

The question then is how best to maximize positive SDG impacts while minimizing negative impacts. The starting point is embedding awareness and understanding of the range of potential impacts of BFTs from the standpoint

The Dialogue on Global Digital Finance Governance was established by the UN Secretary General's Task Force on Digital Financing of the SDGs. During its investigations, the Task Force recognized that digitalization is not only reshaping the world of finance; it is also driving the emergence of a new generation of global, dominant digital finance platforms (BigFintechs) with increasing cross-border spillover effects on many areas of sustainable development across the world, particularly in developing economies.

The potential impacts of these platforms are both positive and negative, and one of the main challenges in addressing them is that existing policy approaches to BigFintechs have mostly focused on narrow, although important, financial stability, consumer protection and market integrity issues, and some aspects of data, Internet and competition regulation, but have remained largely disconnected from the broader SDG/ESG debate. Another issue is that the governing arrangements of such platforms have seldom involved developing economies, where their impacts are often strongest, and the potential for transformation is greatest.

The Dialogue was established to explore the nexus of BigFintechs and sustainable development. Its goal is to catalyse governance innovations that take greater account of the SDG impacts of BigFintechs and are more inclusive of the voices of developing nations. To this end, the Dialogue has produced a series of Technical Papers that bring new, complementary perspectives on these issues. The papers have been drafted by commanding experts in the field and have been peer-reviewed by leading institutions and academics.

The following paper is Technical Paper 3.3 under Theme 3.

The Dialogue on Global Digital Finance Governance is hosted by the Swiss and Kenyan Governments and stewarded jointly by the United Nations Development Programme (UNDP) and United Nations Capital Development Fund (UNCDF).

of the SDGs, both positive and negative, at all levels of governance, both domestic and international.

The paper begins by presenting five guiding principles any approach should seek to address. These are: (1) ensuring financial stability, financial integrity, consumer and investor protection, and market integrity; (2) developing reflexive and iterative regulation; (3) fostering responsible actors; (4) ensuring appropriate and proportional oversight and enforcement; and (5) instilling a commitment to sustainable development.

The paper then turns to structures for achieving these principles and a toolkit covering a spectrum of hard and soft law and market-based private ordering and co-regulatory approaches at the domestic, regional and international levels. The paper highlights the necessity of diverse approaches depending on the specific context and the balance between positive and negative SDG impacts, from laissez-faire to the full spectrum of regulatory approaches up to and including treatment as public utilities, break-up and prohibition.

Looking forward, international coordination will be necessary in many areas. Approaches will depend, however, on individual BFTs to balance their potential for positive and negative SDG impacts. In this respect, the paper considers existing institutions and approaches, as well as the possibility of developing new institutional structures, such as a Digital Stability Board. In looking at the range of approaches, the main take-away is the necessity of embedding awareness of the central principles and options throughout processes, including those of the United Nations, the G20, the International Monetary Fund, the World Bank, the Bank for International Settlements, the Financial Stability Board, the Organisation for Economic Co-operation and Development, the International Telecommunication Union and others. Only by embedding an understanding of both opportunities and risks can countries, regions and the international economic system maximize benefits while minimizing the risks of BFTs.

About the authors

Douglas Arner is the Kerry Holdings Professor in Law, RGC Senior Fellow in Digital Finance and Sustainable Development and Associate Director of the HKU-Standard Chartered FinTech Academy at the University of Hong Kong.

Ross Buckley is an Australian Research Council Laureate Fellow, Scientia Professor, and the KPMG Law – King & Wood Mallesons Professor of Disruptive Innovation at UNSW Sydney.

Kuzi Charamba is a post-doctoral fellow at the Asian Institute of International Financial Law at the University of Hong Kong

Dirk Zetzsche is a full professor in Financial Law, ADA Chair in Financial Law and Inclusive Finance at the University of Luxembourg.

Artem Sergeev is a post-doctoral fellow at the Asian Institute of International Financial Law at the University of Hong Kong.

The views expressed in this publication are those of the author(s) and do not necessarily represent those of the United Nations, including UNCDF and UNDP, or their Member States.

Contents

I. Introduction

This paper is the seventh and final instalment of a series of technical papers that explore the nexus of governance of BigFintechs (BFTs) and the United Nations Sustainable Development Goals (SDGs). The other papers have explored the nature and evolution of BFTs, highlighting the increasing impact of platform technologies in finance across the world and BFT corporate governance approaches. The prior papers identified and discussed the range of challenges that BFTs pose to regulators and policymakers, including managing the impacts—positive and negative—that BFTs may have on global efforts to achieve the SDGs.

The emergence of both BigTech[1] digital platforms and BFTs over the past 20 years reflects fundamental changes in economies and societies around the world, in particular the impact of digitization and datafication at the heart of the Fourth Industrial Revolution. Digitization and datafication offer tremendous potential for network effects and economies of scope and scale, which have duly emerged in the context of the platform economy and more recently in the context of finance. We identify this new period as Fintech 4.0.[2] Fintech 4.0 is the era of digital finance platforms, building on earlier periods of electrification (Fintech 1.0, from the first transatlantic telegraph cable in 1867), digitization of traditional finance (Fintech 2.0, from the automatic teller machine (ATM) and handheld calculator in 1967), and the emergence of new technologies and entrants such as Fintechs, Techfins and BigTechs (Fintech 3.0, marked by the iPhone and M-Pesa in 2007, the 2008 global financial crisis, and blockchain in 2009). Fintech 4.0 emerges clearly from the announcement of the proposed creation of Libra by a Facebook-led consortium in 2019 and the halting of what was meant to be the world's largest initial public offering (IPO), of China's Ant in 2020. In addition, Fintech 4.0 builds on long-term trends of digitization and datafication, highlighting not only the potential but the transformative reality of 'platformization' of finance. It is clear today that BFTs—like digital platforms and the platform economy generally—bring both opportunities and risks for the SDGs.

The question then is how best to maximize positive SDG impacts while minimizing negative ones. The starting point is embedding awareness and understanding of the range of potential impacts of BFTs from the standpoint of the SDGs, both positive and negative, at all levels of governance, both domestic and international.

The innovation presented by the platform-based models of BFTs engages 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, either nationally or internationally. Given the sheer size and breadth of BFT activity impacting sustainable development, it is challenging to develop a holistic and systematic governance approach to those impacts. The speed with which BFTs have risen to prominence, and in many cases market dominance, explains why we are still in this position from a regulatory standpoint. But this speed and corollary impact are why the need for appropriate regulation and policy on a global basis is now so pressing. This need is most acute in the least developed countries (LDCs), where policymakers and regulators may lack the expertise or experience to respond to BFT market impacts but where the potential to move towards sustainable development is also greatest.

The governance of BFTs and their impacts on sustainable development requires granular, nuanced and targeted policies and regulations. The antecedent step, however, requires appreciation of the broader system and the actors that can contribute to the development of such policy and regulation. In many ways, this is about regulating the new technological era of Fintech 4.0, which is characterized by the increasing dominance of a smaller number of ever more pervasive digital finance platforms operating and having significant impact across borders as the result of technology, data, network effects, and economies of scope and scale.[3] Concerted collaboration across both public and private sectors is critical for producing cohesive policies and practices for this new era. Consequently, in this paper we draw from lessons learned in technical papers 3.1 and 3.2 to present a principles-based approach to the governance of BFTs and their impacts on sustainable development, particularly in relation to developing countries. We begin with the principles that should guide BFT regulation and then focus on the form of potential engagement before considering specific potential regulatory approaches.

The paper is in five parts. Part 2 posits the key principles necessary for the governance of BFTs and their impact on sustainable development in the developing-country context. Part 3 evaluates the various organizational approaches available to international regulators and policymakers to implement these principles. Part 4

1 Examples of 'BigTech' include Google, Apple, Facebook, Amazon and Microsoft (GAFAM) in the United States and Baidu, Alibaba and Tencent (BATs) in China. For further reference, see, for example, Bank for International Settlements, 'Chapter 3: Big Tech in Finance: Opportunity & Risks', *Annual Economic Report* (Basel, Switzerland, 2019).

2 See Douglas Arner et al., 'BigTech, Big FinTechs, and Digital Finance Platforms: Governing the New "Too-Big" of FinTech 4.0' (forthcoming).

3 This concept builds on typologies developed and discussed in a previous paper: Douglas Arner, Janos Barberis and Ross Buckley, 'The Evolution of Fintech: A New Post-Crisis Paradigm', University of Hong Kong Faculty of Law Research Paper No. 2015/047 (Hong Kong, 2015). Fintech 1.0 was about building the first 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 transatlantic telegraph line. 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 the shortcomings of legacy banking institutions in the global financial system; the introduction of the iPhone; and a spur in new financial regulation.

considers the range of regulatory approaches available to balance the positive and negative impacts of BFTs on attainment of the SDGs, building a toolkit which can be applied depending on the exact context under consideration. Finally, we conclude by highlighting the necessity of cooperation, but also of differential approaches in different contexts, looking both to existing institutional structures as well as new structures, such as a Digital Stability Board.[4] In looking at the range of approaches, the main take-away is the necessity of embedding awareness of the central principles and options throughout processes, including those of the United Nations, the G20, the International Monetary Fund (IMF), the World Bank, the Bank for International Settlements (BIS), the Financial Stability Board (FSB), the Organisation for Economic Co-operation and Development (OECD), the International Telecommunication Union (ITU) and others. Only by embedding an understanding of both opportunities and risks can countries, regions and the international economic system maximize benefits while minimizing the risks of BFTs.

II. Principles of BigFintech governance

In this section, we propose five principles as the basis on which to build BFT governance frameworks at all levels: (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 1: Ensuring foundational financial regulatory objectives

The public policy objectives of financial regulation have evolved to include financial stability, market efficiency and development, financial integrity, and consumer and investor protection. The scope of these objectives arises because finance is seen as essential to support both economic growth and development, and sustainable development more broadly. The global dimensions of finance mean that disruptions in the financial sector can be a source of major risk for developed and developing economies.[5] Consequently, national and international regulatory bodies are each charged with developing regulatory frameworks to limit the risks and promote the benefits of finance. This is challenging when global regulation focuses solely on financial actors and activities.

The challenge is further accentuated when regulation must grapple with the sprawling, expansive business models of BFTs and BigTechs, for which financial services offerings are only one part of their business.[6]

In a speech in January 2021, Agustín Carstens, General Manager of the BIS, presented an approach to public policy for BigTechs in finance.[7] In it, he highlighted the importance of protecting four key public policy objectives: financial stability; consumer protection; market integrity; and efficiency and fair competition. We agree with these objectives.[8] However, we would extend efficiency and fair competition more broadly to include support for economic growth, employment and sustainable development—reflecting the SDGs as the core objective—more generally. Collectively, these are the foundational financial regulatory objectives that need to be ensured universally.

Financial stability, especially since the global financial crisis of 2008, is core to financial regulation. It can be understood in both negative (the absence of a financial crisis) and positive (a financial system resilient to shocks) terms. Financial stability is typically pursued through regulation that includes macroprudential and microprudential aspects. Macroprudential regulation seeks to prevent crises from happening before they occur, by focusing on interconnections across the financial system which can lead to interconnectivity and interdependency risks. Microprudential regulation focuses on the safety and soundness of individual financial institutions, especially in the context of 'systemic risk'.

The objective of market efficiency and fair competition is to ensure that finance is available at appropriate cost to individuals, businesses and government. This has traditionally been seen as supporting economic growth and employment but is increasingly being understood to also underpin financial inclusion and sustainable development. This objective is also concerned with the potential negative consequences of dominance in particular segments of the market or even the entire financial system. This becomes a significant risk as BigTechs enter financial services along with other BFTs, particularly in developing countries. In some developing countries, for example, Fintech firms have played a significant role in providing alternative payment platforms to better serve financially excluded communities. Firms offering mobile financial services, such as Econet in Zimbabwe and Ant in China, have come to dominate parts

4 The case for a Digital Stability Board is very well made in R. Fay, 'Digital Platforms Require a Global Governance Framework', Centre for International Governance Innovation, 2019, https://www.cigionline.org/articles/digital-platforms-require-global-governance-framework/.

5 Johannes Ehrentraud et. al., 'Policy Responses to FinTech: A Cross-Country Overview', FSI Insights on Policy Implementation No. 23 (Basel, Switzerland, Financial Stability Institute, Bank for International Settlements, 2020).

6 Bank for International Settlements, 'Chapter 3: Big Tech in Finance: Opportunity & Risks', *Annual Economic Report* (Basel, Switzerland, 2019); see also Jon Frost, Leonardo Gambacorta, Yi Huang, Hyun Song Shin and Pablo Zbinden, 'BigTech and the changing structure of financial intermediation', Economic Policy 34(100), October 2019, 761–799, https://academic.oup.com/economicpolicy/article/34/100/761/5709813.

7 Agustín Carstens, *Public Policy for Big Techs in Finance* (Basel, Switzerland, Bank for International Settlements, 21 January 2021). Available at https://www.bis.org/speeches/sp210121.pdf.

8 See also Douglas Arner, *Financial Stability, Economic Growth and the Role of Law* (Cambridge, UK, Cambridge University Press, 2007).

of the financial services ecosystem in their respective countries.[9] They have attracted regulatory attention because of their market dominance, and potential impact on financial stability.[10] Similarly, Facebook's initial attempt to launch a digital currency, Libra (now Diem), met stiff opposition from regulators globally,[11] as did the launch of its mobile money payment service through WhatsApp in Latin America and India, although in May 2021 Facebook did obtain approval to operate this service in both Brazil and India.[12] Regulators are keen to ensure that they can adequately regulate such entities with significant presence in both financial and non-financial spaces and prevent the emergence of firms that are either too big or too connected to fail.[13]

Consumer and investor protection seek to protect consumers and investors from fraud, theft and abuse, as well as to promote confidence in the financial system and reduce financial crime. As financial markets become more sophisticated, and more aspects of our lives go digital—a process accelerated dramatically by COVID-19—it is important for regulators to adapt and provide certain protections, particularly in relation to fraud, data protection and privacy. Inadequate consumer protection can result in theft and fraud online, data breaches and cybersecurity incidents.[14]

Lastly, ensuring market integrity requires, among other things, preventing criminal and terrorist use of the financial system. Money laundering and terrorism financing can have destabilizing effects in economies, as they fuel illegal activity. In developing countries, in particular, this can fuel corruption and stifle economic growth, as funds are diverted from legitimate, welfare-enhancing public spending initiatives, and challenge trust and confidence in the financial system more broadly. Collectively, these four objectives underpin a robust policy approach to financial market protection and the effective governance of BFTs internationally. However, the developing-country context differs from more advanced economies in ways that necessitate consideration of implementing the four additional principles as described below.

b. Principle 2: 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 BFTs: first, the technology they employ is developing rapidly; and second, the societal capacity to engage with that technology in developing countries varies widely. Regulatory interventions will need to be targeted, with mechanisms that allow for rapid review and adaptation.

BFT growth and activity is largely driven today by four underlying technologies often referred to as 'ABCD': artificial intelligence, big data, cloud services, and distributed ledger technologies, including blockchain. These four technologies drive the ability of BFTs to deliver innovations in digital payment systems, e-government services and credit provision, to name but a few. The innovations are produced and supported by global supply chains, highly skilled teams of geographically dispersed labour and considerable capital. The scale of this activity and its impact within any economy is significant, particularly in developing countries. Developing countries typically have less societal capacity to manage this activity and its impacts. Societal capacity, in this regard, includes the capacity of regulators, consumers and infrastructure.

Within societal capacity, regulatory capacity is the ability of regulators to oversee and manage these activities. The capacity of users and consumers is linked to their ability to productively engage with the technology. For example, large segments of the population within developing countries may be financially illiterate or excluded, or technologically illiterate or excluded. Finally, capacity can refer to that of the infrastructure necessary to support the technology upon which BFTs provide financial services, from the data servers to the telecommunication networks and electric power grids. Developing countries may be lacking in these areas compared to the more advanced economies in which BFTs may be domiciled. As such, developing countries will need to deploy a reflexive and iterative approach to policy and regulation. This should entail an appropriate mix of substantive regulation coupled with mechanisms that give authorities sufficient flexibility to reflect on, and adapt to, developments as required.

9 See, for example, Financial Stability Board, *BigTech Firms in Finance in Emerging Market and Developing Economies* (Basel, Switzerland, 2020). In China, for example, payments processed by BigTechs amounted to 38 percent of gross domestic product (GDP) in 2018.

10 For Zimbabwe, see, for example, Antony Sguazzin, 'Zimbabwe finance minister sees protracted mobile-money dispute', *Bloomberg*, 31 July 2020, https://www.bloomberg.com/news/articles/2020-07-31/zimbabwe-finance-minister-sees-protracted-mobile-money-dispute; and for China, see, for example, Evelyn Cheng, 'With Ant's IPO on hold, China calls for fintech regulation', Bloomberg, 6 November 2020, https://www.cnbc.com/2020/11/06/with-ants-ipo-on-hold-china-emphasizes-need-for-fintech-regulation.html.

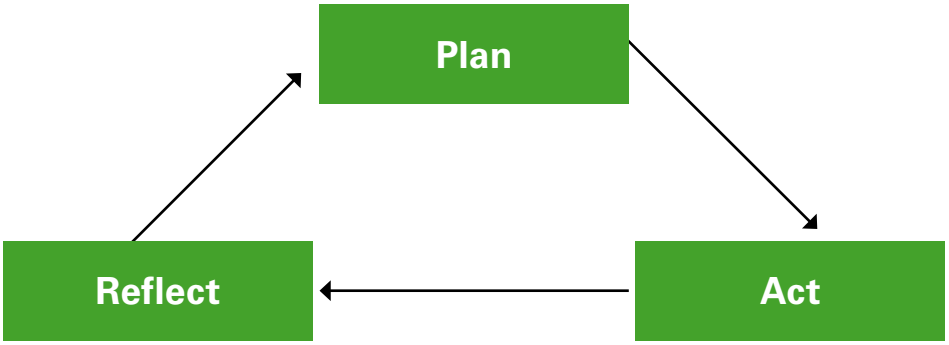
11 See Samuel Stolton, 'ECB issues stark warning on Big Tech cryptocurrency projects', Euractiv, 11 February 2021.

12 See, for example, Ledger Insights, 'Brazil's central bank suspends WhatsApp payment processing, India also throttled', June 2020, https://www.ledgerinsights.com/brazil-central-bank-suspends-whatsapp-pay-india-throttled/; and Emilio Demetriou-Jones, 'Second time lucky for WhatsApp payments in Brazil', *Global Banking Regulation Review*, 5 May 2021, https://globalbankingregulationreview.com/payment-services/second-time-lucky-whatsapp-payments-in-brazil?utm_source=Second%2Btime%2Blucky%2Bfor%2BWhatsApp%2Bpayments%2Bin%2BBrazil&utm_medium=email&utm_campaign=GBRR%2BAlerts.

13 On the connected nature and challenge of BigTech business models, see, for example, comments by Agustín Carstens, *Public Policy for Big Techs in Finance* (Basel, Switzerland, Bank for International Settlements, 21 January 2021). Available at https://www.bis.org/speeches/sp210121.pdf.

14 Jo Ann Barefoot, 'Digital Technology Risks for Finance: Dangers Embedded in Fintech and Regtech', M-RCBG Associate Working Paper No. 151 (Cambridge, MA, Mossavar-Rahmani Center for Business & Government, Harvard Kennedy School, June 2020). Available at https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/AWP_151_final.pdf.

A representation of a 'reflexive and iterative' regulatory process



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

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

Innovation hubs usually provide a specific portal through which firms can engage with the supervisor to raise questions and seek clarifications or non-binding guidance about Fintech-related issues in the context of compliance with the regulatory framework, licensing or registration requirements, and regulatory and supervisory expectations.

Regulatory sandboxes go a step further and provide a special scheme in which companies can test innovative financial products, services or business models with actual customers in a controlled environment (a 'sandbox') pursuant to a specific testing plan agreed with the supervisor and subject to the application of distinct safeguards.[15]

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

Innovation hubs and regulatory sandboxes require highly skilled staff with expertise in Fintech regulation and the local regulatory schema. Some sort of exchange programme, for example, may well assist both developed and developing countries. For the developing country, it would be an opportunity to learn about more mature or advanced regulatory practices, policies and procedures. For the developed-country regulators, it would be an opportunity to learn about some of the innovative developments in developing countries, and thus consider the impacts of their likely integration into global financial 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 more informally and share techniques, approaches and lessons learned. One example of a prominent transnational regulatory network is the Financial Action Task Force (FATF), the global money laundering and terrorist financing watchdog. It draws its membership from financial regulatory authorities across 37 jurisdictions and other international organizations. Its reach, however, goes far beyond its membership. Collectively, the body sets standards and promotes the effective implementation of legal, regulatory and operational measures for combating money laundering, terrorism financing and other related threats to the integrity of the international financial system.[16] More recently, this has come to include the threat posed by virtual assets such as cryptocurrencies. By developing appropriate standards to match new practices that pose financial market risks, the FATF helps its members to implement matching regulatory standards to manage risks as they arise.

15 Definitions drawn from European Supervisory Authorities, *Fintech: Regulatory Sandboxes and Innovation Hubs* (Brussels, 2018). Available at https://esas-joint-committee.europa.eu/Publications/Reports/JC%202018%2074%20Joint%20Report%20on%20Regulatory%20Sandboxes%20and%20Innovation%20Hubs.pdf.

16 Financial Action Task Force, 'What we do', https://www.fatf-gafi.org/about/whatwedo/. One of the potential drawbacks of the FATF or other similar organizations is selective membership that often excludes LDCs. This, in turn, can lead to the proliferation of regulatory standards that can be implemented by developed economies but not by LDCs. This could exacerbate the vulnerable position of LDCs that may struggle to enter into developed markets due to a lack of resources to ensure regulatory compliance with international standards. To remedy this situation, international regulatory frameworks should include or consult regulators from LDCs to ascertain that international standards do not negatively affect financial or other institutions in LDCs.

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. It now comprises "a network of over 60 organizations committed to supporting financial innovation in the interests of consumers. It seeks to provide a more efficient way for innovative firms to interact with regulators, helping them navigate between countries as they look to scale ideas."[17] The GFIN works to assist firms to pilot products in more than one market, and seeks to build bridges between markets for innovative Fintechs.

As the regulatory capacity of developing countries grows, 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.[18] Regtech and Suptech describe the use of technology and technological processes to implement, comply with and monitor regulatory requirements and objectives. Implementing regulation through technology requires resources and trained staff. Doing so will also require developing countries to have much more sophisticated digital infrastructure (e.g. digital identities, electronic Know Your Customer (e-KYC) initiatives and robust data protection). The combination of infrastructure and technology will allow for better and more efficient risk identification and general exercise of regulatory functions. In short, Regtech describes the greater development and deployment of the ABCDs to the advantage of developing-country authorities.

Finally, in each of the mechanisms discussed in this section, it is worthwhile for regulators and policymakers to contemplate the form or configuration that each mechanism should take. Different configurations can enhance efficiencies, capacity-building and overall effectiveness. We discuss this further in Principle 4 below, on oversight and enforcement.

c. Principle 3: Fostering responsible actors

The relative underdevelopment of regulatory institutions in developing countries means that they can be prone to weaker governance and rule of law issues, as well as conflict and fragility. To rely on BFT home state regulation to guide and oversee BFT activities in such contexts presents several challenges. As such, it is worth considering the direct application of transnational standards of responsible business conduct on BFTs operating in those contexts. Examples of relevant and pertinent instruments include the United Nations 'GuidingPrinciples on Business and Human Rights'[19] and the OECD 'Guidelines for Multinational Enterprises'.[20]

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

In a similar vein to the adage that 'justice must not only be done … but must also be seen to be done',[21] there are two practices BFTs should engage in to further enhance their business conduct: due diligence and reporting. Due diligence involves implementing appropriate risk assessment and management systems (policies, procedures and processes) across a company's operations. This process should enable a company to identify, assess, manage and address risks with respect to various environmental and social impacts. Relatedly, BFTs 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 any consequential negative impacts.

Considering the numerous instances of large transnational enterprises damaging the environment and/or society in developing countries, adequate due diligence, reporting and disclosure will ensure a minimum level of transparency and accountability to BFT operations. In technical papers 3.1 and 3.2 we discussed the nascent field of non-financial disclosures and reporting through environmental, social and governance (ESG) frameworks and noted their potential applicability. The field is evolving rapidly, with several initiatives being produced and promulgated by a multitude of actors across the public and private sectors. However, we believe there is more work

17 See www.thegfin.com.

18 Douglas Arner, Jànos Barberis and Ross Buckley, '*FinTech, RegTech and the Re-conceptualization of Financial Regulation*', Northwestern Journal of International Law and Business 37(3), 2017.

19 United Nations High Commissioner for Refugees, Protect, Respect and Remedy: *a Framework for Business and Human Rights: Report of the Special Representative of the Secretary-General on the issue of human rights and transnational corporations and other business enterprises*, United Nations Doc. A/HRC/17/31 (Geneva, 2011). Available at http://www.business-humanrights.org/media/documents/ruggie/ruggie-guiding-principles-21-mar-2011.pdf.

20 One definition of a supervisory college is that employed by the European Central Bank, which defines a supervisory college as "a permanent, though flexible, structure comprised of an international bank's 'home' and 'host' supervisors." However, the term allows for a variety of other flexible configurations that allow for the oversight of a cross-border entity or activity. See, for example, European Central Bank, 'What are supervisory colleges?', https://www.bankingsupervision.europa.eu/about/ssmexplained/html/supervisory_colleges.en.html#:~:text=A%20supervisory%20college%20is%20essentially,it%20in%20the%20form%20of. See also Bank for International Settlements, *Good Practice Principles on Supervisory Colleges* (Basel, Switzerland, 2010). Available at https://www.bis.org/publ/bcbs177.pdf; and Duncan Alford, 'Supervisory Colleges: The Global Financial Crisis and Improving International Supervisory Coordination', Emory International Law Review 24(57), 2010.

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

to be done in terms of standardizing reporting frameworks and improving the data that are available and collected from companies. In particular, ESG reporting and due diligence needs to reflect and relate to the SDGs, linking inputs and outputs as well as private sector performance and public sector objectives. In the interim, BFTs should proceed to establish ESG/SDG due diligence frameworks, as establishing appropriate internal accounting and reporting frameworks is a considerable task.

d. Principle 4: Ensuring oversight and enforcement

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

On the matter of form, various configurations are possible:

- **Entity-based**, which involves action within the firm itself. Potential initiatives can include independent advisory councils, such as the Facebook Oversight Board.[22]

- **Intra jurisdiction**, which 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**, which involves regulatory authorities, as individual or collective bodies within individual jurisdictions, collaborating across borders. This collaboration could be developed country to developing country or developing country to developing country.

- **Regional**
  - Regional collaboration, such as within the European Union (EU), the African Union (AU), the Association of Southeast Asian Nations (ASEAN) or the Southern Common Market (MERCOSUR)
  - Inter-regional collaboration

- **Global**, which could entail forums such as the United Nations, the G20, the IMF, the BIS, the OECD and the FSB.

An assortment of configurations gives policymakers the flexibility to develop appropriate regulation and oversight mechanisms in light of geographic, cultural, political and economic considerations. Moreover, all countries should be encouraged, and given the opportunity, to participate directly. The idea and spirit should be to facilitate high levels of collaboration, learning and, where appropriate, harmonization. Supervisory colleges could be a useful and formalized oversight body to the extent they can be operationalized at any governance level with relevant actors and a systemwide purview. They have been effectively deployed within the EU, for example, to enhance information-sharing among national banking supervisors, to share best banking practices and build confidence more broadly in the international financial system.[23]

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

- **third-party audits** of BFT activity and adherence to relevant standards;

- **dispute resolution** facilitated through a range of mechanisms, such as ombudsmen, national contact points, grievance mechanisms and arbitration; and

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

Many of these functions can be conducted by or in collaboration with the private sector. For example, consulting firms can conduct external audits of companies, and private associations (e.g. the International Chamber of Commerce) can facilitate dispute resolution processes. Existing standards-setting bodies can also be leveraged. For example, the OECD has the 'Guidelines for Multinational Enterprises'.[24] While the Guidelines themselves are not binding on corporations in the absence of legislation adopting them with direct effect,[25] they are an annex to the OECD 'Declaration on International Investment and Multinational Enterprises' and thus binding on OECD Member States and participating

22 See https://www.oversightboard.com.

23 Duncan Alford, '*Supervisory Colleges: The Global Financial Crisis and Improving International Supervisory Coordination*', Emory International Law Review 24(57), 2010.

24 The guidelines themselves are a part of the OECD 'Declaration on International Investment and Multinational Enterprises', an international legal framework established to govern investment activity among the OECD's Member States and adhering governments. As such, the framework addresses matters such as national treatment, conflicting requirements, and issues pertaining to investment incentives and disincentives.

25 For instance, Article 18 of the EU Taxonomy Regulation on sustainable investments requires compliance with the OECD Guidelines as a precondition for qualifying an investee company as a sustainable investment.

governments. As a result of this binding nature, the OECD Guidelines provide for the establishment of National Contact Points (NCPs) in each adhering State to facilitate and promote adherence to the Guidelines.[26] More importantly, though, the NCPs, as a system of national offices, are meant to provide access to remedies for people harmed by companies' non-compliance with the Guidelines. This role was strongly endorsed by the G7 in June 2015, when the group's communiqué stated that the G7 "commit[s] to strengthening mechanisms for providing access to remedies including the National Contact Points … for the OECD Guidelines for Multinational Enterprises. In order to do so, the G7 will encourage the OECD to promote peer reviews and peer learning on the functioning and performance of NCPs. We will ensure that our own NCPs are effective and lead by example."[27]

The NCPs are particularly interesting because of their role in helping to facilitate more responsible business conduct, and also because of their structure. Although all NCPs are government offices, they are not all structured in the same way. Some are housed in a single agency or ministry, such as the ministry of economy or trade. Other NCPs are inter-agency bodies, and some others have tripartite or quadripartite structures involving business, labour unions or civil society stakeholders.[28] This type of flexibility and creativity in regulatory structure and performance of function can be instructive in potential ways to address the operations of BFTs and large 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 LDCs in most international regulation forums and standards-setting bodies. A study of public consultations on the Basel banking standards, for example, showed that official and private actors from developing countries rarely account for more than 20 percent of respondents.[29] This is due to a series of factors such as limited regulatory knowledge and resources in developing countries; the continued focus and agenda-setting of an elite network of developed-country regulators; and limited engagement by developing-country private sector actors in the deliberations and resultant proposals of international standards-settingbodies.[30]

This should concern regulators and policymakers in both developing and developed countries. It should concern developing-country regulators because without participating in these forums, 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.[31] Conversely, developed-country regulators should be concerned that developing-country regulators are not participating in their standards-setting forums, because there are rapidly growing and innovative firms emerging from emerging market and developing economies which could well, in time, pose risks to international financial stability. As such, there needs to be a collective effort to enhance the skills and capacity of developing-country regulators on many of these issues, and to increase their engagement in standards-setting and regulatory processes at all governance levels.

e. Principle 5: Instilling a commitment to sustainable development

To enhance the responsible conduct of BFTs and to better support the attainment of the SDGs, governance frameworks and initiatives should require a board-level commitment of BFTs to incorporate the SDGs into business plans and models, particularly when operating in developing countries. This can be facilitated (and sometimes manifested) by greater multi-stakeholder coordination and collaboration. Regulators should and will increasingly even mandate it. As already discussed, regulators carry heavy burdens; therefore, there needs to be complementary action by the private sector. This action includes their assumption of responsibility for their impacts and their roles in facilitating sustainable development. Through a process of education, due diligence and disclosures, as discussed above, BFTs can support the attainment of the SDGs by:

- developing an awareness of BFT impacts on the SDGs;
- promoting positive and mitigating negative impacts on attaining the SDGs; and
- integrating these two activities into their core business models and operations.

26 Section I of the 'Decision of the OECD Council on the OECD Guidelines for Multinational Enterprises', June 2000, 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."

27 G7 Leaders' Declaration arising from the annual summit in Germany in June 2015.

28 OECD Watch, 'National Contact Points', https://www.oecdwatch.org/oecd-ncps/national-contact-points-ncps/.

29 Andrew Walter, 'Emerging Countries and Basel III: Why is Engagement Still Low', CIGI New Thinking and The New G20 Series, Paper No. 4 (Waterloo, ON, Centre for International Governance Innovation, 2015).

30 Ibid.

31 While a dated reference, see, for example, *Noreena Hertz, The Silent Takeover* (London, Arrow Books, 2001, p. 8), who reports that in 2001, 51 of the 100 largest economies in the world were corporations, while the other 49 were States; the largest 100 corporations controlled 20 percent of global foreign assets; and the general sales of Ford and General Motors were greater than the GDP of the whole of sub-Saharan Africa.

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

It is important to note a fine distinction between this principle and Principle 3, 'Fostering responsible actors': while the latter may take on more of a compliance and regulatory tone, this principle should generate more of an opportunity for BFTs and corporate actors more broadly. The UN Guiding Principles and OECD Guidelines are frameworks that seek to mitigate the potential negative impacts of corporate activity. They are sets of proscriptions and guard rails for corporate actors. The SDGs, on the other hand, are aspirational and actionable. They are targets set and supported by States for the collective betterment of individuals, communities and the environment by 2030. Achieving the goals requires concerted effort and entrepreneurialism across the public and private sectors. They will also require a considerable amount of financing to achieve. As such, while they seek to drive positive impacts and outcomes broadly, they also represent opportunities for corporations. This win–win scenario is worth promoting by devising a principles-based approach to the governance of BFTs.

III. Approaches to the design and implementation of a principles-based system: An assessment of international, regional and national legal frameworks

Having presented the principles that are central to balancing proportional governance of BFTs so as to contribute to the achievement of the SDGs, this section presents a range of organizational approaches to their implementation for international regulators and policymakers. In so doing, we discuss some of the advantages and disadvantages of these frameworks, which can be international, regional or national legal frameworks. After critically examining each framework, this section will argue that the adoption of BFT-related regulation should be based on international cooperation and respect for national regulatory goals.

a. International approaches: Hard and soft law

At the international level, regulators and policymakers can avail themselves of treaties and conventions, the most traditional forms of 'hard law' international law-making.[32] Treaties are adopted by States to create formally binding obligations that govern inter-State activity or national matters with international importance, such as the use of the high seas and the exploitation of maritime resources (e.g. United Nations Convention on the Law of the Sea), international commerce (United Nations Commission on International Trade Law treaties), aviation (e.g. Chicago Convention) and human rights (e.g. International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights).[33] Treaties are typically formed through diplomatic negotiations among States, and their drafting is often facilitated by international organizations that provide technical support.

As a way to address global regulatory challenges, the adoption of treaties has advantages and disadvantages. On the positive side, treaties form 'hard' international law, meaning that they impose legally binding obligations, and hence usually reflect a significant commitment on behalf of States to act in accordance with agreed rules.[34] Moreover, depending on the legal system in question, treaties can have direct legal effects in domestic legal systems such that domestic actors can rely on treaty provisions in national courts or other bodies.[35] Lastly, treaties can often be monitored and enforced by international organizations and courts, leading to more robust state accountability.[36]

In terms of disadvantages, States are often reluctant to join treaties. As breaches of treaty obligations may result in reputational and financial costs, States are often reluctant to join treaties that do not coincide with their interests or impose high compliance costs.[37] Further, the adoption of new treaties can be a slow and inflexible process due to difficulties surrounding inter-State diplomacy.[38] This, in turn, means that treaties are often ineffective in responding to rapidly evolving international or domestic issues.

32 Art. 38 of the statutes of the International Court of Justice.

33 See the United Nations Treaty Collection, https://treaties.un.org/.

34 On the social approach to the authority of international law, see Basak Cali, *The Authority of International Law: Obedience, Respect, and Rebuttal* (Oxford, UK, Oxford University Press, 2015, p. 10).

35 Geoffrey Shaffer and Mark Pollack, 'Hard vs. Soft Law: Alternatives, Complements and Antagonists in International Governance', *Minnesota Law Review* 718(94), 2010.

36 Ibid.; international financial law mechanisms sometimes feature similar characteristics, with the BIS being able to monitor implementation of the Basel Accords.

37 See, for example, Andrew Guzman, 'A Compliance-Based Theory of International Law', *California Law Review* 90(6), 2002, 1861. As for practical examples, see the refusal of China to comply with the South-China Sea arbitration award or the refusal of the United States to ratify the United Nations Convention on the Law of the Sea.

38 See, for example, Bertrand Goldschmidt, 'The Negotiation of Non-Proliferation Treaty', *IAEA Bulletin* 22(3/4), 1980.

These disadvantages of treaty-making also apply to international financial law, where central banks and other relevant regulators tend to cooperate through less formal mechanisms: the majority of international financial law takes the form of 'soft law'.[39] Unlike treaties, soft law does not impose legally binding obligations but relies on a political commitment of relevant actors to adhere to certain rules, policies or objectives.[40] This approach allows for more flexible policy adjustments and rapid responses to global economic, environmental and political developments.[41] This flexibility is one of the reasons why soft law may be well suited to govern a range of rapidly evolving issues, including sustainability and BFTs.

In addition to flexibility, soft law regimes tend to be more inclusive and involve governmental agencies, non-governmental organizations, international organizations, business associations and other actors that wish to negotiate and implement new soft law norms.[42] Soft law allows States and other actors to develop more robust and ambitious policy objectives, given that soft law regimes usually have less stringent enforcement mechanisms. Finally, even though soft law may not impose legally binding obligations, the implementation of soft law regimes is often facilitated by international political pressure and the existence of monitoring mechanisms. For example, implementation of international financial law is closely monitored by the G20, the FSB, the IMF, the World Bank and individual standard-setters, depending on the issue and organization membership in question.[43] Hence, even though soft law is not formally binding, States frequently incorporate soft law regimes into their national governance. There has also in many cases been a 'hardening' of soft law, through the use of a range of peer review and other external review mechanisms, including through the IMF/World Bank Financial Sector Stability Assessment process. In this context, the adoption of international soft law standards to govern BFTs could assist national regulators to harmonize and expand their existing regulatory frameworks.

b. Regional frameworks

At the regional level, organizations such as the EU are likely to play an important role in the governance of BFTs. Regional organizations tend to have fewer members than fully international organizations and tend to focus on the protection of regional economic, political, environmental and other interests. Such organizations also often have broader mandates due to the greater alignment of regional state interests and their more limited membership.[44] However, outside the EU, few regional arrangements are based on as strong institutional arrangements and commitments.

Regional organizations can have a range of advantages over larger organizations with more members. These can include quicker decision-making due to the smaller membership and greater alignment of political interests;[45] and smaller bureaucracies to implement decisions, making them more efficient and effective than their larger counterparts. Moreover, as some regional organizations have the power to adopt instruments and positions that are legally binding on all of their members, such organizations can harmonize the national legal frameworks of Member States and thus create greater regulatory consistency.[46] Finally, while regional organizations may be smaller than larger international organizations, this does not necessarily mean that they are less significant. The EU in particular has a significant influence on regulatory trends. The EU's Taxonomy of Environmentally Sustainable Investments and the General Data Protection Regulation (GDPR), for example, provide innovative national and international approaches to governance. A prime example of regional influence is the GDPR, which has led to a surge in new national data privacy regulations in countries as diverse as China, Turkey and Brazil.[47] We expect the same to happen with the EU Taxonomy of Environmentally Sustainable Investments. In this context, the adoption of BFT-related regulations at the regional level can both address regional regulatory objectives and lead the way for national and international rule makers.

Meanwhile, regional governance has two noteworthy drawbacks: extraterritoriality and regulatory fragmentation. As was discussed in technical paper 3.1, extraterritoriality describes the attempt to apply the laws in one jurisdiction to public and private actors in foreign jurisdictions.[48] Considering that international transactions and economic activities can involve multiple jurisdictions, regional and national laws can have an **effect** beyond their jurisdiction. For example, the GDPR can be applied to companies

39 See, for example, Basel Committee on Banking Supervision, *Basel III: A Global Regulatory Framework for More Resilient Banks and Banking System*s (Basel, Switzerland, Bank for International Settlements, 2010, p. 1); Christopher Brummer, 'Why Soft Law Dominates International Finance — And Not Trade', Journal of International Economic Law 13(3), 2010, 627.

40 Alan Boyle, 'Soft Law in International Law-Making', in Malcolm D. Evans (ed.), *International Law*, 2nd edition (Oxford, UK, Oxford University Press, 2006).

41 Ibid.; see, for example, Basel III and the 2008 financial crisis.

42 The precise list of actors involved depends on the nature of the soft law instrument in question (Geoffrey Shaffer and Mark Pollack, 'Hard vs. Soft Law: Alternatives, Complements and Antagonists in International Governance', Minnesota Law Review 718(94), 2010, 719).

43 See, for example, Ross Buckley and Douglas Arner, 'From Crisis to Crisis: The Global Financial System and Regulatory Failure', Kluwer Law International, 2011, University of Hong Kong Faculty of Law Research Paper No. 2012/002.

44 Anél Ferreira-Snyman, 'Regional Organisations and Their Members: The Question of Authority', The Comparative and International Law Journal of Southern Africa 186(42), 2009, 2.

45 See, for example, Andreas Follesdal, 'The Legitimate Authority Of International Courts And Its Limits: A Challenge To Raz's Service Conception?', in Capps, P. and Olsen H.P. (eds), Legal Authority beyond the State (Cambridge, UK, Cambridge University Press, 2018, pp. 193–194).

46 See, for example, Oxford Reference, 'Harmonization of Laws', https://www.oxfordreference.com/view/10.1093/oi/authority.20110803095921694.

47 See, for example, Gil Zhang and Kate Yin, 'A Look at China's Draft of Personal Information Protection Law' (International Association of Privacy Professionals, 2020). Available at https://iapp.org/news/a/a-look-at-chinas-draft-of-personal-data-protection-law/.

48 See Matthias Lehmann, 'Legal Fragmentation, Extraterritoriality and Uncertainty in Global Financial Regulation', Oxford Journal of Legal Studies 37(2), 2016, 407; International Chamber of Commerce, 'Extraterritoriality and Business', Policy Statement, 2006, pp. 2–3.

that are not registered in the EU but offer online or other services to EU residents.[49] Such extraterritorial application of national laws can increase the costs of regulatory compliance for both major companies and small- and medium-sized enterprises (SMEs), thus placing businesses in developing countries in a particularly vulnerable position.[50] Extraterritoriality is also closely connected to regulatory fragmentation. While regional organizations can set regulatory examples for other jurisdictions, the proliferation of multiple regional and national regulatory standards can lead to regulatory inconsistencies. This can be especially problematic if major economies adopt inconsistent regulations and thus increase regulatory burdens for developing economies wishing to enter their markets.[51]

Hence, regional policymakers should try to limit the impact of regulatory fragmentation and extraterritoriality on developing economies. As will be argued below, one way to achieve this goal is to align regional regulatory policies with broader international soft law standards. This would promote regulatory congruence across different jurisdictions and potentially mitigate some of the costs of regulatory compliance for developing economies.

c. National approaches

Finally, BFT-related regulations are likely to emerge at the national level. Countries including China, the United States, Brazil and Bangladesh have already initiated domestic processes to address antitrust, data and other risks associated with BFTs.[52] While these new initiatives do not always address the sustainable development impacts of BFTs, they are nonetheless relevant for sustainable development (e.g. in seeking to reduce negative socio-economic impacts of data abuses and digital monopolies).[53] Further, national regulators are increasingly involved in the development of ESG/SDG-related regulations that are potentially applicable to BFTs.

One of the arguments in favour of national regulation is its capacity to address local socio-economic and regulatory objectives. Contrary to international regulation that tends to prescribe broad policy directions, national regulation is typically tailored to a specific nation's needs.[54] In this context, national approaches can provide for more targeted and timely responses to specific national economic and sustainability goals. The national approach also allows for more flexibility, as regulators from different States do not have to coordinate among themselves to develop collectively acceptable regulatory policies. Hence, national regulators have more leeway in their approaches to regulatory policy development. This also means that national regulation typically can be adopted and enforced more rapidly than can regional and international regulation.

Concurrently, the above-mentioned issues of regulatory fragmentation and extraterritoriality of laws are even more problematic in the context of national regulation. One of the reasons for the adoption of international standards is their capacity to harmonize rules, approaches and standards among different jurisdictions, thus creating a predictable regulatory environment.[55] In the absence of international standards, the proliferation of different national standards is likely to create regulatory inconsistencies that can increase the costs of regulatory compliance and lead to regulatory arbitrage or fragmentation.[56] Combined with extraterritorial approaches from major jurisdictions, excessive reliance on purely national standards is likely to negatively impact developing economies, as they may struggle to meet different regulatory standards or be forced to comply with unfavourable regulations imposed by major economies.[57]

Having briefly discussed these various regulatory framework approaches to BFT governance, we suggest governance be developed at all levels—national, regional and international—and be guided at the international level. The development of an international regulatory standard would outline the general principles of BFT governance. Such a framework could initially be developed by the IMF, the World Bank, the BIS or other organizations—particularly involving developing countries—with appropriate expertise in BFTs and the SDGs. It would include appropriate principles and standards that regulators can then implement domestically. The specific ways to implement said international standard could then be developed nationally and regionally and involve the development of more specific requirements regarding the conduct of BFTs.

In this way, the existence of a general international framework will help to alleviate the problems of regulatory fragmentation and extraterritoriality by providing general regulatory policy directions while leaving leeway for national and regional regulators to tailor their regulations

49 See European Union, 'Does the GDPR Apply to Companies Outside of the EU?', https://gdpr.eu/companies-outside-of-europe/.

50 See generally Lehmann, Matthias Lehmann, 'Legal Fragmentation, Extraterritoriality and Uncertainty in Global Financial Regulation', Oxford Journal of Legal Studies 37(2), 2016, 407; see also Financial Stability Board, FSB Report on Market Fragmentation (Basel, Switzerland, 2019, p. 8).

51 Ibid.

52 See, for example, Leo Xin, 'China Drafts New Antitrust Guideline for Internet Companies', Pinsent Masons, Out-Law News, 2020; and State Administration for Market Regulation, 'Antitrust Guidelines on the Platform Economy Field', Draft for Solicitation of Comments, 2020, http://www.samr.gov.cn/hd/zjdc/202011/t20201109_323234.html.

53 Bank for International Settlements, 'Chapter 3: Big Tech in Finance: Opportunity & Risks', Annual Economic Report (Basel, Switzerland, 2019, p. 73).

54 For example, States can comply with the Basel Accords and also go beyond their requirements in their pursuit of national regulatory objectives.

55 Financial Stability Board, FSB Report on Market Fragmentation (Basel, Switzerland, 2019, p. 8); and Matthias Lehmann, 'Legal Fragmentation, Extraterritoriality and Uncertainty in Global Financial Regulation', Oxford Journal of Legal Studies 37(2), 2016, 407.

56 Financial Stability Board, FSB Report on Market Fragmentation (Basel, Switzerland, 2019, p. 8).

57 See, for example, Emily Jones and Peter Knaack, The Future of Global Financial Regulation, Preliminary Draft (Basel, Switzerland, Financial Stability Board, 2017, p. 11). Available at https://www.fsb.org/wp-content/uploads/Jones_Knaack.pdf.

to national and regional needs. This flexibility for national and regional regulators should be considered in light of the need to promote varied and appropriate collaborations with other supervisory actors and authorities.

IV. Regulatory approaches to BigFintechs: A toolkit

We next consider the spectrum of regulatory approaches that can be deployed to govern BFTs—specifically, building a toolkit of approaches that can be used in different contexts as necessary to best maximize positive SDG impact and minimize negative SDG impact.[58] We argue that successfully regulating BFTs will involve defining the limits of technological concentration to ensure prudent investor protection and maintain well-functioning markets. This is particularly so given the current trajectory towards ever larger platforms, as evidenced by an approach which China is now following in the context of Ant and other digital finance platforms in China.

Regulatory approaches can be seen on a spectrum of permissiveness and restrictiveness, with *laissez-faire* at one end of the spectrum and prohibition at the other. In between lie a range of approaches: active encouragement such as industrial policy, infrastructure development or innovation hubs; test-and-learn approaches such as piloting or sandboxes; self-regulation; minimal registration or licensing; disclosure; co-regulation; internal governance requirements; external monitoring via penalties and enforcement; graduated proportional regulation; public utility regulation; and structural reform such as unbundling or nationalization. These approaches can apply in the context of market failures, public goods and externalities across the range of policy considerations raised by BFTs, including financial sector policy, competition and antitrust policy, communications and technology policy, data protection policy and sustainable development policy.

a. Permissive and facilitative approaches: Laissez-faire, encouragement and test-and-learn

a.i. Laissez-faire

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

Alternately, a do-nothing approach could simultaneously accelerate financial innovation **and** exacerbate data-driven market dynamics. China, especially before 2015, is often highlighted as the leading, and a highly successful, example of the permissive approach with regard to Fintech.59 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,[60] 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. That growth has led, since 2015, to a much more cautious regulatory approach.[61] Most notably, during its unregulated period, Alibaba laid the foundation for forming the world's largest financial ecosystem (measured by its number of clients). In the context of BFTs, however, a *laissez-faire* approach would be likely to further the growth of existing platforms. This approach has been the one taken in most countries so far but has the potential to result in undesirable winner-takes-all outcomes, an outcome that appears to be emerging prominently in the United States and China, as well as in other countries around the world.

a.ii. Encouragement and support

Beyond simply a permissive approach, governments around the world are increasingly considering ways in which to directly support innovation, particularly through research and development spending, as well as early-stage finance and investment. In addition, recognizing the importance of data to future innovation, development and competitiveness, regulators and policymakers are considering ways in which to support the role of data in sustainable development and the SDGs. The most developed of these relate to 'open banking', 'open finance' and 'open data', with the EU, the United Kingdom and Australia having the most developed approaches so far. Others—such as China—are considering ways to maximize the benefits of data for future innovation and development—for instance, by recognizing data

58 See Dirk A. Zetzsche, William Birdthistle and Douglas W. Arner, 'Digital Finance Platforms: Toward a New Regulatory Paradigm', University of Pennsylvania Journal of Business Law 23(273), 2020.

59 See Weihuan Zhou, Douglas Arner and Ross Buckley, 'Regulation of Digital Financial Services in China: Last Mover Advantage?', Tsinghua China Law Review 8(25), 2015, 27–28 (arguing that the Chinese regulations of digital financial services before 2015 lack detailed and comprehensive provisions); Douglas Arner, Janos Barberis and Ross Buckley, 'The Evolution of FinTech: A New Post-Crisis Paradigm?', Georgetown Journal of International Law 47(1271), 2017, 1298–1299 (arguing that due to the adoption of a largely commercialized financial system, there has been a rapid growth in the number of peer-to-peer lending platforms in China since 2009); Weihuan Zhou et al., 'China's Regulation of Digital Financial Services: Some Recent Developments', Australian Law Journal 90(297), 2016 (arguing that the regulatory work has progressed slowly to enable the rapid growth of digital financial services in China).

60 See Christian Haddad and Lars Hornuf, 'The Emergence of the Global FinTech Market: Economic and Technical Determinants', Working Paper No. 6131 (Munich, Germany, CESifo GmbH, 2016, p. 20). Available at https://perma.cc/Y528-7U79 (arguing that the soundness of the financial system has a negative effect on Fintech start-up dynamics—i.e. financial systems with many deficits provide a vibrant environment for start-ups).

61 Weihuan Zhou, Douglas Arner and Ross Buckley, 'Regulation of Digital Financial Services in China: Last Mover Advantage?', *Tsinghua China Law Review 8*(25), 2015, 27.

as a public good or commons which can then be used across society. Similar discussions are taking place in the technological context, particularly in discussions of the potential role of decentralization and blockchain.

a.iii. Test-and-learn: Piloting, sandboxes and innovation hubs

In the specific context of Fintech innovation, test-and-learn approaches—including piloting, regulatory sandboxes and special charters and licences[62]—have been discussed as methods to support balanced innovation.[63] As discussed in Principle 2 (developing reflexive and iterative regulation) above, 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 large TechFins or BFTs, 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, a countervailing argument is the promotion of new financial services by smaller players whose smaller footprint could have disproportionately large impacts in advancing particular SDGs in developing countries. Moreover, BFTs will most likely continue to innovate and provide new offerings that would ideally be tested within sandboxes to minimize potential negative and disruptive impacts.

b. Minimal regulation

A second regulatory approach could focus on enhancing competition to ensure that competitive market forces play a beneficial role rather than contribute to an already concentrated financial sector. Pro-competition measures have been considered with regard to information technology (IT)/software,[64] critical financial market infrastructure (FMI) such as payment, clearing and settlement systems,[65] and in 'open banking' initiatives.[66] This section will review some of the pro-competition strategies that regulators can choose to adopt in their pursuit of BFT governance.

b.i. Mandating access

Regulation could aim to secure 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.[67] In this regard, Principle 18 of the International Organization of Securities Commission principles on access to the services of critical infrastructure providers is relevant:

> "[a]n FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavor to set requirements that have the least-restrictive impact on access that circumstances permit."[68]

One special feature that could allow for competition while keeping the benefits of digital finance platforms intact is subjecting dominant firms to an open data requirement that allows innovative competitors to offer services, making use of existing data pools rather than building new (and expensive) data pools. We discuss this type of mandatory access in Section IV.b.iv.

62 A regulatory sandbox is a safe space in which innovative Fintech applications can be tested with sharply reduced regulatory requirements (subject to certain pre-conditions). An innovation hub is a portal that facilitates access of industry to regulators and seeks to promote bespoke regulation, no-action letters and other dispensations on a case-by-case basis. Special charters are authorizations to conduct Fintech-type businesses without having to comply with the full panoply of financial regulation, though subject to special limits. See generally Ross P. Buckley et al., 'Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond', *Washington University Journal of Law and Policy* 61(55), 2020, 56–61 (introducing regulatory sandboxes and innovation hubs in Fintech regulations).

63 See Hilary J. Allen, 'Regulatory Sandboxes', *George Washington Law Review* 87, 2019, 579–645 ("Regulatory sandboxes offer an environment in which Fintech entrepreneurs can conduct limited tests of their innovations with fewer regulatory constraints, real customers, less risk of enforcement action, and ongoing guidance from regulators."); Chris Brummer, 'Disruptive Technology and Securities Regulation', Fordham Law Review 84(977), 2015, 1047–1051 (arguing that innovation hubs provide businesses with individual guidance and additional support to help developers understand the regulatory framework); Chris Brummer and Yesha Yadav, 'FinTech and the Innovation Trilemma', Georgetown Law Journal 107, 2019, 235–307 (offering a general introduction of innovative regulatory strategies to navigate the policy trilemma in regulating Fintech); Kathryn Judge, 'Investor-Driven Financial Innovation', Harvard Business Law Review 8(291), 2018, 334–341 (providing an overview of the different innovative regulations in Fintech); Saule Omarova, 'New Tech v. New Deal: FinTech As A Systemic Phenomenon', Yale Journal on Regulation 36, 2019, 735–793 (introducing how Fintech has eroded the New Deal settlement, and the need for a novel conceptual framework); W.J. Magnuson, 'Regulating FinTech', Vanderbilt Law Review 71, 2018, 1168–1226 (calling for a wide-ranging reconceptualization of financial regulation in Fintech); Dirk A. Zetzsche, William Birdthistle and Douglas W. Arner, 'Digital Finance Platforms: Toward a New Regulatory Paradigm', University of Pennsylvania Journal of Business Law 23(273), 2020, passim (discussing new regulatory approaches in Fintech).

64 See, for example, Luca Rubini (ed.), 'Microsoft on Trial: Legal and Economic Analysis of a Transatlantic Antitrust Case', New Horizons in Competition Law and Economics (Cheltenham, UK, and Northampton, MA, Edward Elgar, 2010), *passim* (introducing the pro-competition measures used to regulate dominant technology players such as Microsoft).

65 See, in particular, Bank for International Settlements and International Organization of Securities Commissions, *Principles for Financial Market Infrastructures* (Basel, Switzerland, April 2012, p. 101). Available at https://www.bis.org/cpmi/publ/d101a.pdf (discussing access conditions by providers of FMI).

66 See Markos Zachariadis and Pinar Ozcan, 'The API Economy and Digital Transformation in Financial Services: The Case of Open Banking', Working Paper No. 2016-001, pp. 2–23 (London, SWIFT Institute, 2017). Available at https://perma.cc/5N4L-VHFV (discussing the challenges and opportunities that open application programming interfaces bring to the open banking sector).

67 See, for example, *United States v. Microsoft Corp.*, 231 F. Supp. 2d 144 (D.D.C. 2002) (settling the year-long US 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).

68 Bank for International Settlements and International Organization of Securities Commissions, Principles for Financial Market Infrastructures (Basel, Switzerland, April 2012, p. 101). Available at https://www.bis.org/cpmi/publ/d101a.pdf.

b. ii. Diversification

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

b. iii. Rotation

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

b. iv. Open data

Regulators could mandate that BFTs and other incumbents grant new entrants access to client account data; the new entrant could then reduce a client's switching costs by securing smooth tech migration. While standardization of client data is a crucial precondition for smooth migration,[69] doubts remain about whether in fact small, innovative new entrants would benefit from such a rule. For example, there is some evidence from the EU's Open Banking Initiative that suggests that access to client data appears to facilitate the market access of large technology companies that have resources to (1) attract a sufficient number of new clients **and** (2) programme large-scale data transfer interfaces.[70]

We thus propose requiring open client data from firms with a strong, potentially dominant position, regardless of their sector of origin. In an effort to hamper the further concentration of financial service provision, an open data requirement paired with a data governance requirement that enables data administration on a standardized basis could be attached once the market share exceeds, say, 5 percent in any given financial market, to break into the data-based economies of scale and allow easier entry for smaller competitors.

b. v. Unbundling of services and prices

Another regulatory strategy would be to mandate separate service pricing and an option for consumers to source distinct and separate services from different digital finance platforms. Unbundling seeks to separate fees for different services previously sold as a package and prohibit hidden bundling rebates ('tying'). Unbundling has two different goals. First, the price of a single service becomes transparent, allowing new entrants to review whether they can compete by offering a better single service, if they cannot compete with the whole platform. Second, unbundling prohibits the cross-subsidization of some services from the proceeds of other services for which there may be more competition.

Unbundling as a regulatory requirement, however, must be handled with care. Unbundling reduces some efficiencies that stem from bundled consumer contacts and the better data inherent in handling services simultaneously.[71] After all, unbundling involves ripping the integrated platform apart, though its very integration is one of its main benefits. Regulators imposing unbundling requirements face the further difficulty of determining which part of a service may be untied at what point in time, without impeding innovation based on disintermediation. The more interventionist variant of unbundling in which the offering of some services together with others would be prohibited is a stronger alternative.

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

70 See Dirk Zetzsche, Douglas Arner, Ross Buckley and Rolf Weber, 'The Evolution and Future of Data-Driven Finance in the EU', *Common Market Law Review* 57(331), 2020 (analysing the facilitation of open banking in the EU to enhance competition in banking and payments).

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

b. vi. Merger control

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

c. Moderate regulatory interventions: Designation as a regulated industry

Among moderate regulatory interventions, regulators have at their disposal various types of command-and-control, self-regulatory and co-regulatory approaches. The approach will depend on the stage of evolution of any given platform. In general terms, the greater the scale and/or significance of a digital finance platform, the stronger the case for an intervention.[72]

c. i. Direct regulation

1. Regulating financial data-gathering and analytics

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

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

2. Code review by regulators

A different regulatory approach could focus on the underlying code—i.e. its technical functionality. Supervisory agencies could seek to understand the technology and require additional code aimed at meaningfully balancing private incentives with public interests. For example, regulators can choose to monitor credit risk assessment software for hidden gender, race or other biases and require companies to amend the underlying code if such biases are detected. Such a code-focused approach would ask much from regulators trained in financial and legal matters yet will almost certainly be necessary.[73]

c. ii. Self-regulation

Self-regulation is a critical means of drawing on the knowledge of participants when regulators reach the limits of their own expertise. FMI providers thus typically establish a common set of rules and procedures for all participants, a technical infrastructure and a specialized, customized risk management framework.[74] While these rules and procedures often take a contractual format, a self-regulatory approach could formalize the adoption and amendment of these rules and establish a minimum publication and notice period. Regulators could use these frameworks to enhance control over platforms.

The downside of self-regulation is the dependency of the 'self-regulated constituency' on adopting rules. Where the collective private and public interests collide, we might expect few serious efforts at self-regulation. In particular, although we might see the establishment of basic investor protections, the provider and its participants have little interest in slowing growth by curtailing the network effects from which they benefit, and so will do little to combat antitrust concerns and size-based systemic risk. Self-regulatory organizations thus face the tension between remaining light-touch and interest-friendly or turning, like the Financial Industry Regulatory Authority (FINRA),[75] into more of a public oversight body focused on technicalities **in addition to** mandatory regulation.

72 For guidance, see Bank for International Settlements and International Organization of Securities Commissions, P*rinciples for Financial Market Infrastructures* (Basel, Switzerland, April 2012, pp. 12–13). Available at https://www.bis.org/cpmi/publ/d101a.pdf (discussing the applicability and proportionality of the FMI principles).

73 We have considered the issues of how regulators can address cyber risks elsewhere. See Ross P. Buckley, Douglas W. Arner, Dirk A. Zetzsche and Eriks Selga, 'The Dark Side of Digital Financial Transformation: The New Risks of FinTech and the Rise of TechRisk', *Singapore Journal of Legal Studies*, 2020 (offering ways to address the emerging security risks that result from technical innovation and digitization of finance).

74 Bank for International Settlements and International Organization of Securities Commissions, *Principles for Financial Market Infrastructures* (Basel, Switzerland, April 2012, p. 7). Available at https://www.bis.org/cpmi/publ/d101a.pdf (defining FMIs and describing their function and the range of their features).

75 See William A. Birdthistle and M. Todd Henderson, 'Becoming a Fifth Branch', *Cornell Law Review* 99(1), 2013, 12–23 (analysing the evolution of FINRA from a self-regulatory organization to a quasi-governmental organization).

c. iii. Co-regulation

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

> "mechanism whereby [a] legislative act entrusts the attainment of the objectives defined by the legislative authority to parties which are recognized in the field (such as economic operators, the social partners, non-governmental organizations, or associations) by setting objectives to be attained but their achievement is entrusted to non-public actors in economic and social domains".[76]

Co-regulation has been discussed as potentially effective for non-financial platform industries, through its inclusion of a broad pool of innovators "in the articulation, execution and evolution of policy, law, norms development, oversight and regulation",[77] leading to more balanced views. One example is agreements between local authorities and Airbnb on the collection of tourist tax.[78]

For BFTs, 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 behaviour. Thus, although co-regulation could be a way to implement moderate investor protection and national security measures, it may be less effective with regard to the competition and financial stability concerns we have outlined.

d. Public utility regulation

d.i. Public utility status

In line with scholarship on platform industries,[79] BFTs 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 such limits in a highly innovative, rapidly growing environment such as digital financial services will face potentially insurmountable challenges.

A less intrusive form of public utility status is the designation of certain systems as Financial Market Utilities, requiring advanced risk management methods, intensified supervision and advance notice of rule changes.[80] These rules were drafted for clearing organizations and central counterparties and would need amendments to reflect, among others, the data and liquidity dimension of BFTs. This is the approach being taken in China in the context of Ant and other digital finance platforms: designating them as systemically important financial institutions—for instance, at the holding company level, where a new group regulatory approach has been introduced—and subject to higher regulatory and supervisory attention.

d.ii. Participation/ownership of public agencies

As a form of indirect regulation, supervisory authorities could become significant shareholders or operators of a digital finance platform. Examples include real-time gross settlement payment systems in which the technology core is developed with the involvement of central banks, which in some cases, also engage in operations. Similar approaches are now being seen in an increasing number of jurisdictions at the retail level with 'fast payment systems'.[81] Putting aside the obvious capacity constraints of many competent authorities, having a stake in a digital finance platform at the same time brings potential informational advantages for a central bank or other regulatory agency.

On the downside, authority stakes in a platform create a potentially undesirable outcome: the platform in which a central bank or other authorities take a stake is likely to be a monopolist. This monopolist will likely leave little room for additional market-led innovation. Government investment makes the most sense in markets where competition is unlikely to develop in the first place, such as where existing financial institutions are insufficiently funded or tech expertise is scarce,[82] or where competition

76 See Michèle Finck, 'Digital Co-Regulation: Designing a Supranational Legal Framework for the Platform Economy', LSE Legal Studies Working Paper No. 15 (London, London School of Economics, 2017). Available at https://perma.cc/55E5-EQUD (defining co-regulation).

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

78 See the list of examples by Michèle Finck, 'Digital Co-Regulation: Designing a Supranational Legal Framework for the Platform Economy', LSE Legal Studies Working Paper No. 15 (London, London School of Economics, 2017, pp. 15–18). Available at https://perma.cc/55E5-EQUD.

79 See K. Sabeel Rahman, 'The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept', *Cardozo Law Review 39*(1621), 2018, 1634 (arguing that public utility concepts offer a framework for understanding and contesting private power in a variety of sectors, including the financial and platform markets); K. Sabeel Rahman, 'Regulating Informational Infrastructure: Internet Platforms as the New Public Utilities', Georgetown Law Technology Review 2(234), 2018, 240–246 (detailing how the utility concept applies to Internet platforms).

80 Board of Governors of the Federal Reserve System, 'Designated Financial Market Utilities', 2015, https://www.federalreserve.gov/paymentsystems/title-viii-dfa.htm.

81 Anton Didenko, Dirk A. Zetzsche, Douglas W. Arner and Ross P. Buckley, 'After Libra, Digital Yuan and COVID-19: Central Bank Digital Currencies and the New World of Money and Payment Systems', Working Paper No. 65 (Frankfurt, Germany, European Banking Institute, 2020, p. 9). Available at https://perma.cc/UQN9-T6Y3.

82 We find these preconditions often met in developing and emerging economies. This explains why India's central bank has developed and functions as operator of core infrastructure for financial services through public–private partnerships such as the National Payments Corporation of India (NPCI). See National Payments Corporation of India, 'About Us', https://www.npci.org.in/who-we-are/about-us (describing the NPCI as a not-for-profit umbrella organization for all

is undesirable because all financial institutions must meet the same standard to reduce **their customers** transaction costs (such as in payment systems).

e. Unbundling

A more interventionist approach would mandate unbundling. Unbundling is well established as a competition/antitrust measure, yet financial law also frequently imposes it. Some contend, indeed, that a 'core principle' of banking law is the 'separation of banking and commerce'.[83] At least in the United States, firms that own or control a US bank are prohibited from engaging in business activities other than banking or managing banks.[84]

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

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

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

retail payments in India).

83 See Saule T. Omarova, 'The Merchants of Wall Street: Banking, Commerce, and Commodities', *Minnesota Law Review* 98(265), 2013, 274–275 (outlining the policy rationale for separating banking from certain commercial activities); see also Lina M. Khan, 'Amazon's Antitrust Paradox', *Yale Law Journal* 126(710), 2017, 794; Bernard Shull, 'Banking and Commerce in the United States', *Journal of Banking and Finance* 18(255), 1994, 267, reprinted in Bernard Shull, 'Banking and Commerce in the United States', *Journal of Reprints for Antitrust Law and Economics* 27(359), 1997, 371 (reviewing the historical relationship between banking and commerce and the policies underlying their separation).

84 See Lina M. Khan, 'Amazon's Antitrust Paradox', *Yale Law Journal* 126(710), 2017, 794 (stressing the similarity of these rules with antitrust and competition policy objectives and stating that the main justifications for preserving the separation between banking and commerce include "the needs to preserve the safety and soundness of insured depository institutions, to ensure a fair and efficient flow of credit to productive [businesses], and to prevent excessive concentration of financial and economic power in the financial sector").

f. Prohibition

Given that BFTs can provide both crucial infrastructure for financial markets and enormous benefits in the drive towards sustainable development, prohibition is unlikely to be an appropriate option in most cases.[85] With that said, many jurisdictions have sought to prevent or limit the entry of foreign BFTs. Nevertheless, while various regulatory approaches may be valid, prohibition will generally not be in the interests of sustainable development.

V. Conclusion

The rapid rise of BFTs and the dawn of Fintech 4.0 have taken many by surprise. This is particularly so in relation to their impacts on achieving sustainable development. There is recognition of the many advantages that their innovation can bring, particularly as the world grapples with the global COVID-19 pandemic and accepts the onset of a digitalized world much sooner than expected. Existing development agendas and initiatives, such as the SDGs, the Addis Ababa Action Agenda and the Bali Fintech Agenda, acknowledge the importance of sustainable development and the role that Fintech can play in helping to achieve it. However, there has not yet been a broader and more systematic consideration of the associated impacts that Fintech—and BFTs, more specifically—can have on social, economic and political domains. There has also been no discussion or strategy developed as to how those impacts can either be enhanced if positive or mitigated and avoided if negative. This collection of technical papers contributes to bridging those gaps by providing an overview of the pertinent issues that regulators and policymakers should consider at the nexus of sustainable development and BFT governance. More specifically, in this paper we have provided a principles-based approach to addressing those challenges, an overview of the legal frameworks through which regulation can be promulgated, and a suite of more specific regulatory techniques that can be deployed.

Subsequently, in this conclusion we canvas both broad and more specific recommendations for potential future regulatory pathways. Broadly, regulators will have to tailor their policies to their specific spheres of influence and their regulatory capacities. Some jurisdictions may benefit from rapid financial and technological innovation where a laissez-faire approach or adoption of regulatory sandboxes may be most appropriate. Other jurisdictions with more developed financial and technology markets may benefit from more moderate approaches with compulsory

85 See Dirk A. Zetzsche, Ross P. Buckley, Douglas W. Arner and Linus Föhr, 'The ICO Gold Rush: It's a Scam, it's a Bubble, it's a Super Challenge for Regulators', University of New South Wales Law Research Paper No. 17-83, 2017, pp. 305–306 (discussing prohibition as one policy choice regarding initial coin offerings).

licensing and publicly mediated self-regulation.[86] In this context, this paper's first two principles are important, as they highlight the need for both establishing the foundational financial regulations and creating reflexive and context-sensitive regulatory policies.

It is clear that new technologies and platforms can have transformational impact, and this is being increasingly recognized in international policy approaches and discussions—for instance, in the context of the G20 Payments Roadmap initiative, the creation of the BIS Innovation Hub, and ongoing processes relating to BigTechs and finance of the United Nations, the IMF, the World Bank, the FSB and others.

Going further, in choosing an appropriate regulatory strategy, financial, data and competition regulators should ensure that their decisions are consistent with the SDGs, as highlighted in principles 3 and 5. Different approaches to regulation can directly impact sustainable development by contributing to, among other things, financial inclusion, economic growth and infrastructure development.[87] 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 negatively affect the attainment of the SDGs. This is particularly relevant in the context of reflexive regulation, since some regulatory strategies can lead to different results in different jurisdictions.

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

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

Second, national governments should consider the establishment of inter-agency teams and units that can work congruently on issues that relate directly to BFT governance within their jurisdictions. For example, this could entail representatives from the ministries of finance, justice and international affairs, among others, coordinating relevant policy and regulation that address the full gamut of BFT 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 of engagement with the international Bali Fintech Agenda working group/committee. As such, there would be clear and effective channels through which both global and local action could be taken in this rapidly developing space of digital platform growth.

Regional organizations and national governments should support industry adoption of responsible business frameworks, such as the United Nations Guiding Principles and the OECD Guidelines, and seek stronger public–private collaboration for implementation of the SDGs. National governments should consider requiring adherence to these frameworks as conditions of granting BFT licences to operate within their jurisdiction. After all, the United Nations Guiding Principles, for example, were unanimously endorsed by the United Nations Human Rights Council when first introduced in 2011. This will support implementation of principles 3 (fostering responsible actors) and 5 (instilling a commitment to sustainable development).

Finally, the complexity and challenges of BFT governance mean that this is a subject on which developing countries may well need assistance. As technical papers 3.1 and 3.2 highlight, such countries may lack the capacity to effectively monitor BFTs domestically or enforce inconsistent or high-cost international and transnational regulations. As principles 3 and 4 highlight, cooperation among regulators will be important not only to avoid 'regulatory arbitrage' and to achieve effective and consistent regulation of BFTs, but also to maximize their potential to benefit SDG progress while minimizing SDG risks.

86 See generally Ross Buckley and Douglas Arner, 'From Crisis to Crisis: The Global Financial System and Regulatory Failure', Kluwer Law International, 2011, University of Hong Kong Faculty of Law Research Paper No. 2012/002.

87 See, for example, J.J. Goo and J.Y. Heo, 'The Impact of the Regulatory Sandbox on the Fintech Industry, with a Discussion on the Relation between Regulatory Sandboxes and Open Innovation', *Journal of Open Innovation: Technology, Market, and Complexity* 6(2), 2020, 43; L. Van Hove and A. Dubus, 'M-PESA and Financial Inclusion in Kenya: Of Paying Comes Saving?', Sustainability 11, 2019, 2.

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