

Blockchain Governance and Regulation as an Enabler for Market Creation in Emerging Markets

Developing a proper governance and regulatory framework for blockchain-based applications will be essential to providing market participants the stability they need to fully engage with the technology, and allowing innovation to flourish. Given the global, multi-sectoral reach of blockchain, regulators and industry will have to work in a collaborative manner to ensure they can both experiment and learn, and so shape the future of the technology in a way that benefits all parties and society as a whole.

Blockchain has the potential to enhance competitiveness and increase connectivity across markets, increase inclusion of underserved market segments, boost sustainability and transparency of global supply chains, and build resilience against external attacks—all of which are necessary to the creation of markets.¹ The global regulatory environment has been slow to adapt to the technology, hindering its growth.

Previous EMCompass Notes (Notes 40, 41, 43, 44 and 45) argued that blockchain, a distributed ledger technology, can create new markets and products across emerging and developing economies, and thereby presents an opportunity to leapfrog the developmental cycle.

Blockchain promises to make peer-to-peer (P2P) transactions more transparent, global, and inclusive. This, in turn could empower a sharing economy that challenges powerful digital platforms such as Google, Amazon, Facebook, and Apple,² as well as Baidu, Alibaba, Weibo, and Tencent. Market incumbents see blockchain as both an opportunity and a threat, and so are moving into the space, as witnessed by the proliferation of blockchain initiatives by these firms.

Yet leapfrogging requires a proper regulatory environment to stimulate competition, investment, and innovation.³ If blockchain-enabled markets are to come to life, regulators and businesses must work together. Regulators should think more like innovators and adapt quickly to the fast-paced nature of the ecosystem, while businesses should strive to think more like regulators and assume governance

responsibility, creating ground rules to protect the reputational integrity and the value of the ecosystem.

The 2017 exuberance surrounding cryptocurrencies and Initial Coin Offerings (ICOs) has led to greater scrutiny due to the fraudulent nature of many ICOs. This has marred the reputation of cryptocurrencies in particular and blockchain by association, mobilized a defensive response from regulators against potential risks, and detracted attention from the efforts of serious players developing useful applications.

As a result, some investors will be hesitant to significantly finance new blockchain-enabled business models. Moving forward, if blockchain-enabled markets are to mature, policymakers and businesses must create the rules of engagement together. Regulators should provide guiding principles to attract private-sector investors, ensure consumer protection and citizens' rights, and provide safeguards against anti-competitive practices.⁴ The private sector can undertake initiatives to ensure industry-wide interoperability and compliance with existing legislation and overall public-sector objectives such as the collection of taxes and the prosecution of illicit activities.⁵

For burgeoning technologies such as blockchain, finding a balance between risk mitigation and innovation will not be straightforward. As long as distributed ledger technology (DLT) is applied by businesses to marginally improve existing processes, current legislation should suffice, as those

processes are already subject to regulatory requirements. By contrast, highly disruptive use cases springing out of the blockchain ecosystem, with new and at times unpredictable technology and business models, will be far more difficult to regulate through current legislative frameworks.

Adopting definitive legislation at this early stage may be premature and hamper future innovation. And yet, legislators can't afford to do nothing in the face of blockchain's growth. They will need to think outside the conventional legislative toolbox and innovate, as happened in the early days of the Internet.⁶ Collaboration will be key, with participation by public authorities and industry to accommodate the multi-sector, cross-border nature of the technology.

Regulation and self-governance

There are two primary ways to regulate a market: regulation and private rule-making or self-governance.⁷ The first occurs through public regulators enacting legally binding statutes, also known as "hard law." The second is through private actors that self-regulate or co-regulate, or "soft law." National and supranational entities exercise statutory oversight with a wide or specific mandate in their jurisdiction. Actors may prefer "soft law"⁸ or rulemaking by private parties, as a more flexible approach to dealing with uncertainty and finding compromise among different actors.⁹ In the finance industry, an example of the latter is Visa's Core Rules, where the rules govern the actions of participants using the Visa payment system.¹⁰ A hybrid example is the Basel Committee on Banking Supervision and the Financial Stability Board bringing policymakers from around the world to reach accords that can be translated into legislation in specific jurisdictions.¹¹

Public policy perspective: Key regulatory challenges

Until early 2017, actors in the blockchain ecosystem operated with little regulatory oversight.¹² The second half of that year saw an exponential rise of dubious ICOs and bitcoin speculation, forcing regulators to take action due to the possibility of cryptocurrencies being used for tax evasion, fraud, and other illicit ends. Although regulators have become more vocal, issuing warnings to industry players as well as investors, blockchain's terminology is still evolving, complicating the legal classification of its assets.¹³

Attempting to regulate a permissionless system like bitcoin, where there is no controlling legal entity, is a complicated task. Consequently, regulation so far has targeted cryptocurrency business applications such as exchanges

and wallet providers.¹⁴ In contrast, for permissioned DLTs where access is conditional and the participants are pre-screened, the existing regulatory framework should be able to provide sufficient oversight since the actors already submit to regulatory obligations (see EM Note 40 for a description of permissioned and permissionless networks). According to international law firm Hogan Lovells, "arguably, supervisory oversight is less necessary in regards private blockchains (notwithstanding antitrust and competition matters, or powers necessary to supervise possible illegal activities)."¹⁵

Regulatory authorities are thus faced with different challenges, depending on the sector and their mandate (Figure 1), and whether the blockchain is public or private. The paradox is that the same features of distributed ledger technology that can be forces for improvement and efficiency can also engender risks, depending on how the technology is used. This makes clear-cut answers on regulation extremely difficult. While deliberation on these issues is taking place

- 1 Anonymity reduction through KYC, AML and CFT Directives
- 2 Legal nature of DL including territoriality and liability
- 3 Recognition of DL as immutable tamper-proof sources of truth
- 4 Conciliation of "Right to be forgotten" and DL immutability
- 5 Legal validity of documents stored in a DL as proof of possession or existence
- 6 Legal validity of financial instruments issued on a DL
- 7 Real-world enforceability, territoriality and liability of smart contracts
- 8 Treatment of shared information in DL from the perspective of cross-border flow of data and data protection
- 9 Use of DL as a valid ruling register for the IoT
- 10 Regulatory reporting information standards definition on the blockchain
- 11 Definition of a regulatory sandboxes approach to test

FIGURE 1 Distributed Ledgers' Main Regulatory Challenges

Source: BBVA Research, 2016. CIT = Combating Financing Terrorism; DL = Distributed Ledger; IoT = Internet of Things.

in many forums, a consensus around some key guiding principles has yet to emerge. Nevertheless, there are cross-cutting challenges that require guidance and potentially regulatory oversight. These include (but are not limited to):

Cross-jurisdictional harmonization. Distributed ledger technology has by its very nature a global, cross-jurisdictional deployment. It requires regulators and lawmakers to collaborate across national borders to harmonize legal and regulatory regimes, while managing potential risks, including issues of monopolies and market manipulation.¹⁶ Addressing these would require significant legal and organizational changes and a mechanism for collaboration to ensure alignment.

Security and data privacy. The distributed nature of public blockchains provides greater safeguards against potential external attacks and promises enhanced security. However, regulators fear that the system's anonymity for users could encourage illicit activities such as money laundering and terror financing. Another concern is the compatibility of blockchain with the 'right to be forgotten' in the EU General Data Protection Regulation (GDPR), given the immutability of data on a public blockchain.

These are some of the frictions emerging between the potential benefits and risks associated with the technology, for which there is no immediate policy recommendation. In private blockchains, accessibility can be controlled by design and participants can 'opt in' to the desired level of disclosure and shared access. Hyperledger Fabric and R3's Corda, both examples of permissioned DLTs, allow participants to control who can see what information about transactions submitted to the ledger.¹⁷

Anti-money-laundering and illicit financing. Well-designed distributed ledgers could improve compliance with anti-money-laundering (AML) and know-your-customer (KYC) requirements, provided they include a secure identity system.¹⁸ However, given that false identities can hide behind the anonymity of open blockchains, and their past use for illicit activities, authorities in 2015 began to provide specific anti-money-laundering guidance and crack down on illegal activity linked to digital currencies.

The U.S. Financial Action Task Force (FATF) has urged virtual currency exchanges to comply with AML legislation by recording customer identities and conducting enhanced due diligence. European governments, in coordination with the Organisation for Economic Co-operation and Development, are pushing for global coordination on this issue. The European Union's fourth anti-money-laundering

directive requires interconnected registries to record beneficial ownership of companies and trusts, and to share with local tax authorities (OECD-BEPS Action 12).¹⁹ Japan has also amended its primary anti-money-laundering law to bring virtual currency exchange services within scope.²⁰

Scalability and interoperability. Setting technology standards could provide genuine interoperability between nascent protocols and legacy computer systems, thus promoting the scalability of distributed ledger technology. To this effect, the International Standards Organization, with the participation of 33 nations, is already working on standards for distributed ledgers that might remedy some of these issues. While scalability is not an issue of regulatory oversight, it addresses concerns that the sustainability of the system is in question and could lead to market failure in the long run.²¹

Risk to fair competition. The development of blockchain-enabled applications, in particular by consortia in a permissioned system, could potentially give rise to concerns about unfair competition issues in a number of areas.²² These include: (i) the prospect of market dominance by some participants, with negative consequences for cost and quality of services; (ii) a gating effect that may exclude new entrants; (iii) the adoption of technical standards that prevent participation by competitors; and (iv) the risk of collusion and market manipulation between participants. Companies collaborating with competitors though a consortium will have to consider the nature of the information they make available to competitors through a shared ledger, to avoid potential price fixing and exposing participants to potential antitrust liability.

Early responses from policymakers

A result of this fluctuating environment is that regulatory reactions have varied widely across different jurisdictions. The only consistent reaction has been that no jurisdiction has recognized bitcoin as legal tender.²³ A few have taken the step of enacting relevant legislation. For example, the U.S. state of Arizona passed legislation that qualifies blockchain-enabled signatures secured as valid electronic signatures. Similarly, Delaware voted to allow blockchains for corporate record-keeping. Russia has created a legal framework to legalize initial coin offerings, while France has authorized debt-based crowdfunding recorded on distributed ledger technology. Most jurisdictions, however, have maintained a wait-and-see approach to the underlying technology and have avoided comprehensive legislation. This approach gives regulators time to observe how blockchains develop. Experts are advocating for regulators to focus on regulating

specific use cases of blockchains rather than the technology itself, a practice that has been adopted with other disruptive technologies such as the Internet and digital platforms.

Public authorities around the world have adopted different approaches:

Europe: The European Union has opted for a balanced approach.²⁴ The European Commission is actively monitoring related developments, and in February 2018 launched the EU Blockchain Observatory Forum to gather information from EU members on use cases and engage experts and practitioners before formulating concrete policies.²⁵ Also, the European Central Bank formed a task force on distributed ledgers and launched a joint research project with the Bank of Japan.²⁶ For financial services, the European Securities and Markets Authority has recognized the need to strike a balance between ensuring safety in transactions and preventing unnecessary complexity, so as not to discourage participation by new entrants.²⁷

United States: The response from regulators has been fragmented since regulatory authority crosses agencies (the Securities Exchange Commission (SEC), the Commodity Futures Trading Commission, and the Treasury Department, among others), as well as federal and state jurisdictions. While the tax authorities treat virtual currencies as property, the SEC has refrained from providing a legal definition for bitcoin and virtual currencies,²⁸ preferring to consider developments on a case-by-case basis, a “facts and circumstances analysis.”²⁹ The SEC Chairman has suggested that ICOs³⁰ seem to fall in the realm of securities.³¹ He also sent a clear message to market participants: “*those who would use distributed ledger technology to raise capital or engage in securities transactions must take appropriate steps to ensure compliance with the federal securities laws.*”³²

Singapore: Singapore is a major player in Asia’s innovation ecosystem. The Monetary Authority of Singapore is taking a collaborative, “risk proportionate”³³ approach to blockchains, and has launched a regulatory sandbox where fintechs, banks, and regulators work together. The regulator is collaborating on an international scale with other regulators, including the Hong Kong Monetary Authority, to develop a cross-border blockchain-based trade finance system. It has issued a public notice to qualify token sales as securities and has announced that it would develop a new payments service framework to ensure anti-money laundering compliance for companies involved in the dealing or exchange of virtual currencies.³⁴

Private sector governance challenges: The case of consortia

Technology industry analyst Gartner predicts that the value added for blockchains will grow to more than \$176 billion by 2025, and exceed \$3.1 trillion by 2030.³⁵ To capitalize on the opportunity, industry players are forming consortia to co-develop applications with innovators, while finding ways to minimize costs and potential risks. Blockchain technologies have a major impact when network effects can be realized and consortia provide a vehicle to leverage them.

A blockchain consortium is a hybrid, semi-private blockchain that allows organizations to establish ‘compartmentalized trust’ relationships and to condition access to the network accordingly. “A consortium platform provides many of the benefits affiliated with private blockchain—for example, efficiency and transaction privacy—without consolidating power with only one company.”³⁶ Participants involved in a blockchain consortium may have different priorities and may even be in direct competition with each other. Consortia can have a functional objective, such as solving a specific business problem. They can also be technical, seeking to develop universal interoperable and modular blockchain platforms across multiple industries. At present, there are over 40 blockchain consortia across the globe, which have attracted significant funding, mostly from the financial sector (Figure 2).³⁷

Governance is critical to running an effective consortium, given the volatility of blockchain innovation and the divergent interests of participants. Trust is introduced through an

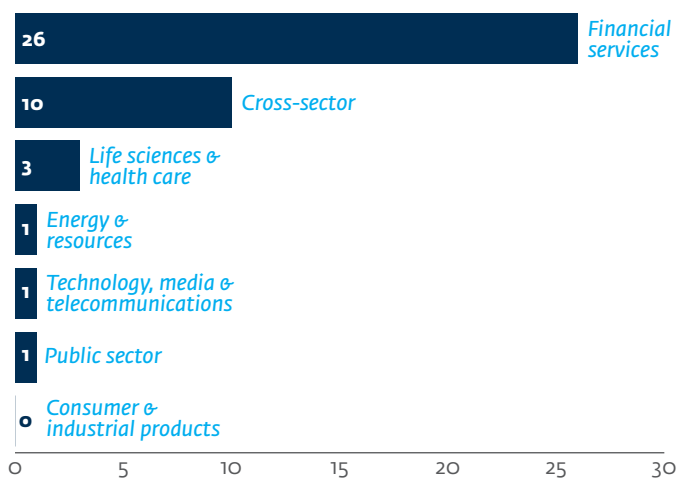


FIGURE 2 Consortia Distribution

Source: Deloitte analysis; see also Gratzke, Peter, David Schatsky and Eric Piscini. 2017. “Banding Together for Blockchain - Does it Make Sense for Your Company to Join a Consortium?” August 16, 2017.

entity, acceptable to all, that exercises control over access and makes decisions about membership and management of the alliance. As the size of consortia increase, however, so do the governance challenges of each group, which essentially consist of classic organizational problems of cooperation and coordination. A 2017 CoinDesk survey on digital innovation in financial services found that over 70 percent of respondents considered industry consortia as vital to the development of solutions.³⁸ Yet a similar percentage had serious reservations about the format, from the system of incentives to the lack of control. Smaller, use case-focused consortia start to emerge and even large consortia are segmenting into different working groups to facilitate governance.

Establishing clear rules for engagement, decision-making, and accountability is critical. Participants must address how rules will be changed in the future after the distributed ledger technology is implemented. An important consideration for participants is the question of intellectual property, particularly if one or more of the participants come to the table with pre-developed technology, as there might be a risk of vendor lock-in (although open source is most likely the appropriate route for many consortia).³⁹ During the early stages, most of the focus will be on converging around a technical solution. But as the business rationale adapts to changes in market conditions, decisions will have to be made about which course to pursue and how to effect changes to the code. Dispute resolution, sanctions for violations, and appropriate enforcement mechanisms need to be foreseen to address potential conflicts.⁴⁰

Self-governance and regulation: The importance of public-private collaboration

While computer codes by default are self-regulatory, they should not operate in isolation from a legal framework.⁴¹ Regulations create legal certainty, allowing entrepreneurs to innovate without fear of breaking the law. Blockchain-based systems need robust governance mechanisms even though regulators are hard-pressed to keep up with the technology's unpredictable nature. ICOs exploded onto the market with such speed that regulators were unprepared for the outcome.

Michele Finck of the Max Planck Institute proposes a collaborative effort between regulators and innovators to account for the specificities of the technology and provide stability.⁴² Given the still experimental phase of blockchain, businesses and regulators alike are struggling to learn quickly and define regulatory boundaries. At this stage, it is important to maintain flexibility and encourage

engagement from both policymakers and industry to work on specific use cases.

Initiatives for engagement can be advanced by either party, such as regulatory “sandboxes” (see below) from public authorities or industry-led public private partnerships. An industry-led example is the U.S.-based Blockchain Alliance, which brings together stakeholders from the blockchain industry with law enforcement agencies from the United States and around the globe. The European Commission has launched two initiatives, the EU's Blockchain Observatory and the European Blockchain Partnership, to coordinate the actions of Member States in the context of a digital single market.⁴³

Regulatory sandboxes: Toolkits for public-private dialogue

Sandboxes and similar government-backed initiatives are useful approaches that allow startups and regulators to learn together in practice and in a controlled “safe space,” so that they may make more informed decisions about the boundaries of their respective responsibilities. These are also a way to attract innovation to one's jurisdiction without committing a priori to a binding legislation.

Sandboxes typically have the following features:⁴⁴

- Customizing rules for each firm/business proposal, rather than a one-size-fits-all approach.
- A small number of customers/clients, testing for a limited time-period, and safeguards for consumer protection (such as requirements of informed consent).
- Restricted authorization/licensing, individual guidance, waivers/modifications to rules for that project, and no enforcement action letters.

The model is already being tested in various jurisdictions. The UK Financial Conduct Authority (FCA) was the first to introduce a sandbox specific to blockchain. While the most experienced and firm-focused sandbox, its attractiveness may diminish with Brexit, a potential loss of a “passport” regulatory approval into other EU markets. Other countries have followed the UK's example: Singapore, Abu Dhabi, Australia, Canada, Denmark, Hong Kong, Switzerland, Malaysia, and South Africa have all launched some form of a sandbox.

The main drawback of regulatory sandboxes is that they are limited to a single jurisdiction and do not accommodate the global reach inherent in the technology. While a global process of multi-stakeholder co-regulation has been proposed, it is unlikely to emerge any time soon.

An intermediate step could be the creation of a multi-jurisdictional sandbox. The FCA has proposed a global regulatory sandbox, uniting regulators from several jurisdictions and firms with multi-market ambitions to work together on policy and regulatory challenges. As a first step, the initiative proposes to create an international “college” of regulators, each with its own mandate or sandbox models, giving firms access to multiple regulators. It is a pragmatic, go-to-market approach that aims to provide firms with some guiding principles rather than a full-fledged set of standards across participating jurisdictions. Other experts have put forth a long-term vision of a full multilateral sandbox, perhaps under the mandate of a global multilateral institution such as the World Bank Group or the IMF. Entities like the European Commission may be in a position to encourage and coordinate such projects among member states. The recently signed European Blockchain Partnership is a promising start “to exchange expertise in technical and regulatory fields and prepare for the launch of EU-wide blockchain applications across the Digital Single Market.”⁴⁵

Corporate governance disrupted: The impact of blockchain on the role of the firm

Blockchain’s distributed trust mechanism has far-reaching implications for governance. Yet there has been limited research on how new crypto-corporate governance models may emerge and challenge the board-centric existing model.

Decentralized Autonomous Organizations—also known as DAOs—operate without a corporate hierarchy. The evolution of smart contracts has the potential to revolutionize economic activity, displacing the firm as the primary organizational vehicle. A DAO promises to self-govern, with bylaws and decision-making codified into algorithms, and potentially little or no human mediation. Such a structure may be able to address an inherent agency problem in existing governance structures, where the interests and risk preferences of board members and shareholders may diverge.⁴⁶ DAOs are organized around the concept of a “town hall,” with the potential to give voice to all investors.⁴⁷ The original DAO, which was launched by Slock.it in 2016 on the Ethereum platform and raised \$150 million, was the first example of a such a structure. It had no directors, managers, or employees and the governance structure was built with software, code, and smart contracts.

Yet, the 2017 hacker attack on the original DAO that stole \$55 million exposed the vulnerability of the network and raised issues of liability for loss of value. The decision by the majority of shareholders to recapture the siphoned

funds by breaking the immutability of the code splintered the community of developers/shareholders and undermined trust in the system and in the concept of “Code is Law.” This reputational damage of blockchain was compounded by the fraudulent use of ICOs, in the absence of clear rules.

The model of “crowd” blockchain governance is being tested. The question becomes whether the technology can and should fully replace a transparent democratic debate on governance, essentially a political process, with a technical rule-making system defined by elite developer communities.⁴⁸ The more distributed ledger technology penetrates business use, the more it will be confronted with existing legislation. Blockchain will need to evolve and provide a clearer governance structure to guarantee transparency, accountability, and the protection of investors and shareholders. It will also need to recognize the socio-political context in which it operates and ensure that technical solutions do not have unintentional effects in marginalizing segments of participants or undermining the freedom of individuals.

In response to these pressures, the corporate governance of companies stands to be disrupted as much as their business models, as they attempt to adopt and adapt to the technology. Traditional structures are already experimenting with blockchain and smart contracting applications to take advantage of potential efficiency gains from its auditability, immutability, and digital identification. Specifically, blockchain initiatives are underway to address some of the procedural flaws and costs for small shareholders of the Annual General Meeting by facilitating voting and registration of shareholder lists. The Nasdaq announced a successful pilot for e-voting in Estonian Annual General Meetings in 2017 and similar initiatives have been undertaken by the Abu Dhabi Securities Exchange, the Russian National Settlement Depository, and the Toronto Stock Exchange Group. Eventually, corporate actions such as the payment of dividends and coupons could be distributed through a fully automated process. This could result in lower costs for trading, faster transfer of ownership, and greater accuracy and transparency throughout the process.⁴⁹ At present, experiments are marginal. But with the prospect of further automation through smart contracts, the question arises as to whether DAOs should have a legal corporate charter and what form these should take.

Corporate governance under a blockchain system can profoundly alter the power relations among managers,

shareholders, regulators, and other stakeholders.

The transition from a centralized world of corporate hierarchies to a distributed one still defies our established notions of economic production around the vertical firm. Disintermediated corporate governance structures and practices can perhaps offer a more cost-effective and efficient way for management to access market information and shape strategy. However, efficiency gains may be hampered by the ability of the platform and the nodes to extract rent for their efforts, proportionate to their market power. In any case, such changes will require significant reform and legal adaptation of the existing rules as well as a shift in the incumbent organizational culture.⁵⁰

Conclusion

Despite the exuberance surrounding cryptocurrencies, the distributed ledger technology is still at an early stage of development and remains a marginal economic phenomenon. Blockchain faces challenges of scalability, security, and mass adoption. With respect to its governance, the system is struggling to transition from a techno-libertarian model to one that can accommodate friction with the real economy. Yet for optimal governance, the deliberation process cannot take place in isolation. Innovators and regulators need to engage with each other to learn and shape the future of the technology in a way that benefits all parties, and society as a whole. Aware of the potential and the magnitude of the challenge, regulators in emerging markets, whether in Asia, the Middle East or Africa are actively observing the space and testing policy options (see discussion on regulatory sandboxes above).

Ideally, a global multi-stakeholder process should be put in place to pursue a uniform, rules-based system across national jurisdictions. But as the Internet has shown, implementing a global coordination mechanism can become mired in geopolitics, making the prospect of a global arbiter seem distant. Less ambitious scenarios for transnational cooperation are underway to develop public standards for the code, with international agencies working on some aspects of standards harmonization and for regulatory sandbox coordination. Whatever the process selected, a purely technological, amoral model cannot ensure the governance and sustainability of the blockchain ecosystem without acknowledging the real political and social pressures surrounding any change as fundamental as the one blockchain promises to bring about.

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ACKNOWLEDGMENTS

The author would like to thank the following colleagues for their review and suggestions: Gordon Myers, Chief Counsel, Legal Department, IFC; Steven Buck, Manager, Operational Risk and Business Continuity, Risk Management, IFC; Andrew Yew, Senior Counsel, Legal Department, IFC; Rachel Alexandra Halsema, IT Officer, Business Management I, Technology and Innovation, World Bank Group; Susan Carevic, IT Officer, Business Management II, Technology and Innovation, World Bank Group; Peteris Zalgavis, Head of Unit, Startups and Innovation, Digital Single Market Directorate, Directorate-General Communications Networks, Content and Technology, Co-Chair, FinTech Task Force, European Commission; Sopnendu Mohanty, Chief Fintech Officer, Monetary Authority of Singapore; Damien Pang, Head of Technology Infrastructure Office, Monetary Authority of Singapore; Paul Worthington, Innovate / Strategy and Competition, Financial Conduct Authority, UK and Thomas Rehmann, Senior Economist, Thought Leadership, Economics and Private Sector Development, IFC.

ADDITIONAL EM COMPASS NOTES AND REPORTS ABOUT BLOCKCHAIN AND ITS OPPORTUNITIES FOR EMERGING MARKETS:

Blockchain – Opportunities for Private Enterprises in Emerging Markets (report), IFC, October 2017; Can Blockchain Technology Address De-Risking in Emerging Markets? (Note 38); Blockchain in Development -- Part I: A New Mechanism of "Trust"? (Note 40); Blockchain in Development -- Part II: How It Can Impact Emerging Markets (Note 41); Blockchain in Financial Services in Emerging Markets - Part I: Current Trends (Note 43); Blockchain in Financial Services in Emerging Markets - Part II: Selected Regional Developments (Note 44); Beyond Fintech: Leveraging Blockchain for More Sustainable and Inclusive Supply Chains (Note 45); Using Blockchain to Enable Cleaner, Modern Energy Systems in Emerging Markets (forthcoming).

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