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Digital finance and sustainability: Impacts, challenges, and policy priorities

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Editorial

Digital Finance and Sustainability: Impacts, Challenges, and Policy Priorities

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1. Introduction

Digitalization helps to transform economies through supporting inclusive growth and enhancing economy-wide productivity, with the important role of digital finance being a key component of this [1]. This can also underpin progress on reaching targets set for achieving the Sustainable Development Goals (SDGs). More recently, initiatives on sustainable digital finance and green fintech have been at the core of a new strand of research on the nexus between digital finance and environmental sustainability (e.g., [2]). In addition, the promotion of a sound and efficient digital payment system, both nationally and globally, is an important mechanism for reducing inequality (e.g., [3]. Recognizing the faster pace of digital transformation and innovation in digital finance post-pandemic, striking the right balance between financial regulation and enabling financial innovation is key. Likewise, digitalization in trade finance helps to promote greater economic integration and competitiveness. The link between digital finance and sustainable economic and environmental outcomes remains insufficiently understood, while many economies lie at different stages of financial development and digital finance adoption. This editorial provides an overview of 13 articles published in the Special Issue on *"Digital Finance and Sustainability"*.

The Special Issue provides new contributions to the literature on the role played by digital finance in supporting sustainable economic development, particularly in Asia. A conference organized by the Asian Development Bank Institute and the Sim Kee Boon Institute for Financial Economics (Singapore Management University) in December 2022 provided the context for seeking high-quality research contributions in this field. The Special Issue comprises a combination of selected papers that were presented and revised at that conference as well as those gleaned from an open call for papers. The potential topics of interest sought in the open call for papers included fintech and sectoral productivity; fintech and inclusive growth; digital finance and resilience to macroeconomic shocks; digital payment systems and economic efficiency; digital finance and monetary policy effectiveness; digital credit intermediation and financial stability; central bank digital currencies, cross-border digital financial flows, and economic integration; trade finance and competitiveness; digital financial inclusion and long-term growth; digital finance and environmental sustainability; and, sustainable digital finance and green fintech. While the call for papers was wide-ranging and comprehensive, the papers ultimately included in the Special Issue covered a subset of these topics. The remainder of this editorial is structured as follows: Section 2 provides an outline of the context of the Special Issue, with a focus on Asia, Section 3 provides a discussion of the papers in the Special Issue, and Section 4 provides some concluding remarks and also offers some insights into potential research gaps for the future.

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2. Digital Finance and Sustainability in Asia

Digital finance and fintech have developed strongly in Asia over the past decade or so, supporting financial inclusion and sustainable growth in the region (e.g., [4]). This is important in terms of progress towards achieving the SDGs, where financial inclusion has been identified as a key enabler of seven of the 17 goals [5]. Helped by the region's smooth adoption of digitalization more broadly, particularly in the area of digital payment systems, the backdrop for the continued development of fintech in Asia is favorable. The region benefited from "leapfrogging technology" using mobile and internet-based solutions, with businesses and consumers alike being very accustomed to operating in a digital world (e.g., [6]). In such an environment, the availability of credit by both fintech and big tech firms in Asia has grown significantly in recent years. Low levels of financial inclusion in Asia have also contributed to the growth of fintech in the region, with the proportion of adults having traditional bank accounts being less than 50% in many economies, particularly in Southeast Asia [7]. Insurance and wealth management financial services are also characterized as being low in penetration, which has created a fertile ground for fintech growth. The COVID-19 pandemic led to an acceleration in the pace of digitalization in Asia, particularly in fintech [8]. This provided households in the region with more efficient and shock-resilient access to financial services, and also helped the region's micro-, small-, and medium-sized enterprises to remain economically viable by offering faster and cheaper financial services than traditional banking. There is a strong feedback loop in Asia regarding fintech adoption driving innovation and vice versa. Moreover, competition is becoming stronger in Asia in the virtual banking space (e.g., [9]).

Achieving financial inclusion through fintech depends on a range of cross-cutting factors. One of the main hurdles relates to the level of digital literacy and financial literacy across countries. Without having a sufficient level of competence in these areas, economies and communities may be unable to reap the benefits of fintech. In Asia, there is a significant amount of heterogeneity in digital financial literacy levels, which means that the rate of diffusion and take-up of digital financial services differs across the region. Addressing deficits in digital and financial literacy is therefore of crucial importance. Another factor impeding the financial inclusion impact of fintech relates to insufficient levels of development in digital payment infrastructure, internet connectivity, and broadband penetration (e.g., [10,11]). In Asia, some economies are particularly less developed in this respect than others, such as in parts of Southeast Asia. Finally, a lack of trust in digital finance can be a factor, and this is closely related to concerns about data privacy and consumer protection.

Potential risks to sustained growth due to advances in digital finance also need to be borne in mind, particularly in relation to security concerns and addressing potential financial stability risks as the regulation of fintech becomes an ever more important policy area (e.g., [12,13]). In the case of the latter, many economies in Asia and around the world have created 'regulatory sandboxes' to enable digital innovation in the financial sector while also monitoring and managing the emergence of financial stability risks.

3. Discussion of Papers in the Special Issue

The papers in this Special Issue encompass three main thematic categories: (i) digital finance, financial inclusion, and inequality; (ii) digital finance and sectoral performance; and (iii) digital finance and firm performance. The specific topics within these themes are widespread, including new empirical studies on the role of digital finance in alleviating inequality, enhancing agricultural productivity and energy efficiency, and boosting firm performance and entrepreneurship.

3.1. Digital Finance, Financial Inclusion, and Inequality

This category comprises four papers. Tripathi and Rajeev developed a gender-based financial inclusion index, focusing on the role of digital services. They conducted an extensive analysis across 109 countries over the years 2011, 2014, 2017, and 2021. It was found that the health, education, labor force participation rate, and political empowerment

of women have a significant influence on the digital financial inclusion of women. It follows that policies that help to drive improvements across these determinants will be key to enhancing gender empowerment and women's digital financial inclusion. Liu et al. examined the role of digital financial inclusion in reducing poverty using a spatial analysis. Using the Peking University Digital Financial Inclusive Index, they found that digital financial inclusion significantly reduces the urban–rural income gap in China. This is mainly due to the role of digital financial inclusion in promoting industrial structure upgrading. Li and Liu examined the role of digital financial inclusion on residents' income level and structure. A positive effect was found on household-, firm-, and property-based income in China. This channel primarily involves the use of digital payments, digital lending, and digital financing options. Digital financial inclusion was also shown to have positive effects on employment levels through promoting business start-ups. Some non-linearities were found, as more than proportional effects were apparent for higher-income groups and rural residents. Chen and Guo highlight the role of digitalization in catalyzing consumption upgrading in a panel of 30 Chinese provinces from 2006 to 2021. Their paper shows how the shift to a more digitalized economy and improved levels of financial development promotes consumption beyond subsistence expenditure and more towards higher value-added products and services.

3.2. Digital Finance and Sectoral Performance

Four papers in this Special Issue explore the influence of digital finance on sectoral performance. Using a coupling coordination approach, Ma et al. examined the coordinated development of digital finance and the advancement of China's manufacturing sector. Their paper shows that the degree of coupling coordination is most notable in the eastern region, followed by the central and western regions. Their paper also offers policies aimed at addressing inter-regional differences and promoting more balanced development overall. Shen et al. explore the impact of digital financial inclusion on agricultural green total factor productivity in China. Their paper shows that a significantly positive impact can be found given the role of digital finance in easing credit constraints, and their findings were shown to be robust and valid via the use of several alternative regression specifications and sensitivity tests. Their paper notes that a well-developed digital infrastructure in conjunction with well-defined green credit policies are key driving mechanisms that have important implications for promoting sustainable agricultural development via digital finance. Wang et al. found that digital finance alters farmer consumption behavior in China, helping to alleviate consumption inequality amongst farmers. This effect is most significant in East China, among low-income farmers, and where farmers have primary education. Wu at al. examined the connection between energy efficiency and digital finance. They found that regions where digital finance is more developed have tended to reap benefits in terms of energy efficiency. Policies aimed toward fostering investment in green technology innovation and R&D are encouraged to bolster the impact of digital finance on energy efficiency.

3.3. Digital Finance and Firm Performance

Five papers in this Special Issue discuss digital finance and firm performance. Lyu et al. empirically analyzed the role of fintech in addressing the financing constraints faced by China's A-share non-financial listed companies from 2011 to 2018. They found that fintech has a significant impact in alleviating such constraints, mainly through reducing information asymmetry between capital supply and demand and lowering costs. The effects of fintech are most pronounced under various firm-specific characteristics, including where senior executives have high degrees of financial literacy. Xie et al. explore the empirical relationship between digital finance and the TFP of state-owned enterprises (SOEs), focusing on a sample of A-share state-owned companies listed on the Shanghai and Shenzhen stock exchanges from 2015 to 2020. They found that TFP is supported through lower financing constraints, particularly for large SOEs. It is also shown that the results are

more pronounced where the shareholding ratio of institutional investors is higher. Hossain et al. explore financing models for SMEs aimed at alleviating borrowing constraints. They find that the use of digital finance, via a data-driven credit risk score approach, supports sustainable finance by reducing default risks and transaction costs. Shinozaki assesses the role of digital finance as a mechanism for shock resilience and sustainability in the context of the impact of the Russia–Ukraine conflict on firms in Central and West Asia. Shinozaki notes that more time is needed to enable firms to maximize the benefits of digital finance on the efficiency of business operations, proposing key policies to facilitate the shift to such a framework. Zhao et al. investigated the empirical relationship between digitalization and entrepreneurship across 286 cities in China. Using a threshold spatial dynamic panel model, they showed that a threshold level of development in digital capacity is necessary before rises in entrepreneurship materialize, with non-linearities apparent in urban areas.

4. Concluding Remarks

This editorial provides an overview of the papers published in the Special Issue on "*Digital Finance and Sustainability*", set against the context of developments in Asia. The above-mentioned papers provide robust evidence that advances in digital finance can have strong positive impacts on policies aimed at sustainable economic development. While the benefits of digital finance in terms of boosting productivity and competitiveness are well-documented in this Special Issue, further research on understanding the risks associated with shifting to digital finance-based processes and activities is warranted. Effective regulations are required to safeguard both financial stability and cybersecurity. Balancing the need for regulatory controls while also enabling digital finance to maximize its potential is a key challenge faced by policymakers. Research studies that shed light on optimal frameworks for digital finance adoption, including on cost-benefit analyses that can account for the role of cross-border spillovers, will be important considerations going forward.

5. List of Contributions

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