FINTECH, PANDEMIC, AND THE FINANCIAL SYSTEM

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FINTECH, PANDEMIC, AND THE FINANCIAL SYSTEM: CHALLENGES AND OPPORTUNITIES

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PART I

AN OVERVIEW

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CHAPTER 1

AN OVERVIEW OF FINTECH, PANDEMIC AND THE FINANCIAL SYSTEM: CHALLENGES AND OPPORTUNITIES

Suk-Joong Kim

1. OVERVIEW

This volume of International Finance Review offers original research that examines the emerging and ongoing systemic challenges and opportunities in the global financial system. Business corporations are facing unprecedented challenges brought on by the current systemic challenges, such as the COVID-19 pandemic and the global supply chain issues it caused, the global inflation, and the reversal of the decade long ultra-expansionary and unconventional monetary policies. Moreover, the breakneck pace of financial sector innovation that incorporates technologies, such as decentralized cryptocurrencies that bypass the central authorities and the continued disruptions introduced by financial innovations (Fintech), pose significant challenges for financial corporations, in particular. The current pandemic poses a great threat to the world economy and the financial system less than a decade after recovering from the Global Financial Crisis and the Eurozone debt crisis. It was exogenous and unpredictable, and its consequences will reshape the financial system architecture around the world. Here, technology plays a crucial role in turning the adversities into opportunities and, at the same time, addresses the traditional weaknesses of the underdeveloped financial systems of developing countries.

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Fintech, once dismissed as no more than a novel approach to servicing the segment of the population overlooked by the established financial intermediaries, is now challenging the traditional model of commercial and investment banking segments. The method of credit risk assessment using big data technology allowed small financial firms to significantly undercut established lenders in terms of cost and outreach. This represents yet another wave of competition faced by traditional financial institutions, and they are responding by introducing fintech products of their own.

Cryptocurrencies present opportunities for those seeking financial instruments that can replace traditional currencies in some business transactions and provide investment potential. Through decentralized blockchain technologies, anonymity is achieved in business transactions which is valued by some but, at the same time, poses challenges for national governments and financial regulators. One response is the potential introduction of official central bank digital currencies that could eventually replace national currencies in many business transactions. These developments have the potential to fundamentally change the business models of both financial and non-financial corporations and how the financial system functions in the economy.

In this volume, 14 original chapters, not published elsewhere, have been selected from 29 paper submissions after careful peer reviews. The chapters utilize various methods, including empirical, quantitative and qualitative. Several chapters offer combinations of these different categories, and among the empirical chapters, there are a wide variety of data sets analyzed and empirical methods utilized. This volume serves to make contributions to the understanding of the current issues of systemic risks in the financial system.

The 14 chapters are organized into 4 parts. Part II covers the impact of fintech on the financial system, and Part III presents discussions on the role of cryptocurrencies. The viability of central bank digital currencies is discussed in Part IV, and the relationship between the financial sector and the economy is examined in Part V.

2. FINTECH AND PANDEMIC

In Part II, four chapters are presented covering the role of fintech in the financial system, and highlighting how innovations in financial technologies help to reach out to the unbanked population in a country and to help mitigate the negative effects of the COVID-19 pandemic. In Chapter 2: "Banks' Patenting as an Answer to Emerging Fintech and Bigtech Competition: A Cross-Country Empirical Study," Oskar Kowalewski and Paweł Pisany investigate how commercial banks change their patenting activities in response to the emerging fintech competition. They use a country-level database covering 63 economies over the period 2014–2019 and employ a wide range of proxies to discuss new technological trends in finance, particularly in the banking sector. They find that banks' increased focus on technological innovation, as measured by market value and

number of patents, is a possible response to the emerging technology-based non-bank competition, particularly from fintech and bigtech firms. Additionally, the results indicate that the emergence of financial innovation contributes negatively to the average value of bank patents, indicating significant competitive pressure on banks in the technological race. Thus, banks are countering the challenge of fintech and bigtech competition in the financial market by increasing their technology projects and patenting activities.

In Chapter 3: "Digital Financial Inclusion: Its Role in Mitigating GDP Losses During the Pandemic," Chen Zheng and Zhiyue Sun examine the extent to which access to digital finance reduced the negative impact of the pandemic on GDP. Although the COVID-19 pandemic has caused a global slowdown, the magnitude of GDP losses appears to vary across countries. Their study considers the question of whether digital finance could help mitigate the adverse impact of COVID-19 on GDP. The results indicate that countries with higher levels of digital financial inclusion experience less decline in GDP, whereas countries relying more on cash transactions experience a greater GDP decline. These results suggest that digital financial inclusion might play a key role in mitigating the adverse impact of COVID-19 on GDP.

In Chapter 4: " The Role of Fintech in the Paycheck Protection Program," Blake Rayfield, Hasib Ahmed, Nicolas Duvernois, and Lois Rayfield investigate the impact of fintech lenders on Paycheck Protection Program (PPP) loan disbursement in the United States. Specifically, they investigate financial technology companies' ability to provide loans at greater distances, expanding the available resources for businesses struggling during the COVID-19 pandemic. They find that not only were fintech companies able to lend at greater distances, but they also provided loans to firms that were younger and had less bank competition in their headquarters' zip codes. The results remain consistent and are generalizable to the complete population of PPP loans.

In Chapter 5: "Gender Gap in Consumer Loan Performance: Evidence from Fintech Lending in an Emerging Economy," Tanseli Savaser, Murat Tiniç, Gunseli Tumer-Alkan, and Hakki Deniz Karaman examine whether fintech lending further enhances or mitigates the gender-based differences in consumer loan performance in an emerging market. Using a proprietary data set of over 5.5 million consumer loans offered by the fifth-largest bank in Turkey and its fintech subsidiary, they document a significant gender gap in average loan performances. In line with the previous empirical findings, men are more likely to default on their debt. They show that the gender gap in loan performance is more pronounced in areas where women have more outside options in terms of social and economic opportunities. Finally, they document that fintech loans partially mitigate the gender-based differences in consumer loan performance in those cities. The findings suggest that the developments in financial technology can reduce the inefficiencies associated with human involvement in credit decisions, narrowing the gender gap in loan outcomes to the extent that these gaps are attributable to the supply-side factors that involve human judgment and biases.

3. CRYPTOCURRENCY AND THE FINANCIAL SYSTEM

Part III provides three chapters covering the topics of the role cryptocurrencies play as an investment asset and how they should be regulated. In Chapter 6: "Cryptocurrencies Meet Equities: Risk Factors and Asset Pricing Relationships," Victoria Dobrynskaya and Mikhail Dubrovskiy consider a variety of cryptocurrency and equity risk factors as potential forces that drive cryptocurrency returns and carry risk premiums. In a cross-section of 2,000 biggest cryptocurrencies during 2014–2020, only downside market risk, cryptocurrency size and cryptocurrency policy uncertainty factors are systematically priced with significant premiums. Cryptocurrencies, which have greater exposures to these factors, yield higher returns subsequently. Equity market risk, particularly equity downside market risk, appears to be more important than cryptocurrency market risk, suggesting greater linkages between cryptocurrency and equity markets than one used to think. Global and US equity factors are more relevant for the cryptocurrency market than local factors from other markets. However, they find no evidence that exposure to momentum, volatility and Fama-French factors is compensated by higher returns.

In Chapter 7: "Got Crypto? Evidence from Markowitz, Kataoka, and Conditional Value-at-Risk Models," Lanqing Du, Jinwook Lee, Namjong Kim, Paul Moon Sub Choi, and Matthew J. Schneider pose the following question: Should we include cryptocurrency in risky portfolio investing? Bitcoin, given its status as the leader of cryptocurrencies and a speculative asset due to its non-dividend-paying trait and high volatility as well as high returns, poses an interesting question of whether it can also be beneficial in a portfolio of risky assets. In order to find an answer, they revisit the conventional dual objective of minimizing risk and maximizing expected return for risky assets. Various models are tested to analyze the risk-return tradeoff of risky portfolios, including Bitcoin. Given an initial budget for a finite portfolio, the cumulative filtration yields the expected return and the covariance matrix. With the addition of Bitcoin, they compare the performance of the portfolio generated from the optimization models and technical analysis. The main implications are as follows: First, risk tolerance and diversification constraints are the key factors in portfolio optimization. Second, including cryptocurrency enhances portfolio returns. Lastly, the Markowitz model (Kataoka's and conditional value-at-risk models) recommends fully weighing (unloading) Bitcoin in (from) the portfolio.

Chapter 8: "International Financial Regulation of Cryptoassets and Asset-Backed Tokens," Sylvia Gottschalk provides a discussion on the regulatory aspect of cryptocurrencies. She reports that most asset-backed tokens (ABTs) are akin to asset-backed securities in many aspects. Moreover, nearly all ABTs are "off-chain/on-chain." That is, the underlying is a traditional asset that exists off-chain and is subsequently digitized. The main exception is the World Bank's bond-i which is genuinely native to the blockchain created by the Commonwealth Bank of Australia, and has no existence outside it. All ABTs are issued on permissioned blockchains, where anti-money laundering/anti-terrorist funding and know-your-customer regulations are enforced. From a prudential regulatory perspective,

ABTs do not appear to pose serious systemic risks to international financial markets. This may account for the often negative reactions of banks, banking associations, and cryptocurrency interest groups to the Basel Committee on Banking Supervision (BCBS)'s 2021 proposals for risk-weighted capital provisions for cryptoassets, which are viewed as excessive. Finally, she finds that the issuance of ABTs and other smart contracts on permissionless blockchains such as Bitcoin and Ethereum could potentially generate financial instability.

4. CENTRAL BANK DIGITAL CURRENCY

Part IV provides three chapters that investigate the potential of introducing Central Bank Digital Currencies (CBDCs). In Chapter 9: "Central Bank Digital Currencies: The Motivation," Bert Van Roosebeke and Ryan Defina examine the case for CBDCs. CBDCs for the general public ("retail CBDCs") would constitute a central bank liability and a form of digital cash. To the public, they would be an alternative to central bank-issued cash and private money, such as traditional bank deposits. The evolution of payments plays a pivotal role in developing CBDCs. Given the declining role of cash in some jurisdictions, CBDCs as a new form of central bank money may contribute to safeguarding trust in the public currency and improve financial inclusion outcomes. CBDCs have the potential to encourage competition and efficiency in an otherwise oligopolistic market for payment services, increasingly dominated by bigtechs, and increase overall resilience in payment markets of the future. Upon their introduction and depending on their exact design, CBDCs may have considerable consequences for policymakers and the general public. This chapter sets out four of the main motivations for issuing CBDCs, all while acknowledging considerable divergences across jurisdictions.

In Chapter 10: "A Review of the Proposed Bank of England's "Retail" Central Bank Digital Currency (CBDC) as a Cryptocurrency Competitor," Kelly-Ann Coulter examines the case for the Bank of England to introduce a CBDC. The Bank of England has explored an introduction of a CBDC, which in its retail form would give the public the opportunity for the first time to directly hold state central bank money. This CBDC proposal emerges in a landscape where private money such as cryptocurrencies are increasing in the capacity of coins and in trading volume; in a crypto economy with an expanding market capital. This competition opens the possibilities to reform the banking system to adapt to new payment platforms such as blockchains with advanced features such as smart contracts. The proposed design of the CBDC can either compete or complement such innovations, which is evaluated in this chapter. She argues that the plethora of public and private currencies on the market, once reached legal maturity in terms of governance, can provide the element of choice to consumers in an open, innovative, and competitive free market. She urges the Bank of England to introduce a CBDC that is interoperable with innovative payment platforms, including blockchains, accompanied by a user-centric design, to participate in the ever-adapting fintech economy.

In Chapter 11: "The Digital Euro from a Geopolitical Perspective: Will Europe Lag Behind?," Philipp Sandner and Jonas Gross examine the case for a digital Euro. They provide an overview of use cases, application domains, and infrastructures for a digital euro. A comparison with solutions for the digital dollar and the digital yuan leads to the conclusion that, in the most extreme case, the euro could become a regional currency for Europe. The main reason for this argument is the design and prioritization of current approaches within Europe as well as the European Central Bank's digital euro project, and that stablecoin approaches seem to be neglected as solutions for the digital euro.

5. ECONOMY AND THE FINANCIAL SYSTEM

In the last part of this volume, Part V offers four chapters examining the relationship between the financial sector and the economy, in general. In Chapter 12: "The Journey of an Exchange Traded Fund: Becoming a Unicorn or Zombie," Fei Gao and Bingqiao Li examine the factors that impact the growth of exchange-traded funds (ETFs) from 1990 to 2020. They show the first-mover and winner-takes-all effects from top ETF issuers. Besides the longer history and larger asset under management (AUM), the ETFs being managed by top issuers have exhibited lower risks and higher trading volume. Delisted ETFs on the contrary, has a shorter history, lower AUM, higher risks, and lower trading volume. For zombie ETFs, they find longer history, lower risks but lower AUM and trading volume, controlled for total expense ratio, return, volatility, bid-ask spread, turnover ratio, as well as year, issuer, asset class and region fixed effects. They further study the ETFs' AUM and trading activities over the 2008 Global Financial Crisis (GFC) and the COVID-19 pandemic crisis and find that the GFC has a significant negative impact while the COVID-19 pandemic has a positive impact on the ETFs' popularity. The significant increase in AUM of ETF relative to common stocks during the COVID-19 period is associated with a significant reduction of institutional holdings at the aggregate level.

In Chapter 13: "Does Finance Benefit Society? Financial Sector Size and Labor Market Performance," Marc Steffen Rapp and Iuliia A. Udoieva examine a large sample of 100 economies worldwide to study the impact of financial sector size expansion on labor market performance. Estimating dynamic panel data models inspired by the well-developed finance-growth literature, they find that, on average, a larger financial sector is beneficial for the labor market as it reduces unemployment rates. However, estimating country- and period-specific benchmark levels of the financial sector size, they find that the relative contribution of finance vanishes with excessive levels of finance, and excessive levels of credit may actually be detrimental to employment. These non-linearities in the finance-unemployment nexus are more pronounced within developed economies. Overall, their study sheds new light on the ongoing controversy about the impact of the financial sector on societal well-being and highlights the importance of monitoring the expansion of the financial sector, in particular when it comes to credit markets.