

Financial Innovation and Technology

Thomas Puschmann
H.S.H. Prince Michael of Liechtenstein

Financial System 2030

Digitalization, Nation States and (De-)
Regulation as Drivers of Change

 Springer

Financial Innovation and Technology

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Prologue

The financial system is currently confronted with tremendous challenges from the global economy, trade, politics, demographics, and most recently enormous technological advancements. These developments have the capacity to change the existing financial system fundamentally. This topic was the subject of a series of ten two-day roundtables with high-level experts on the future of the financial system from 2018 to 2023, which will be continued in the forthcoming years. In these roundtables, we had the privilege to welcome 78 participants from five continents in Liechtenstein and online during the COVID-19 pandemic. We want to cordially thank all these individuals who contributed to the discussions and who represent a comprehensive view on the future of the financial system. All views expressed in this book are those of the authors, and not the named roundtable participants, unless expressly identified as such. The participants joined us from the following organizations:

- *Supranational institutions:* Bank for International Settlements (Morten Bech), International Monetary Fund (Kenneth Kang), United Nations Capital Development Fund (Aiaze Mitha).
- *Central banks:* Bank of Canada (Francisco Rivadeneyra), Bank of England (Michael Kumhof, William Lovell), Bank of Japan (Masaki Bessho), Central Reserve Bank of Peru (Milton Vega), European Central Bank (Philipp Hartmann, Andrea Pinna), National Bank of Cambodia (Serey Chea), People's Bank of China (Changchun Mu), Swiss National Bank (Thomas Moser).
- *Commercial banks and providers:* Deutsche Bank (Paul Achleitner), Citi (Andres Wolberg-Stok), BBVA (Alvaro Martin), ING Group (Teunis Brosens), JPMorgan Chase (Manuela Veloso; Emerita Carnegie Mellon University), Mastercard (Jesse McWaters), Private Client Bank AG (Ivan Adamovich), Société Générale (Claire Calmejane, Anne Marion-Bouchacourt), Standard Chartered (Kahina van Dyke).
- *Regulators:* European Commission (Helen Köpman, Lukas Repa, Pēteris Zilgalvis), Financial Conduct Authority (Ravi Bhalla), Monetary Authority of Singapore (Sopnendu Mohanty), US Securities and Exchange Commission (Commissioner Hester Peirce).

- *Startups and technology companies*: Aave (Stani Kulechov), Autpay (Andrzej Anton), BankServAfrica (Chris Hamilton; now Hamilton Platform), Circle (Dante Disparte), Melonport (Mona El Isa; now KR1), Google (Victor Bergmann), Ripple (Jeremy Light; now pingNpay, Antony Welfare), wefox (Julian Teicke).
- *Ventura capitalists*: 1k(x) (Diana Biggs), DFJ & Draper Associates (Tim Draper), Haun Ventures (Tomicah Tillemann), Matuschka Group (Albrecht Matuschka).
- *Universities*: Aix Marseille University (Elisabeth Krecké), Chinese University of Hongkong (Marlene Amstad; now FINMA), Duke University (Steven Schwarcz), IMD (Frédéric Dalsace), Loerrach University (Heike Walterscheid), London Business School (Michael Jacobides), MIT (Alex Pentland; Ali Robleh; now Wadagso), Nottingham University (Meryem Duygun), Politecnico Milano (Filippo Maria Renga), Singapore Management University (Heng Wang), Stanford University (Darrell Duffie), Tel Aviv University (Jacob A. Mendel), University of Pennsylvania—The Wharton School (Itay Goldstein), University College London (Iris Chiu), University of Berne (Dirk Niepelt), University of California Irvine (Tom Boellstorff and Bill Maurer), University of Cambridge (Robert Wardrop), University of Hong Kong (Douglas Arner), University of Oxford (Nir Vulkan), University of Toronto (Joshua Gans), Université du Luxembourg (Dirk Zetzsche), University of Zurich (Thorsten Hens), Yale University (Gary Gorton).
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During these roundtable sessions we developed potential scenarios for the financial system 2030. We believe that there might be not only one possible outcome but different pathways, depending on geopolitical and economic developments and other global events which we cannot foresee. We think that the knowledge of these experts serves as an excellent source for this book on the “financial system 2030” which aims at summarizing the discussions in a structured way. In the roundtable discussions we could reflect various views on the financial system and discussed them in detail. We learned that the different views not always overlap and might hold the potential to take different directions. This uncertainty clearly showed us the need for an internationally oriented book that sheds light on the various drivers, as this provides a huge opportunity. For example, the financial industry in the USA employed around 6.72 million people in June 2023 (U.S. Bureau of Labor Statistics) and in 2022 contributed a gross output of \$14.19 trillion to the economy, which equals 7.72% of the country’s total gross output (U.S. Bureau of Economic

Analysis). But, since the financial sector is also an enabler for all other economic activities, its relevance goes far beyond an isolated view of the sector. Therefore, the book targets all readers with an interest in the future of the financial system and the economy, including:

- Financial institutions, utilities, and companies which rely on financial services
- Regulators and supranational institutions
- Policy makers
- Entrepreneurs, venture capitalists, think tanks, and visionaries
- Researchers and teachers
- Individuals with a general interest in economics and finance

Prince Michael of Liechtenstein
Thomas Puschmann

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List of Abbreviations

AI	Artificial intelligence
AML	Anti-money laundering
API	Application programming interface
ASIC	Australian Securities and Investments Commission
ATM	Automated teller machine
B2B	Business-to-business
B2C	Business-to-customer
BAT	Baidu, Alibaba, Tencent
C2C	Customer-to-Customer
CAGR	Compound annual growth rate
CBDC	Central bank digital currency
CFT	Counter-terrorist financing
CHAPS	Clearing House Automated Payment System
CHIPS	Clearing House Interbank Payments System
CHF	Swiss franc
CLS	Continuously Linked Settlement
COSMOS	Customers, Operations, and Services Master Online System
DAO	Decentralized autonomous organization
dApp	Distributed application
DeFi	Decentralized Finance
DID	Decentralized identifier
Digital ID	Digital identity
EBA	European Banking Authority
ERMA	Electronic Recording Method of Accounting
EU	European Union
EUR	Euro
ECB	European Central Bank
FCA	Financial Conduct Authority
FINMA	Swiss Federal Financial Market Supervisory Authority
Fintech	Financial technology

FMI	Financial market infrastructure
FSA	Financial Services Authority
FSB	Financial Stability Board
GAFA	Google, Amazon, Facebook, Apple
GDP	Gross domestic product
GFIN	Global Financial Innovation Network
HD Wallet	Hierarchical Deterministic Wallet
ICO	Initial coin offering
IMF	International Monetary Fund
IPO	Initial public offering
Insurtech	Insurance technology
IoT	Internet-of-Things
IT	Information technology
LLM	Large language model
ML	Machine learning
NFC	Near-field communication
NFT	Non-fungible token
P2P	Peer-to-peer
PBoC	People's Bank of China
RegTech	Regulatory technology
RFID	Radio frequency identification
RTGS	Real-time gross settlement systems
SME	Small and medium-sized enterprise
STO	Security token offerings
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TVL	Total value locked
W3C	World Wide Web Consortium

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Chapter 1

Introduction



Discussing scenarios for the financial system 2030 should obviously start with “money,” as the significance of money is relevant in all economic transactions. Although historically both economic and financial systems developed in parallel, in 1608 the foundation of the Amsterdam Stock Exchange marked the separation of the two systems. With this, financial products that are part of the financial system could be traded without being directly involved in economic transactions of the goods and services they represented. Since then, as a means of exchange, a store of value, and a unit of account, money has been subject to continual change and has been the object of numerous innovations. Especially the current transformation through technology paired with the ongoing economic and geopolitical change of the global landscape already has and will continue to have a huge impact on the financial system in the forthcoming years and decades. Digital currencies, digital assets, and digital financial market infrastructures are only the most recent terms of this fundamental redesign—one that goes far beyond previous innovations like automated teller machines (ATMs), credit cards, or mobile payments. When money is detached from its carrier systems, this also has direct implications on the entire financial system.

But what characterizes a financial system? In general, a macro and a micro perspective can be distinguished. The macro perspective defines the financial system as the system that facilitates the transfer of resources from savers to those who need funds, from payors to payees and from creditors to debitees (Boot & Thakor, 1997). In other words, the financial system describes the interaction between the supply of and the demand for the provision of capital and other finance-related services (Schmidt & Tyrell, 2003). The micro perspective, on the other hand, defines the financial system as one sector of the economy that offers and provides financial services to other sectors of the economy. This book aims to describe the macro perspective which itself distinguishes at least four different sub-perspectives (see Table 1.1; Schmidt & Tyrell, 2003). First, the institutional perspective focuses on