Contents

Acknowledgments —— VII Contents Overview —— IX Preface —— XVII			
		1	Introduction of FinTech and Blockchain —— 1 Introduction —— 1 FinTech —— 2
			FinTech Regulations Across the Globe —— 4 Innovative Application in the FinTech Sector —— 7 Smart Contracts —— 8
	Distributed Applications —— 10 Open Banking —— 11 Security Tokens —— 12		
	Distributed Ledger Technology —— 13 The Frameworks of DLT —— 14 The Distributed Nature of the Ledger —— 15		
	The Consensus Mechanism —— 15 The Cryptographic Mechanisms —— 15 The Concept of DLT —— 16		
	Connection of DLT and Blockchain —— 18 Blockchain —— 19 The Benefits and Drawbacks of Blockchain —— 20		
	Benefits —— 20 Drawbacks —— 21		
	Chapter Summary —— 21 References —— 23 Further Reading —— 24		
2	Evolution of Cryptocurrency and Digital Currencies —— 25 Introduction —— 25 Features of Cryptocurrency —— 25		
	Differences Between Cryptocurrencies and Digital Currencies — 27 History and Development of Cryptocurrencies — 27 Cryptocurrencies in the World — 30 Fraud in Cryptocurrencies — 31 Underlying Technologies — 32		
	Frameworks of Crypto and Digital Currencies —— 33 Ethereum —— 34		



```
Ripple — 34
    Price Stability --- 35
    Regulation of Cryptocurrencies ---- 37
        Regulation in Europe — 37
        Regulation in the United States --- 39
        Regulation in Asia — 41
        Regulation in Africa — 42
    Significant Advantages and Disadvantages of Cryptocurrencies —— 42
        Advantages of Cryptocurrencies — 42
        Disadvantages of Cryptocurrencies — 43
    Chapter Summary — 44
    References --- 45
    Further Reading — 46
3
    Evolution of Central Bank Digital Currencies — 47
    Introduction — 47
    Overview of Central Bank Digital Currencies — 47
    Position of CBDCs in the Modern Payments System —— 49
    The Concept of Central Bank Digital Currencies — 50
        Conceptual Framework — 50
        Features of CBDCs --- 51
        Proposed Role in Terms of Consumers — 52
        Accounting Treatment for CBDCs — 52
        Journal Entry for Businesses --- 53
        Journal Entry for Central Bank — 53
        Disclosure of CBDC-Based Transactions for Companies — 54
        Disclosure of CBDC-Based Transactions for Central Banks — 54
    CBDCs' Role in the Banking System — 55
    Scenarios of CBDCs' Adoption — 56
        Coexistence — 56
        Complementarity — 56
        Takeover — 57
    Synthetic Central Bank Digital Currencies — 57
        Challenges --- 58
        Legal and Regulatory Approaches — 58
        Issue of Privacy --- 59
    CBDCs' Currency Stability Compared to Fiat Currency — 59
    CBDCs and Financial Inclusion --- 60
        Risks to Financial Intermediation —— 61
    CBDCs Supporting Technology Overview —— 62
    Advantages of CBDCs --- 62
    Disadvantages of CBDCs — 63
```

```
Cybersecurity Risks affecting CBDCs --- 63
    CBDC Credential Loss and Theft — 63
    Privileged Role of Users — 64
    Quantum Computing — 65
    Privacy ---- 65
CBDCs as a Potential Replacement of Cash — 66
    Inclusion of Commercial Banks into the CBDC Scheme — 67
    Maintaining the Two-Tier System — 68
    Programming CBDCs to Support Commercial Banks — 68
CBDCs' Impact on the Global Financial System — 69
The Ideal Form of CBDC for Future Use --- 70
    The Development of Finance Decentralization and Digitalization's
    Beneficial Effects --- 70
    Preparing for the Payment System of the Future — 71
    Stability of Finance --- 72
    International Considerations — 72
    Technical Experimentation and Research — 72
Chapter Summary — 73
References — 75
Further Reading — 75
Differences Between Central Bank Digital Currencies and
Cryptocurrency — 77
Introduction — 77
Central Bank Digital Currency — 77
Cryptocurrency — 78
CBDC vs. Cryptocurrency — 79
    Conceptual Differences — 79
    Openness --- 79
    Permissibility --- 80
    Scalability --- 80
    Decentralization --- 80
    Application Scenarios — 81
    Design Requirements — 81
    Operation Differences --- 83
    Central Bank Digital Currency ---- 83
    Cryptocurrencies — 84
Chapter Summary — 85
References — 86
Further Reading ---- 86
```

Central Bank Digital Currencies Around the World —— 87
Introduction —— 87
Sand Dollar: The Central Bank of the Bahamas' Digital Currency —— 87
Key Players in the Creation of Sand Dollar —— 95
Security Features of the Sand Dollar —— 96
Types of Sand Dollar —— 96
JAM-DEX: The Bank of Jamaica's Digital Currency —— 97
DCash: The Eastern Caribbean Central Bank's Digital Currency —— 98
eNaira: The Central Bank of Nigeria's Digital Currency —— 99
Purpose of eNaira —— 100
eNaira Infrastructure —— 101
Types of eNaira —— 102
Risks of eNaira —— 102
Digital Ruble: The Bank of Russia's Digital Currency — 104
Redistribution of Funds into Central Bank Digital Currency —— 104
Bank of Korea's CBDC Initiative —— 105
Project Aber: Saudi Arabia and United Arab Emirates' Digital Currency —— 107
Phases of Project Aber —— 108
Digital Euro: The European Union's Digital Currency —— 109
Digital Yuan: China's Digital Currency —— 110
E-dinar: The Central Bank of Tunisia's Digital Currency —— 111
Project Icebreaker —— 111
Project Nexus —— 112
Similarities between CBDCs around the world —— 112
Chapter Summary —— 112
References —— 114
Further Reading —— 114
The Digital Euro —— 115
Introduction —— 115
The ECB's Scenarios for the Digital Euro —— 115
Approaches from the ECB's Standpoint —— 116
Approaches that Affect Other EU Objectives —— 118
Design Possibilities of the Digital Euro —— 119
Current State and Future Position of the Digital Euro —— 120
Digital Euro as Strengthening Tool for Fiat Euro —— 121
Stability of CBDCs Compared to Fiat Currency —— 121
Can a Digital Euro Help Strengthen the Fiat Euro? —— 122
Chapter Summary —— 122
References —— 123
Further Reading —— 123

The Digital Yuan —— 125 7 Introduction —— 125 The Underlying Technology of the Digital Yuan —— 126 The Framework of Blockchain Service Network —— 126 Framework and Design of the Digital Yuan ---- 128 Benefits of the Digital Yuan —— 130 Cyber and Data Security —— 130 Current State of Digital Yuan --- 131 Chapter Summary — 132 References —— 133 Further Reading — 133 Future Research Directions and Concluding Remarks —— 135 Introduction —— 135 Current Research Area on CBDCs --- 135 Future Research Directions on CBDCs —— 137 Policy Considerations — 138 Concluding Remarks —— 139 Chapter Summary —— 140 References — 140 Further Reading --- 140 Appendix —— 141 List of Figures —— 153 List of Tables —— 155 About the Authors —— 157

Index —— 159