

Index

- Aave, 150
- Absolute return fund, 194
- Account *vs.* token-based system, 291
- Account-based model, 294
- Accounting, 13–14, 223–224
 - standards, 16
- Advance-fee schemes, 205
- Agrotoken, 119
- Algorithmic seignorage stablecoins, 333–335
- Algorithmic stablecoins, 95–97,
 - 98–99, 149
- “All-in-one” solution approach, 115
- Alternative cryptocurrencies, 52–57
- Alternative Investment Management Association (AIMA), 27, 35
- Alternative trading system (ATS), 222
- American Fedwire system, 49
- American Institute of Certified Public Accountants, 246
- American Stock Exchange (AMEX), 158
- Ampleforth, 96
- ANEXIO, 63
- Angelshares (*see* BitShares (BTS))
- Anonymity, 192
- Anti-money laundering (AML), 15,
 - 34, 110, 222, 235, 253, 342
- Anti-money laundering/financial action task force (AML/FAFT), 297
- APower, 81, 88–89
- Application programming interface (API), 19
- Application-specific integrated circuits (ASICs), 126
- Arbitrage, 28
- Arbitrum, 126
- Arca, 172
- ArCoin, 172
- Around-the-clock trading hours, 62–63
- Art industry, 237
- Artificial intelligence (AI), 193
- Assets, 48
 - asset-backed reserve mechanism, 331
 - asset-backed stablecoins, 330–331
 - asset-backed tokens, 117
 - management, 151
 - prices, 190
 - and security tokenization
 - platforms, 117–118
 - tokenization, 117–118
 - tokens, 86
- Assets under management (AUM), 28, 151, 158
- Association for Internationally Certified Public Accountants, 17–18
- Asymmetric technology, 203
- Atomic broadcast, 270
- Atomic settlement smart contract, 316
- Atomic swaps, 275, 345
- Auditing, 16–17
- Australian securities exchange settlement (ASX settlement), 319
- Automated Liquid Exchange (ALEX), 81, 88–89
- Automated market makers (AMMs), 134, 137, 276, 329, 335, 345
- BABB platforms, 134
- Balancer implemented Dapps, 137
- Bancor protocol, 134–135
- Bank of New York Mellon, The, 37
- Base money (*see* Central bank currency)

- Basis Cash (BAC), 96
- Basket trade, 161
- Beefy Finance, 329
- Bilateral clearing, 311
- Binance, 37, 76, 136–137, 152, 164–165
- Binance coin (BNB), 252
- Binance Smart Chain, 55, 108
- Binance USD (BUSD), 76, 148
- Bit gold, 46
- BitCNY, 97
- Bitcoin (BTC), 3–4, 13–14, 18, 25, 34, 46–47, 49–52, 63, 80, 100, 130–131, 141, 143, 158, 174, 189, 245, 342
 - blockchain, 126
 - cash, 48, 55, 245
 - Core project, 130
 - as digital gold, 180
 - gold, 245
 - lightning network, 147
 - network, 331
 - transactions, 63
- Bitcoin futures, 159
 - contract, 160
- BitEUR, 97
- BitMart hack, 33
- Bitrefill, 101
- BitShares (BTS), 97
- Bittrex, 136–137
- BitUSD, 95, 97
- Bitwise, 35
- Bitwise 10 Crypto Index Fund, 35
- Black-Scholes options pricing
 - model, 152
- Blacklist, 110
- Block explorers, 100
- Blockchain, 14, 20, 116, 127, 159, 186, 200–201, 219, 246, 255–256
 - accounting, 223–224
 - Australia–ASX CHES project, 319
 - blockchain-based applications, 329
 - blockchain-based assets, 204
 - blockchain-based currencies, 48
 - blockchain-based technologies, 19
 - compliance, 224
 - cryptographic primitives, 266
 - DeFi considerations, 229–230
 - DeFi risks, 230
 - due diligence, 224–226
 - ecosystem, 316
 - Estonia–Tallin Stock Exchange (now the Nasdaq Tallinn AS), 319
 - foundations of blockchains
 - technologies, 266–269
 - Germany–Deutsche Börse and Deutsche Bundesbank, 320
 - governance, 226–228
 - implications for, 299
 - improving blockchain scalability, 272–275
 - India–SEBI, 319
 - Japan–Japan Exchange Group “B-POST,” 319
 - legal counsel, 220–222
 - misunderstandings and misperceptions in, 203–204
 - networks, 331
 - operations, 226
 - platform, 108
 - provenance, 236–238
 - reporting, 228–229
 - technology, 46, 61, 107–108, 233, 237–238, 241, 243, 315, 351
 - token, 350
 - United States–Nasdaq Linq project, 320
- Blockdata, 235
- Bloomberg, 38
- Bonds, 4
- Borderlessness, 143
- Borrowing, 149–150
- Broker-dealer, 116
- Burn, 100
- Burning, 84, 187
- Byzantine fault, 133
- Byzantine fault tolerance (BFT), 46
- California Consumer Privacy Act (CCPA), 242
 - controller-based processing system, 242

- Cambridge Bitcoin Electricity Consumption Index (CBECI), 51
- Capital asset pricing model (CAPM), 175
- Capital assets, 222
- Capitalization (cap), 63, 179
- Cardano, 55, 118, 144
- Carry investment's profits, 29
- Cash-led economy (payment system), 286
- Celebrity impersonations, 205
- Central bank
 - currency, 288
 - money, 289
- Central bank currency, 288
- Central bank digital currencies (CBDCs), 10, 14, 21, 49, 101–102, 200, 246, 283–302
 - architectural design, 295–297
 - attributes of central bank money, 289
 - central banks, 285–286
 - comparing and contrasting, 291
 - compatibility, 299
 - definition of value proposition and, 284–285
 - era of, 284
 - implications for blockchain and cryptoassets landscape, 299–302
 - infrastructure, 297–299
 - interoperability, 300–301
 - possible representations, 291–295
 - public–private partnership of money, 287–288
 - relationship between cryptoassets and, 302
 - relationship between stablecoins and, 301–302
 - stakeholders, 288
- Central banking systems, 317
- Central clearing, 311
- Central counterparty (CCP), 311
- Central limit order book (CLOB), 276
- Central securities depository (CSD), 310
- Centralized exchanges (CEXs), 136, 275, 318, 335, 342–343, 346–349
- Centralized finance (CeFi), 142, 145, 201
- Cex. io, 136–137
- Chainalysis, 242, 244
- Chainlink, 144
- Checks and balances, 226
- Chicago Mercantile Exchange (CME), 26, 160
- Chief executive officer (CEO), 76
- Child chain (*see* Sidechain)
- Classic NFT, 15
- Classical cryptosystems, 268
- Clearing, 311
- Clearing House Electronic Subregister System (CHES), 319
- Climatecoin, 109
- Codefi Assets, 117
- Coinbase, 136–137, 165
- CoinDesk. com, 221
- CoinMarketCap.com, 4, 37–38, 179
- CoinTelegraph.com, 220–221
- Cold storage, 164, 236
- Cold wallet, 164, 196
- Collateral protection for crypto-backed loans, 153
- Collateralized debt position (CDP), 98, 150
- Commercial retail chain, 82
- Commodities Futures Trading Commission (CFTC), 159–160, 220, 238, 348
- Commodity analogy method, 189
- Commodity pool operator (CPO), 222
- Commodity trading advisor (CTA), 222
- Commodity-based tokens, 351
- Compatibility, 299
- Compliance, 64, 224, 349
 - set-up, 115–116
- Composability, 143
- Compound, 150

- Compression, 267
- Consensus protocols, 269–271
- Consensus-based oracle, 110
- ConsenSys Codefi, 117
- Consumer protection, regulatory. and supervisory domains in, 201–202
- Continental Marketing Corp. v. SEC, 70
- Contract, 226–227
- Corporate actions execution and management, 117
- Cosmos, 143
- Cost approach, 177, 179
- Cost economics, 63
- Council control, 147
- COVID-19 pandemic, 284
- Criminal prosecution, disclosing cryptoassets to avoid, 239
- Cross-chain swap with hashed time lock contracts, 277–278
- Crowdfunder, 146
- Crypto accounting
 - current state of, 16–17
 - framework for, 20–21
 - options, 18–19
- Crypto businesses, 253, 257–260
 - choice of entity considerations, 260
 - equity-based or token-based compensation considerations, 261
 - QSBCs, 260–261
 - structuring considerations, 260
 - tax structuring, 257–259
 - token offerings, 259–260
- Crypto ETF, 160–162
 - SEC's failure to approve, 163–166
- Crypto investing landscape
 - digital asset investment risks, 31–37
 - digital asset valuation, 37–39
 - private funds, 28–30
 - public funds, 30–31
 - regulatory climate for digital asset investing, 26–27
- Crypto-backed stablecoins,
 - overcollateralized, 331–332
- Crypto-collateralized stablecoins, 95, 149
- Crypto-financial reporting, 17–18
- Cryptoassets, 3, 13–14, 85, 125–126, 172, 185–186, 199, 233–234, 238, 242, 247, 329, 346–352
 - analysis, 14
 - characteristics, 127–128
 - contractual issues, 241
 - custody, 234–236
 - disclosing cryptoassets to avoid criminal prosecution, 239
 - distinguishing features, 4–5
 - exchange tokens, 173
 - exchanges, 136–137
 - factors to consider in portfolio containing, 188–189
 - financial accounting and reporting, 246–247
 - financial fraud and data theft, 244
 - foreign asset reporting, 245–246
 - fork management and governance, 245
 - implications for cryptoassets landscape, 299
 - Infrastructure Act, 239–240
 - intended audience, 5
 - IRS enforcement, 240–241
 - jurisdictional issues, 243–244
 - landscape, 14–16
 - legal and regulatory concerns for cryptoasset investors, 245
 - money laundering, 244
 - owners of, 234
 - portfolio and consumer protection strategies for cryptoassets, 208–212
 - price, 4
 - privacy concerns, 242
 - provenance, 236–238
 - purpose, 4
 - reporting options, 18–20
 - risks and threats, 199

- security token regulatory
 - challenges, 238–239
- security tokens, 172–173
- tax accounting, 243
- tax compliance, 238
- tax implications, 242–243
- transfer of, 234
- types, 128–129
- types of cryptoasset frauds, 205–208
- utility tokens, 173
- Cryptocurrency exchanges, 331, 341–352
 - benefits of CEXs, 343–344
 - centralized vs. decentralized exchanges, 342–343
 - CEXs and cryptoassets, 346–349
 - deeper look into DEXs, 345–346
 - disadvantages of CEXs, 344
 - future of crypto exchanges and cryptoassets, 351–352
 - regulated vs. unregulated, 346–349
 - regulations around DEXs, 349–351
- Cryptocurrency markets, 193
 - impact on, 100–101
- Cryptocurrency/cryptocurrencies, 3–4, 14, 25, 45, 48–49, 79–80, 82, 86, 93, 129, 148, 171, 186, 200–201, 234, 241–242, 246, 284
 - alternative cryptocurrencies, 52–57
 - bitcoin, 49–52, 130–131
 - block explorer, 100
 - credit cards, 126
 - dash, 131–132
 - dogecoin, 131
 - exchange tokens, 179–182
 - future performance of cryptocurrencies in portfolio, 190–192
 - intrinsic value, 173–174
 - litecoin, 131
 - potential impact outside, 101
 - security and utility tokens, 174–179
 - space, 242
 - trading, 192
 - transactions, 49
- Cryptographic primitives, 266
- Cryptography, 47, 127, 200, 246
- Cryptos, 189
 - current state of crypto auditing, 17
 - custodians, 236
 - derivatives, 151–152
 - exchanges, 97–98, 351–352
 - framework for crypto reporting, 22–23
 - funds, 195
 - future auditing considerations for, 19–20
 - hedge funds and regulatory regimes, 193–196
 - markets, 347, 351
 - miners, 192
 - space, 258
 - taxation, 257
 - value-added contribution to portfolios, 188
 - wallet insurance, 153
- Currency tokens, 128–129
- Curve, 137
- Custodial banks, 236
- Custodians, 234
- Custody, 114
 - cryptoasset, 234
 - custodial banks, 236
 - digital asset managers, 236
 - exchanges, 235–236
 - self-storage, 235
 - storage keys, 236
 - third-party custody, 234
- Cybersecurity policies of organizations, 19
- Dai, 148
 - emergence of, 98–99
 - of MakerDAO, 95
- Dash, 131–132
- Data confidentiality, 268
- Data theft, 244
- Dative digital securities (*see* Security tokens)
- Decentraland, 87–88
- Decentralization, 142

- Decentralized applications (dApps),
126, 132, 191, 229, 328, 344
- Decentralized asset managers, 329
- Decentralized autonomous
organization (DAO), 70,
129, 203, 226–227, 328, 346
 - DAO 21A Report, 70
 - hack, 153
 - sold tokens, 255
- Decentralized contracting, 147
- Decentralized cryptocurrencies,
20–21, 49
- Decentralized currencies, 145–146
- Decentralized exchanges (DEXs),
136–137, 148, 161, 275,
318, 328, 335, 342–343
 - trading volume, 144
- Decentralized finance (DeFi), 6, 8,
11, 15, 37, 62, 81, 112, 126,
141, 186, 201, 222, 254,
283, 327–338, 344
 - accounting standards, 21
 - algorithmic seignorage stablecoins,
333–335
 - asset-backed stablecoins, 330–331
 - challenges, 337
 - characteristics, 142–147
 - considerations, 229–230
 - decentralized exchanges, 335–336
 - decentralized lending, derivatives,
and asset management,
336–337
 - limitations of, 154
 - overcollateralized crypto-backed
stablecoins, 331–332
 - risks, 230
 - sector, 18
 - stablecoins, 330
 - stack, 143–145
- Decentralized lending, 336–337
- Decentralized payment services,
146–147
- Decentralized projects and
applications, 148
 - asset management, 151
 - borrowing and lending, 149–150
 - crypto derivatives, 151–152
 - decentralized exchanges, 148
 - decentralized insurance, 153
 - insurance, 152–153
 - limitations of DeFi, 154
 - loans collateralized by
cryptoassets, 150
 - payments, 153–154
 - scalability trilemma, 154
 - stablecoins, 148–149
 - uncollateralized cryptoasset loans,
150–151
- Degree of transparency, 48
- Delivery versus payment (DvP), 310
- Depository trust and clearing
corporation (DTCC),
310–317
- Depository trust company (DTC), 310
- Derivatives contracts, 151
- Diem & Co., 99–100
- Digital artwork, 15
- Digital asset investing, 28
 - regulatory climate for, 26–27
- Digital asset investment risks, 31
 - digital asset custody, 33–34
 - fund counterparties and service
providers, 36–37
 - portfolio development, 34–36
- Digital asset managers, 236
- Digital asset offerings under
regulation of Securities
Act, 256
- Digital asset valuation, 37
 - digital assets traded on an
exchange, 38–39
 - illiquid investments, 39
- Digital assets, 25, 249, 252, 254
 - and estate planning applied to
portfolios, 196
- Digital blockchain dollars, 55
- Digital cash, 50
- Digital currencies, 87
- Digital currency/electronic payment
(DC/EP), 102
- Digital footprint, 187
- Digital gold, 50

- Digital ledger, 165
- Digital Ledger Services program, 223
- Digital money, 284
- Digital thieves, 34
- Digital tokens, 81, 86–87
- Direct ownership, 18–19
- Directed acyclic graph (DAG), 273
- Dissent statement, 166
- Distributed denial-of service attack (DDoS attack), 275
- Distributed ledger technology (DLT), 10, 108, 127, 173, 201, 265, 283, 314
- Distributed ledgers, 47
- Dodd-Frank Act, 166
- Dogecoin, 55, 131
- Domestic corporation, 250
- Double taxation, 250
- Double-spending problem, 46
- Drains, 84
- Due diligence, 224
 - new issues, 225–226
 - rug pulls, 225
- dYdX, 126, 132

- e-gold, 130
- E-money, 85
- Early investors, 251
- Eastern Standard Time (EST), 152
- Economic incentive system, 47
- Economic realities test, 74
- Ecosystem assembly, 114–115
- Electronic Data Gathering, Analysis, and Retrieval system (EDGAR), 64, 172
- Electronic money, 74
- Endowments, 4
- Enterprise solutions, 126
- Entity, 250
 - choice of entity considerations, 260
- Entrepreneurs, 250
- Enzyme Finance, 151
- EOS. IO, 133
- Equity, 151
- Equity-based compensation
 - considerations, 261
- ERC-1400 standard for STOs, 75
- Estonia–Tallin Stock Exchange (now The Nasdaq Tallinn AS), 319
- ETH virtual machine (EVM), 126, 144
- Ether (ETH), 63, 80–81, 89, 94, 191, 203
- EtherDelta, 350
- Ethereum (ETH), 14, 54, 80, 89, 108, 118, 126, 132–133, 143, 187, 191, 229, 272
 - blockchain, 81
- Ethereum Classic (ETC), 55, 204
- Ethereum Virtual Machine (EVM), 75, 272
- European Banking Authority (EBA), 201
- European Insurance and Occupational Pensions Authority (EIOPA), 201
- European Securities and Markets Authority (ESMA), 201
- European Supervisory Authorities (ESAs), 201
- European TARGET2 system, 49
- European Union (EU), 74
- Excel (tool), 239
- Exchange tokens, 27, 85, 173, 179–182
- Exchange-traded funds (ETFs), 8, 30, 50, 157–158, 188, 348
 - breakthrough moment in history, 166–168
 - crypto ETF, 160–162
 - dissenting view, 166
 - potential changes, 166
 - regulators, 159–160
 - SEC’s failure to approve Crypto ETF, 163–166
- Exchanges, 235–236
- Exclusion of third-party intermediaries, 127–128
- Executables, 75
- Execution, 311
- Exodus, 172
- Expenses, 31

- Externally owned account (EOA), 136–137, 272
- Extrinsic value, 173–174
- Fair sequencing order, 338
- Fake prizes, giveaways, and sweepstakes, 205
- Farming, 84
- Federal Reserve, 127
- Federal Reserve system (Fed system), 187
- Federal securities law, 254–255
- Federal Trade Commission (FTC), 220
- Fees, 31
- Fiat currencies, 301–302
- Fiat-collateralized stablecoins, 148–149
- Fidelity investments, 162
- Fifth Anti-Money Laundering Directive (5AMLD), 74
- Filecoin, 81, 87
- Financial accounting and reporting, 246
- Financial Accounting Standards Board (FASB), 16
- Financial Action Task Force (FATF), 101
- Financial Advisors Act (FAA), 73
- Financial Conduct Authority (FCA), 27, 74, 81
- Financial Crimes Enforcement Network (Fin-CEN), 220, 222, 245, 350
- Financial fraud, 244
- Financial Industry Regulatory Authority (FINRA), 204, 238, 252
- Financial institutions, 4, 14, 160, 219
- Financial instruments, 74
- Financial reporting, 14
- Financial supervision, 200
- Financial supervisors, 204
- Financial technology (FinTech), 186
- FinTech, 204
- 51 percent hack, 165
- 51 percent attack, 203
- Flash liquidation, 150
- Flash loan, 150, 329
- Foreign asset reporting, 245–246
- Foreign exchange (FX), 313, 343
- Fork attack, 316
- Forking, 130
- Founder control, 147
- Fractional ownership, 63
- Fraud, 200
 - portfolio and investor protection, 200–205
- Fraudsters, 205–206
- Frax, 96
- FTX, 152
- Funding risk, 176
- Funds, 160
 - counterparties, 36–37
 - managers, 27
 - structure, 31
- Future contracts, 160
- Gemini, 136–137
- Gemini Cryptocurrency Exchange, 161
- Gemini USD, 98
- General data protection regulation, 110
- Germany–Deutsche Börse and Deutsche Bundesbank, 320
- Gigabyte-month (GB-Mo), 177
- Gilded (tool), 239
- Bitcoin, 132–133
- Global financial crisis, 191
- Google BigQuery, 47
- Governance, 226
 - DAOs and, 227
 - mechanisms, 147
 - risk, 230
 - traditional cryptocurrencies and, 227–228
- Granger-causal effects, 101
- Graphics processing units (GPUs), 126
- Grayscale Bitcoin Trust (GBTC), 162
- GrayScale Trust, 188

- Greedy heaviest observed subtree protocol (GHOST protocol), 271
- Gross domestic product (GDP), 177
- Hackers, 33–34, 165
- Hacking, 32
- Hard forks, 55, 153
- Harvesting period, 29
- Hash, 46, 127
- Hash function, 266
- Hash time lock contracts (HTLCs), 277
- Hash tree (*see* Merkle tree)
- Hashcash, 46
- HashLock key, 345
- Headline risk, 36
- Hedge funds, 4, 28
- High-quality liquid assets (HQLAs), 301
- Hong Kong Stock Exchange, 37
- Horizon, 114
- Host ideas, 190
- Hot storage, 236
- Hot wallets, 34, 164, 196
- Howey test, 70–72, 173, 347
- Hybrid consensus, 270
- Hybrid tokens, 86
- IBM, 238
- Idiosyncratic risk, 208
- Illiquid investments, 39
- Illiquid private funds, 29–30
- Impairment losses, 16
- Impermanent loss, 336
- Income approach, 175–176, 179
- India–Securities and Exchange Board of India (SEBI), 319
- Individual investors, 4
- Infrastructure Act, 239–240
- Initial coin offerings (ICOs), 6, 81, 88, 112, 146, 178, 186, 200, 222, 254
 - implications for portfolio construction, 186–188
- Initial DEX offerings (IDOs), 81
- Initial exchange offerings (IEOs), 6, 66, 83, 112, 146
- Initial public offerings (IPOs), 146, 167, 186, 206
- Innovation abuse hypothesis, 206
 - implications of, 204–205
- Innovativeness, 142–143
- Instantaneous settlement, 63
- Institutional investors, 31, 33, 37, 193
- Institutions, 233, 245
- Insurance, 152–153
 - policies, 19–20
- Intangible assets, 128
- Intellectual property risk, 176
- Intermediaries, 312
- Intermediated model, 294
- Internal resources, 224
- Internal Revenue Service (IRS), 16, 136, 220, 238, 257
 - enforcement, 240–241
- International Accounting Standards Board (IASB), 16
- International Financial Reporting Standards (IFRS), 16
- International Monetary Fund (IMF), 201, 234, 285
- Internet of things (IoT), 135
- Interoperability, 62, 64, 143
- Intrinsic value, 173–174
- Investment Company Act of 1940, 26, 157, 159–160
- Investment contracts, 173
- Investment period, 29
- Investment-related scams, 205
- Investors, 28, 32, 84, 249, 251–252
 - protection, 200–205
- INX, 172
- IOTA, 135–136
- Japan Exchange Group “B-POST,” 319
- Japan Stock Exchange, 37
- JP Morgan Chase, 37
- Jumpstart Our Business Startups Act (JOBS Act), 72
- Jurisdictions, 73–74

- Keccak256, 127
- Key generation, 268–269
- Know your customer (KYC), 15, 34, 110, 235, 253, 296, 342
 - data, 237
 - process, 94
- Kraken, 136–137
- KuCoin, 33, 38

- Legal concerns for cryptoasset investors, 245
- Legal counsel, 220
 - legal resources, 220–222
- Lehman Brothers, 33
- Lending, 149–150
- Liberty Reserve of e-gold, 95
- Libra, 99–100
- Limit-order book protocol (LOB protocol), 137
- Limited liability company (LLC), 250
- Limited partnership agreement (LPA), 30
- Liquid democracy, 147
- Liquid hack, 33
- Liquid private funds, 28–29
- Liquidity, 31, 328
 - risk, 310
- Liquidity pools (LP), 134, 149, 276, 329
- LiquidShare, 114
- Litecoin (LTC), 47, 55, 130–131
- Loans collateralized by cryptoassets, 150
- London Stock Exchange, 37
- Long/short managers, 28

- Machine learning (ML), 193
- Majors v. South Carolina Securities Commission, 70
- MakeDAO's DAI token, 129
- Maker (MKR), 98
- MakerDAO, 97–98, 328
- Mana, 88
- Margin trading, 311–312
- Market approach, 174–175, 177, 179
- Market depth, 63
- Market forces, 17
- Market share, 178
- Market size, 178
- Marketplace, 159
- MAS, 73
- Mastercard, 82, 134
- Mastercoin project's omni network, 331
- Materiality, 19
- Memory-hungry algorithm, 131
- Merkle tree, 46, 267
- MetaMask, 126, 136–137
- Metaverse, 81
- Metcalf's law, 179
 - and network effects, 180–181
- MicroStrategy Incorporated, 223
- Miners, 46–47, 50, 89, 126
- Mixing, 48
- Modular approach, 115
- Monero (XMR), 55
- Monetary Authority of Singapore (MAS), 62
- Monetary unit assumption, 228
- Money laundering, 244
- Money services businesses (MSBs), 222
- Multi-sig-wallets (*see* Multi-signature wallets)
- Multi-signature wallets, 126
- Multi-strategy, 29
- Multiple CBDC models (m-CBDC models), 299

- Nakamoto consensus, 270
- Nasdaq, 37
- Nasdaq-listed MicroStrategy, Inc., 50
- National Commerce Act (2000), 241
- National Futures Association (NFA), 222
- National Securities Clearing Corporation (NSCC), 314
- Neo, 133
- Net asset value (NAV), 31
- Netting transactions during trade settlements, 311–312
- Network economics, 80
- Network effects, 80, 146, 189
- Network-value-to-transactions (NVT), 179, 181

- New York Stock Exchange (NYSE),
30, 37, 62, 110, 167
- Nivaura, 114
- “No harm” principle, 102
- Nodes, 127
 - level, 267
- Noise, 172
- Non-collateralized stablecoins, 149
- Non-fungible asset, 189
- Non-fungible tokens (NFTs), 15, 37, 88, 128, 165, 189, 240, 246
 - accounting rules and standards, 21
 - holder, 16
- Non-malleability, 267
- Non-tokenized assets
 - crypto business structuring
 - considerations, 260–261
 - digital asset offerings under
 - regulation of Securities Act, 256
 - marketing and securities law
 - considerations, 254–256
 - NY BitLicense, 261–262
 - players, 250–253
 - promises, 262
 - regulatory licenses and
 - registrations, 261
 - structuring crypto businesses, 257–260
 - tokenomics, 253–254
 - Wyoming, 262
- Northern Trust, 37
- NY BitLicense, 261–262
- Object, 192
- Off-chain, 144
 - settlement, 75
 - swap on CEXS, 276
- Offering memorandum (OM), 28
- Office of the Comptroller of the
 - Currency (OCC), 20, 220
- Offshore, 349
- OKEx, 152
- OMG Network, 134
- On-chain, 144
 - settlement, 75
 - swaps with DEXs, 276–277
- Open-source methodology, 127
- OpenSea, 132
- Operation mode, 192
- Operational due diligence (ODD), 31
- Operational risks, 31
- Oracle risk, 110, 230
- Oracles, 95, 108–110, 144, 230, 329
- Order books, 345
- Ouroboros protocol, 271
- Outsources resources, 224
- Over-the-counter (OTC), 26, 161, 270
- PACTE LAW, 86
- PAX Gold, 148
- Paxos, 98, 114, 321
- Paxos Gold, 95
- Payment Services Act (PS Act), 73
- Payments, 153–154
 - channel, 273
 - for order flow, 338
 - tokens, 86
- Pearson correlation coefficients, 56
- Peer-to-peer (P2P), 79, 109, 234, 328
 - basis, 127
 - capabilities, 192
 - matching, 150
 - network, 142, 227
 - payment systems, 192
 - system, 141
 - trading, 342
 - transactions, 46
- People’s Bank of China, 102
- Permissionless blockchain systems, 315
- Phishing, 164
- Plasma blockchain, 274
- Platform tokens, 129, 132 (*see also* Transactional tokens)
 - EOS.IO, 133
 - Ethereum, 132–133
 - Neo, 133
- Platforms, 176–177
- Players, 250
 - investors, 251–252
 - issuer, 250
 - regulators, 252
 - service providers, 253

- Poisson point process, 50
- Polkadot, 143
- Poly Network, 33, 165
- Polygon, 108
- Polymath, 114, 117–118
- Polymesh, 118
- Pooled collateralized debt markets, 150
- Portfolios, 200–205
 - and consumer protection strategies
 - for cryptoassets, 208–212
 - crypto hedge funds and regulatory regimes, 193–196
 - cryptos' value-added contribution to, 188
 - development, 34–36
 - digital assets and estate planning applied to, 196
 - factors to consider in portfolio containing cryptoassets, 188–189
 - future performance of cryptocurrencies in, 190–192
 - ICO implications for portfolio construction, 186–188
 - related issues, 192–193
- Pre-funding, 311–312
- Pre-image resistance, 267
- Pre-paid cards, 82
- President's Working Group (PWG), 22
- Price-to-utility ratio, 179
- Pricing, 174, 189
- Prime brokerages function, 312
- Principal risk, 310
- Privacy coins, 48, 242
- Private funds, 28
 - illiquid private funds, 29–30
 - liquid private funds, 28–29
- Private key, 268, 342
 - cryptography, 50–51
- Private placement memorandum (PPM), 28
- Privately issued stablecoins, 21
- Programmable functions, 192
- Proof-of-burn (PoB), 271
- Proof-of-stake (PoS), 126, 133, 271, 315
- Proof-of-work (PoW), 46, 126, 228, 270, 315
- Proshares Bitcoin Strategy ETF (BITO), 30, 167
- Proshares Trust, 166–167
- Provenance, 238
 - blockchain provenance uses, 237–238
 - cryptoasset, 236
- Pseudo-anonymity, 48
- Pseudo-randomness, 267
- Public blockchains, 52
- Public Company Accounting Oversight Board, 246
- Public funds, 30–31 (*see also* Private funds)
- Public key (pk), 268
 - cryptography, 50–51
 - encryption, 268
- Publicly traded trusts, 30
- Public–private partnership of money, 287
- Quadriga CX trading platform, 164
- Qualified purchasers, 26
- Qualified small business corporations (QSBCs), 260–261
- Quantitative managers, 29
- Quantity theory of money (QTM), 177–179
 - practical application of QTM for utility tokens, 179
- Quorum, 118
- Real-time settlement, 312–314
- Realcoin, 148, 331
- Rebasing, 96
- Reddit, 190
- Redundancy, 47
- Reental, 118
- Regulated Activities Order (RAO), 81, 85
- Regulators, 159–160, 252, 322
- Regulatory activity, 220
- Regulatory concerns for cryptoasset investors, 245
- Report of Foreign Bank and Financial Accounts (FBAR), 245

- Reporting, 228–229
- Research and development (R&D),
 - 102, 284
- Retail model, 294
- Retail payment system, 192
- Reward/risk ratio, 188
- Ring signatures, 48, 55
- RingCT, 55
- Ripple, 135, 147, 154
- Risk capital test, 71
- Risk tolerance, 190
- Rollups, 144, 274
- Rug pulls, 225
- Rule 504, 72–73
- Rule 506, 72–73
- Rules, 75
- Rumors, 190

- S-curve, 181
- Santander Bank, 119
- Scalability trilemma, 154
- Script, 131
- SEC v. W. J. Howey Co, 70
- Secure hash algorithm (SHA), 127
- Securities Act, 251
 - digital asset offerings under
 - regulation of, 256
- Securities Act of 1933, 26, 70,
 - 158–159, 173
- Securities and Futures Act (SFA), 73
- Securities Exchange Act of 1934, 70,
 - 159, 173, 348
- Securitize Markets, 114, 118
- Security, 108
- Security token creation, 115
- Security token offerings (STOs), 6, 62,
 - 64–66, 254
 - conducting, 72–73
 - ERC-1400 standard for, 75
- Security tokenization, 63, 117–118
- Security tokens, 4, 27, 62, 82, 85, 110,
 - 172–179, 318, 351 (*see also*
 - Utility tokens)
 - Binance, 76
 - conducting STOs, 72–73
 - economic rationale, 62–64
 - empirical patterns, 66–69
 - ERC-1400 standard for STOs, 75
 - jurisdictions, 73–74
 - law of, 69–74
 - as smart contracts, 74–75
 - STOs, 62, 64–66
 - technology, 74–76
- Seed phrase, 32, 342
- Seigniorage, 288
 - shares, 95–97
- Self-storage custody, 235
- Semi-strong form efficiency, 57
- Service providers, 36–37, 253
- Set Protocol, 151
- Set.io, 114
- Settlement, 75
 - and custody, 311
 - time and risks in current system,
 - 312–313
- Shadow payment systems, 192
- Shanghai Stock Exchange, 37
- Sharding schemes, 273
- Shards, 273
- Shared ledger, 46
- Sharpe ratio, 188
- Shielded transactions, 55
- Short message service (SMS), 165, 344
- Short selling, 152
- Sidechain, 134, 274
- Silver Hills Country Club v. Sobieski, 71
- Simple agreement for future equity
 - (SAFE), 75
- Simple agreement for future tokens
 - (SAFT), 259
- Single-key cryptosystems (*see*
 - Classical cryptosystems)
- Small and medium sized enterprises
 - (SMEs), 72
- Smart contracts, 17, 19, 54, 61, 95,
 - 112, 116, 186–187, 229, 241,
 - 271–272, 310, 316, 328, 330
 - algorithms for, 142
 - cover, 153
 - interaction, 110
 - oracle, 334
 - security tokens as, 74–75
 - technology features, 62
 - wallet, 236

- Solana (SOL), 55, 108, 118, 144
- Solver, 188
- Sovereign money (*see* Central bank currency)
- Special-purpose depository institution (SPDI), 261
- Spider, 158
- Square, 147
- Stablecoins, 4, 14, 18, 21, 55, 82, 93–94, 148–149, 246, 301–302, 318, 330
 - adoption, 97–98
 - algorithmic stablecoins and seigniorage shares, 95–97
 - creation, 328
 - history and functioning, 97–100
 - issuers, 222
 - market impact, 100–101
 - taxonomy, 94–97
 - trends, challenges, and central bank digital currencies, 101–102
- Stakeholders, 288
- Staking programs, 84
- Standard & Poor's 500 Composite Stock Price Index (S&P 500[®]), 158, 194
- Standard and Poor's Depository Receipts (SPDRs), 158
- Startups, 146
- State Street, 37
- State-machine replication (SMR), 272
- Stealth addresses, 55
- SteemUSD, 97
- Stellar, 108, 135
- Stock clearing corporation, 310
- Stock Exchange Act, 74
- Stock Exchange Ordinance, 74
- Stock-to-flow approach, 189
- Stocks, 4
- Storj, 177
- Strong collision resistance, 267
- Sub-portfolios, 192
- Subscriber identification module (SIM), 344
- Supervisory technology (SupTech), 200, 203
- Sushiswap, 335
- Swap cryptoassets, 114
 - cross-chain swap with hashed time lock contracts, 277–278
 - off-chain swap on CEXs, 276
 - on-chain swaps with DEXs, 276–277
 - technologies used to, 275–278
- Swiss Banking Act, 74
- Swiss Financial Market Authority, 74
- Swiss Financial Market Infrastructure Act, 74
- Swiss Financial Market Supervisory Authority (FINMA), 81, 86
- Swiss National Bank, 288
- Sybil, 132
 - attack, 270
- Symmetric cryptosystems (*see* Classical cryptosystems)
- Synthetix protocol (SNX), 337
- Synthetic instruments, 338
- Synthetic token, 329
- Synthetix, 126, 328
- Systematic risk, 212
- Tangible assets, 128
- Tax accounting, 243
- Tax structuring, 250, 257–259
- Taxpayers, 239, 243
- Technology for cryptoassets, 265–278
 - consensus protocols, 269–271
 - foundations of blockchains
 - technologies, 266–269
 - improving blockchain scalability, 272–275
 - smart contracts, 271–272
 - technologies used to swap cryptoassets, 275–278
- Templum, 114
- Terra, 108
- TERRA-UST, 99
- Tesla, Inc., 50, 76, 223
- Tether, 55, 94, 97–98, 207–208
 - emergence of tether competitors, 98
 - higher trading volumes, 100
 - positive returns on, 101
- Tether Gold, 95
- Tezos, 118

- Third-party custody, 235
- “Tier 2” offerings, 256
- Time-stamping, 46
- TimeLock key, 345
- Token Offerings Research Database (TORD), 66
- Tokenization, 107–108, 128
 - asset and security tokenization platforms, 117–118
 - current tokenized assets and securities projects, 118–119
 - potential benefits of tokenizing traditional assets and securities, 111–114
 - process, 114–117
 - tokenized securities, 109–111
- Tokenized assets
 - crypto business structuring considerations, 260–261
 - digital asset offerings under regulation of Securities Act, 256
 - marketing and securities law considerations, 254–256
 - NY BitLicense, 261–262
 - players, 250–253
 - promises, 262
 - regulatory licenses and registrations, 261
 - and securities, 82, 108
 - structuring crypto businesses, 257–260
 - tokenomics, 253–254
 - Wyoming, 262
- Tokenized funds, 63
- Tokenized instruments, 108
- Tokenized securities, 4, 109–111, 318
- Tokenomics, 252–254
 - design, 80, 83–85
- Tokens, 48, 81–82, 107–109, 128–129, 176–177
 - distribution, 116
 - as investment contracts, 70
 - investors, 252
 - offerings, 259–260
 - token-based compensation considerations, 261
 - token-based model, 294
- Tokeny, 114
- Traceability, 108
- Trade settlements, 309–323
 - blockchain technology projects, 319
 - blockchain technology’s value proposition for, 315
 - blockchain’s risks in, 315–316
 - current system’s cost, 313–314
 - different alternatives, 318
 - implications for cryptoassets, 317–318
 - implications of blockchain, 317
 - intermediaries, 312
 - netting transactions during, margin trading, and pre-funding, 311–312
- Paxos, 321
 - process, 310–311
 - projection–DTCC case study, 320
 - proposition by DTCC and implementation, 314–315
 - recent developments, 322
 - regulation, 321–322
 - settlement time and risks in current system, 312–313
 - smart contracts, 316
- Trading strategy, 192
- Traditional asset-backed stablecoins, 94–95
- Traditional assets, 16
- Traditional cryptocurrencies and, 227–228
- Traditional NFT, 15
- Transaction cost theory, 46
- Transaction layers, 144
- Transactional tokens, 129, 135
 - IOTA, 135–136
 - ripple, 135
 - stellar, 135
- Transactions, 47
- Transition periods, 204
- Transparency, 108, 143
- Trends, 15
- True USD, 98
- Turing complete, 272
- 24-hour market, 192

- Twitter, 147
- Two-factor authentication (2FA), 344
- tZero, 114, 117
- UK's Financial Conduct Authority (FCA), 202
- Unaccredited investors, 72
- Unavailable blockchain address, 84
- Uncollateralized cryptoasset loans, 150–151
- UniSwap, 132, 137, 222, 335, 349
- United States–Nasdaq Linq project, 320
- Units of value, 144
- US Department of Justice (DOJ), 136
- US dollars (USD), 94, 126
- US Generally Accepted Accounting Principles (GAAP), 16, 18, 20
- US Securities and Exchange Commission (SEC), 26, 30, 62, 135, 157–160, 172, 188, 202, 207, 220–221, 238, 246, 252, 255, 310, 348
 - failure to approve crypto ETF, 163–166
 - mission and strategic goals, 163
 - risks, 163
 - rule approval, 166
 - SEC Form S-1, 158
 - security issues, 163–166
- USD Coin (USDC), 55, 98
- USDT, 98
- Utility tokens, 4, 18, 27, 79–80, 82–83, 86, 129, 134, 173–179, 318
 - BABB platforms, 134
 - Bancor protocol, 134–135
 - examples, 87–89
 - forms, 85–87
 - France, 86
 - ICOs, 81
 - OMG Network, 134
 - Switzerland, 86
 - tokenomic design, 83–85
 - United Kingdom, 85
 - United States, 86–87
- Validators, 144
- Valuation discounts, 181–182
- Valuation process, 171–172
- Vampire attack, 335
- VanEck SolidX Bitcoin Trust, 162
- Venture capital (VC), 28, 175, 251
- Venture financing, 146
- Virtual currencies (VCs), 201
- Visa, 49, 82, 134
- Volatility, 16–17, 22
- Volume-weighted average price (VWAP), 38
- Wall Street Journal, The, 349
- Wallets, 145, 342
- Weak collision resistance, 267
- White-collar fraudsters, 204–205
- White-hat hacker, 165
- Whitelist, 110
- Wholesale model, 294
- Wholesale payment system, 191
- Winklevoss capital management, 161–162
- Wyoming SPDI, 262
- XCoin, 131
- Yearn Finance, 329, 337
- Yield aggregators, 151
- Zcash (ZEC), 55
- “Zero lower bound” problem (ZLB problem), 286
- Zero-knowledge proofs, 48
- ZK-rollup, 126
- Zk-SNARKS, 55
- Zodia, 114