



Statement of

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Chairman Crapo, Ranking Member Brown, and Members of the Committee, thank you for the opportunity to appear before you today on behalf of the Congressional Research Service to discuss “Examining Regulatory Frameworks for Digital Currencies and Blockchain.”

As requested, my testimony focuses on the international landscape of digital currencies and emerging policy issues.¹ In particular, I discuss the cryptocurrency market, the approaches adopted by governments to regulate cryptocurrency, and the potential need for harmonization of regulations across countries. I also analyze the potential implications of proposals made by some governments and large multinational corporations (MNCs) to create new digital currencies to be used on a large scale.

Cryptocurrencies: Terminology and Market Developments

Cryptocurrencies are digital representations of value that typically are administered using distributed ledger technology and have no status as legal tender. Distributed ledgers use independent computers to record, share, and synchronize transactions in their respective electronic ledgers, rather than relying on a centralized ledger.² As a result, cryptocurrencies do not rely on government agencies (such as central banks) or financial institutions (such as private banks), both of which are involved in the creation and transfer of fiat money (money that has no intrinsic value, but serves as money by government decree). Most cryptocurrencies usually use a particular type of distributed ledger technology, blockchain, to both secure the ledger using cryptographic protocols and give users some level of anonymity.

The first cryptocurrency, Bitcoin, was launched in 2009, partly in response to concerns about traditional banks and fiat money following the global financial crisis of 2008-2009.³ Over the following decade, thousands more cryptocurrencies were created. As of today, more than 2,200 cryptocurrencies are in circulation.⁴ As the market has developed, different types of cryptocurrencies have emerged that vary on a number of dimensions.⁵

Types of Cryptocurrencies and Related Terminology

Payment tokens are the most well-known type of cryptocurrencies, and are designed to function as a medium of exchange or payment for goods and services. Bitcoin is a payment token, as are Ethereum and Litecoin among others.⁶ **Utility tokens** are digital assets designed to be spent within a certain blockchain system. For example, the Golem platform is a marketplace for computing power; users can earn Golem Network Tokens by renting out unused computational resources.⁷ Another example is Dentacoins: dental

¹ This testimony draws on CRS Report R45440, *International Approaches to Digital Currencies*, by Rebecca M. Nelson. Relevant CRS products also include CRS Report R45427, *Cryptocurrency: The Economics of Money and Selected Policy Issues*, by David W. Perkins; CRS Report R45116, *Blockchain: Background and Policy Issues*, by Chris Jaikaran; CRS In Focus IF10825, *Digital Currencies: Sanctions Evasion Risks*, by Rebecca M. Nelson and Liana W. Rosen; CRS Report R45301, *Securities Regulation and Initial Coin Offerings: A Legal Primer*, by Jay B. Sykes; and CRS In Focus IF10810, *Blockchain and International Trade*, by Rachel F. Fefer.

² “Blockchain & Distributed Ledger Technology (DLT),” World Bank Brief, April 12, 2018.

³ “An Abridged History of Bitcoin,” *New York Times*, November 19, 2013.

⁴ “Cryptocurrency Market Capitalizations,” *CoinMarketCap*, with values as accessed on July 19, 2019. Market capitalization data is not available for about 400 cryptocurrencies.

⁵ Rebecca Campbell, “The Ultimate Cryptocurrency Explainer: Bitcoin, Utility Tokens, and Stablecoins,” *Next Web*, February 13, 2019.

⁶ “Payment Tokens,” *Medium*, November 14, 2018.

⁷ Maaren Zuidhoorn, “The Technology Behind Ethereum Tokens,” *Medium*, May 9, 2019.

patients can earn the coins by giving dentist reviews and other activities and use Dentacoins to pay for dental services at participating dentists.⁸

More recently, a new type of cryptocurrency has been created to address the large value fluctuations of the more prominent payment tokens.⁹ “**Stablecoins**” are cryptocurrencies pegged to or backed by fiat currencies, other cryptocurrencies, or precious metals. As their name indicates, these cryptocurrencies are designed to be more stable in value than the earlier payment tokens. Tether and Gemini Dollar, which were designed to be backed by the dollar on a 1:1 ratio, are examples of stablecoins, as are Digix Gold Tokens, which were designed to be backed by gold.¹⁰ Facebook’s proposed new cryptocurrency, the libra, would also be a stablecoin; Facebook is planning to back the libra with a basket of “low-volatility” assets (bank deposits and short-term government securities) from “stable and reputable central banks.”¹¹

Cryptocurrencies are also occasionally referred to as **crypto assets**, to emphasize that these products are in practice closer to financial assets or investments than a functional medium of exchange.¹² The term “crypto assets” is also used to refer more broadly to the expanding universe of financial products underpinned by distributed ledger technology. In addition to digital money, entrepreneurs are increasingly exploring the distributed ledger technology’s application to securities. **Security tokens** are a subset of crypto assets and are used to represent legal ownership of a financial asset, such as equity or debt interests in an enterprise managed principally by others and are often transacted using distributed ledger technology.¹³ One example of a security token is tZero, a subsidiary of e-commerce retailer Overstock. The tZero security token provides its holders with a preferred equity security in Overstock, and features a dividend based on the firm’s revenue.¹⁴

Companies that facilitate the use of cryptocurrencies have also flourished over the past decade. For example, **exchanges** are digital platforms that allow customers to trade cryptocurrencies for other cryptocurrencies and/or fiat currencies. Top exchanges by trading volume are OXEx, Binance, and HitBTC.¹⁵ **Wallets** are applications or interfaces that can be downloaded onto a device to facilitate transacting in cryptocurrencies. Popular wallet apps include Exodus and Copay, among others.¹⁶

Market Trends

The cryptocurrency market is concentrated and volatile. In terms of market concentration, Bitcoin remains the most well-known and widely used cryptocurrency, accounting for 65% of the market.¹⁷ The five largest cryptocurrencies (Bitcoin, Ethereum, Ripple, Litecoin, and Bitcoin Cash) account for over

⁸ Izabella Kaminska, “From Max to Minimum Optimality with Dentacoin,” *Financial Times*, August 4, 2017.

⁹ Tatiana Koffman, “Stablecoins: The Next Generation of Digital Money,” *Forbes*, March 8, 2018.

¹⁰ Hannah Murphy, “Stablecoins are Crypto Sector’s Next Big Bet,” *Financial Times*, November 15, 2018; Frances Coppola, “Tether’s U.S. Dollar Peg is No Longer Credible,” *Forbes*, May 14, 2019.

¹¹ Even though libra is a “stablecoin,” its value would fluctuate against the dollar as currencies in the basket fluctuate. “The Libra Currency and Reserve,” White paper, June 2018.

¹² For example, see Hyun Song Shin, “Cryptocurrencies and the Economics of Money,” *Bank for International Settlements*, June 24, 2018.

¹³ Olga Kharif, “Security Tokens are the New Crypto – But You Probably Can’t Afford Them,” *Washington Post*, February 11, 2019.

¹⁴ Rebecca Campbell, “The Ultimate Cryptocurrency Explainer: Bitcoin, Utility Tokens, and Stablecoins,” *Next Web*, February 13, 2019.

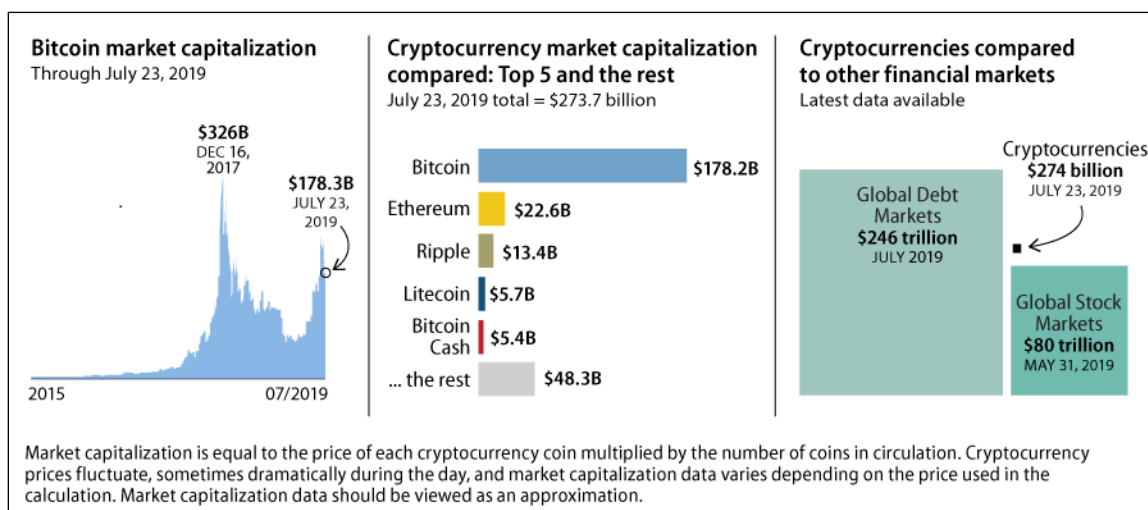
¹⁵ “Top 100 Cryptocurrency Exchanges By Trade Volume,” *CoinMarketCap*, with values as accessed on July 23 2019.

¹⁶ Oliver Rist, “The Best Cryptocurrency Wallets from 2019,” *PC Magazine*, September 18, 2018.

¹⁷ Data on cryptocurrency market valuations in this written statement are from “Cryptocurrency Market Capitalizations,” *CoinMarketCap*, with values as accessed on July 23, 2019.

80% of the market (**Figure 1**). In terms of market fluctuations, the cryptocurrency market (driven largely by Bitcoin) boomed in 2017, increasing from a market value of about \$18 billion in January 2017 to over \$800 billion in January 2018. The market crashed in 2018, with cryptocurrencies losing about 85% of their value by the end of the year. It has somewhat rebounded in 2019, to about \$274 billion in July, comparable in market value to large corporations such as Nestle, Samsung, or Proctor and Gamble.¹⁸ Compared to other global financial markets, however, the cryptocurrency market is small: global stock markets are valued around \$80 trillion and global bond markets are valued around \$246 trillion globally.¹⁹

Figure 1. Cryptocurrency Market Trends



Source: CRS analysis of data from CoinMarketCap (www.coinmarketcap.com), Global Financial Data, Inc., and Institute of International Finance, “Global Debt Monitor – July 2019.”

Potential Benefits and Risks

In general, observers debate whether cryptocurrencies will in time achieve their purported potential, or whether they are another speculative bubble, similar to tulip bulbs in 17th century Holland.²⁰ Proponents argue that cryptocurrencies have the potential to revolutionize the financial and banking industries. Cryptocurrencies could increase payment efficiency, reduce transaction costs of payments and fund transfers, increase participation in the financial system, and facilitate transactions.

Others are more skeptical. Many cryptocurrencies are considered to be volatile, create a host of consumer protection and illicit finance concerns, face an uneven global regulatory environment, and require sizeable energy resources for the associated computations. Some skeptics allege that many cryptocurrencies are effectively a Ponzi scheme and primarily finance illicit activities.²¹

Patchwork of National Regulations

Cryptocurrencies span national borders and are designed for international use, but they are regulated by governments at the national level. Governments around the world are taking different approaches to

¹⁸ IMF, *World Economic Outlook*, April 2019; “The World’s Largest Public Companies,” *Forbes*, accessed July 25, 2019.

¹⁹ Global Financial Data, Inc. and Institute of International Finance, “Global Debt Monitor – July 2019.”

²⁰ Nathaniel Popper, “After the Bust, Are Bitcoins More Like Tulip Mania or the Internet?,” *New York Times*, April 23, 2019.

²¹ For example, see Paul Krugman, “Bitcoin is Basically a Ponzi Scheme,” *Seattle Times*, January 30, 2018; Nouriel Roubini, “The Great Crypto Heist,” *Project Syndicate*, July 16, 2019.

cryptocurrencies, applying different nomenclatures and definitions, and tackling different legal and policy questions. With more than 190 sovereign states in the world and arguably little harmonization of cryptocurrency regulations across countries to date, a complex patchwork of government regulations is emerging. Broadly speaking, government approaches fall across a spectrum from actively encouraging cryptocurrencies to banning them outright.

Actively Fostering Cryptocurrencies

At one end of the spectrum, some governments are actively seeking to become cryptocurrency hubs by attracting and developing cryptocurrency industries in their countries. These governments view cryptocurrency as an important financial innovation that can create jobs and generate economic activity. They have created regulatory frameworks tailored to, and designed to attract, a range of businesses and activities in the cryptocurrency industry, including cryptocurrency exchanges and initial coin offerings (ICOs).

For example, **Switzerland** is seeking to create a cryptocurrency industry, or “Crypto Valley,” a cluster of companies associated with cryptocurrency akin to the cluster of technology companies in Silicon Valley. “Crypto Valley” is located in the canton of Zug. The jurisdiction has tried to attract cryptocurrency companies and exchanges through the early adoption of regulations designed to provide regulatory certainty; these regulations are also generally viewed as favorable to attracting cryptocurrency activities. Multinationals are attracted to Zug’s low tax rates. Companies that created and promote Ethereum, the second largest cryptocurrency by value, are located in Zug, and as many as 200-300 cryptocurrency entities have opened there in recent years.²² The non-profit that is to oversee Facebook’s proposed new cryptocurrency, the libra, is registered in Geneva, where it received a “warm welcome” from officials.²³ By contrast, officials in many other jurisdictions have raised a number of concerns regarding the libra. In 2018, the Swiss finance minister talked about expanding “Crypto Valley” to “Crypto Nation.”²⁴

Similarly, **Malta** is promoting itself as “Blockchain Island.” Its development of “crypto-friendly” frameworks and a blockchain strategy taskforce to advise the government, as well as a favorable tax rate for international companies, has attracted cryptocurrency industries, including two prominent crypto exchanges (Binance and OKEx).²⁵ **Singapore** has also strived to become a cryptocurrency hub in Asia, with analysts describing its regulators as well-informed and transparent about blockchain and cryptocurrency, compared to regulatory uncertainties in other jurisdictions.²⁶ Singapore has embraced crypto-friendly regulations and is a major location for ICOs.²⁷ Singapore has also explored ways to integrate distributed ledger technology into its financial system.²⁸

Banning or Restricting Cryptocurrencies

At the other end of the spectrum, governments have banned the use of cryptocurrencies or specific activities associated with cryptocurrencies. These governments generally view the risks of

²² Anna Irrera and Brenna Hughes Neghaisi, “Switzerland Seeks to Regain Cryptocurrency Crown,” *Reuters*, July 19, 2018.

²³ Hugo Miller and Leonard Kehnscherper, “Facebook’s Cryptocurrency Gets a Warm Welcome in Geneva,” *Bloomberg*, June 25, 2019.

²⁴ Matthew Allen, “Swiss Blockchain Industry Sees Meteoric Growth,” *SWI*, October 10, 2018.

²⁵ For example, see Viren Vaghela and Andrea Tan, “How Malta Became a Hub of the Cryptocurrency World,” *Bloomberg Businessweek*, April 23, 2018; “Regulation of Cryptocurrency Around the World,” Global Legal Research Center, Law Library of Congress, June 2018

²⁶ Joyce Yang, “Singapore is the Crypto Sandbox that Asia Needs,” *TechCrunch*, September 22, 2018.

²⁷ “Singapore Continues to Be a Hotbed for Crypto Companies in 2019,” *Asean Today*, July 29, 2018.

²⁸ *Ibid.*

cryptocurrencies, such as undermining financial stability, lack of investor and consumer protections, and the potential for illicit transactions, as more significant than the possible benefits.

For example, **China** has restricted its banks from using cryptocurrencies as currency, banned ICOs, and restricted cryptocurrency exchanges.²⁹ **South Korea** has also banned ICOs.³⁰ **Algeria, Bolivia, Morocco, Nepal, Pakistan, and Vietnam** ban all cryptocurrency activities; **Qatar and Bahrain** bar domestic cryptocurrency activities; and **Bangladesh, Colombia, Iran, Lithuania, Lesotho, and Thailand** ban financial institutions from facilitating transactions involving cryptocurrencies.³¹ **Egypt** has banned the use of cryptocurrencies to conduct commerce, **Taiwan** has prohibited its banks from accepting or transacting cryptocurrencies, **Indonesia** has prohibited the use of cryptocurrencies for payment, and **Vietnam** does not allow cryptocurrencies to be used as a legal means of payment.³² In **India**, a government panel has recommended banning cryptocurrencies.³³

Balanced Regulation of Cryptocurrencies

In the middle of the spectrum, some governments are seeking to balance encouraging financial innovation and managing the risks posed by cryptocurrencies, while providing greater clarity surrounding the emergency of cryptocurrencies. These governments stop short of banning cryptocurrencies but are not actively seeking to become cryptocurrency hubs. **Most major advanced economies, including the United States, Eurozone countries, and the United Kingdom**, have adopted this type of approach.

Regulatory frameworks in many countries are still evolving, and countries are taking different approaches. Countries often have differing working or legal definitions of cryptocurrencies and are developing differing regulations across a range of issues. Some countries are applying or adapting existing regulations to cryptocurrencies and others are developing new regulations specifically focused on cryptocurrencies. One study finds that even within countries, consensus may be elusive, as different agencies in the same government may adopt conflicting approaches to cryptocurrencies.³⁴

Countries have focused, to varying degrees, on regulations pertaining to cryptocurrencies' permitted usage, tax treatment, application to securities regulations, anti-money laundering/countering the financing of terrorism (AML/CFT) implications, registration and reporting requirements, cybersecurity requirements, and regulations pertaining to financial institutions dealing with cryptocurrencies.

For example, regulators focus on cryptocurrency exchanges, because they provide a nexus between the cryptocurrency market and the traditional financial sector. Exchanges present a number of issues for regulators, particularly related to consumer protections and money laundering. According to one study, nearly 95% of all reported trading in bitcoin is suspected to be artificially created by unregulated exchanges.³⁵ There are also concerns that exchanges are exploited for money laundering.³⁶ Regulators striving to protect consumers and address illicit financing consider what licensing, reporting,

²⁹ Gerry Mullany, "China Restricts Banks' Use of Bitcoin," *New York Times*, December 5, 2013; Chao Deng, "China Bans Fundraising Via Cryptocurrencies, Known as ICOs," *Wall Street Journal*, September 4, 2017; Kenneth Rapoza, "Cryptocurrency Exchanges Officially Dead in China," *Forbes*, November 2, 2017.

³⁰ Oscar Williams-Grut, "South Korea Bans ICOs," *Business Insider*, September 29, 2017.

³¹ "Regulation of Cryptocurrency Around the World," Global Legal Research Center, Law Library of Congress, June 2018.

³² *Ibid.*

³³ Rahul Shrivastava, "Govt Committee Recommends Ban on Cryptocurrency in India," *India Today*, July 23, 2019.

³⁴ Claire Groden, Edorado Saravalle, and Julia Solomon-Strauss, "Uncharted Waters: A Primer on Virtual Currency Regulation Around the World," Center for a New American Security and The Center on Law and Security at the NYU School of Law, September 2018.

³⁵ Paul Vigna, "Most Bitcoin Trading Faked by Unregulated Exchanges, Study Finds," *Wall Street Journal*, March 22, 2019.

³⁶ Nouriel Roubini, "The Great Crypto Heist," *Project Syndicate*, July 16, 2019.

cybersecurity, systems integrity, and AML/CFT regulations to apply to exchanges, among other requirements.³⁷ Part of their calculation may center on whether to apply existing regulations, such as those pertaining to banks, securities exchanges, or other components of the payments or financial system, or whether to develop a new regulatory structure altogether. The different types of cryptocurrencies (for example, payment tokens vs. stablecoins) and the opaque nature of the exchanges may complicate regulators' calculations.³⁸ Different countries have taken various approaches in their licensing, transparency, and AML/CFT requirements.

Cryptocurrency Exchange Regulations: Selected Examples³⁹

- **Australia:** The government requires exchanges to register with the nation's anti-money laundering (AML) agency and implement anti-money laundering and countering the financing of terrorism (AML/CFT) programs.
- **Estonia:** The Supreme Court upheld the Estonian government's application of AML laws to cryptocurrency exchanges. These laws require exchanges that conduct trades over €1,000 (about \$1,200) to meet their customers in person and keep identification records.
- **Japan:** Exchanges must be registered with the Financial Services Agency, obey minimum capital and cybersecurity requirements, and undergo audits, among other stipulations.
- **Jersey (the Channel Islands):** Exchanges above £150,000 (about \$195,000) are required to register with the Jersey Financial Services Commission and comply with AML and CFT regulations.
- **European Union (EU):** The European Parliament adopted a directive that extends AML/CFT regulations to currency exchanges.
- **Luxembourg:** The government requires all exchanges be licensed by the Finance Ministry.
- **Philippines:** Exchanges are required to apply for a certificate of registration, register with AML authorities, and are subject to fees.
- **United States:** The Securities and Exchange Commission (SEC) requires registration of any trading platform that meet its definition of a national securities exchange. The Treasury Department's Financial Crimes Enforcement Network (FinCEN) requires cryptocurrency exchanges to register as money services businesses (MSBs) and implement relevant AML recordkeeping, reporting, and compliance measures. Cryptocurrency exchanges are also subject to state regulations.
- **UK:** Government applies its AML regulations to cryptocurrency exchanges.

Governments also vary in their regulatory treatment of ICOs. ICOs are a process by which new cryptocurrency coins or tokens are issued, and a way to raise capital. In 2018, 2,284 ICOs were concluded, raising almost \$11.4 billion.⁴⁰ Consumer protections are a key concern of ICO regulations: according to one study, nearly 80% of ICOs in 2017 were identified as scams, and only about 8% reached the trading stage on cryptocurrency exchanges.⁴¹ Regulators have focused on when ICOs should be regulated as securities. The issuance of securities is highly regulated in many countries. For example, countries may require registration with a regulating agency and the disclosure of information about the seller and the security. Some countries have developed guidance on the application of securities

³⁷ Daniel A. Leslie, "Cryptocurrency Exchanges and Custody Providers: International Regulatory Development," Norton Rose Fulbright, October 2018.

³⁸ Leslie Ankney, "Who Should You Trust? Understanding Crypto Exchanges and Regulation," *Forbes*, January 30, 2019.

³⁹ Claire Groden, Edorado Saravalle, and Julia Solomon-Strauss, "Uncharted Waters: A Primer on Virtual Currency Regulation Around the World," Center for a New American Security and The Center on Law and Security at the NYU School of Law, September 2018.

⁴⁰ Daniele Pozzi, "ICO Market 2018 vs 2017: Trends, Capitalization, Localization, Industries, Success Rate," *Coin Telegraph*, January 5, 2019.

⁴¹ "Sherwin Dowlat, "Cryptoasset Market Coverage Initiation: Network Creation," Stais Group, July 11, 2018.

regulations to ICOs based on different types of tokens; others are applying existing securities regulations to ICOs on a case-by-case basis.

Initial Coin Offerings (ICO) Regulations: Selected Examples⁴²

- **Canada:** Canadian Securities Administrators released a notice clarifying that many cryptocurrency offerings involve the sales of securities, although it has approved exemptions for some ICOs from securities requirements.
- **France:** The government is considering an ICO licensing regime that would regulate ICO token sales.
- **Hong Kong:** The Securities and Futures Commission released a statement that virtual tokens may be subject to securities laws, depending on the facts and circumstances of an ICO.
- **Switzerland:** The Swiss financial supervisory authority has published guidance on the application of securities regulations by token type, although will review ICOs on a case-by-case basis.
- **United Arab Emirates:** ICOs are regulated as securities offerings on a case-by-case basis.
- **United States:** The SEC may regulate virtual coins or tokens offered as part of an ICO as securities, depending on the specifics of the ICO. ICOs in the United States are also subject to state-level regulations.

National regulators have also considered the tax treatment of cryptocurrencies, and again have arrived at different approaches. For tax purposes, a cryptocurrency could be considered a form of cash, foreign currency, investment, income, commodity, or service. Classification has implications for the tax treatment of transactions and holdings of cryptocurrencies. For example, classification may determine whether cryptocurrency proceeds are subject to income tax, capital gains tax, sales tax, and so forth. Some jurisdictions also differentiate between individual use of cryptocurrency on a small scale and larger-scale cryptocurrency investments and transactions. Likewise, some jurisdictions differentiate between cryptocurrency transactions by corporations and individuals. Another complicating factor is the growing types of cryptocurrencies. As cryptocurrencies proliferate and start to serve different functions, policymakers are faced with whether they should all be taxed the same way.

Tax Treatment of Cryptocurrencies: Selected Examples⁴³

- **Many EU countries** exempt cryptocurrency transactions from value-added tax (VAT).
- **Canada:** Cryptocurrencies are considered commodities and profits from transactions in cryptocurrencies are taxed as a barter transaction, which is subject to income tax.
- **France:** The government updated its tax rules to make cryptocurrencies subject to capital gains tax.
- **Germany:** The government does not tax cryptocurrencies when they are used for payments.
- **Israel:** The government clarified that virtual currency sales would be subject to a capital gains tax and miners and other traders would be subject to a VAT.
- **Poland:** Taxpayers have been advised to file taxes on cryptocurrency trading and profits.
- **Singapore:** Companies that buy and sell cryptocurrencies must pay taxes based on gains from their sale, but gains from long-term investments are considered capital and therefore not taxed (since Singapore does not have a capital gains tax).
- **Sweden:** Cryptocurrencies are not subject to the VAT but may be taxed as capital gains. The application of income vs. economic activity tax depends on the transactions per year.
- **United States:** The Internal Revenue Service found that cryptocurrencies are considered property, not currency, for tax purposes.

⁴² Claire Groden, Edoardo Saravalle, and Julia Solomon-Strauss, “Uncharted Waters: A Primer on Virtual Currency Regulation Around the World,” Center for a New American Security and The Center on Law and Security at the NYU School of Law, September 2018.

⁴³ Ibid.

Despite the differences in regulatory approaches, one global survey of cryptocurrency regulations finds that issuing warnings about the pitfalls of investing in cryptocurrencies is exceedingly common.⁴⁴ Such warnings are usually issued by central banks, and are largely designed to educate citizens about the difference between fiat currencies and cryptocurrencies. The warnings caution that citizens who invest in cryptocurrencies do so at their own personal risk and that consumers have no legal recourse available in the event of loss.

The Need for International Regulatory Harmonization?

The patchwork of national-level cryptocurrency regulations around the world raises the question of whether international regulatory harmonization is needed. In general, major financial regulatory differences among countries can create instability. Regulatory differences can lead to an accumulation of under-regulated activities, financial institutions may engage in regulatory arbitrage, countries may engage in a regulatory race-to-the-bottom, and lax regulation in one country can cause contagious crises around the world.⁴⁵ Countries have worked together in the past to harmonize various financial regulations, including capital standards (the Basel Accords) and shadow-banking activities (G-20 regulatory reforms following the global financial crisis in 2008-2009).

Several policymakers have argued for greater harmonization of cryptocurrency regulations across countries. The G-7 finance ministers and central bank governors agreed in 2018 that international coordination on cryptocurrencies is needed to ensure that regulations are effective in a globally interconnected financial system.⁴⁶ The G-20 finance ministers and central bank governors pledged to work with international bodies to monitor the risks associated with cryptocurrencies and to assess multilateral responses as needed.⁴⁷ Then-Managing Director of the International Monetary Fund (IMF) Christine Lagarde argued that international regulation and supervision of cryptocurrencies is “inevitable.” Additionally, the editorial board of the *Financial Times* argues that a coordinated international regulatory framework for the “wild west” of cryptocurrencies is long overdue.⁴⁸

Some initial international efforts at harmonization of cryptocurrency regulations are proceeding (see textbox below), although more systematic coordination remains elusive. A more aggressive adoption of a one-size-fits all international regulatory structure for cryptocurrencies could have costs, however. It could create distortions, have unintended consequences, and impede innovation, a particular concern in the fast-changing cryptocurrency market. Additionally, the macroeconomic risks associated with cryptocurrencies have been relatively limited to date; in 2018, the **Financial Stability Board (FSB)**, which promotes international financial stability by coordinating national financial authorities and international standard-setting bodies found that cryptocurrency markets do not currently pose a material risk to global financial stability.⁴⁹

⁴⁴ “Regulation of Cryptocurrency Around the World,” Global Legal Research Center, Law Library of Congress, June 2018.

⁴⁵ Jeffrey Frieden, “The Governance of International Finance,” *Annual Review of Political Science*, vol. 19, no. 33-48 (December 2015).

⁴⁶ “Chair’s Summary: G-7 Finance Ministers and Central Bank Governors’ Meeting,” Whistler, British Columbia, Canada, June 2, 2018.

⁴⁷ G-20 Finance Ministers and Central Bank Governors Communiqué, Buenos Aires, Argentina, July 23, 2018.

⁴⁸ Zahraa Alkhalisi, “IMF Chief: Cryptocurrency Regulation is ‘Inevitable,’” *CNN*, February 11, 2018; Editorial Board, “Cryptocurrency Wild West is Crying out for a Principled Sheriff,” *Financial Times*, September 25, 2018.

⁴⁹ “FSB Sets Out Potential Financial Stability Implications from Crypto-Assets,” Financial Stability Board, October 10, 2018.

International Efforts for Cryptocurrency Regulation Coordination

Perhaps most prominently, the **Financial Action Task Force (FATF)**, which promotes effective implementation of legal, regulatory, and operational measures for combatting money laundering and terrorist financing, has adapted its recommendations to clarify their application to cryptocurrencies, including recommending tighter oversight of cryptocurrency exchanges to prevent money laundering.⁵⁰

Additionally, two international standard setting bodies have engaged on questions pertaining to cryptocurrency regulation. The **Basel Committee on Banking Supervision**, a committee of banking supervisory authorities, published guidance on cryptocurrencies for banks focusing on due diligence, governance and risk management, disclosure, and supervisory dialogue.⁵¹ The **International Organization of Securities Commissions (IOSCO)**, an international association of securities regulators, has developed a consultation network where members can discuss ICO issues and is requesting comments on issues pertaining to cryptocurrency exchanges.⁵²

Could Digital Currencies Go Mainstream?

To date, cryptocurrencies have been a relatively small, niche market, dominated by specialized entities and firms and used among a small set consumers.⁵³ The proliferation of cryptocurrencies has generated interest among some governments and large multinational corporations (MNCs). If governments and MNCs move into the digital currency market, the usage of digital currencies could dramatically increase, which would have policy implications for the United States.

Digital Fiat Currencies

Interest is growing among some governments in creating digital versions of their fiat currencies. **Digital fiat currencies** would be exchanged electronically but, unlike cryptocurrencies, would serve as legal tender. There are a wide range of proposals and forms that digital fiat currencies could take. To date, countries are primarily exploring digital fiat currencies as a way to raise money, avoid sanctions, or ensure a safe and efficient payment system.

Sovereign Cryptocurrencies

Some governments have launched or are considering a blockchain-based legal currency to run in parallel with their traditional fiat currency. The most prominent example to date is **Venezuela**. In December 2017, President Maduro of Venezuela announced plans to launch a new digital fiat currency, the “petro,” which would use blockchain technology and be backed by oil reserves and oil commodities.⁵⁴ Maduro hoped that creating and selling a new digital currency could provide the cash-strapped government with a fresh infusion of funds. Maduro also stressed that the petro would help Venezuela “advance in issues of monetary sovereignty, to make financial transactions and overcome the financial blockade,” an apparent

⁵⁰ “FATF Reporting to the G20 Leaders’ Summit,” Financial Action Task Force, June 2019; John O’Donnell and Tom Wilson, “Global Money-Laundering Watchdog Launches Crackdown on Cryptocurrencies,” *Reuters*, June 21, 2019

⁵¹ “Statement on Crypto-Assets,” Basel Committee on Banking Supervision, March 13, 2019.

⁵² “IOSCO Board Communication on Concerns Related to Initial Coin Offerings (ICOs),” International Organization of Securities Commissions (IOSCO), January 18, 2018; “Issues, Risks, and Regulatory Considerations Relating to Crypto-Asset Trading Platforms,” International Organization of Securities Commissions, May 2019.

⁵³ A poll conducted in 2018 found that 92% of Americans do not own any cryptocurrencies, primarily citing lack of interest or practical need. Peter Terlatto, “Here’s Why Americans Aren’t Buying Cryptocurrencies,” *Finder.com*, March 20, 2018.

⁵⁴ Alexandra Ulmer and Deisy Buirago, “Enter to ‘Petro’: Venezuela to Launch Oil-Backed Cryptocurrency,” *Reuters*, December 3, 2017.

reference to U.S. sanctions that restrict Venezuela's access to U.S. financial markets. There were, and continue to be, a number of questions about the currency, including how the oil guarantee works.

The Venezuelan government launched the petro in February 2018 through a private presale that went through mid-March. The government claims it raised \$3.3 billion,⁵⁵ but the amount raised has not been confirmed by an independent audit.⁵⁶ Amidst historically high inflation of its fiat currency, the bolívar, the Venezuelan government in August 2018 devalued the bolívar by about 95%, renamed it the "sovereign bolívar," and pegged it to the petro.⁵⁷ Nevertheless, the petro is not being circulated within Venezuela or sold on any major cryptocurrency exchange, and some analysts have called the petro a scam.⁵⁸ **Iran** and **Russia** have also considered issuing their own cryptocurrencies to evade sanctions, although the details and status of such plans are unclear.⁵⁹

The **Marshall Islands** is also pursuing the launch of a cryptocurrency, the "Sovereign" (SOV). The SOV would become the Marshall Islands' second legal currency and run parallel to the U.S. dollar. By international agreement with the United States (the Compact of Free Association), the U.S. dollar is legal tender in the Marshall Islands.⁶⁰ The primary motivation for the cryptocurrency is to raise revenue for the government; the Marshall Islands is a small country at risk for natural disasters and reliant on the United States for foreign aid. In February 2018, the Marshall Islands' parliament passed legislation to lay the groundwork for the digital decentralized currency. In June 2019, the government established a non-profit organization to develop, implement, and maintain the infrastructure for the SOV.⁶¹

The IMF has raised a number of concerns about the SOV, such as:

- the likelihood that the SOV could become an effective means of exchange;
- the SOV poses serious AML/CFT risks; fluctuations in the SOV's value could create financial risks for the government;
- the SOV requires heavy reliance on a third-party to develop and manage the currency;
- the SOV could be a target for cyberattacks;
- and the legal implications of the SOV are complicated by the international agreement with the United States establishing the U.S. dollar as legal tender in the Marshall Islands.⁶²

Central Bank Digital Currencies

Some governments are also exploring streamlining the electronic payment system for fiat currencies, to provide a more robust and legal alternative to cryptocurrencies. In particular, some governments are

⁵⁵ Eric Lam, "Here's What Maduro Has Said of Venezuela's Petro Cryptocurrency," *Bloomberg*, August 20, 2018.

⁵⁶ Aaron Mak, "What Does it Mean for Venezuela to Peg Its New Currency to a Cryptocurrency?," *Slate*, August 22, 2018.

⁵⁷ Sam Jacobs, "Venezuela Just Devalued the Bolivar by 95% and Pegged it to a Cryptocurrency," *Business Insider*, August 20, 2018.

⁵⁸ Brian Ellsworth, "Special Report: In Venezuela, New Cryptocurrency is Nowhere to Be Found," *Reuters*, August 30, 2018; Katia Moskvitch, "Inside the Bluster and Lies of Petro, Venezuela's Cryptocurrency Scam," *Wired*, August 22, 2018.

⁵⁹ Yaya Fanusie, "Blockchain Authoritarianism: The Regime in Iran Goes Crypto," *Forbes*, August 15, 2018; Max Seddon and Martin Arnold, "Putin Considers 'Cryptorouble' as Moscow Seeks to Evade Sanctions," *Financial Times*, January 1, 2018. For more on the use of digital currencies to evade sanctions, see CRS In Focus IF10825, *Digital Currencies: Sanctions Evasion Risks*, by Rebecca M. Nelson and Liana W. Rosen.

⁶⁰ "Republic of the Marshall Islands: Selected Issues," International Monetary Fund, August 10, 2018.

⁶¹ "Marshall Islands Sets Up Non-Profit to Oversee National Digital Currency," *Coindesk*, June 6, 2019.

⁶² "Republic of the Marshall Islands: Selected Issues," International Monetary Fund, August 10, 2018.

considering whether and, if so how, central banks could make digital fiat currencies directly available to the public, obviating the need for the intermediaries to complete transactions (as is the case currently).⁶³ Transactions involving such “**central bank digital currencies**” could be recorded using distributed ledger technology, but alternative ledgers (including centralized ledgers) would also be possible.

For example, Sweden’s central bank, the Riksbank, is considering the adoption of an “e-krona.”⁶⁴ The e-krona is motivated by the decline in the use of cash in Sweden and the increasing reliance on private payment processors. The Riksbank has argued that the e-krona is necessary to maintain sovereign control over the payment system, and to ensure stability and trust in Sweden’s monetary system, particularly during crises. The e-krona would be issued by the Riksbank and represent a claim on the Swedish state. The e-krona would be denominated in Swedish krona (it would not have a different value system from its traditional fiat currency, the krona) and the Riksbank would have responsibility for the e-krona’s underlying infrastructure. The Riksbank is currently considering a pilot e-krona project to assess its viability. Other central banks including **Canada, China, and Uruguay** are also considering similar initiatives, and the **Eastern Caribbean Central Bank (ECCB)**, the monetary authority for eight island economies, launched a pilot in July 2019.⁶⁵

In contrast, many central banks in advanced economies, including the **U.S. Federal Reserve**,⁶⁶ the **European Central Bank (ECB)**,⁶⁷ the **Bank of England**,⁶⁸ the **Reserve Bank of Australia**,⁶⁹ the **Bank of Israel**,⁷⁰ and the **Reserve Bank of New Zealand**,⁷¹ have argued against the benefits of digital fiat currencies or announced that they do not intend to adopt a digital fiat currency at this time. To varying degrees, they have questioned the need for digital fiat currencies and cautioned that digital fiat currencies could be prone to hacking and undermine financial stability.

Implications for the United States

If other governments create and adopt digital fiat currencies, the policy implications for the United States would largely depend on which countries are involved and how their digital fiat currencies are structured. For example, one of the more nefarious motivations for a digital fiat currency—sanctions evasion—would raise issues pertaining to the enforcement of U.S. sanctions. The adoption of digital fiat currencies by many other major economies could raise concerns about maintaining the role of the U.S. dollar as a reserve currency in the global economy, although the central banks of major advanced economies have

⁶³ Tommaso Mancini-Griffoli, Maria Soledad Martinez Peria, Itai Agur, et. al, “Casting Light on Central Bank Digital Currency,” IMF Staff Discussion Note, November 2018; “Central Bank Digital Currencies,” Bank for International Settlements, March 2018; Claire Jones, “Central Bank Plans to Create Digital Currencies Receive Backing,” *Financial Times*, June 30, 2019.

⁶⁴ Gabriel Söderberg, “Are Bitcoin and Other Crypto-Assets Money?” Economic Commentaries No. 5, Riksbank, March 14, 2018; and “The E-Krona Project, Report 2,” Riksbank, October 26, 2018.

⁶⁵ Christine Lagarde, “Winds of Change: The Case for New Digital Currency,” Speech at Singapore Fintech Festival, November 14, 2018; “ECCB Launches a Digital Currency Pilot,” *Dominican News Online*, July 22, 2019.

⁶⁶ Remarks by Federal Reserve Chair Jerome Powell at U.S. Congress, House Financial Services Committee, *Monetary Policy and the Economy*, 115th Cong., 2nd sess., July 18, 2018.

⁶⁷ Francesco Canepa, “ECB Has No Plan to Issue Digital Currency: Draghi,” *Reuters*, September 14, 2018.

⁶⁸ “Digital Currencies,” Bank of England, August 22, 2018.

⁶⁹ Tony Richards (Head of Payments Policy Department at the Reserve Bank of Australia), “Cryptocurrencies and Distributed Ledger Technology,” Speech at Austrian Business Economists Briefing, Sydney, June 26, 2018, <https://www.rba.gov.au/speeches/2018/sp-so-2018-06-26.html>.

⁷⁰ “The Bank of Israel Published a Summary of the Work of the Team to Examine Central Bank Digital Currency,” June 11, 2018, <https://www.boi.org.il/en/NewsAndPublications/PressReleases/Pages/6-11-18.aspx>.

⁷¹ Geoff Bascand (Governor of the Reserve Bank of New Zealand), “In Search of Gold: Exploring Central Bank Digital Currency,” Speech, June 26, 2018, Auckland, <https://www.rbnz.govt.nz/research-and-publications/speeches/2018/speech2018-06-25>.

largely indicated their intent to refrain from doing so at this time. New digital fiat currencies could also raise concerns about the potential for new vulnerabilities in the international economy and the protection of U.S. consumers purchasing, holding, and transacting in these currencies.

Cryptocurrencies Associated with Large Multinational Corporations

Some large financial and non-financial MNCs are also creating or planning to create their own cryptocurrencies. In February 2019, JP Morgan, which has a presence in over 100 markets worldwide, became the first U.S. bank to create and successfully test a digital coin representing a fiat currency: the JPM Coin.⁷² Goldman Sachs, a major U.S. multinational investment bank and financial services company, is conducting extensive research on “tokenization,” the process for transforming currencies or assets into tradeable digital contracts transacted through distributed ledger technology.⁷³

In June 2019, Facebook, with approximately 2.4 billion active users, announced its plans for the libra, a new cryptocurrency to be backed by assets and supported by more than two dozen companies including Uber, Spotify, Mastercard, and Visa, among others. Libra would be classified as a stablecoin, because its value would be backed by a reserve of assets with a stable value. In contrast, the value of Bitcoin, for example, fluctuates depending on users’ beliefs about its worth. Relative to the U.S. dollar however, the value of the libra would fluctuate, because the reserve assets would be denominated in a basket of currencies. The Libra Association, the non-profit established by Facebook in Switzerland to oversee the currency, is targeting a launch date for the libra in the first half of 2020.

Following Facebook’s announcement, China’s central bank is reportedly reconsidering an officially sanctioned cryptocurrency after previously banning them; there is speculation they could develop a cryptocurrency associated with WeChat.⁷⁴ WeChat is a popular messaging app in China with 1.1 billion active users and has an affiliated payment system (WeChat Pay) that transacts money in Chinese yuan and through Chinese banks.

By tapping their large customer bases and networks, these or other major institutions aspire to take cryptocurrencies mainstream. Upscaling the size of the cryptocurrency market could magnify cryptocurrency’s benefits, including cheaper and easier transactions and broader financial inclusion. Their proposals also magnify existing concerns about cryptocurrency, including consumer protections and money laundering, as well as introduce new concerns about sovereign control of money, global stability, and privacy.

Debating the Merits of the Proposed Libra Cryptocurrency

Facebook has garnered far more interest and backlash against its cryptocurrency plans than other traditional financial MNCs, due to questions about Facebook’s alleged lack of expertise in the banking sector, the size of its network, and concerns about its handling of user data.⁷⁵ In July 2019, the G-7 finance ministers and central bank governors agreed that the libra raises “serious regulatory and systemic concerns, as well as wider policy issues, which both need to be addressed before such projects can be implemented.”⁷⁶

⁷² “J.P. Morgan Creates Digital Coin for Payments,” J.P. Morgan, February 14, 2019.

⁷³ Alastair Marsh, “Goldman Sachs Explores Creating a Digital Coin Like JPMorgan’s,” *Bloomberg*, June 28, 2019.

⁷⁴ Kenneth Rapoza, “Beijing Begins Imaging a WeChat Cryptocurrency,” *Forbes*, July 8, 2019.

⁷⁵ Matt Levine, “Facebook’s Crypto Annoys Everyone,” *Bloomberg*, July 17, 2019.

⁷⁶ “Chair’s Summary: G-7 Finance Ministers and Central Bank Governors’ Meeting,” Chantilly, France, July 18, 2019.

If the project moves forward, the libra may have the most appeal for consumers in developing countries who do not have access to traditional banking systems (the “unbanked”). The World Bank estimates that 1.7 billion adults are unbanked, yet two-thirds of them own a mobile phone that could help them access financial services.⁷⁷ The libra would provide these consumers with the ability to store and transact money digitally from mobile phones. The libra could also potentially benefit the senders and receivers of remittances by dramatically reducing fees, potentially to zero. Even among these potential users, however, there are questions about whether the libra could effectively replace cash in developing countries, currently the dominant method of payment.⁷⁸

The libra may have less appeal to consumers in developed countries with access to traditional banking systems. Unlike fiat money held in a traditional bank account, libra holdings would not earn interest or be backed by deposit insurance. Libra users would assume foreign exchange risk by holding libra and maintaining payment obligations, such as taxes, denominated in the traditional fiat currency. Users would also need to accept the risk that the value of their libra holdings could change relative to the domestic fiat currency if the Libra Association changed the currency composition of the reserve basket.

The libra’s reserve assets are critical to its operation, but raise a host of policy questions. Examples include the following.

- If the libra scales to the size envisioned, it is unclear how this will affect markets of “safe” assets, as the libra reserve becomes a huge buyer and holder of them.
- It is also unclear what the implications of concentrating safe assets into one private institution would be; some policymakers are already concerned about the large size of some technology and financial firms.
- There are also concerns about what would happen if the assets in the libra’s reserve deteriorate; what is a safe asset one day may not be safe the next. For example, if one of the currencies in the libra’s basket collapses, it could trigger a run on the libra, necessitating a broad selloff of the libra’s reserve assets.⁷⁹ Depending on the size, such a selloff could trigger a significant financial crisis.

Strong regulations could address some concerns about the libra’s reserve assets, but there are questions about who and how the libra would be regulated.⁸⁰ The regulatory framework is complicated by the number of jurisdictions in which Facebook is proposing to operate, and the different aspects of the libra project that could require regulation: the libra itself, the Libra Association, and Facebook’s proposed libra wallet app, Calibra. In response to backlash from some regulators, the Libra Association appears to be shifting its approach. The libra’s white paper asserts that it would operate as an open and largely decentralized network after five years. Subsequently in public statements, the Libra Association appears to be stressing that it would shoulder significant responsibility for ensuring compliance with various regulations.⁸¹

The libra also upends the debate about privacy and cryptocurrency. Previously, concerns about privacy in cryptocurrency markets focused on whether users had too much privacy: that by partially shielding user identities, cryptocurrencies allowed bad actors to engage in nefarious and illegal activities. The libra

⁷⁷ “Financial Inclusion on the Rise, But Gaps Remain, Global Findex Database Shows,” World Bank Press Release, April 19, 2018.

⁷⁸ Annie Lowrey, “What Facebook Can Do for the Global Poor,” *The Atlantic*, June 27, 2019.

⁷⁹ David Z. Morris, “Facebook’s Libra Currency Could Threaten the Global Financial System. Here’s How,” *Fortune*, July 18, 2019.

⁸⁰ Gregory Barber, “Everyone Wants Facebook’s Libra to Be Regulated. But How?,” *Wired*, July 18, 2019.

⁸¹ Timothy B. Lee, “Facebook is Backpedaling From Its Ambitious Vision for Libra,” *Ars Technica*, July 18, 2019.

inverts the policy discussion to focus on protecting user data. In particular, concerns focus on how users' data on financial transactions would be protected, and not merged with user data from other Facebook platforms. Although the head of Calibra has pledged that ensuring privacy is a top priority, many analysts are more skeptical given previous scandals involving Facebook's use of user data and the dependence of Facebook's business model on collecting and monetizing user data.⁸²

Conclusion

Cryptocurrencies are a relatively new market that is still rapidly evolving. Bitcoin was introduced in 2009, and initially existed in obscurity. Now thousands of different cryptocurrencies are in circulation with a value of about \$270 billion. Governments have responded differently to the rise of cryptocurrencies, and a patchwork of national regulations has been developed. Given the mismatch between the international nature of cryptocurrencies, and their regulation at the national level, there is increasing discussion about whether cryptocurrency regulations need to be harmonized across countries.

Today's cryptocurrency market is much smaller than other global financial markets. However, digital currencies may have the potential to be adopted more widely, as central banks and large MNCs look to create their own digital currencies. Large-scale adoption of digital currencies could have a range of policy implications for the United States, including financial stability, consumer protections, AML/CFT, privacy considerations, and sanctions policy, among others.

⁸² Testimony by David A. Marcus, Head of Calibra, Facebook, U.S. Congress, Senate Committee on Banking, Housing, and Urban Affairs, *Examining Facebook's Proposed Digital Currency and Data Privacy Considerations*, 116th Cong., 1st sess., July 16, 2019; Frances Coppola, "The Real Threat From Facebook's Libra Coin," *Forbes*, June 30, 2019.