UNIFORM COMMERCIAL CODE and EMERGING TECHNOLOGIES

Uniform Law Commission

June 28, 2022

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OVERVIEW

The Uniform Commercial Code represents the basis for our most fundamental rules regarding contracts and commercial transactions. The purposes of the UCC are explicitly stated in Article 1 Section 1-103: (1) to simplify, clarify, and modernize the law governing commercial transactions; (2) to permit the continued expansion of commercial practices through custom, usage, and agreement of the parties; and (3) to make uniform the law among the various jurisdictions.

Digital assets, such as cryptocurrency, are a burgeoning form of investment and financing, with tech companies boasting of their potential and many others participating eagerly in the new distributed market technology, and others yet cautiously waiting and avoiding the so-far largely unregulated and unpredictable waters. Cryptocurrency is an electronic medium of exchange that is backed by other money, assets, or claims. The main features of cryptocurrency are (1) advanced cryptography, which relates to the digital code associated with the stored value, and (2) distributed ledger technology (DLT), which involved a shared electronic database that stores copies of the information. An example of distributed ledger technology is blockchain, which adds a "block" (transaction) to the "chain" (the ledger) and creates a chronological record of transactions for the associated cryptocurrency. Cryptographic keys are created to assign a particular unit of cryptocurrency to its owner. Cryptocurrency can be traded through peer-to-peer transactions or through a centralized online cryptocurrency exchange. Non fungible tokens (NFTs) are another type of digital asset in the form of a unique code stored in a DLT system that represents rights to a particular asset.

To better understand the work of the Uniform Law Commission's Committee on the Uniform Commercial Code and Emerging Technologies, this document provides both a review of updates on the Draft UCC and, to understand the context of these changes, a summary of and legal insight into recent developments and trends related to integrating virtual currency into the global commercial marketplace as well as into our statutory and regulatory structure.

I. UCC Draft Summary

The UCC Draft includes significant updates to include virtual currency in its provisions, such as amendments to the definition of "money" and "conspicuous," and to provide some degree of regulation and oversight to virtual currency transactions, which are already prevalent in the commercial marketplace. Most notably, extensive updates are made throughout Article 9 to accommodate emerging technologies in the world of Secured Transactions, and Article 12 relating to "Controllable Electronic Records" has been newly drafted as well. The UCC Draft also includes general amendments throughout its various articles, such as clarifying provisions regarding hybrid or bundled transactions. Since changes are extensive, the Draft also includes clarifying transition provisions to assist states with implementing legislation.

A. General Amendments

"Money" definition

To accommodate the use of virtual currencies in the marketplace and recognizing the value that they represent, the definition of "money" in Section 1-201 is updated to reject the previously narrower definition that money is limited to legal tender. This expands the meaning of "money" to include an electronic medium of exchange established pursuant to a country's law and that is recorded and transferable in a system that did not exist and did not operate for that medium of exchange before that electronic medium of exchange was authorized or adopted by the country's government.[1]

The amended definition of money includes "tangible money" and "electronic money," which is described as a new type of collateral under Article 9. Since the February 28 draft, the meaning of "money" for purposes of the UCC was amended further to exclude money in electronic form that cannot be subjected to control under 9-105A. These updates carry weight for provisions throughout the UCC.

"Writing" versus "record"

The drafting committee has been conscious of continuous technological growth and innovations, maintaining technological neutrality in the language choices in several of the updates and amendments to the UCC so that they may endure the imminent developments of emerging technologies.

For example, by replacing references to a "writing" with "record," the Draft clarifies that a physically signed paper copy of a document may not be required to evidence authentication. Emerging technologies rely largely on electronic records and virtual exchanges of information,

[1] *See* Reporter's note, Draft page 15. Draft page numbers in this document are references to the May 31, 2022 Informal Meeting Draft of the UCC.

and this change from "writing" to "record," as well as the shift from "signed" to "authenticated" are found throughout the Draft.

"Conspicuous" definition

With similar considerations of technological neutrality in mind, the definition of "conspicuous" is revised in the Draft UCC to function properly for any device on which the UCC may require information, such as disclaimers or waivers, to be displayed conspicuously. The updates to this definition are largely found in the comment rather than in the language of Section 1-201. Section 1-201 states that whether a term is "conspicuous" or not is a decision for the court, and the comment includes guidance for courts such as factors to evaluate "conspicuous" in practice.

For instance, the comment states that the attributes of a reasonable person against which a term is to operate can vary depending upon the nature of the transaction and the market in which the transaction occurs. The factors listed for judicial guidance include the appearance of headings and text in contrast to the surrounding text, the placement of the term, the effort needed to access the term, and others.[2]

Article 2: Bundled transactions

Articles 2 and 2A of the UCC Draft include updates to the provisions governing sales and leases to provide clarification to courts and transacting parties on which standard to apply in the case of hybrid or bundled transactions. Courts have varied on their approaches on whether or not such transactions fall entirely within the scope of Article 2 to the exclusion of other law, with most using either the "predominant purpose test"[3] or the "bifurcation approach."[4] The Draft UCC adds definitions for "hybrid transaction" and "hybrid lease" and, via the official comment, provides guidance on how to apply the "bifurcation test" as a two-part inquiry. The approach adopted by the Draft is as follows: if the goods aspects of the hybrid transaction or hybrid lease predominate, then Article 2/2A applies, but if other aspects predominate then the provisions of the Article which relate primarily to the goods, but not to the transaction as a whole, apply.[5]

Providing this clarification on how to evaluate hybrid transactions is helpful for courts and timely considering the current and expected increases in contracts consisting of both goods and services. In addition to hybrid transactions involving a simultaneous sale plus financing agreement, many companies now offer the sale of a product that includes a standard installation

[2] *See* Comment, Draft page 14.
[3] Essentially, either all of Article 2 applies to the transaction or it doesn't, depending on whether the transaction is predominantly about the goods or if other aspects of the transaction predominate.
[4] Meaning that Article 2 would apply to the sale-of-goods aspect of the transaction and other law would apply to other aspects of the transaction.
[5] *See* Official Comment, Draft page 41.

service contract. Another example of an increase in servitization is that the sale of a tech product may be coupled with a contract for ongoing services and software updates that are required for the device to continue functioning properly. Updates to Articles 2 and 2A will influence how these transactions will be structured and documented in the future.

B. Article 9: Secured transactions

Article 9 of the UCC Draft reflects updates to cover digital assets, such as CERs, and to adapt the traditional rules for attachment and perfection to apply to digital assets. Revisions to Article 9 begin with amendments to several definitions, including "accounts," "assignee," "chattel paper," and "money" and the addition of "electronic money."

The definition of "chattel paper" is reconfigured in the UCC Draft to reflect the concept that chattel paper is a secured party's or lessor's right to payment that is secured by specific goods or owed by a lessee under an agreement that includes specific goods, if evidenced by a tangible or electronic record.[6] The current definition refers rather to the tangible or electronic record itself that evidences a right to payment and the associated goods that secure that right to payment.[7]

Currently, Article 9 states that the perfection of "money" is through possession; however, since "money" is amended to include intangible assets, possession may not be possible. For electronic money, the new Article 9 describes perfection by control. Perfection by control will apply even if the electronic money is in a deposit account, but if not, then a CER is required to achieve perfection by control.[8] CERs, such as distributed ledger technology, and payment rights tethered to CERs, are described at length in the new Article 12 of the Draft, while Article 9 explains the way to perfect and control virtual currencies in secured transactions.

Perfecting a security interest in chattel paper can be achieved by filing a financial statement or by obtaining control of all tangible and electronic copies of records evidencing the chattel paper.[9] If there is only one single authoritative copy, then a party may obtain control by possessing the tangible or electronic copy and by satisfying the six factors listed under Section 9-105(b). For control of multiple authoritative copies of records evidencing chattel paper, subsection (c) applies. One of the requirements listed is that the record or system must give the purchaser of the chattel paper exclusive power to "(A) prevent others from adding or changing an identified assignee of each authoritative electronic copy; and (B) transfer control of each authoritative electronic copy.[10] However, this power may be shared with another person as explained in subsections (d) and (e). Section 9-105A parallels these same provisions with

[6] Draft page 118-119.
[7] Id.
[8] Id.; see Article 12.
[9] Draft page 130.
[10] Draft page 131.

respect to control of electronic money.[11]

One of the impacts of adopting the Draft UCC amendments would be in the sphere of asset-backed receivables to be financed or purchased in capital markets. If virtual records are involved, then participants should ensure that the system aligns with the new Article 9 rules for perfection and priority. Section 9-317 outlines the rules for priority over and for take free of security interests and contains amendments to specify the rules for buyers of chattel paper, electronic documents, controllable electronic records, and controllable accounts and controllable payment intangibles.[12]

To accommodate emerging technologies and developing markets, the explanation of the term "recognized market" in Article 9 has been updated extensively through the Official Comment on Draft page 175. The term is used to determine market prices for disposition of collateral and determining if conduct was commercially reasonable.[13] The comment explains that the goal of using a recognized market is to avoid bias among affected parties, and the comment explains that the recognized market may not have specific regulatory supervision but should maintain and meet certain guidelines, even if self-regulated. The comment goes on to list several examples of potential recognized markets and explains that the focus should be on whether the market produces reliable data and is consistent with the purposes of the UCC provisions.[14] This explanation leaves room for new technologies and emerging markets to become recognized markets and provides guidance for courts, practitioners, and affected parties for what factors make a recognized market for purposes of Article 9.

Article 9 also includes updated governing law provisions for perfection and priority of security interests in chattel paper and in controllable electronic records, controllable accounts, and controllable payment intangibles. [15] If chattel paper is evidenced by an electronic authoritative copy, then the jurisdiction of the electronic chattel paper applies, and Section 9-306A includes a waterfall of scenarios to determine the jurisdiction, starting with what is provided in the record and ending with the debtor's jurisdiction, which location also applies if the chattel paper is perfected by filing.[16] For controllable electronic records, controllable accounts, and controllable payment intangibles, Section 9-306B instructs that for perfection and priority jurisdiction is determined by Article 12's choice of law rules in Section 12-107. However, the location of the debtor shall apply if the security interest is perfected by filing or automatically perfected through sale.[17]

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[11] Draft page 134-136.
[12] See also Section 9-326A; Section 9-332 for transferees of electronic money.
[13] Sections 9-611 and 9-627(b).
[14] Draft page 175-177.
[15] Sections 9-306A, 9-306B.
[16] Section 9-306A (d), Draft page 150.
[17] Section 9-306B (b), Draft page 152.

C. Article 12: Controllable Electronic Records

The new Article 12 of the Draft UCC covers controllable electronic records, such as virtual currencies, NFTs, and digital assets with embedded payment rights, and explains what payment rights a purchaser would acquire in a controllable electronic record (CER) when transferred. To fall within the scope of Article 12, an electronic record must be controllable, and to transfer the economic value associated with a CER or to receive the benefits associated with a CER free of competing property interests, a person must have control of the CER. This Article 12 concept of control depends on three requirements: (i) the CER, an attached record or associated record, or the recording system must give a person the power to receive the benefit of the CER, (ii) the person must have exclusive power to prevent others from receiving such benefit, and (iii) the person must have the ability to transfer control of the CER.[18]

Article 12 accommodates qualifying purchasers of CERs, provided that the purchasers obtain control of a CER for value, in good faith, and without notice of any competing property interests.[19] Such a purchaser would receive control of the CER free of any competing claims.[20] Section 12-104 states that generally, Article 9 or other law would apply to determine the rights a person actually acquires in a CER, but provides an exception for qualified purchasers of controllable accounts and controllable payment intangibles, which are accounts and payment intangibles evidenced by a CER. For these monetary obligations, a qualified purchaser would take free of any other claims under Article 12. This represents a reiteration of the "shelter principle" by which a purchaser would receive whatever rights the transferor had to offer.

Article 12 also relates to Article 9 in terms of security interests in which a debtor would pay the person identified as in control of the CER, and to demonstrate control for matters of priority and order of payment rights. Under Article 12, the concept of "control" functions primarily for two purposes: (1) to satisfy the definition of a CER, per Section 1-102(a)(1), and (2) control is required to be a qualified purchaser. The Article 9 concept of "control" functions to perfect a security interest in a CER, per Section 9-107A, and such perfection would have priority over other methods. Additionally, as described in Section 9-102, a security interest evidenced by CER would provide that the debtor undertakes to pay the person in control of the CER. Article 12 specifies that for controllable accounts or controllable payment intangibles, an account debtor may discharge its obligation by paying the person in control of the CER. In cases of conflict between the provisions of Articles 9 and 12, Article 9 would govern.[21]

Article 12 also includes choice of law provisions in Section 12-107, which list a waterfall of situations to determine jurisdiction, starting by looking at the record and associated records,

[18] Section 12-105.
[19] Section 12-102, Draft page 197.
[20] See also: "holder in due course," Section 3-306.
[21] Section 12-103, Draft page 199.

and ending with jurisdiction in the District of Columbia. These provisions are relevant for electronic mediums of exchange and transfers of assets because, depending on the system, it is not always possible to find the location or name of the debtor to determine jurisdiction.

D. Transition Rules (Annex A)

Annex A is a set of Transition Rules drafted to address perfection and priority issues after the effective date of legislation adopted for these UCC amendments, particularly to accommodate Article 9 and Article 12. The Transition Rules have an option for states to provide an effective date for this act based on their legislative processes rather than prescribing a uniform effective date. Additionally, states are instructed to add an "adjustment date" of one year after the effective date to allow people with established perfection or priority to perfect their interests that may otherwise be affected or lost after the adjustment date based on these amendments to the UCC.[22]

Section A-201 includes a savings clause that preserves many of the rules for transactions entered into before the effective date of such an act and explains that prospective application of the changes to the UCC is usually appropriate. However, some of the general amendments, such as updates to the meaning of "conspicuous" and clarification regarding bundled transactions, may be informative for judicial interpretations even before the effective date.

For security interests affected by amendments to Article 9, the Transition Rules explain that a security interest that is already perfected under the former Article 9 may continue to be perfected upon the effective date of the act if the requirements under the new Article 9 are satisfied before the effective date; then, no further action is needed. If the security interest does not satisfy the revised Article 9 rules for perfection, however, it can be perfected up until the adjustment date. This will allow affected parties to protect their interests during the time period between the effective date and the adjustment date. If it remains unperfected under the new rules on the adjustment date, then the security interest becomes unperfected.[23] If the security interest only satisfies the rules for attachment under the new Article within the time period between the effective date and the adjustment date, then the interest also becomes unperfected on the adjustment date.

As an example of a potential perfection issue, the former Article 9 does not permit perfection of certain security interests by filing a financing statement, but this method of perfection would work under the revised Article 9. Under the Transition Rules, on the effective date of the act, the filing would become effective to perfect the security interest.

In terms of priority, Section A-305 states that priorities established before the effective

[22] Draft page 223.
[23] Draft page 228.

date shall look to the former Article 9, unless priorities become modified on the adjustment date. In that case, if the relative priorities change, then the old order of priority ceases to apply.[24] This Transition Rule applies only for security interests in Article 12 property (controllable accounts, CERs, and controllable payment intangibles) and electronic money. For these types of assets, if Article 9 does not apply then Article 12 would determine priority. But, if priorities were established pre-effective date, then the parties would look to other law to determine priority based on the former UCC provisions, unless the order of priority is modified before the adjustment date, in which case the old order of priority ceases to apply.

II. Virginia and Other States

A. Virginia

In August 2021, the Virginia Bureau of Financial Institutions issued a notice to Virginia residents explaining that the Bureau does not currently regulate virtual currencies, but that fiat-based currencies may be regulated under state money transmission laws.[25] The notice also includes the warning that "virtual currencies are highly volatile with the potential for complete loss of value."[26] The notice states that virtual currencies are not insured and that transactions are final and not reversible, encouraging Virginia residents to research these systems thoroughly and consider associated risks.

HB 922 was introduced in 2022 to establish a FinTech Regulatory Sandbox Program in Virginia.[27] The bill did not advance during the most recent legislative session, but represents a trend that other states have adopted a method for exempting certain financial products, which may include cryptocurrency, from state licensing and authorization requirements. The bill would instead impose other criteria on participants allowing for temporary testing of a financial product on the market in Virginia. Florida, Nevada, West Virginia, and Wyoming have adopted regulatory sandboxes for certain financial products, services, and exchanges.

VA HB 263 (2022)

The language of Virginia HB 263 (2022) stems from Interpretive Letter #1170 issued by the Office of the Comptroller of Currency, which letter and its context within federal regulatory guidance is explained further in Section III A. The bill adds a new section within Title 6.2, Chapter 8, relating to the powers of banks in Virginia.[28] The new section permits banks in the Commonwealth to provide virtual currency custody services so long as the bank has adequate protocols in place to effectively manage the associated risks.[29] The bill defines "virtual currency"

[24] Draft page 234.
[25] Money Order Sellers and Money Transmitters, VA Code Section 6.2-1900, et seq.
[26] Virginia Bureau of Financial Institutions, Notice to Virginia Residents Regarding Virtual Currency, August 25, 2021.
[27] VA HB 922 (2022.
[28] VA HB 263 (2022).
[29] Two notable crypto exchanges, Coinbase and Gemini, have created their own versions of custody service programs. Coinbase Custody holds its customers keys in a hot wallet and permits

and provides that a bank may choose to offer such custody services in a nonfiduciary capacity or a fiduciary capacity.[30] If it chooses to provide such custody services in a fiduciary capacity, it must possess trust powers and have a trust department approved by the State Corporation Commission.[31]

In providing virtual currency custody services as a fiduciary, the bank acts like a trust company and takes ownership of the asset. In practice, this would likely mean that the customer shares the unique cryptographic keys for the digital assets and grants the bank access to the wallet in which they are stored. In this situation, the virtual currency is treated like an investment and the bank would have control over the digital assets, though the customer would retain ownership.

In providing virtual currency custody services in a non-fiduciary capacity, the role of the bank is similar to providing custody services for a tangible asset in a safe deposit box. In this situation, the bank would have access to the cryptographic key for purposes of storage, but the bank would not have control over the assets to treat them like an investment.

Several questions arise in response to this legislation, the first being whether Virginia banks are engaging in these virtual currency custody services currently. Currently, banks in Virginia are not zealously eager to enter the sphere of virtual currency exchanges, and rather would prefer to see greater guidance and gain a better understanding of risk management measures before opening the doors to virtual currency.[32] Banks are working on enhancing their understanding of virtual currency and distributed ledger technologies by consulting and hiring experts and by studying how to conduct virtual currency exchanges in a "safe and sound manner," as required by Interpretive Letter #1179 from the Office of the Comptroller of Currency.[33]

Other questions include what the scope of insurance coverage would look like for virtual currency. For cash reserves of stablecoin, there is an associated dollar value of the basis of the currency. But with other virtual currencies, the value is constantly fluctuating and can be unpredictable. Additionally, there are different ways of storing virtual currencies, including in hot and cold wallets.[34] The method of storing virtual currency may depend on the bank's role as a fiduciary or nonfiduciary; in acting as a fiduciary, the bank would have access to the e-trade account associated with the virtual currency in order to manage the wallet.

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the deposit and withdrawal of cryptocurrencies in its custodial accounts, whereas Gemini Custody uses a cold wallet to keep funds in offline storage.

[30] Id. footnote 28.

[31] Id.

[32] According to Matt Bruning, Senior Vice President, Government & Member Relations, Virginia Bankers Association.

[33] OCC Letter #1179, see more in section III A.

[34] "Hot wallets are connected to the internet, which makes them convenient to access but more susceptible to hacking. Cold wallets are physical devices that are completely offline. Currently, cold storage is considered the most secure method of storing cryptographic keys." OCC Letter #1170. *See also* Coin Insider, Hot wallet versus cold wallet in cryptocurrency storage.

In terms of interplay with the UCC Draft and its amendments, the provisions of VA HB 263 can coexist with the new UCC Article 9 and Article 12, but its language may need to be updated for consistency with the new terms in the Draft UCC. For instance, if Virginia adopts the UCC, the definitions of "electronic money" and "virtual currency" should be consistent with same definitions in the banking chapter of the Code. It may also be prudent to explain the bank's fiduciary or nonfiduciary role in terms of "control" over the digital asset. Providing custody services for virtual currency requires the bank to have some degree of control over the asset, with greater control when acting as a fiduciary; however, the customer would retain "control" in terms of Article 9 because ultimately only the customer can avail themselves of the benefit of the virtual currency, as required by the new section 9-105A.[35] This section also provides for "control on behalf of another person" – perhaps this option, in subsection (e), represents the role of banks providing virtual currency custody services in terms of "control."

The Virginia legislation represents an approach that some states are taking in response to the growing role of banks in transferring and holding digital assets by codifying the authority of banks to engage in crypto-related activities and requiring safeguards and appropriate management practices. Other states are exploring the option of creating their own versions of crypto banks in the form of special purpose depository institutions. These institutions and banks engaging in crypto activities will likely need to develop and disclose best practices for transfers, security, storage, and related services.

B. Wyoming

Wyoming is at the forefront of legal developments in the digital assets and cryptocurrency sphere. For instance, Wyoming permits LLC entities to offer blockchain technology as a decentralized autonomous organization (DAO) and provides for banks engaging in digital asset activities as well as regular banking services to obtain state charters as special purpose depository banking institutions.

Wyoming HB 19 provided a definition of virtual currency and exempts virtual currency from the Wyoming Money Transmitter Act, which requires exchanges to maintain cash reserves to back all of their crypto holdings.[36] HB 101 permitted companies to maintain records and manage certain transactions on electronic networks, including distributed networks.[37] SB 111 exempted cryptocurrencies from property taxes in Wyoming.[38] Additionally, Wyoming's HB 70 (2019) exempted utility tokens from state securities regulation and virtual currency from state money transmission laws, provided that (1) the token is (a) not marketed as an investment opportunity and (b) exchangeable for goods or services, and (2) the developer of the token has not entered a repurchase agreement for the token.[39] This law applies only to tokens sold within Wyoming, otherwise federal securities laws would apply.

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[35] Draft page 134-136.
[36] Wyo. Stat. Ann. Sections 40-22-101 to 40-22-129.
[37] Wyo. Stat. Ann. Sections 17-16-140 to 17-16-1601. Delaware was the first state permitting corporate records and transactions to use DLT systems, Delaware SB 69 (2017). *See also* similar legislation in Vermont, Arizona.
[38] Wyo. Stat. Ann. Section 39-11-105(b).
[39] Wyoming HB 70 (2019): Commercial filing system. Wyo. Sta. Ann. Section 17-4-206.

The 2019 Wyoming Digital Asset Statute defines digital assets and technologies in terms of personal property interests, specifically as intangible property under Article 9 of the UCC.[40] The 2019 Act establishes a framework for banks to provide custody services for digital assets and enter an agreement with customers about the nature of the custodial arrangement. In 2021, the Act was amended to clarify aspects of perfection and describe the method in which security interests may be perfected by control.

HB 185 permits corporations to issue tokens for stock certificates, and HB 57 created the Wyoming Financial Technology Sandbox Act, which essentially provides a statutory waiver from applicable licensing rules and requirements.[41] HB 74 establishes a new form of state bank in Wyoming - special purpose depository institutions (SDPI) - that are required to (i) maintain all depository liabilities as liquid assets, (ii) not engage in lending activities, (iii) only provide services to bona fide businesses, with a minimum deposit, and (iv) comply with all other applicable federal and state laws.[42] SPDIs are exempt from insurance requirements by the Federal Deposit Insurance Corporation. SF 38 introduced decentralized autonomous organizations (DAOs) as a type of LLC that would operate based on an agreement that defines fiduciary duties and includes rules for transfer of ownership interests.[43]

SB 106 (2022) sought to authorize the state treasurer of Wyoming to issue stable tokens and create relevant rules and oversight measures. However, this bill was vetoed by the governor on March 25, 2022.

C. Other States

Many states regulate virtual currency under existing money transmitter licensing rules. For example, Alaska, Alabama, Arizona, Connecticut, Delaware, D.C., Georgia, Idaho, and Kentucky, among other states that have either issued interim guidance or provided certain exceptions, require licenses for participating in money transmission.[44] Other states, such as Indiana, Kansas, Montana, South Carolina, Texas, and Utah, remain silent on whether money transmitter licenses are needed to participate in virtual currency exchanges. Some states, such as Florida, Nevada, West Virginia, and Wyoming have adopted regulatory sandboxes to provide exceptions for money transmitter licensing requirements for virtual currency exchanges. In March 2022, Florida adopted legislation that specifically excludes certain crypto transactions from money transmission laws.

Some states have developed a framework for attachment and perfection of security interests that parallel the Draft UCC amendments. For instance, Indiana and Nebraska have adopted legislation that largely conforms to the new Article 12 of the UCC Draft and describes the requirements for establishing control of a CER.[45]

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[40] W.S. Sections 34-29-101 et seq., as amended in 2021.
[41] Wyo. Sta. Ann. Sections 17-16-605, 17-16-140, 13-5-304, and 40-28-101 through 40-28-109.
[42] Wyo. Sta. Ann. Sections 13-12-101 to 13-12-126.
[43] Wyo. Stat. Ann. Sections 17-31-101 through 17-31-116.
[44] Bloomberg Law, Cryptocurrency Laws and Regulations by State, May 26, 2022.
[45] Burns Ind. Code Ann. § 26-1-11-108; R.R.S. Neb. (U.C.C.) § 12-105.

The New York Department of Financial Services (NYDFS) developed a BitLicense regulatory framework in June 2015 to create conditions for licensure by the Department. The Department granted a BitLicense to a virtual currency firm called Circle International Financial in September 2015 and granted a charter to a Bitcoin exchange firm called Gemini to operate as a trust bank in October 2015.

The New York legislature has also considered legislation about the environmental impact of crypto mining, which is an energy-intensive process in which many computers run simultaneously to allow investors to get new crypto tokens. In other states, such as Georgia and Illinois, bills have been proposed that offer tax incentives for crypto mining companies.[46] In Illinois, this bill was based on a particular crypto mining company that sought a tax break to help finance a new mining center project, and state representatives have recognized the value of incentivizing mining companies to develop centers in Illinois.

This review of state-level developments in virtual currency regulation is hardly exhaustive, but serves to represent the increasing involvement and interest in regulating cryptocurrency and digital assets. In the absence of clear federal guidance and oversight on a national level, many states are looking to their counterparts and the level of current involvement on the state level to develop a regulatory framework and respond to the concerns of stakeholders.

III. Federal Oversight

Many stakeholders are awaiting action at the federal level to inform what the regulatory landscape surrounding digital assets and cryptocurrency will be in the coming years and how systems will need to adapt to comply with federal guidance and regulations. On March 9, 2022, President Biden issued an executive order (EO) entitled "Ensuring Responsible Development of Digital Assets."[47] The EO opens with a policy statement that reflects the United States' interest in financial innovation and increasing access to financial services and markets. Potential risks of digital asset integration are also outlined in this policy section, including data privacy and security concerns, crime, national security issues, financial inclusion and equity, and climate change and pollution. The main topics covered in the EO are consumer, investor, and business protections, global financial stability and mitigating security risks posed by the misuse of digital assets. Several executive agencies are named and instructed to develop an interagency process to oversee the objects of this EO, including the Department of Homeland Security and the Environmental Protection Agency, as well as the Board of Governors of the Federal Reserve System, the Consumer Financial Protection Bureau, the Federal Trade Commission, the Securities and Exchange Commission, the Commodity Futures Trading Commission, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency, among others. The President has requested a report on the future of money and payment systems and technological innovation related to the adoption of digital assets and the implications this would have on the U.S. financial system.

[46] New York Times, Crypto Industry Helps Write, and Pass, its own Agenda in State Capitols, April 10, 2022.
[47] Executive Order on Ensuring Responsible Development of Digital Assets, March 9, 2022.

This executive order represents the United States' development in an increasingly digital world, identifies a number of potential risks and issues that are likely to arise, and identifies several agencies that will be affected by the increased integration of digital assets into our markets. The scope and timing of the EO is appropriate considering the impending updates to the Uniform Commercial Code that accommodate and provide certain rules for the use of digital assets that are expected to increasingly pervade the sphere of investing, finance, tech, security, and environment considerations and that raise significant questions about regulatory structure, both uniquely and in comparison to traditional markets.

A. Office of the Comptroller of Currency (OCC)

The OCC has issued a number of advisory letters regarding crypto-related activities and banks, including Interpretive Letter #1170 on cryptocurrency custody services and Interpretive Letter 1172 on holding stablecoin reserves.[48] Letter #1170 provides a definition of cryptocurrency and explains that it is based on either fiat money, such as the U.S. dollar, or some other underlying asset, such as a commodity. Cryptographic keys are created to assign a particular unit of cryptocurrency to its owner, and Letter #1170 addresses the growing demand for banking institutions to hold cryptographic keys in custody on behalf of customers. The bank would hold these unique keys in a digital wallet.[49] Letter #1170 states that providing cryptocurrency custody services is a modern form of traditional bank activities and that a bank may serve in a fiduciary or nonfiduciary capacity in its role as custodian.

Stablecoins are a type of cryptocurrency that are designed to have a stable value and are privately issued to help companies maintain stability in prices. Interpretive Letter #1172 addresses the authority of a national bank to hold deposits that serve as reserves for stablecoins. Letter #1172 applies specifically to stablecoins that are backed on a 1:1 basis by a single fiat currency, such as the U.S. dollar. A bank providing stablecoin reserve account services must verify that reserve balances are always equal to or greater than the number of the issuer's outstanding stablecoins. The letter also covers deposit insurance coverage and limits and related disclosures and regulatory compliance, such as applicable federal securities laws.

OCC Letter #1179 clarifies the authority of banks to offer custody services for stablecoin cash reserves that are based on a single fiat currency and held in wallets.[50] This letter also states that banks can use distributed ledger technology to participate in the exchange of virtual currencies and recognize electronic stores of value. The letter requires banks to ensure that crypto-related activities are provided and conducted in a "safe and sound manner." Banks are required to demonstrate ongoing risk management practices and provide a written statement of understanding about compliance with relevant laws and regulations, including securities laws, anti-money laundering, the Commodity Exchange Act, and consumer protection laws.

B. Federal Deposit Insurance Corporation (FDIC)

The FDIC provides protection for customers of member banks in the amount of $250,000

[48] OCC Letter #1170, OCC Letter #1172.
[49] *See* footnote 30.
[50] OCC Letter #1179.

per bank for accounts including checking or savings accounts, money market deposit accounts, and certificates of deposit. The FDIC does not provide protection for stocks and bonds or cryptocurrency, however. Some cryptocurrency exchanges have started holding cash reserves in FDIC-insured banks. This means that the money deposited by the exchange into the bank becomes qualified for deposit insurance, but the crypto holdings are not insurable.

An FDIC Letter released on April 7, 2022 requests that its member institutions promptly notify the FDIC (and state regulators) of the intent to engage in crypto-related activities.[51] In response, the FDIC will assess the safety and soundness, financial stability, and consumer protection risks of the crypto-related activities, and provide relevant supervisory feedback. The risks outlined by the FDIC in its statement echo the considerations of President Biden's EO and the OCC interpretive letters, and FDIC member institutions are likely awaiting more detailed feedback of this agency's role in regulating crypto transactions, among the roles of other federal and state regulators.

In 2021, the FDIC, in collaboration with the Board of Governors of the Federal Reserve System and the Office of the Comptroller of the Currency, published a joint statement outlining the work these agencies are doing to develop a better understanding of banking institutions' involvement in crypto-related activities.[52] The letter states that the agencies will work throughout 2022 to provide greater clarity on crypto-related activities conducted by banking institutions, expectations for safety and soundness, consumer protection, and compliance with existing laws for the (i) the safekeeping and custody of crypto assets, (ii) ancillary custody services, (iii) consumer purchases and sales of crypto assets, (iv) loans collateralized by crypto assets, (v) issuance and distribution of stablecoins, and (vi) activities involving holding crypto assets on a balance sheet.

C. Securities Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC)

The SEC has authority to regulate virtual currencies insofar as they are related to security interests and secured transactions, whereas the CFTC is the federal agency responsible for regulating commodities, including virtual currencies insofar as they act as a store of value. In some applications, such as the use of digital assets to raise money for a business similar to a stock, the assets function as securities. In terms of a token transaction that derives value from an underlying market, such as the Bitcoin market, the assets function as commodities.

To determine whether a transaction is an investment contract that would be subject to securities laws and regulations by the SEC, courts have adopted the Howey Test. The Howey test uses the following factors to determine if securities laws apply: the transaction represents (i) an investment of money (ii) in a common enterprise (iii) with the expectation of profit (iv) to be derived by others.[53] The Responsible Financial Innovation Act, discussed in the following section, seeks to codify the Howey Test to provide clearer definitions of digital assets and which

[51] FDIC Letter, Notification of Engaging in Crypto-Related Activities, April 7, 2022. The IRS also requires investors to disclose yearly cryptocurrency activity on tax returns, based on tax guidance.
[52] Joint Statement on Crypto-Asset Policy Spring Initiative and Next Steps, November 23, 2021.
[53] SEC v. W.J. Howey Co., Supreme Court 1946.

financial regulators would have purview over exchanges.

In terms of the interplay between cryptocurrencies and the U.S. investment fund market, the SEC has issued limited guidance and raised a number of questions on offering funds on the market that hold cryptocurrencies and how they would satisfy the requirements of the Investment Company Act of 1940.[54] One main concern is how to ensure appropriate valuation funds that include cryptocurrency-related products. Funds investing in cryptocurrencies would also need to take certain measures to assure that they have sufficiently liquid assets to meet redemptions daily. Additionally, to provide custody services, a fund would need to validate the ownership of cryptocurrency keys and ownership records, and the SEC is currently unclear on how this would satisfy requirements of the 1940 Act. The SEC has not yet indicated its progress on answering or resolving these issues, and for these reasons, the SEC has thus far denied applications for spot crypto exchange-traded products. However, in April 2022 the SEC approved an exchange-traded product (ETP) holding bitcoin futures for listing and trading on an exchange, which does not fall under the 1940 Act but was approved based on the Securities Exchange Act of 1934. Critics of the SEC's cautious approach to regulation have noted that other countries are making advancements in the integration of crypto assets. For instance, spot bitcoin ETPs launched in Canada in 2020 and have become popular in Europe as well.[55]

The CFTC regulates derivative contracts rather than cash markets transactions, meaning that the value of the transaction is based on a commodity. If the CFTC were tasked with the statutory authority to regulate virtual currencies,[56] the regulations would include oversight of exchanges, clearinghouses, intermediaries, and brokers. Regulations would likely also include registration requirements for investment advisors and information disclosures to investors[57] that parallel requirements for the traditional marketplace of commodities and futures. According to the Chair of the CFTC, the agency's enforcement mechanisms are currently one of the only tools available to pursue cases of fraud or manipulation in the virtual marketplace, but currently lack sufficient resources and have limited authority to pursue bad actors.[58]

Some policy experts have noted the fragmentation among financial regulators at the federal level, suggesting that the digital assets may be more efficiently and effectively overseen if the roles of certain agencies were consolidated or if a separate group were created to lead regulation of digital assets. Providing clarity between the roles of different federal agencies, specifically the SEC and the CFTC, encouraging inter-agency collaboration, and increasing necessary resources would likely spur greater federal involvement in crypto markets and affect

[54] Dalia Blass of the Securities and Exchange Commission stated a number of these questions in a 2018 letter on Fund Innovation and Cryptocurrency-related Holdings.
[55] Commissioner Hester M. Pierce, Securities and Exchange Commission, Remarks at "Regulatory Transparency Project Conference on Regulating the New Crypto Ecosystem: Necessary Regulation or Crippling Future Innovation?" June 14, 2022; see also section IV A on Bitcoin spot ETFs.
[56] Rostin Behnam, Commodities and Futures Trading Commission, Chair. Washington Post Cryptocurrency Interview on June 8, 2022.
[57] E.g. disclose the risks involved in the transaction, history of the asset being traded, expected returns or losses to the extent practicable. Regulations may also include periodic reporting requirements, although this is expected more in the context of securities rather than commodities.
[58] Rostin Behnam, Commodities and Futures Trading Commission, Chair. Washington Post Cryptocurrency Interview on June 8, 2022.

their growth and functions. The Responsible Financial Innovation Act, discussed at length in the following section, seeks to provide some clarification on the roles of various financial regulators and requires inter-agency collaboration to develop regulatory guidance.

D. Responsible Financial Innovation Act

On June 7, 2022 Senators Gillibrand and Lummis introduced the Responsible Financial Innovation Act in Congress which aims to create a statutory framework for digital assets.[59] The bill includes a set of definitions related to digital assets to improve consistency and delineates between digital assets that are securities versus commodities, which will provide clarity to regulators on existing enforcing regulations and developing new regulations based on the evolving marketplace.[60] The bill seeks to codify existing precedent under the Howey Test that an digital asset provided to a purchaser under an investment contract is not inherently a security, but rather the factors listed in III C would apply. Cryptocurrencies such as Bitcoin would largely fall within the purview of the CFTC as commodities, and the bill gives the CFTC authority to write rules as such. The bill creates requirements for issuers of stablecoins, allowing for participation by banks and credit unions, and includes consumer protection provisions, such as disclosure requirements and the requirement that stablecoins retain their dollar value.[61]

The bill also establishes an advisory committee and requires a study on digital asset energy consumption, requiring agencies to submit an annual report on energy consumption, prices, sources, and potential disclosures.[62] Additionally, the SEC and CFTC are tasked with consulting with the Department of the Treasury and the National Institute of Standards and Technology cybersecurity guidance and rules for intermediaries.[63] The bill creates a limited financial technology sandbox program and introduces a structure for taxing digital assets as well. Other considerations include studying the potential for investing retirement funds in digital assets and studying the impact of international digital currency, specifically the digital currency of the central bank of China, the digital yuan.

IV. Impacts and Growth of Virtual Currency

Until recently, the marketplace of digital assets and cryptocurrency has been largely unregulated and has become known for its potential as well as its volatility. There are a number of potential applications for digital asset markets and it remains to be seen how integrated and ubiquitous the use of virtual currencies becomes in the global economy. Applications of virtual currency, specifically cryptocurrencies and digital assets, range from investment and financing mechanisms, a store of value through a tokenized transaction, international money transfers, community organizing and fundraising, corporate finance, the securities and the commodities markets, and countless other developing and yet undeveloped applications.

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[59] Responsible Financial Innovation Act, Gillibrand-Lummis (2022).
[60] Currently, the SEC considers many cryptocurrencies to be securities, while the CFTC considers Bitcoin specifically to be a commodity, and whereas the Treasury regards crypto as a currency.
[61] Id. footnote 59.
[62] Id.
[63] Id.

The main common feature of virtual markets is the use of distributed ledger technology, such as the blockchain, which is a public store of data representing every virtual transaction related to a certain virtual currency.[64] In some ways, this means that cryptocurrency is, or can be, very transparent and a way to improve democratization of access to financial tools. However, security considerations regarding foul play and market volatility[65] have led to many players in the cryptocurrency marketplace to support increased regulation to promote consumer protection and informed disclosures. Stakeholders are also curious to see the development of uniform standards for transactions involving virtual currencies and requirements for companies, miners, and trading platforms to comply with, and what kind of oversight would be established to enforce regulations against bad actors.

A. Recent Developments

In recent news, a crypto asset management company called Grayscale has applied with the SEC to launch a Bitcoin spot ETF on the market. Although the SEC has thus far denied such spot ETF applications,[66] Grayscale hopes for a different decision in this case, and the SEC decision will be issued next month (July 6, 2022).

A number of corporations have also expressed interest in creating a form of virtual currency, such as JPMorgan Chase, which is developing a digital token for customers to use for certain transactions and foreign payments.[67] On its website, JPMorgan explains that its new "Coin Systems" program hopes to use blockchain technology to facilitate payments using shared ledgers between banks, cross-border payments, and securities services, and includes a fine-print disclaimer that the technology is currently in development. Walmart is also developing a "WalmartCoin," as well as NFTs, and has filed seven applications relating to its new crypto with the U.S. Patent & Trademark Office (USPTO).[68] Crypto experts note the desire and competition companies are facing to develop tokens for their physical products and transform their systems so they can participate in the virtual world. Walmart's trademark applications include expanding its operations to include "providing a digital currency and digital token of value for use by members on an online community via a global computer network."[69] Walmart has also filed a

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[64] Reporter's Note, Draft Page 191. "The adoption of DLT [(distributed ledger technology)] has underscored two important trends in electronic commerce. First, people have begun to assign economic value to some electronic records that bear no relationship to extrinsic rights and interests. For example, without any law or legally enforceable agreement, people around the world have agreed to treat virtual currencies such as bitcoin (or, more precisely "transaction outputs" generated by the Bitcoin protocol) as a medium of exchange and store of value. Second, people are using the creation or transfer of electronic records to transfer rights to receive payment, rights to receive performance of other obligations (e.g., services or delivery of goods), and other interests in personal and real property."

[65] Certain trading platforms have collapsed in recent months or years, such as Tera which lost about 45 million dollars. The value of digital assets has fallen by over one trillion dollars in the past year. Consumers and trading platforms may be susceptible to fraud and hacks. Senator Kirsten Gillibrand, Washington Post Cryptocurrency Interview on June 8, 2022.

[66] The SEC has denied several Bitcoin ETF filings in recent years. Decrypt, These are the High Profile Bitcoin Spot ETF Applications Currently in Play, October 20, 2021.

[67] JPMorgan Chase ONYX, Coin Systems, accessed June 23, 2022.

[68] CNBC, Walmart is Quietly Preparing to Enter the Metaverse, January 16, 2022.

[69] Id.

trademark for an online retail store for virtual merchandise to offer tokenized versions of their physical products.

Other retail companies entering the world of virtual assets include Nike, which plans to sell virtual sneakers and apparel; Gap, which is already selling NFTs of its sweatshirts; Under Armour and Adidas, which are already selling NFTs on an online marketplace; and Urban Outfitters, Ralph Lauren, and Abercrombie & Fitch, which have filed similar applications with the USPTO. The list continues with Amazon, which is creating a blockchain-based virtual currency; Facebook, which is developing an entire virtual world that would completely skyrocket the potential for virtual currency applications; and many others. This trend is certainly expected to continue and the regulatory framework surrounding virtual currencies and digital assets will largely inform their systems, application, consumer protection measures, security measures, and, quite frankly, money as we know it.

B. Potential for Social Organizing

Applications of virtual currencies and assets reach well beyond the area of corporate finance and stock exchanges; fundraising efforts, community organizing, and financial support systems on an international level are using crypto transactions as a powerful tool. For example, millions of dollars in cryptocurrency have been donated to humanitarian efforts in Ukraine following the Russian invasion.[70] Donations of these large amounts take significantly more time to process through traditional banking systems, but cryptocurrency transactions are nearly instantaneous and it can then be transferred into fiat currency.

International money transfers are also important to the immigrant community, many of whom often need to send money to family overseas. Cryptocurrency can be used to transfer large sums of money quickly with lower fees, and in many countries, tax-free. For example, the crypto exchange platform Coinbase permits customers to transfer crypto instantly online to customers in Mexico for a much smaller fee than traditional international money transfer companies.[71]

Cryptocurrency exchanges have the potential to transform social activism on a grassroots level, as well, because the transactions are publicly recorded and the systems available for anyone to use, and because transfers can be made anonymously to protect the parties' identities. The ability to access and use crypto markets is likely to represent a democratization of financial participation and increase financial mobility for many people who have historically been uniformed about or excluded from traditional financial markets. On a local level, this may mean fundraising and organizing to tackle injustices in the community and address social issues. On a national scale, this could mean new potential for underdeveloped countries to participate in digital markets. Communities and industries in developing countries now have the ability to participate in national and international markets in a novel way, and some governments are considering issuing their own virtual currencies or accepting cryptocurrency as legal tender.

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[70] Forbes, Ukraine Demonstrates that Cryptocurrency is a Potent Tool for Marshaling Grassroots Support, March 21, 2022.

[71] Coinbase Blog, There's now a cheaper, easier way for your friends and family in Mexico to cash out the crypto you send them, February 15, 2022.

C. Environmental Concerns

The internet uses electricity, data centers use electricity, and cryptocurrency uses electricity. People today are using the internet at staggering levels compared to its initial use, and applications of the internet are still rapidly expanding. From streaming videos to online shopping to creating the Metaverse, a great deal of energy is required. A number of studies have predicted that the energy use of the Information and Communication Technologies (ICT) sector will grow from approximately 1 percent of global electricity use in 2019 to a projected 21 percent by 2030.[72] Manufacturing computers and phones also involves extracting rare and toxic chemicals from the earth and the devices are quickly outdated, creating dangerous waste.[73]

Using the most prominent cryptocurrency as a representation of energy consumption: to mine Bitcoin, a person needs to run software on several computers at once to solve complex mathematical algorithms and process this "proof of work" to obtain a validated unit of code, the Bitcoin, which transaction is then added to the blockchain and represents a digital asset. It remains unclear how much energy use the mining of cryptocurrency requires, but there have been some studies on the number of kilowatt-hours a single Bitcoin transaction takes.[74] The Natural Resources Defense Council states that a single Bitcoin has a carbon footprint equivalent to 330,000 credit card transactions.[75] Compounded on the scale that people are using the internet today and the projected growth of virtual currencies, we can expect environmental considerations when evaluating the growth of crypto, its applications, and its mining.

Currently, some tech companies have availed the use of renewable energy certificates (RECs) and power purchase agreements with renewable energy facilities to offset their electricity use and reduce their carbon footprints. This leads easily into a discussion about the energy mix overall and environmental regulations in the states and countries where data centers are located. Some crypto companies are reevaluating the energy-intensive "proof of work" method and considering implementing a verification method that requires less time and energy use. Crypto experts have suggested disclosing this information to customers, encouraging them to choose more efficient options, and incentivizing companies to pursue greener methods. This may be a topic of regulation in the coming months and years as well.

The Gillibrand-Lummis bill described in Section III D directs the Federal Energy Regulatory Commission (FERC) to work with the SEC and CFTC in evaluating energy consumption for mining and staking of digital asset transactions.[76] The bill also directs these

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[72] Tatiana Schlossberg, *Inconspicuous Consumption: The Environmental Impact You Don't Know You Have,* New York Central Grand Publishing 2019, page 10; Lotfi Belkhir and Ahmed Elmeligi, "Assessing ICT global emissions footprint: Trends to 2040 & recommendations," *Journal of Cleaner Production* 127 (January 2018), 448-463; Nicola Jones, "How to Stop Data Centres from Gobbling Up the World's Electricity," *Nature* 561 (September 13, 2018), 163-164.
[73] Tatiana Schlossberg, *Inconspicuous Consumption: The Environmental Impact You Don't Know You Have,* New York Central Grand Publishing 2019, page 11.
[74] Tatiana Schlossberg, *Inconspicuous Consumption: The Environmental Impact You Don't Know You Have,* New York Central Grand Publishing 2019, page 30.
[75] NRDC, Crypto Has a Climate Problem, February 3, 2022.
[76] Gillibrand-Lummis bill text, Section 806(a).

agencies to look at the effect of energy consumption on energy prices, the effects of mining digital assets on baseload power levels, and the use of renewable energy sources in the digital asset market and compare this with the use of nonrenewables and the energy consumption of other economic sectors.[77] The agencies are also required to propose a process for regulated entities to make information about energy consumption and sources publicly available. The bill also requires FERC to submit a report at the end of each year to the relevant Congressional committees on this required analysis. This bill is the first to address concerns about environmental impacts associated with the growth of virtual currency and may lead to regulations regarding energy consumption in the ICT sector.

D. International Context

On an international level, several countries and international organizations are taking measures to understand, oversee, and provide avenues for the use of virtual currencies in various contexts. Canada has approved bitcoin exchange-traded funds (ETFs) and requires registration with the Investment Industry Regulatory Organization of Canada, Canadian Securities Administrators, and local provincial regulators. The Canada Revenue Authority generally treats cryptocurrency as a commodity for tax purposes.[78] In Mexico, cryptocurrencies are prohibited, but the government has adopted a regulatory sandbox for virtual assets. In Brazil, the Securities and Exchange Commission has approved a number of crypto ETFs and established that cryptocurrency is subject to capital gains taxes. Brazil is also considering launching a central bank digital currency, explained below. In Colombia, banks are prohibited from providing financial services to crypto companies, but companies can legally purchase crypto currencies though they are unregulated. El Salvador has adopted bitcoin as legal tender in the country, despite disapproval by the International Monetary Fund (IMF) due to financial stability concerns, and does not impose any income tax on crypto.

In the European Union, oversight is conducted by the European Banking Authority, the Insurance and Occupational Pensions Authority, and the Securities and Market Authority. The European Central Bank has also adopted a definition of virtual currency. In Belgium, virtual asset service providers are required to satisfy certain criteria and maintain compliance with anti-money laundering laws and gains on cryptocurrencies are taxable.[79] Several other European countries require virtual currency service providers to register their firms and apply for licensure or have created a regulatory sandbox to enable crypto activities. France has adopted a regulatory framework for digital asset service providers through its Action Plan for Business Growth and Transformation. Germany was among the first countries to allow financial institutions to hold crypto assets, and the German Federal Central Tax Office considers crypto to be private money for tax purposes and may be exempt from taxation if held for more than a year in Germany or if held for less than a year with less than 600 euros in gains. A number of European nations require compliance with the Financial Action Task Force guidelines for crypto firms. The European Union is also considering the Markets in Crypto-Assets Regulation proposal, which would regulate crypto-asset issuers and service providers, but the proposal excludes non fungible tokens.

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[77] Id.

[78] Thomson Reuters, Cryptos on the rise 2022, IMF Blog, December 2021.

[79] Thomson Reuters, Cryptos on the rise 2022, IMF Blog, December 2021; Belgium new rules.

In Australia, virtual asset service providers are required to register with the government and comply with a licensing framework for digital exchanges, with crypto assets being subject to capital gains taxes. In China, the government has largely banned crypto mining and financial institutions from participating in crypto activities. However, the Hong Kong Securities and Futures Commission has enacted a regulatory framework for virtual asset service providers. Japan has a relatively advanced cryptocurrency framework, regulating exchanges under the Payment Services Act. Japan has also created self-regulatory bodies for virtual currency exchanges to promote regulatory compliance and determine best practices. Cryptocurrency trading and banking activities were previously banned in India by the Reserve Bank, but this prohibition was struck down by the Supreme Court of India. Since then, India has started considering central bank digital currency and proposed a crypto regulatory framework, which did not advance in the legislature but is likely to be revised in light of new guidance and international developments. In the UAE, the Dubai Financial Services Authority has created a regulatory framework, including a licensing program, and the UAE Securities and Commodities Authority has issued regulation about digital asset activity.[80]

Some countries are pursuing central bank digital currencies, which are essentially the digital equivalent of a country's fiat currency. For example, China has introduced the digital yuan and begun permitting digital payments. In 2021, the Bank for International Settlements found that 86% of central banks are researching the potential for central bank digital currencies and 14% of central banks have developed pilot projects.[81] This type of digital currency would not be considered crypto assets because crypto assets are not issued by a central bank. The UK is also considering the potential for a central bank digital currency, although the Economic Affairs Committee of the parliament has stated that there remain significant questions about stability and security that need to be addressed.[82] In the United States, the Federal Reserve Board has stated it cannot proceed with creating any central bank digital currency without clear executive and legislative guidance.[83] However, the United States is exploring the role of stablecoins and assessing necessary oversight to integrate crypto trading platforms and exchanges in its regulatory framework.

Another aspect of regulatory oversight at the national and international level relates to advertising of cryptocurrencies. Currently, the United States does not have any regulations regarding risk disclosures in advertising, but such protections will likely be considered as part of future developments. In the UK, the Financial Conduct Authority has issued restrictions on marketing related to crypto assets and crypto exchanges.[84] Spain has promulgated requirements for content and format of advertising that promotes crypto assets.[85] Other countries, such as Singapore and Russia, have discouraged the advertising and trading of cryptocurrencies

[80] UAE guidance on crypto asset regulation.
[81] Thomson Reuters, Cryptos on the rise 2022, IMF Blog, December 2021.
[82] Parliamentary committee report.
[83] Federal Reserve Board white paper.
[84] UK Financial Conduct Authority, Restrictions on the distribution of certain complex investment products. June 2022.
[85] Spain Comision Nacional Del Mercado De Valores (CNMV) on the advertising of crypto assets presented as a means of investment. January 2022.

altogether, with Russia's central bank proposing to ban the use and mining of crypto in Russia in January 2022 and citing a number of associated risks.

This brief review of attitudes and treatment of cryptocurrency in the international context represents the wide range of legal and regulatory considerations related to the growth of digital assets and virtual currencies in the global marketplace. Many countries are hesitant to permit greater use of virtual currencies, noting concerns about financial stability, crime, fraud, and consumer protection. Other countries are already working on establishing some kind of oversight and structure surrounding virtual currency systems and exchanges, eager to accommodate financial innovation and be active members of the increasingly digital and increasingly global marketplace. Considering the current and future international applications for virtual currency trading, some degree of consistency and international agreements that address cross-border transactions or provide reciprocity will likely develop in the near future.