



R3 Response to Federal Deposit Insurance Corporation Request for Information and Comment on Digital Assets

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As a distributed ledger software provider to the banking and financial services industries, R3 welcomes the Federal Deposit Insurance Corporation (FDIC) Request for Information on Digital Assets (Request). We are keen to engage with the FDIC to work constructively on this important topic.

The points raised in this Request are ones that R3 has considered as part of our own digital asset strategy. Regulators around the world are grappling with the creation, deployment, and growing adoption of digital assets. It is critical all regulators examine and understand the underlying technology.

Below we outline our perspective on many of the issues raised in the Request through R3's own experience engaging with digital assets. We would be delighted to discuss these, or any other points raised in the Request, in more detail at the appropriate time.

Introducing R3

Founded in 2016, R3 is an enterprise software firm enabling digital transformation through our trust technology, connected networks, and regulated markets expertise. With a foundation in distributed ledger technologies (DLT), our applications and solutions were purpose-built for use in regulated financial industries.

R3 believes trust technologies like DLT and confidential computing are already demonstrating their transformative potential. Financial institutions and businesses more broadly can expect to see significant reductions in cost across the lifecycle of many kinds of financial transactions as innovative technology solutions replace legacy systems and processes. Further, the reduction in operational risk and compression of clearing and settlement times could meaningfully lower costs through efficient collateral management and holding of capital reserves.

Additionally, these technological innovations present an opportunity to dramatically impact regulatory compliance in ways that will benefit regulators, market participants, and their end-clients. With the ability to provide a host of solutions to firms grappling with "big data" challenges, trust technologies offer potential solutions to KYC and regulatory reporting requirements faced by regulated entities, thereby reducing compliance costs and further safeguarding the systems as a whole.

R3's Trust Technologies

Corda is R3's signature DLT software and is used in a range of industries to record, manage and execute institutions' financial transactions in perfect synchrony with their peers. Corda is unique in the blockchain space by offering an open core model alongside privacy, settlement finality, and scalability. A broad ecosystem of participants across multiple industries from both the private and public sector develop on Corda, an open-source version, and Corda Enterprise, a commercial version for enterprise usage.



Originally built by the financial services industry for the financial services industry, Corda leverages the power of blockchain to address specific business challenges in highly regulated markets. Corda is fit for purpose in such markets, and therefore promotes financial security and market integrity.

Conclave, R3's latest innovation, harnesses the promise of confidential computing and Intel SGX technologies. Conclave empowers businesses to develop applications that analyze and process sensitive data from multiple parties—all without compromising on confidentiality.

To ensure our customers derive the greatest value from our products, we provide services to shorten time-to-market, as well as guidance on implementation, integration and developing ecosystems on our platforms. Our customers and partners also have access to a network of leading systems integrators, cloud providers, technology firms, software vendors, corporates and banks.

We share the priorities of our partners and developers: we are focused on technology that ensures system security, appropriate risk mitigation, and ownership traceability, as well as the ability to safeguard assets. It is these priorities and the design features discussed above that led to SIX Swiss Exchange to choose Corda as the underlying blockchain technology for its digital asset listing, trading, settlement, and custody service named SIX Digital Exchange (SDX), as well as Nasdaq's Digital Asset Suite.

R3's Digital Asset Observations

R3 has seen the market develop around two broad categories of digital assets:

1. **Asset-backed tokens:** A digital token that represents an asset held somewhere else, often a regulated custodian such as a bank. The token acts as a so called 'digital twin' and can be traded or exchanged freely on a blockchain with settlement finality, while the underlying asset remains in place at a custodian. Examples of asset-backed tokens are gold, real estate, non-fungible tokens, and traditional stocks and bonds held in custody.
2. **Native-asset tokens:** The digital token does not represent an asset but is instead the asset itself. These digital assets are issued directly onto a distributed ledger. This could be a recognizable financial asset like bonds, equity or bank deposits that has some obligation back to its issuer. Examples of native-backed tokens include security tokens, utility tokens, and platform tokens.

Within native-asset tokens, utility tokens are experiencing a rapid evolution, and can be viewed by a further subclassification:

- **Exchange tokens** – i.e., cryptocurrencies, which are a type of payment token that may also be regarded as a speculative asset. However, retail consumers who are comfortable with the market and volatility risks are using exchange tokens for certain niche types of payments.
- **Stablecoins** – Tokens that are primarily a payment settlement asset and designed to maintain a stable value of exchange. The underlying asset of these tokens can range from direct backing by a single fiat currency (pegged 1:1) to those that rely on algorithmic mechanisms



to maintain price stability. As such, this token type can vary significantly in their risk profile and attractiveness to potential users. The potential benefits of stablecoins include reduction in payment and settlement costs and use in cross-border payments. The governance of stablecoins remains a noted ongoing debate. These risks are discussed further in our response below.

- Central Bank Digital Currencies – A payment settlement token that is issued by a central bank and becomes the third form of public money alongside central bank reserves and cash.

Given the growing complexity and adoption of various forms of digital assets, R3 supports the FDIC's efforts to further understand the risks and opportunities to insured depository institutions (IDIs) which fall under its supervision and hope our response below is of assistance.

Responses to Selected Questions

Below is R3's response to selected questions most applicable to our perspective as a technology provider.

Q1: In addition to the broad categories of digital assets and related activities described above, are there any additional or alternative categories or subcategories that IDIs are engaged in or exploring?

In addition to the categories the FDIC sets forth, R3 has seen banks adopt digital asset use cases for operational efficiency. One such example is in collateral management, where the firm HQLA^x operates a digital collateral registry (using R3's Corda) to record ownership of baskets of securities for over 15 financial institutions primarily in the Deutsche Börse. The holders of legal title to the securities place those securities in a custody account and HQLA^x creates digital collateral records (DCRs) that represent those assets and are able to be transferred between participants. When the DCRs are transferred, the underlying securities remain in the custody account and ownership of the account changes to reflect the new holder/owner of the DCR. This enables platform participants to efficiently manage collateral, thereby optimizing their balance sheet.

While regulators require greater transparency into capital and margin, banks and financial institutions are incentivized to develop nearly instantaneously updated records to improve the efficiency of collateral management. Thus, the use of digital assets, which transfer nearly instantly, in collateral management stands to benefit both banks and their regulators.

Interbank reconciliation is an additional use case where DLT-based technological solutions are improving operational efficiency. Led by the Italian Banking Association (ABI) and SIA, the Spunta Banca project facilitates the reconciliation process between reciprocal accounts across the entire Italian banking network. The Corda platform underpins the SIACHain solution on which the transactions take place.

To date, 91% of Italian banks are transmitting data on the network, and reconciliation times have been reduced to less than a day from a previous average of 30-50 days. Key to this success is Corda's peer-to-peer transaction data sharing model and permissioned network structure. These features mean that ABI's solution can scale to the industry level without sacrificing speed,



settlement finality, or environmental goals, with banks only sharing what needs to be shared with those who have a need to see it.

While these are examples from R3's perspective outside the United States, we hope it is illustrative of the developments happening globally.

Questions Regarding Risk and Compliance Management

Q4: To what extent are IDIs' existing risk and compliance management frameworks designed to identify, measure, monitor, and control risks associated with the various digital asset use cases? Do some use cases more easily align with existing risk and compliance management frameworks compared to others? Do, or would, some use cases result in IDIs' developing entirely new or materially different risk and compliance management frameworks?

Digital assets that are a representation of a traditional asset (stock, bond, etc.) or a native version of such assets easily align with IDI's existing risk and compliance frameworks. However, for many other kinds of digital assets (e.g., cryptocurrencies, stablecoins), existing frameworks may not reflect the relevant risks that arise if an IDI is exposed to fluctuations in the prices of digital assets or from design and underlying technology features.

A further risk that may not be considered in existing risk and compliance frameworks is the assessment of exposure as it relates to the level of adoption of particular digital assets. For example, if a digital asset to which an IDI is exposed is a niche product, the risks associated with the asset may be limited to price fluctuations. However, if the risk exposure is due to a widely adopted digital asset, the risk profile would significantly alter to reflect the value held by those tokens and their role within the economy. As such, risk and compliance frameworks should consider the adoption of a token class, in addition to its inherent features.

Digital assets which are widely held, and/or rely on traditional financial products for their backing (e.g., commercial paper, treasury bills, etc.) would have further implications for risk assessment and resolution planning from the point of view of the FDIC, especially as it relates to Systemically Important Financial Institutions (SIFIs) who may be exposed.

R3 has long supported a risk-based approach to rulemaking, in alignment with others like the Bank for International Settlements and the Basel Committee on Banking Supervision (BCBS). A same-risk, same-rules approach ensures that regulation is technology agnostic and won't become outdated prematurely. It also provides the marketplace with a valuable understanding of the kinds of activities and risks regulators will seek to engage with and a consistency that allows for positive innovation to develop, which aligns to well established regulatory principles.

Q5: What unique or particular risks are challenging to measure, monitor, and control for the various digital asset use cases? What unique controls or processes are or could be implemented to address such risks?

Digital assets present unique challenges for risk management because of their novel underlying technology – a distributed ledger or blockchain. Further, the underlying technology of digital assets



is often distinct to the individual asset. For example, the underlying blockchain of bitcoin has significant design differences to that of ether, as well as to security tokens and stablecoins.

We believe DLT is a tool for transformative change, but that the technology does not outweigh policy or regulatory considerations and must fit the demands of the sector in which it is implemented. Some DLT platforms are unsuited to regulated activities because of their inherent design. For instance, some adopt consensus mechanisms that require data broadcasting or gossip protocols to spread transaction data across the network in order to validate transactions. This means transaction data is not only received by all network participants, but they have a role in processing the transaction. Such systems therefore struggle to meet the privacy needs of regulated entities, match the operational performance of existing systems, and can provide only statistical finality of a transaction.

In contrast, a Corda network is built as a private permissioned ledger. This allows for each network built on Corda to apply its own governance systems specific to that network, including determining the rules for participation, much like how the Federal Reserve determines who has access to settlement services in its RTGS system. In terms of consensus, this means that a model can be applied where only those entities directly involved in transactions are aware of the transactions, see the associated data and have a role in executing the transaction.

Additionally, a distributed ledger must allow participants to transact without fear of rollback or system “forks.” Transacting parties must have confidence that once committed, a transaction is final and irrevocable.

Many current cryptocurrency networks operate with proof of work consensus mechanisms, which present increased levels of settlement risk. This, alongside volatile market prices, likely contributed to a higher risk weight designation (1250%) in a [recent proposal](#) from the Basel Committee on Banking Supervision (BCBS).

Risks relating to stablecoins were also considered by the Basel Committee, especially in relation to the stabilization mechanisms used. Stabilization mechanisms are a technical feature that seek to ensure the value of the coin remains pegged to the referenced fiat. Regardless, stablecoins do present several key benefits that the FDIC may want to consider:

- Stablecoins can be used 24/7 and allow investors to transfer or lock-in profits from investments. Stablecoins also allow for the transfer of money outside of the financial system, particularly for when clearing houses are offline.
- Stablecoins enable instantaneous transfer from account to account, which could reduce payment costs for consumers.
- Stablecoins present a new, dynamic payment technology with inherent benefits that make cross-border activities much more reliable, secure, simpler, quicker and likely cheaper.

As BIS has stated: “Stablecoins might be more readily usable as a means of payment and store of value, and they could potentially foster the development of global payment arrangements that are faster, cheaper and more inclusive than present arrangements. Therefore, they may be able to address some of the shortcomings of existing payment systems and deliver greater benefits to users.”



R3 sees the market for stablecoins as still very much in development and has noted the dramatic increase in use of this digital asset type over the past year. We anticipate strong consumer demand for regulated stablecoins, or those underpinned 1:1 by fiat. Strongly regulated stablecoins that are backed by cash reserves could harness the benefits of digital assets to enhance payments systems and the availability of a digital version of private money, all while minimizing risk.

It is important to note that not all of the most widely used stablecoins are backed 1:1 by fiat, and therefore raise questions regarding volatility, custody, and the ability of the issuer to prove adequate reserves at all times.

Stablecoins with insufficient reserves and/or stabilization mechanisms could collapse if they break their fiat-peg. This could result in a run to convert stablecoin holding back to fiat, with mass withdrawals, collapse of the coin's value, and pressure on short-term credit markets that provide liquidity to many popular stablecoins. Depending on the size and make-up of reserve holdings, this could also inject additional systemic risk into the banking system, as Fitch Ratings [recently noted](#).

Q7: How are IDIs integrating, or how would IDIs integrate, operations related to digital assets with legacy banking systems?

As discussed earlier, R3 has been engaged with several operational use cases for digital assets that integrate with or improve upon legacy banking systems. One particular legacy challenge of banks is in the area of cross-border payments. Using Corda Enterprise, Wells Fargo has built an internal application called Digital Cash, which leverages Corda's settlement finality, privacy, and scalability to move value between Wells Fargo institutions across borders using cash tokens. By integrating a type of digital asset into its internal operations, it reduced liquidity risk for the bank by creating faster intrabank transfers and expanded operating hours.

Another novel use case for digital assets relates to private placements which currently use paper-based legacy systems and result in significant delays for investors. To overcome this challenge and reduce administrative costs, HSBC built the Digital Vault application on Corda. The application tokenizes these records, enabling the digitization of the entire asset lifecycle of a private placement. HSBC pursued this application of an asset-backed token on Corda due to its scalability, privacy, and ease of auditing.

While these are just two instances with which R3 has been engaged, we believe there exists ample potential for distributed ledgers such as Corda to enhance operational efficiency and reduce risk in the banking industry.

Q8: Please identify any potential benefits, and any unique risks, of particular digital asset product offerings or services to IDI customers.

R3 counts several IDIs as customers of our own, and as Corda was developed initially for use in the financial services industry, our platform leverages the power of DLT in alignment with the risk



and compliance frameworks of the industry. Our customers invest in Corda to acquire benefits that include:

- Efficiencies in storing, managing and disclosing data attributes
- Communication between parties to a transaction, and reduction of intermediaries
- Data privacy and protection
- Data reporting
- System resiliency

We believe that in harnessing these attributes, IDIs can pass along benefits to their own customers, including reduced transaction costs. The same factors that make DLT-based solutions attractive to IDIs are similar to the aspects that make digital assets attractive to their end-clients. Specifically, digital assets like cryptocurrencies and stablecoins represent an opportunity to invest in new types of assets and utilize simplified payments structures (especially cross-border), respectively.

Questions Regarding Supervision and Activities

Q10. Are there any unique aspects of digital asset activities that the FDIC should take into account from a supervisory perspective?

R3 has long advocated for a risk-based approach to supervision and regulation and believe this to be the best path for many regulators. Where digital assets are merely digital versions of other underlying assets, they should be regulated in the same way as the underlying. When considering new categories, unique requirements should be evaluated because of untested risks to consumers, financial institutions, and overall financial and monetary stability.

As mentioned previously, the BCBS highlighted specific risks for digital assets in a recent proposal for prudential regulation. R3 supports the BCBS's approach to risk assessment, which focuses not on specific products or platforms, but rather the risks associated with the underlying technologies of various digital assets.

R3 would like to highlight several primary risks that are relevant to the work of the FDIC:

- Consumer understanding and awareness – the extent to which holders or investors of digital assets are appropriately aware of inherent risks.
- Reliability of underlying technology – specifically, whether settlement finality is assured, and what privacy controls exist.
- Design features – how design features like stabilization mechanisms mitigate or introduce additional risk.
- Reserve structure – especially in relation to stablecoins, reserve funds may represent firm-level and system-level risk.

Q11. Are there any areas in which the FDIC should clarify or expand existing supervisory guidance to address digital asset activities?

Continuing on the risk features highlighted above in question 10, the FDIC may want to clarify or expand their guidance in relation to the extent a supervised IDI may hold a reserve account for a digital asset company or have a material exposure to them through other products and services. Aspects of the digital asset market bare many of the hallmarks that contribute to run behavior:



volatile prices (for cryptocurrencies), the use of fractional reserves by some stablecoin operators, the ineligibility for deposit insurance on some digital assets, and the absence of a lender of last resort. As a result of these inherent factors, run risk is present and could create additional risk for exposed IDIs.

Q12. In what ways, if any, does custody of digital assets differ from custody of traditional assets?

R3 has seen growth in financial institutions' offering of custodial services for digital assets. It is important to note that storage options for digital asset custody (i.e., hot or cold storage, which involves possession of cryptographic private keys) do not neatly map into custody regulation set forth by the Securities and Exchange Commission. As custodians are subject to oversight in the traditional financial system and are treated as potentially part of systemic risk, R3 believes further guidance is needed for the custody of digital assets.

Questions Regarding Deposit Insurance and Resolution

Q14. Are there any steps the FDIC should consider to ensure customers can distinguish between uninsured digital asset products on the one hand, and insured deposits on the other?

The FDIC should consider issuing clarification to the public regarding uninsured digital assets and encouraging IDIs to further clarify to customers. This would be in line with actions other regulators have taken globally, like the UK's Financial Conduct Authority, who routinely issue warnings and clarifications relating to digital assets and their service providers.

In our view, public disclosures of the status of an underlying asset behind a digital token are important in maintaining public trust in the token, building a competitive and successful marketplace, and protecting the wider system from undisclosed financial risk. Ensuring the public can distinguish between insured tokens versus those that are uninsured allows customers to make decisions based on their risk appetite and may provide an alternative to deeper regulatory intervention, such as banning one specific approach.

Q15. Are there distinctions or similarities between fiat-backed stablecoins and stored value products where the underlying funds are held at IDIs and for which pass-through deposit insurance may be available?

Fiat backed stablecoins that are backed by a 1:1 ratio against fiat share many similarities with stored value products like bank cards, where the underlying funds are held at IDIs and for which pass-through insurance may be available. Assuming that the fiat underpinning the stablecoin is suitably custodied – presumably in a reserve account with the central bank, the risk to consumers is near indistinguishable from holding a direct central bank liability, such as cash.

On the other hand, stablecoins which are not backed 1:1 may differ from stored value products if they do not hold majority-cash reserves or do not hold their underlying funds at an IDI. Further, some stablecoin arrangements hold reserves in non-insured assets such as commercial paper or treasury bills, which would not be inherently eligible for pass-through insurance.



Q16. If the FDIC were to encounter any of the digital assets use cases in the resolution process or in a receivership capacity, what complexities might be encountered in valuing, marketing, transferring, operating, or resolving the digital asset activity? What actions should be considered to overcome the complexities?

Given the unique and complex risks surrounding certain types of digital assets, it is important to consider how a supervised institution's exposure to them is included in resolution plans. Volatile prices for cryptocurrencies, and/or custodial arrangements may present a challenge in valuing or managing the assets during a receivership event.

For example, if any digital asset under custody was backed by a native exchange asset (i.e., bitcoin) and that asset was stolen or lost, it is difficult to see how recovery of the underlying asset would be pursued. The identification of the legal custodian of that asset may be possible – and some compensation possible if they are suitably regulated and required to undertake risk mitigation measures, such as an insurance scheme - but given the nature of cryptocurrencies, when assets are lost there is no method for reissuing them or recovering the value of the underlying asset. This is likely to have a consequential effect of the value of the token. This risk is reflected in the Basel Committee's recommendations.

Additional Considerations

Q17. Comments are invited to address any other digital asset-related information stakeholders seek to bring to the FDIC's attention. Comments are also welcome about the digital asset-related activities of uninsured banks and nonbanks.

R3 would like to note that we have, for the most part, left central bank digital currencies (CBDCs) unaddressed in our response. However, we have seen a notable increase in interest in the exploration or development of CBDCs by central banks. Given that strong use cases are emerging for this type of digital asset, it may be prudent for the FDIC to also engage in developing their understanding of digital fiat. R3 would be more than pleased to assist the FDIC in this endeavor, should it wish, and have done so for regulators globally, including the European Central Bank, Bank of Japan, UK Financial Conduct Authority and Bank of England, and many more.

Conclusion

R3 has appreciated the opportunity to contribute our observations of this important and rapidly developing area of finance and hope to be a resource as the FDIC continues their consideration of these issues.

Please do not hesitate to contact us with questions or for additional information.

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