



R3 RESPONSE TO IOSCO and CPMI JOINT CONSULTATION ON STABLECOIN ARRANGEMENTS DECEMBER 2021

R3 welcomes the opportunity to respond to this joint consultative report by the International Organization of Securities Commissions (IOSCO) and the Committee on Payments and Market Infrastructures (CPMI) on the applicability of the Principles for Financial Market Infrastructures (PFMI) to stablecoin arrangements. We believe the examination of the regulatory environment surrounding stablecoins is extremely timely given their tremendous growth in recent years.

Introducing R3

R3 is an enterprise software firm enabling digital transformation through our trust technologies, connected networks, and regulated markets expertise. With a foundation in distributed ledger technologies (DLT), our solutions are purpose-built for use in regulated financial industries, including by financial market infrastructures.

R3's Trust Technologies: Corda and Conclave

Corda is R3's signature DLT software and is used throughout regulated financial 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.

Originally built by the financial services industry for the financial services industry, Corda leverages the power of distributed ledgers 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.

Corda has been selected as the underlying platform for multiple central bank digital currency (CBDC) projects over the last five years, working with the central banks of Canada, Hong Kong, Singapore, Thailand, Sweden, South Africa, Australia, New Zealand, Malaysia, France, Switzerland, and others, including the Bank of International Settlements, on CBDC projects in the wholesale and retail space. In addition to work with the public sector on tokenized payments, we also support several private sector partners to develop solutions, including Wells Fargo and Mastercard. In October 2021, R3 acquired the technology and team of the financial asset tokenization specialist Ivno, enabling the use of Ivno-developed capabilities across the Corda platform. This acquisition further strengthened R3's capabilities in the digital assets and currency space, with a view to offering tokenisation accelerator services in the near future.

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

R3 shares 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 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.

Further information on R3's work, portfolio and our partners can be found on our website: r3.com.



Working with IOSCO and CPMI

We welcome the opportunity to contribute to this consultation and hope our responses assist IOSCO and the CPMI in considering various technological aspects of stablecoin arrangements. R3 values the previous contributions of IOSCO and CPMI and previously contributed to the 2019 consultation on crypto-asset trading platforms and the 2016 survey of DLT use in capital markets published by IOSCO. We have long recognised the value of working with regulators to support their efforts in this space and look forward to further assisting as this work progresses.

If you have any questions relating to our submission, please contact:

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R3's Stablecoin Observations

Globally, significant steps are being taken to improve the efficiency and security of financial market infrastructures using novel solutions like distributed ledgers technology (DLT) and tokenized assets such as stablecoins.

Digital settlement assets such as a central bank digital currency or a stablecoin, can be used to facilitate a complete end-to-end on-ledger transaction that is seamless across the trade, clearing, and settlement processes. This significantly reduces systemic risk and supports advances in liquidity management. We strongly anticipate an expansion in the use of DLT in financial markets along with the convergence of stablecoins and/or central bank digital currencies to facilitate this in the coming years. R3 believes FMIs are playing and will continue to play an important role in the responsible evolution of stablecoins and welcome this joint consultation.

Where stablecoins will play a role in settlement, it is clear that consumer protection and financial stability are paramount in their regulatory supervision regime. The work done by IOSCO and the CPMI is a great complement to regulatory activity in individual jurisdictions and will assist in the coordination of approaches, so as to avoid market fragmentation and regulatory arbitrage. If done correctly, it will also provide the market with certainty and facilitate the development of a highly innovative marketplace.

As we have seen in Switzerland, SDX are working with the national regulator and the central bank to facilitate stablecoin use in wholesale DLT transactions, and in November 2021, went live with a fully-regulated [bond offering](#). In Italy, the Spunta project has connected the nation's banking system to perform interbank reconciliation activities using a DLT system; Germany's Deutsche Börse are using tokenised trading of high-quality liquid assets; and in the US, DTCC is progressing Project Ion to condense settlement times from T+2 to T+1. All of these are using R3's Corda technology and have benefited from a strong relationship between the public and private sector.

Responses to Selected Questions

Below are R3's responses to selected questions which are most relevant to our perspective as a technology provider.

Questions 1 & 2

No response

Question 3: Is the guidance provided on governance clear and actionable to inform how SAs will need to ensure clear and direct lines of accountability and set up governance arrangements to observe the PFMI?

IOSCO and the CPMI are right to point out the importance of clear and direct lines of responsibility, adequate risk control, and accountability for stablecoin arrangements (SAs), and R3 finds the guidance to be clear and actionable.

In instances where stablecoin arrangements (SAs) are systemically important, the highest levels of accountability are necessary to protect markets and investors. R3 anticipates that existing FMIs have the greatest capacity to establish SAs with systemic significance. These institutions already exist within a regulatory framework and are typically keenly aware of the requirements and responsibilities that are expected of them. The guidelines that are proposed in this consultation should provide the necessary further information they require to progress with these activities.

It is important to note that Corda was designed by regulated entities for use by regulated entities. As a result, identity runs through the core of the platform and provides a foundational element to how individual networks can be governed and operated. To join a Corda network, participants must establish their identity with the Corda Identity Service. This verifies the identity of participants and establishes a relationship between a given legal entity (such as a bank or corporation) with a network node. Once identity is established then a network's governance model can determine whether to provide access to the network to that legal entity. As a result of Corda's framework, it is therefore possible to establish clear and direct lines of accountability of participants and of network governance.

Question 4: What are the challenges that SAs may face due to the use of distributed and/or automated technology protocols and decentralisation, when seeking to observe Principle 2 on governance, in particular when ensuring the clear allocation of responsibility and accountability?

R3 believes legal and natural identity are paramount to the formation of robust governance frameworks, and observes that SAs using permissionless ledgers in their capacity as a transfer function may struggle to clearly identify lines of responsibility using solely technical features. Although decentralized and automated governance exists in the blockchain space in the form of Decentralized Autonomous Organizations (DAOs), this structure is insufficient on its own to meet the appropriate standards of the PFMI.

R3 concurs with IOSCO and the CPMI that governance through code alone is likely inflexible to accommodate changing environments. In financial and monetary environments where risks are constantly in flux, effective governance is not possible through code alone. As the recent President's Working Group (PWG) Report on Stablecoins in the US cited, operational risks may be more difficult to manage or supervise in a stablecoin arrangement, especially when the supporting infrastructure is beyond the control of any one organization (including the entities involved in the stablecoin arrangement) and there is no clear entity to regulate.

The principles of governance and risk management was central to R3's design of Corda, which requires the identity of participants to be verified, including a precise network admission process. Further, networks can be designed to suit the governance requirements of the developer or operator of an application, making it easy for supervised entities to design applications that align with regulatory requirements. Architects can define a topology that is acceptable to all participants and meets risk mitigation standards.

Further, although smart contracts and programmability can provide for automation of activity, in a permissioned system the issuer of the contract or token performing these actions is identifiable, meaning governance arrangements can be customized to interrupt undesired software execution. In this sense, the governance of the system could allow for suitable entities, such as a regulator, the capacity to enforce legal outcomes in the network. For instance, were a stablecoin wallet provider be found to be in breach of agreed rules, it would be possible to act against them – such as by freezing held on-ledger assets and withdrawal of permissions.

Corda's design therefore leverages the advantages of distributed and decentralised designs but provides customizable governance structures. Indeed, in this example you could design the governance and procedures of the system to operate in a way that enforced regulator action on the wallet provider, but protected users with accounts at that entity. If helpful, we would be happy to illustrate possible solutions with IOSCO and the CPML, if it were to assist in your work.

Regardless of the underlying technology of a stablecoin, managing material risks through governance and risk control policies are essential to ensuring the safety of the asset, whether they can be assured technically (like on Corda) or through additional business practices.

Question 5

No response

Question 6: Is the guidance on Principle 8 on settlement finality clear and actionable to inform how SAs will need to manage risks arising from a misalignment between technical and legal finality?

The joint consultative report references the potential misalignment between legal and technical finality due to probabilistic consensus mechanisms, and from R3's perspective, the guidance is clear and actionable. We see no technical barriers in the guidance that would prevent an SA from ensuring transferability, settlement finality, and redeemability were they to use Corda as the underlying technology. However, that is not true or possible on many other platforms.

Probabilistic settlement processes are a core feature of many permissionless DLTs, making settlement finality an unavoidable risk for SAs who rely on them. However, as the PWG report cited, these risks are not inherent to stablecoin arrangements, and "compared to public blockchains, permissioned blockchains may offer more certainty as to who is responsible for monitoring the network and complying with the rules of the network (e.g., processing only valid transactions) and thus faster and more predictable settlement."

Related to our prioritization of governance features when designing Corda, R3 also placed legal settlement finality at the core of our consensus mechanism architecture. Transactions on Corda are settled atomically between counterparties and as only the transacting nodes are required for settlement, technical and legal finality can be fully aligned. This provides certainty over the state of the transaction and by association what entity holds which assets. Indeed, this is further supported through the verifiable identity of network users, meaning that agreements in legal contracts have greater enforceability in Corda-based networks than permissionless systems with no verifiable identity layer.

Application design on Corda closely models legal language and business processes that begin with the existence of binding agreements, collecting the necessary approvals, and signatures to create, execute, and transact those agreements. Further, Corda's consensus model is based on validation and uniqueness. In the validation process each counterparty independently confirms that the transaction adheres to the shared business rules. Corda uses a notary node to ensure transaction uniqueness by signing and time-

stamping the transaction. This avoids double-spending and enables transactions to provide settlement finality. It should also be noted that because Corda's consensus design is well suited to privacy and scalability, it avoids use of large-scale computing resources typically associated with blockchain technologies. As a result, Corda typically keeps energy consumption to a level comparable with that of conventional database applications.

Question 7: Is the guidance on Principle 9 on money settlements clear and actionable to inform how SAs will need to manage risks associated with the use of a stablecoin as a settlement asset? In particular, is the guidance clear on the considerations which an SA should take into account when choosing a stablecoin as a settlement asset with little or no credit or liquidity risk as an appropriate alternative to central bank money?

R3 views the guidance on Principle 9 as generally commiserate with the level of risks identified but would highlight the importance of considering the underlying asset behind specific stablecoin designs, in addition to prudent rules around redemption and access to these assets. For instance, a stablecoin that is backed 1:1 in value by central bank issued fiat could contain many of the same features as direct central bank liabilities and a similar amount of associated risk.

Further, where central banks do not wish to issue wholesale CBDC, the benefits of transacting on-ledger with a stablecoin may be a highly attractive settlement offering as entities seek to reduce their exposure to risk by choosing to execute transactions using DLT infrastructure. As the SDX example highlighted earlier in our response shows, a public/private partnership in the design of a prudent regulatory regime that facilitates stablecoin products can facilitate responsible innovation. In this case, whilst the liability of this offering is that of SDX, it is backed directly by central bank fiat allowing for a similar risk profile for holders.

It may also be beneficial to highlight that operational risks of SAs, in addition to those identified in the Report, could amplify the issues associated with this and other principles outlined in the Report. For example, the scalability of the underlying technology of an SA could create difficulty for ensuring the timeliness of the process for converting the stablecoin into other liquid assets, as was highlighted in Section 3.5.12. DLT platforms have varying levels of transaction processing capacity, which comes with two primary concerns: 1) as a stablecoin becomes more widely used, liquidity risk increases due to technical capacity constraints, and 2) in the event of market volatility stemming from either credit or liquidity risks, the ability to convert the settlement asset to other liquid assets is further strained.

The issue of scalability was one of several risks attributable to the underlying technology identified by the Basel Committee for Banking Supervision (BCBS) in their consultation, Prudential Treatment of Crypto-assets, which also included service accessibility, trustworthiness of node operators, and design of the DLT, all of which vary markedly across the DLT market. Corda, for example, was built with high throughput capacity to mitigate scalability concerns, and a 2018 [study by DTCC](#) found it capable handling 6,300 trades per second for five continuous hours, which equates to 115,000,000 daily trades (as opposed to "single or double digit per second performance on public blockchains).

Question 8 & 9

No response

ENDS.