The Evolution of Digital Assets

Challenges, Opportunities, and J.P. Morgan Solutions

October 2024

J.P.Morgan

Introduction

In recent years, the evolution of digital assets has catalyzed a significant shift in the financial sector.[1] From its initial phase centered around speculative investments, the digital assets space has matured into a more dynamic ecosystem, steadily evolving into an increasingly significant component of global financial markets.

J.P. Morgan recognized the potential of distributed ledger technology (DLT) and digital assets early on, pioneering several initiatives designed to connect the world of traditional finance with the expanding field of digital assets and establishing Kinexys, a dedicated business unit focused on developing and commercializing products leveraging blockchain, a form of DLT.

For securities services providers, DLT and digital assets present an opportunity to rethink traditional models of financial market infrastructures. They can also help unlock the potential for more efficient and transparent transactions, along with reduced counterparty and infrastructure risk. However, the complete integration of digital assets is not without its challenges including regulatory uncertainty, legal complexity, and the need for standardization and interoperability across systems, asset types, and jurisdictions.

This paper highlights some of the opportunities and challenges associated with digital assets and provides an overview of the current regulatory landscape as well as product solutions J.P. Morgan has developed to support our clients.

1 Digital assets, in the broadest terms, may serve a variety of economic functions, including acting as a medium of exchange or payment, as a record of entitlement to an underlying asset or future economic returns, or as a means to access other services. Digital assets can be financial instruments depending on the individual asset and the applicable regulatory determination.

Opportunities

In recent times, financial technology has evolved from cumbersome physical assets like bank notes and certificates to electronic formats that accelerate asset transfers and recordkeeping. Despite these advances, electronic formats have still left financial institutions contending with a multitude of siloed ledgers and long chains of intermediaries that require labor-intensive reconciliation, adding costs and inefficiencies.

Historically, our financial systems have operated on highly centralized models, with governance controlled by highly regulated entities. The introduction of DLT has been a catalyst in the shift towards decentralized finance (DeFi) paradigms. At its core, DeFi leverages DLT to offer services such as lending or exchanging of digital assets without the need to rely on traditional centralized intermediaries.

While this evolution from centralized to de-centralized finance is still in its infancy and may not be directly applicable to regulated financial services, it offers a vision of the future where recordkeeping and transaction processing could be distributed across market participants, thus improving transparency and resiliency for the industry as a whole by reducing the dependency on centralized systems and operators.

Additionally, information and asset representation can be standardized and represented on a synchronized, shared record that different transacting parties can reference simultaneously and in near real-time. This would reduce or even eliminate the need for reconciliations between these parties to agree on the state of transactions, ownerships, and balances. Furthermore, smart contracts on DLT can automate the execution of agreements between participants and automate workflows by triggering the next action when predetermined conditions are met.

Together, these features have the potential for unparalleled levels of transferability, transparency, and automation, which may transform functions related to cash and liquidity management, custody, and collateral services.

End-State Vision

- Real-time transparency of positions and status for all participants involved in the end-to-end securities lifecycle
- Near-instantaneous settlement of transfers, with the ability to add conditions or parameters via smart contracts
- Flexible infrastructure to develop customized assets or activities such as bespoke portfolios or tokenized entitlements
- Increased efficiency through greater transparency, further automation, and new operating models, particularly for processes involving siloed workflows across multiple participants
- Reduction of risk and open exposures

Challenges

The new digital frontier brings inherent challenges, notably in the realm of network participation and scalability. Achieving a critical mass of clients within a single network, or across interoperable networks, is crucial for the successful adoption of digital assets. This is more straightforward in public distributed ledger networks as they are open to all participants; however, greater accessibility can raise additional compliance, control and security concerns, particularly for providers of regulated financial services. Conversely, while private or permissioned networks can more easily facilitate appropriate governance and controls, network development can be slower due to the need for selection, screening, and onboarding of participants.

Distinct distributed ledger networks, designed with specific protocols and standards unique to each network, face difficulties in achieving seamless integration with other networks and systems. This lack of interoperability can lead to fragmentation, thereby diminishing the potential for network-wide benefits and efficiencies that a single shared ledger, or series of interoperable ledgers, could offer. Such fragmentation not only restricts the fluid movement of digital assets across different financial entities, but it also complicates compliance with regulatory standards. Consequently, there is still a reliance at present on existing legacy technology and intermediaries to bridge these gaps. Industry groups and service providers are developing new technical solutions and standards to address the need for greater interoperability.

An added hurdle for financial institutions is that the regulatory landscape surrounding digital assets remains in a state of evolution, lacking clarity and harmonization across jurisdictions. The wider adoption of digital assets brings forth numerous regulatory and legal considerations. As these assets become more integrated, regulatory bodies have to determine their classification of the different types of digital assets as currencies, commodities, securities, a new asset class entirely or merely a recordkeeping tool. This classification can have significant capital, tax, financial, and legal implications for both institutions and their clients.

Key to success

- Scalability of network participation with the appropriate governance and risk management protocols
- Integration and interoperability of systems and networks across organizations and jurisdictions
- Regulatory clarity and harmonization to simplify compliance
- Leveraging digital benefits while maintaining economic stability

The increasing use of digital forms of money (such as stablecoins and tokenized deposits) is something central banks and regulators will need to monitor and understand to prevent unforeseen macroeconomic consequences. Recognizing the profound implications and potential benefits, many central banks are already exploring the issuance of their own digital currencies, i.e., central bank digital currencies (CBDCs). The balance between leveraging digital benefits and maintaining economic stability becomes paramount in an evolving financial landscape, and many market participants indicate that the evolution of digital central bank settlement currency will be necessary to drive widespread adoption of digital settlement.

Regulatory Developments

While the global regulatory landscape for digital assets remains by and large fragmented (making it difficult for market participants to navigate through contradictory regulatory obligations between countries at different stages of regulatory maturity), there has been meaningful progress on a number of fronts. The European Union (EU), for example, is in the process of implementing its groundbreaking pan-European framework for crypto assets – the first of its kind globally - which is discussed in further detail later in this paper. A number of countries are also collaborating on a cross-border initiative – spearheaded by the Monetary Authority of Singapore (MAS)[2] – between policymakers and the financial services industry to enhance liquidity and efficiency of financial markets through asset tokenization. Notably, global standard-setting bodies[3] have been taking steps to regulate and harmonize the adoption and use of digital assets across borders, while trying to balance consumer protection and financial market stability with the importance of fostering a safe, competitive, and inclusive digital economy.

Recognizing the growing importance of digital assets, the Financial Stability Board (FSB) has been monitoring developments and potential systemic risks arising from their use by the investors, financial institutions, and the wider financial system. To ensure that the digital asset market operates within established stability parameters, FSB published its global regulatory framework and roadmap for crypto asset activities in July 2023, and signaled its intention to review the implementation status across jurisdictions globally by the end of 2025.

With the emergence of digital assets and their potential impact on banking operations and risk management, the Basel Committee on Banking Supervision (BCBS) has been studying the implications for financial institutions and in 2022 published its standard on the prudential treatment of banks' crypto-asset exposures. This marked an important milestone in providing harmonized international regulatory and supervisory approach to banks' crypto-assets exposures and aims to balance responsible private sector innovation with sound bank risk management and financial stability.

The International Organization of Securities Commissions (IOSCO) also plays a critical role in ensuring the stability and efficiency of capital markets and has been actively engaged in providing insights into the realm of digital asset markets through a series of consultation reports and public reports. Its Policy Recommendations for Crypto and Digital Asset Markets, published in November 2023, is a comprehensive consultation report proposing eighteen recommendations that address six key areas of concern. These areas include conflicts of interest resulting from vertical integration, market manipulation, cross-border risks, custody and client asset protection, operational and technological risks, and retail access, suitability, and distribution.

At a regional and jurisdictional level, digital assets regulations are at different stages with regards to approach, clarity, and maturity.

In the United Kingdom (UK), the primary approach to regulating new financial technologies, including digital assets, has been to develop an appropriate legal framework and leverage the existing Financial Market Infrastructures (FMI) regulations with some adjustments. To facilitate technology adoption and test services under temporarily lightened regulatory requirements, following consultation with the industry the UK authorities have recently launched the Digital Securities Sandbox (the DSS) which is now open to receiving applications. DSS provides a regulatory testing environment, or 'sandbox,' which aims to allow participants to use developing financial technologies, including the DLT, in the issuance, trading, and settlement of securities.

2 *MAS has launched Project Guardian, a collaborative project between policymakers and industry players that trials asset tokenization and decentralized finance, including tokenizing money market funds, bilateral digital asset trades, and cross-border payments.*

3 *Global standard setters propose standards which do not become "effective" until individual jurisdictions look to implement them. While standards are technically not legally binding, jurisdictions generally aim to implement them by the proposed target date and adopt the identical version, an amended version, or a stricter version of the proposed standard based on their own determination.*

In the context of the regulatory framework for digital assets, crypto assets in particular are largely unregulated in the UK. In comparison to the EU's Markets in Crypto-Assets Regulation (MiCAR), which aims to regulate the crypto industry (outside of the MiFID financial instruments) comprehensively across the EU, the UK's approach is more gradual, initially focusing on stablecoins. To this effect, the UK financial regulator has been consulting with the industry on the proposed approach to regulating fiat-based stablecoins, recognizing their potential for widespread adoption including to facilitate trading, lending and borrowing of crypto assets.

While the global regulatory landscape for digital assets remains fragmented, there has been meaningful progress on several fronts including:

- The EU is in the process of implementing its pan-European MiCAR framework for crypto assets and a pan-European blockchain sandbox.
- The Monetary Authority of Singapore is working with international policymakers and the financial services industry to enhance liquidity and efficiency of financial markets through asset tokenization and shared DLT projects.
- Global standard-setting bodies (FSB, BCBS, IOSCO and others) have been taking steps to harmonize the adoption and use of digital assets across borders through publication of recommendations and global standards.

While the UK is in the process of implementing its digital sandbox for digital securities, in 2022 the EU authorities published a regulation for the EU DLT Pilot Regime providing the legal framework for the trading and settlement of digital assets qualifying as MiFID financial instruments. In addition, the European Blockchain Sandbox has been in place since 2023 when the European Commission (EC) launched an initiative to test and develop innovative use cases using DLT, allowing participants from various blockchain sectors to experiment with real-world scenarios while engaging in an open dialogue with the EU regulators. Most recently, the EC has announced successful applications of the second cohort of this initiative, whereby selected projects will be able to test products and services through the EU blockchain sandbox.

While policymakers and regulators globally are deliberating on the best approach of regulating the crypto assets sector, the EU is in the process of implementing its groundbreaking MiCAR regulatory framework, regarded as the most comprehensive regulatory regime for crypto assets globally. While a substantial portion of the implementation work still lies ahead, including developing supervisory guidance on individual open questions and establishing a consistent and workable approach across the 27 EU member states, the MiCAR regime already applies to stablecoins as of June 2024 and is due to apply to Crypto-Asset Service Providers (CASPs) by the end of 2024.

In the Asia Pacific region, authorities have also been taking steps to advance the regulatory agenda with respect to digital assets and innovative technologies; however, the pace of regulatory reforms, key drivers behind them, and the scope of such efforts tend to vary across jurisdictions.

Hong Kong authorities are undertaking several initiatives to encourage innovation while optimizing the digital assets regulatory framework, in line with Hong Kong’s ambition to establish itself as a global hub for digital assets and financial technology. With a regulatory framework already in place for Virtual Asset

Service Providers (VASPs), in 2023, the Hong Kong Monetary Authority (HKMA) launched a consultation on the proposed regulatory regime for stablecoin issuers and a stablecoin sandbox[4]. To further advance development of the tokenization market in Hong Kong, the HKMA recently launched a regulatory sandbox[5] to research and test tokenization across a range of use cases. Hong Kong regulatory authorities have also been clarifying expected standards and requirements in the context of the Sale and Distribution of Tokenized Products and the Provision of Custodial Services for Digital Assets.[6]

While Australia already has an existing legal framework for cryptocurrencies, Australian authorities announced in 2022 the intention to introduce a broader regulatory framework for digital assets to improve crypto industry safety and provide much needed clarification and certainty for crypto investors and businesses. Subsequently, at the end of 2023, Australian Treasury launched a long awaited consultation on a proposed framework for regulating digital assets platforms, with the draft legislation expected to be released in 2024.

In recent years, Singapore has been positioning itself as a digital assets innovation hub by applying a risk-based approach through thoughtful advancement of the regulatory agenda combined with a launch of industry collaboration projects to grow the digital asset ecosystem, while ensuring that the digital assets ecosystem in Singapore develops responsibly. As mentioned earlier, MAS spearheaded a cross-border collaboration initiative on asset tokenization, with a number of countries around the world taking part. MAS is also working with international policymakers and financial institutions to explore the design of the digital infrastructure in line with international standards to facilitate seamless cross-border transactions of tokenized assets under project Global Layer One. While there is no overarching regulatory regime that governs all digital assets, cryptocurrencies in Singapore are regulated under the Payment Services Act 2019, and MAS has also introduced a new regulatory framework for stablecoins.

By comparison, in the United States, the digital assets regulatory landscape is evolving but still fragmented, with state and federal regulators seeking to provide further clarity over jurisdiction and legislative solutions to key issues, including taxonomy, licensing, fraud, and investor protection. In early 2024, the Commodity Futures Trading Commission's Global Markets Advisory Committee introduced a digital asset taxonomy built on recommendations by global standard setters. This may lead to a wider adoption into the relevant regulatory framework. Additionally, the Securities and Exchange Commission (SEC) published Staff Accounting Bulletin 121 (SAB 121), which requires SEC filing firms to represent digital assets on their balance sheets. In July 2024, the House of Representatives failed to overturn a Presidential veto relating to SAB 121; while the guidance still stands, following industry feedback the SEC have recently granted a limited number of exemptions to SAB 121.

4 *https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/07/20240718-4/*

5 *Project Ensemble - https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/08/20240828-3/*

6 *The Securities & Futures Commission has also released two circulars in relation to the tokenization of securities and other investment products, namely (1) Circular on intermediaries engaging in tokenized securities-related activities and (2) Circular on tokenization of SFC-authorized investment products.*

Industry Advocacy

J.P. Morgan continues to advocate proactively for harmonized regulatory frameworks that would provide greater certainty and guidance for the use of digital assets and innovative technologies.

J.P. Morgan Securities Services engages with the industry seeking to explore the use of digital assets and DLT through active participation in relevant working groups at major industry bodies, including but not limited to the: the Australian Custodial Services Association (ACSA); the Global Financial Markets Association (GFMA); the Association for Financial Markets in Europe (AFME); UK Finance; the Securities Industry and Financial Markets Association (SIFMA); the Association of Global Custodians (AGC); the International Securities Services Association (ISSA); and the International Securities Lending Association (ISLA).

In addition, J.P. Morgan collaborates with clients, peers, and financial market infrastructures to develop best practices and market standards and its current advocacy efforts are focused on:

- Appropriate governance models and oversight, alongside a clear and harmonized digital asset taxonomy to avoid fragmentation by jurisdiction and to allow seamless cross border activity
- DLT as a route to increased competition and efficiency, alongside reduced risk and increased resiliency
- Protection of client investments and funds and protection against potential contagion risk into the traditional financial sector
- Principle of "same activity, same risk, same regulation"[7] to ensure consistency across asset classes, recognizing that some regulatory frameworks may need specific clarification around digital assets
- Prudential treatment of digital assets in a manner that would mitigate the possible risk of arbitrage across different licensing regimes, e.g., increased tokenization of traditional assets to lower capital requirements

Please refer to our recent Custody Industry and Regulatory Developments Report, which highlights our advocacy efforts for key regulations, markets, and industry developments shaping the custody industry.

Industry Focus Areas

- Regulatory frameworks continue to develop in respect of using distributed ledger for issuance and servicing of digital assets
- Industry standards could mitigate the cost of doing business across multiple platforms and deliver accessibility to a wider range of participants
- Interoperability between digital infrastructures and existing traditional infrastructures could support increased liquidity and functionality
- Ensuring selected DLT use cases demonstrate clear value versus existing market infrastructure

7 *The principle of "same activity, same risk, same regulation" provides that crypto assets and intermediaries that perform an equivalent economic function to one performed by instruments and intermediaries of the traditional financial sector should be subject to equivalent regulation - https://www.fsb.org/2022/10/fsb-proposes-framework-for-the-international-regulation-of-crypto-asset-activities/#:~:text=They%20are%20grounded%20in%20the,be%20subject%20to%20equivalent%20regulation.*

Kinexys by J.P. Morgan

J.P. Morgan has taken a strategic interest in the introduction and evolution of digital assets, and we recognize the transformative potential of distributed ledger to reshape the way we do business.

In 2020, J.P. Morgan launched Kinexys, a dedicated business unit within the bank that maintains deep blockchain and digital asset expertise. Kinexys is exclusively focused on building and commercializing blockchain products, solutions, and infrastructures for J.P. Morgan's businesses and clients. Through its underlying platforms, namely Kinexys Digital Assets and Kinexys Digital Payments, Kinexys uses blockchain technology to transform money and asset movements for our institutional and corporate clients.

Kinexys Digital Payments

Is a permissioned system that serves as a payment rail and deposit account ledger that allows participating J.P. Morgan clients to transfer U.S. Dollars and Euros held on deposit with J.P. Morgan within the system, facilitating the movement of liquidity funding and payments in near-real time.

Kinexys Digital Payments

Kinexys Digital Payments seeks to address the complex challenges of payments by helping to provide increased flexibility in managing clients' liquidity funding needs and offering next generation corporate treasury services featuring programmable accounts and payments.

Kinexys Digital Payments provides for a private, permissioned blockchain-based deposit ledger and payment rail that enables J.P. Morgan clients to automate and facilitate transactions 24/7, in near real-time, across borders with blockchain deposit accounts (BDAs). Kinexys Digital Payments has the capability to support on-chain DvP (delivery versus payment) and PvP (payment versus payment) transactions, which can unlock on-chain use cases.

Kinexys Digital Payments can be used to execute near-instantaneous settlements for intra-company and cross-border payments. In the FX market, two parties can leverage Kinexys Digital Payments for PvP transactions, ensuring both currency transfers are executed near-simultaneously.

Additionally, Kinexys Digital Payments is used to support DvP for intraday repo transactions within the Digital Financing application on Kinexys Digital Assets. Recently, Kinexys Digital Payments launched Programmable Payments, delivering additional automation functionality for on-chain payment activity.

Kinexys Digital Assets

Kinexys Digital Assets is J.P. Morgan's digital assets platform that enables the creation of new product solutions and markets through the tokenization of assets.

Kinexys Digital Assets was launched in 2020 with the aim of helping J.P. Morgan clients to access secured financing against tokenized assets using standard repo agreements. It now also enables clients to post tokenized assets as collateral for faster, cheaper margin management, and to issue and settle bonds on blockchain.

8 Transfers on the system are completed on a 24/7/365 and on a same day basis. Moving funds between systems – i.e., to and from Kinexys Digital Payments BDAs and traditional Direct Deposit Accounts on legacy systems – has a three-hour downtime over the weekend (3-6 PM EST every Saturday, enhancement under development).

J.P. Morgan Securities Services Digital Product Offering

As the digital assets space continues to mature and our clients increasingly embrace both digital assets and the use of distributed ledger technology, J.P. Morgan Securities Services have been developing solutions across our trading services, custody, and fund administration offerings to support our clients' requirements.

J.P. Morgan's trading services have developed the Tokenized Collateral Network (TCN), an application built on the Kinexys Digital Assets platform that enables participating clients to tokenize and transfer ownership rights to traditional assets to meet collateral margin obligations. The TCN offers two main benefits to clients: adding utility to 'trapped' assets and enhancing operational efficiency in collateral transfers for both trapped and highly liquid assets. The asset subject to tokenization remains encumbered at the custodian level, while participants can use the TCN to transfer title or securities interest of the underlying asset as a token on a near-instantaneous basis.[9]

J.P. Morgan initially focused on tokenizing Money Market Fund (MMF) units through its successful pilot in 2023 which enabled our clients to post the tokenized MMF units as collateral margin for a live over-the-counter derivative transaction on a near-instantaneous basis, while maintaining the collateral provider's investment in the MMF units. This pilot demonstrated how tokenization can add utility, transferability, and resiliency to an asset class such as MMF units, which would otherwise need to be liquidated for cash in order to be posted as collateral margin.[10]

Looking ahead, J.P. Morgan is working towards supporting the tokenization of additional asset classes on TCN, namely government bonds, across a range of client use cases. This represents a significant opportunity to drive increased operational efficiencies in the collateralization of securities financing and derivative transactions through tokenization.

As one of the world's leading global custodians, J.P. Morgan has been also evolving its custody offering to support safekeeping and asset servicing of securities, funds, and cash in digital form. Operating models, technical requirements, regulatory regimes, and contractual frameworks vary widely depending on the jurisdiction and nature of a particular digital asset, and securities services providers play a vital role in helping our clients to navigate through this complexity. J.P. Morgan Digital Debt Service (another application on Kinexys Digital Assets) enables the full lifecycle of debt issuance, safekeeping, trade settlement, and asset servicing to be captured in a distributed ledger environment that supports transactions settling on a DvP basis, with both cash and securities tracked and transferred on-chain using smart contracts. Bonds issued via this service can be held by eligible clients in J.P. Morgan custody.

J.P. Morgan's global fund administration unit offers a crypto administration service (available to clients across all segments of the market including traditional and alterative asset managers, as well as asset owners) which includes performing accounting, valuation, and reconciliation services.

9 Potential benefits listed here are illustrative potential benefits. Outcomes are not guaranteed.

10 Importantly, tokenizing a traditional asset does not alter its inherent properties, so all considerations related to the underlying asset (such as collateral eligibility) remain applicable in a tokenized environment.

Looking Ahead

Great change is afoot in the financial landscape thanks to the transformative evolution of DLT and digital assets.

Of particular note, DLT can consolidate ledgers and transactional networks to create a single, synchronized view that multiple parties can access. In addition, DLT can streamline and further automate financial market infrastructure and operations while facilitating the creation of new products and services.

On the horizon, we expect to see more engagement from regulators across regions in this space. Regulatory consultations continue to be an opportunity to shape the future regulatory landscape through advocacy as J.P. Morgan continues to build out its digital product offering.

We look forward to working with our clients on their journey to engage with this innovative technology that promises expedited processing and new operating models and asset types. J.P. Morgan is committed to supporting clients who are considering digital asset investment strategies, and equally to working with the wider industry to capture efficiency, resiliency, and transparency benefits from the adoption of DLT.

If you have any questions or require additional information, please reach out to:

Americas

Scott Bevier
Co-Head of Americas
Securities Services Sales
scott.bevier@jpmorgan.com

Mike Chun
Co-Head of Americas
Securities Services Sales
michael.x.chun@jpmorgan.com

EMEA

Dennis Burgers
Co-Head of EMEA
Securities Services Sales
dennis.x.burgers@jpmorgan.com

Michelle Butler
Co-Head of EMEA
Securities Services Sales
michelle.butler@jpmorgan.com

APAC

Sam Lam
Head of Asia Pacific
Securities Services Sales
sam.lam@jpmorgan.com

Contributors

Alex Dockx
J.P. Morgan Securities Services
Industry Developments

Elliot Drews
J.P. Morgan Securities Services
Trading Services Product

Kara Kennedy
J.P. Morgan Securities Services
Digital Asset Product

Tina Rathjen
J.P. Morgan Securities Services
Global Regulatory Practice

Nikhil Sharma
Kinexys by J.P. Morgan
Kinexys Digital Assets

Julia Stepanian
J.P. Morgan Securities Services
Global Regulatory Practice

Basak Toprak
Kinexys by J.P. Morgan
Kinexys Digital Payments

For additional information, please contact your J.P. Morgan representative.

J.P.Morgan