Written Testimony of Nadine Chakar
Managing Director, Global Head of DTCC Digital Assets

Before the
United States House Committee on Financial Services
Subcommittee on Digital Assets, Financial Technology, and Inclusion

Hearing Entitled: "Next Generation Infrastructure: How Tokenization of Real-World Assets Will Facilitate Efficient Markets"
June 5, 2024

Chairman Hill, Ranking Member Lynch, and members of the Subcommittee, my name is Nadine Chakar, and it is my privilege as Managing Director and Global Head of DTCC Digital Assets (DDA) to submit this written statement regarding DTCC's role in driving innovation in the U.S. financial markets through the development of digital securities and tokenization solutions. On behalf of DTCC, thank you for the opportunity to participate in this important discussion.

For over 50 years, DTCC has been the premier post-trade market infrastructure for the global financial services industry. With 20 locations around the world, DTCC, through its subsidiaries, automates and standardizes the processing of financial transactions and, in doing so, mitigates risk, increases transparency, enhances performance, and drives efficiency for thousands of broker/dealers, custodian banks and asset managers.

DTCC is industry owned and governed, and it has a long history of innovating purposefully. Throughout its tenure, DTCC has worked tirelessly to simplify the complexities of clearing, settlement, asset servicing, transaction processing, trade reporting and data services across asset classes, with the goal of bringing increased security, resilience, safety, and soundness to financial markets.

DTCC owns and operates three clearing agency subsidiaries – National Securities Clearing Corporation (NSCC), Fixed Income Clearing Corporation (FICC) and The Depository Trust Company (DTC). Each clearing agency is registered with the U.S. Securities and Exchange Commission (Commission) and subject to the Commission's covered clearing agency standards (CCAS). Additionally, each clearing agency has been designated as a systemically important financial market utility (SIFMU) and, thus, is subject to strictly prescribed risk management standards and heightened oversight by U.S. regulatory authorities. In 2023, the SIFMUs collectively processed $3.0 quadrillion total value in securities transactions.

Currently, DTCC's subsidiaries are regulated by more than 20 different supervisory bodies globally. In the U.S. alone, the SIMFUs are regulated by the Board of Governors of the Federal Reserve System, the Federal Reserve Bank of New York, the New York State Department of Financial Services, and the Commission, while DTCC's data repository business is additionally regulated by the Commodity Futures Trading Commission.

As a user-owned business, DTCC has been innovating and evolving since its inception to meet the needs of the securities industry, but specific to the topic at hand, the firm has been developing digital assets solutions since 2016. Recently DTCC acquired DDA, formerly Securrency, which operates as its own legal entity under DTCC. DDA provides institutional-grade infrastructure and products to facilitate end-to-end lifecycle processing for tokenized traditional financial assets. In the fullness of time, DDA aspires to provide, for the financial industry, technology that could ultimately underpin the development of DTCC's enterprise digital asset infrastructure, thus aligning DTCC's existing technology with tokenization technology to realize the benefits of trading real-world assets on digital ledger technology (DLT). DDA's innovative digital solutions also seek to allow market participants to unlock the opportunities of tokenization,

including increased clearing, settlement, and payment efficiencies, blockchain interoperability, and increased liquidity.

In terms of scale, bringing the benefits of tokenization to mature markets such as the U.S. public equities markets and the U.S. Treasury securities markets, which collectively are over $75 trillion, is a tremendous opportunity. However, with that tremendous opportunity also should come the highest of regulatory standards. DTCC believes that financial entities employing tokenization technology in the U.S. securities markets should be held to the same "gold standard" of regulation as currently governs such markets – one that has been developed and refined over decades. The gold standard for tokenization should be a regulatory framework that largely aligns to and is derived from current financial regulation, following the "same activity, same risk, same regulation" approach, while recognizing that some areas may need refinement and clarification.

DTCC has been working to advance the tokenization of traditional financial assets for close to a decade and has a firsthand perspective on the opportunities this innovation can present as well as the hurdles that must be overcome to usher in this new era in financial markets.

Digital Assets – What Are They and What Are They Not

In recent years, digital assets, including tokenized traditional financial assets and crypto assets, have gained significant traction globally.

When discussing digital assets, it is important to distinguish between crypto assets and tokenized traditional financial assets. While there are similarities between crypto assets and tokenized traditional financial assets – both assets do depend on cryptography and DLT or similar technology – there are key differences. The most significant difference is that tokenized traditional financial assets are the expression of an underlying traditional financial asset in in digital token tokenized form, while crypto assets are not.

Fundamentally, tokenization is the process of converting rights – or a unit of asset ownership – into a digital token on a blockchain or similar technology. Specifically, tokenized securities can be digitized through various technical and legal means, with two common approaches:

- ***Digital Twin Token***: A token on DLT infrastructure that represents underlying securities/financial instruments issued on a different platform (e.g., a traditional CSD, registrar, etc.), where such representation itself satisfies the definition of a security/financial instrument under local law.
- ***Security Token***: A token issued solely on DLT infrastructure that satisfies the applicable regulatory definition of a security or financial instrument under local law.

There are various potential benefits to tokenizing traditional financial assets, ultimately including publicly traded equity and debt securities:

- ***Increased Efficiency and Lower Costs***: By representing traditional financial assets as digital tokens, transactions could occur more swiftly and efficiently. This could, for example, reduce processing inefficiencies and better manage reconciliation, which could lead to lower costs. It is important to note that efficiencies realized through tokenization will vary by asset class.
- ***Broader Investor Base***: Tokenization could make assets more accessible – while tokenization does not inherently enable this, over time, operational barriers to participation could be lowered through increased automation and greater data availability.

While there are potential benefits, they are also various potential issues to contemplate:

- ***Security Risk***: To date, there have been a number of security vulnerabilities with various platforms, which could raise investor protection issues. Firms offering tokenization related solutions need to ensure that security risks are properly managed.
- ***Compliance Considerations***: Financial intermediaries have various regulatory compliance requirements that regulate functionality of an institution. It will be crucial that tokenization

implementation is carefully planned and integrated with existing systems and regulatory oversight is conducted with a technology neutral approach, where the principle of same risk, same activity, and same regulation, applies across the relevant chain of intermediaries.

- ***Interoperability***: Currently, there are a multitude of tokenization approaches in the finance industry, but to realize the benefits of tokenization there will need to be an interoperability solution that can also satisfy the security, compliance, and conflict issues noted above.

For these potential tokenization benefits to be realized and risks to be managed, it is useful to recall how the financial industry arrived at the current inflection point.

Current Market Structure

Today's global financial markets are underpinned by a complex and heterogenous network of internal systems and service providers that support the processing of hundreds of millions of financial transactions each day. This amalgamation of internal and external systems may appear complex, but as a result of painstaking efforts over the years, they have been integrated to enable the effective and efficient flow of assets, information and data across markets and regions. The current system provides the stability, reliability and certainty that helps ensure global markets are efficient, transparent, and cost effective.

DTCC believes that tokenization of traditional financial assets has the potential to address certain limitations of the current post-trade process by modernizing, streamlining, and simplifying financial industry infrastructure with a shared fabric of common information. There are several key features that make this technology an attractive option to existing processes, including standardized rules for financial transaction validation and replication, and immutable transaction history.

While DLT has captured the imagination of the industry, there are challenges that will need to be overcome before it can be widely adopted and used. For example, to date, industry engagement has been generally uncoordinated. Years of smaller-scale deployments have, in part, resulted in sub-scale, isolated pools of instrument liquidity on proprietary DLTs, which now form obstacles to further industry growth. With a small number of DLT protocols today handling consolidated trading volumes, the fragmentation of digital liquidity and immobility of tokenized value could create barriers, leaving digital assets more costly to maintain and transfer than their traditional counterparts in the short term. To avoid this, individual and private explorations of DLT's potential needs to become an industry-wide effort to consolidate and connect digital liquidity, based on common standards and processes. There also needs to be industry-wide cooperation regarding transition timelines, which may include regulatory and policymaker engagement, and consensus on developing requirements.

A wholesale move to DLT-based financial services would be a massive undertaking. Over the past two years, DTCC along with the financial industry has prepared for the move from a T+2 to T+1 settlement cycle, which took place recently over Memorial Day weekend. While the T+1 transition has been a herculean engagement for the financial markets, it would be a relatively minor shift in comparison to fully transitioning financial markets to a DLT-based financial system. To approach this new reality, there will need to be coordination and rationalization of numerous efforts and market participants. Happily, this has been and continues to be a unique role for financial market infrastructures (FMIs) like DTCC.

As an industry-owned and governed FMI with more than 50 years of experience mitigating risk and driving operations and cost efficiencies, DTCC's role and responsibility continues to be to support and coordinate the evolution and standardization of our financial markets. As it has before, DTCC's role in the tokenization space is to embody the best interests of the financial markets in a manner responsive to the needs of the industry, regulators, and the broader investing public.

DTCC and Digital Assets

What We Have Done

DTCC has long been at the forefront of innovation in the U.S. financial markets. Through exploration and development, DTCC has continued to evolve and transform to fit the needs of the markets it services. Since 2016, when the firm issued its first white paper regarding DLT in the U.S. financial markets, DTCC has been advancing digital assets solutions.

To date, DTCC has conducted a number of efforts, both internally and in collaboration with market participants, to further develop the tokenization of traditional financial assets as well as broader use cases for DLT:

- ***Compliance Aware Token Framework*** **(CATF)** – enables financial market participants to build rule sets into a token for identity authentication and authorization, securities regulations, and transaction and liquidity requirements. This framework also automates multi-jurisdictional compliance and risk-management functions, such as preventing fraud, enforcing holding periods, and applying trading volume and collateralization rules as well as audit rule sets to facilitate reporting on tokenized securities offerings. The CATF serves as a foundational framework that DTCC's digital asset solutions are built upon to ensure a consistent, risk-managed, and regulatorily compliant approach.

- ***Tokenized Funds*** – DDAs tokenization infrastructure technology and the CATF have been implemented to support WisdomTree's tokenized funds. These funds have received SEC approval and represent first of their kind registered securities on blockchain infrastructure. The primary record of share ownership for the fund is held on traditional books and records, while a secondary record of shares is kept on either the Stellar or Ethereum blockchains.

- ***Project Ion*** – an alternative DTC settlement platform that leveraged DLT that went live in a parallel production environment while maintaining DTC's rigorous resiliency and safety standards. The platform averaged over 100,000 bilateral equity transactions per day, and almost 160,000 transactions on peak days, with DTC's classic settlement systems kept the authoritative legal record. While this was only a small portion of the activity DTC processes on any given day, it was crucial to understanding how the technology scales, as well as understanding the implications of operating these systems in a production-like setting.

- ***Project Lithium*** – a pilot that leveraged DLT, with the goal of demonstrating success in settling tokenized securities on DTCC's Digital Settlement Network prototype against tokenized dollars on a simulated wholesale CBDC network. The design included an architecture that connected two distinct asset networks to enable secure, resilient, and efficient security settlement and assessed network governance, creating mechanisms for a network administrator to resolve transactional issues while otherwise remaining in observation mode. This ensured that assets were settled on both networks, minimizing communication dependencies between parties, and eliminating counterparty risk at the time of settlement.

- ***Project Spruce*** – part of a broader series of related proof of concepts, DDA leveraged its Digital Asset Composer platform to operate a securities lending pool that fully automated the core workflow of a lending transaction including loan processing, collateral pledging, and liquidation. A representative tokenized private fund was leveraged as collateral while a representative tokenized money market fund was the borrowed asset.

- ***Project Whitney*** – a prototype aimed at exploring an end-to-end infrastructure for the issuance, distribution, secondary trading, and post-trade processing of tokenized private assets. The Project Whitney prototype employed a blockchain-agnostic design that enabled DTCC to explore the benefits of native tokenization across a variety of DLT platforms. The focus on private market assets, which traditionally are operationally burdensome, provided an opportunity to highlight efficiencies associated with workflow automation.

As demonstrated by the above efforts, DTCC has an established and growing history of development of digital assets solutions within the existing regulatory framework, and we believe it is imperative that further development continue within the existing regulatory framework, so that both technology and regulation can evolve in a coordinated and self-reinforcing manner.

Where We Are Headed

DTCC will continue in its commitment to support industry developments and the associated necessary technological transitions.

DTCC continues to develop its permissioned-based DLT ecosystem, which is designed to encourage collaboration across the digital asset securities space. DTCC's goal is to provide a common environment for both DTCC and our clients to execute a series of pilots in support of capability advancement, standards alignment, and interoperability. Benefits could include:

- **Acceleration** — improved speed to market for pilot development by leveraging a reusable infrastructure with out-of-the-box tools to enable testing, iteration, and refinement.
- **Flexibility** — multiple options to connect to the network including API-access, self-hosting of nodes, or sandbox-access to DTCC's cloud infrastructure.
- **Standardization** — development of market practices and standards through practical learnings and real-world collaboration with industry peers.
- **Compatibility** — a private network that enables broad compatibility with existing open-source tools and capabilities.

Additionally, DTCC worked with the financial industry to create a comprehensive set of risk management principles and controls designed to unlock the transformative nature of digital asset solutions. These principles will be used to guide pilots and will aim to reduce ecosystem risks and advance the merging of tokenized securities markets. The principles below will be vital to building a secure digital assets securities ecosystem:

- **Legal Certainty**: Ensure operations comply with existing laws and regulations to maintain market integrity and investor confidence.
- **Regulatory Compliance**: Encourage alignment with regulatory frameworks to build a foundation of trust and safety in digital asset markets.
- **Resilience and Security**: Develop robust infrastructure capable of resisting disruptions, while protecting sensitive data and ensuring the continuous operation of digital asset services.
- **Safeguarding Customer Assets**: Implement governance over smart contracts to manage and protect customer assets within the digital asset ecosystem securely.
- **Connectivity and Interoperability**: Facilitate transactions and flexible settlements across diverse networks to enable the seamless transfer and settlement of digital asset securities.
- **Operational Scalability**: Strive for efficiency and cost-effectiveness through standardized roles and smart contract functions to accommodate market growth.

DTCC has a long history of supporting and helping to shape a comprehensive, principles-based regulatory framework for financial services infrastructure, one that focuses on the critical need for effective operational and financial risk management and maximum resilience and regulatory compliance. Further work and careful consideration of the benefits and risks of tokenizing traditional financial assets is required to determine how such assets would be best employed by the industry.

Regulatory Governance

U.S. financial regulation has evolved over the past century to continue to support the evolution of financial markets while also ensuring the protection of investors. This existing regulatory framework emphasizes security, resilience, efficiency, and investor protection, sustaining confidence in the U.S. financial markets and supporting the U.S. economy's role as a bastion of growth and stability for global markets.

Based upon this belief and our own continuing development of tokenization solutions, DTCC believes the existing U.S. financial regulatory structure is largely sufficient to support ongoing innovation in financial markets. Where evolution or refinement in that framework is necessary, DTCC believes that such efforts should be carefully considered by regulators and tailored to ensure that the existing benefits of the current

system are not lost or unnecessarily degraded to the detriment of investors and the broader U.S. financial system.

In this regard, further investigation and potential areas of study could include (i) the necessary criteria around ensuring legally enforceable possession and control of tokenized assets; (ii) the necessary operational, cyber, and overall resiliency standards that intermediaries must achieve to facilitate and support activity in tokenized financial assets; and (iii) the appropriate treatment of tokenized financial assets under financial responsibility, bankruptcy, and other insolvency regimes to ensure that holders of tokenized assets have enforceable rights and obligations.

We welcome the opportunity to engage further with lawmakers, regulators, the industry, and other stakeholders on these and other targeted areas of inquiry as we continue to pursue the potential benefits of tokenization.

Conclusion

DTCC has supported the financial industry for decades, often without much fanfare, but the benefits it provides to investors, companies and the global markets are tremendous. By virtually any measure, the United States has the most liquid, efficient, and cost-effective financial markets in the world. The critical role that DTCC plays in the U.S. securities markets may not be well-known outside the financial services industry, but it fundamentally benefits all participants in the capital markets, ranging from the largest public companies to main street investors who rely on markets to help fund their retirements, raise capital to start a business, buy insurance or obtain loans to purchase a house or car.

At DTCC, we believe digital securities offer the exciting potential of capturing the benefits of tokenization and could ultimately help push the financial markets toward a more streamlined and resilient ecosystem – where blockchain networks and traditional industry rails seamlessly integrate. That said, this potential environment needs to be one that is subject to the same gold standard of regulatory principles and requirements that protect investors today.

DTCC is honored to have been asked to contribute to this discussion and applauds this Committee for taking a leadership role on this issue. We look forward to continuing to work with Congress as they explore these important issues, and I look forward to answering your questions today.