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Asset Tokenization as the Foundation of a New Era of Banking

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Asset Tokenization as the Foundation of a New Era of Banking Promoting Local Stablecoins within an Adequate Regulatory Framework to Foster Financial Inclusion and Development

Miguel Bravo Duk (2025)

Abstract

This paper proposes a regulatory and operational model for the issuance of local stablecoins, aimed at enhancing financial inclusion, operational efficiency, and monetary policy effectiveness without requiring Central Bank Digital Currencies (CBDCs). Grounded in the infrastructure and regulatory oversight of the traditional financial system, the model centralizes stablecoin issuance within prudentially supervised entities, primarily banks, through tokenized deposit schemes. A dynamic reserve requirement mechanism is introduced, enabling central banks to influence credit supply via adjustments to the reserve ratio, effectively transforming stablecoins into a new monetary policy lever. Emergency liquidity lines are also incorporated to mitigate risks associated with digital bank runs. The proposal addresses key risks related to transparency, technical resilience, and anti-money laundering (AML) compliance through a standardized issuance protocol and smart contract design. The model further outlines a framework for the tokenization of financial and real assets, promoting the development of a global digital financial ecosystem while preserving financial stability. This hybrid approach offers a viable alternative to CBDCs, providing the central bank with the necessary tools to manage monetary dynamics in a digital context without assuming direct issuance responsibilities.

1.   Introduction.

Since the early 20th century, financial markets have experienced accelerated development, enabling broader access to information, operations, products, and services supported by the remarkable technological progress achieved by humanity in recent decades.

In recent years, access to financial services has shifted from being a privilege to becoming a necessity. According to data from the World Bank Global Findex, in 2011 only 51% of adults globally had access to a bank account, while by 2021 that figure had increased to 76%. As of the latest update of the same report, in July 2025, 79% of adults worldwide have access to a bank account. However, within a subgroup of low- and middle-income economies, only 40% of adults reported saving in financial accounts during 2024. This latter figure is worryingly low and highlights the financial fragility of households in such countries.

The erosion of trust in traditional financial institutions triggered by the subprime crisis facilitated the emergence of technological startups offering more efficient, direct, digital, and accessible financial solutions. This definitively disrupted the traditional paradigm of direct intermediation and branch-based, relationship-driven banking. Thus emerged the Fintech revolution, officially coined by The Economist in 2015, when the phenomenon had already become global, with a wide array of financial services arising across numerous countries.

In parallel, and shortly after the most prominent milestone of the subprime crisis, the fall of Lehman Brothers, Blockchain technology was introduced to the world through the publication of its foundational white paper, Bitcoin: A Peer-to-Peer Electronic Cash System. This marked the birth of Distributed Ledger Technology (DLT) as we know it nowadays, and opened a new universe of possibilities that rapidly evolved with the development of Smart Contracts and the emergence of

the concept of DeFi, or Decentralized Finance. These innovations proposed a new digital organizational model for financial systems, eliminating the need for direct intermediaries or trusted third parties, as required in traditional systems.

Subsequent developments, such as the emergence of stablecoins, tokens issued on blockchains that track the value of a given national currency, have enabled the use of this technology in more everyday scenarios beyond cryptocurrency investment. Stablecoins are increasingly used for international transfers and transactions at significantly lower costs than traditional systems, a use case that has gained relevance in recent years due to various global waves of migration. This is just one of many financial services that can be provided to the global population by leveraging the aforementioned technologies.

This paper conceptually and theoretically explores the potential benefits associated with the tokenization of the economy, enabling the population to access an increasing range of financial and non-financial assets in tokenized form, with the purposes of saving, investment, and financing. This, in turn, supports financial inclusion and enhances public perception of the benefits of participating in the financial system. The paper further proposes a cost-benefit regulatory model that facilitates the transition toward this new paradigm.

2.   Theoretical Benefits of Asset Tokenization

Asset tokenization enables the digital representation of financial instruments and other assets, both financial and real, by leveraging distributed ledger technologies. This facilitates their issuance, custody, trading, and settlement in a more agile, secure, and programmable manner. This approach has been progressively adopted by countries such as Singapore, Switzerland, Australia, and the United Kingdom, which have implemented regulatory pilots, specific frameworks, or

normative adaptations to integrate this technology into their financial markets, either in experimental phases through sandboxes or in real-world applications.

a) Transaction Cost Efficiency

Tokenization represents a concrete opportunity to modernize trading platforms, create conditions for a deeper and more liquid financial system, facilitate financing mechanisms for smaller firms, and improve the traceability and governance of financial instruments through smart contracts, among other benefits. It also reduces market frictions by making intermediation more efficient and expands access to a broader range of financial products for a larger portion of the population, by lowering, or even eliminating, minimum transaction amounts or entry thresholds for certain instruments. This is enabled by the asset fractionalization capability of the underlying technology, a topic that will be explored in more detail later.

Among the benefits mentioned above, one particularly notable advantage is the potential to make traditional intermediation more efficient, using, for example, smart contracts, which could significantly reduce transactional, operational, and market costs. This contributes to greater theoretical market efficiency by minimizing friction caused by such costs. It also enables greater technological and geographical interoperability, capable of delivering continuous service (24 hours a day, 7 days a week, 365 days a year), thereby avoiding the historically common Monday market swings caused by reactions to weekend news or exchange holidays, as well as other issues associated with market downtime.

b) Fractionalization

One of the capabilities enabled by blockchain technology is the ability to divide tokens into smaller parts, proportionally splitting their value. For instance, considering that BTC reached an

all-time high of USD $123,400; this price level would be prohibitive for most individual investors worldwide. However, thanks to this feature, any individual can invest even USD $1 in the asset.

The ability to easily divide assets, combined with the high traceability and security of public blockchains, allows for the division of a share into multiple tokens, which in turn can be further fractionalized. This enables small investments in individually high-value stocks. Similarly, fractionalization also applies to other types of assets, including real-world assets. There are already business models focused on the tokenization of real estate and its subsequent fractionalization, allowing investors to hold small portions of real estate assets and receive rental income from them, without the need to go through investment funds that require minimum participation quotas in traditional financial markets. This has a direct impact on financial inclusion and expands the saving and investment opportunities available to the broader population, offering a range of options comparable to those accessible to high-net-worth individuals and even institutional investors.

c)   Risk Mitigation Through Smart Contracts

Smart contracts, introduced by the Ethereum blockchain in 2015 and later adopted by the vast majority of current blockchain ecosystems, are a set of instructions that can be stored directly on the blockchain and are automatically executed when the conditions specified in the code are met. In practice, they allow for the automation, verification, and enforcement of agreements without the need for intermediaries or trusted third parties.

As such, tokenization offers more efficient and secure mechanisms for channeling resources toward SMEs, startups, and smaller-scale investment projects. Smart contracts help mitigate counterparty or compliance risks in the initial stages of business ventures, enabling financing models better suited to the profiles of emerging issuers and granting them access to lower rates

associated with reduced counterparty risk. Additionally, cost reductions enable access to instruments that are currently out of reach for many businesses, such as foreign exchange hedging. These could be implemented via derivatives structured through smart contracts, with automatic execution and settlement, and self-executing collateral, resulting in lower marginal costs and broader access to such operations for small importers or exporters, among many other potential use cases.

Furthermore, the existence of tokenized real-world assets could allow for collateralized financing through smart contracts, enabling those interested to establish collateral in a more user-friendly and efficient manner.

d) Other Relevant Theoretical Benefits

In public blockchains such as BTC or ETH, the full history of transactions is traceable, allowing the complete transactional life of each wallet to be known. This traceability could provide effective tools for supervising and detecting irregular behavior, such as insider trading, thereby improving transparency and trust in the markets.

Since transactions are recorded on an immutable blockchain, real-time auditing and tracking of asset ownership and transfers are enhanced. This can reduce opacity in financial markets and strengthen trust, provided that appropriate privacy protections are implemented.

The combination of smart contracts and tokenized shares could enable new forms of interaction between issuers, investors, and regulators through programmable and transparent mechanisms that help reinforce ESG practices, digital voting rights, and more traceable governance structures.

Finally, the tokenization of assets from different countries, when compatible with global blockchains and platforms that meet high operational standards, fosters financial globalization. It allows investors around the world to easily invest in assets from a global basket, enabling greater risk diversification at a lower cost.

3.   Stablecoins as the Foundation of a Tokenization Strategy

The benefits of transitioning toward a system based on asset tokenization can go far beyond those previously described; however, they may also entail significant risks to the stability and trust in the financial system. For this reason, it is necessary to move toward effective regulation capable of containing the risks associated with these schemes.

As previously mentioned, the first legal developments in this area are now being recorded, so we are still navigating uncharted territory. While new business models continue to emerge, many jurisdictions lack sufficient regulatory clarity or frameworks to address the associated risks, leaving everything in the hands of the investor, who, without financial education, may be exposed to unreasonable levels of risk in the products offered through these new models.

In order to develop and bring the benefits of tokenization closer to individuals, it is essential to provide access to a tokenized version of the local currency, that is, a stablecoin denominated in local monetary units, serving as the gateway to the tokenized world. This would facilitate access to the growing supply of financial products that will gradually develop in this space. In this regard, a reliable local stablecoin constitutes the "cash leg" necessary for the instant settlement of tokenized asset transactions.

Initially, the use cases enabled by a local stablecoin, even without complementary applications or infrastructure, are a sufficient incentive for widespread adoption. It can fulfill all the functions of fiat money, a digital wallet, or a bank account.

a)   Use Cases of Stablecoins

- **Digital means of payment with continuous availability and real-time settlement**: Since they are pegged to a country's sovereign currency, stablecoins can be used as a means of payment or settlement currency within specific platforms or through direct exchange between users of the stablecoin, without the need to consider business hours or daily payment clearing times. This enables immediate availability of received funds, directly competing with both low-value and high-value payment clearing systems by eliminating the need for such intermediaries through instant payment settlement.

- **Element of monetary sovereignty:** Since the emergence of the first stablecoins, it has been observed that in unstable economies, a portion of the population tends to use them as a hedge against the devaluation of their sovereign currency. Promoting reliable local stablecoins could channel that demand toward tokens pegged to the national currency, and, with further development, toward sovereign tokens that offer protection against local inflation through more sophisticated financial products. This would help prevent the phenomenon of digital dollarization, which often erodes the relevance of the local currency.

With the rise of both public and private ledger providers, it is possible to make the allocation of state transfers and subsidies to the population more efficient in terms of targeting. Moreover, these technologies could enhance the capacity to detect anomalous transactions potentially linked to money laundering or other illicit activities.

- **Financial inclusion and micropayments:** Traditional banking, and more recently, Fintechs focused on payments, have been responsible for expanding access to electronic payment systems as an alternative to cash. However, access gaps still persist, whether due to geographic or demographic conditions, which can be reduced through the use of stablecoins. Stablecoins have already demonstrated their usefulness in cross-border payments and low-cost remittance transfers, offering significantly greater speed than traditional channels. It enables low-income migrant populations to send money from their host countries to their families back home on more favorable terms. In countries with lower levels of financial inclusion, a reliable stablecoin can serve as the gateway for the population to access secure digital transactions, requiring only a smartphone and an internet connection.

- **Foundation for new business models**: As previously mentioned, and as will be further explored in this document, the existence of a reliable stablecoin pegged to the local sovereign currency constitutes the fundamental building block for the development of tokenized markets and new business models that may emerge within the context created by this new financial architecture.

b) **Central Bank Digital Currency (CBDC): an inefficient effort.**

In recent years, various central banking authorities around the world have undertaken exploratory initiatives concerning the issuance of Central Bank Digital Currencies (CBDCs), aimed at leveraging the advantages of Blockchain based Distributed Ledger Technologies (DLTs). However, this exploration has encountered certain opposition, primarily based on the following points:

i. One of the main arguments concerns the lack of a real need for issuing Central Bank Digital Currencies, since a large portion of money is already digitized through traditional forms (bank deposits, electronic transfers, mobile wallets, electronic payment methods, etc.). The need would only arise in countries exposed to natural disasters, wars, or other extreme contingencies where transferring physical money from central banks to the traditional banking system is not feasible under certain circumstances. Global experience reinforces these doubts, taking into account cases such as Nigeria's eNaira, that has shown very low adoption rates. The unanswered question remains: What can CBDCs do better than other forms of digital money?

ii. The technical and security challenges associated with CBDC issuance represent another significant obstacle. On the technical side, issuing a CBDC introduces substantial complexities in terms of operations and security, as this option would require a centralized or semi-centralized digital infrastructure at least at a national level. This carries the risk of creating a single point of failure within the monetary system, which could be exploited, for example, in contexts of cyber warfare. A clear example is the collapse of the DCash system (the CBDC of the Eastern Caribbean Central Bank), which was out of service for several months during 2022, exposing the fragility of centralized systems of this type when operational risks materialize.

iii. The issuance of a CBDC could entail macroeconomic and monetary risks. The IMF has analyzed scenarios in which the public may freely convert bank deposits into CBDC, resulting in a significant substitution of bank assets for central bank money, thereby draining the traditional financial system, increasing interest rates, and reducing access to credit. The same IMF states that "as a CBDC is issued and adopted, it will substitute other forms of money and alter the reserve structure of the banking system, which could influence

short-term interest rates and reduce the precision of central banks' ability to forecast liquidity and keep market rates aligned with the target range".

iv. Distrust of a currency whose records are held by the monetary authority or the state raises concerns about the potential use of such information by the authorities and the limits regarding individual privacy rights. This issue is generally considered resolved in the traditional financial system, where privacy protections are clearer. Another example includes the ease with which negative interest rates could be imposed, or unconventional policies such as introducing expiration dates on digital money to encourage spending during economic downturns. These possibilities fuel resistance among sectors that fear excessive state intervention in how citizens use their money.

v. The potential impact that a Central Bank Digital Currency (CBDC) could have on financial stability, and particularly on the banking system, is closely related to the previously discussed points. A CBDC would, in theory, allow individuals to hold direct deposits at the central bank of their country, which could drain liquidity from the banking system, a foundational pillar of the capital markets. In times of financial panic, this dynamic could exacerbate the risk of bank runs and financial crises, as the movement of funds from commercial banks to safer institutions (with the central bank being, by default, the safest financial institution in a country) becomes faster, more efficient, and easier. This scenario, referred to as "rapid disintermediation" in studies by the Bank for International Settlements, poses a significant threat to the traditional banking model.

Considering the previously discussed concerns regarding Central Bank Digital Currencies (CBDCs), this document proposes a model that omits direct central bank involvement in the issuance of digital currencies. This approach addresses many of the objections raised throughout

this paper and manages to mitigate a significant portion of the risks associated with tokenization and, in particular, with stablecoins.

c) Risks Inherent to Stablecoins and Tokenized Assets

The multiple advantages associated with the use of stablecoins are not without risk. The critical risk for a stablecoin is the loss of its peg to the sovereign currency or reference asset (commonly known as a depeg), which can have severe consequences for the markets where the stablecoin is used, as well as for its holders.

On the other hand, due to the high technological leverage of these types of currencies, they are exposed to technological vulnerabilities such as smart contract bugs, malicious smart contracts, cyberattacks, and others. This requires the implementation of mitigation measures and focused attention on these aspects to ensure the sustainability of any given stablecoin.

Finally, given the transactional efficiency of stablecoins, the absence of adequate controls could result in their use for malicious purposes such as terrorist financing, money laundering, and other illicit activities.

Regarding the depeg risk, this will depend on the type of stablecoin to which users are exposed. The risks associated with stablecoins and tokenized assets are listed below, categorized by the stablecoin issuance model.

i. **Fiat-backed stablecoins**: These stablecoins are issued with backing in the sovereign currency of origin. For example, a token equivalent to USD $1 is issued, backed by U.S. dollars held in the reserves of the issuing entity.

For this type of stablecoin, the main risk lies in reserves and transparency. Stability depends on the issuer maintaining sufficient and liquid reserves, as well as the market's

confidence in those reserves. In a completely unregulated system, uncertainty about the quality and custody of the reserves may be common, since users must rely on a centralized custodian that may not be adequately supervised, thereby creating significant counterparty risk, a feature shared by virtually all stablecoins today.

Much like a bank, stablecoin issuers typically seek returns on their reserves by investing them in various financial products. This introduces liquidity risk in the event of conversions from the issued stablecoin back to sovereign currency. In a stress scenario, a stablecoin issuer may need to liquidate safe assets at distressed prices to meet withdrawals, threatening financial stability.

ii. **Crypto-backed stablecoins**: This type of stablecoin is inherently riskier, as its reserves are backed by assets that do not necessarily correlate well with the fiat currency underlying the stablecoin. To maintain the peg, these stablecoins usually rely on over-collateralization and smart contracts that automatically adjust collateral levels or take long or short positions in certain crypto-assets, as needed.

Given this, the main risks of stablecoins in this category are linked to the potential volatility of their value, the adequacy of collateral, and the technical risks associated with the complexity of the smart contracts underlying the algorithm. Failures in any of these elements can erode trust in the stablecoin that is fundamental to its market value. In this way, increased volatility among crypto-assets could lead to insufficient crypto reserves during certain periods, as well as the inability to execute smart contracts under fire sale conditions.

iii. **Algorithmic stablecoins:** This category, which lacks real backing, is the riskiest among the types of stablecoins examined. These stablecoins aim to maintain parity with the underlying sovereign currency through algorithms that expand or contract the

token supply according to supply, demand, and price dynamics, or by using a twin token designed to absorb volatility. Additionally, they rely on market participants willing to arbitrage discrepancies in the coin's value, placing trust in the algorithm. For example, if the stablecoin deviates upward from its underlying currency, the algorithm is expected to increase the token supply through arbitrage operations, lowering the price and restoring the peg.

As expected, this type of stablecoin is highly exposed to the risk of depegging, depending entirely on the market's trust in the scheme that maintains the peg. The collapse of Terra, an algorithmic stablecoin pegged to the dollar, in May 2022, illustrates the fragility of such mechanisms.

When a complementary token is used to absorb volatility or losses, there is a risk of entering a so-called "death spiral." If the stablecoin loses its peg and faces high selling pressure (possibly triggered by a loss of confidence), the issuance of the twin token to absorb losses could become so massive that the twin token itself rapidly devalues, creating a vicious cycle that ends in the collapse of the stablecoin.

Unlike collateralized stablecoins (backed by fiat, real assets, crypto-assets, or others), algorithmic stablecoins can result in total loss, even falling to zero value, with serious consequences for investors and potential risks to financial stability.

In general terms, risk mitigation strategies for all three types of stablecoins rely mainly on regulation regarding reserves, disclosure and auditing of reserves, and minimum capital requirements for collateralization. In a regulated framework, the financial or monetary authority should act as supervisor and regulator of stablecoin issuers. However, algorithmic stablecoins should not be considered among the regulator-approved options.

Depegging risk is highlighted by the OECD as one of the most significant challenges to the advancement of asset tokenization globally, as noted in its OECD Business and Finance Policy Papers, No. 75.

iv.   **Tokenized assets:** Asset tokenization consists of the digital representation of real-world assets through tokens, usually recorded on blockchain networks. These are typically issued under an equivalent reserve model, meaning the issuer must hold the actual asset being tokenized in its reserves.

In an unregulated environment, the primary risks relate to reserves and transparency, similar to fiat-backed stablecoins. A key risk is the non-existence of the real-world asset backing the token, or the lack of ownership or control over the asset by the token issuer.

In addition, specific risks arise from the close interdependence between tokenization and the need for sophisticated technological infrastructure. These factors currently keep tokenization in a globally nascent stage, which means it does not yet pose material risks to financial systems. However, its growth under regulatory uncertainty could become a threat to financial stability in the medium term. Therefore, regulatory clarity and the alignment of market expectations are needed to accelerate technological adoption in this area without creating significant systemic risks. Only in this way can the necessary market infrastructure for tokenization take off and deliver the theoretical benefits of adopting this model for society.

The absence of clear global standards and the fragmentation of regulations across jurisdictions foster regulatory arbitrage and discourage investment in tokenization-related business models due to high uncertainty about how these will be regulated in the medium to long term. Regulators and supervisors still face knowledge gaps regarding these new technologies, which highlights the need for training that enables effective regulation while

supporting market development. Finally, this must be accompanied by the adoption of KYC/AML standards to prevent these markets from becoming hubs for illicit activities.

These elements have been analyzed by several institutions in dedicated studies, including the BIS, IMF, FSB, OECD, IOSCO, among others, with broad consensus regarding both the benefits and the risks of this trend.

d)   Regulation: State of the Art.

In recent years, the regulatory landscape on this matter has gained momentum, with significant progress concentrated in the past two years among developed economies. In contrast, emerging markets present a more diverse picture: some countries have made little to no progress, while others have developed sophisticated frameworks for the adoption of DLT technologies, tokenization, and crypto-assets.

i.   European Union (EU – MiCA / DLT Pilot Regime)

The European Union has established a pioneering regulatory framework for crypto-assets with the approval of the Markets in Crypto-Assets Regulation (MiCA) in 2023, whose implementation is being rolled out progressively between 2024 and 2025. MiCA introduces a set of harmonized rules applicable across the 27 Member States, regulating the issuance of crypto-assets and the provision of related services such as exchange platforms and custodians.

MiCA classifies crypto-assets into specific categories, highlighting Asset-Referenced Tokens (ARTs), which may be linked to multiple currencies or commodities, and Electronic Money Tokens (EMTs), which are equivalent to stablecoins pegged 1:1 to a fiat currency. Issuers of these assets face strict requirements: they must be incorporated as authorized legal entities within the EU, produce a detailed whitepaper subject to regulatory approval, and in the case of stablecoins,

maintain liquid reserves covering 100% of the issued value. Furthermore, issuers are required to guarantee the right of holders to redeem their tokens for fiat currency at face value immediately, and to comply with prudential standards on risk management, corporate governance, and financial transparency.

To protect financial stability and the primacy of the euro, MiCA imposes restrictions on stablecoins denominated in foreign currencies, such as a potential daily transaction limit of EUR 200 million within the EU.

Although MiCA excludes crypto-assets that qualify as financial instruments (regulated under directives such as MiFID), the EU has promoted innovation in the tokenization of assets through the DLT Pilot Regime, in force since March 2023. This regime allows regulated markets, settlement systems, and multilateral trading facilities (MTFs) to operate infrastructures based on distributed ledger technology (DLT) under temporary exemptions from certain regulatory provisions. This facilitates experimentation with the issuance and trading of tokenized shares, bonds, and funds in supervised environments. Several platforms have already registered under this regime, progressing towards fully on-chain operations.

In parallel, the European Commission is promoting the creation of a Unified European Ledger, similar to a centralized public register, an initiative aimed at integrating tokenized assets with central bank money, thereby strengthening the Capital Markets Union in the region.

ii.   United States (GENIUS Act)

In July 2025, the United States passed the Guiding and Establishing National Innovation for US Stablecoins Act (GENIUS Act), the first comprehensive federal legislation aimed at

regulating stablecoins. This law establishes a robust regulatory framework designed to promote stability, trust, and institutional adoption of these digital assets.

The legislation sets strict requirements for stablecoin issuers, aimed at mitigating the risks described in previous sections. Among these, it mandates the acquisition of a federal license to operate, ensuring that only authorized entities can issue such assets. Additionally, the law requires that stablecoins be backed 1:1 by liquid assets, with a public monthly disclosure of reserves to ensure transparency.

Another key aspect is the creation of a dual supervisory model that combines federal and state-level regulation, ensuring coordinated oversight. In the event of an issuer's insolvency, the GENIUS Act grants repayment priority to stablecoin holders, protecting their rights and reinforcing confidence in the system.

This legal framework positions the United States as a significant regulatory actor in the global crypto-asset landscape. By fostering an environment of stability and transparency, the GENIUS Act not only promotes institutional adoption of stablecoins but also sets a standard that may influence other jurisdictions seeking to regulate these assets.

iii.   United Kingdom

The United Kingdom has adopted an innovative approach to regulating stablecoins and tokenization through regulatory sandboxes coordinated by the Financial Conduct Authority (FCA) in collaboration with the private sector. These controlled environments allow for the exploration of practical applications of these technologies without compromising financial stability.

Although the UK does not have a unified regulatory framework like the EU's MiCA, it promotes a balance between innovation and oversight through supervised pilot projects and close

collaboration with fintech companies. This approach aligns with global best practices, fostering the responsible development of crypto-assets.

iv.   Hong Kong

Starting in August 2025, the Stablecoins Bill will come into effect in Hong Kong, establishing a regulatory framework that requires issuers of stablecoins pegged to the Hong Kong dollar to obtain a license, regardless of whether they operate locally or internationally. The requirements include maintaining strong reserves, having clear redemption processes, complying with anti-money laundering (AML) and know-your-customer (KYC) regulations, and implementing investor protection mechanisms. The Hong Kong Monetary Authority (HKMA) will oversee compliance with these provisions, positioning Hong Kong as a strategic regulatory hub within the Asian financial ecosystem.

v.   Singapore

Singapore has integrated blockchain technology and tokenization into its financial infrastructure, including interbank payment systems and securities settlement. The Monetary Authority of Singapore (MAS) has developed a flexible regulatory framework that allows the issuance of authorized stablecoins and the conduct of controlled trials with major financial players. This approach promotes standards of interoperability, security, and digital accessibility, positioning Singapore as a leading example in the adoption of innovative financial technologies.

vi.   Australia

In 2025, Australia launched regulatory pilot projects to explore the tokenization of financial assets and wholesale Central Bank Digital Currencies (CBDCs). The central bank, together with other regulators, has promoted the tokenization of bonds and structured assets as part of a strategy

to modernize the country's financial infrastructure. These initiatives, aligned with the recommendations of the Bank for International Settlements (BIS), aim to promote regional interoperability and strengthen the financial system through the adoption of emerging technologies.

4.   Proposed Architecture for a Local Stablecoin Issuance Model

Considering the analyses presented and the latest developments in international regulation, this document proposes a model that promotes the issuance of local stablecoins, leveraging the regulatory experience of the traditional financial industry and the opportunities brought by the Fintech revolution, adding new monetary policy tools compatible with the emergence of a new digital financial system operating in parallel to the traditional one.

The new business models emerging from the Fintech revolution introduce the concept of Banking as a Service (BaaS), where a company, usually a Fintech, integrates, through technology, one or more banking services provided by a traditional institution, relegating the bank to a second-line role in the relationship with the end consumer of financial services. In jurisdictions where banks have blocked access to certain Fintechs, some of these firms have sought to obtain banking licenses, concentrating the activity of other Fintechs and offering their own services, thereby generating stable income streams with lower exposure to credit risk due to a strong focus on fees. This phenomenon is described in the document "Policy responses to fintech: a cross-country overview," by the Financial Stability Institute (FSI).

Additionally, a growing strategic priority in the banking sector is the diversification of revenue sources, particularly toward non-interest-based income such as fees, to counteract the challenges posed by compressed interest margins and competition from Fintechs and digital banks. Several recent analyses support this trend.

A 2024 McKinsey report highlights that global banks outperforming their peers in terms of total shareholder return over the past decade have prioritized the growth of fee-based income, which accounts for approximately 16% of outperformance in key markets such as Australia, Canada, and India. These fees come from areas such as wealth management, advisory services, and other balance sheet-light activities, which benefit from Fintech innovations such as digital platforms and advanced analytics tools. This approach enables banks to capture value in high-margin segments like asset management and payment services, where Fintechs have introduced agile, customer-centric solutions.

Similarly, a 2024 Deloitte analysis emphasizes that in an environment of slow economic growth and lower interest rates, banks are seeking to strengthen their non-interest income to offset limitations in net interest income growth due to the global financial context.

In early July 2025, JPMorgan announced a new fee scheme for Fintechs, revealing an effort to monetize infrastructure services enabled for new Fintech business models.

In the context of tokenization and stablecoins, banks are also exploring new sources of fee-based income. A 2025 report by the Boston Consulting Group (BCG) notes that the rise of stablecoins and tokenized assets is reshaping financial infrastructure. Banks are positioning themselves to offer related services, such as digital asset custody and tokenized transaction processing. This approach aligns with regulatory developments in jurisdictions such as the United Kingdom, Hong Kong, Singapore, and Australia, where banks are participating in pilot projects for tokenization and stablecoins in an effort to capture value in a digitalized financial ecosystem.

Considering all of the above, this proposal seeks to leverage the extensive regulatory framework governing the traditional financial industry, and the BaaS-type models, by initially

centralizing the issuance of stablecoins within the banking system, and later extending the issuance of tokenized assets to the traditional financial system, based on existing regulations regarding custodial entities and fund administrators.

Stablecoin issuance will be tied to the creation of a tokenizable deposit. Any bank client who wishes to receive stablecoins would open a tokenizable deposit with a bank (or similarly authorized entity), which would then issue the stablecoins to a compatible wallet. The standard for stablecoin issuance and eligible ledgers should be established by the regulator, either through consensus or via a qualified third party, and should be uniform across the entire banking system to prioritize interoperability as a core feature of the scheme. This must be done under parameters of efficiency and security and could, for example, involve issuing the token on a public blockchain like Ethereum or developing a dedicated blockchain for these types of assets. The bank, of course, would charge an issuance fee for the stablecoin.

The issuance of tokenized assets should begin with financial assets. In this way, a financial service consumer, a Fintech entity, or another actor would approach a custodian or investment bank to request the issuance of a tokenized financial asset, with the custody of the underlying financial asset remaining with the traditional financial institution that receives the request. As in the previous case, the issuance standard and eligible ledgers should be established by the regulator, either by consensus or provided by a qualified third party.

a) Issuance of Stablecoins, Tokenized Assets, and Basic Use Cases
i. Issuance of Stablecoins and Use Cases

When a consumer of financial services wishes to acquire stablecoins, they must take out a tokenized deposit with a banking institution. The institution receives the sovereign currency of a

country and issues a stablecoin pegged to it. The issuance would be carried out on a widely recognized public blockchain (such as Ethereum, Polygon, Solana, etc.), prioritizing criteria of security, cost, and efficiency. Each national system would adopt a single blockchain suitable for supporting smart contracts, aiming to ensure interoperability. Digital wallets compatible with the standard could operate the stablecoin without requiring additional infrastructure, although it is highly likely that wallet providers (custodial services) will emerge and that the banking industry itself will offer these services.

If the customer wishes to convert their stablecoins to cash or fiat currency, they simply return the stablecoin to the issuing bank (eventually, this could be done by returning the stablecoin to any bank in the country).

Some basic use cases include instant P2P transfers, payments in local and international e-commerce, buying and selling of digital foreign currency, more user-friendly remittances and international payments, elimination of high- and low-value payment clearinghouses, automated collection and payment of taxes and services, and receipt of government subsidies with specific rules established through smart contracts, among many other possible cases, some of which may require the development of additional infrastructure.

Based on the future presence of various stablecoins linked to sovereign currencies, and indexing mechanisms via smart contracts, a deep and liquid market for exchange rate, interest rate, and inflation derivatives can be developed with global access, as countries progress in issuing stablecoins tied to their own currencies. Adding commodities tokenization (as tokenized assets) would develop a derivatives market for this kind of assets.

ii. Issuance of Tokenized Assets and Use Cases

The issuance of tokenized assets can be divided into financial assets and real assets.

Financial assets must be tokenized by regulated entities within the financial system. For example, the tokenization of equities or debt instruments should be conducted by securities intermediaries or asset managers, or it could occur at the time of issuance of such instruments.

Thus, if a securities issuer, a holder of such instruments, or another financial services consumer wishes to tokenize an asset, they must approach a licensed financial custodian. This custodian will hold the asset to be tokenized and issue the corresponding token to the requester, transferring it to a compatible wallet and charging a commission for the service. As with stablecoins, the token issuance standard and eligible ledgers must be established by the regulator, agreed upon, or provided by a suitable third party. A unified standard across the tokenized securities system should be promoted to prioritize interoperability, efficiency, and security. For instance, token issuance could take place on a public blockchain such as Solana, or through the development of a specific blockchain for this type of asset.

Progress in the tokenization of financial assets would enable the creation of digital secondary markets or local exchanges for tokenized financial assets, supporting financial inclusion by lowering entry barriers for smaller participants and individuals seeking low-value investment opportunities. This would enhance market depth in countries that adopt this model. As a second-order effect, the multiplication of digital markets worldwide would facilitate global capital flows, improving portfolio diversification at all levels.

For certain significant real-world assets that are subject to registration, such as real estate and vehicles, tokenization mechanisms could be centralized in state entities or in sector-specific

market agents. The possibility of tokenizing real assets would be subject to regulatory oversight, primarily focused on auditing reserve assets (that back the tokens), which remain in custody of the issuer, and on relevant public registries such as land registries or national vehicle registries. These registries could also be digitalized or established directly as blockchain-based records, in a scenario of further adoption, potentially replacing some public faith or registry functions.

b)   Regulatory Model: A Cost-Benefit Approach

The regulatory model focuses on leveraging the advantages of the existing comprehensive financial regulation while also mitigating the risks to financial stability identified in previous analyses of other stablecoin issuance models. This proposal opts for the issuance of stablecoins backed by reserves invested in high quality liquid assets (HQLA), initially operated by banks, with the possibility of expansion to other actors under strict regulatory requirements, always with a strong emphasis on reserve management and transparency.

The key elements of the proposed regulatory framework are described below:

i.   Issuance Restricted to Prudentially Supervised Entities

It is proposed that stablecoin issuers be banking institutions or equivalent entities subject to prudential financial regulation and supervision. This approach leverages the existing compliance infrastructure (including KYC, AML, risk management, etc.) and builds market confidence in the emerging system by relying on already validated institutions. It also reinforces the notion that there is no need for central banks to issue digital currency themselves. If the central bank requires the issuance of digital currency, it issues fiat money and accepts tokenized deposits within the banking system, selecting the deposit recipients based on objective and reasonable criteria. Stablecoin-issuing entities may charge a fee for the issuance of stablecoins.

Additionally, stablecoin issuance could be intermediated for users without direct access to the banking system, maintaining the concept of Banking as a Service (BaaS) linked to the Fintech industry. In this model, an entity acts as an intermediary between the bank and the financial services consumer seeking to acquire stablecoins, and would be responsible for conducting KYC, AML, and other relevant compliance checks.

ii.   Backing with High-Quality Liquid Reserves

Issuers would be required to maintain reserves associated with the issuance of stablecoins in a proportion managed by central banking authorities. This would create a new monetary policy lever, giving the central bank an additional tool for managing the money supply.

To avoid a reduction in credit market dynamism due to the immobilization of balances linked to tokenized deposits, the reserve ratio should be variable and defined by the monetary authority. Changes to this ratio should be gradual and influenced by the adoption rate of the tokenized system and macroeconomic conditions typically associated with monetary policy decisions. With this approach, it becomes possible to manage the risks associated with 1:1 reserve schemes, particularly the risk of a rapid migration from sovereign currency to stablecoins, which could negatively impact credit availability.

Initially, the reserve requirements for banks issuing stablecoins through tokenized deposits would be relatively low, treating this deposit similarly to a demand deposit. While this may lead to a "multiplier effect" or double-counting of money, in the early stages of adoption, it would help avoid a sharp increase in the cost of credit. If the reserve ratio were 1:1 and there were a strong preference for stablecoins, migration to the digital system could immobilize a large share of banking funds, reducing credit flow in the economy.

As stablecoin adoption progresses, a digital financial market would likely develop alongside the traditional financial system, including lending, financing operations, staking (akin to deposits in the blockchain world), and other conventional financial services. As the digital ecosystem grows at the expense of the traditional system, the reserve requirement should be gradually increased, reducing the previously mentioned "multiplier effect" or double-counting, until reaching near-full backing. In the case of abrupt outflows, herd behavior, or panic-driven exits from the digital system (among other possible causes), central banks could establish emergency liquidity lines to address such contingencies, provided that the reserve levels at the time of the event are relatively low compared to the scale of the outflow.

The proposed model maintains the fragilities described in the framework developed by Diamond and Dybvig (1983), as the door remains open to bank runs due to maturity transformation. However, emergency lines (similar to a "lender of last resort") that should be established by central banks for "digital runs" (defined here as mass exits from stablecoins into fiat currency), along with ongoing monitoring and adjustments to reserve ratios, serve as strong mitigants against the kind of extreme scenarios envisioned by the authors.

iii.   Prudential Risk Management Requirements

To absorb unexpected losses potentially caused by operational or market risk issues, specific capital requirements could be imposed on stablecoin issuers. For example, Singapore requires stablecoin issuers to maintain minimum capital levels, in addition to concentration limits on reserves and recovery plans in case of parity loss.

Additionally, the emphasis on transparency and accuracy of information would be supported by periodic public audits of the reserves backing stablecoin issuance, safeguarding the element of public trust, an essential pillar of this model.

Furthermore, at the time of stablecoin issuance, the issuing entity must verify that the receiving wallet complies with AML/KYC standards. Since only the initial receiving wallet is subject to KYC obligations with the bank, ongoing on-chain monitoring of transactions involving the stablecoin would be necessary to identify anomalous activity potentially linked to malicious purposes.

The smart contract governing the issuance could include token "burn" mechanisms, allowing the issuer, or another authority tasked with anti-money laundering enforcement, to eliminate stablecoins held in wallets associated with criminal organizations, sanctioned individuals, or similar entities, upon judicial order or regulatory instruction. The released reserves could then be transferred to the fiscal authority as one of several possible outcomes.

iv.　　　Stablecoin – Fiat Convertibility

To foster trust, given that stablecoins are backed by deposits, instant convertibility at face value from stablecoins to fiat (the country's legal tender) should be established, ensuring full equivalence between the stablecoin and its underlying sovereign currency.

v.　　　Role of Central Banking Entities in the Model

Even though Central Banking Entities are not stablecoin issuers, as the idea of CBDCs is discarded, they play the most important role from the regulatory standpoint, mainly by assuming control and setting the reserve level coming from tokenizable deposits.

To optimize the stability and security of stablecoins, a viable strategy would be to allow issuing banks to deposit the reserves of these coins directly with the central bank, in a manner similar to how bank reserves are managed. It has even been proposed that non-bank issuers of stablecoins could access wholesale accounts at the central bank to hold their collateral. This approach would ensure that the reserves associated with stablecoins are backed by the safest assets, such as central bank liabilities, and would facilitate the monitoring of financial flows by the monetary authority.

On the other hand, the main functions of the Central Bank are determined by the adjustments to the reserve ratio associated with stablecoins, which, as previously mentioned, could operate as an additional monetary policy lever, affecting interest rates in the economy. Additionally, the Central Bank will have an active role in the creation and eventual provision of emergency lines associated with "digital runs." These emergency lines linked to each issuing entity should be established based on the amount of stablecoins each entity has issued, as well as the current reserve ratio at the time.

In this way, a simple model to establish the reserves associated with the issuance of stablecoins, which considers the size of the digital and traditional financial system, is given by the following:

$$R_t = \left(\frac{D_t}{F_t + D_t}\right) \times \left(\frac{D_t}{F_t}\right) + r_{min} \ \forall \ D \leq F$$

Where,

R_t = Required reserve ratio in period t for all issuers

D_t = Nominal amount of stablecoins issued in the economy in period t

F_t = Size in assets of the banking system excluding stablecoins in t

r_{min} = Minimum reserve ratio, established by the monetary authority.

From the proposed model, it can be seen how the r_{min} factor can function as an additional monetary policy tool for Central Banking entities, since decreasing this factor would tend to reduce credit market interest rates, while increasing it would move them in the opposite direction.

Within the model, the reserves associated with the issuance of stablecoins grow in relation to the importance of the digital system compared to the banking system (which is, in turn, the issuer). If r_{min} = 50%, then when the size of the digital system is equivalent to the size in assets of the banking system excluding stablecoins, the required reserve for each issuance will be one-to-one.

On the other hand, emergency liquidity lines in the face of "digital runs" will be given by the following expression:

$$L_{i,t} = \beta_t \times (1 - R_t) \times D_{i,t} \; ; \quad \beta_t \in [0,1]$$

Where,

$L_{i,t}$ = Nominal amount of the line in t for entity i

$D_{i,t}$ = Nominal amount of stablecoins in t issued by entity i

β_t = Digital safety factor, established by the monetary authority

From the above, it follows that it will be the decision of the monetary authority, through the parameter β_t, to determine the level of coverage it will offer to stablecoin-issuing banks regarding their unbacked reserve issuance. In a scenario where the Central Bank absorbs all risks of the scheme, the emergency lines should amount to the current nominal value of stablecoins multiplied by one minus the reserve ratio.

Additionally, the central bank could implement partial remuneration mechanisms for stablecoin reserves, for example, applying the reference interest rate minus a margin. This would reduce the risk of regulatory arbitrage between stablecoins and traditional bank deposits, aligning the management of these coins with the objectives of monetary policy. In this scenario, stablecoins may or may not accrue interest for end users, but the central bank would have the ability to adjust the remuneration of reserves to influence their appeal compared to other forms of money, such as cash or bank deposits. This approach would strengthen the integration of stablecoins into the financial system, promoting their stability and consistency with monetary policies.

On the other hand, the monetary authority itself could participate in the issuance of Smart contracts or later developed infrastructures for the DeFi system, incorporating rate, indexation, and other relevant tools into these systems to make the monetary authority's actions more effective in this new context.

All of the above could be added to the arguments of those who argue that there is no need to issue a CBDC, given that the monetary authority would still have tools to affect the money supply, even if the issuance of this form of sovereign digital currency is not entirely under its responsibility.

vi.   Other Regulatory Aspects

An effective regulatory framework for stablecoins, tokenized assets, and associated infrastructure must include clear legal definitions that classify them, for example, as a form of "electronic money" or special deposit under local legislation. This would ensure that holders have well-defined property rights over the tokens and their real-world equivalents, providing legal certainty and confidence in the system.

In addition, it is essential to establish technological standards to minimize operational risks. This includes regulatory requirements associated with rigorous audits of smart contracts, resilience requirements, and minimum standards for the selected blockchains or issuance platforms, as well as measures to ensure the technical robustness of the system.

vii.   Operating Scheme Model.

As previously mentioned in earlier sections of this document, financial consumers interested in obtaining stablecoins approach a bank to make a tokenized deposit, in exchange for which they receive stablecoins of an equivalent amount minus a fee. The issuing bank is required to maintain a reserve invested in high-quality liquid assets (HQLA), which will be overseen by the financial supervisory and regulatory authority. This authority may also examine other risk-related aspects linked to the issuance of the stablecoin.
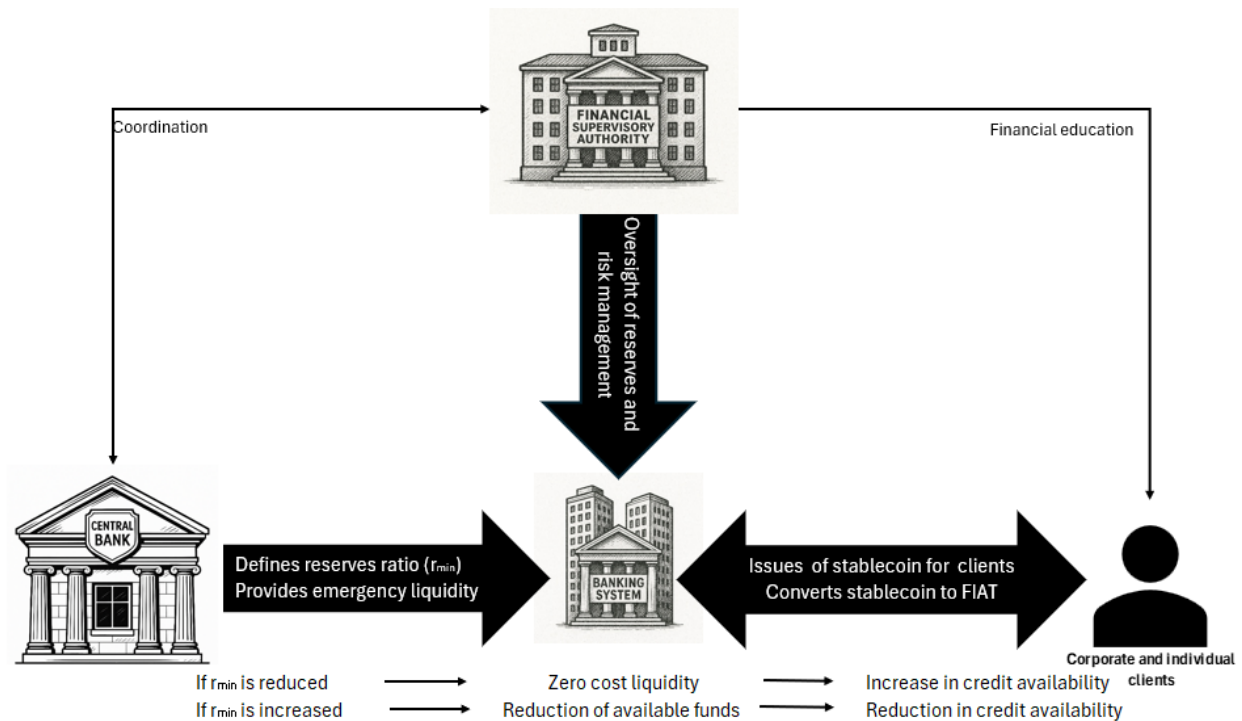
Meanwhile, the central banking authority will determine the reserve ratio through various mechanisms (the one proposed in this document is merely a reference among many possible calibration methods), and may additionally use it as a tool of monetary policy—lowering market interest rates when the reserve is reduced, and increasing them when the reserve is expanded.

Changes in the reserve ratio should be implemented gradually, or supported by temporary central bank credit lines to absorb the effects of such adjustments.

There must be coordination between the monetary authority and the supervisory authority. In accordance with the functions assigned to supervisory entities in many jurisdictions, the latter should also promote financial education initiatives related to this matter.
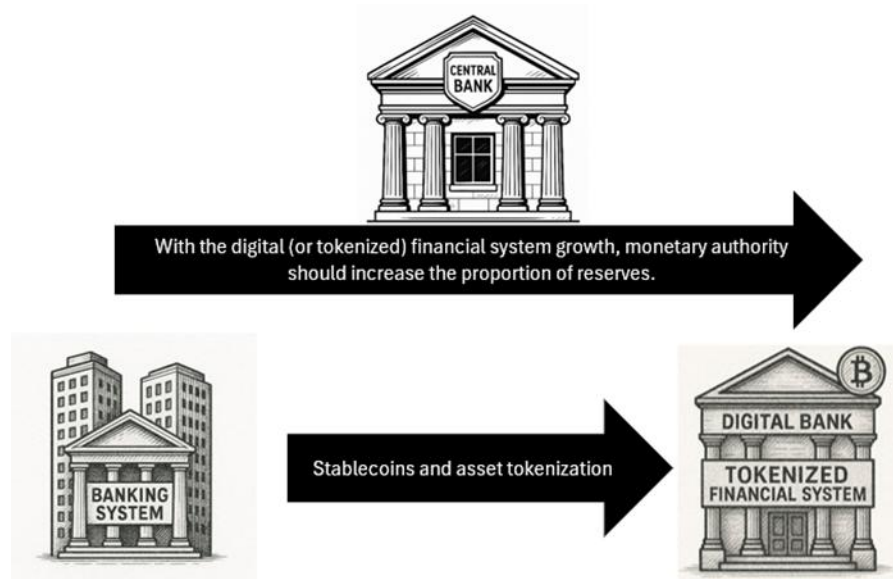
Figure 1

Diagram of the stablecoin issuance and supervisory model.

On the other hand, to facilitate the transition toward a tokenized system, reserve ratios should start well below 1 and gradually increase in proportion to the size of the new digital system. This approach helps avoid inflationary pressures that could arise from maintaining a high level of reserves tied to a large stablecoin market operating in parallel with the traditional financial system.
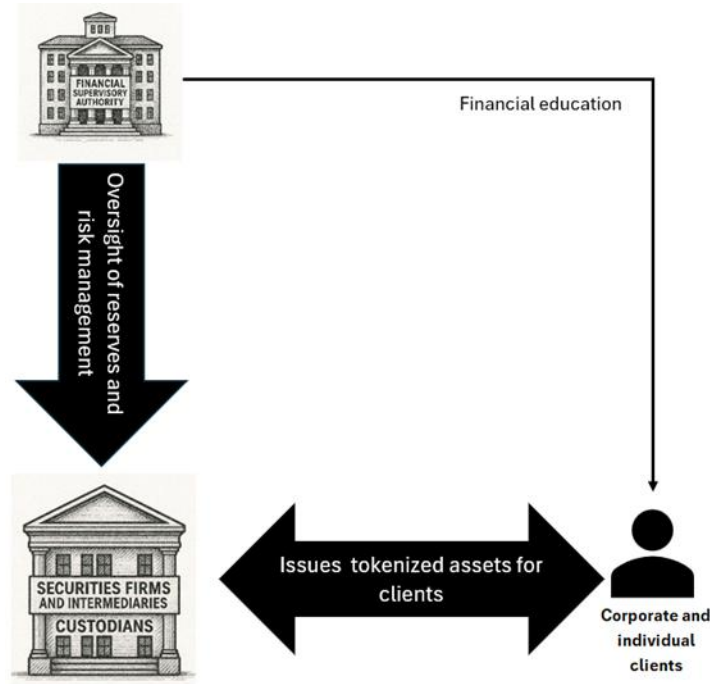
Figure 2

Reserve ratio based on the size of the tokenized system relative to the banking system.

Similarly, as previously mentioned, the issuance of tokenized assets may be centered on securities intermediaries and custodial entities, subject to a 1:1 reserve requirement at all times. This would operate under the supervision of the financial authority responsible for such entities, following a scheme similar to that of stablecoin issuance, but without interventions from the central banking authority.

Figure 3

Diagram of the tokenized asset issuance scheme.

5. Conclusions

The strategic adoption of local stablecoins and tokenized assets represents a unique opportunity for developing economies, enabling not only progress toward greater financial inclusion and reduced operational costs, but also positioning themselves as regional pioneers in the new global digital economy.

To achieve this, it is essential to develop appropriate, standardized, and transparent regulatory frameworks, with smooth collaboration between financial institutions, regulators, and the technology sector. These frameworks must cover the risks associated with the adoption of

modern technologies in financial markets while avoiding hindrances to the development of business models leveraging technological advancement.

The proposal contained in this document works as a win-win, as it leverages existing infrastructure and regulatory frameworks, considering the compliance capabilities and competitive advantages of industries that have been traditionally regulated for years. It also creates incentives for those same industries to participate in this scheme, which aims to open new ways of interacting with financial systems. The parameters and models proposed are simple approximations by the author to address areas of interest related to the discussion; they are neither definitive nor prescriptive for those who wish to explore and advance proposals along this same line.

From the outset, the proposed model delivers the fundamental benefit of offering the population a reliable option to access this new digital financial system. Additionally, with the proposed architecture, it incorporates monetary policy tools that adapt to current trends. This new architecture for the financial system would bring new possibilities that will undoubtedly increase the general welfare of the population by extracting benefits from a robust, deep, liquid, and inclusive financial market.

Nonetheless, the present proposal offers one option among others that have not yet even been conceived. Therefore, the reader is invited to become informed and participate in the discussion of a field where all ideas contribute, as we are still in an early phase with respect to these technologies.

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