DLT based innovation in FX markets

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A classification approach for stablecoins and DLT based money and assets

Traditional money or assets

New forms of money or assets

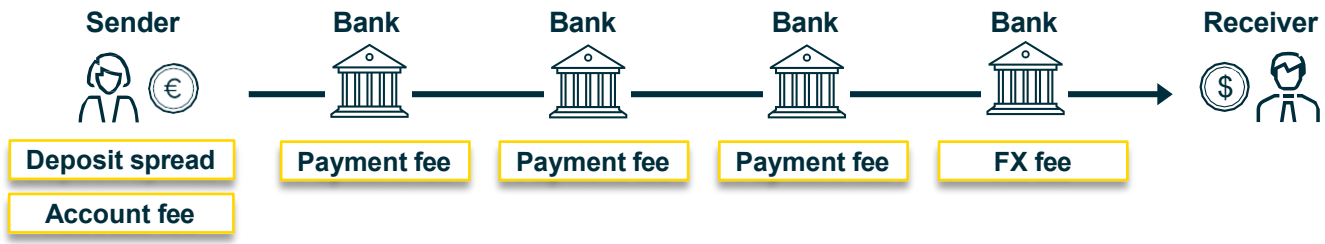
Main category	Digital money		Stablecoins	Digital assets	
Liability anchor	**Central bank** as issuer	**Commercial bank** as issuer		**Non-bank** as issuer	**Native cryptoassets**, non-redeemable – mostly non-identifiable issuer	**Tokenised investment assets**, legal entity as issuer
Sub-category	Retail digital central bank money[1] (rCBDC)	**Tokenised deposits**	**Stablecoins**, i.e. e-money/ asset-referenced tokens		**Platform cryptoassets**, e.g Bitcoin, Ethereum	**Tokenised securities/ derivatives**
	Wholesale tokenised central bank money (wCBDC)				**Other cryptoassets**, i.e. memecoins	**Tokenised alternative assets**
	Central bank digital currencies (CBDCs)				**Functional cryptoassets,** utility/ governance tokens	
	Settlement/ ownership tokens					
Examples	ECB Trials; BIS/ IIF Project Agora; Helvetia III; Fnality	JPM / Kinexys; BIS/ IIF Project	AllUnity; PayPal (PYUSD); Tether.; Monerium		Gnosis pay; Ether; BTC Lightning; Bitcoin	NFTs; Real estate tokens

Source: BCG for CFTC GMAC March 2024; 1) In most cases not planned/ implemented on DLT-based infrastructure

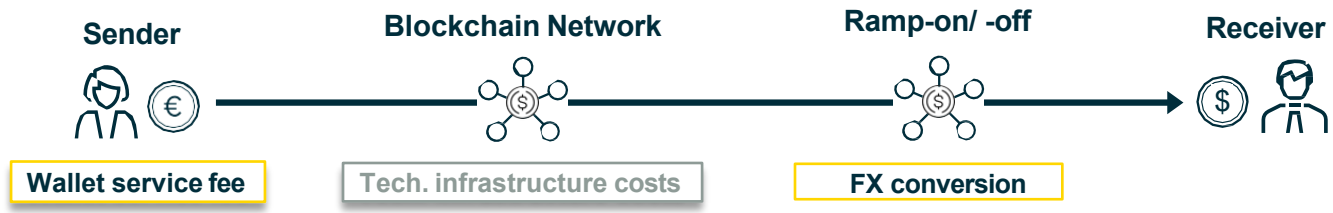
What stablecoins promise

- Cheaper
- Faster & 24/7
- Stable
- Programmable

Traditional money transfer

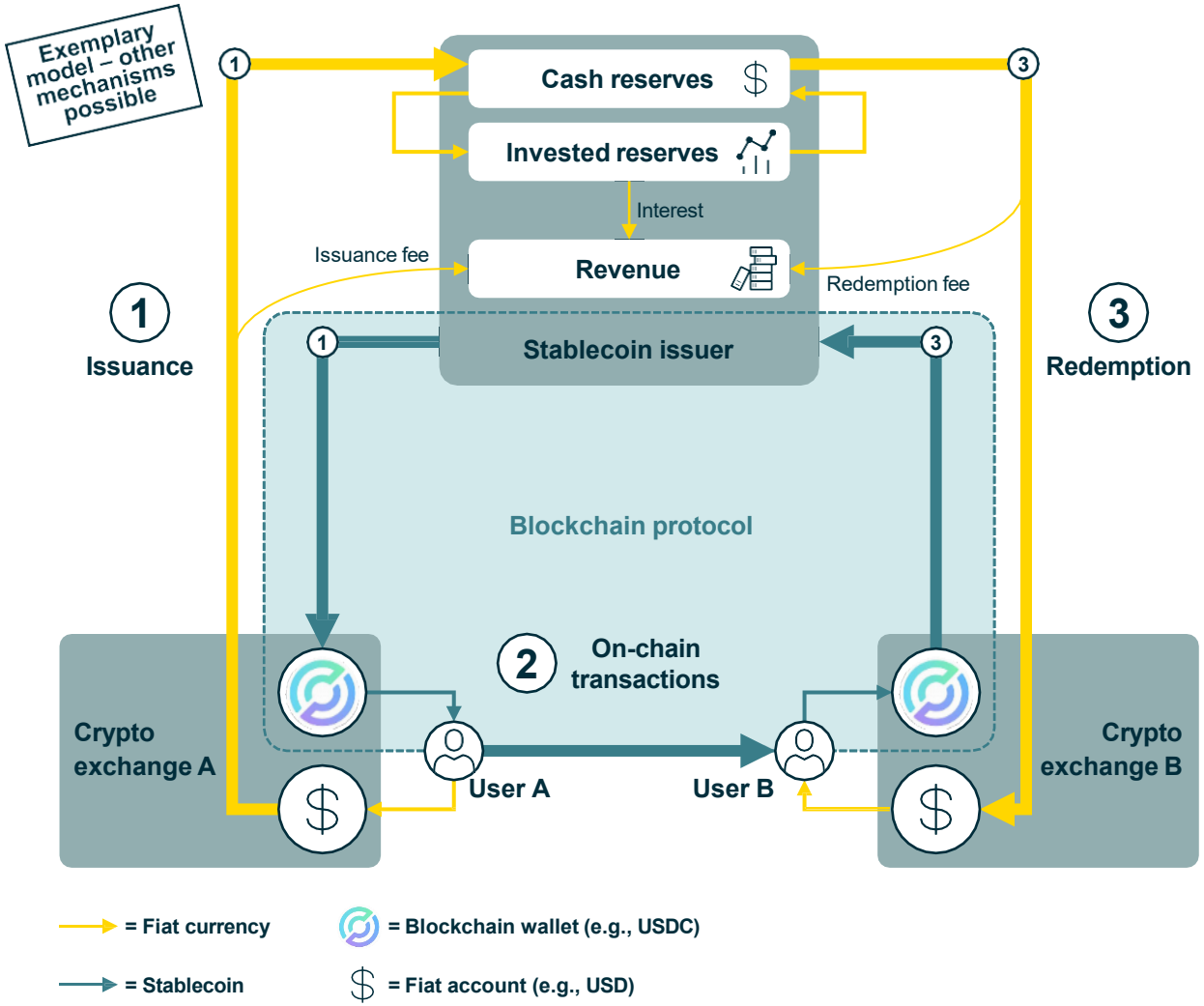


Stablecoin money transfer



Illustrative example of stablecoin lifecycle and revenue sources

Flow of funds and revenue sources in the stablecoin lifecycle



Stablecoin usage and recipients of potential revenue

1. Issuance:
   - When crypto exchange A has demand for stablecoin, it deposits fiat currency with the stablecoin issuer, receiving stablecoin in return
   - Stablecoin issuer may invest fraction of the received cash, is obliged to keep remainder in bank deposits or reserves (BoE)

2. On-chain transactions:
   - Individual users buy stablecoin from crypto exchange A, and use them for different kinds of transactions (e.g., remittances, B2C, etc.)
   - On-chain transactions circumvent traditional/ cross-border payment rails
   - To receive fiat currency or other crypto assets, an individual user may sell stablecoin back to crypto exchange B

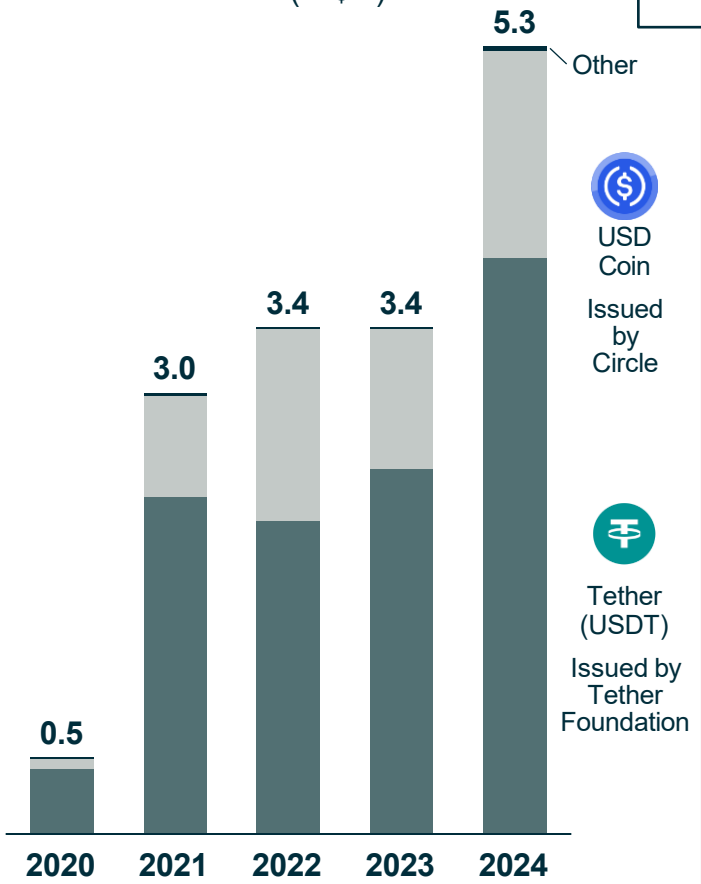
3. Redemption:
   - When crypto exchange B has too much stablecoin and demand for fiat currency, it redeems stablecoin with the stablecoin issuer
   - Stablecoin issuer may need to liquidate invested reserves to settle the redemption and pay out user B in fiat currency

Revenue sources for stablecoin issuers:
- Issuers may invest part of their reserves (e.g., in short-term bonds), earning interest – main revenue source
- Stablecoin issuers earn fees for redemption and issuance – assumed minor relevance

Market overview of stablecoins & comparison with fiat payment market

Rising stablecoin volumes

Annual USD stablecoin transaction volume (in $tn)



A sense of magnitude for 2024

Large popularity in crypto trading

Provider	Volume (in $tn)	Transaction count (in bn)
USD Stablecoins[1]	5.3	1.3
PayPal[2]	1.7	26.3
Mastercard[2]	9.8	159.4
Visa[3]	13.2	233.8
Fedwire[4]	1,133.4	0.2

1) Adjusted total payment volume
2) Total payment volume, all currencies
3) Total payment volume, all currencies, reported from Oct 23 – Sept 24
4) Total payment volume, only USD

Comments

- Sharp increase in stablecoin usage over the past 5 years; presumably, usage is still largely disjunct from traditional payment use cases
- Assumed popularity in DeFi-space due to price stability:
  - for lending and borrowing protocols and
  - as liquidity pool for decentralised exchanges
- 92% of global stablecoin transactions involved crypto trading on centralized and decentralized crypto exchanges (88%) or on/off-ramping activity (4%)
- But, first examples indicate potential adoption beyond DeFi-space, especially in regions with economic instability or high inflation. In emerging markets with more volatile currencies, lack of access to banking services or overall limited rule of law, off-chain USD-backed stablecoins serve as means of everyday payments and savings. For example: In Argentina, crypto users regularly convert pesos into stablecoins to hedge against depreciation.
- EUR denominated stablecoins still much smaller in volume than USD, but due to sophisticated MiCAR regulation in EU, future growth is expected.

Source: Visa Onchain Analytics; Visa Annual Report 2024; Mastercard Annual Report 2024; Fedwire Funds Service – Monthly Statistics; PayPal 10-K Annual Report; Stablecoins: Five killer tests to gauge their potential, BCG (May 2025)

Hypothesis on potential impact of wider adoption of stablecoins in Europe and in the Euro area

USD dominance in Defi space	Within the defi-ecosystem USD backed stablecoins are already dominating the stablecoin space, widening the reach of the USD and reducing funding costs for UST. Other areas of potential adoption are digital asset settlement, micro payments and agentic AI use cases.
EM adoption	A wider adoption of USD backed stablecoins in *any* currency area could have wider consequences. Monetary autonomy would be reduced, as the money supply and interest rate setting capacity would not be relevant for the USD-backed stablecoin dominated share of the market. Also, local banks would lose customer deposits, overall financial disintermediation would be the result. Funding costs for US treasuries would decrease. Funding costs of local banks would increase and their respective capacity to finance the economy would reduce. Usage of USD stablecoins may also be tested on retail online platforms and digital payment methods (e.g. credit cards, PayPal) diverting retail payment flows and resulting deposit volumes away from local currencies and into USD backed stablecoins. Use of USD backed stablecoins would result in non-USD retail costumers entering into potentially significant FX risk (e.g. EUR based income, USD based spending). Further dollarization of EM currencies via USD backed stablecoins would extend the dominance of the USD in these countries, relevance of the EUR in these regions may reduce. Arguably, usage of USD backed stablecoins is mainly beneficial for countries in which the fiat USD is already an alternative to the local currency (e.g. Cambodia, Lebanon). Sub-Sahara Africa may serve as a blueprint for other regions.
New, 2nd round risk scenarios	Additional risks from stablecoin adoption may also impact European institutions, e.g. a disorderly collapse of a private sector stablecoin issuer with ripple on effects for the UST market, other financial institutions etc. Or vice versa, e.g. USDC de-pegging after SVB crisis in 2023.
Wider adoption in EUR area	Payments in EUR zone work smoothly on existing fiat infrastructure, i.e. demand for alternative payments solutions limited. For specific stablecoin use cases rising share of EUR stablecoins in EUR area expected to be more probable than adoption of USD backed stablecoins. Usage of stablecoins for international payments is currently being explored.

Hypothesis on potential impact of stablecoins on the FX market

Short term adoption
up to 2 years

1. Usage of stablecoins in high-inflation, limited rule of law currencies may increase further
2. Adoption of stablecoin in non-trading related use cases, e.g. payments, will create demand for on-ramp/ off-ramp exchanges between fiat and stablecoins. A substitution of fiat currencies (e.g. USD) by stablecoins (e.g. USDC) would make fiat currency proportionally less relevant.
3. Additional risks from trading stablecoins of not-so-stable issuers or 2nd round effects of stablecoin sell-offs triggering fire sales of respective collateral. E.g. triggered by lower rates and resulting lower income for stablecoin issuers.
4. Stablecoins may enhance fiat currencies for days/ parts of the trading day in which no trading or settlement is possible, i.e. weekends or payments post cut-off.

Medium to long term adoption
2-5 years

1. Introduction of various new stablecoin, tokenized deposits, CBDC schemes could create a new ecosystem of on-chain/ off-chain trading, settlements, risks and regulations
2. Increasing geopolitical fragmentation could drive fragmentation in capital markets in general, and also in frameworks, dynamics and level of stablecoin adoption.
3. Depending on international adoption of stablecoins the relevance of current G4 currencies may change
4. More stringent regulatory framework is expected in various jurisdiction (money laundering, customer protection and terrorism financing etc.). Some of these may reduce the efficiency advantages of stablecoins.
5. On-chain forex could reduce settlement risks, extend trading hours and result in more decentralized trading environment

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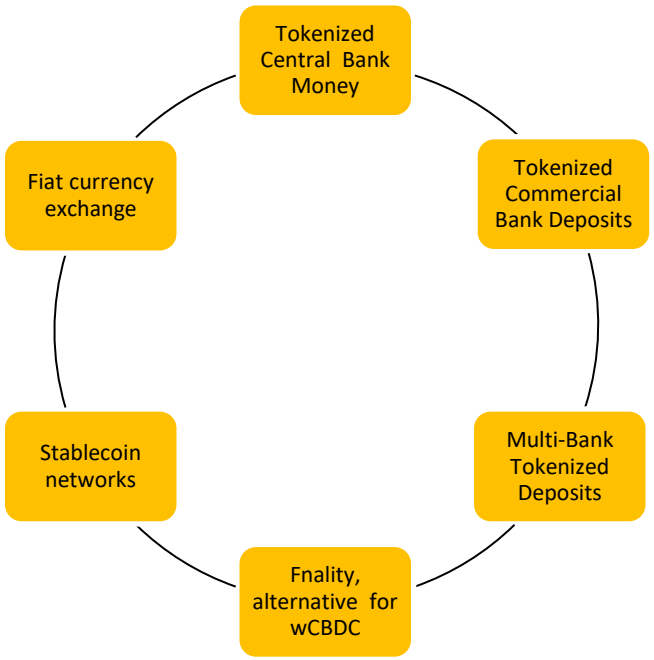
Beyond stablecoins: Tokenization may I mpact FX markets & payments in other ways



Financial markets may be required to adopt to some of the below new DLT based technology

- **Tokenised Central Bank Money i.e. CBDC (Central Bank Digital Currency)** e.g. Digital Euro, Central bank liability in a tokenised form, issued on a programmable distributed ledger technology (DLT) platform, enabling instant settlement at par with cash and commercial bank money.
- **Tokenised Commercial Bank Deposits** (e.g. Citi Token, JPM Coin/ Kinxys deposit token/ JPMD, HSBC Tokenised Deposit Service): On-chain representations of commercial bank deposits that remain **full bank liabilities**, enabling real-time programmable settlement while preserving **deposit-insurance treatment**. Their use is **limited to the clients of the individual bank**.
- **Multi-Bank Tokenised Deposits, e.g. Agora**: A BIS sponsored project. Aims to pilot a multi-bank tokenised payment network across 40+ commercial and 7 central banks. Will enable shared settlement rails using commercial bank tokenised deposits & central bank tokenised money.
- **Fnality (alternate to wholesale CBDC):** Similar to wCBDC, except it is not issued by the Central Bank. It is backed 1:1 by deposit held at the central bank. Useful for real-time DvP/PvP. Provides instant settlement & reduces counterparty and settlement risk in capital markets. Live in GBP, USD (Planned 2026), EURO (Planned ~2026).
- **Stablecoin networks** – Payment orchestration /clearing networks that connect banks, PSPs, stablecoin issuers and VASPS for instant, 24/7 cross-border settlement using regulated stablecoins like USDC and EURC. E.g. CPN (Circle Payment Network), Ubyx, Fireblocks Payment Network.

Many open questions remain unclear:

- How could tokenised FX transactions (e.g. Fnality) change liquidity, settlement processes and market structure?
- Which other tokenised FX instruments are emerging and how do they differ from stablecoins?
- What could a potential transition path look like in adopting new technology addressing current inefficiencies?
- How are technology providers / infrastructure supporting these developments?
- Will we see advancements in DLT-based settlement solutions and their potential impact on settlement cycles and settlement risk?

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Open questions

1. Which use cases could accelerate stablecoin adoption in Europe?
2. Will there ever be the necessary FX liquidity for scaled transactions between stablecoins and fiat to allow USD stablecoins to move beyond Defi?
3. How would stablecoin issuers cope with low or negative yield environment?
4. Which DLT based use cases may improve FX market efficiency, e.g. reduce FX settlement risk?
5. How are technology providers supporting the usage of tokenization in FX markets?
6. How could various formats of DLT based assets and money co-exist and which would prevail in which area of finance?