

RESEARCH REPORT

Stablecoin Landscape and the Remittance Use Case

Lead Authors:

Jerome Ostorero and Pratik Wagh from Coinchange.io

Co-Authors:

Hedera, Myna, UnoCoin Exchange, Glo Dollar, Brale

Reviewer:

Ethereum Enterprise Alliance (EEA)

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Lead Authors

Lead Authors: Jerome Ostorero and Pratik Wagh from Coinchange.io

About Coinchange: Coinchange is a FinTech firm offering Earn API as part of a trustworthy and regulated platform, that empowers crypto exchanges and their customers to earn returns on their stablecoins. With an average annualized 11% APY returns across Institutional and Retail Portfolios, managing a peak of \$50 million in assets under management (AUM), Coinchange's mission is to offer tools that enhance the capabilities of businesses, enabling them to provide added value to their clientele without compromising on established financial principles.

We would like to thank the following co-authors and reviewers for their inputs in making this research report possible.

Co-Authors (2024 version)

Stasis

Established in 2018, Stasis is a European FinTech company that issues the Euro-backed stablecoin called EURS. This Stablecoin as a Service (SAAS) platform aggregates solutions from licensed financial intermediaries to provide an institutional-grade link between the decentralized finance world and the off-chain market. STASIS operates the largest and most transparent Euro-backed stablecoin in the digital asset universe. The company's vision is to bring an alternative to USD stablecoins into the digital asset space.

Learn more here: <https://stasis.net/eurs-info>

HAQQ Network

HAQQ brings together the most reputable actors of Ethical finance in order to promote community-driven decentralized technologies worldwide. HAQQ is an EVM-equivalent chain, based on Cosmos SDK. The technology behind HAQQ makes it possible for any smart contract created on other EVM chains to be deployed onto the new network without any changes needed.

Learn more here: <https://haqq.network/>

EIC Corporation

EIC Corporation operates within a private network and functions as a non-profit organization dedicated to fostering financial and economic education, decentralized financing, and economic diplomacy. EIC Corporation provides educational resources to both members and non-members through the Lior Finance Institute, an online platform offering models and resources to enhance financial literacy and investment knowledge. EIC supports investment activities within its network by focusing on short-term (Companies can request OPEX investments for immediate, tangible needs, like purchasing goods.) and long-term (Companies issue tokens representing real-world

assets or services for members to invest in, with investment durations ranging from 3 to 12 months.) financing approaches. Additionally, EIC collaborates with governments worldwide to support public policy reforms and engage in lobbying efforts, including working with institutions such as the French Parliament and Senate.

Learn more here: <https://www.eic-corporation.org/page/661706-donnees-cles>

Co-Authors (2023 version)

Hedera:

The Hedera network is the most sustainable public ledger for the decentralized economy. Hedera's robust ecosystem is built by a global community, on a network governed by a diverse council of industry-leading organizations, including Abrdn, Avery Dennison, Boeing, Chainlink Labs, COFRA Holding, DBS Bank, Dell Technologies, Dentons, Deutsche Telekom, DLA Piper, EDF (Électricité de France), eftpos, FIS (WorldPay), Google, IBM, the Indian Institute of Technology (IIT), LG Electronics, The London School of Economics (LSE), Magalu, Nomura Holdings, ServiceNow, Shinhan Bank, Standard Bank Group, Swirlds, Tata Communications, Ubisoft, University College London (UCL), Wipro, and Zain Group.

Learn more here: <https://hedera.com/>

Myna

Myna are global leaders in cryptocurrency accounting and professional services. Offering a wide range of services, including compliance, outsourced accounting, corporate services and forensic accounting, Myna Accountants is a trusted partner for businesses and individuals alike, helping them to navigate the complex world of cryptocurrency. Our clients range from large mining companies to layer 1 protocols and from NFT projects through to business deep in the Metaverse.

Learn more here: <https://www.mynaaccountants.co/>

UnoCoin Exchange

Unocoin holds the distinction of being India's first cryptocurrency exchange, making it a significant player in the country's digital asset landscape. Founded in 2013, Unocoin has established itself as a reputable platform for buying, selling, and storing cryptocurrencies. The exchange offers a diverse range of digital assets, including Bitcoin, Ethereum, Ripple, and more, providing users with ample choices for their investment portfolios.

Unocoin prioritizes regulatory compliance, ensuring adherence to India's financial regulations and fostering a secure environment for its users. With a user-friendly interface, real-time trading features, and robust security measures such as two-factor authentication and cold storage, Unocoin aims to deliver a seamless and safe trading experience.

Its longevity, commitment to regulatory compliance, and wide array of cryptocurrencies have solidified Unocoin's position as a trusted and pioneering platform within India's evolving cryptocurrency ecosystem.

Learn more here: <https://unocoin.com/in/>

Glo Dollar

Glo Dollar was developed by the Glo Foundation, a Delaware incorporated Public Benefits Corporation whose purpose is to explore ways blockchain technology can alleviate extreme poverty. The Foundation was seeded with a generous donation from the Sijbrandij Foundation and all operational expenses are covered by donors, leaving it free to direct earnings from Glo Dollar to fund basic income programs lifting people out of extreme poverty. The Foundation operates under a fiscal sponsorship from Global Impact, a 501(c)(3) non-profit whose tax-exempt status permits donors to make tax-deductible donations to the Foundation.

Learn more here: <https://www.glodollar.org/articles/about-us>

Brale

Brale is a digital asset and stablecoin issuance platform that enables businesses to create and manage their own regulated, fiat-backed stablecoins across multiple blockchains. Brale is a registered MSB and licensed money transmitter in the United States.

Learn more here: <https://brale.xyz/>

Reviewers

Ethereum Enterprise Alliance (EEA)

The Enterprise Ethereum Alliance (EEA) is a global, member-led industry organization established in February 2017. Its primary objective is to promote Ethereum blockchain technology as an open standard to empower enterprises. The EEA brings together a diverse mix of start-ups, Fortune 500 companies, technology vendors, academics, and Ethereum subject matter experts to work on Ethereum as an enterprise-grade technology. The alliance aims to deliver an open, standards-based architecture and specification to accelerate the adoption of Enterprise Ethereum.



Part 1.0 The Current Landscape of Stablecoins

1.1 What are stablecoins?

Imagine you want to send 500 USD to your home country using current cross-border remittance networks. The process can be painfully expensive. First, you'll likely encounter high fees and unfavorable exchange rates, resulting in a significant reduction in the amount your family will receive. These costs can be especially burdensome when sending smaller sums. Additionally, the slow transaction speed means your loved ones may have to wait for days to access the funds, which can be problematic in urgent situations.

Moreover, if your family must collect the remittance from a physical location, there's a risk of theft or robbery, as carrying cash can make them vulnerable. The lack of transparency in the system can also leave you uncertain about the status of your transaction and the final amount your family will receive. Furthermore, navigating the complex web of regulations governing cross-border transactions can be daunting and may even lead to unexpected delays and additional fees.

Now let's compare this to remittances using stablecoins (sometimes we refer to them as SBC in this report).

The invention of stablecoins, often described as "Putting the Dollar on the Blockchain," has emerged as a promising solution to many of the issues plaguing the current cross-border remittance system. Stablecoins are digital currencies pegged to the value of traditional fiat currencies, like the US dollar, and are built on blockchain technology. These digital assets offer several advantages for international money transfers.

First and foremost, stablecoins enable near-instantaneous transactions, significantly reducing the time it takes for your family to receive funds. This swift transfer process eliminates the stress of waiting for days for the money to arrive. Additionally, stablecoins are designed to be cost-effective, with minimal fees compared to traditional remittance methods, ensuring that a more substantial portion of the sent amount reaches your loved ones.

Furthermore, stablecoins enhance transparency by providing real-time tracking of transactions on the blockchain. This transparency helps ensure that the funds reach their intended destination securely. As digital assets, stablecoins can also be stored in digital wallets, reducing the risk of physical theft or loss.

By "Putting the Dollar on the Blockchain", stablecoins have the potential to transform the way individuals and businesses send money across borders, making the process smoother and more accessible for everyone involved. Once you're done using the blockchain, you can trade the stablecoins back for your real-world currency. And hence the value of a stablecoin is based on the fact that you can redeem it for the underlying asset.

In the past people have tried to eliminate this centralization aspect of reserves management by issuing algorithmic stablecoins that maintain their stability through the supply and demand of the token backing it. An example is the now-failed UST (Terra), and the backing token Luna (now called Luna Classic).



1.2 Stablecoins Total Market Capitalization

It is hard to know the total market capitalization of all the fiat currencies in the world since they are issued in the physical world in a manner somewhat opaque to the general public. However, it is very easy to look at the current market capitalization of Stablecoins since they are all issued on the transparent public ledger called blockchain. As of Jul 26, 2023, the total stablecoins market capitalization is \$126B!

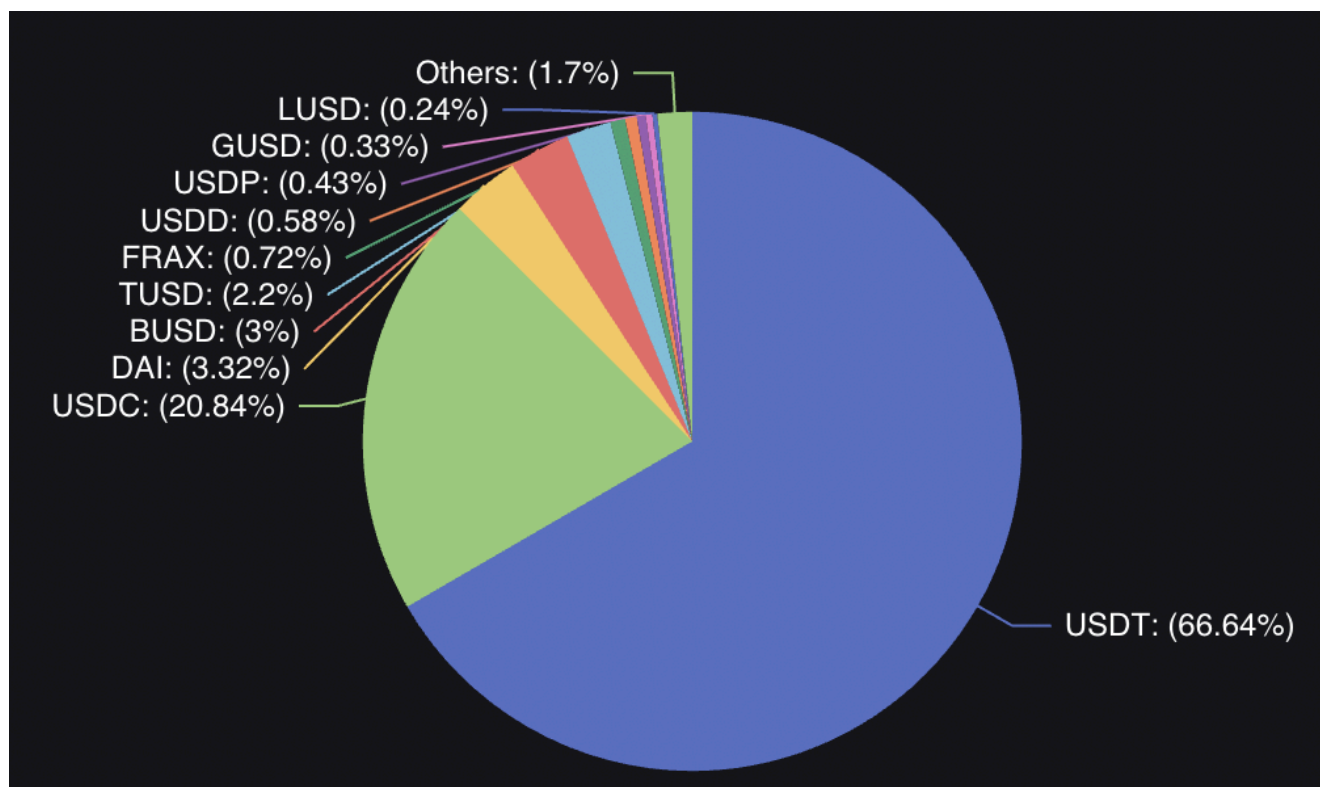


Image: <https://defflama.com/stablecoins>

USDT (issued by Tether) dominates 66% of the market, while its next competitor USDC (issued by Circle) is at 21%.

Stablecoins are thought of as new technology, but Jesse Austin Campbell, an adjunct professor at Columbia Business School and the former head of portfolio management at Paxos argues that there are already over \$22.8 trillion of “U.S. dollar stablecoins” in the world (a.k.a. The M2 money supply), primarily composed of \$17.9 trillion of bank deposits and \$4.8 trillion of money market funds. His view is that they are similar to the stablecoins in terms of being an IOU on the dollar. The difference is that the stablecoin is on a public ledger that’s open 24/7 instead of a bank’s internal books or a share held at DTCC (Depository Trust & Clearing Corporation, a centralized clearinghouse).

1.3 Types of Stablecoins

1.3.1 Fiat-collateralized Stablecoins

These are stablecoins that are directly pegged to real-world assets such as the US Dollar or Euro. For each stablecoin issued, there is a corresponding real-world asset held in reserve. For example, Tether (USDT), USD Coin (USDC), and Binance USD (BUSD) are stablecoins backed by the US Dollar and EURC is a stablecoin backed by the Euro.

One can also think of these as centralized stablecoins, meaning the issuing entity is a centralized actor like Circle in the case of USDC and Tether Foundation in the case of USDT. The main challenge with these stablecoins is the transparency of reserves backing them. Regular attestation reports and actual audits of the balance sheets of centralized stablecoin providers are voluntary. There have been persistent speculations around Tether and its stablecoin USDT, asserting that a significant portion of its USDT supply may not be fully backed, or only partially backed by assets that carry a high level of volatility and risk, significantly more than cash or its equivalents. The need to maintain reserves of fiat currencies like the US dollar necessitates the use of bank accounts compatible with these fiat currencies. Consequently, issuers of fiat-collateralized stablecoins are dependent on a centralized framework involving regulated bodies within the conventional financial system.



1.3.2 Crypto-collateralized Stablecoins

These stablecoins are the solution to the shortcomings and trade-offs of Fiat-collateralized Stablecoins. The core principles of the crypto ecosystem, namely decentralization and trustless systems, inherently dictated the necessity for the development of decentralized, on-chain stablecoins. Crypto-collateralized Stablecoins are backed by other cryptocurrencies such as Bitcoin, Ethereum or even tokenized Real World Assets (RWAs). Due to the volatility of cryptocurrencies, these stablecoins are often over-collateralized to absorb large price shocks. An example of this type of stablecoin is DAI, which is generated by locking up collateral in MakerDAO's smart contracts, making it soft-pegged to the US Dollar.

We can think of these as Decentralized Stablecoins, meaning the issuing entity is a smart contract that mints automatically every time a deposit is made to it. The DAI Stablecoin System, today called the Maker Protocol, accepts as collateral any Ethereum-based asset that has been approved by MKR (Maker's governance token) holders, who also vote on corresponding Risk Parameters for each collateral asset. However decentralization comes with its own sets of drawbacks. The approvals and decision-making processes in a DAO (Decentralized Autonomous Organization) are slow and tend to be inefficient. Secondly, due to higher volatility of crypto assets, overcollateralization is required to mint these stablecoins so that the outstanding stablecoin supply is always backed and redeemable for \$1 in value, making them capital inefficient. To increase the capital efficiency, some cryptocollateralized stablecoins such as FRAX even accept centralized stablecoins (such as USDC) partially as the collateral. This reduces the volatility of the backed assets, but in turn exposes them to the same centralizations and censorship risks as the centralized stablecoins. Various stablecoin protocols are exploring the use of delta-neutral derivative positions as a mechanism to ensure price stability. The realm of on-chain crypto-backed stablecoins remains a hotbed for innovation, with numerous intriguing strategies being pursued.

1.3.3 Algorithmic Stablecoins

This mechanism lets holders swap 1 UST for \$1 of LUNA, destroying the UST in the process. This creates an arbitrage opportunity whenever 1 UST falls below \$1, as speculators can buy the discounted UST and trade it in for \$1 in LUNA, making a small profit. The opposite is also true: If UST trades above \$1, you can swap (and burn) \$1 of LUNA for that 1 UST. [source](#)

Unlike other types of stablecoins, algorithmic stablecoins don't rely on reserves of other assets, such as fiat currencies or over-collateralized cryptocurrencies, to maintain their price stability, but instead rely on an algorithm. There are many ways to implement this algorithm. Some stablecoins use code (an algorithm) to adjust the supply of the stablecoin, increasing it when demand is high and decreasing it when demand is low. This helps keep the price stable, as increasing supply can reduce the price when it gets too high, and decreasing supply can raise the price when it gets too low. Other algorithmic stablecoins use a two-token model or more commonly known as the 'Seigniorage Model'. One token is the stablecoin, and the other is a token whose value fluctuates with market demand. At all times, \$1 worth of volatile token (VT) allows you to mint one stablecoin (SBC). This mechanism lets holders swap 1 SBC for \$1 of VT, burning the SBC in the process. This

creates an arbitrage opportunity whenever 1 SBC falls below \$1, as arbitrageurs can buy the discounted SBC and trade it in for \$1 in VT, making a small profit. The opposite is also true: If SBC trades above \$1, you can swap (and burn) \$1 of VT for that 1 SBC.

Remember that \$1 worth of volatile token gives you the right to mint one stablecoin, which currently is more than a \$1, and that is the incentive. Hence, when the stablecoin's price is lower than \$1 (say \$0.90), users can burn the stablecoin and mint \$1 worth of fluctuating token, which reduces the supply of the stablecoin and raises its price. Algorithmic stablecoins can theoretically maintain their price stability without needing to hold reserves of any other asset. However, they're still relatively new and experimental, and they've had varying degrees of success so far. Their stability ultimately depends on the effectiveness of the algorithm and the market's trust in the system.

An example includes UST (Terra-LUNA). The now collapsed, but once the third largest stablecoin Terra (UST) was an algorithmic stablecoin, which used a dual-token system involving UST and Luna for maintaining its peg to the US Dollar. Unlike USDC or USDT, which maintain their value by being backed by asset reserves, UST instead employed algorithms to ensure its price stability. Unfortunately, this mechanism wasn't sustainable and it experienced what's called a 'Death Spiral' in May 2022, dropping from \$1 to \$0.26 in just five days and wiping out over \$28 billion from the ecosystem, and it raised serious concerns about the future of algorithmic stablecoins.

Recently the lines between these definitions have become blurry. For example, DAI has moved away from being crypto-collateralized to a Real World Asset (RWA) Multi-Collateral DAI. It can now be backed by more than just crypto. Fiat backed stablecoins like USDC are also becoming RWA backed SBCs as they are being backed by US Treasuries. Meanwhile algorithmic stablecoins are fading away as a category since all the major experiments have failed. In fact many of the proposed SBC regulations across the globe prohibit the issuance of algorithmic stablecoins, which we will cover in the regulations section of this report.

1.3.4 Hybrid Models

LiorG and LiorS Tokens

Our co-authors for the updated version are the [EIC Corporation](#), which operates within a private network and functions as a non-profit organization dedicated to fostering financial and economic education, decentralized financing, and economic diplomacy. EIC Corporation provides educational resources to both members and non-members through the Lior Finance Institute, an online platform offering models and resources to enhance financial literacy and investment knowledge. EIC supports investment activities within its network by focusing on short-term (Companies can request OPEX investments for immediate, tangible needs, like purchasing goods.) and long-term (Companies issue tokens representing real-world assets or services for members to invest in, with investment durations ranging from 3 to 12 months.) financing approaches. Additionally, EIC collaborates with governments worldwide to support public policy reforms and engage in lobbying efforts, including working with institutions such as the French Parliament and Senate.

Here are some of the entities that exist within the EIC ecosystem.

iCapital Ventures is the FinTech arm integrated within EIC Corporation, serving exclusively internal members. It plans to open to the public by 2027, with existing members transitioning to premier status under the new model.

LiorS Finance Institute is an online platform dedicated to providing financial education and training on investments, offering comprehensive educational resources to help members enhance their financial literacy.

Private Investment Clubs allow members to pool resources and invest collectively in groups limited to 10 members each. These clubs operate under strict governance rules to ensure structured and practical investment experiences.

iCapitalior is a platform for SMEs to apply for membership and access funding. It tracks company performance and organizes SMEs based on their turnover, providing tailored support through the expertise of G25 members.

This entire ecosystem utilizes two primary tokens, LiorG and LiorS, to facilitate transactions and governance within its private network. These tokens are integral to the platform's operations and provide members with unique benefits and capabilities.

The **LiorG Token** is an algorithmic stablecoin designed to maintain stability within the EIC network. It is used exclusively for internal transactions among members. Members can purchase LiorG tokens through the Lior Bank's OTC (over-the-counter) platform using various payment methods, including Visa and MasterCard. The supply of LiorG tokens is managed algorithmically based on the investment needs of companies, with the process handled within the platform's back office to ensure a stable and controlled supply.

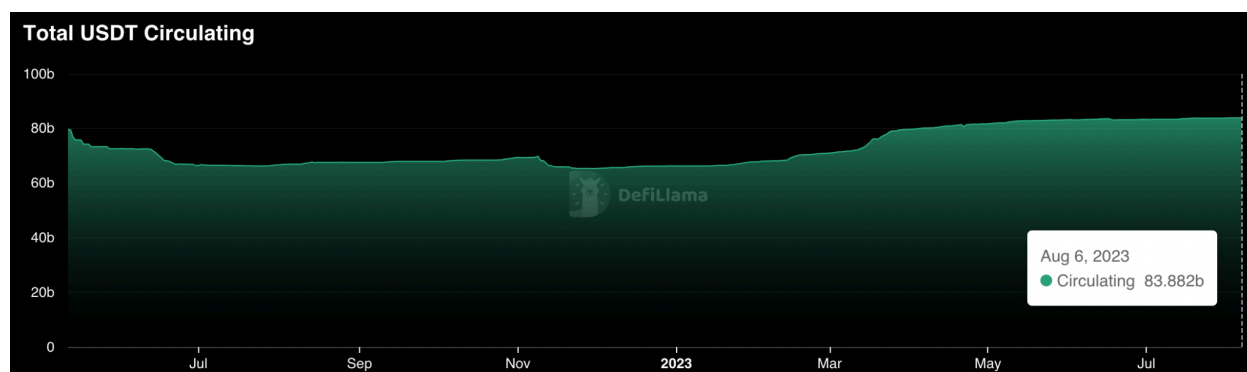
The **LiorS Token** empowers members to participate in governance votes on the platform. Members can vote on company evaluations and other decisions based on reports generated by the system and reviewed by G25 experts. Companies receive governance quality labels (silver, gold, diamond) based on their performance. These labels influence the company's evaluation in the secondary market, with good governance leading to better evaluations and higher chances of raising funds.

In short there are multiple models of stablecoins that are being worked on currently, whether they are fiat based, crypto based or hybrid models. In the next section let's see which ones are leading.



1.4 Leaders and Trends

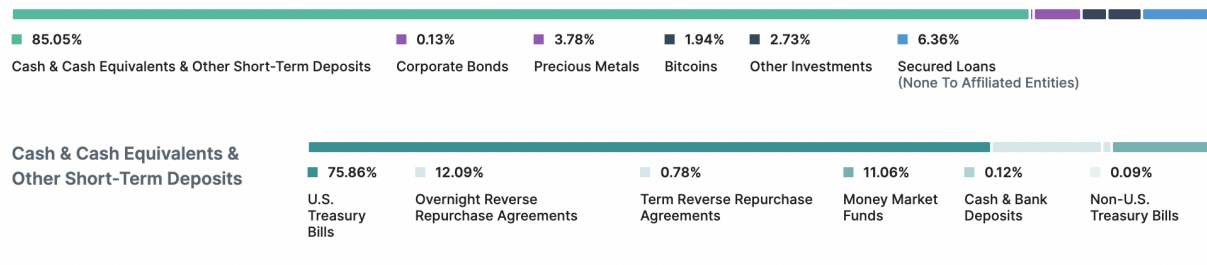
1.4.1 USDT



Source [defillama](https://defillama.com)

Tether, launched in 2014, pioneered the stablecoin model, and is the world's leading stablecoin by market capitalization. Tether customers who have undergone a verification process can exchange USD for USDT and redeem USDT for USD. They have been a target for a very long time regarding the questionable reserves backing their stablecoin. But more recently, they have been consistently proving that they have more reserves than circulating tokens. Take a look at Tether's latest transparency report:

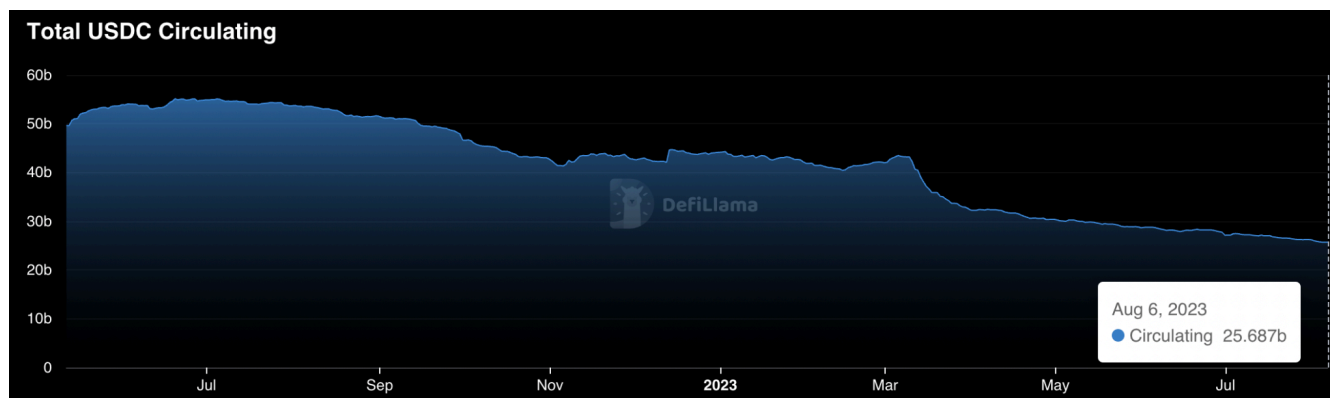
Reserves Breakdown



Source: <https://tether.to/en/transparency/#reports>

As of June 30th, their total assets amount to at least \$86.5B and their liabilities are \$83.2B which means they have around \$3B in excess reserves.

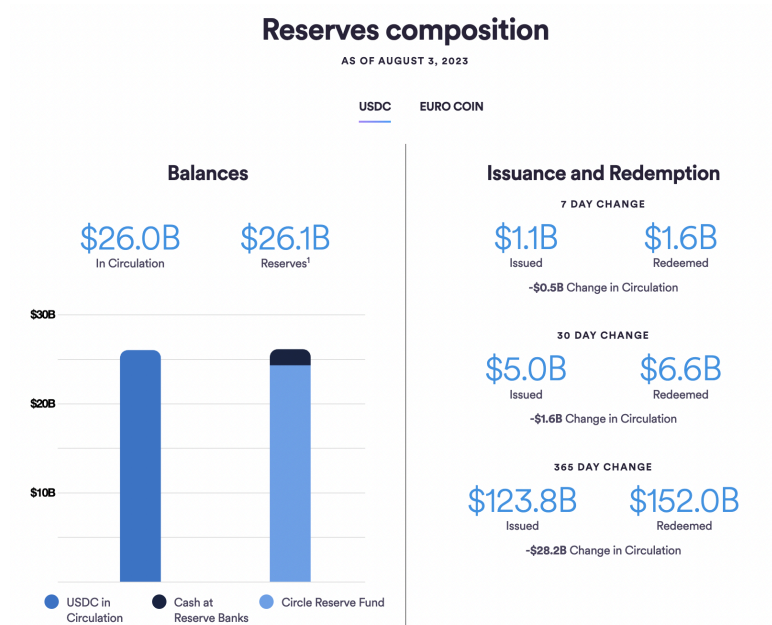
1.4.2 USDC



Source: <https://defillama.com/stablecoin/usd-coin>

USDC is a fully regulated dollar digital stablecoin launched by Circle and Coinbase. USDC is fully backed by cash and short-dated U.S. government obligations, so that it is always redeemable 1:1 for U.S. dollars. An eligible business can exchange USD for USDC and redeem USDC for USD through a Circle Account.

From the chart above, it does seem like USDC is losing its market share to other stablecoins over the last year. This could be attributed to the harsh regulatory environment within the US economy. They too have regular attestations of their reserves backing the stablecoin.



Source: <https://www.circle.com/en/transparency>

As of the most recent attestation, they have around \$0.1B in excess reserves. Below is another screenshot from their attestation report from June 2023.

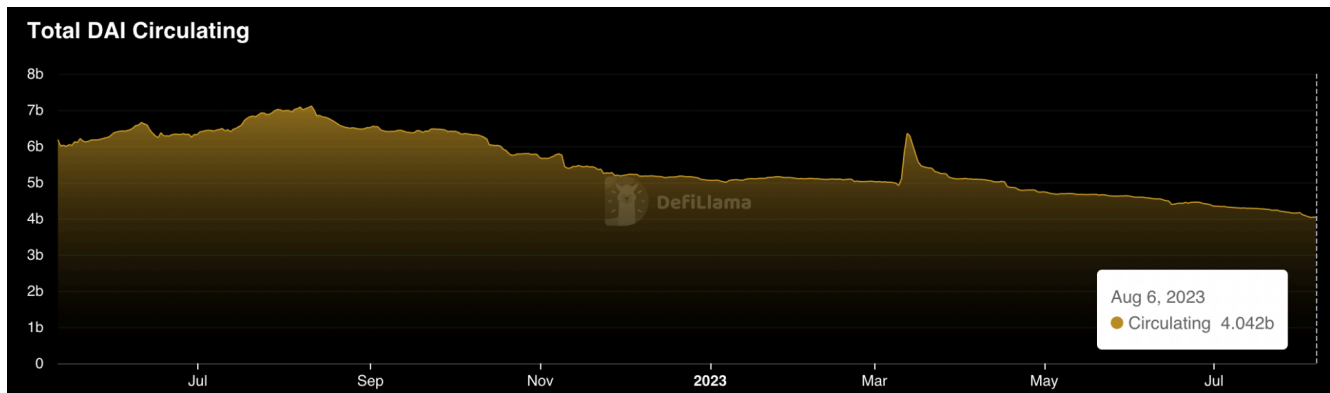
USDC Reserve Report

Report Dates	June 2, 2023	June 30, 2023
USDC in Circulation (as defined in the criteria below)	28,901,068,322	27,384,351,887
Fair Value of Assets Held in USDC Reserve (as defined in the criteria below)	\$ 28,956,055,009	\$ 27,439,541,303

USDC is very well respected within the stablecoin ecosystem due to their strict adherence to regulations and reserves backing and is considered one of the most robust in this space. The Circle Reserve Fund is a SEC-registered government money market fund which holds a portfolio of short-dated US Treasuries, overnight US Treasury repurchase agreements, and cash. This fund is custodied at The Bank of New York Mellon and is managed by BlackRock.

So why does USDT have a higher market capitalization than a better regulated stablecoin USDC? One potential reason could be because the former is not well regulated. After the Tornado Cash incident, they announced that they would not comply with US Sanctions. Naturally, actors who would like to bypass the sanctions flock towards USDT. In contrast, if and when US regulations are set in stone, the trend might reverse in no time. USDT has around 60 employees, according to Coindesk. USDC, on the other hand, has around 900 employees, according to Corey Then, the Vice President of Global Policy at Circle, with 125-150 people in their compliance department. So, the question 'Why is Tether leading?' could be answered by asking another question: 'Who is primarily using Tether?'

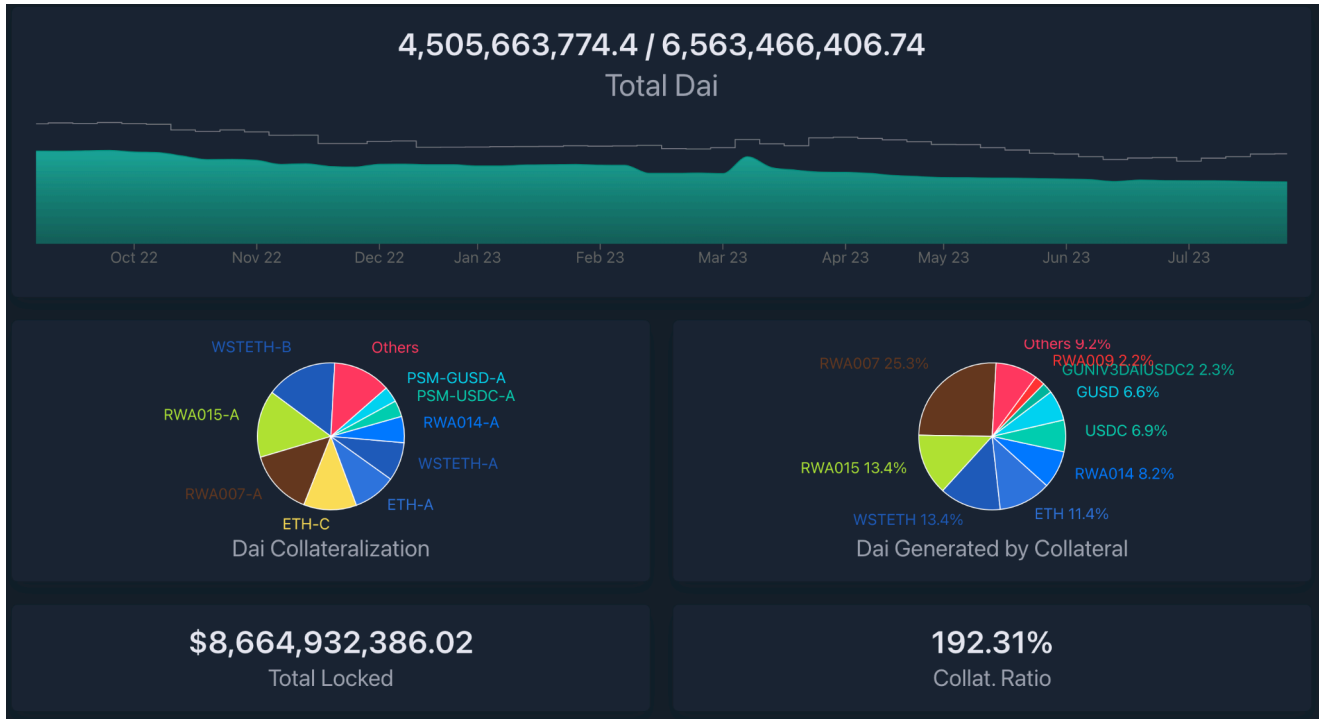
1.4.3 DAI



Source: <https://defillama.com/stablecoin/dai>

The DAI stablecoin is a decentralized, collateral-backed cryptocurrency soft-pegged to the US Dollar. DAI is held in cryptocurrency wallets or within platforms, and is supported on Ethereum and other popular blockchains. Users mint DAI by depositing accepted collateral assets into Maker Vaults within the Maker Protocol. When the loan is repaid to retrieve the collateral, the paid-back DAI is burned.

Users don't need to rely on Maker getting their reserves audited from a third party consulting firm every month. Why? Because their reserves are on-chain and are updated live every block (~12 seconds). Below is a screenshot of their reserves and the total DAI in circulation.

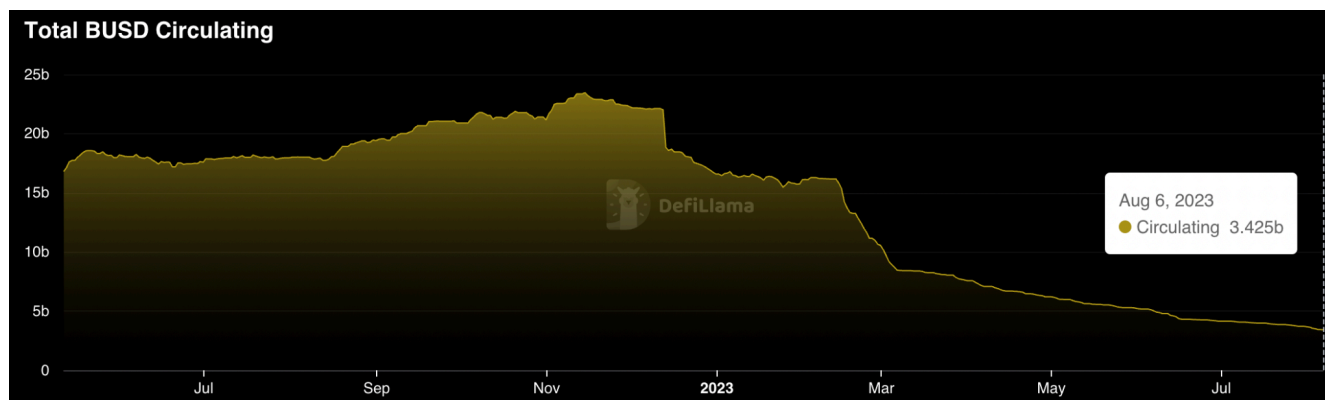


Source: <https://daistats.com/#/overview>

With 192.31% collateral ratio, meaning, the collateral value can drop up to 92.31% (i.e., nearly half of its initial value) before it equals the loan value, it might seem as though this is one of the most capital-inefficient stablecoins. However, the collateral is largely made up of other crypto-assets and some real-world assets, which are volatile in nature unlike the cash and cash equivalents backing the USDT and USDC. Hence the need for the collateral buffer. The minting and redeeming process is decentralized, although the collateral that you need to post has to be an approved collateral by the DAO.

However, MakerDAO is increasingly investing in real-world assets such as short-term US government bonds to boost revenues. Part of this revenue, along with the fees from borrowers, is redistributed back to users through something called the DAI Savings Rate (DSR), which is currently 8%!

1.4.4 BUSD



Source: <https://defillama.com/stablecoin/binance-usd>

BUSD is a 1:1 USD-backed stablecoin initially approved by the New York State Department of Financial Services (NYDFS), issued in partnership with Paxos. Paxos customers who have undergone a verification process can exchange USD for BUSD and redeem BUSD for USD.

The last transparency report for BUSD reserves was issued in June 2023 and is as follows:

- June 30, 2023 at 5:00 pm ET:

BUSD tokens issued and in circulation (Notes 1 and 4)	4,132,947,968.80 BUSD
U.S. dollars / amounts backed by U.S. government guaranteed debt instruments reserved for BUSD token holders (Note 2)	\$4,132,947,968.80

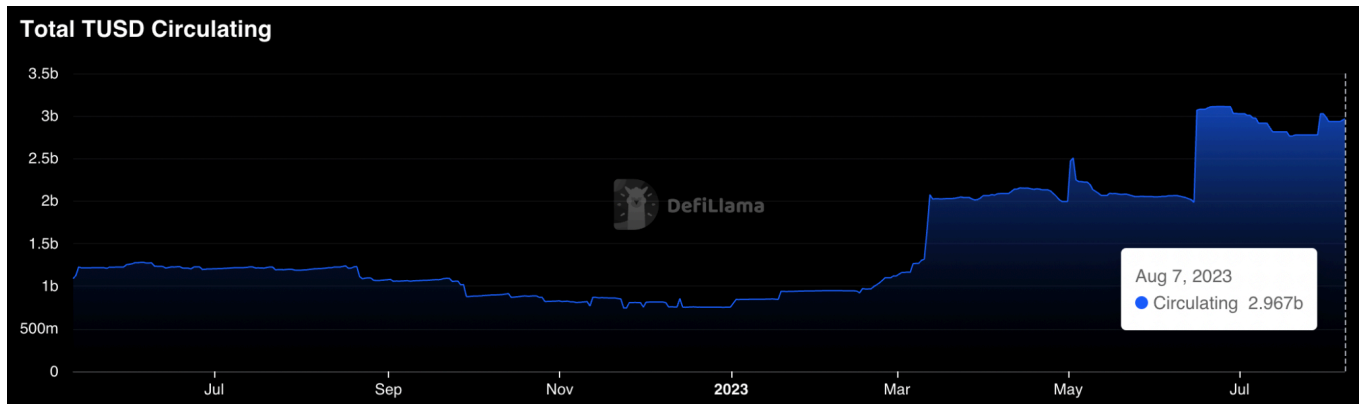
The Company's total Reserve Accounts, which are greater than or equal to the total supply of BUSD, are comprised of the following asset holdings (Notes 3 and 5):

Source: <https://paxos.com/busd-transparency/>

It is a bit usual to not list the actual reserves but to simply mention that they “are greater than or equal to” the total supply of BUSD.

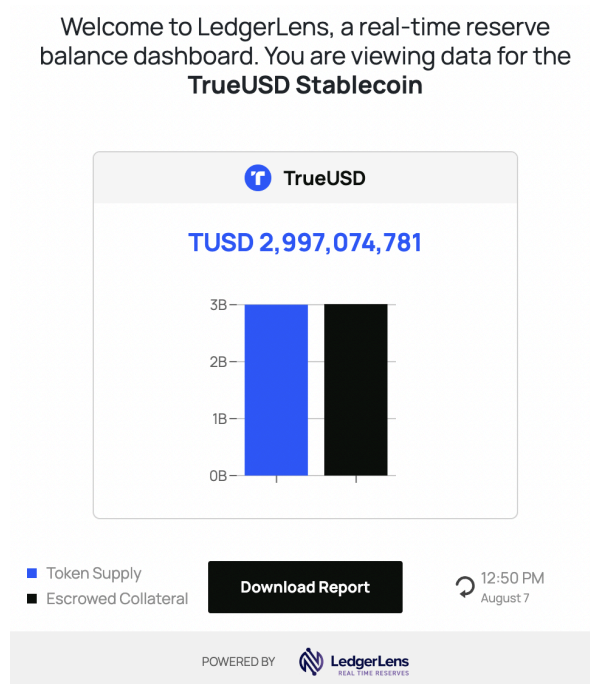
BUSD has been getting a lot of heat lately. The U.S. Securities and Exchange Commission (SEC) intends to sue stablecoin issuer Paxos, alleging that BUSD is an unregistered security. The New York Department of Financial Services (NYDFS) also asked Paxos to cease the minting of BUSD. As a result, Paxos no longer mints new BUSD, but allows customers to redeem BUSD for USD or convert their BUSD to USDP (Paxos Dollar).

1.4.5 TUSD



TrueUSD (TUSD) is an independently-verified digital asset redeemable 1-for-1 for US Dollars which was launched in April 2018, by a regulated operator TrustToken company. TrueUSD customers who have undergone a verification process can exchange USD for TUSD and redeem TUSD for USD.

They have a real-time reserve balance dashboard:



Source: <https://tUSD.io/>

According to the dashboard, they have an exact 100% backing as of Aug 7th 2023.

1.4.6 Other Stablecoins To Keep An Eye On

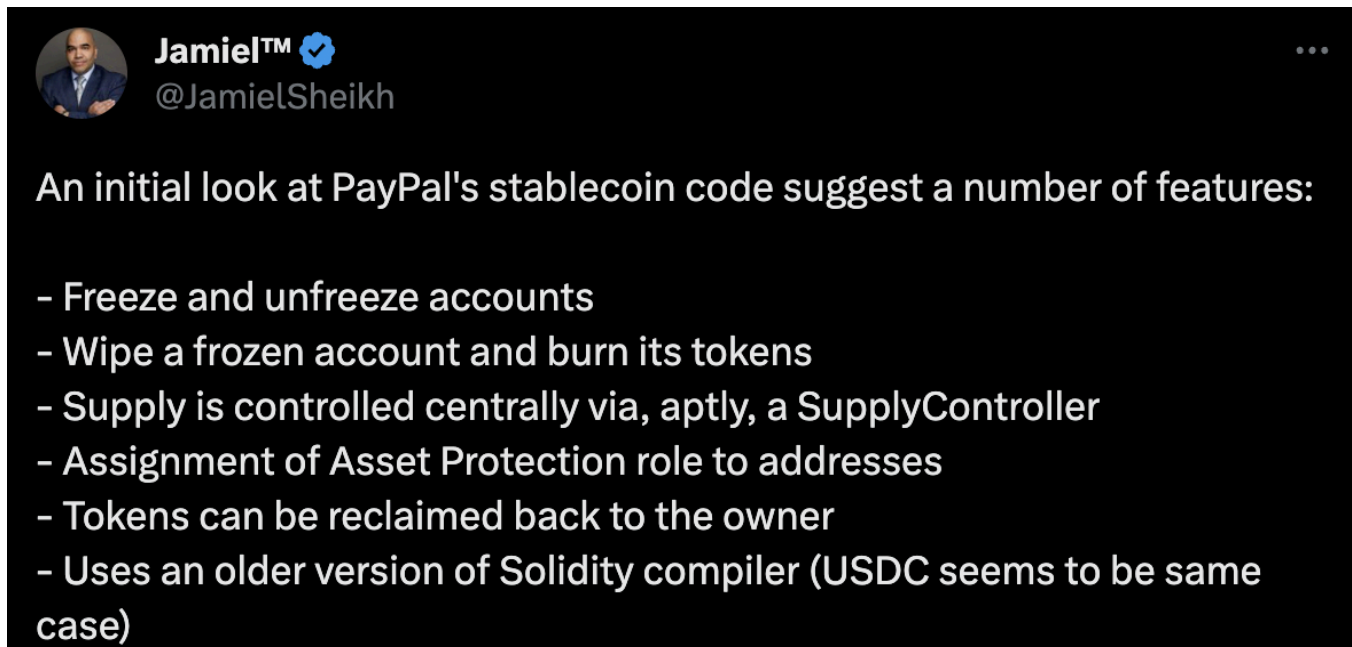
1.4.6.1 (PayPal Stablecoin) PYUSD

The payments giant PayPal launched a U.S. dollar-backed stablecoin in August 2023, to help facilitate payments as its latest addition to its suite of crypto services. Although this stablecoin is not leading in terms of market capitalization, we decided to mention it because of its uniqueness. It's the first such move from a major U.S. financial institution and is issued on Ethereum, a decentralized public ledger. It will be minted by Paxos and is regulated under New York's strict framework.

In their own words, "PayPal USD is designed to reduce friction for in-experience payments in virtual environments, facilitate fast transfers of value to support friends and family, send remittances or conduct international payments, enable direct flows to developers and creators, and foster the continued expansion into digital assets by the largest brands in the world. Most of the current volume of stablecoins is used in web3-specific environments – PayPal USD will be compatible with that ecosystem from day one and will soon be available on Venmo."

The launch of PYUSD has been met with criticism from the crypto community, particularly with respect to its design. Unlike existing custodial stablecoins like USDC, it looks like an individual will either not be able to self-custody PYUSD or not be able to send payments of PYUSD to wallets that have not gone through a white-listing process.

Jamiel Sheikh listed several concerning features of this stablecoin:



The image is a screenshot of a tweet from a user named Jamiel™ (@JamielSheikh). The tweet text is as follows:

An initial look at PayPal's stablecoin code suggest a number of features:

- Freeze and unfreeze accounts
- Wipe a frozen account and burn its tokens
- Supply is controlled centrally via, aptly, a SupplyController
- Assignment of Asset Protection role to addresses
- Tokens can be reclaimed back to the owner
- Uses an older version of Solidity compiler (USDC seems to be same case)

The first couple of points on freezing accounts scare a lot of people. In the past, governments have frozen bank accounts of protestors (most recently, Canadian truckers).

However, PayPal claims that there are several ways in which PYUSD differentiates itself from other popular stablecoins like USDT and USDC:

- ❖ **PayPal & Venmo Ecosystem:** PayPal and Venmo networks provide access to millions of consumers and merchants and PYUSD's acceptance within the ecosystem is a strong benefit.
- ❖ **Connectivity to Fiat:** PayPal's existing bank connectivity can make the process of moving between fiat and stablecoins very easy.
- ❖ **Compliance and Regulation:** Issued by Paxos out of New York and approved by New York DFS, this stablecoin adheres to strict regulatory frameworks.

They not only expect to take some market share from other stablecoins but also expand the pie by introducing it to their existing users as a choice of payment. Some use cases for their stablecoin are sectors such as remittances, B2B payments, and in-game digital goods. Ebay uses PayPal as their primary payment gateway and Ebay has 134M users with 1.7B listings and did \$74B in sales volume in 2022.

1.4.6.2 Central Bank Digital Currencies (CBDC)

If we were to talk about CBDCs in depth, it could become a long-form research report in itself. According to a report by the CITI Group, "By 2030, up to \$5 trillion of CBDCs could be circulating in major economies in the world, half of which could be linked to distributed ledger technology. In recent months, central banks in multiple large countries have announced plans for CBDCs this decade, giving almost 2 billion people the opportunity to experiment with digital currency."

CBDCs have the same benefits as stablecoins; faster settlement, 24-7/365, cross-border payments, lower costs, ability to stimulate the economy in a programmable manner. However, many blockchain purists/ Decentralization maximalists look at CBDCs as an evil manipulation tool by the government. From their point of view, CBDC's is an anti-satoshi vision. The whole aspect of the programmability of CBDCs for them is a double-edged sword. On one hand, programmability can prevent the illicit use of money. On the other hand, you could be given payments by the government that inherently prevent you from using them to buy certain types of assets that the government doesn't approve of.

According to Reuters, as many as 130 countries (representing 98% of the global economy) are exploring digital versions of their currencies. According to the article, "Eleven countries, including a number in the Caribbean, and Nigeria, have already launched CBDCs as they are known, while pilot testing in China now reaches 260 million people and covers 200 scenarios from e-commerce to government stimulus payments.

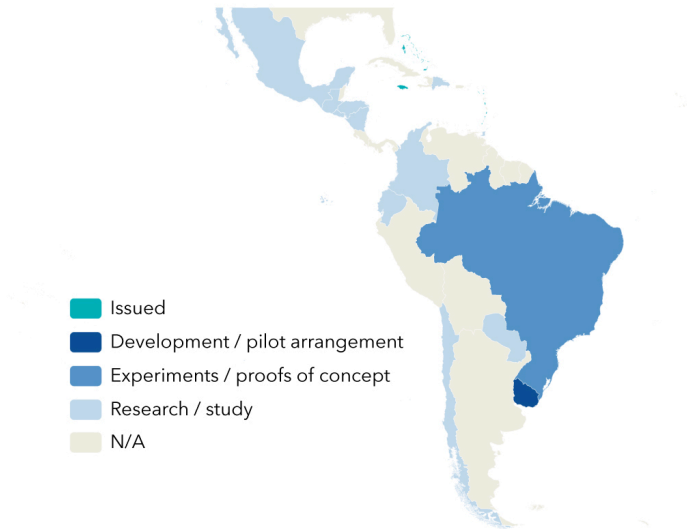
Two other big emerging economies, India and Brazil, also plan to launch digital currencies next year. The European Central Bank is on track to begin its digital euro pilot ahead of a possible launch in 2028, while over 20 other countries will also take significant steps towards pilots this year."

Latin America and the Caribbean (LAC) seem to be leading the race to CBDCs so far. According to a survey by the International Monetary Fund (IMF), 50% of the respondents were considering both retail (i.e., designed for the general public) and wholesale (i.e., intended for use by financial institutions) CBDC options. Here is a map showing the adoption of CBDCs:

Adoption of CBDCs

Most central banks in Latin America and the Caribbean have or are considering adopting digital currencies; if done right, CBDC can improve financial inclusion and lower remittances' costs.

What type of work on CDBC is being, or will be, conducted?



Source: IMF. Note: The boundaries, colors, denominations, and any other information shown on the map do not imply, on the part of the IMF, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.



Here is a [CBDC deep dive](#) by Michael Nadeau if you are interested in reading more about this topic.



1.4.6.3 Interest Bearing Stablecoins (flexUSD & Mountain USD)

Unlike USDC and USDT, which keep the interest earnings generated from the reserves to themselves, interest-bearing stablecoins return part or full interest generated by their reserves to the holders of the stablecoin. The first time this idea was introduced was in November 2020 by CoinFLEX exchange by launching flexUSD. In the flexUSD model, the underlying reserves used CoinFLEX's repo markets (these are crypto repo markets, not traditional repos) to generate yield, which was paid out to the holders every 8 hours, all while the users held flexUSD in their own private wallets. Additionally, flexUSD itself could be used to generate additional interest in Decentralized Finance (DeFi) protocols through lending and staking strategies. However, as of October 31st, 2023, CoinFLEX is shutting its doors and have stopped paying interest to the holders until they recover the money for their operations. Thus, the stablecoin itself hasn't failed yet, but the interest-bearing model is brought into question, especially because CoinFLEX advertised it as a "sustainable yield". Technically, the yield was sustainable, but holders were not guaranteed to receive it.

Another interest-bearing stablecoin is the Mountain USD (USDM), which was launched in September 2023 and advertised as the 'first regulated and permissionless yield-bearing stablecoin'. USDM reserves are held at regulated custodians such as J.P. Morgan and managed by an experienced RIA from Bermuda. The reserves assets are short-term US Treasuries or equivalent risk assets which generate the yield that is passed on to the holders. Although it is 'permissionless' it is not available for US Persons and some other jurisdictions at the moment due to lack of clarity on how interest-bearing stablecoins are regulated. And, unlike flexUSD, USDM's accounting is segregated from the Company's operating accounts. Here is a screenshot from their docs highlighting their partners involved in the stablecoin:

Category	Partner
Digital asset issuer	Mountain Protocol Limited (the Company)
Custodian	JP Morgan
Digital asset custody	Fireblocks - link
Smart contract audit	Open Zeppelin - link
Auditor	Harris and Trotter - link
Onramp	Coinbase Prime - link
Compliance analytics	Chainalysis - link
Investment Manager	EQ Capital - link
US Representation	Winston & Strawn LLP - link
Offshore representation	Carey Olsen - link
3rd party signing	Steakhouse Financial - link
Attestations	Myna - UK accounting firm

Source: Mountain Protocol docs

Ethena USD (USDe)

Ethena USD (USDe) represents a hybrid approach to stablecoin issuance, striking a balance between centralization and decentralization. Unlike highly centralized stablecoins like USDC and USDT, USDe aims to detach its collateral from traditional banking systems, ensuring that all collateral is maintained within the cryptocurrency ecosystem without involving Treasury bills. This makes USDe a crypto-native, dollar-equivalent instrument designed to diversify exposure on a risk-adjusted basis, reducing reliance on any single type of asset.

While USDe is an Ethereum-based token, it has the potential to utilize BTC as collateral in the future, facilitated through institutional-grade custodians such as Copper and Fireblocks.

Mechanism

Users can deposit stETH as collateral, while Ethena engages in opening short positions on centralized exchanges. The process varies for retail users who directly access the platform and market makers who perform arbitrage in the background. Through decentralized exchanges like Uniswap and Curve, users can exchange USDT for USDe. If an imbalance occurs, pushing USDe's price above \$1, market makers intervene by minting USDe with ETH or stETH and selling it back to the pool to restore the price to \$1.

When market makers deposit ETH or stETH, USDe is minted, and the collateral is transferred to an off-exchange custodial wallet. This system automatically sets up a margin hedge using an off-chain mechanism, with the collateral used to open short positions on exchanges such as Binance, OKX, Bybit, Deribit, and Bitget.

Current Status

Ethena currently has debts to exchanges where it holds short positions, due to a significant rise in the price of ETH. The strategy involves settling these debts and initiating new positions as part of its ongoing management. With traditional finance (TradFi) yields at 5%, USDe's attractiveness diminishes. However, falling TradFi yields in the future could act as a catalyst for increased USDe adoption.

Ethena offers flexibility in yield distribution for stETH. Currently, sUSDe (staked USDe) holders receive the staking yield, while USDe holders' yields contribute to the insurance fund. This mechanism is similar to the distinction between DAI and sDAI in the stablecoin ecosystem.

Challenges

Adoption remains a significant challenge, as convincing users to switch to a stablecoin with lower liquidity than USDT requires attractive incentives, such as higher yields. Scalability could also be an issue if USDe's market share grows too large relative to the total open interest in ETH and BTC derivatives. USDe is not as scalable as USDT or USDC but more scalable than overcollateralized crypto stablecoins.

Risks

Custody risk is inherent in holding user funds in off-exchange custodial solutions, which are considered riskier than traditional banking but are favored over smart contracts or centralized exchanges due to perceived security benefits. The primary custodians include Copper, Cobo, CEFFU, and Fireblocks. USDe faces custody risks similar to those of USDC and USDT, with the added risk of custodian hacking or theft. Centralized custody solutions, however, might offer more favorable conditions for a crypto stablecoin's survival compared to traditional banking risks, where banks could freeze funds.

Counterparty risk is associated with relying on centralized exchanges to pay the funding rate on short positions. Ethena mitigates this by distributing its short positions across five exchanges, but if one exchange collapses, the potential loss could impact the stablecoin's backing.

Liquidity risks stem from the collateral used—primarily ETH and BTC. Regulatory risks could arise if stETH is classified as a security, and negative funding rates for short positions could pose a threat, though historical data suggests this is a minor concern.

Ethena Labs' centralization could lead to winding down assets lacking native staking yields in a bear market, which might prompt holders to exit positions prematurely due to unattractive yields. The risk of depegging, particularly between stETH and ETH, is another concern, though it would affect more than just USDe.

If USDe grows too large too quickly, significant market price movements could occur, controlled by a seven-day cooldown period that can be extended up to 30 days by a multisig team. Mispricing collateral during the mint/redeem process is mitigated by private party relationships and centralized manual KYC processes.

DeFi counterparties also play a role, with MakerDAO allocating substantial amounts of DAI to USDe and sUSDe through the Morpho lending protocol, while AAVE and Nostr Finance consider revoking DAI as accepted collateral.

Ethena's approach could be adapted by other platforms like LevelQ, which could implement a similar long/short position strategy within dedicated vaults, offering stability and reliability. This concept isn't entirely new; Yearn and its vaults have utilized similar strategies, though their LP usage in DeFi hasn't seen widespread adoption due to associated risks.

Ethena's framing and marketing towards stability and reliability, along with its innovative yield mechanisms, position it uniquely in the stablecoin market. However, its reliance on market conditions and the intricate balance of exogenous factors make its long-term stability an area of keen interest and continuous monitoring.

1.4.6.4 Glo Dollar USD (Charitable Stablecoin)

So far we saw stablecoins that either keep the interest generated from the reserves to themselves or distribute it to the holders of the stablecoin as interest. But what if the revenue generated from the reserves is used for charitable purposes? The Glo Foundation has developed

such a stablecoin with the recent launch of the Glo Dollar; a US dollar backed stablecoin issued in the United States by Brale.xyz. Like other USD backed stablecoins issued in the United States, Glo Dollar is 1-1 backed by USD deposits, short term US treasuries and similar cash equivalents in reserve. The difference is that the Glo Foundation channels its earnings from holdings in the reserve to fund GiveDirectly's basic income programs. These initiatives are instrumental in providing essential support and resources, aiming to lift people out of the harsh conditions of extreme poverty. Institutions and individuals opting to hold and use Glo Dollar in their day to day stablecoin transactions embed philanthropy into their operations and activities without having to donate. At scale, every \$20,000 held in Glo Dollars will lift someone out of extreme poverty. While Glo Dollar needs to reach a \$2M market capitalization before the Foundation starts receiving earnings from the reserve to fund basic income, it does stand as one of the most unique and promising stablecoins with its goal of alleviating extreme poverty. As of 9/25/2023, the market capitalization stood at \$1.4M across the blockchains it runs on: Ethereum, Polygon and Celo.

1.4.6.5 Non-USD Stablecoins

Analyzing market capitalization showcases the pronounced predominance of USD stablecoins, constituting over 98.5% of the total pie of fiat-linked stablecoins (\$121.40 Billion). The cumulative market capitalization of non-USD stablecoins is around 1.5% (\$1.925 Billion). Notably, the top 13 stablecoins, as per CoinGecko's rankings, are all USD-linked, with Euro Tether (EURT) being the first non-USD stablecoin, positioned at 14th, Stasis Euro at 16th, and xSGD at 27th spot.

Coin	Fiat To Which It is Pegged	Market Capitalization	Issuer
EURT	Euro	\$217,873,773	Tether
EURS	Euro	\$131,205,887	Stasis
EUROC	Euro	\$52,268,751	Circle
XSGD	Singapore Dollar	\$30,713,378	StraitsX
BiLira TRYB	Lira	\$29,781,059	TRYB Group
agEUR	Euro	\$16,831,722	Angle Protocol
CEUR	Euro	\$15,229,785	CELO
GYEN	Japanese Yen	\$14,264,202	GMO-Z
XIDR	Indonesia Rupiah	\$4,697,842	StraitsX
sEUR	Euro	\$3,949,131	Synthetix Protocol

Source: *Coingecko (as of Sep 28th 2023)*

Euro-Stablecoins

The top three Euro denominated stablecoins are Euro Tether (EURT), Stasis Euro (EURS) and Euro Coin (EUROC). Their circulating supply as of May 9th 2024 is \$36.4M, \$34M and \$40M respectively. We partnered with EURS to learn about their stablecoin design in particular.

EURS is a stablecoin, which is designed to mirror the value of the euro. The company behind EURS, called Stasis, is based in Europe and operates differently from other stablecoins that rely on the US dollar. Stasis is a Web3 fintech tokenization firm that develops customer-friendly instruments to manage digital currencies and public blockchains for payments and settlements, e-commerce, and DeFi.

By using euros for the backing reserves, they eliminate their reliance on the US banking systems. They offer their stablecoin in 175 countries and they post their reserve balances daily, along with an annual audit from BDO Malta. STSS Malta manages the reserves which are held at the Prime EU custodian and the Lithuanian Central Bank. During a positive interest rate environment, the company keeps everything in 100% liquid euro balances or, simply, cash.

Stasis is on a mission to bridge 16 Trillion Euros to Blockchain, ultimately uniting TradFi and the digital asset realm. EURS currently runs on 6 blockchains: Ethereum, Polygon, XDC, Algorand, Stellar, XRPL, as well as 2 bridges: Arbitrum and Gnosis Chain. Stasis follows the guidelines set by European authorities (MiCA) and also aligns with legal standards in other countries, having received legal opinion from the US, UK, and other countries.

Next, Stasis takes [Narrow Banking](#) to the next level by dramatically reducing counter-party risk by limiting it solely to central banks, which are institutions designed to be fail-proof under any circumstances. The company provides customers with unparalleled security in this groundbreaking configuration, guaranteeing they can retrieve 99.99% of their funds under any imaginable BlackSwan scenario, which exceeds the standard insurance level of 100.000 euros provided by conventional banks.

With discussions about a digital euro (CBDC) issued by the European Central Bank, EURS might face competition but could also benefit as more people start using digital currencies. Specifically, since the European ECB established the limit for locally procured CBDCs earlier this year, imposing the limit of just 3.000 EUR, the need for privately-issued stablecoins from companies like Stasis will undoubtedly grow in the future. Although the total market cap of Euro-Stablecoins is very low compared to the USD denominated ones, stablecoins like EURS are already gaining adoption for use cases involving crypto payrolls for remote teams, crypto invoicing, leverage trading and FX arbitrage, DeFi yield, and cross-border remittances. Moreover, Stasis team constantly adds new use cases, forging partnerships and implementing EURS as a reliable method of payment into marketplaces, NFT, Metaverse and GameFi platforms.

Now, when it comes to user accessibility, it takes just a few minutes to create a retail account and access Stasis services to purchase up to 1000 EURS monthly without additional roadblocks using Instant Verification. With over 6B euros transferred on-chain across multiple major blockchains over the years and more than 250.000 transactions, zero banking transfers were rejected. The company also provides Corporate Accounts with extended limits and facilitates Swiss-based platform on/off-ramp operations for its global user base. According to the IMF, 59.02% of the world's Foreign Exchange Reserves are in USD, meaning, the USD still dominates in Traditional Finance (TradFi) but not as much as in DeFi (98.5%). If these two worlds are to converge in the future, we can expect the market share of non-USD stablecoins to go up from 1.5% to close to 40%.

Businesses should also consider adopting localized stablecoins over those backed by the USD, especially if the majority of their operations, expenses, and revenues are based in a specific region or country. Localized stablecoins, pegged to the local currency, offer minimal foreign exchange (FX) risk. This means that businesses can avoid the volatility associated with fluctuating exchange rates, which can significantly impact financial statements, cash flows, and profitability. By using a localized stablecoin, businesses can achieve more predictable financial outcomes, reduce the complexity of managing multi-currency operations, and potentially save on transaction fees that might be associated with currency conversions. Furthermore, it aligns more closely with local economic conditions, ensuring that the business remains insulated from external economic shocks that might affect the USD. In essence, localized stablecoins provide a more stable and efficient financial environment for businesses operating predominantly in a specific locale.

1.4.6.6 Gold Backed Stablecoin: Deenar Gold (DEEN)

Deenar Gold (DEEN) is a halal stablecoin that is Shariah-compliant digital currency for the Muslim community. Unlike traditional stablecoins that are backed by fiat currencies, DEEN is backed 1:1 by allocated gold, with each DEEN token representing one gram of gold. This backing mechanism ensures that the value of DEEN remains stable and tangible, offering a reliable means of transaction and store of value. New DEEN tokens can be minted by anyone who passes the Know Your Customer (KYC) process. Users can deposit fiat currency or cryptocurrencies to mint DEEN. Additionally, DEEN can be purchased directly from decentralized exchanges (DEXs) and on-ramp platforms using a credit or debit card.

Key Differences from Other Stablecoins:

1. Gold-Backed Stability: Each DEEN token is equivalent to one gram of gold.
2. Charity Contribution: With every transaction fee, 1% is donated to Launch Good, a prominent Muslim charity platform.
3. Shariah Compliance: DEEN is supported by a FATWA, confirming its alignment with Islamic financial principles.

Deenar Gold is built on the Haqq Network, EVM (Ethereum Virtual Machine) compatible layer-one blockchain, with a mission to onboard 2 billion Muslims into the Web3 ecosystem. They have seamless interoperability with other blockchain networks through bridges provided by platforms like Axelar. Currently, they are one of the very few 100% Shariah-compliant blockchain. The stablecoin is issued by a Swiss entity regulated to issue stablecoins, benefiting from Switzerland's robust regulatory framework. It also ensures compliance with the Markets in Crypto-Assets (MiCA) regulation.

Deenar Gold is designed to serve the Muslim population by providing a digital currency for everyday transactions, insulated from the fluctuations of monetary policy. The gold backing ensures a secure transfer of value, protecting holders from inflation. There are several other use-cases: DEEN will be integrated with payment providers and digital banks, enabling users to use virtual or physical cards backed by DEEN for everyday spending. It will support micro-entrepreneurs by providing Shariah-compliant microloans, helping them run their businesses. Small businesses will benefit from trade invoice financing and trade finance, easing

their working capital management and product sales. Users can pledge their DEEN as liquidity in various loan structures to earn additional returns while holding DEEN.

By putting Deen (faith) before Dinar (worldly wealth) and without compromising Islamic values, Haqq is truly revolutionizing financial inclusion for the unbanked Muslim population.



1.4.7 Failed Stablecoins

1.4.7.1 BitUSD and NuBits

BitUSD was the world's first (not so)-stablecoin, launched on July 21st, 2014 issued on BitShares blockchain and was 1:1 backed by an asset called BitShares. Charles Hoskinson of Cardano was one the team members behind this project. The stability was to be maintained by the “seigniorage arbitrage” mechanism that exists in Algorithmic Stablecoins. BitMEX has done a deep dive into why BitUSD failed. In short, BitUSD was minted at some Loan to Value (LTV) when a user posted BitShares as the collateral. When the price of BitShares fell, the users could exchange BitUSD to the cheaper BitShares, which would prop up the price of BitShares. This mechanism would not work when the price swings were too drastic, as we all now know what happened with Terra Luna and UST. However, back in 2014, it made sense, and the consensus was “why would it trade at any other price other than \$1?” The other issue with this model is that it never tracks the value of a real dollar in the real world. There was no oracle as such. With a low liquidity of the collateral, the volatility increased and the peg was eventually lost.

NuBits was a crypto-collateralized stablecoin also launched in 2014. It was over-collateralized by Bitcoin. However, BTC was a highly volatile asset at the time (sometimes still is) and a drastic price drop caused the reserves backing NuBits to drop, resulting in a de-peg. (Just a quick side-note, these days there are insurance providers that insure a de-peg event of stablecoin USDC).



1.4.7.2 Facebook's Libra or Diem

It seems that the world started becoming aware of payment stablecoins since 2019 when Facebook and the Libra Association made a high-profile public announcement about their payment stablecoin Libra. Libra was announced to be a global, multi-currency-backed stablecoin, evolving into a US Dollar-denominated stablecoin.

In his Bankless interview, David Marcus mentioned that Facebook's intention was to bring real-time payments using money designed for the internet, and was trying to build the technology around it.

Libra wanted to be the stablecoin on the Libra Blockchain that could be instantly used by the community of Facebook users, Messenger users and WhatsApp users, with a social component to it. Meaning you could pay anyone across the globe instantaneously while having a conversation with them about the payment. And it wasn't going to be exclusively controlled by Facebook but by Diem Association, a membership organization of close to 28 companies. Some names included PayPal (now launching their own stablecoin), eBay, Mastercard, Stripe, Visa, Booking Holdings, Mercado Pago etc.

Unfortunately, Facebook was going through a rough time with the user data breach and any brand association with Facebook was not palpable; and so the government shut down the project. The reach that Facebook had with its existing products along with being in control of a monetary network, scared a lot of lawmakers. They wanted to shut it down so fast that the white paper for the stablecoin was published on June 18, 2019 and the team was testifying in front of Congress three weeks later.

The failed project's intellectual property and assets were sold to Silvergate, which also later collapsed in early 2023 after writing off their Diem investment.

Interestingly enough, in early 2018, David Marcus and his team had conversations with the Bitcoin Lightning Labs team in SF to potentially use lightning as one of the ways to execute the Libra project. However, the Lightning Network just wasn't ready for the scale Facebook was trying to achieve. Ironically, after the Libra project failed, David went on to launch his own venture called Lightspark which is an enterprise-grade gateway to Lightning Network for fast, cost-efficient bitcoin payments.

Through the whole saga of this stablecoin's short-lived journey, it became clear that stablecoins were aspiring to be a new form of 'money', which is why regulators started taking this form of crypto very seriously.

1.4.7.3 TerraUSD.

Much has been written about the death spiral of this stablecoin, including a report by Coinchange Research Team. This was an algorithmic stablecoin backed by its own ecosystem's volatile token called Luna. The 'seigniorage arbitrage' mechanism was similar to BitUSD where the stablecoin UST and volatile crypto token Luna could be exchanged by arbitrageurs to maintain the peg. As with the other failures, the significant drop in the price of Luna (some say it was a coordinated token dump by envious competitors) caused the eventual collapse of the stablecoin. Bloomberg reported that this incident wiped out more than \$200 billion in a day and its inventor Do Kwon was later arrested.

1.4.7.4 What Do We Learn From Failed Stablecoins?

There are a few other lesser known stablecoins that have lost their peg. Based on these failures here are some key takeaways:

Collateral Volatility: The stability of a stablecoin is only as robust as its underlying collateral. When collateralized by volatile assets like BitShares, Bitcoin, or Luna, a sharp decline in value can jeopardize the peg. Over-reliance on such volatile assets, without other stabilizing mechanisms, exposes the stablecoin to substantial risk.

Mechanism Design: Systems like BitUSD and UST relied heavily on arbitrage mechanisms to maintain their peg. However, these systems can break down under extreme market conditions or when faced with coordinated attacks.

External Factors: External factors like regulatory pressure and public sentiment play a significant role in the success or failure of stablecoins. As seen with Libra, even with massive potential reach and backing from a tech giant, the project faced hurdles due to the broader context in which it operated.

While the vision of stablecoins remains promising, their practical implementation requires careful consideration of their design, the assets backing them, and the external environment in which they operate. Success demands both technological soundness and adaptability to ever-evolving market dynamics and regulatory landscapes.

1.5 Regulations Around Stablecoins

At the recent All-In Summit, well-known VC Bill Gurly brought up the issue with “Regulations”. He quoted a nobel prize winner Gerooge Stigler, known for “The Theory of Economic Regulation” saying

“... as a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit...” Which is based on Stigler’s “The theory of regulatory capture”.

To which Bill asked the audience to echo his statement, “ Regulation is the friend of the incumbent”. The idea of regulatory capture is that special interests take priority over general public interest and results in a net loss for the society.

It is well recognized that advocating for stricter regulatory measures may not be the most favorable topic of conversation at a gathering centered around cryptocurrency enthusiasts. Indeed, expressing support for such measures might even limit one's opportunities to engage in these gatherings in the first place. However, fostering a discourse surrounding the enhancement of regulatory frameworks could potentially facilitate a more efficient and secure environment within the cryptocurrency markets. This, in turn, would make it more straightforward for individuals to engage in economically prudent risk-taking, fostering wider adoption of the technology and potentially facilitating wealth creation.

It is not our intention to propagate an unrealistic narrative that implementing regulations would unequivocally eliminate scams or immediately eradicate all associated risks; that assumption would be fundamentally misguided. Nonetheless, it is a grounded perspective to maintain that appropriate regulatory frameworks can potentially harmonize the operation of cryptocurrency markets with the broader financial ecosystem, optimizing their functionality and fostering a safer investment environment.

The stablecoin use-case we discuss in this report is around movement of capital and that happens to be one of the most heavily regulated industries. Strong regulations can promote a stable financial market by mitigating vulnerabilities to financial stability, thus preventing shocks from escalating significantly. Effective regulation can also enhance the trust of market participants. On the other hand, inadequate regulation can create unstable market conditions, potentially having a negative effect on the entire economy.

The ‘Report on Digital Asset Financial Stability Risks and Regulation 2022’ by the Financial Stability Oversight Council (FSOC) discusses the potential risks and implications of stablecoins on the traditional financial system. It highlights that stablecoins, which sometimes hold assets like cash or Treasury instruments, create a point of connection between traditional finance and crypto markets. This interconnection could lead to vulnerabilities such as asset fire sales or pressures on traditional financial institutions if there were a run on stablecoins. The report also notes that stablecoin issuers are often opaque about their asset holdings, which makes regulatory oversight challenging.

4.2.1 Regulation of Stablecoin Issuers' Reserve Assets

As noted in part 3.3.4, Funding Mismatches and Risk of Runs, if stablecoins were to grow rapidly without adherence to and being paired with appropriate regulation, financial stability risks could result. Regulation that addresses funding mismatches and run risk—discussed in part 4.6, Regulations Relating to Funding Mismatches and Risk of Runs—could mitigate vulnerabilities relating to interconnections with the traditional financial system through stablecoin asset holdings. That discussion notes that stablecoin issuers in the U.S. have operated under a number of different regulatory regimes, as well as outside of or in non-compliance with existing regulatory regimes. In addition, to the extent that banks hold stablecoin issuers' assets, banks are expected to account for the risks of those holdings, as discussed in part 4.2.2, Regulation of Banks' Credit Unions' and Trust Companies' Interactions with Crypto-Assets. Finally, and more generally, stablecoin issuers do not have a consistent or comprehensive regulatory framework and may engage in regulatory arbitrage, as described in part 5.3.2, Regulatory Arbitrage.

Additionally, the growth of stablecoins can affect short-term money markets because these stablecoins often hold assets like cash, Treasury instruments, and commercial paper as backing. Increased issuance of major stablecoins may result in an increase in the issuance of commercial paper and lower yields for commercial paper and Treasury instruments. This suggests that stablecoins are creating additional demand for these short-term assets. Additionally, the growth of stablecoins may introduce new use cases for money market funds. For example, BlackRock's Circle Reserve Fund, filed with the SEC in May 2022 involves the creation of a government money market fund specifically to manage Circle's asset holdings.

Another report worth reading is the November 2021 'Report on Stablecoins' by the President's Working Group on Financial Markets, the FDIC, and the Office of the Comptroller of the Currency. It discusses regulatory suggestions for stablecoins and their associated entities to ensure safety and stability. Specifically, it focuses on two areas of concern: **risks to individual users** of stablecoins and **risks to the broader payment system**.

Risks to Users: The report suggests that to protect stablecoin users and prevent "stablecoin runs" (a situation where a large number of users try to redeem their stablecoins for cash, but the issuer doesn't have enough liquidity to fulfill these requests), stablecoin issuers should be insured depository institutions. This would mean that they would have to adhere to regulatory requirements designed to ensure financial stability and customer protection, both at the level of the depository institution itself and its holding company.

Payment System Risks: The report further suggests that custodial wallet providers (entities that hold stablecoins for users) should also be regulated and subjected to federal oversight to mitigate systemic risks. The idea is that if one of these providers fails or acts improperly, it could potentially disrupt the broader payment system.

Finally, the paragraph calls on Congress to empower the federal supervisor responsible for overseeing stablecoin issuers with the authority to require any entity critical to the functioning of a stablecoin to meet appropriate risk-management standards. This is aimed at ensuring that all key players involved in the stablecoin system adhere to rules that help maintain financial stability.

Thus, for an effective regulation, we need to be clear on the following:

- Clearly define what the asset is and its utility
- What would be the regulatory concerns related to the asset and its utility
- Who should be responsible for regulating the asset



1.5.1 US/ Clarity for Payment Stablecoins Act of 2023

In the US there are not that many regulators at the federal level willing to engage with or approve a product on a blockchain built to maintain a steady \$1 NAV (net asset value) a.k.a. Stablecoin. Broadly speaking the US has been a confusing place to seek regulations. In February 2023, the SEC issued a Wells notice to PAXOS saying that BUSD (the Binance stablecoin that PAXOS was the issuer for) was a security. At the same time, CFTC claimed that stablecoins such as BUSD, USDT and USDC fell under its jurisdiction as commodities. Secondly there has been a debate on who would oversee the issuing of payment stablecoins; would it be the Federal Reserve establishing the rules, or would it be the individual states (just like traditional banking has state-chartered banks)? Thirdly, there is no consensus yet on what constitutes a reserve asset; should it be all cash, or some US Treasury Bills, or Chinese Commercial Paper, or should it also allow volatile assets such as Bitcoin (as in the case of USDT) to back the payment stablecoins?

House Republican Patrick McHenry put forth a bill to establish a federal regulatory framework for stablecoins. According to the bill, the Federal Reserve in the US would establish the requirements for stablecoin issuers, yet the issuers' states would still have legal authority over them. However Representative Maxine Waters, the committee's top Democrat, argues against the bill that it would allow commercial companies (such as Facebook/Meta) to issue their own money, in addition to not having a clarity on the range of assets in their reserves backing the stablecoin. Here are the key points from the bill:

- Permitted Payment Stablecoin Issuer:
 - Sets criteria for legal issuance of payment stablecoins
 - Only permitted entities can issue payment stablecoins.
- Bank-like Regulation for Federal Nonbank Issuers:
 - Requirements include capital, liquidity, risk management, application of the Bank Secrecy Act, Gramm-Leach-Bliley Act's customer privacy, activity limits, and supervisory authority.
- Role of State Regulators:
 - State regulators have primary authority over state stablecoin issuers.
 - Federal Reserve Board (FRB) has backup authority in urgent situations.
- Interest-Bearing Stablecoins and Securities:
 - McHenry bill clarifies payment stablecoins are not securities under specific Acts.
 - Differentiates from other bills, allowing possible interest on payment stablecoins without violating securities laws.
- Private vs. Public Blockchains:
 - Stablecoins on private blockchains may not qualify as "payment stablecoins."
 - Uncertainty remains if federal agencies will support stablecoins on public blockchains like Ethereum.
- FED Access for Nonbank Issuers:
 - No access to Federal Reserve's payment systems or discount window for nonbank payment stablecoin issuers.

- Preemption:
 - McHenry bill doesn't override state money transmitter licensing laws for state-qualified payment stablecoin issuers.
- Reserve Requirements:
 - Stablecoins must be backed 1:1, maintaining at least a 100% reserve.
 - Eligible reserve assets: legal tender, U.S. currency, insured deposits, short-term treasuries (≤ 90 days), repurchase agreements backed by short-term treasuries or central bank reserve deposits.
 - Monthly website publication required:
 - Total number of outstanding payment stablecoins.
 - Amount and composition of reserves.
 - Monthly reports to be reviewed by a registered public accounting firm.
 - CEO and CFO certifications on report accuracy; false certifications can lead to criminal penalties.
- Redemption:
 - Issuers must set up procedures for prompt redemption of outstanding payment stablecoins.
 - Public disclosure of redemption policy is required.
- Rehypothecation:
 - Reserves cannot be pledged, rehypothecated, or reused, with an exception:
 - Short-term treasuries can be pledged for repurchase agreements (≤ 90 days) to ensure liquidity for redemption requests.
 - Such agreements must either be cleared by an approved central clearing counterparty or receive prior approval from the PFPSR.
- Insolvency Priority:
 - Unlike previous bill versions, stablecoin holder claims against issuers aren't prioritized above other claims in case of the issuer's insolvency.
- Compatibility and Interoperability Standards:
 - Federal payment stablecoin regulators, with the National Institute for Standards and Technology, have the authority to set standards.
 - Aim is to enhance compatibility and interoperability for payment stablecoin issuers.
- Moratorium on Algorithmic Stablecoins:
 - A two-year halt on the issuance of "endogenously collateralized" (i.e., algorithmic) stablecoins that are launched after the bill's enactment date.
 - The U.S. Treasury, collaborating with other agencies, must provide a report to Congress on algorithmic and other nonpayment stablecoins within a year of the bill's enactment.

1.5.2 Lummis-Gillibrand Responsible Financial Innovation Act (the “RFIA”)

U.S. Senator Cynthia Lummis from the state of Wyoming has introduced a bill called Lummis-Gillibrand Responsible Financial Innovation Act (the “RFIA”), which covers a wider range of crypto assets but also includes a stablecoin component. Here are some of the highlights from the bill:

- The RFIA allows the CFTC spot market jurisdiction over all commercially fungible crypto assets that are not defined as securities.
- Trading facilities offering markets in crypto assets or payment stablecoins must register with the CFTC, with the exception of decentralized protocols.
- Only depository institutions (e.g., insured banks, mutual savings banks, credit unions, etc.) or their subsidiaries can issue payment stablecoins.
- To issue stablecoins, depository institutions must apply to the relevant Federal banking agency or State bank supervisor.
- Applications to issue stablecoins can be denied if:
 - The stablecoin activities aren't likely to be safe and sound.
 - The institution lacks resources and expertise for stablecoin management.
 - The institution doesn't possess the necessary policies and procedures related to the stablecoin.
- Issuing depository institutions must inform customers that payment stablecoins are not guaranteed by the U.S. government and aren't insured by the Federal Deposit Insurance Corporation.
- If an issuing depository institution enters receivership, valid payment stablecoin claims have priority over all other claims regarding required payment stablecoin assets.
- Payment stablecoins cannot be pledged, rehypothecated, or reused, except to create liquidity for redeeming payment stablecoins.
- It restricts the usage of the word ‘Stablecoins’ or ‘Payment Stablecoins’ by algorithmically stabilized crypto assets.

Does the FED really want to be involved in managing private stablecoin issuers? Custodia bank from the state of Wyoming, which applied for a FED Master Account was denied the membership. The reasons cited were Custodia's lack of FDIC Insurance and its reliance on the volatile crypto market. *Comparing the receivership and if valid claim of SBC* then the 2 bills are agreeing on this point as well.

1.5.3 MiCA (European Union)

The Markets in Crypto-Assets (MiCA) framework in the European Union sets comprehensive rules for stablecoins. This framework defines two regulated token types: asset-referenced tokens (ARTs), which are backed by various reserves (eg. DAI), and e-money tokens (EMTs), which reference a single fiat currency (EURC). In simpler terms, both these tokens aim to keep a stable value, but they do so differently.

1.5.3.1 Asset-Reference Tokens (ART)

- Asset-referenced tokens can use a mix of other assets in reserves to back their value, while e-money tokens only use one official currency (i.e. official currency of a country that is issued by a central bank or other monetary authority).
- Issuers of asset-referenced tokens, where the issue value is more than EUR 100,000,000, need to report the following information to the competent authority on a quarterly basis:
 - The number of holders of the token.
 - The value of the ART issued and the size of the reserve of assets.
 - The average number and average aggregate value of transactions per day during the relevant quarter.
 - An estimate of the average number and average aggregate value of transactions per day during the relevant quarter that are associated with its uses as a means of exchange within a single currency area;
 - The report must also include transactions outside the distributed ledger.
- If the ART has an estimated quarterly average of more than 1 million transactions a day and aggregate daily value exceeds 200 million Euros, the issuers must stop issuing the ART and create a plan within 40 workdays to keep its use and value under those limits and share this plan with the authorities.



1.5.3.2 E-Money Tokens (EMT)

- **Who Can Offer e-Money Tokens:** Only the person or company who created the e-money token can offer it to the public or trade it. They must be approved as either a credit institution or an e-money institution. They must notify and publish a document (white paper) that explains the details of the e-money token. However, with permission, other people can offer or trade the token, but they must follow specific rules.
- **What Are e-Money Tokens:** These tokens are considered a form of electronic money tied to the official currency of a Member State in the Union.
- **Notification Requirement:** Issuers must inform the competent authority of their intention to offer or trade e-money tokens at least 40 working days before doing so.
- **Claims & Redemptions:** Holders of e-money tokens, have a right to claim from the issuer. When a company issues e-money tokens, it should be done at face value and they should receive real funds in exchange. While redeeming e-money tokens the company that issued it has to exchange it for real money at any time, at the token's face value. They can't pay you back in more e-money tokens; it has to be real money. Companies that issue e-money tokens have to clearly explain how you can trade them in for real money in their official documents (white papers).
- **No Fees:** Trading in e-money tokens for real money shouldn't have any redemption fees attached.

The MiCA framework is a significant step towards the regulation of crypto-assets in the European Union, aiming to establish a comprehensive regulatory approach to these assets and goes into effect in parts over the next 12 months. If you are interested in reading the entire MiCA framework for Stablecoins, follow this [link](#) and search for 'e-money token'.



1.5.4 United Kingdom

In the United Kingdom, HM Treasury's February 2023 proposals aim to regulate cryptoassets, including stablecoins. These plans align with the goal of making the UK a global crypto technology hub. The legislative foundations for these regulations are being laid through the Financial Services and Markets Bill, which intends to bring stablecoins and other cryptoassets under financial services regulation. This is part of the UK's broader strategy to establish a robust regulatory framework for cryptoassets and to position the country as a leader in the crypto technology space.

1.5.5 Singapore, Hong Kong, Japan and UAE.

A report titled “The Growth Potential of Non-USD Stablecoins” by Cumberland highlights the progress in regulations in several jurisdictions outside of the US.

In Singapore, the Monetary Authority of Singapore (MAS) initiated a proactive step by releasing a consultation paper in October 2022, seeking feedback on stablecoin policy. The financial community is keenly awaiting responses to this consultation, expected this Summer. StraitsX, a payment institution regulated by the MAS, has been actively involved, issuing XSGD (Singapore Dollar stablecoin) since 2020. It also significantly contributed to Project Orchid, an experimental initiative unveiled at Singapore's Fintech Festival at the end of 2022, which is anticipated to launch its Version 2 in 2023 with expanded use cases.

Shifting focus to Japan, the Financial Services Agency (FSA) enacted a comprehensive framework in June 2022, which was due to be operational in June 2023. This legislation not only defines stablecoins but also mandates that only banks and trusts can issue these digital assets. They are likely to form partnerships with crypto-native virtual currency exchanges to issue the leading JPY stablecoin.

In the context of Hong Kong and the United Arab Emirates, where the local currencies, the Hong Kong Dollar (HKD) and the United Arab Emirates Dirham (AED), are pegged to the USD, stablecoins in these currencies offer an intriguing prospect. These stablecoins would maintain relative stability to the USD without the reliance on US banking infrastructures, thereby mitigating risks associated with disruptions in USD banking, such as the challenges encountered by USDC with Silicon Valley Bank, and minimizing direct exposure to US regulators, as exemplified by the Wells notice served to Paxos for BUSD.

Established in February 2022, VARA (Virtual Assets Regulatory Authority) is the world's first independent virtual asset regulator. It mandates proprietary traders of virtual assets to register when their portfolio value reaches USD 250 million within a 30-day period. In Dubai, the issuance of a Virtual Asset generally requires VARA's approval, except for non-transferable Virtual Assets, known as Permitted VAs, which necessitate whitepaper registration instead. Virtual Asset Service Providers (VASPs) must hold reserve assets equivalent to 100% of client liabilities and meet certain financial reporting standards. While VARA licenses most VA activities, the UAE Central Bank (UAE CB) oversees central bank digital currencies and shares jurisdiction over fiat-backed stablecoins.

On 7 February 2023, VARA released its Full Market Product Regulations detailing virtual asset licensing rules, introducing Fiat-Referenced Virtual Assets (FRVAs), or stablecoins. Notably, these cannot be pegged to the UAE Dirham, as it's under the exclusive jurisdiction of the CBUAE.

So what is the ideal stablecoin regulation? For starters, any regulation that is clear is a good regulation. Although an unclear regulation in fact fosters creative thinking and innovation in the early stages of a new technology, once there is a product market fit, any more lack of clarity causes confusion and halts progress. Regulations have become the most important thing for the broad adoption of Stablecoins by businesses, banks and other institutions. In the US, although the FED has not proven their interest in participating in the stablecoin regulations, FED Chair Jerome Powell in his Congressional testimony emphasized the necessity of robust oversight by central banks in the formulation of stablecoin regulations by the House Financial Services Committee. He said, "We do see payment stablecoins as a form of money, and in all advanced economies, the ultimate source of credibility in money is the central bank. We believe it would be appropriate to have quite a robust federal role."

While we wait for the regulations to sort out, there are developer teams out there working on using stablecoins for cross-border remittances and in our next section, we will focus on some of the most credible ones.



Part 2.0 Current Remittance Landscape

2.1 What does Remittance mean?

Remittances matter because they contribute to a large extent of GDP for certain countries, especially LMICs, i.e., the Low and Middle Income Countries. Countries that receive large remittances have shown to improve the overall well-being of their citizens. On the other hand, as the flow of remittances are at the mercy of the business cycles in the more developed countries, overreliance on remittances can be damaging to the economy of the receiving country.

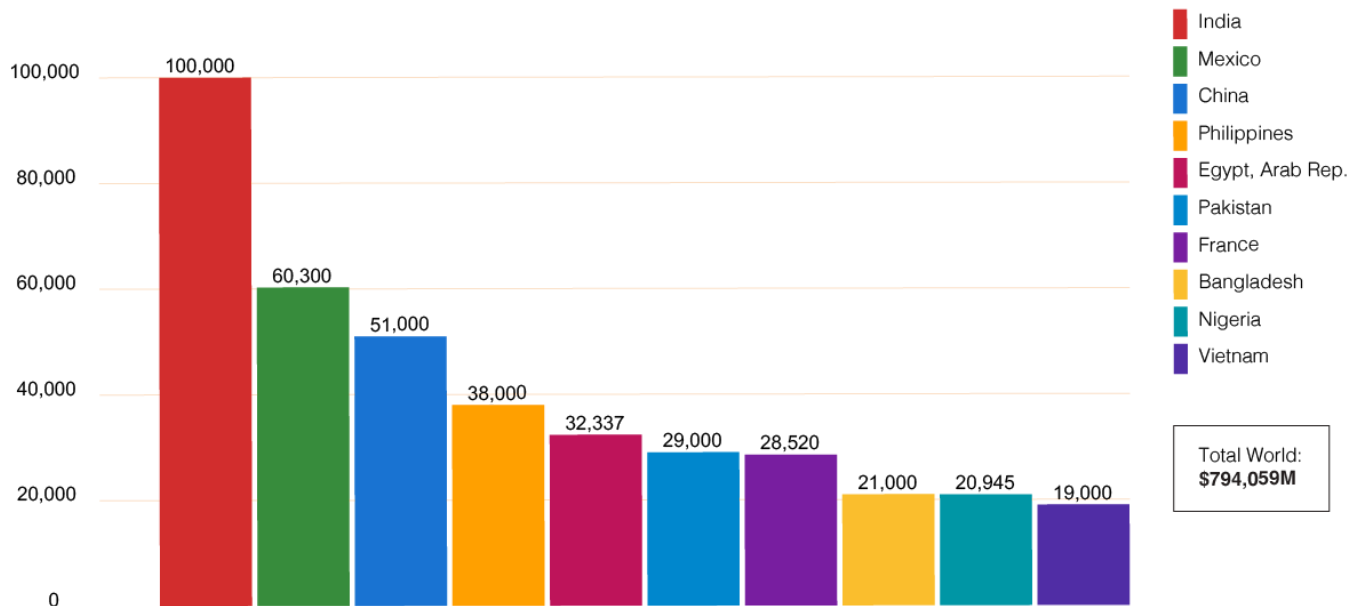
2.2 Which countries have the largest flow of remittances (inflow and outflow)?

In 2021, total global remittances were estimated at \$781 billion. In 2022, it was estimated to be \$794 billion.

This table displays the remittance inflows by country for the year 2022, measured in millions of US dollars.

Rank	Remittance Inflows by Country	2022 (USD)
1	India	\$100,000M
2	Mexico	\$60,300M
3	China	\$51,000M
4	Philippines	\$38,000M
5	Egypt, Arab Rep.	\$32,337M
6	Pakistan	\$29,000M
7	France	\$28,520M
8	Bangladesh	\$21,000M
9	Nigeria	\$20,945M
10	Vietnam	\$19,000M
	Total World	\$794,059M

Remittance Inflows by Country in 2022 (USD)



Values are in million USD.

Source: www.visualcapitalist.com

India has been #1 for the past 15 years and at \$100 billion, it is said to have achieved a new all-time high. Mexico received about \$60 billion at the #2 spot and China received about \$51 billion at the #3 spot. Although the dollar amount is large for remittances to India, it makes up only about 3% of its GDP. While Tonga, the Polynesian country, receives \$250 million in remittances, which makes up almost 50% of its GDP.

The reasons why the traditional remittance space has been so clunky is not just regulatory, but to a large extent the fact that the financial technology was developed at different points in time in different countries and now they are all forced to interoperate.

2.3 Biggest Players In The Traditional Remittance Space And Their Intersection With Blockchain Technology.

2.3.1 Western Union

Western Union, the 172 year-old behemoth, is a financial services and communications company known primarily for its money transfer services. Customers can send and receive money both domestically and internationally through Western Union's network. They offer various ways to transfer money, including online, through their mobile app, and at physical agent locations. These services extend to paying bills and purchasing money orders as well.

How big is it?

1. Global Reach: Western Union operates in over 200 countries and territories worldwide and saw \$4.5 billion in revenue in 2022.
2. Agent Locations: They have more than 500,000 agent locations where people can conduct transactions.
3. Domestic Scale: In the United States alone, they have more than 61,000 agent locations.

The time it takes for money transfers using Western Union can vary depending on multiple factors such as the method of delivery, payment, and country of the recipient.

- Domestic Transfers: These are typically completed in 24 hours.
- International Transfers: These can take between one to five business days.
- Cash Pickup: If you send money for cash pickup at an agent location, it can arrive within minutes.
- Direct to Bank: Deposits typically take between two and five business days. For some countries, it can be as quick as 0-1 banking day or up to 5 banking days.
- Bank Transfers: These can take up to three business days when they have to go through intermediary banks.

For comparison, here's how long it would take for USDC to complete a transfer on various blockchains:

Chain	Approximate Time
Algorand (USDC)	~5 seconds
Arbitrum (USDC)	~3 minutes
Avalanche (USDC, EUROCC)	~2 seconds
Bitcoin (BTC)	~40 minutes
Ethereum (USDC, EUROCC, ETH)	~3 minutes
Flow (USDC)	~2.5 seconds
Hedera (USDC)	~3 seconds
Polygon PoS (Bridged USDC)	~20 minutes
Solana (USDC)	~400 milliseconds
Stellar (USDC)	~5 seconds
TRON (USDC)	~1 minute

Source: [Circle.com](https://circle.com)

2.3.2 Western Union Experimenting with Crypto

Back in 2015, Western Union commented, “We have had preliminary discussions with Ripple regarding a pilot settlement project, but it is too early to discuss details at this time.” However, that project didn’t materialize, and in 2017, they announced another pilot project with Coinbase which would integrate a Western Union option for remittances in the Coinbase app. The goal was to facilitate fiat remittances using crypto rails, and not enabling crypto transfers through Western Union. Unfortunately, that project never came to fruition either. Nevertheless, around the same time, they built a blockchain-based know-your-customer (KYC) technology in order to significantly reduce their \$240M/year compliance costs.

Later, in April 2019, they announced a partnership with Coins.ph, a blockchain-based startup from the Philippines. This would enable Philippines residents to receive cash remittances (with a limit of ~\$2K/month). No data was found on how much volume has flown through this network, however it is still available as an option on western union website.

2.3.3 MoneyGram's Experiments with Ripple and Stellar For Cross-Border Payments

MoneyGram is a global provider of innovative money transfer and payment services. It's an easy and reliable way for people to send money to family and friends, either online or in-person, across international borders or domestically. MoneyGram allows individuals to send and receive funds in cash, into bank accounts, or onto mobile wallets, depending on the location and preferences of the sender and receiver. MoneyGram has a vast network of agents and locations worldwide, making it accessible to many people looking to send or receive money.

Back in 2019, they had decided to partner with Ripple when Ripple bought a \$30M stake in MoneyGram. It allowed MoneyGram to use RippleNet for cross-border payments use cases. However, in 2021, Ripple announced that they are ending their partnership with MoneyGram, although no reason was provided (probably due to the SEC's allegations on Ripple in December 2020). They promised to revisit the partnership in the future.

Meanwhile, in Oct 2021, MoneyGram announced a partnership with Stellar Blockchain Network to pilot cross-border payments using Circle's USDC. This deal came across as a gut punch to Ripple and is much larger than what they initially envisioned with Ripple. The main difference being in the Ripple partnership, they were going to use the volatile XRP token (debatable as a security in some cases) and Ripple's on-demand liquidity (ODL) for FX Trades, whereas, in case of their partnership with Stellar, they will be using the stablecoin USDC. Later, Circle got subpoenaed by the SEC and everyone thought this partnership would have the same fate as Ripple's partnership. However MoneyGram continued building a relationship with Circle and Stellar as though they had confidence in Circle's business model regardless of the regulatory actions. In Aug 2023, Stellar announced an investment in MoneyGram, which was enough to secure the CEO of Stellar a board seat at MoneyGram.

Interestingly, Chris Larsen and Jed McCaleb, who were the two co-founders of the Ripple network in 2012, had a difference of opinion, and in 2014, McCaleb parted ways and started Stellar. So, it is no surprise that they are still trying to compete in a similar space and eat each other's market capitalization.

2.4 Stablecoins as a potential solution

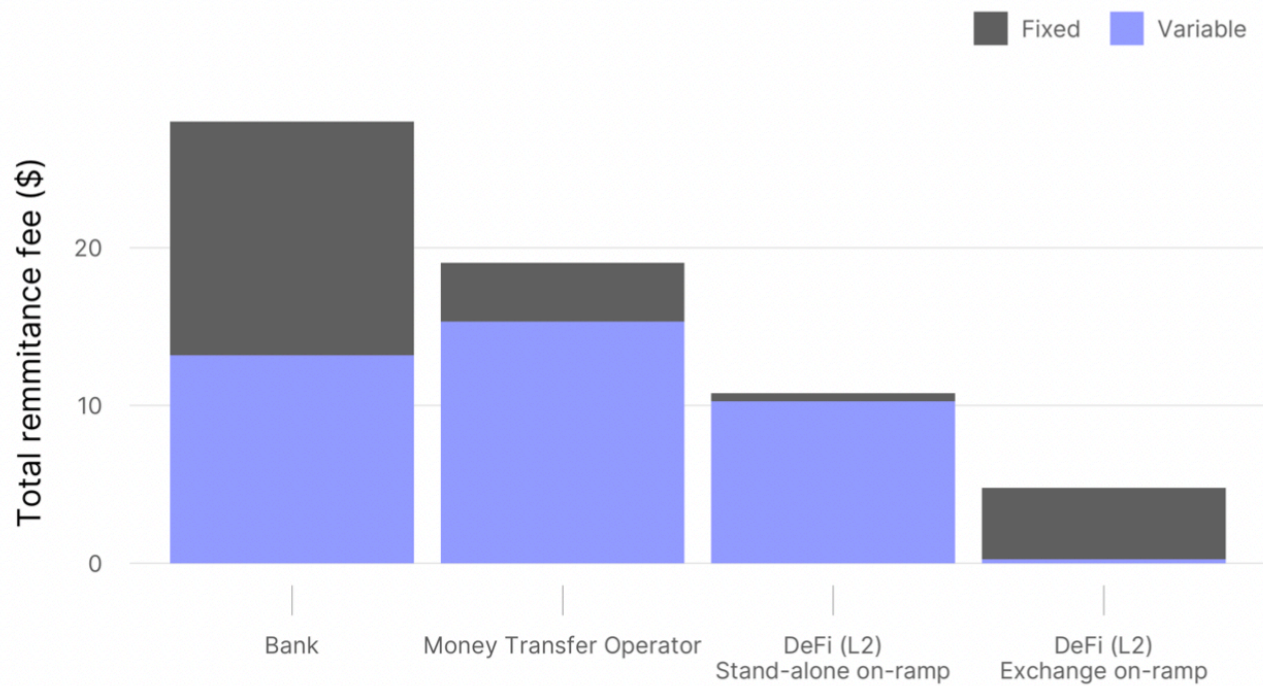
It is clear that on-chain remittances using stablecoins is the future and either new businesses are going to capture that market or traditional giants are going to partner with them to save their market share. In January 2023, Uniswap Labs and Circle did a joint research on 'On-chain Foreign Exchange and Cross-border Payments'. This table from the report summarizes the key features and differences between traditional markets and DeFi markets:

Features	Traditional Market	Decentralized Finance (DeFi)
Market Hours	Nominal 24 hour market during weekdays; poor liquidity between NY close and Tokyo open; No trading and settlement on weekends	Always-on 24-7 trading liquidity through AMMs and near instantaneous settlement on blockchains
Settlement Time	T+2 business days by convention and often greater than T+5 calendar days with holidays and weekends	Near instantaneous settlements in seconds; Occasional blockchain congestions that may result in high gas costs
Settlement Risks (Credit Exposure and Liquidity Risk)	Around one-third of deliverable FX turnovers are subject to settlement risk exposure on any given day	Minimal settlement risks as on-chain transactions adhere to Payment vs Payment principles by design
Transparency and Trade Reporting	Limited trade reporting with non-harmonizing standards across jurisdictions; reporting predominantly on forwards and swaps	Privacy-preserving transactions recorded on public ledgers in real-time
Benchmark Transparency	Key benchmark had issues of rigging with lack of transparency in the price discovery process	Transaction data visibility to the public allows for transparent benchmark construction and audits
Liquidity Fragmentation	Increasing fragmentation in liquidity due to internalization of customer flows by banks	Composability of token standards enable direct liquidity aggregation from different AMM platforms
Liquidity Providers	Principal trading firms supply liquidity on limit order books and dealers supply liquidity via bank platforms and voice	Any holders of tokenized cash in multiple currencies can supply liquidity via AMMs

Source: *On-chain Foreign Exchange and Cross-border Payments* [Research Paper](#)

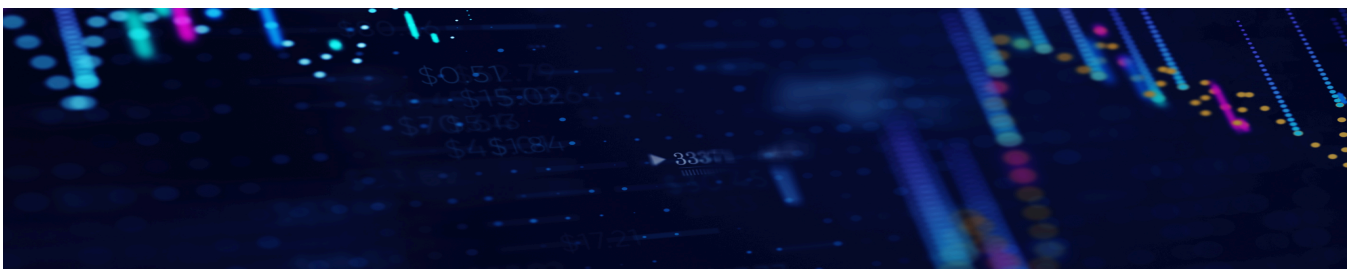
Overseas workers, people who move from one country to another primarily for work, often experience high transaction fees when they send money back to their home countries. As a result of these high costs, they might be encouraged to hold off on sending money until they can send it in larger sums, doing so less frequently to save on transaction fees. According to the research paper, the figure below displays the expense associated with sending a \$500 remittance, as derived from on-chain transaction data and estimates provided by the World Bank.

Figure 7: Remittance costs for \$500 transfer



Source: *On-chain Foreign Exchange and Cross-border Payments Research Paper*

These fees can significantly affect the amount of money the receiving families end up with. For families relying on this money for their livelihood, this reduction can be burdensome and can also impede economic development in the countries receiving the remittances. Stablecoins can streamline the remittance process by removing several intermediary steps, which are typically associated with additional costs and fees.



Here is the breakdown of costs involved in on-chain remittance transactions:

Realized Fees and Costs	Description of fees and costs	Range Estimates
On-ramp Fees	Fees for converting fiat money to payment stablecoins using ACH or SEPA	0%-1%
Exchange Fees	Fees paid to the liquidity providers such as Uniswap LPs that facilitate the currency swaps	0.01%-0.05%
Network Transaction Fees	Fees paid to validators/miners of the network	\$0.35 - \$5 Layer-2s on the lower end and Ethereum Blockchain on the higher end
Off-ramp Fee	Fees for converting payment stablecoins to fiat money. (can be avoided when stablecoins themselves are accepted as forms of payment)	0%-1% or fixed around \$5
Total cost of sending a remittance through stablecoins		From 0.01%+\$0.35 to 2.05%+\$5

Source: Circle's webinar on 'The Role of Stablecoins in Finance'

So to send \$500 in remittances using traditional channels, it costs an average of 6.2% globally (according to the [World Bank June 2023 report](#)), which is \$31. Even worse, according to the ['Study on International Money Transfers from Canada'](#) remitters who sent up to \$200 paid on average 11% of the amount remitted through in-person banking, which is outrageous. Compare that to the total cost of sending a remittance through stablecoins, on the lower end it would cost \$0.40 and on the higher end it would cost \$15.25 resulting in an average cost of \$7.825. This is a 75% reduction in remittance cost as compared to the cost using traditional channels, leaving the receiving families with a greater share of the original amount sent.

Part 3.0 Upcoming Projects Involving Stablecoins for Remittance

In a research report by River, they made a case for how Bitcoin can be used for global payments. However, one core issue with Bitcoin is that it is highly volatile. And so, the organization or the platform that enables the Fiat remittance using BTC rails, can suffer a loss due to price fluctuations. Just recently, on Aug 18th, 2023, BTC's price collapsed by about 9% within 24hrs. Stablecoins such as USDC, on the other hand, reliably hold at \$1 dollar when backed by reserves.

Stablecoins on Ethereum layer-2 chains and other layer-1 chains offer a much more 'stable' flow of money transfers at a much faster pace compared to the Bitcoin blockchain. The friction, however, is that most people are still not familiar with them, and the added learning curve of what it is and how to use a crypto wallet can be daunting. Thus, many outsiders, especially from the traditional finance space, who don't quite understand crypto, tag stablecoins as "used mostly for speculation within the crypto world".

So we dug into the projects that are working on solving exactly this friction, of new users having to learn about blockchain and stablecoins. From our talks with several projects in this space, we believe that users will not even notice that they are using stablecoins, any different than their fiat bank accounts. Hedera is solving this head-on by conducting Proof of Concepts with Traditional banking institutions where a stablecoin wallet can optionally show up as just another 'checking account'. At [Coinchange](#), we believe this could even become a 'Savings Account' where the user earns yield on their stablecoin holdings.



3.1 Hedera's Proof of Concepts for International Remittances

3.1.1 Stablecoin International Remittance PoC Pilot-1 by Hedera

Date: Nov 29, 2021

Institutions Involved: Shinhan Bank, Standard Bank

Details: Utilizing the Hedera Token Service (HTS) and Hedera Consensus Service (HCS), the project aims to test the issuance and distribution of stablecoins, applied to a financial use case that typically suffers from high fees, longer waits, and the absence of tracking features. Shinhan plans to mint South Korean Won (KRW)- backed stablecoins and the partnering bank will mint stablecoins backed by their local currency. Users will be able to buy KRW-based stablecoin that Shinhan issues, and send them to an account at the partner bank. The recipient will then be able to receive the funds in a locally denominated stablecoin and exchange it for the local currency. The two banks will use the Hedera Consensus Service (HCS) both to track and record transactions and confirm the foreign exchange rate at the time of each transaction.

Blockchain used: Hedera Hashgraph.



3.1.2 Stablecoin Remittance proof-of-concept (PoC) Pilot-2 by Hedera

Date: Jul 18, 2023

Institutions involved: Shinhan Bank (the first modern bank in Korea), SCB TechX (a digital technology-focused subsidiary of the SCBX Group), and the largest financial institution in Taiwan.

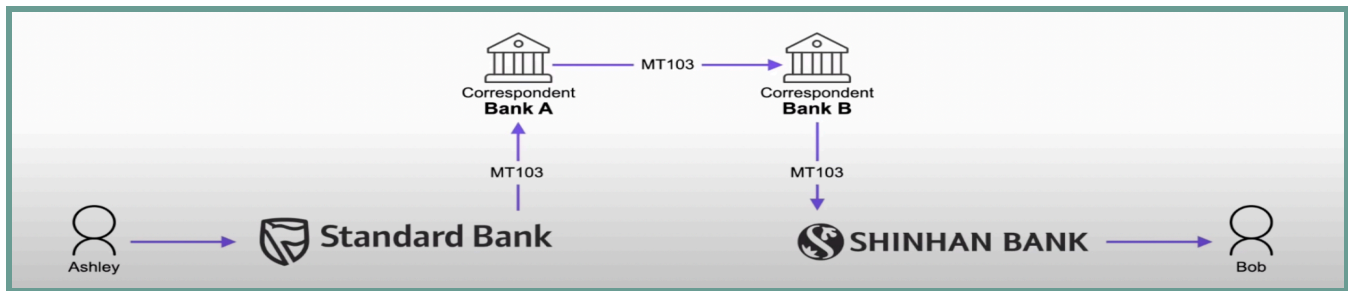
Blockchain used: Hedera Hashgraph

Details: The pilot achieved real-time settlement and real-time foreign exchange (FX) rate integration across the Thai Baht (THB), New Taiwan dollar (NTD), and South Korean won (KRW) in a test environment. The PoC is EVM-compatible, meaning that any stablecoin issuer, whether issuing native stablecoins such as USDC or EVM-based stablecoins, can participate using the framework going forward. This PoC is a continuation of Shinhan Bank's previous work that started in 2021, when they partnered with Standard Bank on stablecoin international remittances as mentioned in Case Study 1.

"We are pleased to have partnered with Hedera to explore the potential of stablecoins as a means of facilitating cross-border remittances," said Byunghee Kim, Chief of the Blockchain division at Shinhan Bank. "Stablecoins offer a low-cost, fast, and reliable way to transfer value across borders, which can help to increase financial inclusion and improve access to financial services for individuals and businesses in underserved communities. With this next phase of PoC, we are pleased to have demonstrated how the use of Hedera's EVM-compatible technology helps eliminate intermediaries, reduce costs, and speed up the remittance process."

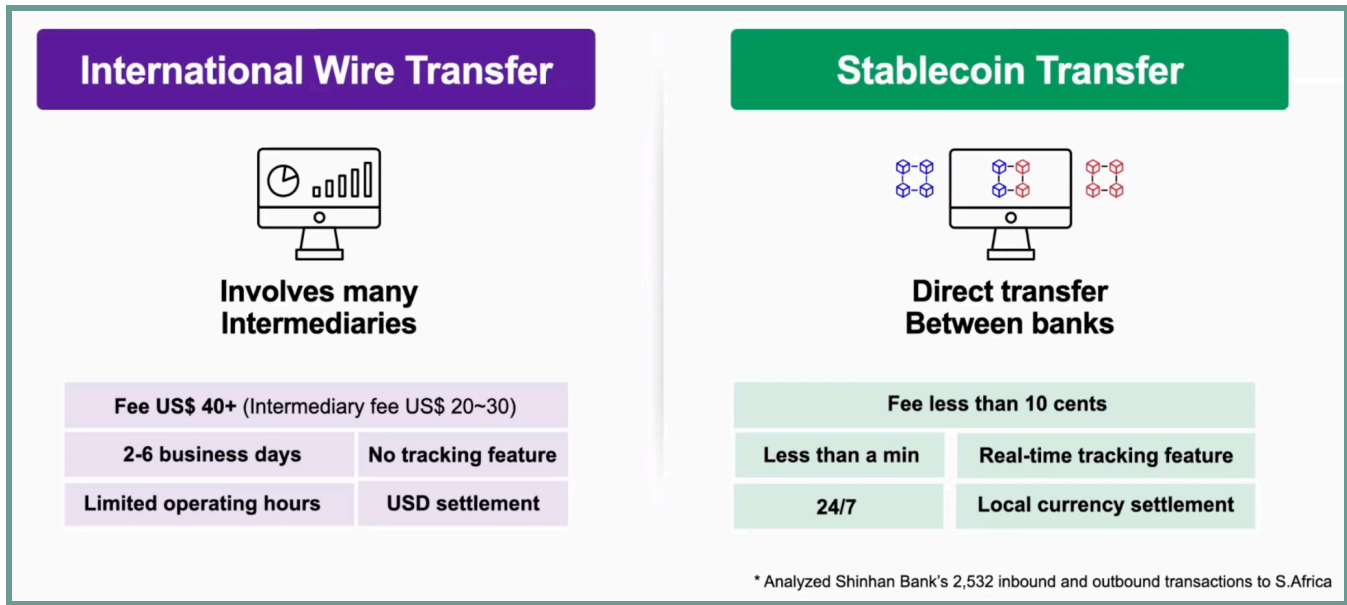
In this POC for international remittances, Banks lock liquidity that is used for swapping between the currencies involved into a smart contract. The liquidity can be completely imbalanced, and that would not affect the price of the currencies since each bank retains full control over the buy and sell exchange rate for each currency. It is different than a liquidity contract used in a Uniswap style DeFi pool where the imbalance in the amount of two currencies will cause the price movement as dictated by the constant product formula $x * y = k$, and is more closely related to the banks' existing FX processes.

Current international remittance flow where users cannot track transfers:



Source: Hedera

Comparing International Wire Transfer with Stablecoin Transfer:



Source: Hedera

In the future there might be third party liquidity providers involved and pay an interest/ yield in return for providing currency inventory (fiat and stablecoin) for faster or cheaper remittances payment than using the traditional bank settled remittances transfer using Stablecoin. There could also be a hybrid model where one bank has their own USD pool vs another bank having third party USD Liquidity Providers. USD was used as an example remittance token in the POC, others such as a stable Euro or stable Yen could be used just as easily. This is the perfect use case demonstrating use of Distributed Ledger Technology (DLT) as infrastructure given that in the POC, the customers don't hold stablecoins, although this is not precluded by the POC's architecture.

Hedera also recently launched Stablecoin Studio. Those looking to launch a stablecoin (an extremely daunting and complicated process) can use Hedera's 'Stablecoin in a box' technology stack. One of the use cases could be to turn the entire company budget into a token credit system where each department gets their set of credits, making it easier to reconcile budget and planning. They also support in building partnerships with custody providers, smart contract monitoring companies, and KYC/AML providers.

3.2 The Role Of Circle's USDC In International Remittance

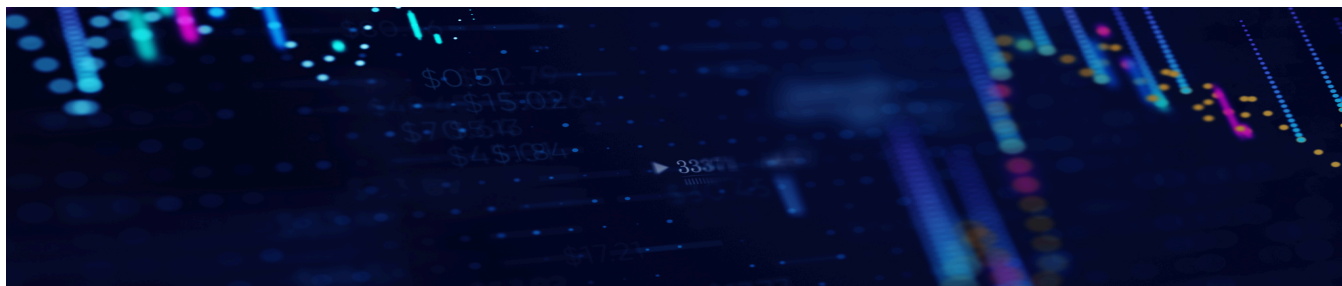
With the global remittance market poised to increase to almost \$1 trillion by 2026, Circle is fully committed to dominating the space by partnering with various financial institutions around the world. In this section, we will go over the most important ones that we think have the highest potential to realize:

3.2.1 Circle partners with Grupo Elektra for cross-border remittances in LatAm

At the Circle NYC Forum in October 2023, they **announced** their partnership with Grupo Elektra to further the adoption of USDC stablecoin for cross-border remittances. Circle is **involved** in facilitating cross-border payments, particularly between the United States and Mexico, which is one of the largest remittance corridors in the world. This partnership leverages blockchain technology to empower cross-border payments in Latin America.

3.2.2 Airtm, Circle and Stellar Collaborate for Cross-Border Payments

Airtm, primarily based in LatAm, South Asia, and Africa, described as the world's most connected digital dollar account, is using USDC as the digital currency for its global retail account, providing enterprises with access to the Web 3.0 infrastructure and enabling instant collection or distribution of payments from over 100 countries without the need for foreign exchange or local banking connections. The Stellar network is used for facilitating fast and low-cost cross-border payments. Payments are sent in USDC over this decentralized network to the receiver's Airtm wallet. Airtm offers users more than 400 local payment connections. This, coupled with the Stellar network, enables quick and efficient transactions. On average, Airtm can facilitate transactions within 6 minutes and for under a 5% fee end-to-end.



3.2.3 Jack Dorsey's TBD Partners With Circle for Global Remittances

This partnership between TBD and Circle to develop infrastructure will enable direct interaction with native protocols for stablecoins, aiming to facilitate cross-border remittances and improve access to digital wallets that hold stablecoins. TBD is a bitcoin-focused subsidiary of Jack Dorsey's Block. The collaboration seeks to establish USDC as a bridge for cross-border payments, focusing on markets like the U.S.-Mexican remittance corridor.

Using USDC through Circle offers several benefits: individuals can effortlessly receive remittance payments without a Circle account in just minutes, there are no fees for transactions between Circle accounts, sending USDC via blockchain incurs significantly lower costs compared to traditional remittance methods, and there are no minimum amount for USDC transfers, allowing for full flexibility in transaction sizes. Additionally, Circle has issued Native USDC on multiple chains (OP (Optimism Mainnet), Polkadot, NEAR, Polygon PoS, Noble (Cosmos Ecosystem), BASE) meaning bridging USDC from one chain to the other won't require third-party bridges. Developers can use Circle's Cross-Chain Transfer Protocol (CCTP) which is an SDK to facilitate native cross-chain swaps. In the future banks themselves can integrate with CCTP, which can enable interoperability of USDC regardless of different blockchains being chosen by different financial institutions.

"We'll look back in the same way that we look back at long-distance calls or the way we look back at snail mail or the way we look back at selling things in catalogs, and we'll look back at payments and we won't believe that we ever needed to pay to send money."

- Jeremy Allaire, Circle CEO



3.3 EEA Members involved in Stablecoin Remittance Projects

The Ethereum Enterprise Alliance (EEA) is a member-led industry organization, of which Coinchange is a proud member, which aims at driving the use of Ethereum blockchain technology as an open standard in the business world. It's a global community consisting of blockchain leaders, adopters, innovators, developers, and businesses, working collaboratively to accelerate the adoption and usage of Ethereum, one of the largest blockchains. The EEA includes associations of Fortune 500 enterprises, startups, academics, and Ethereum blockchain experts, such as Microsoft, JP Morgan, and Accenture. During our research for this report, we received great help from the EEA team to gather a list of the members that are currently experimenting with the Stablecoin Remittance use case.

Here are some members of the EEA that are working on the use case of Stablecoin Remittances:

- Datachain, Inc.

Datachain has Collaborated with Mitsubishi UFJ Trust and Soramitsu for seamless transfers and exchanges between stablecoins and local digital currencies.

- Hyperledger

MUFG, Japan's largest bank, collaborated with Soramitsu and Datachain to enable the interoperability of stablecoins issued on the Progmatic Coin platform, which runs on Hyperledger Iroha.

- Polygon

DeFi protocol Num Finance currently issues Argentine peso, Peruvian sol and Colombian peso-pegged stablecoin called nCOP on the Polygon network, targeting the \$10 billion remittances market. They also have plans to roll out new stablecoins pegged to local currencies in Brazil, Mexico and Bahrain.



BTG Pactual, Latin America's biggest investment bank, launched its own stablecoin on the Polygon network.

- Streami Inc

Streami Inc is indeed a Korean startup that has been developing blockchain-based solutions geared towards remittances. The company secured \$2 million in seed funding, with a notable contribution from Shinhan Bank, one of South Korea's largest financial institutions, highlighting its potential in the remittance sector. The company's LinkedIn profile reflects its mission of leading socially responsible innovation in finance through blockchain, with a mention of cross-border remittance as one of its focus areas.

- Tata Consultancy Services Limited

Tata Consultancy Services Limited (TCS) has enhanced its Quartz solution to support Central Bank Digital Currency (CBDC) issuance, book-keeping, and transactions for both central and commercial banks. In the realm of cross-border remittances, TCS introduced the Quartz Cross Border Remittances solution, which enables banks and payment systems to connect to new distributed ledger technology (DLT) based payment infrastructures such as RippleNet, a blockchain-based payment network created by Ripple.

The logo for Streami, featuring the word "streami" in a bold, black, sans-serif font.

Conclusion

Stablecoins stand at the forefront as the most compelling application of blockchain technology, poised to revolutionize the way we think about and engage in global remittances. They could change how we handle money across borders. At their current market cap of ~\$130 Billion, they're a small part of the huge remittance market (\$800 Billion) and just a tiny bit of the total money supply (aka M1 Supply of \$50 Trillion). There is a lot of work that needs to be done to “put the dollar on the blockchain” to make the most of stablecoins' speed, low-cost, transparency and efficiency. Crypto exchanges should add remittances-focused stablecoins, and potentially offer yield on users' holdings, incentivising the adoption of stablecoins. Traditional banks offering Stablecoin accounts within the existing online banking system could change how billions send money without their users even knowing about blockchain.

In this report, we looked at stablecoins, a growing area in cryptocurrency with a market capitalization around \$130 billion focussing on its potential for cross-border remittances. We covered the different types of stablecoins, from those backed by fiat currencies to crypto and even algorithmic ones. We checked out the top 5 stablecoins by market capitalization and up-and-comers like PayPal's PYUSD and central bank digital currencies. Innovations like interest-earning and charity-focused stablecoins, such as those from Mountain Protocol and Glodollar, show stablecoin models are evolving. We've learned from failures of BitUSD, NuBits, Facebook's Libra/Diem, and Terra's UST that we need better reserve management in addition to strong regulations to keep stablecoins pegged to their value. Regulators across the globe are working towards figuring out these rules that can enable safe adoption of this technology.

Next, we dived into the world of global remittances, a massive \$794 billion industry, with countries like India, Mexico, China, and the Philippines leading the way. Companies like Western Union and MoneyGram are teaming up with blockchain firms such as Ripple, Stellar, and Circle and it's a game-changer. Using an example of sending \$500 abroad, we saw that Stablecoins could cut costs by 75%, which explains why traditional money transfer players are getting into blockchain.

In the last part, we focused on some of the top current projects involving stablecoins for remittances. Firms like Hedera are working with big traditional banks to make using stablecoins easy without their existing users needing to learn about blockchain or digital wallets. Circle's partnerships in Latin America and with Jack Dorsey's TBD are also breaking new ground in the remittance space. It is worth noting that most of the promising projects in the remittance space involve the use of Stablecoin USDC. It was also encouraging to see many members of the Ethereum Enterprise Alliance (EEA) are pushing this tech for better, more open financial systems.

Ultimately, for stablecoins to reach their full potential and for blockchain to truly become the 'killer app' of financial transactions, a collaborative and synchronized global effort is essential. It is a path that demands innovation, regulatory clarity, and a commitment to user-friendly integration. The transformative power of stablecoins lies within reach, ready to usher in a new era of financial inclusivity and efficiency—if we can harness it collectively.