Stablecoins:

The Balancing Act between Innovation and Regulation

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Executive Summary

Stablecoins were first introduced in 2014, with the launch of BitUSD[1]. Amidst its relatively young history, the market of stablecoins has expanded rapidly, growing from US$12.2 billion in July 2020 to US$109.3 billion in July 2021.[2] As of the beginning of June 2022, the stablecoin market was equivalent to nearly US$160.0 billion.[3] This exponential behavior of the market capitalization of stablecoins has drawn the attention of regulators, worried about the current and future impact of such cryptocurrencies on the stability of the financial system, especially if they become systemic. This attention has intensified this year due to the crash in the crypto market and the collapse of the algorithmic stablecoin Terra.

While we expect to gain greater regulatory clarity regarding stablecoins in the second half of 2022, this discussion paper presents some of the fundamental factors contributing to stablecoin risks, particularly the instability of stablecoins and the risk to financial stability as digital assets and traditional financial systems become increasingly interconnected.

Stablecoins are asset-linked digital cryptocurrencies that aim to maintain a stable value relative to a specified asset, or a pool or basket of assets. Originally developed to serve as a solution to the high volatility of cryptocurrencies, they are currently mostly used to trade digital assets and as an onramp from fiat currency to digital asset, although use cases and applications are growing in payments, internal transfers and liquidity management, and DeFi support, with additional potential growth areas in tokenized financial markets, supporting next-generation innovations like Web3 and inclusive payment and financial systems.

Stablecoins have the potential to bring tangible benefits to the economy. However, as argued in this discussion paper, contrary to what the name would suggest, stablecoins exhibit high volatility and are too unstable under the current institutional arrangement to fulfill the role for which they were designed, at least in the present. A growing body of academic research has documented in recent years both the high volatility and high correlation of stablecoins with other crypto currencies, particularly Bitcoin. This high correlation is precisely the root of the contagion that was observed last May, following the collapse of Terra stablecoin.

On that note, not all stablecoins are made equal and the precise mechanism used to stabilize stablecoins (i.e. to maintain the peg) is an important source of stablecoins' instability and can explain variations in exhibited volatility and perceived and actual risks of various stablecoins. Yet, amidst these distinctions, the continued growing correlation between crypto and traditional markets could lead to a global financial stability and payment system crisis should stablecoins become adopted at a larger scale and with deeper ties with the traditional financial markets.

Notice that this does not mean that the future of the stablecoins is doomed, but that the current course is not going to allow this token to exhibit its full potential. Historically, regulation of financial markets has precisely allowed us to manage market failures. While the regulation of a new market is not free of controversy and possibly trade-offs, and in this case over-regulation would stifle innovation and competition, if well-balanced, regulation of stablecoins could help reduce and manage the current risks while enabling further growth, development and adoption of use cases beyond what is currently primarily being reduced to facilitating crypto trading.

[1] Hedera (n.d.). What is a stablecoin?. Retrieved from: https://hedera.com/learning/tokens/what-is-a-stablecoin
[2] BTC tools (2022). Stats. Retrieved from: https://btctools.io
[3] Bank of Canada (2022) Financial System Review. Retrieved from: https://www.bankofcanada.ca/2022/06/financial-system-review-2022/#box5

Current proposals and recommendations mostly try to accommodate existing regulatory frameworks that aim to reduce risks that are known (similar) to the financial sector. This “same risks, same rules” approach has the advantage of allowing for gradual regulation of the sector, while still allowing for innovative regulation. An example is the proposition from economists Christian Catalini and Nihar Shah, that showed that applying the Basel framework to stablecoins, hedging against credit risk, market risk and operational risk is possible by setting capital requirements from stablecoins issues.

In the end, any regulatory framework should strike a balance between risk reduction and competition, innovation, pragmatism, and technological novelty. To adequately understand and manage those risks, and for regulation to effectively enable the growth and full potential of stablecoins, regulators ought to continue to engage with the private sector and provide an environment conducive to collaboration. And while the answer is certainly not to simply ban or restrict the issuance of stablecoins, a mix of new and old approaches to regulation, if deployed strategically, will likely allow for a gradual yet more rapid path to regulating stablecoins, and harness their full potential.

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1. Stablecoins: Essential Concepts

Stablecoins were first introduced in 2014, with the launch of BitUSD[4]. Amidst its relatively young history, the market of stablecoins has expanded rapidly, growing from US$12.2 billion in July 2020 to US$109.3 billion in July 2021.[5] As of the beginning of June 2022, the stablecoin market was equivalent to nearly US$160.0 billion.[6] This exponential behavior of the market capitalization of stablecoins has drawn the attention of regulators, worried about the current and future impact of such cryptocurrencies on the stability of the financial system, especially if they become systemic. This attention has intensified this year due to the crash in the crypto market and the collapse of the algorithmic stablecoin Terra.

Defining Stablecoins

It is mandatory to define boundaries and clarify what is meant by stablecoins. In that particular, according to the Bank of International Settlements[7] and Financial Stability Board[8], stablecoins are asset-linked digital cryptocurrencies[9] that aim to maintain a stable value relative to a specified asset, or a pool or basket of assets. The most common asset to peg is the U.S. dollar, but the pegging could be done with respect to other fiat currencies[10], other cryptocurrencies, or commodities[11].

Stablecoins are therefore types of digital money, but they differentiate themselves from traditional digital money (e.g. deposit accounts in banks) in that: 1) they are cryptographically secured, and 2) they are built on distributed ledger technologies (DLTs)[12] standards.

These two traits confer various advantages of stablecoins over traditional money. The first differentiation trait allows almost instantaneous transactions and a 24/7 availability, borderless nature, and fractionalization[13] that enable it to serve as a means of settlement for automated financial products. The latter allows the programmability of stablecoins, and offers the possibility of embedding smart contracts. This is a self-executing piece of code that, when run, enables an action, such as a payment, or other financial service.

The Genesis of Stablecoins: Rationality behind

Originally, stablecoins were developed to serve as a solution to the high volatility of cryptocurrencies. In spite of a number of potential advantages as a payment method, Bitcoin had a higher return volatility than many other asset classes such as high yield corporate bonds, gold or silver[14]. This high volatility renders cryptocurrencies incapable to act as store value[15]. Stablecoins were designed precisely to reduce such volatility, and therefore be able to become a superior alternative as a payment method.

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[4] Hedera (n.d.). What is a stablecoin?. Retrieved from: https://hedera.com/learning/tokens/what-is-a-stablecoin
[5] BTC tools (2022). Stats. Retrieved from: https://btctools.io
[6] Bank of Canada (2022) Financial System Review. Retrieved from: https://www.bankofcanada.ca/2022/06/financial-system-review-2022/#box5
[7] Arner, Douglas, et al. “Stablecoins: Risks, Potential and Regulation.” The Bank for International Settlements, 24 Nov. 2020, https://www.bis.org/publ/work905.htm.
[8] FSB (2020). Regulation, Supervision and Oversight of “Global Stablecoin” Arrangements. Retrieved from: https://www.fsb.org/wp-content/uploads/P131020-3.pdf
[9] They are recorded on distributed ledger technologies.
[10] For example the Euro Coin (EUROC), a euro-backed stablecoin, issued by Circle. Tether has stablecoins pegged to euro (EURT), yuan (CNHT), Mexican peso (MXNT) and soon one pegged to the British pound (GBPT).
[11] For example, Pax Gold (PAXG) or Tether Gold (XAU₮).
[12] That is, a decentralized database distributed across multiple nodes/devices.
[13] This is the capacity to transfer as a payment small fractions of money, even fractions of a cent.
[14] See Baur, D.G., Hong, K., Lee, A.D., 2018. Bitcoin: Medium of exchange or speculative assets? J. Int. Financial Mark. Inst. Money 54, 177–189.
[15] Is Bitcoin a currency in the formal sense? For that, Bitcoin should fulfill the properties of money: store of value, medium of exchange, and unit of account. An in depth review of such a subject is beyond the scope of this document, but it can be added some thoughts regarding the medium of exchange property. Any currency exhibiting such property must be acceptable or adopted in exchange for goods and services. A curious case of a medium of exchange was for example, the use of cigarettes in P.O.W. camps (see Radford R. (1945). The Economic Organization of a P.O.W. Camp,

Specifically, stablecoins aim to maintain a stable value relative to an asset by means of a peg, as described above, which can be achieved through asset reserves backing the peg or algorithms that manage the supply and demand of the stablecoins and by so, in theory, stabilizing automatically their prices (see **Figure 1** for an overview of the different main classes of stablecoins). However, as explained in this discussion paper, stablecoins exhibit high volatility and are too unstable under the current institutional arrangement to fulfill the role for which they were designed, at least in the present. Notice that this does not mean that the future of the stablecoins is doomed, but that the current course is not going to allow this token to exhibit its full potential.

How to Classify Stablecoins

Stablecoin protocols are in their infancy and therefore their classification is a dynamic issue, subjected to multiple options with thin borders between each categorizing attempt. Probably the most complete set of options come from a paper unsurprisingly named "A Classification Framework for Stablecoin Designs"[16]. In that paper, stablecoins are classified according to the type and amount of collateral, the price stabilizing mechanism, the choice of peg and the mechanism to measure the price. Taking this work and others in consideration[17], here is presented a brief, simple, and useful classification (summarized in See **Figure 1**):

Fiat- and commodity-backed (off-chain) stablecoins

These are backed by either a fiat currency (dollar, euro, pound, or a basket) or a commodity (such as gold and silver). That is to say, there is a 1 to 1 ratio between the outstanding stablecoins and the fiat currency reserves (or to the commodity price) the U.S. dollar being by far the most used fiat currency. The minting takes place when fiat currency is exchanged (and held) by a centralized issuer who then creates the corresponding stablecoin, whereas the burning occurs reversing that operation.

Fiat-backed stablecoins are simple, convenient and in theory stable (collateral ensures that stablecoins can be redeemed). As for commodity-backed stablecoins, an additional key benefit is the accessibility to real-world assets, such as gold, that are otherwise inaccessible to individual investors, by allowing investors to gain exposure to the asset without the need to self-custody the actual asset[18].

However, due to the centralized nature of the management of the reserves, this type of stablecoins is subject to moral hazard (i.e. reserve administrators could take excessive risks investing the reserves), and bankruptcy, especially without regulatory reporting standards in place. Also, deposit coverage has a

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Economica, Vol. 12, No. 48.). Regarding Bitcoins, their acceptance as money is still limited (only one-third of small businesses in the U.S. accept bitcoin as a form of paiement (Inc. (2021). One-Third of U.S. Small Businesses Accept Cryptocurrencies as Payment. Here's Why the Trend Keeps Growing. Retrieved from https://www.inc.com/tor-constantino/one-third-of-us-small-businesses-accept-cryptocurrencies-as-payment-heres-why-trend-keeps-growing.html) but growing, including now multiple retail stores in the U.S. using the app Spedn by Flexa. Recovered from https://news.bitcoin.com/whole-foods-and-major-retailers-now-accept-cryptocurrency-via-the-spedn-app/ (e.g. Whole Foods, Barnes and Noble, Home Depot, Nordstrom, Office Depot, among others: Bitcoin.com (2019). Whole Foods and Major Retailers Now Accept Cryptocurrency via Spedn). El Salvador made Bitcoin legal tender (although its adoption is still low as documented in Alvarez et al., (2022). Are Cryptocurrencies Currencies? Bitcoin as Legal Tender in El Salvador. Retrieved from https://bfi.uchicago.edu/wp-content/uploads/2022/04/BFI_WP_2022-54.pdf), and the U.S. state of Ohio allows tax payments in Bitcoins. Moreover, developing countries are becoming leading adopters of cryptocurrencies (an adoption index developed by the World Bank has Vietnam, India and Pakistan leading the ranking, and only one developed country, U.S., in the top ten: FT(2021). Cryptocurrencies: developing countries provide fertile ground. Retrieved from https://www.ft.com/content/1ea829ed-5dde-4f6e-be11-99392bdc0788).

[16] See Moin, E. et al. (2019). A Classification Framework for Stablecoin Designs. arXiv:1910.10098.

[17] See for example: Liao, Gordon Y. and John Caramichael (2022). "Stablecoins: Growth Potential and Impact on Banking," International Finance Discussion Papers 1334. Washington: Board of Governors of the Federal Reserve System, https://doi.org/10.17016/IFDP.2022.1334. Also: Klaus Grobys, Juha Junttila, James W. Kolari, Niranjan Sapkota, On the stability of stablecoins, Journal of Empirical Finance, Volume 64, 2021, Pages 207-223, ISSN 0927-5398, https://doi.org/10.1016/j.jempfin.2021.09.002.

[18] Finra (2020). 3 things to know about stablecoins. Retrieved from https://www.finra.org/investors/insights/3-things-stablecoins

limit and therefore reserves deposited as cash in banks are not fully insured deposits and subject to bank's risks. Additionally, the full backing of the reserves is subject to uncertainty, being that Tether, the largest stablecoin, has been subjected to investigations and had to settle a dispute, accused of misrepresentation of its reserves.

Crypto-collateralized (on-chain) stablecoins

These stablecoins are backed, as the name suggests, by other cryptocurrencies. In this case, since the asset backing the stablecoin is more volatile than in the previous case, there is an over-collateralization, being that more than one cryptocurrency is necessary to mint this type of stablecoin. Usually this is done by transferring an amount of cryptocurrency (e.g. Ether) into a smart contract called Vault for the issuance of stablecoins in a fixed ratio. For example, the ratio of overcollateralization is 1.5 Ethers (cryptocurrency) per DAI (stablecoins).

Because the operations of stablecoins backed by crypto are conducted using blockchain technology, they are generally fully decentralized and transparent, unlike stablecoins backed by fiat currencies. In addition, they can allow for more liquidity compared to commodity-backed stablecoins because their underlying crypto can be converted rapidly, a feature of particular interest for trading activities. However, there are disadvantages, such as the over-collateralization, the volatility of the backing asset, and the lack of capacity to diversify market risks since crypto-assets are highly correlated and follow the same trends[19].

Algorithmic stablecoins

Unlike the previous classifications, algorithmic stablecoins do not use assets to back up the stability in the peg. The mechanism behind this stablecoin is to use an algorithm to increase or decrease the supply of tokens to manage supply and demand to maintain the peg to the dollar. The exact mechanism is going to be explained in Section 2 of this document, when discussing the elements affecting the stability of stablecoins.

One advantage of this stablecoin is that it does not rely on collaterals, which simplifies the management of the scheme, and reduces the costs of its operation. Also, it brings the seigniorage within the crypto ecosystem where users can share it and participate[20]. In addition, the risk of user errors is eliminated because of the absence of tangible asset requirements[21]. However, the stability of the peg relies entirely on the confidence of their users, which due to the lack of reserves backing the mechanism, could be affected more easily and send the value of the token to a death spiral swiftly.

[19] On evidence of this see for example: Stosic, D., Stosic, D., Stosic, T., 2018. Collective behavior of cryptocurrency price changes. Physica A 507, 499–509.
[20] CoinMarketCap (2022). Algorithmic stablecoins. Retrieved from: https://coinmarketcap.com/alexandria/glossary/algorithmic-stablecoin
[21] CoinTelegraph (2022). A beginner's guide on algorithmic stablecoins.
Retrieved from: https://cointelegraph.com/altcoins-for-beginners/a-beginner-s-guide-on-algorithmic-stablecoins

Institutional or private stablecoins

Some financial institutions have developed reserve-backed stablecoins, or tokenized deposits, implemented on a private DLT. An example of this is JPM Coin, created by JPMorgan and it is used by this institution and their clients for fast and cheap transfer of funds and settlement of accounts. In essence, a JPMorgan client acquires JPM Coins by sending equivalent funds to an exchange account (the exchange is 1:1 between dollar and JPM Coin). The tokens can be used on the permissioned blockchain, and the receiving party can redeem them for US dollars at one of the bank branches. Similarly, in Canada, VersaBank and Stablecorp are working on their own stablecoin, which will be issued on the Stellar blockchain. The stablecoin will represent at fiat one-dollar deposit at VersaBank[22].

Why Stablecoins really Matter: Their Evolving Uses and Benefits

According to a recent research from the Federal Reserve,[23] the current uses of stablecoins can be grouped into four areas. First, and by far the most important utilization of such tokens is to trade digital assets and as an onramp from fiat currency to digital assets. Stablecoins are the means of exchange in digital markets due to their almost instantaneous settlement and 24/7, all year round availability, and also because the conversion of crypto assets into fiat currencies in exchanges is usually only possible with stablecoins.

These same advantages foster the use of stablecoins for easing payments, such as P2P and cross-border payments[24]. However, high transaction fees (and price volatility, as will be explained later) is still an important barrier for stablecoins to scale up as a means of payment. A third use of stablecoins is for transfering funds internally within a company. Stablecoins can be designed to work on permissioned DLTs (as opposed to stablecoins transferred on public blockchains), and with that, these firms can move funds across their subsidiaries anytime, without intermediaries. Due to their programmability and composability, they lend themselves to be part of a variety of crypto financial services, such as lending, borrowing, asset management, among others[25].

The three last forementioned uses of stablecoins, once scaled up, have the potential to turn the most important stablecoins into systemic currencies, then bringing plenty of benefits to their users. However, stablecoins' potential growth areas do not stop there. In the near future the growth of stablecoins will be intertwined with that of the DeFi protocols, and once these protocols integrate with the traditional financial system and merge with the real economy, then DeFi will skyrocket along stablecoins' usability.

Moreover, another key expected development in crypto assets, tokenization of financial markets, will spur the role of stablecoins. In this case it would be not only as a means of payment, but also to take advantage of the programmability of stablecoins (to automate security servicing or regulatory requirements), and fractionalization (which is key for fractional ownership for real estate assets).

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[22] JournalTime (2022). Stellar Announced The Launch Of VCAD Canadian Stablecoin
. Retrieved from https://journaltime.org/finance/cryptocurrency/stellar/stellar-announced-the-launch-of-vcad-canadian-stablecoin/
[23] Liao, Gordon Y. and John Caramichael (2022). Stablecoins: Growth Potential and Impact on Banking," International Finance Discussion Papers 1334. Washington: Board of Governors of the Federal Reserve System, https://doi.org/10.17016/IFDP.2022.1334.
[24] To have an idea of the importance of this application, according to the World Bank remittances to low- and middle-income countries were $589 billion in 2021 (https://www.worldbank.org/en/news/press-release/2021/11/17/remittance-flows-register-robust-7-3-percent-growth-in-2021). Moreover, MoneGram, one of the largest money-transfer services in the US, is partnering with Stellar blockchain so that users can send stablecoins as remittances (https://www.bloomberg.com/news/articles/2022-05-29/moneygram-ceo-sees-a-future-in-stablecoin-remittances).
[25] For more on the diversity of applications of stablecoins on DeFi see: Defi beyond the hype. (2021). Wharton Blockchain and Digital Asset Project and the World Economic Forum.

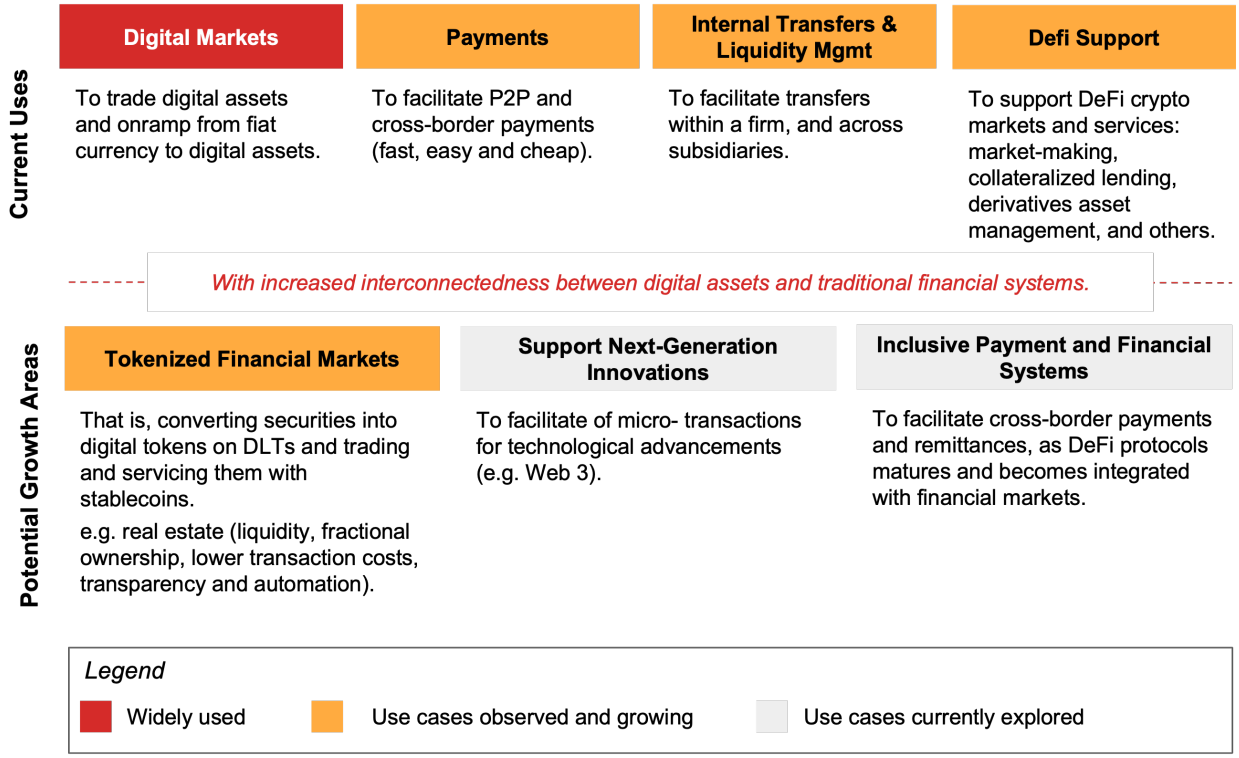
Figure 1 - Overview of the Different Types of Stablecoins

	PUBLIC RESERVE-BACKED			PUBLIC ALGORITHMIC	INSTITUTIONAL/ PRIVATE
	Fiat-Backed	**Crypto-Backed**	**Commodity-Backed**		
Description:	Backed 1:1 by a fiat currency. The fiat currency remains in a reserve, which is held by independent custodians and is audited regularly.	Backed by another cryptocurrency as collateral. The process implies the use of smart contracts where the user's crypto is stored, and they receive a stablecoin in exchange equivalent to the value of their crypto.	Backed with physical assets like gold, real estate, oils, etc. This type of stablecoin was developed to facilitate investments in commodities that are out of reach for certain investors.	Algorithmic stablecoins do not hold any reserve, but involve the use of specific algorithms and smart contracts to keep their price stable. The algorithms automatically establish a balance between the stablecoins and a partner coin, which act like the Central Bank would normally do.	Either backed by a reserve pool of assets or use of private algorithmics, they are issue by private entities or institutions.
Key benefits:	**More stability** (subjected to quality of the reserve backing): The collateral ensures that the stablecoins can be redeemed. **Most simple and convenient** stablecoin.	Generally **decentralized** and **transparent**. Can allow for **greater liquidity** than commodity-backed stablecoins.	Has the **same benefits** as the fiat-backed stablecoin, but also provides **accessibility to real-world assets**, such as gold, primarily because the investors don't have to custody the actual asset.	Generally **decentralized** and **transparent**. No need of **collateral**. Reduced **cost of managing** the peg/operation, Reduced **risk of user errors.**	**Stability** of the currency, since the reserve is backed 1:1. Allows for **faster and cheaper transfer** of funds and settlement of accounts. Relatively **low risk** considering current uses.
Key drawbacks:	**Moral hazard**: due to centralization. Reserve administrators could take excessive risks. **Subjected to bank's risks:** deposit coverage of reserves in banks has a limit and is not fully insured. Full backing of reserves is subject to **uncertainty.**	Inherently **higher volatility** due to also higher variability of the backing asset. **Inability to diversify market risks** due to high correlation with backing crypto assets. **Overcollateralization.**	Has the **same drawbacks** as the fiat-backed stablecoin, but also needs the **trust of a custodian** for the storage of the assets.	**Complexity** of the mechanism. **Stability of the peg** highly dependent on the trust of users. Increasing risk for bank run.	**Lack of transparency**, since the stablecoin uses a permissioned blockchain, and the user need to trust the entity issuing it.
Market share (%)	**92.4%**	**4.5%**	**<1.0%**	**2.4%**	**<1.0%**
Est. Market value (USD):	**$144.6 billions**	**$7.1 billions**	**$1.0 billions**	**$3.7 billions**	**NA**
Number:	26	14	14	18	<5
Examples:					

Sources: BlockZero analysis (2022), CoinDesk (2022), CB Insights (2022), AEI (2022)

Last but not least, stablecoins could become the payment method for Web 3. Although explaining this innovation is beyond the scope of this document, the basic concept on Web 3 is that of a decentralized and democratic internet in which users might earn cryptocurrencies for online contribution (as opposed to the existing Web 2.0 in which there is an exchange of free services for data, but the data is owned by centralized firms, such as Facebook or Twitter). In this hypothetical Web 3 paradigm, internet services would rely on revenue from microtransactions using crypto means of payment, such as stablecoins[26] [27]. A summary of the current and potential uses of stablecoins can be seen on **Figure 2**.

Figure 2 - Overview of Current Uses of Stablecoins and Potential Growth Areas



Source: BlockZero Analysis (2022)

Your risk is my risk: The Growing Correlation between Crypto and Traditional Financial Markets

Stablecoins could grow and bring in tangible benefits to the economy. However, the bigger (and systemically important) its perspectives the more examination it is going to draw from regulators. This is justified since as will be explained later, those potential gains in productivity come with substantial risks, and regulators fear that those risks that presently seem to be circumscribed to stablecoins could spread out into the traditional financial system, affecting its stability.

How important is the relationship between crypto markets and traditional financial assets? In that regard, there is strong evidence of entanglement between crypto assets and equities. For example, the IMF

[26] Liao, Gordon Y. and John Caramichael (2022). \Stablecoins: Growth Potential and Impact on Banking," International Finance Discussion Papers 1334. Washington: Board of Governors of the Federal Reserve System, https://doi.org/10.17016/IFDP.2022.1334.
[27] Harvard Business Review (2022). What is Web3? Retrieved from https://www.youtube.com/watch?v=FExp9YuTzbY

determined that the correlation between returns on Bitcoin and those of the index S&P 500 jumped from 0.01 during 2017-2019 to 0.36 for 2020-2021[28] (see **Figure 3**). This is also seen in emerging economies, by analyzing the correlation between the MSCI market index and Bitcoin, which increased 17-fold in the same periods. The connection between the crypto market and equities kept growing in 2022, reaching a peak in March, according to Arkane Research[29].

This is relevant to stablecoins since as explained above crypto assets prices move in sync. A materialized example of this correlation comes from the collapse of Terra, as explained by Sarah Hammer, director of the Stevens Center for Innovation in Finance at the Wharton School in Pennsylvania[30]. While defending the Terra peg, the Luna Foundation Guard had to trade more than 50 thousand Bitcoins, creating a supply shock and pushing its price down.

The connection between crypto assets and equities developed in 2020, as a consequence of the economic policies implemented worldwide to counteract the devastating effects of the COVID-19 pandemic. That year, the most important central banks from major economies (U.S., EU, Japan, for example) implemented aggressive monetary policy (quantitative easing) at a level never seen before, flooding the world with trillions of dollars in stimulus packages. This bolstered the world economy, including the equity market. Unintendedly, these anti-cyclical policies also fostered the demand for Bitcoin as it was probably viewed by investors as a safe alternative to equities, propped up artificially by such economic policies. This demand shock pushed up Bitcoin prices, allowing it to outpace the S&P 500 index and gold returns, and eventually drew the attention of large institutional investors and financial institutions such as JPMorgan Chase, BlackRock, Alliance Bernstein, Morgan Stanley, and Tudor Investment[31], sparking mainstream adoption of cryptocurrencies as investment vehicles. This dynamic drastically increased ties with equities because of the links between the portfolios of these investment companies and equities. Beyond Bitcoin, which was then perceived by most as digital gold[32] [33], a spurt of DeFi innovations started during the summer of 2020, which reinforced the loop, and opened the door to alternative, amidst risky, financial products that showed that crypto assets were more than just Bitcoin.

As a consequence, the increase in demand for crypto assets was impressive. Between March 2020 and November 2021, the market capitalization of crypto assets increased twentyfold, whereas stablecoins market capitalization grew by 2,112.16% over the same period - in line with the general crypto market.

Although correlation is not causation, and at this point the potential linkages of stablecoins with the more traditional financial markets remain limited[34], such galloping growth is making regulators nervous, especially in the absence of a regulatory framework to manage risks, which are plenty. This is especially valid with available evidence that indicates the high level of volatility in stablecoins, as is explained next.

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[28] International Monetary Fund (2022).Crypto Prices Move More in Sync With Stocks, Posing New Risks. Retrieved from https://blogs.imf.org/2022/01/11/crypto-prices-move-more-in-sync-with-stocks-posing-new-risks/

[29] Patel, Dee (2022). Wharton expert explains the crashing crypto market. Retrieved from https://penntoday.upenn.edu/news/wharton-expert-explains-crashing-crypto-market

[30]Patel, Dee (2022). Wharton expert explains the crashing crypto market. Retrieved from https://penntoday.upenn.edu/news/wharton-expert-explains-crashing-crypto-market

[31]CoinDesk (2020). Bitcoin Prices in 2020: Here's What Happened. Retrieved from https://www.coindesk.com/markets/2020/12/30/bitcoin-prices-in-2020-heres-what-happened/

[32] Recent studies have shown there was decorrelation between Bitcoin and the gold, which the correlation falls to zero in 2022. This indicates that Bitcoin is trading as a risky asset compared to gold. BlockZero. (2022). How financial institutions are becoming active players of the Crypto ecosystem. Retrieved from https://www.blockzero.ca/_files/ugd/4c1936_b51cd6fcdd994bd8936d85429e71fb2e.pdf

[33] Although there are interesting analogies between gold and Bitcoin (i.e. both are “mined”, supply cannot be arbitrarily inflated), their correlations indicate that they are not seen as similar assets (see Baur, D. G and Hoang, L. T. 2021. The Bitcoin Gold Correlation Puzzle. Journal of Behavioral and Experimental Finance. Forthcoming). Moreover, during panics and downturns the correlation is close to zero (and for the most recent crash, between January and March 2022 is negative: https://blogs.cfainstitute.org/investor/2022/07/12/digital-gold-or-fools-gold-is-crypto-really-a-hedge-against-equity-risk/). However, Bitcoin is still an infant technology, and with barely 13 years of existence, it is still going through financial growing pains and temper tantrums and too early to discard it as a future hedge and store-of-value asset like gold.

[34] In its Financial System Review, the Central Bank of Canada for example states: “*Interconnections between unbacked cryptoasset markets and the financial system appear limited but are expanding rapidly.*”

2. The (In)stability of Stablecoins: Challenges and Risks

As outlined in Section 1, stablecoins offer an interesting and wide range of potential uses, with significant positive impacts, beyond a financial sector innovation, on the economy as whole. However, benefits from stablecoins can only be reaped to the extent the multiple issues that hinder stablecoins growth beyond their current principal serving as a medium of exchange for trading cryptocurrencies are properly addressed.

Probably, the most important concern lies in their instability. Stablecoins show a volatility that presently renders these coins not suitable for scaling up their uses (see **Box 1** for formal tests that indicate the instability of stablecoins). Precisely, it is that instability that has drawn the attention of government authorities from different jurisdictions asking for regulation.

In that sense, international standard-setting institutions, such as the Financial Stability Board (FSB), or the CPMI-IOSCO, have already issued recommendations, applying regulatory principles in use to stablecoins arrangements. In the European Union (EU), there is a regulatory basis in the legislative process (Regulation on Markets in Crypto-Assets), which could be completed in 2022. In Canada, the federal government is conducting a legislative review, which in a first phase would focus on digital currencies, and it includes crypto assets and stablecoins[35]. And in the United States (U.S.), the top regulatory authorities (Treasury, Fed, SEC, CFTC, FDIC, and OCC) issued a report recommending restricting the issuance of stablecoins to insured depository institutions[36].

However, before delving further into the issue of instability, it is important to understand the dangers behind a shaky stablecoin, especially if such coin becomes systemically important, is deeply connected to the financial system, or has the potential to go global fast - a scenario that is not impossible considering the dynamic of crypto assets in 2020t.

Stablecoin Risks and the Crypto Assets

The instability of the stablecoins does have immediate significant domino effects on crypto assets. This is due to stablecoins being used mostly as a connection between fiat currencies and crypto assets and overall, the trading of those crypto assets afterwards, which unsurprisingly intertwine them[37].

No better example of the transmission of a stablecoins' extreme negative event into the rest of crypto ecosystems than the recent collapse of Terra, an algorithmic stablecoin. Following the typical path of a contagion effect, while Terra prices were plunging, other stablecoins perceived by holders as having similar level of risk or similar characteristics, were also attacked, and lost their peg, some of them temporarily, such as DEI (which as of June has not been able to regain its 1:1 peg), Tether (although its depegging was brief and minuscule), or USDD (algorithmic stablecoins, still presently below the peg).

The contagion continued its fast spread into the DeFi sector due to significant exposure to Terra. For example, avalanche, a blockchain project, had invested $100 million in Terra, and according to its founder, Emin Gun Sirer there were losses of about $60 million in the first two weeks after the event[38], or

[35] Bank of Canada (2022) Financial System Review. Retrieved from: https://www.bankofcanada.ca/2022/06/financial-system-review-2022/#box5
[36] Treasury Department (2021). Stablecoin Report. Retrieved from https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf
[37] As an example, according to FSB (2022), in September 2021 stablecoins were part of around 75% of all crypto traded assets.
[38] CoinNews (2022). Ties with LUNA plunged AVAX into a $60m loss- Decoding the mystery. Retrieved from: https://thecoin.news/articles/ties-luna-plunged-avax-loss-decoding-mystery-1653517575318

the reduction in Total Value Locked in Cross Chain Bridge of more than 20%[39]. Also, the most hard-hit DeFi protocols were those hosted on the Terra protocol, such as Astroport and Mars, with a price correction of about 80%[40].

BOX 1 - ARE STABLECOINS STABLE?

What the research says.

A Crypto Safe Haven against Bitcoin (Baur & Hoang, 2020)

Significant correlation of stablecoin returns with Bitcoin returns implies excess volatility of the former, rendering it not stable.

Are stablecoins truly diversifiers, hedges, or safe havens against traditional cryptocurrencies as their name suggests? (Wang, Ma, and Wu, 2020)

Gold-pegged stablecoins perform worse as safe havens than USD-pegged stablecoins.

How stable are stablecoins? (Hoang & Baur, 2021)

Stablecoins are not stable in absolute terms (zero standard deviation of returns) nor relative terms (standard deviation of stablecoins smaller than that of benchmarks), but are generally less volatile than Bitcoin at daily frequencies.

Source of instability: high correlations with returns of Bitcoin

Moreover, stablecoins increases volatility of Bitcoin.

On the stability of stablecoins (Grobys et al, 2021)

Volatilities of stablecoins are statistically unstable (α, the magnitude of tail exponent from model of volatilities using power laws, is less than 3) and respond to Bitcoin volatility.

Sources: 41 42 43 44

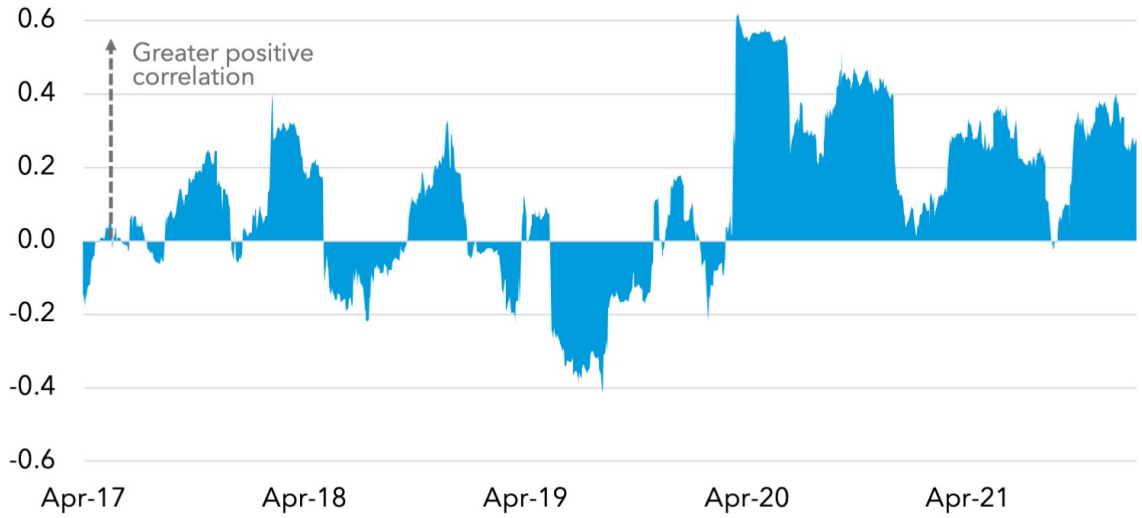
There was an additional domino effect on the crypto market from the Terra crash, caused by the deployment of reserves of more than $3 billion in Bitcoins by the Luna Foundation Guard. This dragged down the prices of Bitcoin, exacerbating the ongoing decline of cryptocurrencies due to weak macroeconomic perspectives. The ripple effect continued its advance on the values of Ether, Coinbase and NFT ecosystems.

These events have wiped off billions of dollars of wealth in a matter of days[45], raising an important risk; that investors could see their wealth disappear overnight. In fact, a recent study highlights the risk of loss of value for stablecoin users due to stablecoin runs occurring as a result of a loss of confidence in the redeemability of the stablecoin[46]. This important risk has drawn the attention of the very same head of the Securities and Exchange Commission (SEC) who in a 2021 speech[47], referring to crypto assets, said: “Investors really aren't getting the information to judge the risk and understand the risk. And I fear that if

[39] Bitcoin.com (2022). Terra Collapse Continues to Plague Defi — Value Locked in Cross-Chain Bridges Down 20% This Month. Retrieved from https://news.bitcoin.com/terra-collapse-continues-to-plague-defi-value-locked-in-cross-chain-bridges-down-20-this-month/
[40]CoinTelegraph (2022). Terra contagion leads to 80%+ decline in DeFi protocols associated with UST. Retrieved from https://cointelegraph.com/news/terra-contagion-leads-to-80-decline-in-defi-protocols-associated-with-ust
[41] BAUR, D. G. AND L. T. HOANG (2020): “A Crypto Safe Haven against Bitcoin,” FinanceResearch Letters, 101431.
[42] WANG, G.-J., X.-Y. MA, AND H.-Y. WU (2020): “Are stablecoins truly diversifiers, hedges, or safe havens against traditional cryptocurrencies as their name suggests?” Research in International Business and Finance, 54, 101225.
[43] Baur, D.G., Hoang, L.T., 2021a. How stable are stablecoins? Eur. J. Finance http://dx.doi.org/10.1080/1351847X.2021.1949369
[44] Grobys, K., Junttila, J., Kolari, J. W., and Sapkota, N. (2021): “On the stability of stablecoins” Journal of Empirical Finance, 64.
[45] New York Times (2022). How a trash-talking crypto founder caused a $40 Billion Crash. Retrieved from: https://www.nytimes.com/2022/05/18/technology/terra-luna-cryptocurrency-do-kwon.html
[46] Treasury Department (2021). Stablecoin Report. Retrieved from https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf
[47] Gura, David (2021). Tougher Rules Are Coming For Bitcoin And Other Cryptocurrencies. Here's What To Know. Retrieved from https://www.npr.org/2021/08/20/1029436872/tougher-rules-are-coming-for-bitcoin-and-other-cryptocurrencies-heres-what-to-kn

we don't address the issues, I worry a lot of people will be hurt." Establishing consumer protection standards is going to be an important part of the necessary regulatory framework for crypto assets.

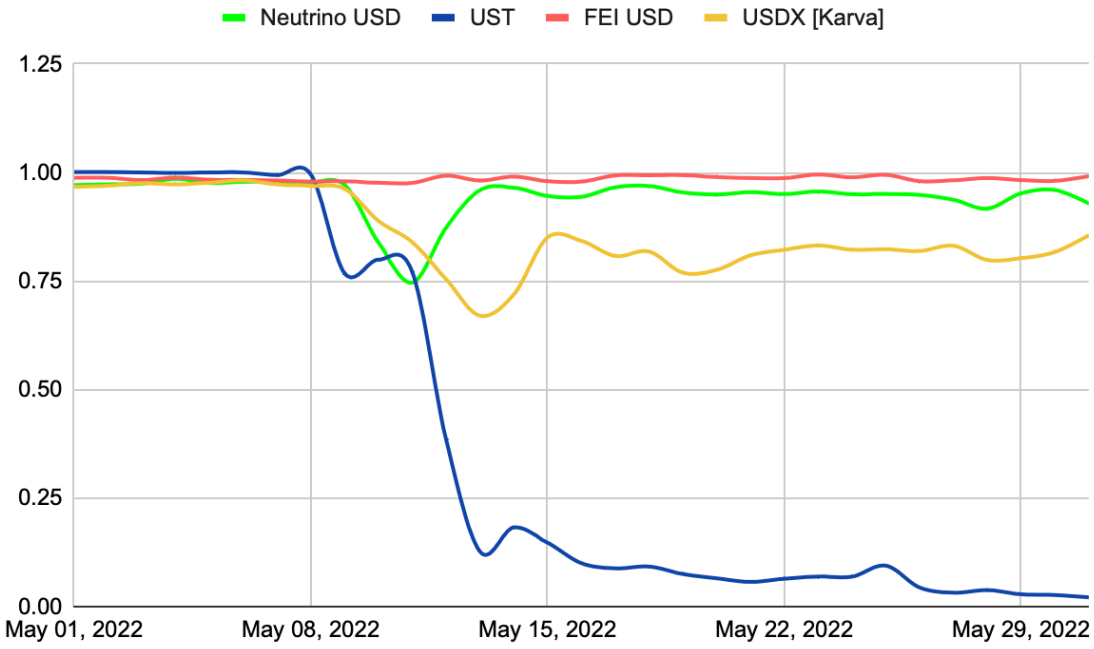
Figure 3 - Correlation between Bitcoin returns and S&P 500 Index, April 2017-April 2021[48]



Source: CryptoCompare, Yahoo Finance, and authors' calculations.
Note: Bottom panel shows rolling 60-day correlation coefficient.

IMF

Figure 4 - Algorithmic stablecoins that lost their peg within the month of May



Sources: CoinMarketCap (2022)[49].

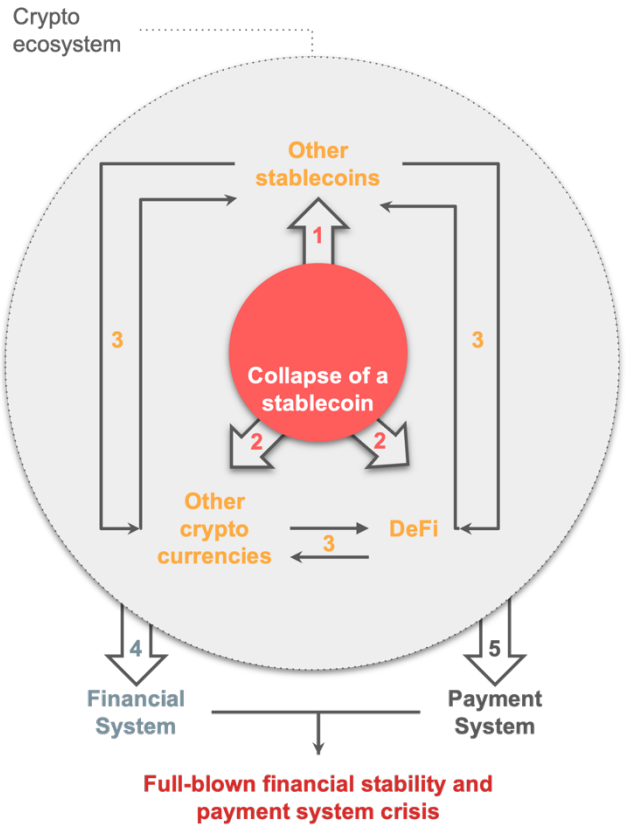
[48] IMF Blog (2022). Crypto Prices Move More in Sync With Stocks, Posing New Risks. Retrieved from https://blogs.imf.org/2022/01/11/crypto-prices-move-more-in-sync-with-stocks-posing-new-risks/
[49] CoinMarketCap (2022). *Stablecoin Category. Retrieved from: https://coinmarketcap.com/cryptocurrency-category/*

Stablecoin Risks and the Financial and Payment System

The collapse of Terra and crypto assets in general has provoked significant damage, but this damage has so far remained within the crypto industry. This proves that, despite impressive growth, interconnection between stablecoins and the financial system appears limited, but expanding rapidly[50].

However, once a stablecoin becomes systemically important (which is a likely scenario given the multiple benefits and uses associated with their adoption, as explained before), a run on -or the collapse of- such token would have a domino effect on the financial system. To defend the peg during a run, the stablecoin issuer would have to use the reserves, and these reserves would have to be withdrawn from banks, if liquid, or sold with significant discount (i.e., fire sales) if held as financial instruments. This introduces a potential mismatch risk for the banking institution, depending on the level of liquidity of these deposits.

Figure 5 - Transmission Mechanisms of a Stablecoin Run in the Economy



1. The collapse of a stablecoin will first impact other stablecoins, particularly those with a similar risk profile.
2. It will also affect cryptocurrencies and DeFi protocols, mainly those related to the collapsing stablecoin.
3. However, the domino effect on the crypto ecosystem will begin, and the negative effect on one will transmit to the others.
4. If some systemic crypto asset is affected, then it will trickle the contagious effect to the financial system (hedge funds, investment funds, banks, etc.).
5. … and could also disrupt the payment system.

Source: BlockZero Analysis (2022)

More importantly, to the extent that a financial institution held stablecoins as an important part of its portfolio it would have contagious effects on its capitalization, and potentially on its solvency. The effect on one bank could drop the level of confidence of the public, increasing the risk of a contagious run on other banks.

[50] Bank of Canada (2022). Financial Review 2022. Retrieved from https://www.bankofcanada.ca/2022/06/financial-system-review-2022/#box5

Equally important would be an impact on the global payment systems. Stablecoins have the prospects of becoming an important means of payment and store of value. Hence, a death spiral event for a global stablecoin could disrupt the means of payment, with real impacts on economic activity and in the public's confidence on the soundness of the payment system.

There are additional concerns and challenges for the efficient and optimal functionality of stablecoins, that weakens the confidence of holders, and compounds their risk of runs[51]. For instance, the Bank of International Settlement[52] (BIS) mentions the importance of managing the issues of market integrity and consumer/investor protection, AML/CFT, market manipulation, fraud, abusive practices toward consumers, among others. Similarly, the International Monetary Fund (IMF) in its Global Financial Stability Report of 2021[53] indicates that key challenges for the Crypto Ecosystem include the operational, cyber, and governance risks, integrity (market and AML/CFT), the data availability and reliability, and the international coordination for cross-border activities. The Financial Stability Board (FSB), in a report dated February 2022[54], also points out that stablecoins, if used in payments and settlement, would face the same risks as current payment systems, such as credit risk, liquidity risk, operational risks, governance risks and settlement risks.

Yet, without underestimating the important issues from the previous paragraph (as well as the high transaction fees on certain blockchains), the issue of stablecoins instability is likely to be the main bottleneck for its systemic adoption, especially considering the recent crash of the Terra, and the remarks of regulators related to that incident. Moreover, assessing the main elements behind the instability of stablecoins will ultimately facilitate the understanding of the various approaches to regulate stablecoins, and which is likely to be the optimal.

The Instability Stemming from the Mechanisms used to Stabilize Stablecoins

As noted previously, the stability of a stablecoins is managed through **two mechanisms: the reserve assets and the stabilization mechanisms in place to maintain the peg**. In that sense, it is important to go through the potential sources of instability for each of the currently existing stablecoins arrangements.

Fiat-backed (off-chain) stablecoins

For stablecoins backed by fiat currency (e.g. Tether, USD Coin, Gemini Dollar), the issuer has reserves that fully back their stablecoins and the assets are in dollars, which include cash, treasury instruments, commercial papers, among others. The risks for fiat-backed stablecoins arise from potential mismatches in liquidity and market risk[55]. So, if the assets in the reserve change in value (materialization of market risk), the reserves value would diminish, and the stablecoins would not be fully backed. Moreover, there could be a risk of self-fulfilling insolvency[56], since if holders fear solvency problems, they would try to redeem their stablecoins, forcing the issuer to liquidate the assets in the reserve at discounted prices, and by so becoming insolvent.

[51] The Federal Reserve in its Financial Stability Report of … states that "Stablecoins are also vulnerable to runs, and the sector continues to grow rapidly". Federal Reserve (2022). Financial Stability Report. Retrieved from https://www.federalreserve.gov/publications/files/financial-stability-report-20220509.pdf
[52] Bank for International Settlements (2020). Stablecoins: risks, potential and regulation. Retrieved from https://www.bis.org/publ/work905.pdf
[53] International Monetary Funds (2021). Global Financial Stability Report. Retrieved from https://www.imf.org/en/Publications/GFSR/Issues/2021/10/12/global-financial-stability-report-october-2021
[54] Financial Stability Board. Assessment of Risks to Financial Stability from Crypto-assets. Retrieved from https://g20.org/wp-content/uploads/2022/02/FSB-Report-on-Assessment-of-Risks-to-Financial-Stability-from-Crypto-assets_.pdf
[55] Catalini and Gortari (2021). On the economic design of stablecoins. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3899499
[56] Catalini and Gortari (2021). On the economic design of stablecoins. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3899499

There is an important transparency problem regarding the composition of the reserves that could exacerbate the full backing of assets. These assets might be less safe than they are supposed to be. For example, Tether disclosed in 2021 that their reserves were only 8% made up of highly liquid assets (cash, treasury bills and reverse repo notes), and of the remaining assets, 50% were in commercial papers, with no detail on their quality. This transparency problem gives rise to an imperfect information for the investors, which in turns creates a suboptimal portfolio allocation.

Crypto-collateralized (on-chain) stablecoins

Next is the assessment of stability of stablecoins backed with crypto assets. The first difference with the previous case is that issuers here do not need to interact with financial institutions for holding backing assets. Instead, this type of stablecoins are decentralized, and can be minted by anyone who has the corresponding backing cryptocurrency in exchange for the former. This is a riskier approach, since the reserves consist of volatile assets, and therefore the backing asset price could fall rapidly, possibly resulting in the stablecoins being partially backed. The issuer could then be perceived as insolvent, increasing the risk of a run.

Algorithmic stablecoins

Finally, the algorithmic stablecoins are the riskiest of all the protocols analyzed in this discussion paper. In its purest form, there would be no asset backing at all (Terra started as a pure algorithmic stablecoin, but at some point, it was partially backed up by reserves in Bitcoins, so in essence was a hybrid scheme[57]). Instead, the stability mechanism is implemented through a dual coin whose work is to absorb market volatility with the algorithm regulating the relationship between both. Under an excess of demand or supply of stablecoins, the token would move away from the peg, resulting in an arbitrage opportunity. This arbitrage would imply the burning (if under the peg) of the stablecoins issuing dual coins, or minting (if above the peg) of stablecoins and burning the supporting token.

The problem with this type of protocol is that the solvency of such stablecoins depends on the holder's confidence in the coin since they are bearing all the risks. So, this type of arrangement is prone to runs because holders could be significantly more reactive to events they could perceive as a threat to the value of the algorithmic stablecoin. There is research that pinpoints that this type of arrangement is inherently fragile[58], and may never be able to attain long-term stability[59]. In the case of Terra, for example, the reserves before the crash were just $4 billion in Bitcoins whereas the market cap of Terra was hitting the $18 billion, or just around 20% of coverage. Besides, the progressive deterioration of the macroeconomic conditions, including the downward trend of the Bitcoin, and a concentration of Terra in the Anchor Protocol (about 75% of its entire circulating supply) exacerbated the confidence in this algorithmic stablecoin.

[57] Drecrypt (2022). Justin Sun's Terra-like Stablecoin Now Boasts Backing in Bitcoin, Tether, Tron. Retrieved from: https://decrypt.co/102114/justin-sun-terra-stablecoin-boasts-backing-bitcoin-tether-tron
[58] Clements (2021). Built to Fail: The Inherent Fragility of Algorithmic Stablecoins. Retrieved from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3952045
[59] Catalini and Gortari (2021). On the economic design of stablecoins. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3899499

The following figure summarizes the key stability risks stemming from each type of stablecoins discussed above, yet acknowledging that ultimately the actual and perceived risk of any given stablecoin is dependent on a combination of multiple factors:

Figure 6 - Overview of Factors Influencing the Stability of Different Stablecoins

	Fiat-backed stablecoins	Crypto-backed stablecoins	Algorithmic stablecoins
Stabilizing mechanisms-related instability factors	• Potential mismatches in liquidity and market risk, impacting extent to which there is 1:1 backing • Self-fulfilling insolvency, driven by fear of insolvency • Transparency (lack thereof) of the composition of the reserves, creating asymmetry of information and suboptimal portfolio allocation by holders	• Reserves consist of volatile assets, impacting the extent of the backing • The issuer could then be perceived as insolvent, and thereby increasing the risk of a run	• No asset backing at all • Solvency of the stablecoin depends on the holder's confidence in the coin, as they bear the whole risk • High risk of a run related to this disproportionate bearing of risk (high reactivity if threat perceived)
✚			
Additional risk factors contributing to the instability and overall risk level	**Operational**		
	Cyber and governance risks		
	Integrity (Market and AML/ CFT)		
	Data availability and reliability		
	International coordination for cross-border activities		
	Other macroeconomic risk factors and considerations		

Actual and perceived risk of a given stablecoin

Source: BlockZero Analysis (2022)

3. Regulating Stablecoins: A Balancing Act

With all the risks and challenges looming on the crypto market in general and stablecoins in particular, the increasing attention of regulators as described before is no surprise.

Paradoxically, this growing interest from regulators highlights the potential of stablecoins. As duly noted in an article in Harvard Business Review, this level of attention is usually dedicated to segments of the financial system of systemic importance[60]. The authors argued that this is evidence that stablecoins could become an important piece in the future of global finance. However, as explained above, such novel instruments also bring a set of important risks, risks that the market on its own has in the past been incapable to deal with[61].

In other words, the risks, challenges, and concerns described previously potentially exist because of market failures. This is an important concept and is behind the need for the government to intervene, in this case through adequate regulation and supervision. The importance of a market failure lies in its negative and distortionary effect on prices. Usually, prices are the key resource allocation mechanism for supply and demand to clear optimally. However, with a standing market failure, prices do not reflect real value of assets or investing opportunities, leading to a misallocation of resources.

For financial markets, the usual mechanisms behind the ubiquitous market failures are the arguments of asymmetries of information, moral hazard, and excessive speculation. Specifically, for stablecoins, negative externalities to holders and governments have been pinpointed as the prevailing market failures[62]. For stablecoins holders, it is expressed as a redeem and technology risks, whereas for governments the risk is that spread out use of stablecoins could displace domestic currency and therefore affect implementation of monetary and economic policy.

However, regulating a new market is not free of controversy and possibly trade-offs and in this case, over-regulation would stifle innovation and competition in the fledgling stablecoins sector. Regretfully, there are already regulatory recommendations taking that route like the President's Working Group's (PWG)[63], whose main advice is that only federally insured depository institutions be allowed to issue stablecoins. Such a regulatory measure would indeed reduce the risks discussed, but in exchange for a drastic decrease in competition and innovation and allowing a concentration in power in institutions that are not even involved currently in the issuance of stablecoin. Moreover, it is likely that they might not get into the stablecoins activity since due to leverage regulation banks would need to maintain the same percentage of tier 1 capital for stablecoins reserves as other more profitable assets.

There is an ongoing discussion on the best regulatory approach towards crypto assets and stablecoins, especially whether technology should play a role in regulatory design. In that regard, U.S. Treasury Secretary Janet Yellen stated[64]: "When new technologies enable new activities, products, and services,

[60] Catalini and Massari (2021). Stablecoins and the future of money. Retrieved from https://hbr.org/2021/08/stablecoins-and-the-future-of-money
[61] There is a compelling analogy between the current stage of development of stablecoins and the Free Banking Era of the 19th century in the United States. Back then, banks could issue private banknotes that circulate as money. There were rules for the issuance of these notes (e.g. bank notes had to be backed with state bonds), but there were "wildcat banks" which did not follow the rules (e.g. no backing of the bank notes or plainly fraud, with no intention to redeem the bank notes with gold or silver as promised). This came to an end with the National Bank Act of 1863, in which banks could issue national bank notes, but these needed to be backed by U.S. Treasury bonds deposited with the U.S. Treasury. See Gorton and Zhang (2021). Taming Wildcat Stablecoins. University of Chicago Law Review Vol. 90 (Forthcoming). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3888752
[62] Schwarcz (2021). Regulating Digital Currencies: Towards an Analytical Framework Retrieved from https://www.newyorkfed.org/medialibrary/Microsites/fmlg/files/2021/regulating-digital-currencies
[63] Treasury Department (2021). Stablecoin Report. Retrieved from https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf
[64] U.S. Department of Treasury (2022). Remarks from Secretary of the Treasury Janet L. Yellen on Digital Assets. Retrieved from https://home.treasury.gov/news/press-releases/jy0706

financial regulations need to adjust. But that process should be guided by the risks associated with the services provided to households and business, not the underlying technology. Where possible, regulation should be 'tech neutral'." Similarly, in a recent FinTech at MIT[65], Gary Gensler, chair of the Securities and Exchange Commission (SEC), is confident that current financial regulations are solid and can handle cryptocurrencies. This "tech neutral" approach makes sense since, after all, regulation should aim at fixing market failures, which is related to asymmetries of information, moral hazard, among other behavioral and economic realities.

Notwithstanding, there are other opinions that see this novel crypto technology as a regulatory input. For example, Neha Narula, director of the Digital Currency Initiative at the MIT Media Lab, considers that combining old rules and new rules is potentially a better strategy: "I think for some people it's about fitting this new technology into the old rules. And I do agree if something looks like a security and acts like a security, it should probably be regulated like a security", and then she added: "However, I do also believe that there are things that are being developed right now that don't quite fit so cleanly into all of those old rules, because the technology really is new and different,". This also makes sense, since some of the risks to manage include logistic and tech risks, and these risks interact with behavioral risk.

The current state of proposals and recommendations are mostly trying to accommodate existing regulatory frameworks that already aim to reduce similar risks, instead of starting from scratch. This is pragmatic, since issuing regulation is also a political subject and it is easier to agree on regulatory frameworks that are based on existing rules. For example, the PWG's recommendations include interim measures for the U.S., pointing out that "*While Congress considers how to address risks associated with payment stablecoins arrangements, the agencies will continue to use their existing authorities to address these prudential risks to the extent possible*."

However, using the "same risks, same rules" approach does not mean that innovative regulation is out of the equation. For example, economists Christian Catalini and Nihar Shah proposed an alternative to the PWG's main recommendation of limiting the issuance of stablecoins only to insured depository institutions[66]. The authors showed that applying the Basel framework to stablecoins, hedging against credit risk, market risk and operational risk is possible by setting capital requirements from stablecoins issuers. For Tether, they calculated capital requirements of 2.9% of its balance sheet as of June 30, 2021.

Yet another counter proposal to the recommendation of the PWG touches on the issues of the trustworthiness and transparency of the reserves backing stablecoins . In this proposal by CATO Institute[67], it is advised to regulate a stablecoins issuer as a newly created limited purpose investment company, subject to basic reserve requirements and mandatory disclosure of relevant information on their reserves.

Regulating reserves is probably the most important element to secure stability for stablecoins, but there are additional challenges and concerns that are also emerging from market failures, and therefore also require regulation. Some of these are familiar (e.g. safety and efficiency of payment systems, money laundering and terrorist financing, consumer/investor protection and data protection) and, as suggested by the G7 Working Group on Stablecoins[68], could be managed utilizing existing frameworks. Moreover,

[65] Vereckey, B (2022). Experts debate how to move crypto regulation forward. Retrieved from https://mitsloan.mit.edu/ideas-made-to-matter/experts-debate-how-to-move-crypto-regulation-forward
[66] Catalini & al. (2021). Setting Standards for Stablecoin Reserves. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3970885
[67] Michel & al. (2021). A Simple Proposal for Regulating Stablecoins. Retrieved from https://www.cato.org/briefing-paper/simple-proposal-regulating-stablecoins
[68] Bank for International Settlements (2019). Investigating the impact of global stablecoins. Retrieved from https://www.bis.org/cpmi/publ/d187.pdf

due to the borderless potential nature of stablecoins, there is a crucial role for international cooperation for monitoring and containment of risks from such tokens. This has been recognized and included as part of the ongoing agenda for regulating stablecoins.

In the end, any regulatory framework should strike a balance between risk reduction and competition, innovation, pragmatism, and technological novelty. To adequately understand and manage those risks, and for regulation to effectively enable the growth and full potential of stablecoins, regulators ought to continue to engage with the private sector and provide an environment conducive to collaboration. And while the answer is certainly not to simply ban or restrict the issuance of stablecoins, a mix of the aforementioned approach, if deployed strategically, will likely allow for a gradual yet more rapid path to regulating stablecoins, and harness their full potential.

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Since joining BlockZero, she has worked on various projects involving CBDCs, cryptocurrency exchanges, SOC-2 attestation preparation, market research and presentations on cryptocurrency and blockchain innovation, case studies, and more. She also contributes to market intelligence through the development of thought leadership on cryptocurrencies and articles on the various types of blockchain.

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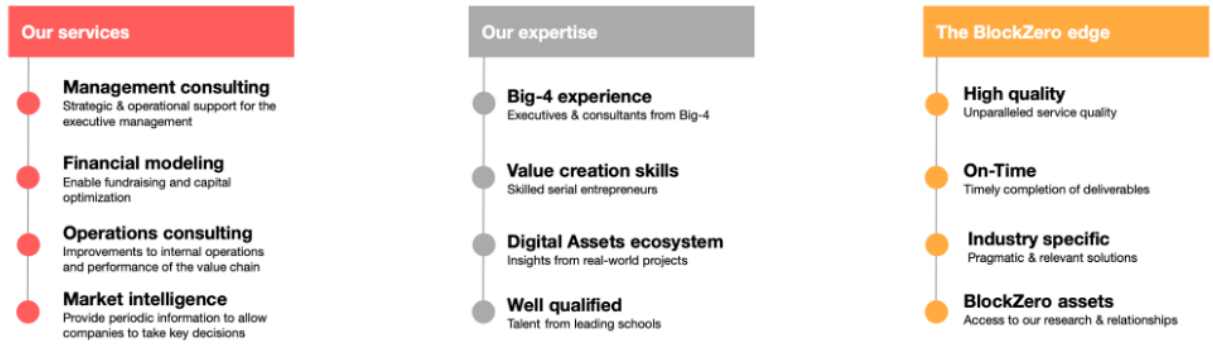

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