JBNV HOLDING CORP.
Comments on
Federal Deposit Insurance Corporation's
Request for Information on Standard Setting and Voluntary Certification for Models and Third-Party Providers of Technology and Other Services
RIN 3064-ZA18
September 22, 2020

JBNV Holding Corp, the bank holding company for Kirkwood Bank of Nevada ("Kirkwood"), a Nevada state-chartered non-member bank, is pleased to respond with this comment to the Federal Deposit Insurance Corporation ("FDIC")'s request for information ("RFI") on the potential of establishing standard setting and voluntary certification for third-party providers of technology and other services to promote technology adoption at community banks and other financial institutions.

Kirkwood is a relationship-driven organization that provides a full range of deposit and loan services to its retail and business customers in the greater Las Vegas area.[1] Like other community banks, it plays a vital role in providing critical services to local communities and offering local customers a more personalized alternative to larger, global financial institutions. The survival and growth of small businesses depends on access to credit, and banks are the most common source of external credit for small firms.[2] Because they are headquartered directly in the communities they serve, in the past, community banks were often regarded as having a competitive advantage because they were able to leverage both their knowledge of their community and the small businesses within it.[3] However, due to consolidation and the increased market power of larger banks, the number of small banks – those with assets under $10 billion – has dwindled over the past couple of decades. The FDIC's small business lending survey conducted in 2018 found that from 2008 to 2017 the number of small banks in the country dropped by nearly a third and small-bank assets dropped by more than 14%, whereas

[1] Effective July 1, 2020, Kirkwood changed its name to "GenuBank."
[2] FDIC. (2018). *Small Business Lending Survey*. https://www.fdic.gov/bank/historical/sbls/full-survey.pdf, 5.
[3] *Id*. at 6

large banks (those with more than $10 billion in assets) increased their assets by 13%.[4] It is important to put an end to this disturbing trend, as community banks offer relationship-focused alternatives to large financial institutions and the communities in which they serve rely on them for localized economic growth across the United States.[5]

Through Kirkwood, JBNV, together with Blockchains, LLC ("Blockchains") is pursuing initiatives aimed at empowering individuals through the use of blockchain technology.[6] Community banks are poised to harness this digital transformation and expand upon the value they currently bring to their customer base by investing in an ecosystem of connectedness and designing a customer experience that merges their physical presence with their digital presence. Although blockchain technology is an emerging technology, we are at a critical moment of responsible change where substantial progress can be made in modernizing financial technology platforms to benefit individuals and small businesses. However, to do this in the current environment, a community bank must identify, evaluate, and test third-party technology, and conduct due diligence of the vendors offering those technologies. Because this can often be unduly burdensome and costly, it can be very difficult for community banks to access new, innovative technologies such as blockchain-based products and services.

[4] *Id*. at 5.

[5] Blockchains, LLC (August 3, 2020) *Comments of Office of the Comptroller of the Currency's Advanced Note of Proposed Rulemaking: National Bank and Federal Savings Association Digital Activities – 12 CFR Part 7, subpart E and 12 CFR Part 155, and any Other Banking Related to Digital Technology and Innovation*, 3. (*See* https://beta.regulations.gov/document/OCC-2019-0028-0047).

[6] JBNV Holding Corp is led by Jeffrey Berns. Berns is a former attorney whose practice focused on consumer lending and consumer fraud class actions. Berns currently serves as the chief executive officer of Blockchains, LLC, which develops blockchain distributed ledger technology applications for various industries.

According to the Harvard Business Review, blockchain will do for banks what the internet did for the media.[7] Blockchain technology has the potential to transform established institutions, both large and small, by increasing transaction speed, reducing costs while increasing efficiency, improving transparency, and simplifying audit processes. As just one example, if community banks had the ability to opt to run their data layer infrastructure on public blockchain technology, rather than current core processing systems that were designed many years ago, community banks would be able to choose an entirely different technology stack for products and services that have the potential to empower community banks to compete and thrive in national, if not global, financial markets.[8] One such technology stack that has emerged as a viable alternative to global centralized financial services is the world of public blockchain-based financial services. This emergence presents new service opportunities for community banks to diversify their products and services offering beyond those currently provided. Three specific use cases are informative.

First, public blockchain technology has given rise to digitally native assets that serve as borderless, global stores of value.[9] The two most prominent examples of these digitally native assets are bitcoin (native to the Bitcoin blockchain) and Ether (native to the Ethereum blockchain). The value and transaction volume are substantial.[10] As the market cap for digitally native assets continues to grow due to consumer acceptance of the assets as alternative stores of value, the domestic and global opportunities to service these customers will grow as well. This use case is particularly important for the FDIC's efforts in regulating digital transactions in financial services

[7] Harvard Business Review (March 8, 2017) *The Blockchain Will Do to the Financial System What the Internet Did to Media*.
[8] Blockchains, LLC (August 3, 2020) *Comments of Office of the Comptroller of the Currency's Advanced Note of Proposed Rulemaking: National Bank and Federal Savings Association Digital Activities – 12 CFR Part 7, subpart E and 12 CFR Part 155, and any Other Banking Related to Digital Technology and Innovation*, 2.
[9] *Id*. at 8.
[10] If one includes bitcoin transactions, Ethereum transactions, and stablecoin transactions settled on both the Bitcoin and Ethereum blockchains, the projected settlement value for 2020 is $1.31 trillion. (*See* Watkins, R. (2020, July 21). *Bitcoin and Ethereum on pace to settle a combined $1.3 trillion on transactions in 2020*). (*See also* Exhibit 1).

because the Office of the Comptroller of the Currency (the "OCC") recently announced that nationally chartered banks are permitted to custody certain digital assets like bitcoin and Ether.[11]

Second, public blockchain technology has given rise to stablecoins, which are digital assets that can be programmed with price stability characteristics.[12] Stablecoin usage in trading and payments instruments is surging.[13] In Q2 2020, the total stablecoin monetary base on public blockchains equaled $12 billion and the total value of stablecoin transactions settled equaled $144 billion.[14] As stablecoins continue to evolve and adoption increases, a new era of digital banking services in both trading and payments will evolve, giving rise to domestic and global marketplaces that simply did not exist before.[15] This use case is also particularly important because the OCC recently released an interpretive letter concluding that national banks and federal savings associations may hold reserves on behalf of customers who issue stablecoins in situations where the coins are held in hosted wallets.[16]

Third, public blockchain technology has created an entirely new industry referred to in the ecosystem as decentralized finance ("DeFi").[17] DeFi is a digitally native financial ecosystem where the Ethereum blockchain serves as the data layer infrastructure, financial services applications are

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[11] Office of the Comptroller of the Currency (July 22, 2020) *Interpretive Letter #1170 – Authority of a National Bank To Provide Cryptocurrency Custody Services for Customers*.
[12] Blockchains, LLC (August 3, 2020) *Comments of Office of the Comptroller of the Currency's Advanced Note of Proposed Rulemaking: National Bank and Federal Savings Association Digital Activities – 12 CFR Part 7, subpart E and 12 CFR Part 155, and any Other Banking Related to Digital Technology and Innovation*, 9. (*See* https://beta.regulations.gov/document/OCC-2019-0028-0047).
[13] *Id*.
[14] Watkins, R. (2020, July 20). *Q2'20 Review: Stablecoins at the heart of the DeFi Boom.* (*See also* Exhibit 2).
[15] Blockchains, LLC (August 3, 2020) *Comments of Office of the Comptroller of the Currency's Advanced Note of Proposed Rulemaking: National Bank and Federal Savings Association Digital Activities – 12 CFR Part 7, subpart E and 12 CFR Part 155, and any Other Banking Related to Digital Technology and Innovation*, 9. (*See* https://beta.regulations.gov/document/OCC-2019-0028-0047).
[16] Office of the Comptroller of the Currency (September 21, 2020) *Interpretive Letter #1172 – OCC Chief Counsel's Interpretation on National Bank and Federal Savings Association Authority to Hold Stablecoin Reserves.*
[17] Blockchains, LLC (August 3, 2020) *Comments of Office of the Comptroller of the Currency's Advanced Note of Proposed Rulemaking: National Bank and Federal Savings Association Digital Activities – 12 CFR Part 7, subpart E and 12 CFR Part 155, and any Other Banking Related to Digital Technology and Innovation*, 10. (*See* https://beta.regulations.gov/document/OCC-2019-0028-0047).

developed on top of the Ethereum blockchain ("decentralized applications" or "Dapps"), and traditional financial services intermediaries are replaced by software code contracts.[18] Products and services like liquidity, staking, peer-to-peer and pooled borrowing/lending, tokenization, and trading of digital assets are just a few examples of the financial transactions occurring in the DeFi space today.[19] While small compared to global financial market activity, the substantial growth in a short period of time supports the proposition that DeFi is here to stay.[20] We are in the infancy of this marketplace and substantial growth is expected to continue.

With public blockchain already serving as the data settlement layer, community banks have a unique ability to leverage this technology and service these customers. The data layer technology has been developed, the assets exist, and customer adoption is increasing daily—all critical ingredients for smaller financial institutions like Kirkwood to compete with large financial institutions for business. The day where small community banks can offer products and services ranging from crypto-collateralized lending to business client equity tokenization is approaching if strategic regulatory steps are taken.[21] As such, to ensure that community banks and their customers have the opportunity to participate in these new blockchain ecosystems, if they so choose, we believe that the FDIC should consider a regulatory structure that is not unduly burdensome for community banks and provides for cost-effective solutions for those banks to monitor and assess fintech vendors.

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[18] *Id*.
[19] *Id*.
[20] In Q2 2020, the total value locked in DeFi applications reached $2 billion dollars, decentralized exchanges experienced record volumes with one week seeing $500 million in transaction volume, and digital asset lending volumes closed $800 million in funding. (See Purdy, J. (2020, July 15). *Q2'20 Review: Liquidity mining drives DeFi usage and token prices to all-time highs*). (*See also* Exhibit 3).
[21] Blockchains, LLC (August 3, 2020) *Comments of Office of the Comptroller of the Currency's Advanced Note of Proposed Rulemaking: National Bank and Federal Savings Association Digital Activities – 12 CFR Part 7, subpart E and 12 CFR Part 155, and any Other Banking Related to Digital Technology and Innovation*, 11. (*See* https://beta.regulations.gov/document/OCC-2019-0028-0047).

This problem must be tackled from both ends: community banks need innovative technology to attract new customers and modernized services provided to existing customers, and third-party technology service providers need clear guidance and a modern regulatory framework within which to innovate efficiently and competitively. Accordingly, the FDIC's RFI is highly relevant to the issues facing Kirkwood and other community banks. Kirkwood therefore supports the FDIC's efforts to reduce regulatory burdens and costs associated with community banks' adoption of new technologies. Kirkwood thanks the FDIC for its proactive approach and welcomes the opportunity to provide comment.

Community Banks Provide Critical Services as Alternatives to Large Banks yet Often Lack the Resources to Monitor and Assess Fintech Vendors that may Empower Banks to Expand Services to the Underserved.

Technology sophistication and the availability of the necessary liquidity to continually improve upon their technology separates the larger banking institutions from community banks. At the same time, existing supervisory guidance requires financial institutions to comply with in-depth governance, policies, controls, development, implementation, and use and model validation processes to effectively manage the risks associated with using quantitative models in decision making.[22] Vendors offer increasingly complex models with a range of features, and as a result, smaller institutions, like most community banks, may find it challenging to validate and assess such models.

Banks routinely use models for a wide range of core services, such as credit underwriting, valuing exposures, instruments and positions; measuring risk; managing and safeguarding client

[22] Office of the Comptroller of the Currency. (April 4, 2011) *Supervisory Guidance on Model Risk Management*, OCC 2011-12/SR11-7.

assets; and determining capital and reserve adequacy.[23] In order to consider third-party outsourcing arrangements that support these models, institutions are required to conduct risk reviews on third party-providers at the outset of the relationship and "annually but more frequently if warranted." The reviews are intended "to determine whether [the models are] working as intended and if the existing validation activities are sufficient."[24] These regulatory risk reviews involve financial, operational, contract, and insurance assessments, along with assessment of other aspects of the outsourcing arrangements, all of which require significant resources dedicated to maintaining and updating existing technology. These requirements create significant barriers of entry for potentially innovative community banks, such as Kirkwood, looking to incorporate blockchain technology while complying with existing regulations.

Many community banks, like Kirkwood, look to outside audit firms, such as the service organization controls ("SOC") 2 internal controls auditing procedure based on auditing standards developed by the American Institute of CPAs ("AICPA") to assist with risk reviews.[25] SOC 2 attestation reports of third-party service vendors provides assurances of five criteria of system and processing controls for business areas outside of financial reporting: security, availability, processing integrity, confidentiality, and privacy.[26] If a vendor has invested the time and capital to undergo an SOC 2 audit, then a bank can rely upon that report to satisfy many of its due diligence obligations. However, vendors have no regulatory obligation to obtain SOC 2 reports. Thus, when evaluating a potential new technology solution, an institution may still have the burden of conducting enhanced due diligence internally, including holistic operational reviews of how a

[23] *Id*. at 1
[24] *Id*. at 10
[25] Association of International Certified Professional Accountants. https://www.aicpa.org/interestareas/frc/assuranceadvisoryservices/aicpasoc2report.html.
[26] Deloitte, (2018) *Third Party Assurance Engagement: SOC 2*. https://www2.deloitte.com/content/dam/Deloitte/ie/Documents/Risk/IE_SOC2_3rd_party_Assurance_Engagement.pdf.

potential third-party solution stores, manages, and secures data it has access to or holds on behalf of the institution. For example, Kirkwood might conclude that it must hire new internal staff, retain consultants, or impose contractual obligations on the third party, such as requiring a SOC 2 report, in order to conduct the risk review or model validation, which result in material financial commitments. For community banks to thrive, and not just survive, significant investment is needed in efficient, safe, and transformative technology.

The Need for a Collective Approach from the Technology and Financial Industries Towards Responsible Innovation.

The symbiotic relationship between third parties and banks fosters innovation. Through the use of third-party technology providers, banks are able to diversify their systems, modernize their services, and better serve their customers. Technology can be the great equalizer and community banks must have technology options available that shift industry trends from negative to positive long-term outlooks.[27] Public blockchain technology has the potential to bring forth that positive future for community banks.[28] However, there is a lack of regulatory guidance and many financial institutions have waited to join the blockchain revolution, thereby maintaining their reliance on antiquated, centralized systems.

The Financial Industry Regulatory Authority ("FINRA") is a prime example of a collective approach to tackling problems faced by the regulators, the industry participants, and the investors seeking to participate in the securities industry. In 2007, the United States Securities and Exchange Commission ("SEC") approved the merger of the New York Stock Exchange, NYSE Regulation

[27] *Id.*
[28] *Id.*

Inc., and NASD.[29] The consolidation of the member regulation, enforcement, and arbitration operations of these entitles resulted in the creation of FINRA, the largest self-regulatory organization ("SRO"), for all firms doing business in the securities industry in the United States. FINRA regularly publishes guidelines in the form of podcasts, webinars, FAQs, reports, and more, covering every aspect of a broker-dealer's operations, including ethics and standards of behavior expected from members—aimed at helping members clarify and understand its rules.[30] Since its inception, FINRA has provided guidance to its members on a host of topics, including anti-money laundering, investor protection, market access, supervision, and more.[31] FINRA provides its members with the confidence to operate and innovate in a rapidly evolving market. Members can take an active role in developing new approaches to regulation management that affect how their business is conducted.

FINRA's success has demonstrated how responsible innovation requires collaboration between the government and the private sector and a consistent, extra-jurisdictional governance approach whereby standards are applied equally everywhere, serving to level the playing field across borders. **Given the undeniable systemic importance of technology and technology companies in the community banking sector, a separate SRO comprised of industry leaders from banks, technology companies, and regulators is needed to ensure the trust of the public and of government through monitoring, supervision, and regulation of blockchain-based financial products and services and other emerging industries.** Such an SRO will not only be equipped to provide technology companies, banks, and other financial institutions a pathway to validation of new technology, it will also provide regulators an organized forum for creating new

[29] Johnson, Carrie (July 27, 2007) *SEC Approves One Watchdog for Brokers Big and Small.* The Washington Post. p. D02. Retrieved September 17, 2020.
[30] *Rules & Guidance*. FINRA.org.
[31] *Id*.

sets of industry rules. Further, by establishing standards for vendor oversight, the SRO would immediately alleviate the costly obligation community banks and achieve economies of scale for community banks in the technology review process.

Leveraging key constituencies, including consumers, government, tech startups and established companies, and advocacy groups, provides the FDIC, by way of an SRO, a unique opportunity to meet the needs of all industry-stakeholders. Such an SRO would be subject to FDIC, and federal and state regulatory oversight. It will undergo necessary examinations by the Federal Financial Institutions Examination Council and/or other regulatory agencies, which examinations can be reviewed by financial institutions. Further, this SRO will not need government funds, as it can be funded by its regulated entities.

It is not just blockchain technology and pro-blockchain entities like Kirkwood that will benefit from this added layer of oversight. A technology-focused SRO charged with establishing best practices and rules will ensure standardization among community banks and will ensure that banks operating in the space have the opportunity to update their operations, resources, technology, and third-party service providers. Put another way, it provides regulators access to expertise that can be leveraged to enrich their regulatory schemas and raise the standard of conduct in the industry. Once established, it can create third-party assessment and certifications processes. This would allow community banks to rely upon these certifications when evaluating third-party vendors and technologies. Additionally, by utilizing the expertise of industry stakeholders and key constituencies, the SRO will, by design, be able to effectively respond to public concerns regarding rapidly evolving, cutting-edge technologies, thereby restoring trust in technology and faith in the government's ability to police and enforce violations and assess fines and penalties against bad actors who attempt to take advantage of lack of regulation in the space.

JBNV respectfully urges the FDIC to consider the recommendations made above. There is ample opportunity for a technology-focused SRO to have a positive and lasting effect on community banks and the technology they should be able to utilize. Community banks, while retaining their oversight responsibility to identify, measure, monitor, and control the risks associated with outsourcing technology, will have access to the support and the resources they need to innovate safely and competitively. We thank the FDIC for the opportunity to comment on this important initiative and look forward to collaboratively fostering a safe and responsible innovative environment where the local consumers and small businesses see the greatest benefit.

Sincerely,

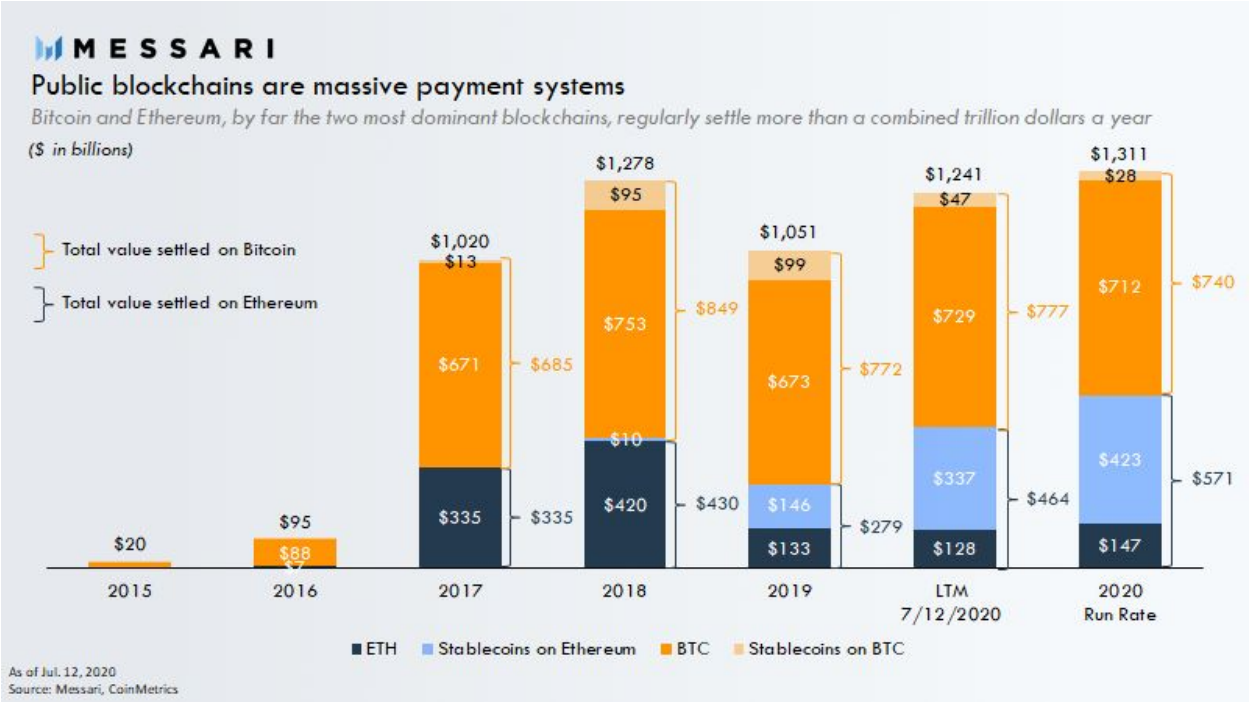
Lee A. Weiss, Director
JBNV Holding Corp.

EXHIBIT 1

Bitcoin and Ethereum on pace to settle a combined $1.3 trillion in transactions in 2020

Many people think blockchains have failed as payment systems. The typical argument goes something like, “you can’t buy a cup of coffee with Bitcoin, therefore it has failed as a payment system.” Along this line of argument cryptocurrencies like Bitcoin and Ether also suffer from extreme volatility making them unable to serve as payments mediums. Both premises aren’t entirely inaccurate, but the conclusion definitely is. In fact it is about $1.3 trillion wrong.

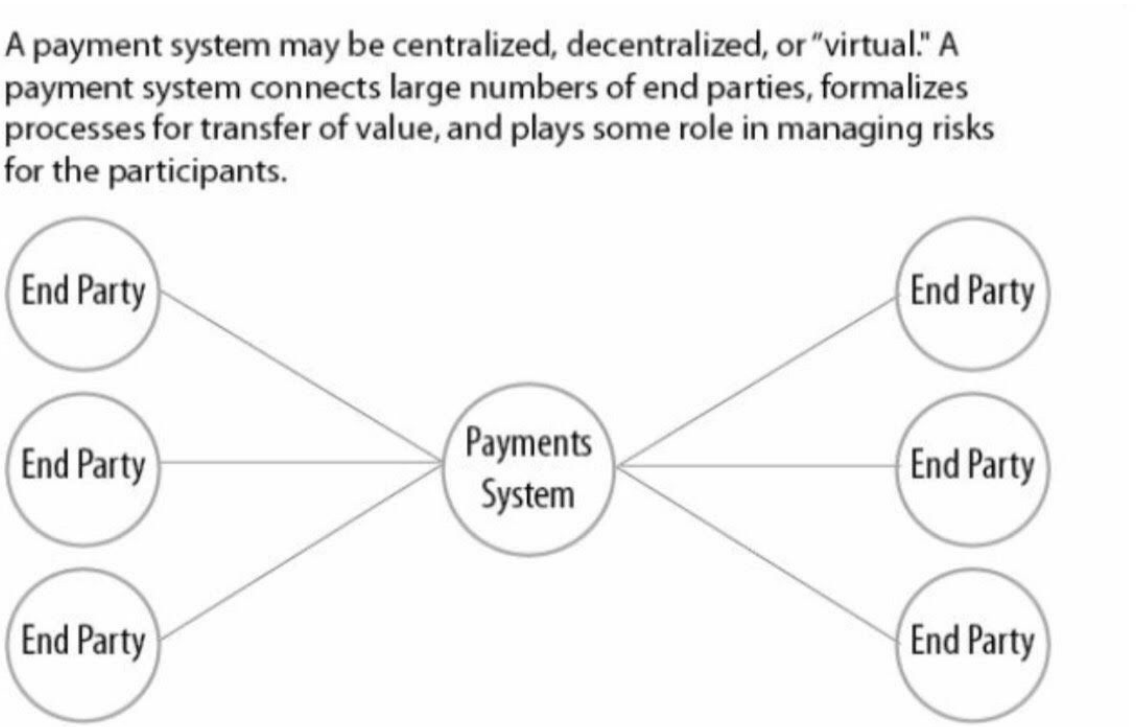
While it's true most people do not want to transact in a volatile currency and most would prefer to hold their cryptocurrencies for investment purposes, it’s not necessarily true they’re not used for payments at all. In each of the past 3 years, Bitcoin and Ethereum have settled a combined $1 trillion annually. This year they’re on pace to settle $1.3 trillion - their most ever.



Stablecoins are a major driver of this growth and now regularly account for 40% of the combined total settlement value of Bitcoin and Ethereum. Already this year, we’re on pace to see just under half a trillion dollars in stablecoin transactions settled on public blockchains. For perspective, PayPal did $712 billion in payments volume in 2019.

But that comparison isn’t perfect because not all payments systems are the same. And clearing up misconceptions around what kinds of payment systems public blockchains are will prevent people from drawing premature conclusions about public blockchains as payment systems.

What kinds of payments systems are public blockchains?



Source: *Payments Systems in the U.S.*

Broadly speaking there are two types of payment systems - those that settle transactions immediately as they're processed and those that defer settlement, accumulating then netting payments on a periodic basis. We call these gross settlement and net settlement systems, respectively. Payment systems can also be divided into push versus pull. Push payments involve one party sending money to another party (ex: cash and wire transfers), while pull payments involve one party collecting money from another party (ex: checks and cards). Payments systems that defer settlements and pull payments typically require significantly more intermediation, given that payments can bounce (non-sufficient funds) and the heightened risk of fraud.

Public blockchains most resemble wire transfers or cash payments. Once transactions are incorporated into a block and confirmed by a sufficient number of subsequent blocks, they are considered final and non-reversible. Furthermore, users can only spend what they own (have the right to spend) and initiate the transaction. In these respects public blockchains settle transactions immediately and push payments. Similar to wire transfers and cash, public blockchains require little intermediation if any.

A simple typology of payments systems

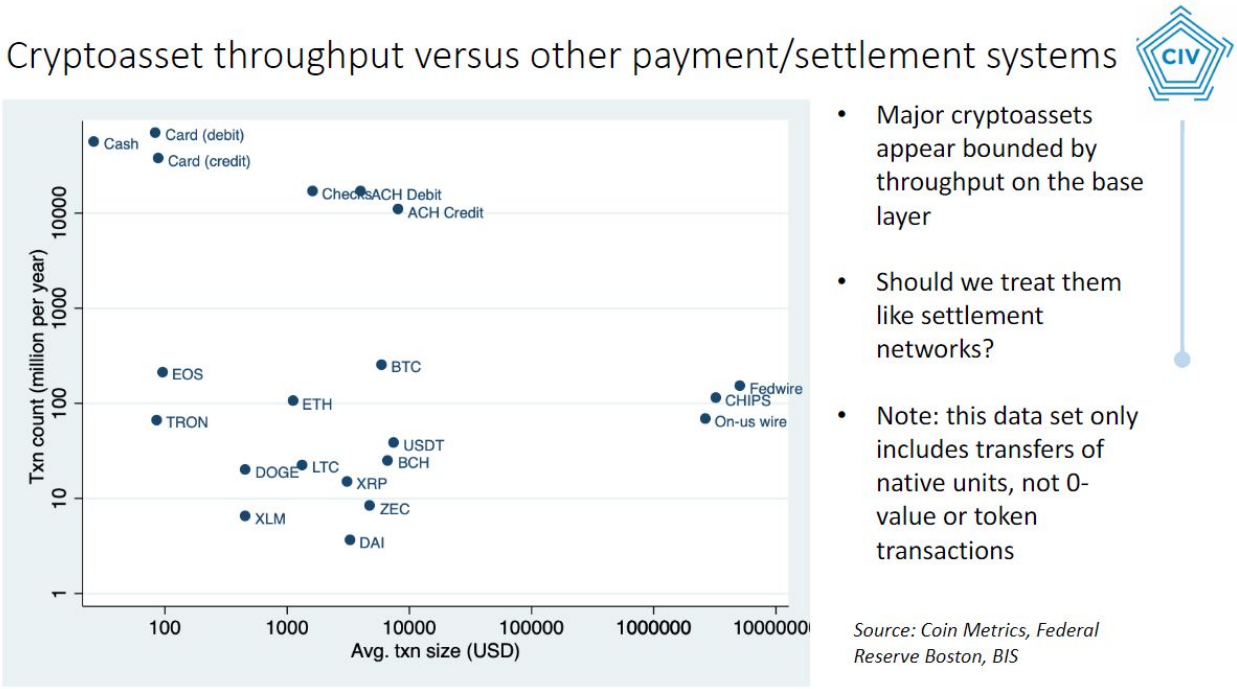
Payments typology

	Type	Settlement	Fraud/NSF risk	Intermediation
Cash	Push	Immediate	Minimal	None
Check	Pull	Deferred	Present	Significant
ACH	Push/pull	Deferred	Present	Significant
Credit Card	Pull	Deferred	Elevated	Significant
Debit Card	Pull	Deferred	Present	Significant
Wire Transfer	Push	Immediate	Minimal	Minimal
Cryptocurrency	Push	Immediate-ish	Virtually absent	Minimal

Cryptocurrency at the base layer appears most conceptually similar to physical cash payments or to wire transfers

Source: *What kind of assets are cryptocurrencies: an empirical evaluation*

Incorporating transaction throughput and average transaction size provides an even clearer picture of what type of payment systems public blockchains are. The cost of decentralization is throughput. As public blockchains have grown, retaining this property of decentralization has placed further constraints on transaction throughput. Over time, public blockchains have come to be used more for high-value transactions and will likely continue to. This is explicitly the vision for Bitcoin, as it will need to be reliant on transaction fees in the future to support its ledger security. The idea is that high demand for scarce blockchain will produce high transaction fees to pay for security. In the process however, it would crowd out smaller transactions, pushing them to deferred settlement systems sitting above the base layer.



Source: *What kind of assets are cryptocurrencies: an empirical evaluation*

In this respect its clear public blockchains more closely resemble large settlement systems operated by central banks like Fedwire, rather than cash. This has been the primary source of confusion and answer to why people don't widely use Bitcoin to buy coffee and likely won't ever directly use the Bitcoin blockchain to do so. The purpose of these systems is to provide strong settlement assurances.They're supposed to fully guarantee payments so that they cannot be repudiated, reversed, or charged back without agreement of the recipient, and meant to settle immediately. Strong settlement assurances are a necessity for public blockchains as they need to guarantee payments between untrusting and potentially unknown parties. These settlement assurances are at the core of what allows public blockchains to scale globally.

Buying a coffee doesn't need the settlement assurances of a blockchain. That's like transporting a penny in an armored truck to ensure delivery. So continue using your Visa to satisfy your daily caffeine cravings. Leave public blockchains for what they do best: settling large sums of value immediately without fear of reversal or trust third parties.

EXHIBIT 2

Q2'20 Review: Stablecoins at the heart of DeFi boom

Ryan Watkins · July 20, 2020

Share

In my **Q1 2020 stablecoins review** I suggested that 2020 could very well give 2019 a run for its money as the year of stablecoins. Three months later that hypothesis is shaping up to be more likely as stablecoins continue their impressive growth and make their impact felt across the crypto industry. By many measures Q2 topped the historic quarter stablecoins had to start the year.

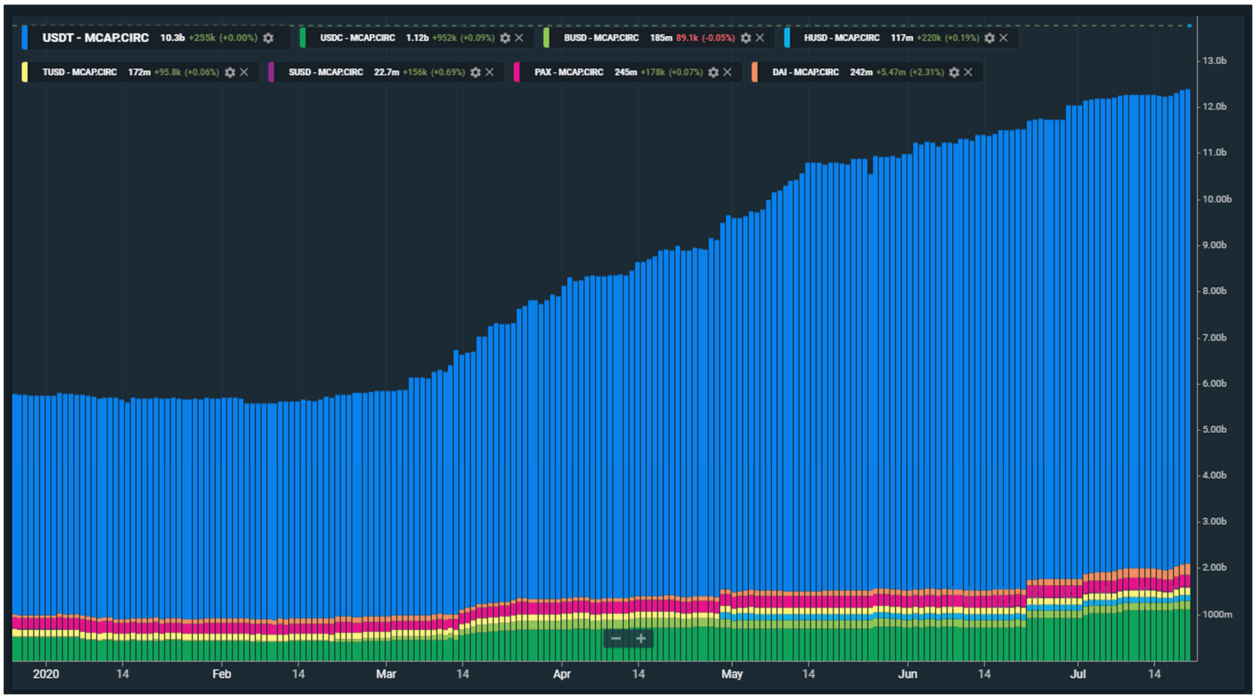
While inter-exchange settlement remains the most **dominant** use case for stablecoins by far, more generally, stablecoins are simply a better means of storing and moving dollars around the world. After all, 24/7 uptime and relatively quick settlement allows users to react to market conditions much faster than when dealing with traditional payment rails. In this respect stablecoins have also seen increased usage in DeFi and in various online payments use cases this quarter. The three use cases led stablecoins and many blockchains to their best quarter ever on many fundamental metrics.

But first a bird's eye view of the stablecoin market.

Zooming out on Stablecoins

Monetary Base Growth

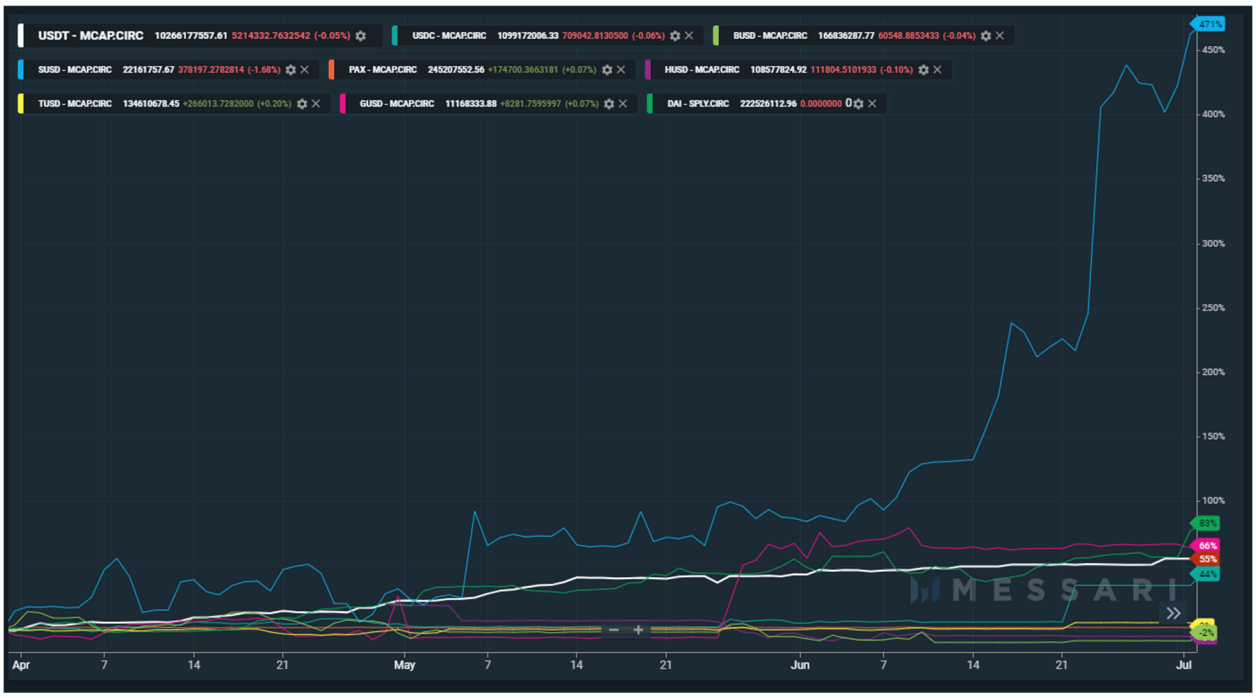
In Q1 2020 the stablecoin monetary base grew $2.4 billion to just over $8 billion. In Q2 2020 another $3.8 billion was added onto the base, bringing it to over $12 billion.



[View the live chart on Messari]

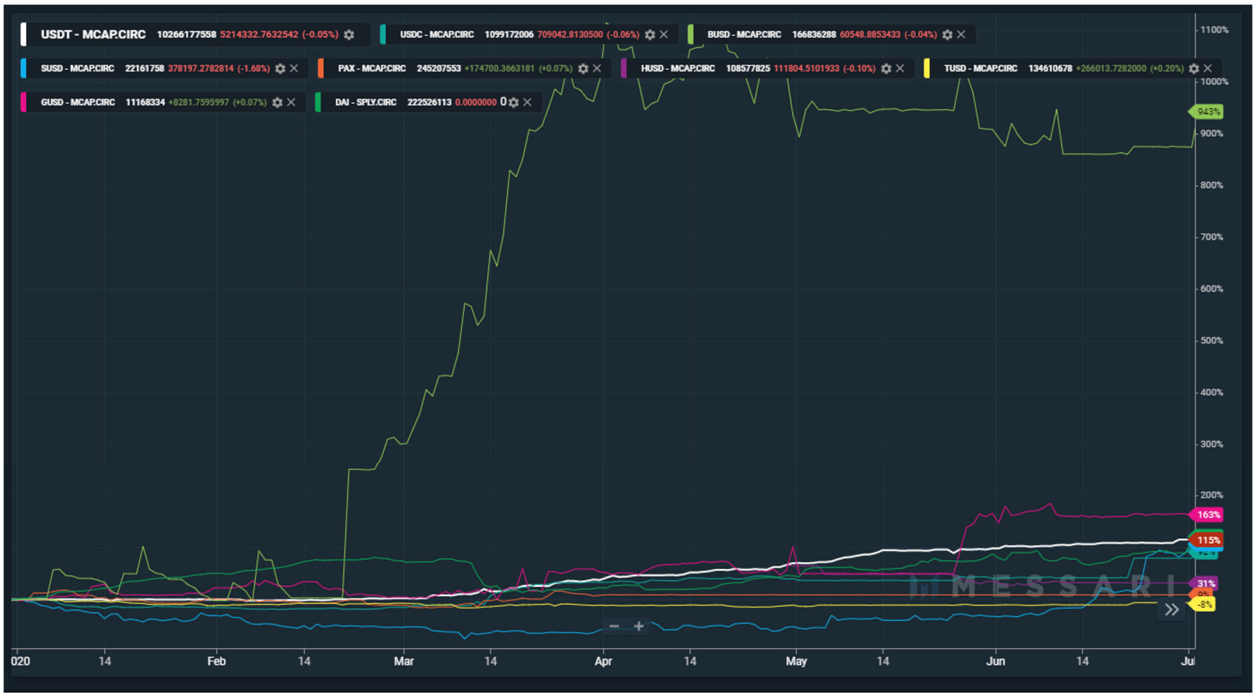
In absolute terms USDT contributed the most by far, growing $3.5 billion, and became the first stablecoin to breach the $10 billion mark. However, the fastest growing stablecoin on a

relative basis was sUSD, which benefited from the recent growth of DeFi and Synthetix (more on this later). It's important to note though that sUSD also benefited from a low starting base.



[View the live chart on Messari]

Zooming out, BUSD has been the fastest growing stablecoin this year, in large part due to its **on-going fee promotion** program that incentivizes BUSD liquidity providers. Binance has now extended the promotion four times since it was first **announced** in October of last year due to the success of the program. In dollar amount BUSD has grown $143 million, more than every stablecoin other than USDT and USDC.

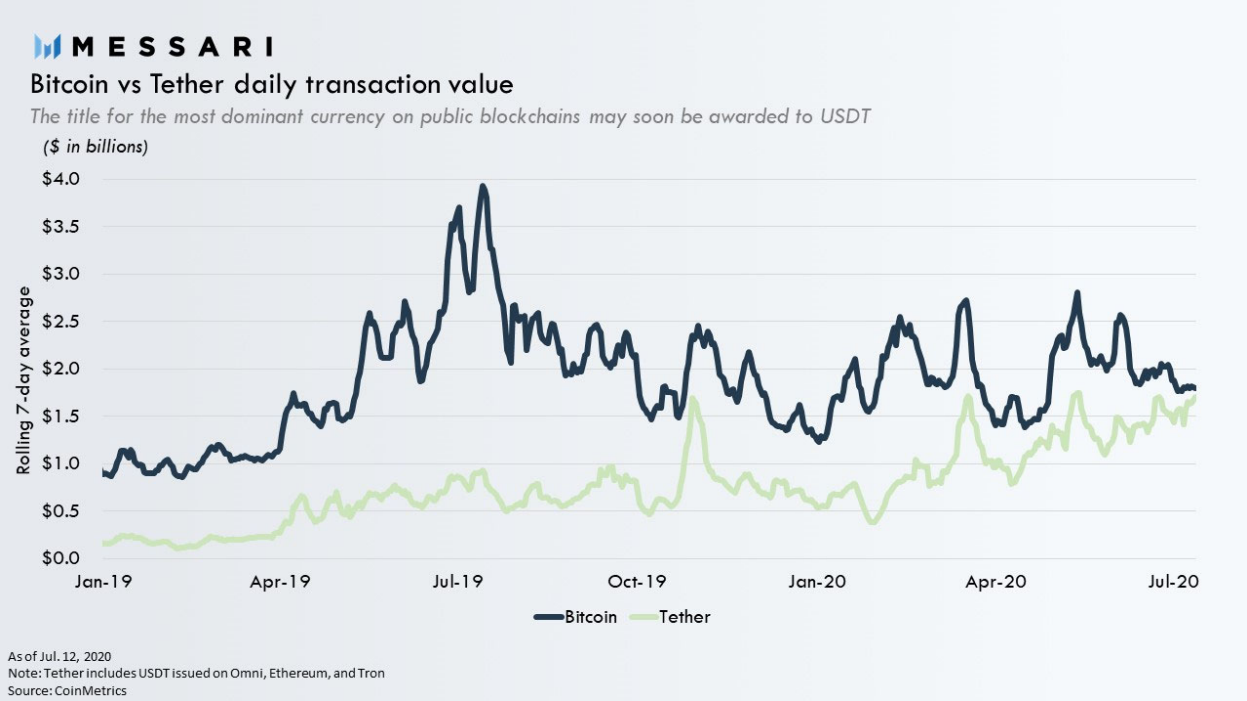


[View the live chart on Messari]

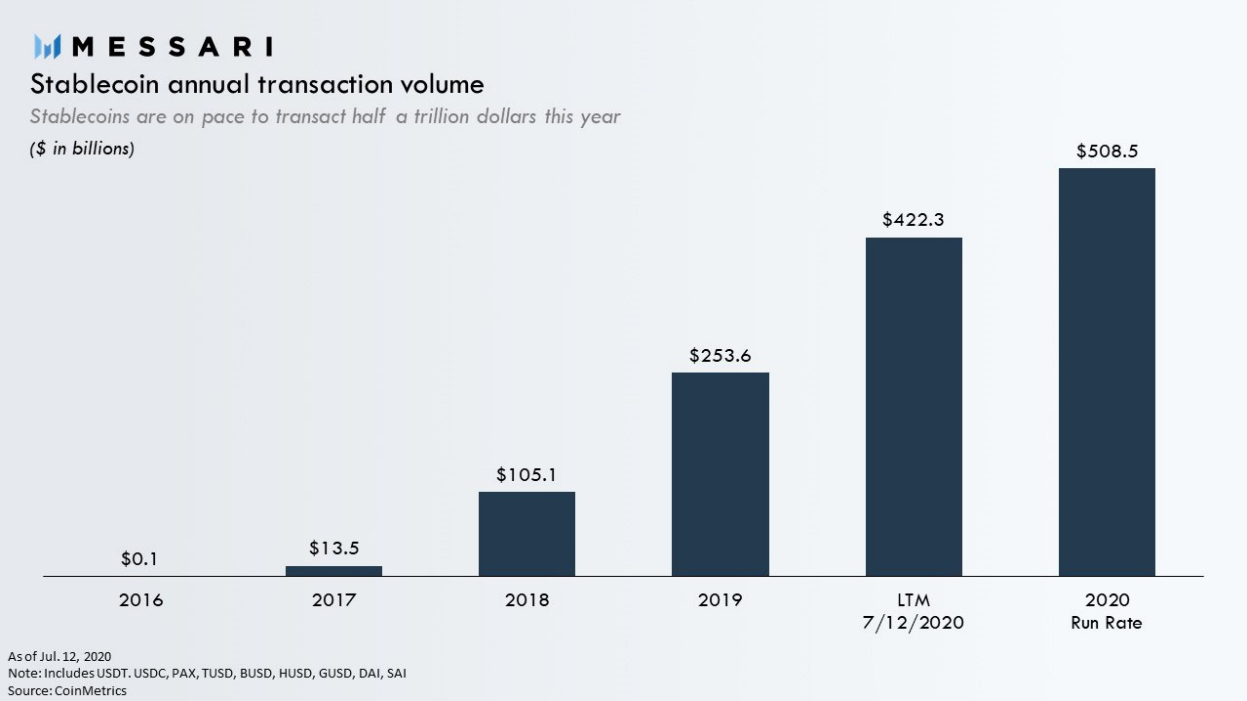
However, the clear number two stablecoin in absolute terms is USDC. Just weeks ago, it became the second stablecoin to surpass $1 billion in market capitalization, and it's grown $482 million year-to-date. PAX has maintained its position as the number three stablecoin; however, almost **half of all PAX transfers** are directly related to a Ponzi scheme.

Transaction Volume Growth

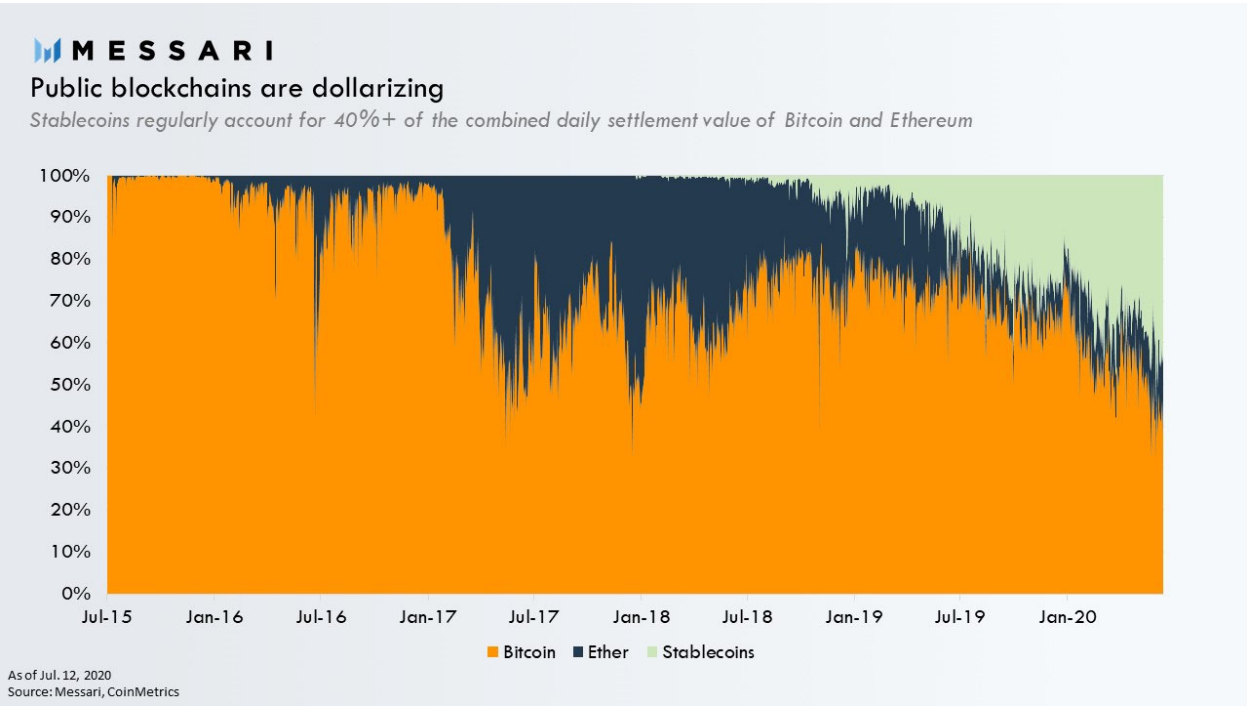
Stablecoins continue their dominance as the leading currency on public blockchains. In fact, USDT alone may very soon surpass Bitcoin as the dominant currency on public blockchains.



In Q2 2020 public blockchains settled $144 billion in stablecoin transactions, bringing their first half total to $245 billion. Including the 12 extra days after the quarter ended, public blockchains have settled $270 billion in stablecoin transactions, implying a 2020 run-rate transaction volume of $508 billion.



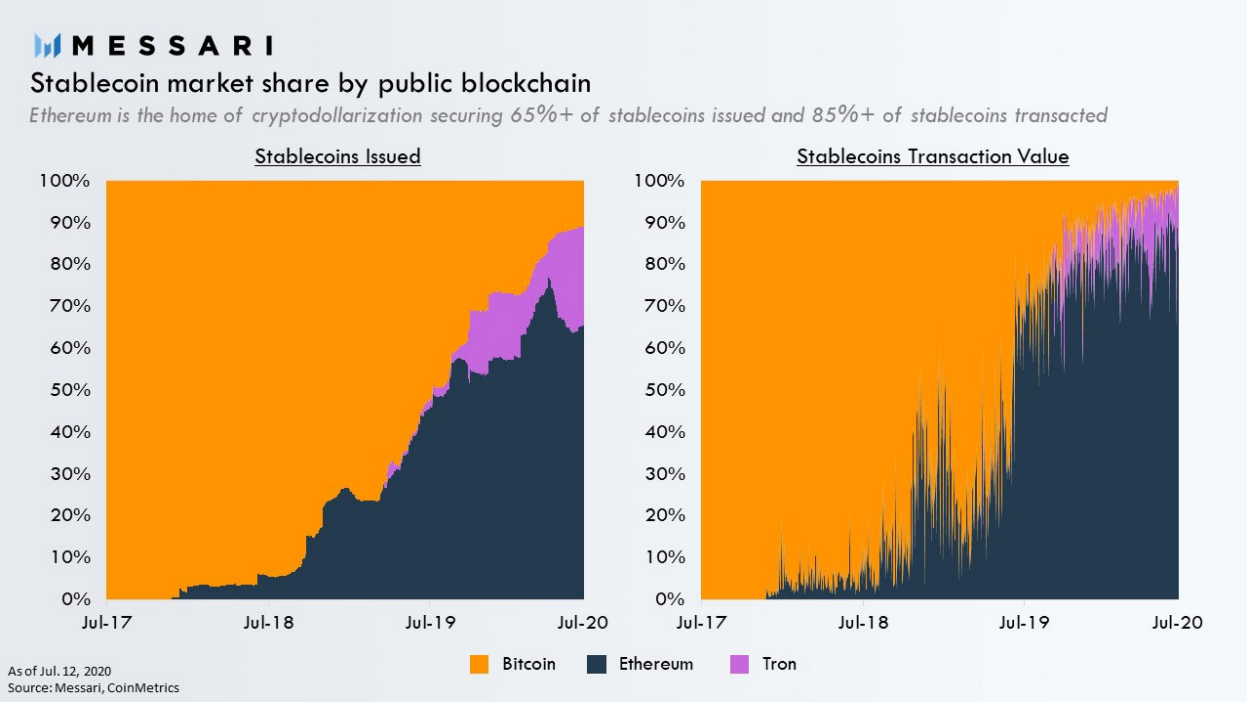
In recent months they've regularly accounted for more than 40% of the combined Daily settlement value of Bitcoin and Ethereum.



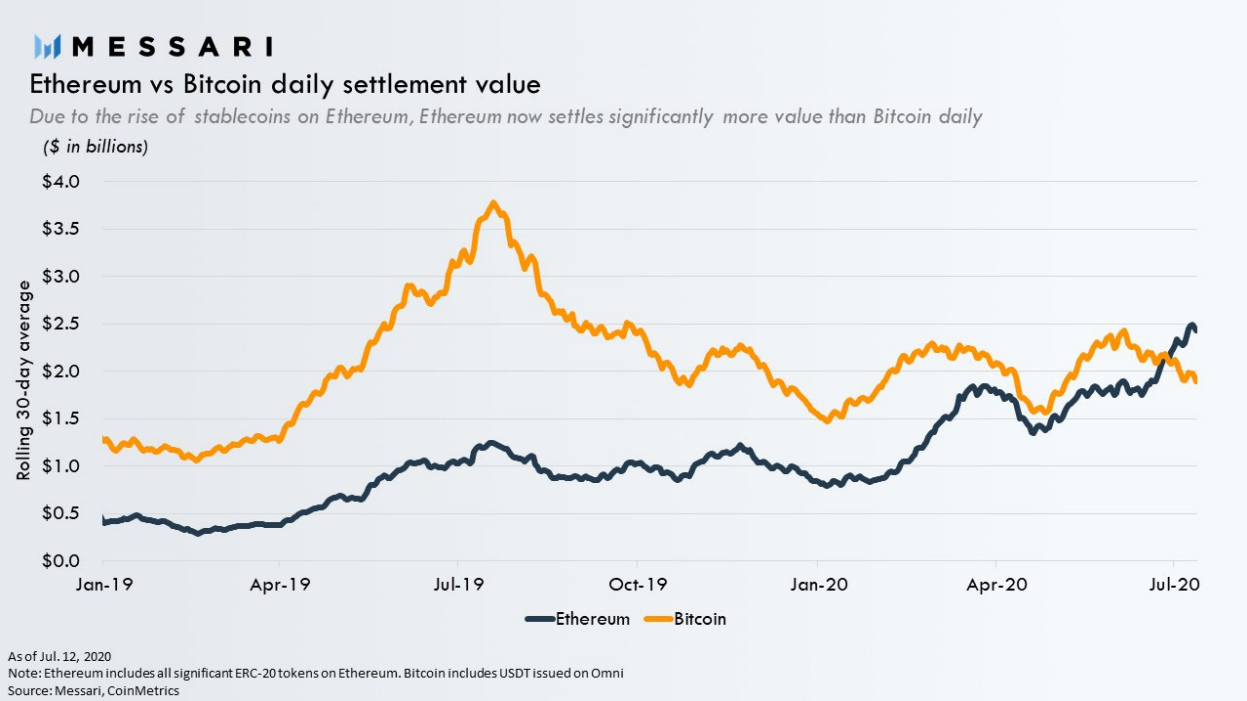
Ethereum is still the home of crypto dollarization

Crypto's dominant settlement layer

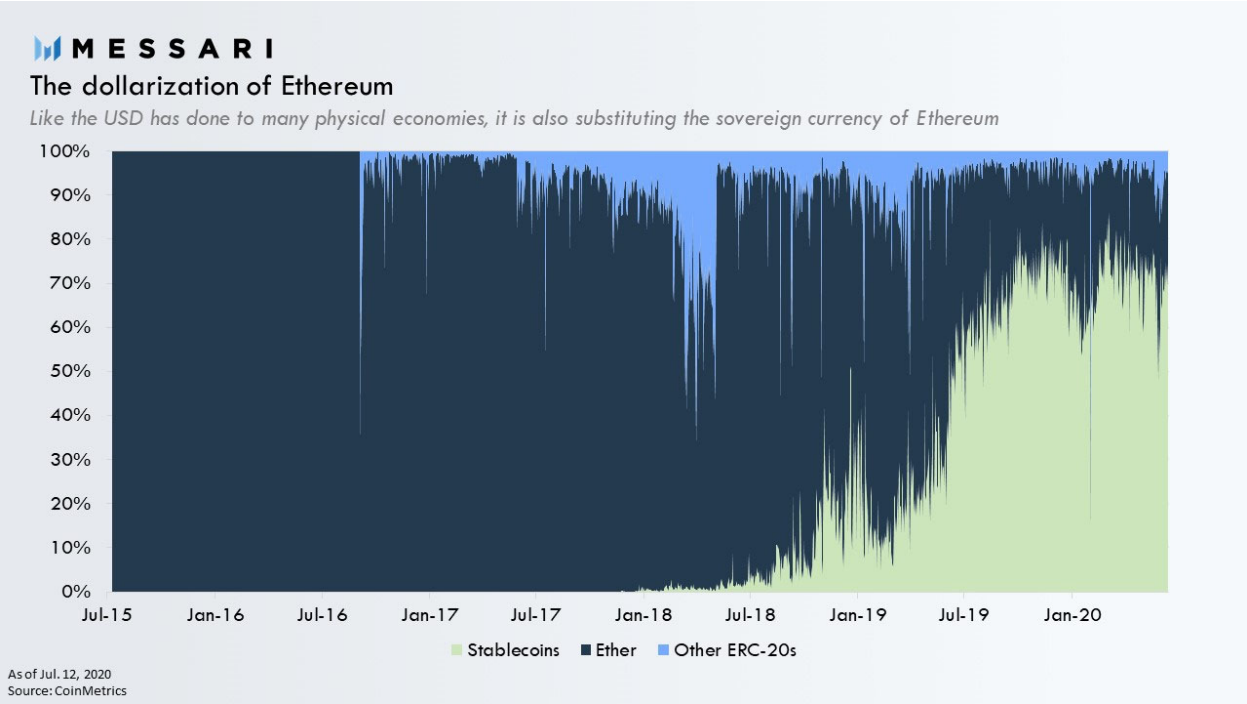
Currently only three blockchains have a significant amount of stablecoins issued and transacted - Ethereum, Bitcoin, and Tron, in that order. Since 2017 Ethereum has taken significant share from Bitcoin as USDT migrated over from Bitcoin's Omni layer and a variety of new stablecoins launched on Ethereum. In recent months Tron began receiving some new USDT issuance; however, growth has stalled out and already Tether has begun migrating some over to Ethereum. All said Ethereum accounts for more than 65% of all stablecoins issued, and more than 85% of stablecoin transaction value.



A quarter ago Ethereum had just about reached parity with Bitcoin in Daily settlement value. A quarter later Ethereum has blown past Bitcoin. With the increasing amount of economic activity taking place on Ethereum, this trend is unlikely to reverse anytime soon, if ever (*ducks for cover*).



Stablecoins continue to account for more than 70% of the total value settled Daily on Ethereum.

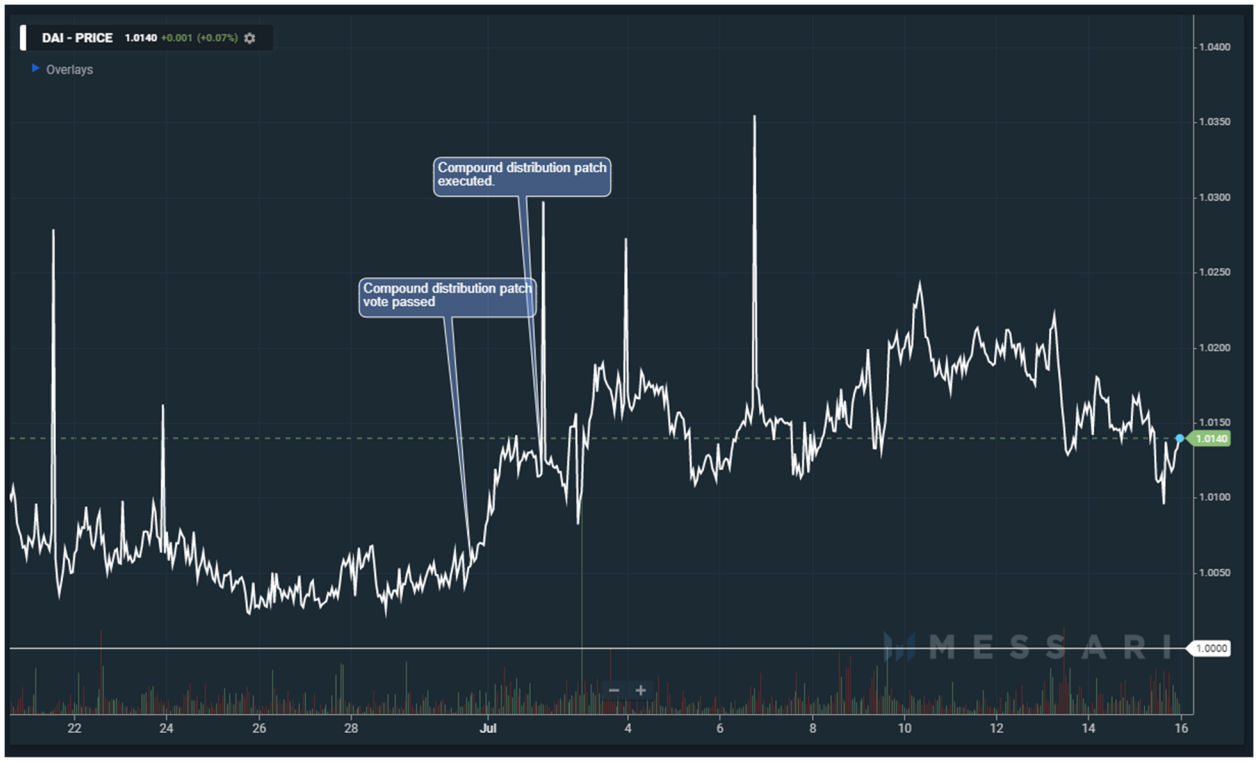


DeFi driving demand for stablecoins

By nearly every metric Q2 was **DeFi's breakout quarter**. Total value locked surged above $2 billion, weekly DEX volumes reached as high as $500 million a week, loans outstanding exploded to $800 million on the back of Compound's high-profile liquidity mining program, and DeFi tokens rose significantly in price.

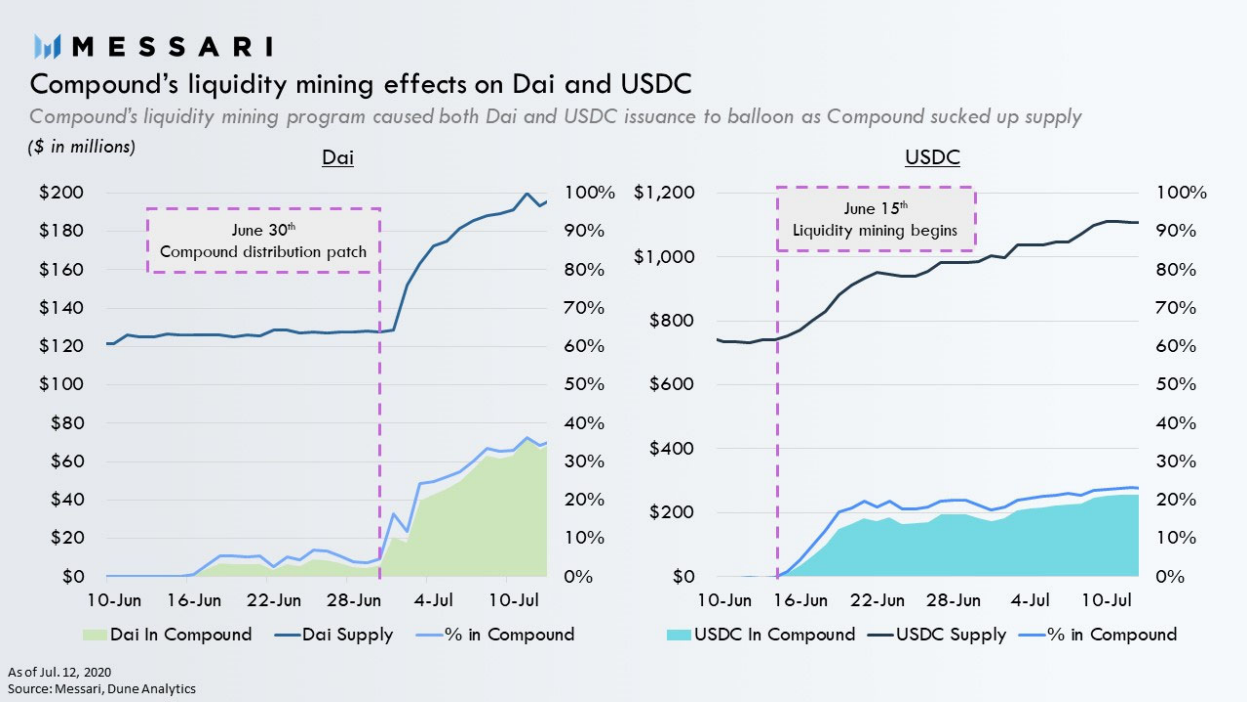
Stablecoins were at the **center** of all this action, which helped build their utility outside just the payments use case. Stablecoins are beginning to play a significant role in DeFi and will more than likely continue to moving forward.

There are **currently** eight DeFi protocols offering liquidity mining programs, distributing a combined tens of millions in incentives every month. Demand to participate in these programs has been so strong it's driven new issuance for many stablecoins, and even caused Dai's peg to rise to ~$1.02 following Compound's distribution **patch** passed June 30th, which made Dai more attractive to liquidity mine with.



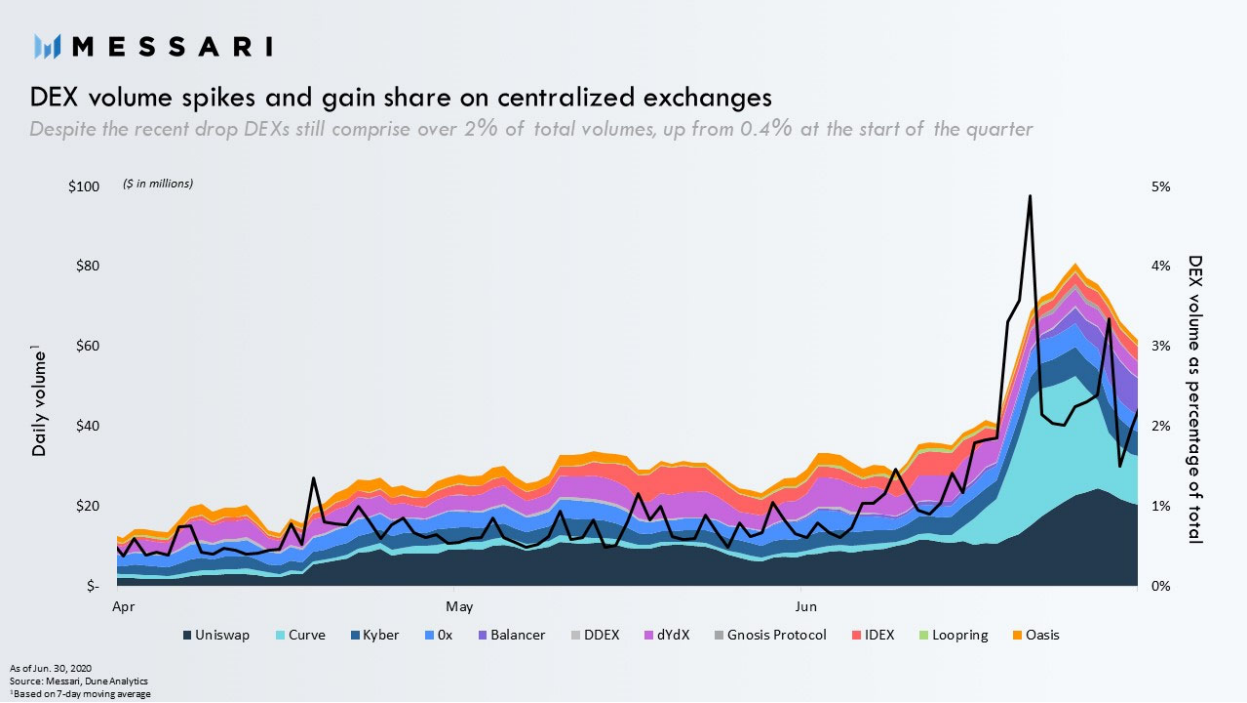
*Source: **Messari Portal***

Both USDC and Dai saw issuance soar in response to Compound's liquidity mining program. Since June 15th when Compound first launched liquidity mining, USDC issuance increased by $355 million to $1.1 billion issued. During this period more than $250 million USDC went into Compound to liquidity mine. Similarly, since the June 30th distribution patch, Dai issuance rose $72 million, with more than $78 million Dai going into Compound to liquidity mine.



In a similar vein, Curve, an automated market maker (AMM) optimized for swaps between assets price stable with one another, has also brought greater efficiency to stablecoins on-chain. Curve's ability to significantly reduce slippage on stablecoin swaps has allowed it to beat centralized exchanges and OTC desks on stablecoin trades. The Synthetix Foundation recently did a **$2.5mm sUSD USDC swap** with only $50 of slippage and $1.77 in gas fees. Curve is simply a more capital efficient way to swap stablecoins, and a rare instance where blockchains beat centralized services on anything trading related. Just months after launching, Curve is already the 2nd largest DEX by volume. And with the **upcoming**

distribution of its CRV token, which may capture a portion off the exchanges fees, one of a couple interesting ways to play the growth of stablecoins on Ethereum.



Continuing quest for a decentralized stablecoin

FATF Stablecoin Report

Stablecoins have largely operated on a **permissioned pseudonymity** model, in which only issuer-facing transactions require KYC/AML. Under this model, stablecoin transactions are permitted by default and are only freezed on a blacklist basis. Given that issuers do not audit every transaction, in **practice** this has allowed for a digital cash-like experience for users. However, as stablecoins continue to explode in both issuance and transactional value, it is unclear whether this regime will continue as is.

In October 2019, the G20 asked the **Financial Action Task Force** (FATF) to consider the anti-money laundering and counter-terrorism financing issues relating to stablecoins. On July 7, 2020 FATF released a **report** laying out their views on stablecoins that addressed money laundering and terrorist financing risks and how FATF standards apply to various stablecoins and the different entities involved with them. The report made it very clear the regulatory obligations various entities involved in stablecoin arrangements have and called

for built in AML/CFT protections at the protocol level. However, the most surprising part of the report was the FATF views on decentralized stablecoins. While they doubt the ability of decentralized stablecoins to gain adoption, they did suggest that there may be little regulators could do if one were successful. They further suggested that entities that create and promote a decentralized stablecoin would likely qualify as financial institutions or virtual asset service providers (exchanges, custodians, issuers), and would need to build in AML/CFT protections before launching the protocol. This would be in addition to the previously mentioned obligations different exchanges and custodians have when dealing with all cryptoassets.

Table 1. Functions subject to AML/CFT obligations in known centralised so-called stablecoin arrangements [1]

Core functions	Specific functions	Is there an AML/CFT-obliged entity (VASP or financial institution)?
Governing the system	*Before establishment:* Setting rules for how to stabilise value, and operate the system and establishing other core functions	Yes [2]
	After establishment: Operating the system and updating rules and potentially other core functions	Yes [3]
Issuance, redemption and stabilisation of value of coins	Issuance and redemption of the coin	Yes
	Management of reserve assets	Depends on arrangement
	Provision of custody for reserve assets	Depends on arrangement
Transfer mechanism(s) [4]	Operation of infrastructure	Depends on arrangement
	Validation	Depends on arrangement
Interaction with users	Storing of asset: *custodial wallet providers*	Yes
	Storing of asset: *non-custodial wallet providers / unhosted wallets*	No (if permitted)
	Secondary market trading: *through exchanges and transfer services*	Yes
	Secondary market trading: *peer-to-peer via unhosted wallets*	No (if permitted)

What the new FATF guidance made clear is the need for decentralized stablecoin that would be free from censorship, seizure, and surveillance. There are a handful of candidates vying to fulfill this need.

<u>Protocol Candidates</u>

Maker – Dai is still the king of decentralized stablecoins. However, Maker's competitive positioning within the DeFi system has changed significantly in recent months. It is important to remember that functionally, Maker is a lending protocol. Dai is issued as a

byproduct. It is on the lending front that Maker finds itself competing with a handful of challengers offering more attractive credit facilities. Compound and Aave have exploded both in price and utility this year providing borrowers with more collateral options, more borrowing options, lower collateralization ratios, lower liquidation penalties, and even incentives like token rewards. The effect is that Maker is a far less attractive protocol to go for leverage than it was even a year ago. Maker is no longer the only game in town.

Beyond competitive pressures, Maker still has a more **fundamental challenge** of finding a way to scale Dai issuance with demand for Dai. This issue has been highlighted a couple times this year, including during **Black Thursday**, which saw the Dai peg blow out over $1.20, and during the on-going Compound liquidity mining craze, which the Dai peg has still not recovered from. The Maker community is well aware of these issues and is currently working through **potential solutions**.

Maker is challenged now and going through a bit of a "restructuring phase," but I would not count it out. Maker has built one of the larger, more engaged communities in DeFi over the past couple years, which should give it the ability to deal with these challenges. However, DeFi moves fast and a window of opportunity has opened.

Synthetix – The synthetic asset and exchange protocol has been on a tear over the past year, rapidly iterating, innovating, community building, and ultimately being rewarded by the market for doing so. Its stablecoin sUSD has seen issuance increase significantly over the past quarter. In April, Synthetix launched an **incentivized sUSD Curve pool** aimed at increasing sUSD liquidity and confidence in the stability of the peg at $1.00. Additionally, in June Synthetix **launched** Binary Options and sUSD became available to deposit on Idle, a yield optimization tool. These are just a couple potential reasons the sUSD supply grew from $4.7 million in the beginning of Q2 to its current $22.8 million.

Nevertheless, sUSD faces the same scaling challenges Maker does, although slightly different. In theory more sUSD can be issued if demand increases; however, that issuance is capped at the total possible synth supply and the total synth supply is capped according to the value of SNX staking. SNX stakers must maintain a minimum collateralization ratio of 800%, which means if the synth supply hit it's limits sUSD would either need the SNX price to increase to provide more room to issue synths, or an investor to long SNX, stake, and

mint new sUSD (subjecting themselves to price exposure and debt). However, considering Synthetix's continued pace of innovation and product iteration, and SNX's continued price increases it could be that the potential synth supply, and thus potential sUSD supply will be large enough to scale with sUSD demand as Synthetix grows.

mStable - The newest protocol of the three mentioned in this section, mStable is a stablecoin aggregator that unites stablecoins, lending and swapping into one protocol. mStable issues a stablecoin, mUSD, that is a claim on an underlying basket of fiat and crypto collateralized stablecoins. The idea is that mUSD does not have the same idiosyncratic risk as any one stablecoin, and also incorporates an exchange to swap the underlying stablecoins 1:1 and a native yield generating solution across various lending pools. The protocol will be backstopped and governed by MTA holders, who will bear all the risk of the underlying stablecoins and receive cash flows from the interest, cash flows from exchange fees generated by the protocol, and protocol inflation.

In the month and a half since launching mStable has sucked in $26 million in stablecoins, issuing a corresponding 26 million mUSD, due to an incentive program that rewards users with MTA for issuing mUSD and supplying mUSD liquidity on Balancer.

The project is very early and it's unclear if users want a stablecoin that assumes part of the risk of every stablecoin on the Ethereum blockchain it accepts. Furthermore, it is unclear if its constant sum bonding curves used for 1:1 stablecoin swaps are viable in the long run. Nevertheless, the project is worth watching as it continues to rollout over the next few months. It's **super high savings rates** alone may attract demand for mUSD for the foreseeable future. And the recent Alameda Research / FTX investment / partnership should help as well.

Base Layer Candidates

The Seigniorage Shares stablecoin model appeared dead after the stablecoin project Basis **shutdown and returned money** to its investors near the end of 2018 due to push back from the SEC. The project had previously raised $133 million from several high-profile investors including Google Ventures, Andreessen Horowitz, and Bain Capital.

Today, the model is having a bit of a renaissance with stablecoin projects Terra and Celo both having launched providing a new way to play the growth of stablecoins. Unlike the crypto collateralized stablecoin model, the seigniorage shares model theoretically allows stablecoin supply to scale with demand. And it does so without sacrificing centralization like fiat collateralized stablecoins.

Terra – Since its mainnet launch in 2019, Terra has quietly become one of the most used blockchains in the industry. Supporting multiple fiat currencies and its flagship SDR stablecoin, the Korea based project regularly generates the **highest transaction fees** of any blockchain outside Bitcoin and Ethereum. This is in large part do the success of its Chai, a payment gateway supported by Terra's blockchain, where users link their bank accounts to pay, and Terra's blockchain technology runs in the background. Chai is currently integrated with one of Korea's largest e-commerce sites TMON, as well as a handful of other online merchants, and **hosts** ~1.7 million total users, 400,000 of which are active. The app has facilitated $78 million in transactions in the last 3 months from April to June.

While Terra has largely gone unnoticed on the Western crypto scene, it is doubtful it stays that way for long, especially as the project begins to dip its toes in **DeFi**. Furthermore, as a Tendermint based blockchain, Terra's ability to tap into the Cosmos ecosystem may help bootstrap its stablecoins' adoption. Although Terra (LUNA) primarily trades on Korean exchanges for now, with Binance, Huobi, and OKex backing the project, it's not hard to imagine it being listed on these exchanges should interest pick up.

Celo – Having recently **launched** in June, Celo, once dubbed as "**Libra minus Facebook**," is one of the most well-backed blockchain projects in the industry with a cap table including individuals such as Reid Hoffman and Jack Dorsey, and investment funds such as Andreesen Horowitz and Polychain Capital. One of the most interesting features about Celo is its ability to use phone numbers as public keys. The project's first application, Celo Wallet, intends to be a social-payments system centered around mobile phones. The project's go-to-market strategy is centered around the developing world where Celo has astutely identified an opportunity to provide real world value given **global smartphone penetration**.

The project is still very new, and it enters an early but increasingly crowded stablecoin space with Facebook's Libra along the horizon. Furthermore, unlike Terra, it runs on it's own

independent blockchain, which may cause cUSD to live or die with the application ecosystem built on Celo. However, given its backers the project is worth watching as it continues to rollout.

Libra is back

Speaking of Libra, and last but certainly not least, the 800-pound Gorilla is back in play. Almost a year after unveiling itself to the world, on Apr. 16, 2020 Libra shared its revised plan. Addressing the concerns of regulators regarding privacy, corporate power, and the potential challenge to many nation's monetary sovereignty, the plan proposed:

1. Single-currency stablecoins in addition to the multi-currency Libra coin
2. No future transition to a permissionless system
3. More robust compliance framework
4. Strong protections for the Libra Reserve
5. Easier integration of CBDCs to replace stablecoins

Additionally, the Libra Association, the organization responsible for the governing, operating, and administering the Libra network, Libra payment system, and Libra Reserve, added a couple of executives with regulatory and compliance experience, including its CEO Stuart Levey.

Libra will be important to watch for several reasons, like potentially introducing cryptocurrency to Facebook's billions of users. However, perhaps most important for the stablecoin industry is how Libra continues to be perceived on the regulatory front. As mentioned previously, stablecoins have operated permissioned pseudonymity models, in which only issuer-facing transactions require KYC/AML, and user transactions are permitted by default. Libra's newest model suggests this regime may only exist due to the historic insignificance of stablecoins, only having recently even eclipsed the $10 billion monetary base mark. It seems apparent that Libra will operate on more of a whitelist type model in which users that do not have access to regulated and/or certified service providers, will only be able to spend and receive limited amounts of Libra coins through unregulated third party wallets (Unhosted Wallets). Libra **explicitly stated** in its revised whitepaper that "its compliance framework for Unhosted Wallets based on the feedback received from regulators," which makes it pretty clear what regulators want from centrally issued and managed stablecoins.

The Libra project has kicked into high gear this year as it preps for its planned end of 2020 launch. The project has **added** a handful of new Libra association members, Facebook's wallet subsidiary recently **re-branded** from Calibra to Novi, and Mark Zuckerberg even provided commentary on how Facebook could **profit** from Libra. Hate it or love it Libra is a critically important project to watch to understand the future of the stablecoin sector.

Closing Thoughts

For a long time, the only way to play the growth of stablecoins as a token investor was through Maker. But now there are a variety of options that increasingly look both attractive and investable.

Stablecoins are proving to be a killer use case of blockchains and may possess the most near-term potential at real world impact. What Q2 2020 made clear is that the previous quarter's growth was not just due to a flight to cash spurred by the initial financial markets turmoil around the coronavirus pandemic. Instead it is that stablecoins, in some respects, offer a superior payments and savings solution.

More broadly for those that scoff at the idea of stablecoins, the bigger picture is that stablecoins may be the single most important use case to help crypto cross the chasm into mainstream. And it's important to remember that in the long run, stablecoins are not a compromise, they are a trojan horse for permissionless money.

EXHIBIT 3

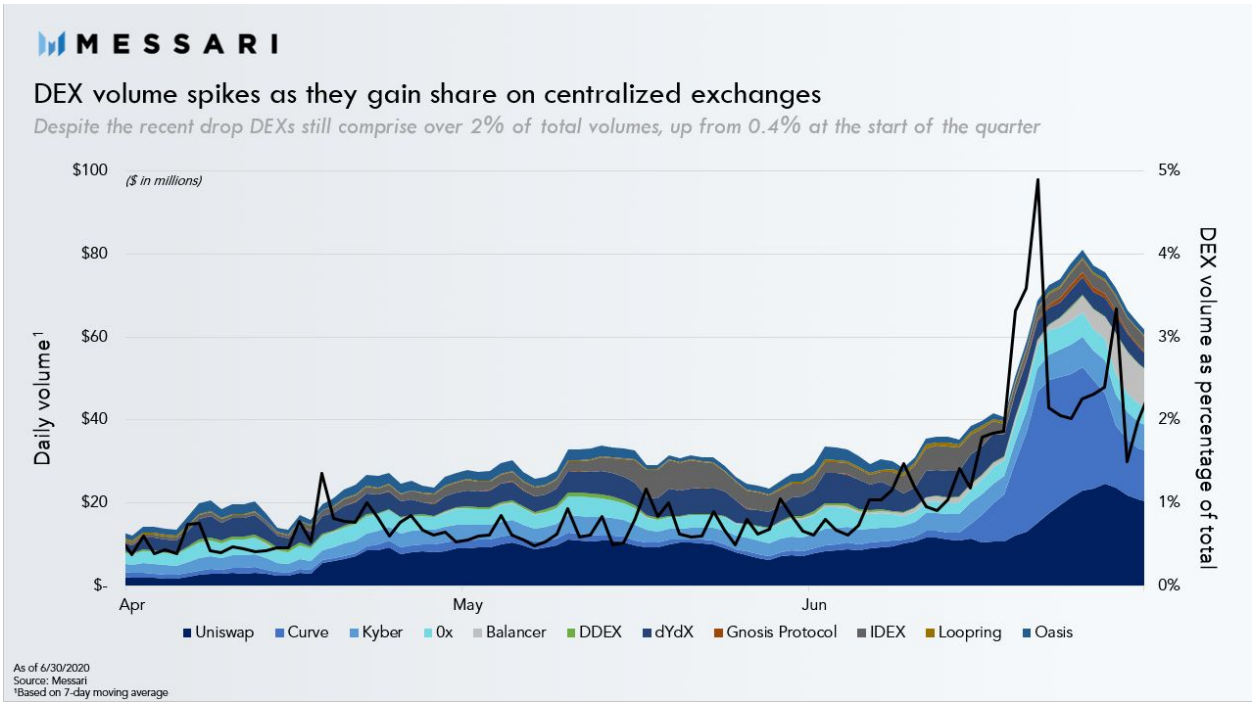
Liquidity mining drives DeFi usage, value locked, and token prices to all-time highs

By nearly every metric, Q2 proved to be DeFi's breakout quarter. Total value locked surged to over $2 billion. DEXs saw record volumes with over $500 million in a single week as they continue to gain market share on centralized exchanges. Lending markets exploded on the back of Compound's liquidity mining program which increased outstanding debt from ~$25 million at the start of the quarter to $800 million by the close. On top of all this activity, the native tokens of these protocols appreciated significantly as investors continue to bet on them capturing substantial future earnings.

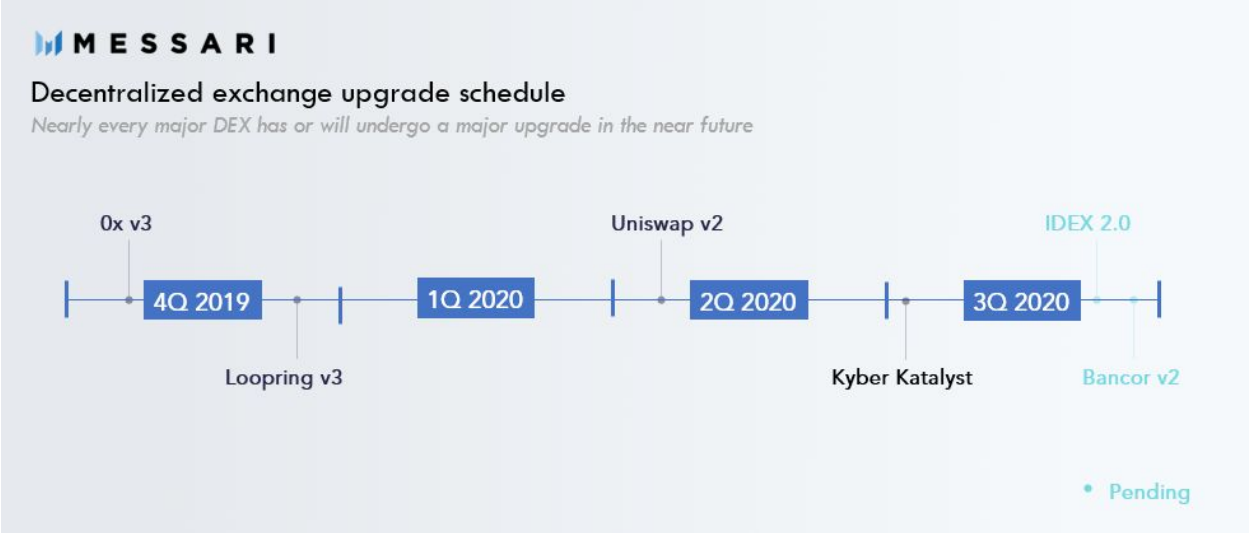
Sector Breakdown

Decentralized exchanges (DEXs)

Every major sector outperformed ETH with DEXs in the lead having risen 160% since April 1st. This shouldn't come as a major surprise as they continue to encroach on what has been the most profitable business in crypto to date. Over the past year, DEXs have comprised an increasingly larger share of total trading volume in crypto, particularly over the last few months.



This comes at a time when there are radical changes being made to the protocols affecting their performance and incentive models. The two dominant DEXs, Uniswap and Kyber have both undergone major upgrades with two more expected in Q3.



Lending

Lending markets also grew at an impressive rate almost entirely due to Compound which had $100 million locked up before its token distribution began causing TVL to surge to over $650 million. This created a dynamic where there is more Dai locked up in Compound than actually exists. While this initially appears to be a sign of fractional reserve banking, there's a simpler explanation: users are reborrowing Dai that has already been deposited. However, the net assets in the system actually increase more than the liabilities since users must still over-collateralize their

loans. Since COMP wasn't trading until the end of the quarter it was excluded from the price chart but notably experienced a volatile couple weeks increasing from low double digits to over $400 before falling back to under $200 where it currently sits.

One of Compound's major competitors, Aave, also saw its TVL go exponential as it increased from $25 million to nearly $200 million at the time of writing. Much of this growth was reflected in the price of the LEND token which was up over 500% on the quarter, however, the market is still discounting it on a relative value basis pricing LEND at 1.5x TVL compared to Compound's 2.4x. This could be due to Compound being more established, but Aave is notoriously rapidly shipping new features such as the recently announced undercollateralized loan system which caused a stir in the DeFi community and could get priced in should it take off.

PM/Oracles

Prediction market and oracle platforms didn't experience as much attention as the prior two sectors but there have been important developments nonetheless. Augur's long-awaited v2 upgrade was announced and is currently scheduled for July 28th, while Gnosis shipped Omen an alternative prediction market that uses an automated market maker model. Decentralized prediction markets have yet to garner any meaningful traction but with these new releases, the return of professional sports, and a U.S. presidential election that could change.

Oracles are a vital piece of middleware needed to power the DeFi ecosystem. While Chainlink has been the clear market leader, Band is starting to gain more attention having launched their mainnet phase 0 and competing in the partnership race as they look to become integrated into more protocols requiring data feeds.

Asset management

After bursting onto the scene in 2019 and subsequent 50% drawdown in Q1, Synthetix is once again on the rise up nearly 200% on the quarter. It's unique model of asset creation and exchange has begun to find product-market-fit and is fostering one of the more active communities in DeFi.

While it's an order of magnitude smaller, Melon had a strong quarter as it passed the $1 million threshold in assets under management while MLN increased over 400%. As the investable universe around DeFi continues to grow so too will the demand for asset management services. Products like sDeFi or more actively traded funds are likely to be the beneficiaries by providing exposure without deep expertise required in asset selection.

Broader trends

Liquidity mining

You can't explain what happened to DeFi in Q2 without a discussion around what can only be described as a frenzy reminiscent of the 2017 ICO mania. However, the major difference being that instead of investors purchasing tokens they would deposit liquidity into various lending or exchange protocols to earn them. While Synthetix pioneered this model, Compound took it to

the next level as its instant multi-billion dollar valuation provided lucrative returns for early yield farmers. In what looks similar to an equity giveaway, these liquidity mining programs have shown to be quite effective bootstrapping liquidity in early-stage financial protocols. So much so that token projects not implementing a token-based incentive may find themselves at a disadvantage in the increasingly competitive market for liquidity. However, this doesn't mean all token projects implementing liquidity mining will be successful. To put it bluntly:

"When you give gamblers equity of the casino, don't be surprised they gamble more and bring their friends, all the meantime your casino sees gangbuster revenue. When every casino in town does it, you will eventually run out of gamblers."

Aggregation

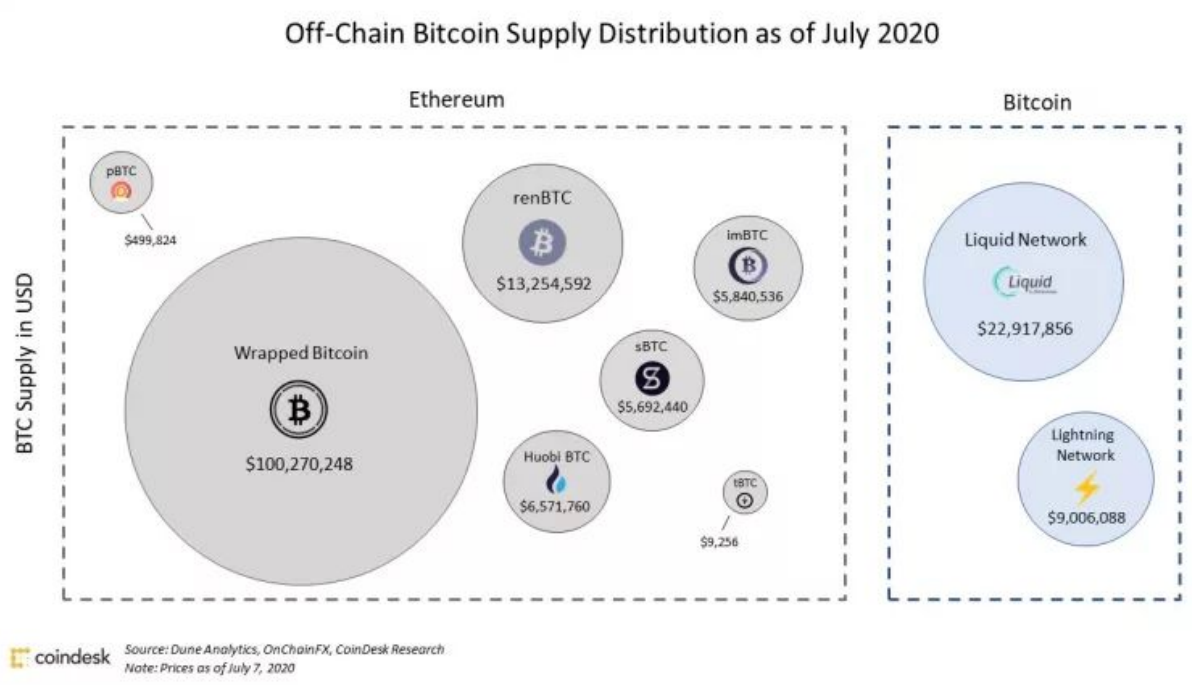
Aggregation theory is the idea that the internet enables near-zero marginal cost distribution and transaction costs which commoditizes suppliers creating a profitable opportunity for any aggregator that can compete on the best user experience. While this line of thinking doesn't map perfectly, it can still be applied to DeFi.

Users don't care what underlying protocol they are using. They want certain financial services and they want them at the best price. If it's an exchange then its low fees and slippage. If it's a lending service they want the best interest rate. This is why aggregators such as 1inch have become so popular because they are able to draw liquidity from all of the major providers to ensure users get the best price on any trade.

Not only is this occurring with exchanges but lending protocols too as aggregators such as RAY optimize users' funds across various fixed income products. We're even seeing this with stablecoins. mStable is creating a basket of fiat and crypto collateralized stablecoins to create an asset that doesn't have the same idiosyncratic risk as any one stablecoin while also incorporating a native yield generating solution across various lending pools.

Bitcoin on Ethereum

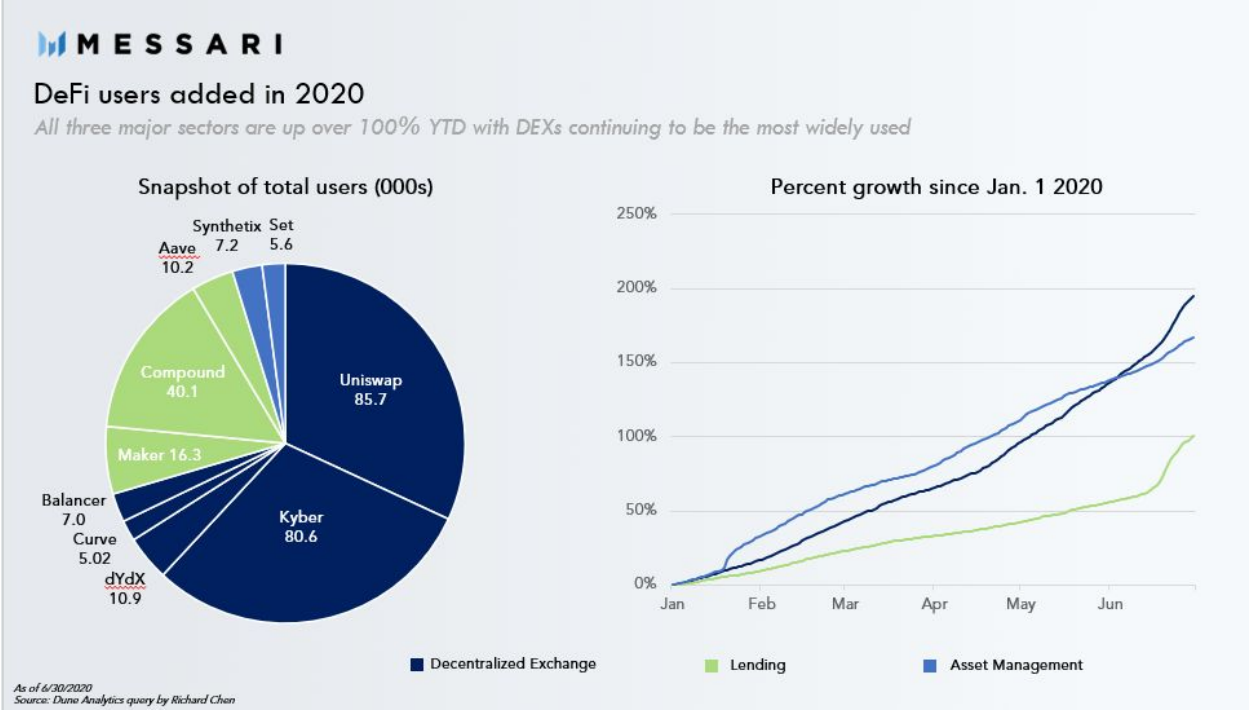
Until recently the two largest crypto assets have existed almost entirely separate from each other. Bitcoin as a digital gold and apolitical settlement layer while Ethereum gradually morphed into a more expressive financial platform enabling a multitude of Defi applications. However, the two worlds are beginning to collide with $140 million of bitcoin currently held on Ethereum, 6x the amount at the beginning of the quarter.



Most of this is held in wrapped bitcoin, a 1-1 backed token custodied by BitGo but there are a growing number of more trustless versions such as renBTC or even completely synthetic representations such as sBTC. Similar to the world of stablecoins, the trusted versions have proven to scale a lot quicker than the others but they will inherently suffer from the looming threat of censorship or outright government intervention.

No signs of slowing down

The meteoric rise in the amount of value within the DeFi ecosystem, as well as the growing number of profitable opportunities, has led to an influx of new users.



All three major sectors are up over 100% on the year with DEXs and lending growing at a faster rate in Q2. The increased attention brought about by the last few months of activity will likely lead to more investment and subsequently better, more useful products which should bring in even more users. It feels as though DeFi has reached this critical mass where this reflexive cycle is starting to kick into high gear.

It almost certainly won't be all smooth sailing as the road is paved with scammers, hackers, and frauds. Money will be lost. But hopefully, even more money is gained as the ambitions are set high with DeFi looking to replace a financial system riddled with problems that are becoming more apparent every day.