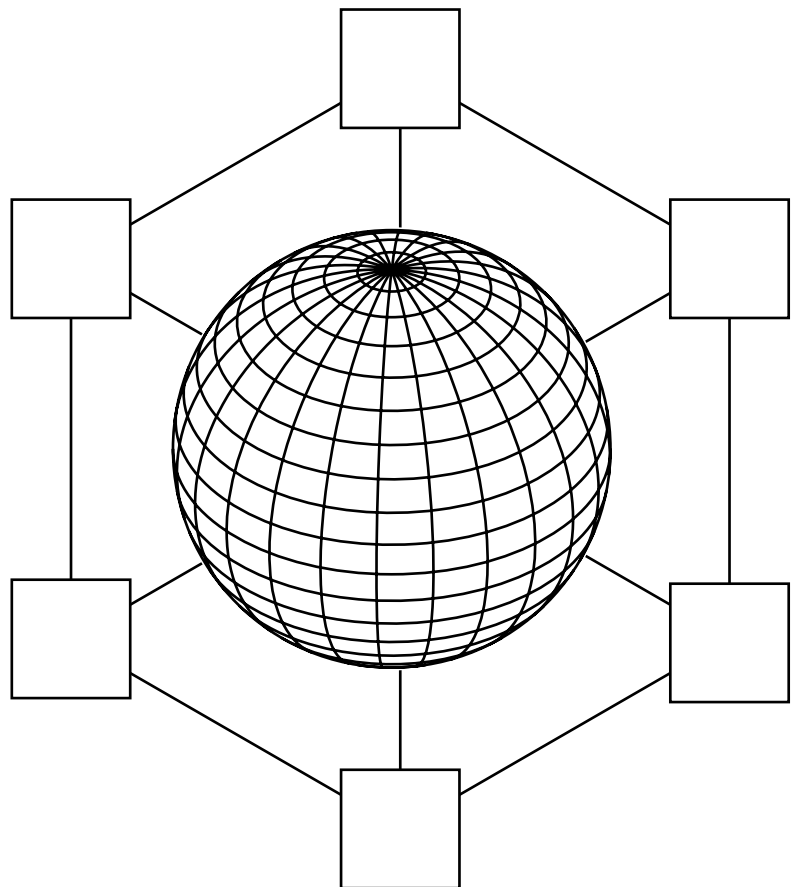


# How Decentralized Finance is Automating Central, Commercial, and Investment Banking

Written by Demelza Hays



■ **The decentralized lending market has \$477 million in outstanding loans and is expected to become a billion-dollar industry in 2020.**

■ **Similar to LIBOR, a decentralized inter-protocol offered rate (DIPOR) is being developed that will serve as a benchmark for decentralized finance loans, interest rate swaps, and total return swaps.**

■ **Cryptographic stablecoins suffer from the stablecoin trilemma that forces issuers to choose two out of three goals: decentralization, capital efficiency, and collateralization.**

“What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party.”

— Satoshi Nakamoto

**T**he cryptocurrency and blockchain revolution is about removing unnecessary intermediaries from financial transactions. Over the past six years, large cryptocurrency exchanges and brokers have gradually expanded their services. Originally, they provided deposit accounts and trade settlement. Today they offer stablecoins, lending, staking, crypto payments, and derivatives. However, the market is fragmented with different exchanges, custodians, brokers, and market makers.

In 2020 and onwards, cryptocurrency companies will compete to have the largest network of users by providing the most user-friendly and lowest cost on-ramp into crypto from fiat. Similar to the consolidation of investment banks and commercial banks after the repeal of Glass-Steagall in the 1990s, cryptocurrency companies are becoming megalith companies that provide a whole gamut of financial services from security token underwriting and listing to retail checking accounts. In response, decentralized finance (DeFi) applications are being developed that increase the variety and quality of services in the entire industry.

The decentralized finance movement is taking us back to Satoshi Nakamoto’s original vision of conducting financial transactions online without an intermediary. In contrast with the centralized services provided by crypto banks and exchanges, decentralized finance refers to financial services that allow users to keep custody of the private key that controls access to their

wallet. There is already \$670.9 million worth of cryptocurrencies locked in Ethereum-based DeFi smart contracts with MakerDao Dai accounting for 50 % of that market.<sup>1</sup> When including EOS-based DeFi applications, the figure swells to \$892 million currently locked in decentralized finance smart contracts.<sup>2</sup> For example, the DApp EOSRex has almost \$300 million locked in it.<sup>3</sup>

According to the Financial Stability Board, there are four main ways that DLT will impact financial services: payments and settlements, trade finance, capital markets, and lending.<sup>4</sup> This article focuses on the two main areas where decentralized finance applications built on public and permissionless distributed ledger technologies like blockchains are expected to disrupt banking, including central banking, in 2020: decentralized stablecoins and decentralized lending.

### **Decentralized Stablecoins Are Disrupting Central Banks**

The increasing interest in blockchain and distributed ledger currencies has prompted central banks to release cryptographic national currencies. Nine countries have either already launched or will soon launch a cryptographic version of their currency including Singapore (Monetary Authority of Singapore), China (People’s Bank of China), Cambodia (National Bank of Cambodia and Soramitsu), Thailand (Bank of Thailand), Brazil (National Social Development Bank), Venezuela

<sup>1</sup> <http://defipulse.com/>

<sup>2</sup> <https://defi.review/>

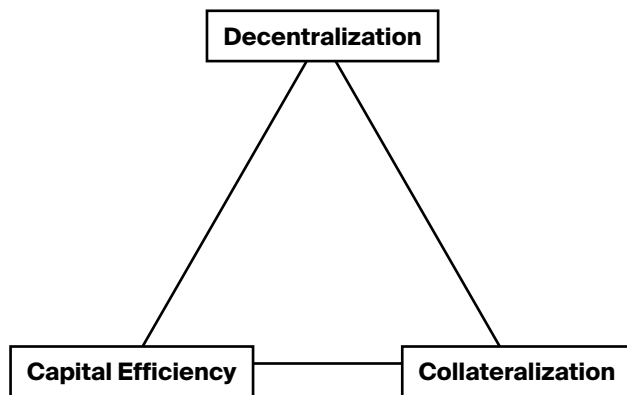
<sup>3</sup> Although the DeFi Pulse is one of the leading data sources for decentralized finance use, Alethio and DeFi Review are also frequently used.

<sup>4</sup> <https://www.fsb.org/wp-content/uploads/P060619.pdf>

(Petro), France (Bank of France), Sweden (Riksbank), and a select cohort of Caribbean nations (Bitt). Central bank digital currencies (CBDCs) will compete with corporate issued stablecoins by tech giants, such as Facebook’s Libra, and private issued stablecoins, such as MakerDao Dai. Whether government, corporate, or private, currency issuers must make decisions with regard to token economics. For example, what type of collateral should be used to back the coin’s value on the market, if the coin’s value should be pegged to another asset, if the blockchain should be public or private, and the optimal inflation rate.

However, cryptographic stablecoins suffer from the stablecoin trilemma that forces issuers to choose two out of three goals: decentralization, capital efficiency, and collateralization.<sup>5</sup>

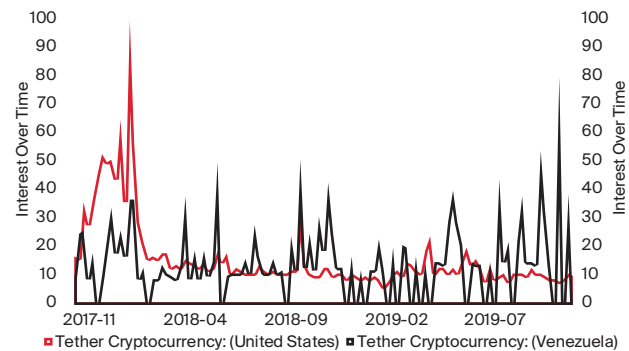
## The Stablecoin Trilemma



In this context, decentralization refers to how transactions are validated in the network. This means that anyone has the ability to setup a miner or staking node and begin validating transactions instead of relying on a central authority to approve all transactions. Capital efficiency refers to coins that have 100 % collateral backing or less, and collateralization refers to coins with more than 100 % on-chain collateral backing. Stablecoins such as MakerDao Dai, EOSDT, and Neutral have two out of the three qualities, decentralization and collateralization. However, they are capital inefficient. Stablecoins such as Gemini Dollar and Tether are decentralized and capital-efficient; however, they have 100 % or less on-chain collateral backing and require users to trust the issuer. This is where most of the central bank digital currencies fit in. Finally, there

are decentralized stablecoins that are capital-efficient that rely on algorithms to stabilize their value. Basis was the most famous coin in this category; however, the project was stopped by US regulators before being released to the market.<sup>6</sup>

The urgency of creating central bank digital currencies is bolstered by the growing retail demand for decentralized cryptocurrencies and stablecoins. In countries with high inflation, residents can purchase Bitcoin and then convert Bitcoin into stablecoins like Tether and MakerDao Dai. According to the International Monetary Fund (IMF), Venezuela’s inflation rate in 2019 is estimated to be 10,000,000 %.<sup>7</sup> This has triggered an increase in interest in cryptocurrencies, such as Bitcoin, and stablecoins, such as Tether. Bitcoin transactions accounted for \$7 million per week before the government enacted limits on Bitcoin transactions in February. Furthermore, stablecoins can be used in countries that have strict capital controls,<sup>8</sup> such as Argentina, where individuals are only allowed to purchase up to \$10,000 a month worth of U.S. dollars.<sup>9</sup>



Source: coin.dance, Google Trends, Incrementum AG.

Venezuelans Demand Bitcoin and Increasingly Search Tether Cryptocurrency on Google.

<sup>5</sup> The State of Stablecoins 2019 Hype vs. Reality in the Race for Stable, Global, Digital Money.

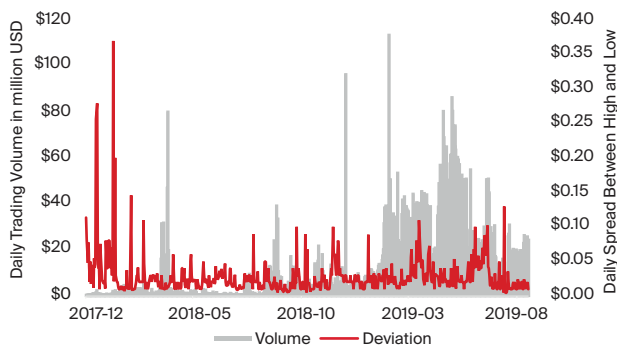
<sup>6</sup> <https://www.theblockcrypto.com/daily/5122/stablecoin-project-basis-is-shutting-down-and-returning-the-majority-of-capital-raised-to-investors>

<sup>7</sup> <https://www.imf.org/en/Countries/VEN>

<sup>8</sup> <https://outlierventures.io/wp-content/uploads/2019/06/Mapping-Decentralised-Finance-DeFi-report.pdf>

<sup>9</sup> <https://www.bloomberg.com/news/articles/2019-09-01/argentina-imposes-currency-controls-as-debt-crisis-escalates>

Decentralized cryptocurrencies, such as Bitcoin and Ether, and stablecoins, such as MakerDao Dai, can be used to send value over the internet without intermediaries.<sup>10</sup> The largest decentralized finance stablecoin is MakerDao Dai with approximately \$317 million worth of Ether or 1,753,031 ETH locked up in MakerDao Dai collateralized debt positions or “vaults” (at the time of writing).<sup>11</sup> This amounts to 1.62 % of all outstanding Ether. Locking up Ether allows users to create Dai. There are currently 96 million Dai in circulation, which has a USD value of approximately \$96 million because Dai is pegged one-to-one with the US dollar. The amount of Dai locked up has had a positive correlation with the price of Ether in the past, which means that as the price of Ether increases the amount of ETH locked up in MakerDao Dai vaults has increased.



Source: coinmarketcap.com, Incrementum AG.  
MakerDao Dai Intraday Volatility and Daily Trading Volume

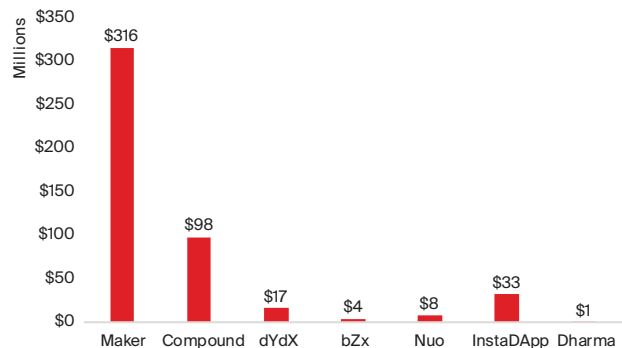
The stablecoin market is expected to grow larger in 2020. Investors in low-interest-rate and negative-interest-rate countries, such as Switzerland, can earn higher annual returns on stablecoins via staking and lending interest rates. For example, Dai deposited on Compound is earning 5.7 % APR.<sup>12</sup> Germany’s recent regulation enabling banks to store cryptocurrencies on the behalf of clients is likely to extend federal deposit insurance to stablecoins, further professionalizing the industry.<sup>13</sup>

**Decentralized Lending Will Become a Billion Dollar Industry in 2020**

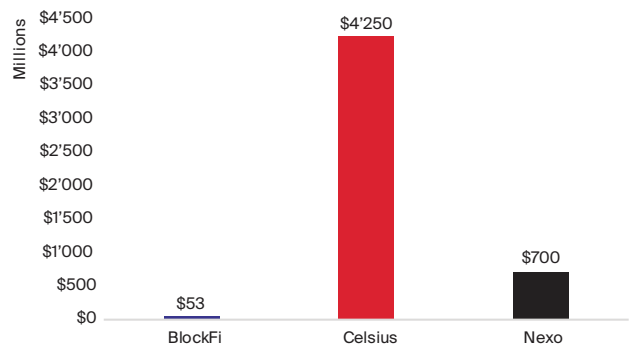
The main service of banks is to pool risks and match maturities of clients that want to lend and clients that want to borrow. Smart contracts enable pooling of risks and matching maturities to be automated and

executed on a blockchain. Therefore, one of the largest impacts of decentralized finance applications on banking is peer-to-peer lending and borrowing that allows clients to keep control of their private keys. Decentralized crypto lending platforms, such as Maker, Compound, and dYdX, have approximately \$477 million in assets loaned. In contrast, centralized platforms, such as Celsius, Block Fi, and Nexo, have completed over \$5 billion in cryptocurrency loans to date.

The advantages of decentralized finance loans are that they are lent on non-discriminatory basis, meaning that the same rates are available to any borrower regardless of that individual’s characteristics. The terms and conditions of DeFi loans vary depending on the platform; however, many DeFi loans do not have a minimum loan amount or lending period. On average, decentralized lending platforms have lower interest rates than centralized cryptocurrency lending platforms. Interest rates for truly DeFi lending platforms such as Compound have much lower interest rates (0.02% per annum for ETH) than centralized crypto lending platforms like Celsius Network (3.40 % per annum for ETH).<sup>14</sup>



Source: defipulse.com, Incrementum AG.  
Total USD Value of Loans or Borrows from Decentralized and Centralized Crypto Lending Platforms in Millions of USD



<sup>10</sup> Decentralized finance stablecoins do not include stablecoins such as Tether that require a central party to manage reserves of tangible or physical assets.  
<sup>11</sup> <https://mkr.tools/system>  
<sup>12</sup> <https://compound.finance/>  
<sup>13</sup> <https://www.coindesk.com/german-banks-allowed-to-sell-and-custody-crypto-assets-from-2020-report>  
<sup>14</sup> <https://www.bitcoinsuisse.com/research/decrypt/on-chain-derivatives-and-insurance/>

The stablecoin MakerDao Dai only allows users to “borrow” from themselves instead of lending out cryptocurrencies to other people. This is why DeFi apps, such as Compound and dYdX, are gaining traction. They allow investors to lend out cryptocurrencies to other people, which competes with the traditional service of pooling risks provided by banks. Although the process is complicated, sophisticated investors are locking up Ether and other cryptographic assets in MakerDao smart contracts, “creating” Dai. That Dai is then sent to the Compound smart contract in order to lend out to borrowers and earn interest. Dai already accounts for double digit percentages of volume on the lending platforms Compound and dYdX.

In 2020, arbitrage between debt markets and staking markets will lead to a narrowing of the spread in crypto interest rates on lending and staking returns. Investors can borrow coins from low-interest decentralized lending platforms and lend them out on high-interest centralized lending platforms. Investors can also borrow 32 Ether for low rates on DeFi platforms and set up Ethereum nodes earn approximately 4 % per annum after the switch to proof of stake in Q1 of 2020. However, lending and staking have different liquidity profiles and risks. Different lending and staking applications require investors to lock up coins for varying periods of time. Centralized solutions have credit risk while decentralized solutions have technical risks, such as a bug in the smart contract code. Also, staking Ether requires technical expertise and nodes that are not online all of the time will be punished by Ethereum’s slashing mechanism that will take ETH from the node’s staked coins and kick out the validator from the network.

In fact, The Block is working on a LIBOR-type rate for decentralized finance called DIPOR.<sup>15</sup> In 2020, DIPOR is expected to provide a smart contract-based interest rate for each cryptocurrency, based on the volume-weighted interest rates for that cryptocurrency that are being offered on the various DeFi lending platforms.<sup>16</sup> The MakerDao governors that hold MKR tokens and decide when to increase and decrease the MakerDao Dai stability fee could use the DIPOR rate as benchmark. For example, if Dai is trading at \$0.95 cents, this means that the supply of Dai on the market is too high relative to the demand. The governors could raise Dai’s stability fee above the DIPOR rate in order to encourage users to borrow Dai from other lenders instead of opening up new Dai vaults that add more Dai into circulation.

The disadvantages of decentralized lending platforms include capital inefficiency, because trustless smart contracts require over-collateralization. DeFi lending suffers from the same trilemma as stablecoins discussed in the previous section. The average amount of collateral invested in MakerDao Dai vaults is currently 319.83 % and has been as high as 600 % during 2019. Development teams are working on a smart contract-based way to take collateral above the 150 % requirement and automatically invest that collateral in Compound so that the depositors of over-collateralized debt positions can earn interest on their deposits. This is referred to as “superfluid” liquid in the cryptocurrency space because the same collateral is pledged for multiple contracts. This development is expected to increase the interconnectivity of the decentralized finance applications and increase the overall systemic risk similar to rehypothecation and over-leveraged collateralized debt positions during the subprime mortgage crisis of 2008.

## Conclusion

The DeFi movement in 2020 is expected to witness the emergence of new smart contract applications such as synthetic tracking of all financial assets, such as gold, shares, and bonds, via collateralized debt positions on Ethereum, staking of fractional amounts of cryptocurrencies with wallets that allow users to hold private keys, and decentralized credit ratings for pseudonymous accounts based on the user’s repayment record and details of the loan, such as duration, amount, and interest rate. An exciting area that is expected to impact asset management is the “social trading” trend. Social trading apps like *settle.finance* and *TokenSets* allow asset managers to share the performance of their crypto portfolios on social media, and their followers can automatically execute the same trades that their asset manager makes while still controlling the private key to their funds.

Overall, DeFi applications that are simple to use and understand like stablecoins are expected to gain adoption by the broader market of non-crypto retail investors that live in countries with high inflation and capital controls, whereas DeFi applications that are difficult to use and understand like minting synths on Synthetix and total return swaps on UMA and Rainbow Network can be expected to gain adoption by large cryptocurrency holders and traditional hedge funds.

<sup>15</sup> The London Interbank Offered Rate (LIBOR) is the average interest rate that banks are willing to lend to other banks for in the London interbank market.

<sup>16</sup> <https://www.theblockcrypto.com/genesis/19324/introducing-dipor-libor-for-open-finance>