

MONEY MARKETS, BUT NOT AS YOU KNOW THEM

Managing short dated liquid assets and cash, known as “money markets” in traditional finance, is a multi-trillion dollar business. They are one of the key foundations of the global financial system. An individual, institution or corporate treasury may invest in the money market by purchasing either a money market mutual fund, buying a Treasury bill, or opening a money market account at a bank. They are invariably a place to park funds for a short term that you have in excess or need to keep reserved for unexpected circumstances, the investment is liquid and accessible.

The rates offered to investors or lenders of these funds are anchored by the interest rate setting mechanism of a country’s central bank. In Australia’s case, that would be the Reserve Bank of Australia (RBA) the centralised body that manages the short term price of money in an economy by buying and selling, essentially, unlimited quantities of money at the official overnight interest rate to achieve its policy objective.

In DeFi there is also a need for participants to be able to lend surplus funds and for borrowers to access liquidity. Stablecoins are the primary mechanism used to facilitate money market transactions. They play the role of digital cash in the DeFi ecosystem. In replicating a money market the challenges for DeFi were how to facilitate transactions between counterparties who don’t know or trust each other and the cost or interest rate to charge for the activity.

Looking at the issue of trust first. In a centralised system participants are verified by the regulators and often insured. This structure doesn’t exist in DeFi. The solution conceived by the early projects was for counterparties to trade with the protocol directly rather than trading with a specific counterparty. Loans

are secured by collateral in excess of the value of the loan. There is no fixed term and they can be repaid at any time with the collateral returned to the borrower. All according to the rules written into the code of the smart contracts.

The cost of money is set purely by supply and demand without reference to a central authority’s rate setting mechanism.

The over collateralisation of loans is the key mechanism which gives lenders the confidence to extend credit to protocols with no knowledge of the counterparty to which they are lending. Typically, in the early days of DeFi, ETH was the asset provided as collateral against which loans could be taken. ETH has an annualised volatility of 70-80% so the haircut required can be quite large. For example, a borrower would need to provide \$150 of ETH to borrow \$100 of a stable coin such as Dai. In the event of a fall in the value of the collateral, the smart contracts are programmed to automatically reduce the outstanding loan amounts by selling down a portion of the loan if a borrower does not top up their collateral before falling below the minimum threshold.

In this note, we will take a look at the three original protocols which conceived this form of decentralised lending and borrowing. Compound Finance, Maker Dao and AAVE.

Compound

Created in 2018 Compound is a fully decentralised Borrow and Lend protocol. The creators had a unique approach in conceiving Compound, it's built to be deployed into other businesses, products and protocols. As an example Compound can be accessed directly inside the centralised exchange run by Coinbase using APIs, decentralised Finance on a centralised platform. Compound is the original DeFi building block.

Key Features -

- Robert Leshner conceived and created the protocol and built the AUM with his team of developers to a critical mass. At that point, in 2020, they handed over control to the community of developers and users by issuing the COMP token. The token is a governance token only with voting rights for the DAO. COMP was one of the original liquidity mining programs, 42% of the total COMP supply was be distributed to users over the next four years, a tool to improve liquidity on the platform and reward engagement.
- Compound generates protocol income by implementing what they term a "reserve factor". This is a percentage taken out of the interest paid by borrowers that can be used by governance for a variety of use-cases or act as an insurance against borrower default.
- The interest rate for lending and borrowing is reset approximately every 15 seconds: it continuously fluctuates based on changes in the utilization rate which is really just an algorithm that tracks liquidity supplied versus demanded. The rate is what attracts and repels capital.

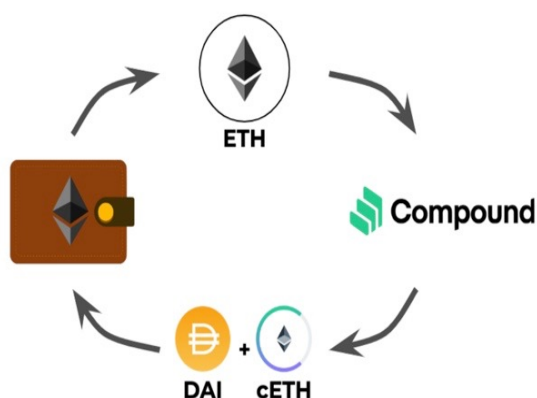
- As we mentioned earlier, risk of supplying capital is mitigated through over collateralization. To borrow \$80 of an asset you must lock in currently, around \$100. This concept is pretty unique and uniform across all of DeFi and can be hard to get your head around. Who would utilize the protocol to borrow money on these terms? To lend money to the protocol (which is what we do at FCAM) the rationale is clear, a stable income stream but what are the incentives which attract borrowers to a decentralised money market platform? Probably the primary incentive for borrowers is the ability to utilize what would otherwise be idle digital assets.

For example, an owner of ETH may not want to create a capital gains tax event but wants to pursue other opportunities in DeFi or Digital Assets. We've read a lot recently about some well known billionaires minimising taxes by taking loans against shares they own instead of selling them and incurring capital gains. In the Digital Asset space investors can access digital cash by borrowing against their assets. The borrower would borrow USDC or DAI (stable coin) to invest, trade or convert to fiat money to meet real world expenses.

In Compound in order to borrow \$80 an investor would deposit \$100 of ETH they own into the protocol. They receive 2 assets cETH (which is a tokenised version of ETH that Compound holds a lien over until the loan is repaid) and say DAI that they can use as they see fit. The loan can be repaid at any time with interest calculated after every new block on the Ethereum blockchain which is roughly every fifteen seconds.

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The loan ends under either of two circumstances. The loan is repaid, the cETH converted back into ETH less the interest cost or the value of the ETH falls to such an extent that the Compound protocol liquidates the trade and returns the residual to the borrower reclaiming the DAI.



Compound's tokenomics are interesting. It was one of the first protocols to fully decentralise and hand over the tokens used to vote to the community – A DAO. Developers and users make recommendations through the DAO for code changes. These can be as simple as adding assets that are accepted as collateral; adding assets that are loaned and the fees taken; or the extent to which loans are over collateralised.

The most important decision taken by the DAO was the allocation of COMP tokens to incentivise potential borrowers and lenders to use the platform. By encouraging user participation, the protocol's liquidity is enhanced which improves user experience while rewarding participants with better yields than they would otherwise earn or pay. These tokens clearly have value in terms of voting rights as they ultimately control the protocol's treasury.

New management structures are not without challenges and the Compound DAO is no exception. In Q3 2021 the protocol was faced with the challenge of a bug in a code upgrade that allowed users to claim, erroneously, accrued COMP in excess of what should have been the case. This saw potentially around \$68M worth of tokens issued that should have not have been. The treasury in the end made good on the error and two proposals were passed quickly, one to fix the bug and another to pay an outside auditor to review code changes and pay them \$1m per quarter. While unfortunate the experience was an invaluable step in ensuring the robustness of the protocol and the way that the DAO co-ordinated in a crisis.

The last thing to focus on is the income it generates. Compound generates protocol income by implementing a "reserve factor," which again is voted on by the DAO. It's a percentage taken out of the interest paid by borrowers. This is used by the treasury for a variety of purposes and as an insurance against borrower default and issues as highlighted above. Reserve factors vary by asset, DAI has the largest reserve factor of all stable coins on the platform which is currently 15%. DAI is currently the largest contributor to protocol income currently generating over 50% of protocol income in Q4 of 2021. Compound currently doesn't have plans to distribute the revenues it generates but in time the DAO could conceivably vote to find ways to distribute a portion of it to holders. For now they are in a growth phase and while the remainder of the Comp tokens are being disbursed over the next 3 years it is unlikely the economics will change.

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Maker DAO

Similar to Compound but different. The Maker Dao protocol was created to generate an algorithmically balanced stable coin called DAI. These are stable coins that are pegged to a US dollar 1:1 but are backed by other assets. The peg is kept by adjusting the interest rate to attract or repel the right amount of ETH (and other assets) to keep the system in balance. In Maker DAO assets are deposited in an over collateralised ratio (currently set at 150%) that allows you borrow up to \$100 for that \$150. As with the Compound protocol, if the value of the collateral declines below this ratio, the loan can be automatically liquidated via the smart contract in which it was created. On the other hand, if the collateral value increases, additional Dai can be borrowed.

Apart from some brief periods during extreme market volatility, Dai has been successful in maintaining its 1:1 value against the USD. It combines the advantages of a low volatility currency with the key attributes of cryptocurrencies (permissionless, borderless, transparent, peer-to-peer, etc.). Dai has achieved this without the explicit fiat backing of other centralised stable coins. One important mechanism in maintaining Dai's peg is via arbitrage. As equity capital is fragmented across many global crypto exchanges, pressures can arise in one jurisdiction which may cause the price of Dai to trade higher or lower than its peg. Arbitragers can quickly borrow Dai from Maker Dao, send it to another exchange to profit from the price disparity thereby helping to maintain the peg.

AAVE

The last product that we wanted to highlight in this borrow/lend space is AAVE. It is another fascinating product, similar to Compound in that it provides loans against over collateralised assets however it has two distinguishing features that we want to highlight, flash loans and the launch of AAVE Arc, its institutional product.

Flash Loans are unique in that they are set up to be executed inside one block on the blockchain. They are best thought of as instant loans which are used primarily for arbitrage opportunities. The entire transaction is executed on the basis that each transaction that is coded in the smart contract is fulfilled. Either all transactions are performed or none of them are performed. AAVE provide the leverage for the duration of the block and in return receive a fee for the service. A unique, secure loan for a specific purpose with a duration that is defined by the block time that guarantees return of AAVE's capital plus interest. Clearly these loans are designed for developers who can create code such that it operates on the Ethereum blockchain but again is another example of the potential capital efficiency in the borrowing and lending process that improve the efficiency and robustness of the ecosystem.

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The problem AAVE is trying to solve with its latest evolution is meeting KYC and money laundering requirements. This is one of the key regulatory tenets that decentralized offerings do not meet, staking capital into these protocols is done anonymously. AAVE's new product is designed as a way to entice institutional participants to have regulatory compliance. Investments in these AAVE Arc these pools are segregated and verified by the participants. Meeting these requirements make the protocol suitable for more conventional borrowers and lenders.

In conclusion

These three decentralized "money market" protocols have grown substantially since their inception a few short years ago. As the table below highlights, they have each attracted billions of dollars of assets and earn revenues in the hundreds of millions of dollars. There is strong demand and utility for these protocols. Each of them plays a similar but different role in the ecosystem. They have continuously evolved over the last 3 years to meet different needs. Compound and Maker have added assets that can be lent and borrowed and AAVE is working hard to bridge the gap between centralized and regulated entities and DeFi. The beauty of this space is the constant innovation and while replicating the existing system for a digital future is far from an easy task, these three projects have a significant head start.



Slides from Aave's first reveal of the permissioned pool in July 2021.

	Compound (COMP)	Aave (AAVE)	MakerDAO (MKR)
TVL	\$7.05b	\$13.26b	\$16.96b
market cap	\$886.21m	\$2.31b	\$1.93b
YOY total revenue	\$169.31m	\$263.98m	\$107.46m
YOY protocol revenue	\$20.20m	\$27.55m	\$107.45m
P/E ratio	66.80x	99.33x	20.09x

source: TokenTerminal.com

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