Digital assets: The Permissionless Revolution

The explosive potential of recent developments in the cryptosphere should leave banking executives and shareholders alike quaking in their comfort zone boots.

The changes they threaten in the financial services industry could be way more profound and rapid than anything we have ever seen. If the word “disruptive” hadn't been used to death already, this would be the “rip your face off” type of disruption that really gets the juices flowing. We are talking about a disruption that could be even more dramatic than what the original internet had on industries like media, content and physical commerce. We’ve watched this space intently over the past few years and we think that the developments over the past months are quite simply earth shattering for incumbents.

In recent months, a platform called yEarn, known better by the name of its native governance token YFI, has erupted into existence and promises to be the ultimate manifestation of what crypto’s initial promise was all those years ago. We are generally careful when we write about individual opportunities and let us be very clear - it is extremely early, and risks abound. The risks are big – of course they are. Remember we are dealing with VC type risk and reward profile but with public markets type of liquidity. However, in all our years analysing stocks and more recently digital assets, we have never seen anything quite like this. The possibilities are endless, and the sky is the limit. We struggle to understate the implications this emergence may have on the entire world of finance. But before we get to that in more detail, it is instructive to look to the past for the right context.

Getting place and time right

The revolution promised by digital assets, starting with Bitcoin back in 2008, was of a world where anyone could undertake any transaction with anyone else, as long as they operated according to a clear, explicit set of rules agreed upon by the community. Yes, there are rules: contrary to popular belief, this isn’t all-out free-for-all anarchy. Rather, authority would be removed from a core, centralised institution; it would become irrelevant – enforcement of rules would be decentralised and native to the environment itself. Every participant would enforce rules on themselves – because the code said so.

Trust was not needed – only immutable, unambiguous consensus from the network of computing nodes (blockchain) that indeed a transaction between two or more parties had been agreed and that the terms would be enforced in absolute terms. Want to change the rules? Sure – convince the majority of nodes in the network to agree and the rules would change. This was self-governance hard-coded to its purest form.

For the most part of the past decade, however, projects that have been launched were almost entirely junk. Just like the vast majority of pre-2000 “internet” companies weren’t *really* internet companies but for the fact that they bought a .com domain, the vast majority of early tokens/coins weren’t *really* decentralised, trustless or permissionless simply because they appended “coin”, “token” or “blockchain” to their name, and if they were, they weren’t that useful.

Yet just as it was easy to brush off the internet as primarily for criminals (for example, as described in this fascinating article in the Guardian from back in 1999), or argue that it was all made up to varying extents (here’s another Guardian article on that point post dot.com implosion), while at the

Three Body Capital Management LLP 5-6 Underhill Street, London NW1 7HS, United Kingdom

same time 20 years later being unable to imagine how *anything* could be done *without* the internet, we suspect permissionless systems will follow the same path.

And we don't need to wait 20 years. Profound, fundamental disruption has already been set in motion in the one industry that managed to dodge most of the disruption from the internet - finance. Protected by regulation and mollycoddled in its warm embrace of familiarity, the world of finance has used regulation to put off or dumb down almost every single wave of disruption thrown at it, all in the name of "consumer protection", even if the biggest beneficiary of all of it was none other than shareholders themselves.

Even "FinTech" was (and is) a very much a thinly veiled disguise, seeking to do more of the same in a quicker way, rather than risk fundamentally overhauling the system for exponential improvements. For example, most "digital banks" are merely jazzed up, well-decorated front end systems wrapped around legacy infrastructure, delivering a slight improvement in user experience but nothing fundamentally different – more of the same, but prettier and faster. To that extent, the sceptics have been right – the appropriation of "blockchain" technology into a "private" (read "permissioned") application misses the point, and calling Blockchain the "amazing solution for almost nothing" isn't far from the truth; without being *public* and *permissionless*, a private blockchain project is just a wonderful revenue opportunity for IT consultants.

The promise of digital assets was never about efficiency. Centralisation brings efficiency: just ask any autocratic government how much more efficiently they pass legislation, especially without having to ask the people what they think! If efficiency is what is desired, then centralise away.

The promise of digital assets was – just like universal suffrage – democracy: the only way to give everyone access and a voice is to do just that.

The advent of Decentralised Finance (aka DeFi) was heralded by Bitcoin's rejection of the need for third party permission. This is not to be conflated with a rejection of rules and order, and it is by clarifying this subtle but critical distinction that we begin to make our case that the promises of a decentralised internet are being delivered as we speak.

Rules and permission

Rules are important: they set out standards that govern how people, companies and any other organisations interact with each other, ensuring that things happen in an orderly manner. Most importantly, they ensure consistency, transparency and fairness. They set boundaries for what sort of behaviour is deemed acceptable by a certain community and lay out penalties for violation of these rules.

There exists, however, a fine line between rules and permission. Rules are passive and absolute: a red light at a traffic junction means stop before the stop line; a green arrow means it's safe to turn; a double white line means no overtaking – it doesn't matter what kind of vehicle you're on, if you're on the road, you play by the rules.

Permissions are a very different thing: they are active and relative. Think about a student asking a teacher for permission to leave class early: they first have to ask, and the teacher decides whether the reason given is reasonable. Now anyone who's found themselves on the wrong end of a teacher's preferred students list would know that teacher discretion is far from consistent – it

doesn't matter so much for the teacher's pet, but for the "naughty" kids, the burden of proof can become impossible to overcome.

For most of us living in developed societies, permissions don't really affect us: we go about our lives well within the boundaries set for us by civil society. We access the majority of goods and services that we need on a daily basis, and the occasional inconvenience (e.g. having the privilege of being ID-ed while buying a bottle of cooking wine on a day when we decide to not bring ID along) we write off as an oversight on our part.

Yet "developed" society isn't where the imminent opportunities are in the first instance – it's in the developing world where permissions really make themselves felt: not being able to open a bank account despite having money to deposit, not being able to borrow money despite never ever being in debt, not being able to purchase insurance cover despite being able to afford premia. These are the people who would be able play by the *rules*, if only they were *permitted* to play in the first place.

And then, having proven its creativity, robustness and efficiency by operating in the most challenging environments in the world, these systems come back to the developed world: stronger, faster and better than the incumbents.

A history of permission

Throughout all of history, humans have never been able to be trusted with behaving themselves. The risk of non-performance on an agreement between two or more parties was always there. As a result, people turned to an authority to serve as the arbiter of disputes: be it a priest, a rabbi, a village chief, a judge or a king. Over time, it fell upon these arbiters to decide right and wrong, supposedly based on the evidence presented before them, and utilise the powers vested upon them by the social contract of the time to enforce those judgements.

The only problem was that they, too, where human. For as long as human history has been recorded, the wise and righteous squared off against the evil and unjust, in an eternal struggle for fairness. Historians look upon periods of history and tend to conclude (probably rightly) that during periods of fair and just governance, society thrived. Conversely, where rights and privileges were unfairly doled out through corruption, nepotism and every other form of bias under the sun, things didn't end so well

Yet things tended to repeat themselves, with the solution to an unjust arbiter being its replacement with a supposedly just one, only for it to ultimately yield to the famous words of Lord Acton: Power tends to corrupt, and absolute power corrupts absolutely. Corruption was inevitable – as long as the arbiter was human, we could never rely on it to be consistent.

For most of us, it isn't permission we seek; it's the absolute, consistent enforcement of rules. Unfortunately, there hasn't been any way to do so without a human authority in place, which naturally leads to the rules really becoming a basis for the granting (or denial) of permission.

This changed in 2008. The lore around Bitcoin is by now well-told, but we shall summarise it for the benefit of those who haven't heard it. An individual (or group of individuals) named "Satoshi Nakamoto", still anonymous 12 years on, published a paper outlining the basis of Bitcoin as a Peer-to-peer system for global value transfer which requires no central authority to oversee. At its heart is what is now known as the "blockchain" – an immutable ledger of transactions that forms the basis of "truth" as to what has (or hasn't) happened, built on the consensus of all the individual nodes

(miners) of Bitcoin, secured by the cost of computing power as the consideration (in the legal sense) for the contract in question. Of course, as a 12-year old piece of technology, Bitcoin has its failings. But its biggest contribution (including, amongst others, applications of encryption, its disinflationary supply schedule and its divisibility to 8 decimal places) was proving that consensus and the enforcement of rules could be done by the community – not least thanks to the internet – rather than by a central "trusted" party.

Trust went out of the picture. And with it the tyranny of permission.

More than a courier

If the potential of a permissionless world were limited exclusively to being able to send value from one party to another, the hype around the space would be hard to justify. Thankfully, human ingenuity has proven itself once more.

About five years ago, a network called Ethereum was launched by one prodigious Vitalik Buterin. The Canadian-Russian programmer, now very much the public face of the Ethereum network, first penned Ethereum's white paper in 2013 (available to read here). Quite rightly, he pointed out – in much fewer words – our point above:

> *Satoshi Nakamoto's development of Bitcoin in 2009 has often been hailed as a radical development in money and currency, being the first example of a digital asset which simultaneously has no backing or intrinsic value and no centralized issuer or controller. However, another - arguably more important - part of the Bitcoin experiment is the underlying blockchain technology as a tool of distributed consensus, and attention is rapidly starting to shift to this other aspect of Bitcoin.*

Where Bitcoin sought to require no permission or trust to undertake a transfer of value from one party to another, Ethereum went further: it made computing capacity available at a network-determined price to anyone who would pay, allowing any form of computational operation to be completed by miners, who would themselves be subsequently rewarded with Ether, the native token of the platform.

The system was permissionless: no one needed to ask if they could use any of Ethereum's computing capacity. All they needed to do was follow the rules: buy some Ether, propose a transaction into the network and offer a fee, and if anyone wanted to do the job, they would do it in exchange for the proposed fee.

Ethereum pioneered what is now known as Smart Contracts, code that binds and escrows digital collateral on a public blockchain, controlling its use purely as a function of the contract it was coded to enforce. Just like traditional contracts, parties agree on a certain consideration to be paid in exchange for the performance of some act or the occurrence of some event; unlike traditional contracts, there is no way for either party to renege, bargain or plead. There is no restitution, no risk that an outcome is remedied by some form of judicial review. The risk of a misdirected transaction or a poorly constructed contract is material – at the same time, it's a case of caveat emptor.

In short, there is no grey area, only black and white, only 1s and 0s.

For the moment, that's where we stand – this may of course change in the future but intuitively, the lack of human discretion in determining the outcomes of these contracts is precisely what gives them their value. No humans, no discretion, no permissions, no bias, no inconsistencies.

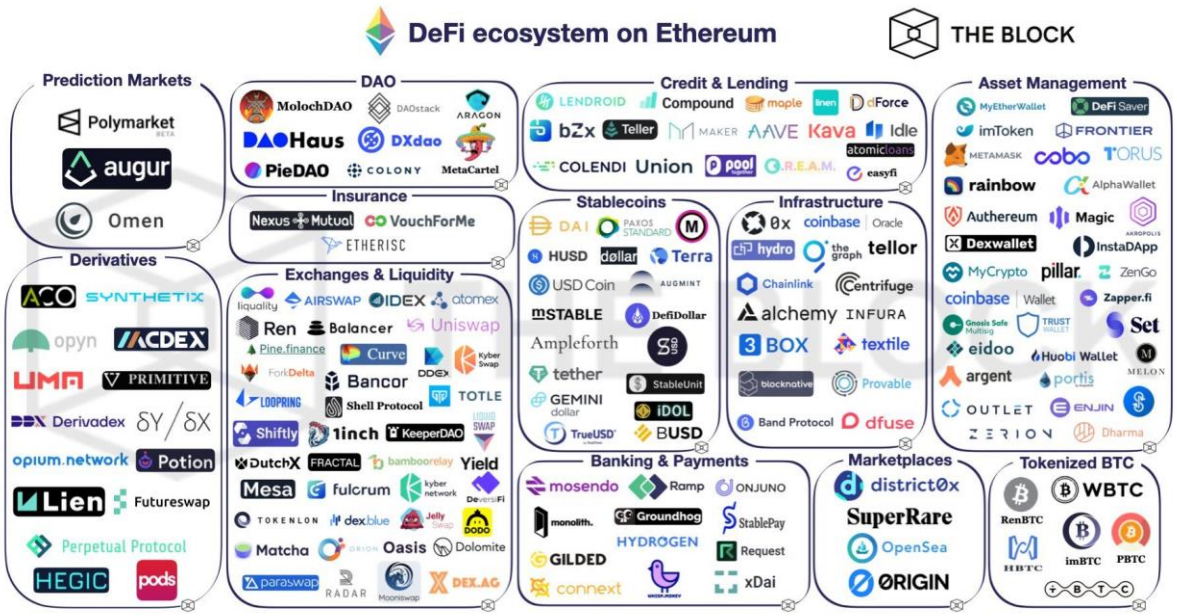
Finding their feet

The mania of 2017 and 2018 saw the emergence of a plethora of projects to build decentralised applications (aka dApps) – most of them were outright ridiculous (a coin for paying for dental services anyone??) but a handful of them were actually well thought out. Some of them started off a bit wobbly, but ultimately pivoted into success.

Projects like Maker, Compound, Synthetix, Aave, Chainlink, Band, Kyber, Uniswap and Rune – these are some of the most prominent projects in the decentralised space at the moment, although their applications remain squarely within the financial space. Expanding the scope of these applications is certainly on the cards, but it is perhaps the brutally transactionary nature of finance that provides the initial test bed for these projects.

More importantly, as the number of equally permissionless projects grows, their services also become on offer in a permissionless way. For example, Chainlink is one of a handful of projects known as "Pricing Oracles" – they translate real world events and prices (e.g. the result of an election, the price of a stock index etc) into the inputs required to trigger smart contract outcomes. The use of Chainlink is permissionless, but having a pricing oracle that is permissionless isn't particularly useful if no one else is offering permissionless services on smart contracts.

It is said that no man is an island, entire of itself; every man is a piece of the continent, a part of the main. The same can be said of the decentralised application realm. A rules-based, permissionless world takes bureaucracy and ambiguity out of the process, but there isn't any point if there isn't anything else to interact with. But once there is a growing, vibrant ecosystem for these applications to operate in, things start getting interesting. And that's where we are right now.



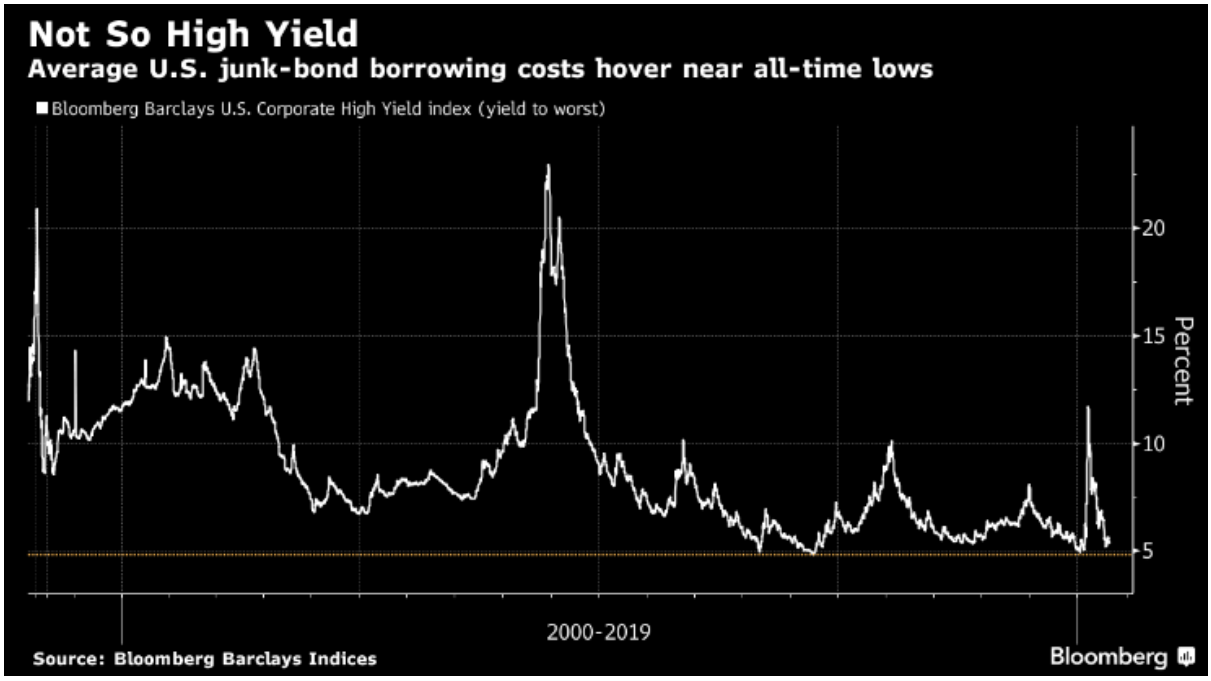
Source: The Block

DeFi is the continent that is starting to grow, democratised and free (even out of reach) of centralised control from legacy institutions, while being at the same time accessible at a touch of a button to the masses. All this brings about profound implications, catalysed by one of the greatest phenomena of our times.

The hunt for yield

One of the big themes we have written about before in the financial world is the hunt for yield, and the resulting risk drift: investors taking more and more risk, just to be able to access the same amount of income yield. The unending compression of "risk-free" yields on government debt, thanks to equally endless monetary expansion, is the defining feature of our current state of play.

For example, just this week, we've seen the yield on Junk grade credit in the US fall back to all-time lows:



Investing in Junk debt basically now gets an investor what they used to get for investment grade paper pre-2008. Within the traditional finance space, advisors and banks are scrambling to synthetically create yields for their clients: with strategies like selling volatility and ever-more complex derivative structures.

Meanwhile, in the world of DeFi, one common feature of these projects is what is known as "staking": tokens that are authorised to govern and manage these protocols may be staked in order to pledge support for proposals. In return, they pick up a share of the fees from the usage of the protocol in the form of income.

Other platforms that provide lending services like Maker, Compound and Aave accept collateral in the form of other digital assets (e.g. Ether or Bitcoin), in exchange for the issuance of USD equivalent loans (denominated in the USD Tether token USDT), the same way a house is used as collateral for a mortgage, with the bank entitled to seize and foreclose on the collateral in the case of default.

The supply of liquidity to these platforms are none other than other users who have spare balances of any digital asset, who also *deposit* their balances into a smart contract, entitling them to *interest* in exchange for them providing funding to borrowers.

Just like a bank, but without the bank, and all the bank's staff, fees, people, biases and restrictions. Only rules and strictly enforceable contracts.

Rates are updated in real-time, and interest on deposits are also paid and priced according to the market price at any given point in time. This does make for fantastic headlines on Twitter of supposedly MASSIVE rates of return, but on average, rates look a bit like this (snapshot off http://compound.finance/markets):

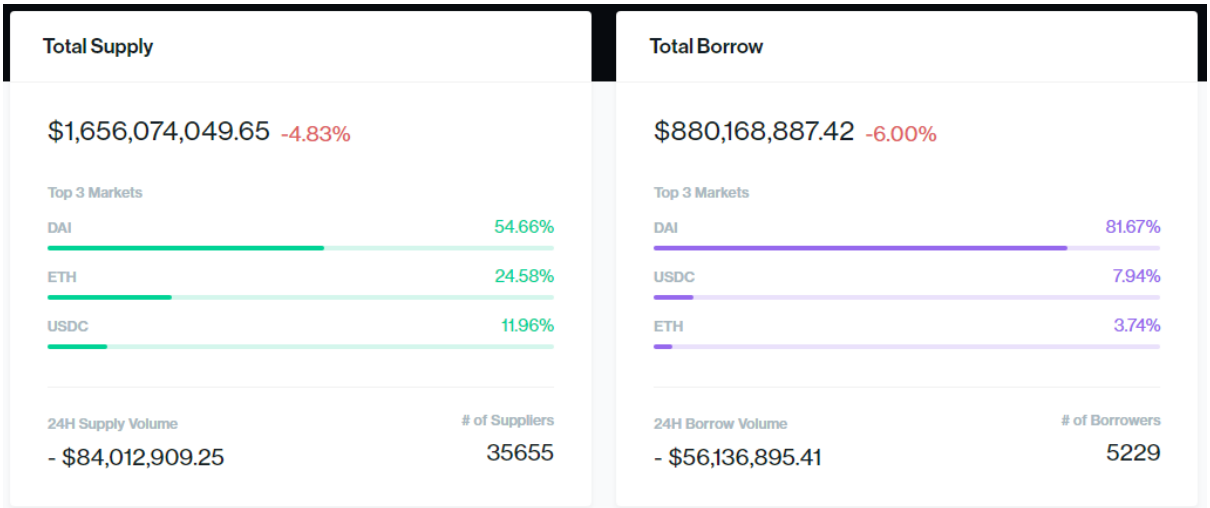
All Markets

Market	Total Supply	Supply APY	Total Borrow	Borrow APY
Dai DAI	$905.27M -7.43%	3.04% -0.02	$718.79M -7.76%	4.05% -0.02
Ether ETH	$407.13M -4.17%	0.20% +0.06	$32.91M +25.80%	2.85% +0.20
USD Coin USDC	$198.06M +2.94%	1.87% -0.43	$69.92M -9.09%	5.68% -0.49
0x ZRX	$77.37M +0.32%	1.93% -0.01	$25.20M +0.02%	12.45% -0.03
Tether USDT	$23.15M -5.79%	2.49% +0.48	$18.13M +4.67%	3.99% +0.41
Basic Attention Token BAT	$15.71M -2.05%	10.56% +4.08	$12.73M +25.38%	28.12% +6.19
Wrapped BTC WBTC	$15.55M +16.52%	0.83% +0.50	$2.24M +108.64%	6.53% +2.02
Augur REP	$13.11M -	0.00% -	$111k -	2.28% -

Source: Compound.finance

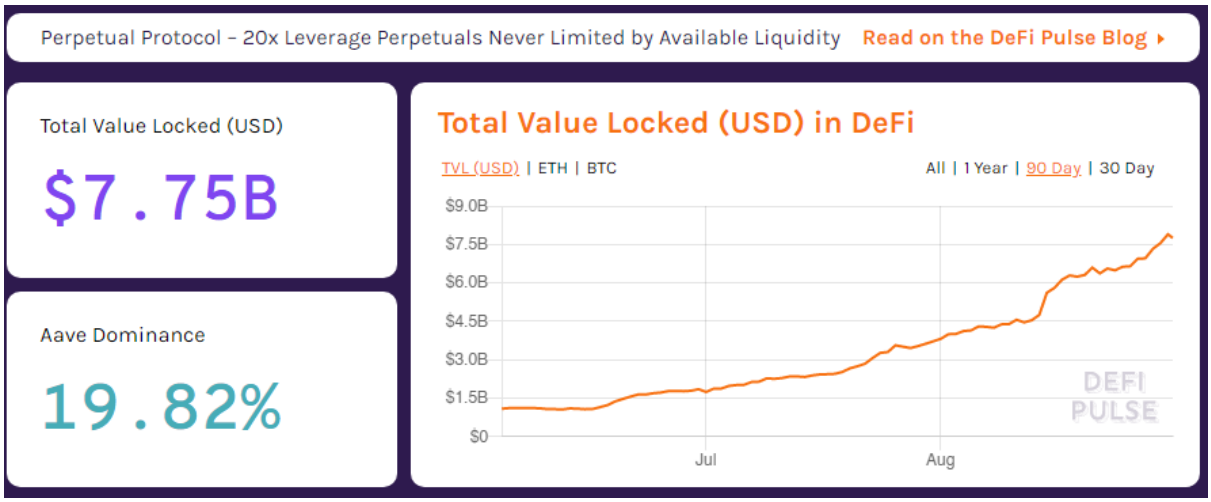
The deal is simple: if you have a surplus supply of any of these tokens, send them in, and the system pays you the Supply APY as a deposit rate, denominated in that token; likewise, if you need to borrow, you may do so at the Borrow APY, provided you post sufficient collateral to secure your loan.

Now if you think for one moment that borrowing and depositing from a website is a ludicrous idea, think again – because US$1.6bn of deposit supply disagrees, much to the delight of $880m worth of borrowers:



Source: Compound.finance

Readers of our piece on DeFi a couple of weeks back would've remembered a chart that went vertical, labelled a slightly cryptic "TVL", also known as Total Value Locked in DeFi. Here's an updated version of that chart:



Source: Defipulse.com

Take the sum of all of the lending platforms in the world and the amount of USD equivalent value locked as deposits in their smart contracts and we get to US$7.75bn. Now who is "Aave", you may ask? We mentioned them in passing above, but here they are on the leader board of the DeFi world:

DEFI PULSE	Name	Chain	Category	Locked (USD) ▼	1 Day %
1.	Aave	Ethereum	Lending	$1.54B	-10.45%
2.	Maker	Ethereum	Lending	$1.47B	1.68%
3.	Uniswap	Ethereum	DEXes	$1.05B	57.78%
4.	Curve Finance	Ethereum	DEXes	$1.01B	-19.37%
5.	Synthetix	Ethereum	Derivatives	$885.1M	2.50%
6.	Compound	Ethereum	Lending	$781.6M	-1.83%
7.	yearn.finance	Ethereum	Assets	$735.2M	-22.00%
8.	WBTC	Ethereum	Assets	$397.1M	5.40%
9.	RenVM	Ethereum	Assets	$218.6M	12.46%
10.	Flexa	Ethereum	Payments	$154.0M	7.44%
11.	InstaDApp	Ethereum	Lending	$140.5M	-4.77%
12.	Nexus Mutual	Ethereum	Derivatives	$79.8M	1.26%
13.	dForce	Ethereum	Assets	$52.9M	-1.06%
14.	dYdX	Ethereum	Lending	$42.6M	1.89%

Source: Defipulse.com

Aave, formerly known as ETHLend, is an online lending platform similar to Compound. The difference is that they've also just been granted an electronic money license by the UK FCA, making them probably the first decentralised finance project to be able to transact directly with the "real" world. Two years of regulatory process has paid off for them, putting them in the #1 spot on the charts, with US$1.54bn in value locked, unseating former champion Maker.

Some other projects of note include Uniswap, an automatic market maker (i.e. permissionless token exchange), Synthetix, a synthetic derivatives platform and Nexus Mutual, a permissionless insurance underwriter.

All of these are projects that have accomplished much in their own right, but among these, one of them stands out for its brilliance, simplicity, profitability and the speed at which it scaled up.

yEarn

We are going to *dramatically* oversimplify the history of this as to go through everything in detail would take hours, so apologies in advance for any details glossed over.

The main character of this tale is a developer called Andre Cronje. Cronje put together code to create for himself, at least in the first instance, the equivalent of a smart savings account: rather than have to trawl across all of the lending platforms in search of the best yield on offer for deposits at any time, why not use code to do it for him?

The outcome was yEarn: a smart savings account that effectively takes a USD deposit, in any of a few forms of USD stablecoin (DAI, USDC, TUSD, USDT etc) and automatically locates the best contract to deposit it into, effectively replacing a USD equivalent with a USD equivalent that earns yield.

Think about this for just a few moments, and how this *might* work in the "real" world. Using UK banks as an example, it would be the equivalent of a *single* "smart" savings account which looks across the deposit rates on offer by every bank and credit union in the country and automatically makes deposits and withdrawals in real time from these accounts to maximise yield. From HSBC to Halifax, from Natwest to Nationwide, from Santander to Lloyds to TSB – one account to farm yield from every bank.

Would that even be possible in the "real" world? For one, the banks wouldn't be very happy about it. Moreover, how would anyone be able to trust this "smart" account? It would need to be *another* bank, complete with costs and infrastructure, which would mean that whatever extra returns gained from this farming would be lost to costs. In fact, *why would the banks give permission for a "smart" bank account to access its deposit offering?*

The short answer is this would have been **impossible** in the real world, for at least all of the reasons raised above, simply because the real-world functions on permissions, rather than rules. All of the above would have prevented this from happening. But not in the digital realm.

Fully auditable smart contracts allow the code deployed by yEarn to be audited by any developer who wished to (details of past audits of yEarn code are on Github here). By making code open source, Cronje offered the world the one thing no profit-seeking institution could offer: transparency, and subsequently, confidence that the smart contracts deployed would **not** run away with deposits.

Furthermore, Cronje allowed all 30,000 YFI tokens which collectively governed the functioning of the yEarn.finance protocol to be picked up by users of the network, leaving none for himself, even as he remains the driving force behind the bulk of the new codefeedba that is written to expand on yEarn's capabilities: yVaults, yInsure and whatever else may be built on top of this infrastructure.

Of course, depositing USD stablecoins with yEarn is not without risk – again, this is a case of caveat emptor, and depositors should also heed the cautionary tale of YAM, a protocol that aimed to take on the best of yEarn and another "elastic" stablecoin project called Ampleforth. Long story short, a "minor" coding error in the YAM smart contract, missed during the pre-launch checks thanks to the developers' urge to join in the yEarn-inspired frenzy, caused the contract to go into severe oversupply after its first rebalance. Almost everyone was wiped out.

Nachas, not profit

Last year, we put together a white paper that barely scratched the surface of token economics, which we titled The Theory of Nachas. The case study we used was another brilliant digital asset project – Binance. Binance is going from strength to strength as one of the largest spot and futures

exchanges in the digital space, and we continue to watch in earnest as its narrative shifts from being an exchange to being an aggregator of fiat-to-digital flows or the "bridge between fiat and crypto".

The key contention in our paper was that by re-aligning interests of the entities and participants in the system away from *profit* and towards *utility* (or what we call *Nachas*, after the Yiddish word), we are able to secure optimal outcomes in terms of pricing and provision of goods and services in a way which private enterprises are unable to.

yEarn is our second case study.

The irony of yEarn's success is that Cronje *never* set out in the pursuit of profit. All he wanted to do was aggregate flows in the search for optimal deposit rates and split the difference in the cost savings from not having to conduct individual, disparate deposit transactions on Ethereum. In his disdain for profit, it is estimated that in the 50 or so days of yEarn's public life, total earnings accrued to the system comes to around US$700k.

Let's just put this all back in context: here is a "startup" which raised $0 in investor capital. Within 50 days, total valued locked in its protocols (analogous to "Assets under management", given the protocol has full discretion on where funds are deployed) is close to US$1bn equivalent. Fees accrued so far are about US$700k. It has no offices, no staff, no heavy back-end infrastructure, just a community of volunteers (who also own and govern the protocol) and a lot of code.

The governance of the protocol has been given away *fully* to the community: 30,000 YFI tokens that have voting power over the implementation of changes and governance decisions were minted, and none of them are held by Cronje. Cronje himself has repeatedly denounced wanting to retain control of his protocol or to derive any material profit out of it – the result was a community that rallied around his embracing of *Nachas* (for them, and for himself) over profit, and profit, it turned out, was an inevitability for the system.

"Asset light" and "Agile development" also took on a whole new meaning: the yInsure product went from idea to coding to launch in two weeks, allowing yEarn deposits which are permissionless in their nature to enjoy equally permissionless insurance coverage against risk of loss. And because it is all code that is community audited and built to meet demand, there is simultaneously neither worry about product-market fit, nor about the integrity of the changes being implemented – the developers, managers, users and clients are one and the same.

If this were a stock, the analysis would work as follows:

- yEarn's revenue model is simple: a 0.5% fee is charged for all withdrawals, and a 5% fee equivalent to the fee savings (gas costs) accrued from any transaction undertaken by the vault.
- With about US$1.4bn of value locked (read "deposits") in their contracts (from stats.finance and Feel the Yearn), merely withdrawing all these assets would yield about US$7m worth of fees.
- Calculating the 5% portion of the fee is less straightforward, but tracking the harvesting activity on Dune Analytics allows us to work it out over time.
- At its current run rate, full-year revenues annualise to just under US$20m as a rough estimate (estimated by Ryan Watkins, analyst at research house Messari). With minimal

costs (no office, no staff, no overheads and no corporate tax), we can assume revenues are roughly equal to earnings.
- yEarn's "market cap", the total value of the YFI governance tokens that are entitled to their profits, is currently around US$1bn.
- This suggests that yEarn trades at a *trailing* earnings multiple of 50x.
- That seems a lot, until when we look at the usual assumption of a PE/Growth (PEG) ratio of 1x across most "emerging market" equities, and the pace of growth and scaleable structure that yEarn has and is likely to post, the sky is limit for growth.
- The pipeline of projects contributing earnings to the YFI token is long, and only one product has been launched for long enough to get any idea of what "maturity" looks like. The others (insurance, vaults, trading, leverage etc) are in the pipeline – and we can scarcely imagine what more can be built on top of this infrastructure.

That's really what the YFI opportunity represents: infrastructure, organised and assembled with all the brilliant tools that had been built over the years, which now permits even more complex, dynamic services to be built in the decentralised space. The benefits, however, accrue not to a single corporation or shareholders, but to *all* stakeholders in the ecosystem, delivered by the same stakeholders.

In case it hasn't also been obvious: the degree of transparency offered to observers of these decentralised systems is unparalleled. From Feel the Yearn one can look straight through to the *full* transaction history of every single one of yEarn's vault smart contracts, and even audit the source code of the contracts themselves.

Jamie Dimon and the Business Roundtable should take heed – perhaps true stakeholder alignment necessarily entails fully renouncing centralised managerial control. Offering transparency on fees and profitability doesn't necessarily deter anyone from doing business – except if fees are exorbitant and unjustifiable.

And where our previous case study with Binance still saw an element of discretion in the linkage between token value and system earnings (i.e. full discretion still rests with CZ and the Binance team to execute the quarterly "burns" of tokens, akin to a buyback) and perhaps a tinge of insecurity with regards to the fact that the underlying corporate entities (Binance has private limited companies majority-owned by CZ in Malta, Singapore and various other countries) in effect have absolute control over how Binance is run as an entity, none of that matters here.

YFI and its entire profit pool is tokenholder-controlled, and while a company with 100% free float and all decisions subject to shareholder votes would struggle to get things done, life is a bit different when it's all code (live proposals being voted on are publicly accessible: details of proposals and other discussions here and actual on-chain voting here.

Ultimately, our view is that YFI represents a breakthrough moment for DeFi – when all of the tools and capabilities that had been created over the past years come together to fulfil the then-philosophical promises of a permissionless world made less than a decade ago. In our careers, we have never seen an instrument that offers such infinite scalability at such a rapid speed. Of course the risks are immense but then again the sky is the limit.

All roads lead to Ethereum

The unifying theme across all of these applications is that they are all built on the same piece of infrastructure: the Ethereum network.

Regardless of all the progress that has been made, Ethereum and the broader decentralised application space remains in its infancy. Of course, we will do our best to locate the most promising opportunities we can get our hands on, but the reality is that there are so many of them that we are certain a few will slip through the cracks.

Taking one step back, however, at network level we struggle to see any viable alternative (at least for the moment) to Ethereum which can offer robustness, track record and – most importantly – a community of developers and users of a rapidly growing number of applications, synergising to allow superstars like YFI to be born.

Many other platforms, the so-called "Ethereum killers" are vying for a share of the pie – unfortunately, despite grand promises of efficiency and lower costs, there isn't much of a point in being efficient if there isn't anyone around to enjoy it. Ecosystems are self-perpetuating, and Ethereum is the biggest and fastest growing of the lot.

In itself, then, Ethereum's native token, which is required to pay each of these decentralised computing nodes for every transaction effected on the network, is like the very seats at a famous chef's table: more and more in demand, even as the chef endeavours to add more room, *despite* the apparent overflow of demand vs supply.

The more applications get built, the more users come, and the more popular (and congested) the network becomes, the scarcer the seats at the table – and the more valuable they become.

And as we argued right at the start of this piece: the point here isn't about "efficiency" and "cost" (think fast food vs. quality food). The principles here are democracy, transparency, fairness and accessibility.

Delivered, as promised

The excitement that these developments in the digital space offer is beyond expression. In a way, one could argue that these are merely an extension of the capabilities brought about by the internet, and to some extent, we tend to agree. None of this would be possible without the internet, not just technically but also in terms of cultural and social norms.

Just as 20 years ago it was unthinkable that clothes could be bought off a website (what if they didn't fit?! What if the seller didn't want to accept an exchange?!), it is equally unthinkable today that one *wouldn't* just order a couple of items of the same design and roughly different size, try them all on and return the balance.

Likewise, even 10 years ago, typing one's name on a website to sign off a legal document would've been considered the quickest way to entangle oneself in the risk of fraud; it is now largely considered to be legally binding, certainly binding enough to sign off on a mortgage or vehicle loan contract with a bank.

Is it therefore so far fetched to believe that the norms of traditional finance, established decades ago when the technology we have readily available today was but a dream, can be challenged and successfully revamped?

It would be very bad news for institutions that have built themselves into behemoths upon these archaic concepts if the centralised, permissioned nature of finance as we know it today were dismantled.

At the same time, no one ever complained that the rise of Amazon (and the fall of the neighbourhood apparel shop, or even the department store) was a bad thing – other than the owners of said neighbourhood shop/department store.

The best is yet to be

To be clear, all of this promise and potential in the DeFi space is not mutually exclusive to the volatility that characterises the digital asset space.

As we've argued before, the opportunities on offer in the DeFi space offer investors the potential for Venture Capital style exponential returns coupled with the liquidity of a listed instrument (if not better, trading 24/7). Let us not understate the risks – they are big, as with any early stage opportunity but controlling that balance of risk versus reward is key to having a shot at these returns in the long run.

We continue to do our work and watch the space intently, having identified it as one of the greatest emerging opportunities that one may invest in that we have seen in our lifetimes. We believe that it would be irresponsible as managers to ignore the potential developments in this space and pass over them until they are "real" – because they already are.

The implications on the future profitability (or lack thereof) for incumbents in the financial services space are becoming ever more real by the day.

As always, we do not claim to have a crystal ball that tells us with absolute certainty what the future brings. We do have some ideas for the paths things may take, and depending on the evidence presented to us by the market, we adapt accordingly.