TECHEMY CAPITAL

DEFI RISK MANAGEMENT

Insurance, Put Options, Ratings

What is “DeFi (Decentralised Finance)”

DeFi, aka Open Finance, is an ecosystem of blockchain-powered applications that are recreating common financial instruments from traditional finance. Run by programmable algorithmic code, DeFi removes middlemen, connecting borrowers and lenders directly. DeFi eliminates traction and capital inefficiency, hence offering higher yields. DeFi money markets offer debt securities that are less risky and more liquid.

How is it different from Traditional Finance?

Whilst traditional banks operate using fractional reserves, DeFi platforms operate using over-collateralisation. DeFi is a self-running, self-adjusting peer-to-peer financial market based on data-driven automation and open access.

NON-CUSTODIAL

Software replaces central party to ensure transactions validity and assets storage. At all time you are in control of your funds, not the bank.

PERMISSIONLESS

Anyone can audit and verify the code and the asset ledger. Anyone with Internet can access the systems.

COMPOSABLE

Plug & play programmable architecture.

DeFi apps are created and combined at a very low cost.

CONTINUOUS COMPOUND INTEREST

Interest is calculated, paid and compounded continuously, second by second.

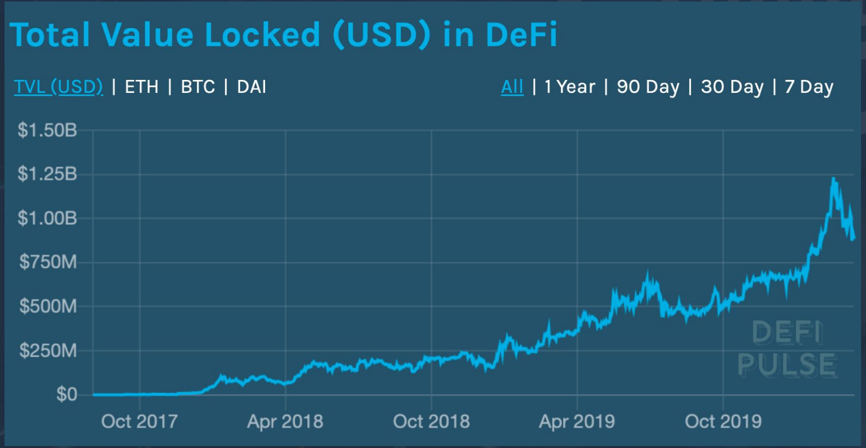
Why "DeFi"?

What is the economic benefit?

As there's no central party managing who and how should use DeFi applications, there's no rent-reeking. As there are no barriers to trade, the market is free to evolve rapidly. All fees and interest are distributed between DeFi market participants, i.e to the parties involved in the transactions, incl. buyers/sellers, borrowers/lenders, market makers, liquidators, etc. Each party is incentivised to be a good actor via revenue sharing and penalised for bad behavior (e.g. liquidation fees).

DeFi is measured by the value of the collateral that is deposited in the ecosystem. Collateral is currently represented by digital assets such as Ethereum, but the longer-term goal is to use real-world assets, expressed in a digital format (i.e. tokenised).

How big is the opportunity?



DeFi is fast-growing with the total value of the ecosystem of around $1-billion, jumping more than 300% up YoY.

DeFi is expected to reach $5-billion by YE 2020, and $1-trillion by 2025.

DEFI IS A NATURAL EVOLUTION OF FINANCIAL SYSTEMS

Chasing the Yield

LIQUIDITY

Uniswap
kyber.network
0x
MAKER OASIS
Bancor
AIRSWAP
paraswap
DEX.AG
1inch Exchange

MONEY MARKETS

MAKER
Compound
AAVE
fulcrum
TOPO
δY/δX
Dharma
nüo

AUTOMATED REBALANCING

iearn.finance
Curve
Staked
Balancer
Set
Idle
PieDAO

DERIVATIVES

SYNTHETIX
swap.rate
UMA
Cherry Swap

INSURANCE

opyn
ETHERISC
Nexus Mutual
UNSLASHED

Risks: CeFi vs DeFi

Good news: There’s little counterparty risk in DeFi.

Bad news: The risk shifts to tech.

Good news: Unlike people, tech can be fixed.

Source: Harmony 2020: CrossFi, Open Dev, Auditable Privacy

Risks of Using DeFi

Risks	Mitigating Factor	Insurance
Technical Failure of Smart Contracts	**Insurance**. Whilst all protocols go through audits, formal verification processes, and run ongoing bag-bounty programs, there are also insurance providers that cover for smart contract failure at the code level. We employ those to hedge the risk.	Nexus Mutual opyn
Systemic & Counterparty Risk	**Transparency**. Blockchain enables immutable asset registry and transparency. At any time we can see how many assets are held in each entity, how leveraged they are, how interdependent they are. In case of a run-on-bank and follow-on liquidity crisis, we are able to monitor liquidity and promptly sell down (subject to market conditions).	opyn
Custodial Risk	**OpSec of Admin Keys**. Although there's no custodial risk in DeFi as smart-contracts are handling the funds with no 3rd party involved, all providers hold so called "admin keys" that are used to push upgrades to the protocol. Security of admin keys are subject to operational security that might be compromised due to human error or negligence.	opyn
Default / Insolvency Risk	**Capital Requirements**. DeFi loan origination is run on over-collateralisation, ranging from 120-700%. Quality of the collateral lies in its liquidity - liquidators run algorithmic bots, ensuring prompt sell of margin-called accounts, ensuring liquidation in a matter of seconds (subject to market conditions).	opyn
Economic Risk	**Incentivised Behaviour**. All protocols have embedded economies where good behaviour is financially incentivised with instant rewards (e.g. share of revenue), and bad behaviour is penalised (e.g. liquidation fee).	opyn

Prominent Incidents

Flash-Loan Exploits of bZx

What happened: 2 consecutive attacks resulting in withdrawal of more funds from the protocol than it should have been => the platform became undercollateralised

1. smart contract vulnerability exploit
2. price oracle manipulation

Amount lost: 1,193 ETH (~$160k) and 2,378 ETH (~$320k)

Aftermath: bZx absorbing the losses, cash flows are directed to the insurance fund until the debt is realised.

Price Feed Delay in MakerDAO

What happened: Ethereum network congestion during the market crash resulted in the delay of Maker's oracle, which liquidators took advantage of, by winning collateral liquidation auctions with $0 bets.

Amount lost: $4.5M

Aftermath: USDC added as a collateral. MKR governance tokens diluted and auctioned to raise the required funds to cover for the shortage.

Risk Management & Hedging 1/2

ALTERNATIVE INSURANCE

DeFi protocols can covered with the an insurance-like solution, provided by Nexus Mutual.

Nexus Mutual currently offers cover for technical failure of smart-contracts underpinning DeFi protocols. In the near future, the risk covered will also include external risks such as oracle failure and economic incentive failure.

Nexus Mutual

https://nexusmutual.io/

PROTECTIVE PUT OPTIONS

Opyn protocol offers a form of insurance through put options on stablecoin deposits into Compound and ETH positions, which are designed to enable users to recover most of their lost capital if Money Market participants encounter a crash, hack on an exploit.

It is a two-sided marketplace that uses tokenised put options to cover not only for technical failure, but also for financial loss, bank runs, administrative key compromise, etc.

opyn

https://opyn.co/

Risk Management & Hedging 2/2

INTEREST RATE SWAPS

SwapRate protocol allows to hedge against the interest rate fluctuations on the DeFi money markets (specifically, on the Compound market). It also allows to speculate on interest rate fluctuations.

SwapRate allows to fix the floating rate on the deposit or loan by entering into an interest rate swap (IRS) - a special insurance contract - that will pay out the difference between the promised fixed rate and the realised rate at the time of maturity.

swap.rate

https://swaprate.finance/

RISK RATING

Manage your risk by measuring acceptable risk score based on DeFi Score's rating.

The DeFi Score, created by ConsensYs, is a single, consistently comparable value for measuring DeFi platform risk. Their model captures market's risk attributes for smart contract, centralisation and financial risk, and outputs 0–10 scores for each asset used within each platform.

DeFi Score
Codefi Data

https://defiscore.io/

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