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Trends in Yield Farming

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Research and Insights

DeFi Report

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Content

Executive Summary

Welcome to the article about yield farming.
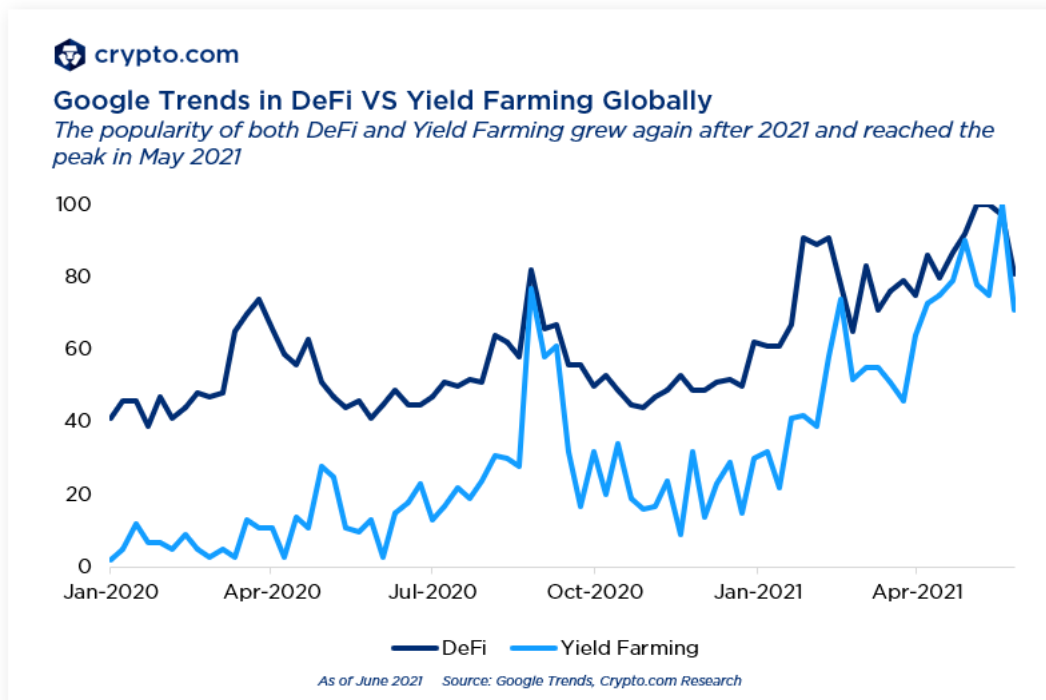
Key Takeaways

- Yield farming, also referred to as liquidity mining, is a way to generate passive rewards with cryptocurrency holdings. In May, Google Trends of DeFi peaked, and the TVL also tapped all-time high of $86 billion.

- We concluded that the reasons for yield framing regaining popularity are the launch of new blockchains, layer 2 solutions on Ethereum, the evolution of autonomous market marker (AMM), and the development of yield aggregators.

- Regarding TVL, the more popular blockchain networks other than Ethereum for DeFi were Polygon and BSC; and the most popular layer 2 solution was ZK-Rollups.

- The general yield formula is illustrated and the yield for specific liquidity pool under some representative protocols were calculated for demonstrative purpose.

- Although yield farming provides attractive yields by just depositing the token to protocols. However, it is not a risk-free game and investors should bear in mind the potential risks, including impermanent loss and smart contract risk.

Introduction

Yield farming, also referred to as liquidity mining, is a way to generate passive rewards with cryptocurrency holdings. Liquidity mining is when a yield farmer gets a new token as well as the usual return (that's the "mining" part) in exchange for the farmer's liquidity.

Yield farming became popular with the rise of DeFi in 2020. It was an investment strategy took off with the Compound platform and their COMP governance token distribution. Then, numerous DeFi protocols followed Compound and introduced yield farming activities mainly on Ethereum like Yearn.Finance, Curve.Finance, Synthetix, Balancer and SushiSwap.

Contributed by the yield farming, the TVL of DeFi reached to more than $15 billion, according to DeFi pulse. However, it was just the beginning. DeFi developed in fast paces with new features and technologies appeared, pushing DeFi and yield farming popular again in 2021. In May, Google Trends of DeFi reached its peak, and the TVL tapped all-time high of $86 billion.

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Google Trends in DeFi VS Yield Farming Globally
The popularity of both DeFi and Yield Farming grew again after 2021 and reached the peak in May 2021

As of June 2021   Source: Google Trends, Crypto.com Research
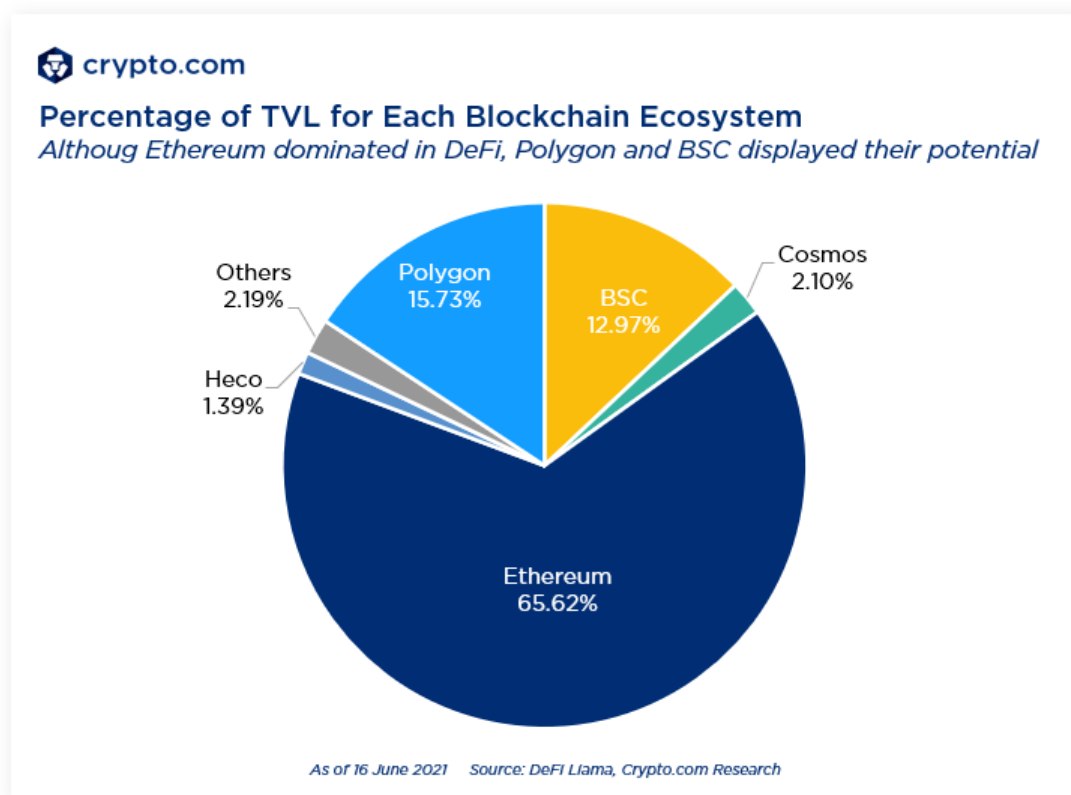
Many factors drive DeFi and yield farming to another height in 2021, and we will go through the drivers in the next section.

Yield Farming in 2021

In summary, we concluded the reasons for yield framing regaining popularity are the launch of new blockchains, layer 2 solutions on Ethereum, the evolution of autonomous market marker (AMM), and the development of yield aggregators.

New Blockchains

The rivals of Ethereum emerged to solve the scalability problem, which constrains Ethereum from becoming a more competitive decentralized network. Although Ethereum 2.0 was proposed to utilize Proof-of-Stake consensus to improve the network efficiency, it is still a long way to reach the target. Therefore, this encourages smart contracts with lower gas fee and shorter confirmation time, where alternatives are competitive and recently gained much adoption. The more popular blockchain networks were Polygon and BSC, suggested by their total value locked (TVL).

Percentage of TVL for Each Blockchain Ecosystem
Althoug Ethereum dominated in DeFi, Polygon and BSC displayed their potential

As of 16 June 2021   Source: DeFi Llama, Crypto.com Research

Polygon

Previously known as Matic, Polygon was established to provide Ethereum layer 2 solutions. But now, it became more powerful as it targets to provide solution for building interoperability and scaling framework for building Ethereum-compatible blockchains. Meanwhile, it launched its own blockchain network.

Polygon is another attempt at blockchain interoperability besides Cosmos and Polkadot. One of the significant differences between Polygon and the two others is that Polygon aims to be the "Ethereum's Internet of Blockchains". It provides a framework to facilitate building scaling solutions for Ethereum and interaction capacity for networks connected to Polygon Network. On the other hand, Cosmos and Polkadot attempt to connect heterogeneous independent parallel blockchain with different approaches. Additionally, Polygon is also a Ethereum layer 2 solution where integrated Plasma chain, ZK-rollups, and Optimistic rollups.

Currently, a variety of projects have already supported Polygon network such as Curve, Aave, and SushiSwap. At the time of writing, the TVL in Polygon has more than $22 billion, according to DeFi Llama.

Binance Smart Chain (BSC)

Binance Smart Chain was developed by Binance exchange in September 2020, aiming to support smart contracts besides its first exchange-centric Binance Chain. It is also compatible with Ethereum with a PoS consensus algorithm, and participants need to stake BNB to become validators. More than $14 billion was locked in BSC, with popular DeFi projects including PancakeSwap and Venus.

Cosmos Ecosystem

Cosmos is a decentralized network of different blockchains that enables data exchanges through the IBC (inter-blockchain communication protocol). The developer, Tendermint, also invented the Tendermint consensus, a BFT Proof-of-Stake consensus algorithm, to make the blockchain more scalable and less resource-consuming than Bitcoin and Ethereum.

The Cosmos Hub mainnet launched in March 2019. There were 248 apps and services built on Cosmos with a variety of independent blockchains like
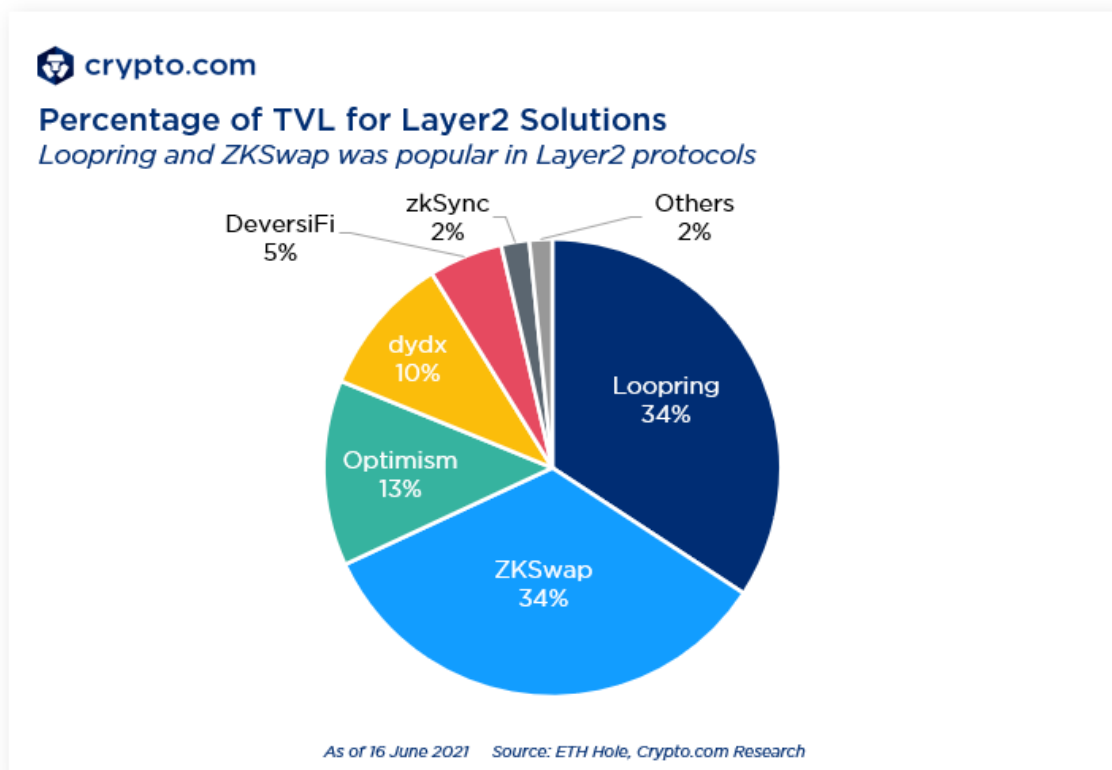
Crypto.org Chain, Terra and Kava. Additionally, dozens of DeFi projects on Cosmos were launched, ranging from stablecoin, DEX, AMM to oracle solution. The TVL in Cosmos ecosystem was estimated to be around $3 billion.

Huobi ECO Chain (HECO)

HECO was developed and launched in December 2020 by another exchange Huobi to tackle the scalability problem. It adopts the HPoS consensus and supports maximum 21 validators. However, the adoption of HECO was limited as around 70% of the capital was locked in the MDEX, a decentralized exchange.

Layer 2 on Ethereum

Regarding the high gas fee and network congestion on Ethereum 1.0, Layer 2 solutions were designed to submit aggregated data by batch to Ethereum's mainnet instead of each tiny piece of information. You're welcome to check out our previous article about their basic concepts. Among the Layer 2 solutions, Loopring and ZKSwap gained more popularity than others suggested by their TVL.

Percentage of TVL for Layer2 Solutions
Loopring and ZKSwap was popular in Layer2 protocols

DeversiFi 5% — zkSync 2% — Others 2% — Loopring 34% — ZKSwap 34% — Optimism 13% — dydx 10%

As of 16 June 2021   Source: ETH Hole, Crypto.com Research

From the above figures, most of the protocols chose ZK-Rollup as the Layer2

solutions, including Loopring, ZKSwap, dydx, DeversiFi and zkSync, as it was widely considered to be more secure than optimistic rollup.

AMM Evolution

Led by Uniswap, automated market makers (AMMs) were introduced into the crypto world and soon became the poster child for DEXs and liquidity in DeFi. AMMs are not exactly perfect solutions and do come with several limitations, such as low fund utilization, additional risk exposure, and the widely discussed issue of impermanent loss.

During the development last year, new market maker algorithms appeared to solve the traditional AMMs issues such as DODO's PMM, Bancor v2, Balancer v2, and Uniswap v3.

Aggregators

Yield farming aggregators also played an essential role in yield farming by introducing more simple ways for managing users' funds to earn a larger return. We will not go into too much detail on the yield farming aggregators as they are typically acted like finding the best yields among the protocols or helping users automatically compound the yields by doing daily portfolio management.

Determine Yields

Yield maybe the most interesting part for yield farmers. So, in this section, we listed some representative protocols and their liquidity pools to demonstrate how their yields were calculated. However, readers should note that, instead of a completely accurate guide for yield calculation, the illustrations below are simplified analysis without considering all circumstances in liquidity pools. Thus, readers should adjust the actual yield according to their own situation and market conditions.

Generally, the yield displayed on yield farming applications are calculated by the following formula:

$$APR = \frac{REWARD\_PER\_BLOCK * BLOCKS\_PER\_YEAR * Token\_Price}{Total\_Staking\_In\_Pool} * Pool\_Weight$$

or

$$APR = \frac{YEARLY\_REWARD * Token\_Price}{Total\_Staking\_In\_Pool} * Pool\_Weight$$

Based on the above formula, we can infer that the yield is mostly influenced by the price of reward token, the liquidity (total staking) of the pool, and the pool's weight for reward distribution.
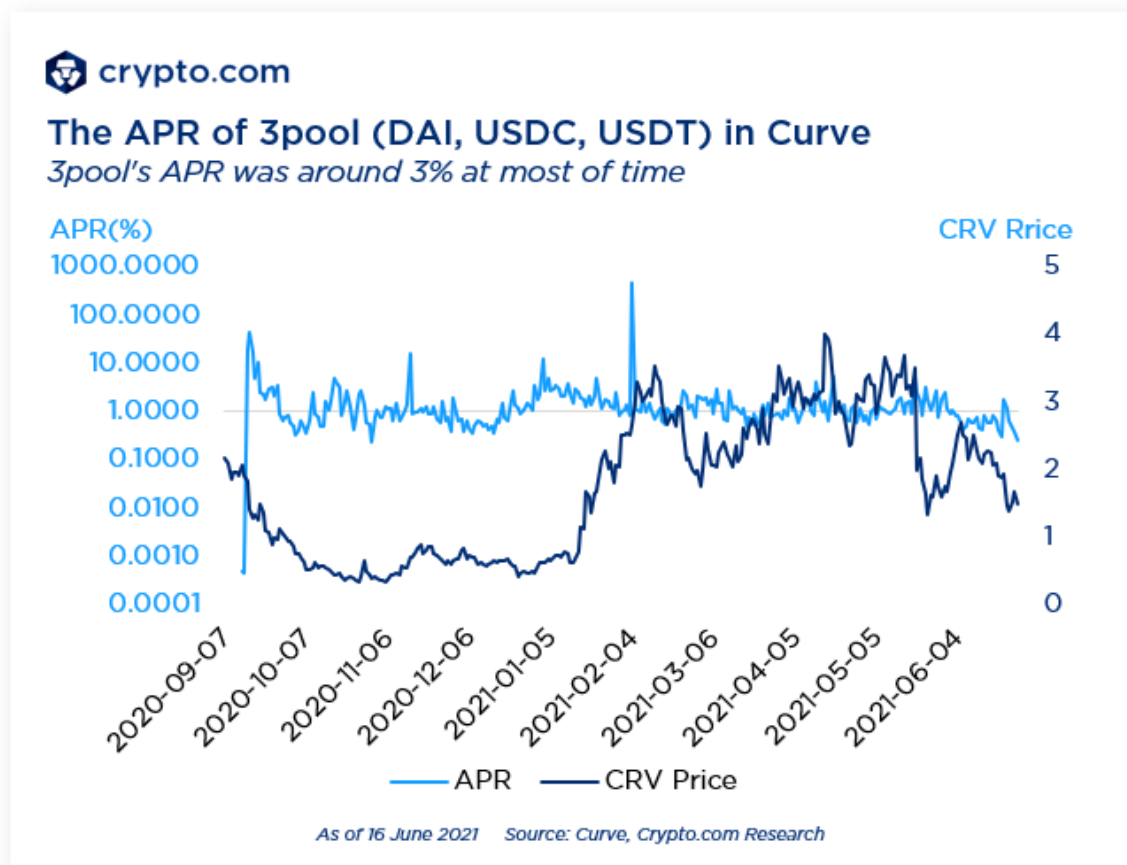
Curve

Uniswap's constant product algorithm introduced high slippage and transaction fee for volatile assets swapping, so it is not suitable for stablecoins with much lower volatility. Curve Finance invented the StableSwap algorithm specifically designed for stablecoins exchange. It has a smoother curve than Uniswap so that it can achieve low slippage.

In addition to each pool's evenly distributed transaction fees, Curve put fund into other lending and borrowing protocols like Compound so that lending profits from those protocols can also be distributed to the LPs. Meanwhile, Curve also delivers its CRV governance token as a reward to LPs.

Besides Ethereum, Curve also supports Polygon network with a much lower gas fee. Take Curve's 3pool as an example, the yield is calculated via the following parameters:

Reward Token	Reward Distribution	Pool Weight
CRV	Initial: 1.273 billion The inflation is reduced by $2^{1/4}$ each year, e.g.: Year 1: 1.273 billion Year 2: 1.07 billion Year 3: 900.15 million ...	Gauge weights are updated once a week. Currently, the 3pool weight is 3.05%.

The annualized percentage returns are displayed as below:

The APR of 3pool (DAI, USDC, USDT) in Curve
3pool's APR was around 3% at most of time

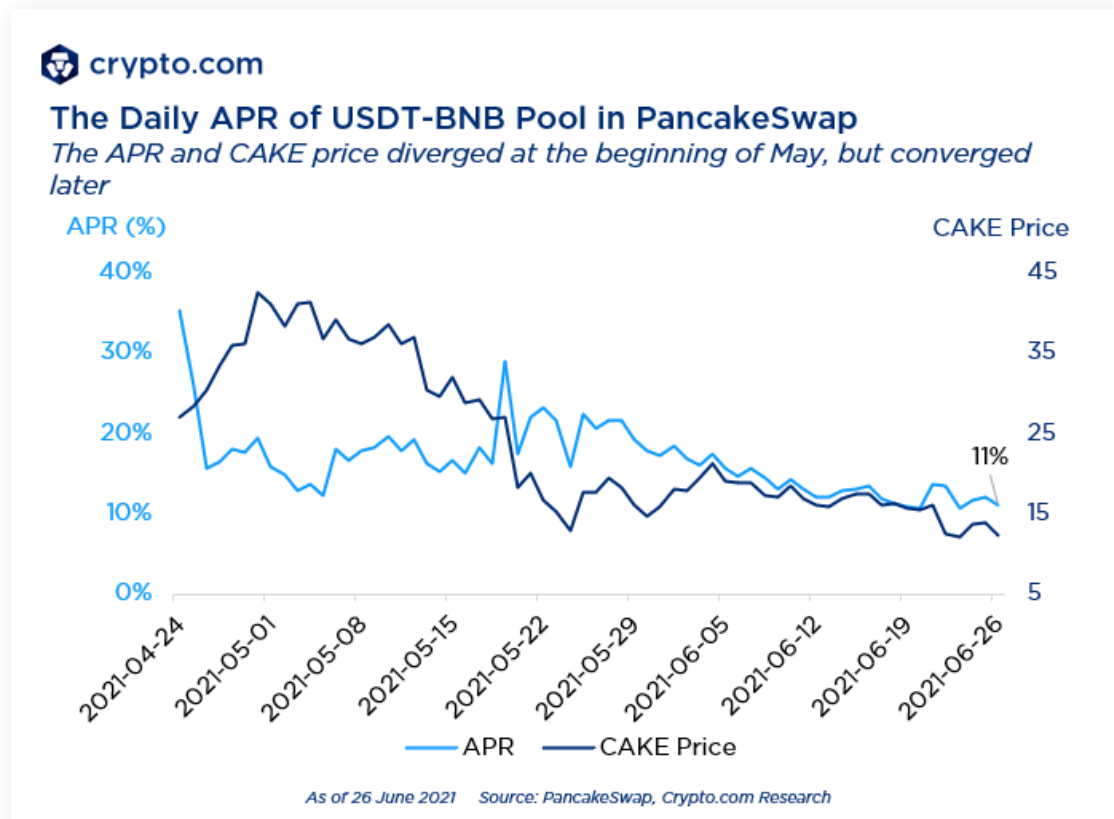As of 16 June 2021   Source: Curve, Crypto.com Research

DODO

DODO is a DEX that proposed the proactive market maker (PMM) to improve capital efficiency and liquidity. Additionally, DODO rewards LPs via its governance token DODO, and the team behind DODO set different numbers of DODO tokens for liquidity pools. Furthermore, LPs can further stake their DODO tokens to mint vDODO tokens for participating platform's loyalty program and earn DODO tokens. DODO now supports Ethereum, Polygon, BSC, and HECO networks. The following parameters describe the USDT-USDC pool, and the APR is calculated on 25 Jun 2021:

Reward Token	Reward Distribution	Reward per Year	APR
DODO	1 DODO per block	2425846.154 DODO	12.315%

PancakeSwap

PancakeSwap is one of the most popular protocols in Binance Smart Chain. It forked from Uniswap and added additional functions like the lottery, NFT, and predictions. Its governance token, CAKE, is used as a reward, and also for purchasing lottery and NFTs. According to CAKE's tokenomics, around 238,000 CAKE is distributed to yield farmers daily. The weight of the pool for reward can be estimated by the pool's multiplier divided by the sum of multipliers from all liquidity pools. Take the BNB-USDT pool as an instance:

Reward Token	Reward Distribution	Reward per Year	Pool Weight
CAKE	10 CAKE per block	86,870,000 (minus lottery rewards)	~ 0.012

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The Daily APR of USDT-BNB Pool in PancakeSwap
The APR and CAKE price diverged at the beginning of May, but converged later

As of 26 June 2021   Source: PancakeSwap, Crypto.com Research

Terra Money and Anchor

Terra is a stablecoin protocol build on Terra blockchain, which is developed based on Cosmos technology stack. It designed algorithmic stablecoins pegged to fiat, for example, UST (TerraUSD) pegs to USD. Terra stablecoins are algorithmic but without a need for collateral because they are backed by a reserve token called LUNA (the native token of Terra), which has a fixed supply. Whenever one UST is minted, one dollar worth of LUNA has to be burnt.

Anchor (ANC) is a lending and borrowing protocol with a **fixed 20% APR** for lenders. Its yield comes from the interests of borrowers and borrowers' collaterals. Additionally, Anchor also provides yield farming and reward ANC tokens for ANC-UST liquidity providers.

Reward Token	Reward Distribution	Current APR*
ANC	Around 2.5 ANC per block	49.53%

*Date: 2021-06-26

Risks

Although yield farming provides attractive yields by just depositing the token to protocols, it is not a risk-free game and investors should bear in mind the potential risks about yield farming.

Impermanent loss is the loss due to the changes of token's prices in AMM that lead to tokens to be less valuable than just holding. No matter the rise or drop of price for the staking token, the impermanent loss always exists, unless the token's price returns to the initial state. This article gives a better understanding of how impermanent loss happens.

Besides, the smart contract risk cannot be ignored as well. The defects of smart contract can be vulnerable for hackers' exploitation, causing the lost of funds in protocols. Many exploits in DeFi protocols have happened before, and you can refer to our article about DeFi security for more details.

Summary

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