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Asset Management with DeFi

September 2021

Research and Insights



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1. Executive Summary

- The traditional asset management industry relies on various agents and authorities to manage, grow, and safeguard the capital. In decentralised finance (DeFi), asset management protocols try to function like the traditional funds with the help of smart contracts. In line with other DeFi projects, they are designed to provide investors with more control, transparency, and efficiency over fund management.
- There are now several types of asset management protocols trending on the market, namely, **yield aggregators**, **one-stop platforms**, and **index funds**.
 - **Yield aggregators** act as fund managers who pool investors' funds and reinvest them in various yield-churning protocols to maximise the returns.
 - **One-stop platforms allow the participation of both asset managers and investors.** On these platforms, asset managers can create vaults or pools that gather assets from investors, while investors can track the fund flows and the managers' performances.
 - **Index funds transfer indices into tradable tokens, and all of them are fully backed by the underlying assets in the basket.**
- In comparison to applications in lending and DEXes, the protocols for asset management have been rather sluggish in terms of growth of total value locked (TVL) and users. Some major trends and challenges that have arisen from the institutional adoption of asset management:
 - **Liquidity and Capital Efficiency:** Most asset management protocols are pushing hard on boosting the liquidity and capital efficiency of their fund products. Improvements include fund tokenisation and integration with other DeFi applications.
 - **Security:** DeFi applications are still littered with loopholes, and it is not uncommon that huge sums are drained through malicious exploits.
 - **Compliance and Risk Management:** The protocols include more functions that are in line with traditional standards of compliance and risk management.

2. On-Chain Versus Traditional Asset Management

In traditional finance (TradFi), asset management has always been associated with high-net-worth individuals and institutions, who tend to turn to professionals for taking care of and growing their enormous wealth. The DeFi sector has also produced innovations to bring such services on chain for crypto assets. Before delving into on-chain asset management, let us have a glimpse into the traditional structure and practice of this industry.

2.1. A Glimpse into Traditional Asset Management

The core elements in asset management are always the funds, which pool money from numerous investors for investments in various assets, such as **stocks and bonds**. The funds and their operators need to obtain authorisation from the regulatory bodies for their launch and operations, meaning that they need to comply with laws and regulatory requirements. Some typical requirements include disclosure of asset holdings and the qualifications of asset managers.

Investment strategies and portfolios are established and managed by asset managers. Regardless of the assets, markets, and strategies involved, the goal of asset managers is to churn out returns for their investors, and their performances are further compared against certain benchmarks. For example, mutual funds typically attempt to beat certain market indices such as Standard & Poor's 500 (S&P 500), whereas hedge funds usually have an 'absolute return benchmark', implying that they try to make positive returns in both bullish and bearish markets.

Asset managers charge certain fees for their value-adding service. Both mutual funds and hedge funds charge a management fee, which is a fixed proportion of the assets, to cover their routine expenses. On top of it, hedge funds usually charge an additional performance fee, which serves to incentivise the managers to strive for high returns. The classic structure for hedge funds is known as 'two and twenty,' which refers to a 2% management fee paid regardless of returns plus a 20% performance fee. For example, if a hedge fund gained 30% in a year, then the return after the management fee is 28%. The performance fee is 20% of the 28% return, i.e. 5.6%, and the investors

can pocket the remaining 22.4%. This also sheds light on how asset managers profit from their investment services.

In addition to asset managers who are responsible for growing money, there are other crucial roles involved in the value chain of asset management, including:

Brokers and Dealers: Just like other investors, funds rely on agents to facilitate trading. Brokers generally facilitate investors' access to exchanges while dealers particularly handle trades on over-the-counter markets

Custodians: Independent of the asset manager, a custodian holds and safeguards the securities owned by a fund's investors. Custodians help mitigate the risk arising from the asset managers' fraudulent activity through isolating them from the securities and investor records. Custody also covers securities-related services such as collecting dividends, monitoring voting rights, and administering corporate actions

Fund Administrators: Fund administration covers back-office activities supporting the operations of funds. Compiling the official net asset value is one of the primary functions.

In short, the traditional asset management industry relies on quite a few agents and authorities to manage, grow, and safeguard capital.

Now it is time to explore how DeFi is trying to disrupt this long-established model:

2.2. The Rise of Asset Management Protocols

Along with the explosive growth of crypto assets, the need for crypto asset management has arisen and the community has been exploring decentralised and automated ways to manage the crypto assets.

Asset management is, in fact, one of the oldest DeFi spaces. The asset management protocol [Enzyme Finance](#) (previously named Melon Protocol) was launched in 2017, far earlier than the boom of DeFi projects in these two years.

Put simply, asset management protocols try to function like the traditional funds with the help of smart contracts implemented on the blockchain network. In line with other DeFi projects, they are designed to provide investors with more control, transparency, and efficiency over fund management.

These protocols running on chain generally have the following attributes, which could make them advantageous to the model adopted by traditional finance:

Openness and Transparency

Most protocols are open to all individuals, and there are no minimum capital requirements or any other barriers to entry. In contrast, the clients in TradFi need to go through strict know-your-customer (KYC) screening and meet rather high capital requirements. All trading actions and capital movements conducted by the protocols can all be tracked on chain, which can hardly be done in TradFi.

Borderless and 24/7 Accessibility

DeFi allows investors to access the asset management services anytime and anywhere as long as they have access to the Internet.

Automatic Operations and Cost Savings

In TradFi, a huge sum of expenses goes to fund administration, office rentals, third-party services and so on. Asset management protocols may realise the saying 'software is eating the world.' Nearly all complex procedures of asset management are automatically handled by software. In particular, smart contracts can efficiently handle financial functions, including collateralisation, liquidation, and rebalances. As a result, a huge part of the costs incurred in TradFi can be saved, leading to heftier net returns pocketed by investors.

Trustless and Non-Custodial Setting

With the help of blockchain technology, trading and settlement are not controlled by central authorities. Also, investors do not need to surrender ownership and control of their assets to custodians or asset managers.

3. An Overview of Major Asset Management Protocols

There are several types of asset management protocols trending on the market, namely, yield aggregators, one-stop platforms, and index funds. In what follows, we cover major protocols' prominent designs and their current development.

3.1. Yield Aggregators

The **DeFi space provides abundant opportunities to generate returns.**

Participants can earn interests from lending, retrieve rewards from liquidity mining programs and share revenues extracted by the protocols. As there are so many choices on the market, investors may struggle to find the protocols that provide the best returns.

Yield aggregators act as fund managers who pool investors' funds and reinvest them in various yield-churning protocols to maximise the returns. Their investment strategies can be viewed as pre-programmed and automatically executed. Yield aggregators can achieve cost efficiency that investors can hardly enjoy from investing on their own. One such instance is the hefty gas fees involved in transactions: The fees are shared among investors when funds are pooled together.

3.2. Yearn Finance

Yearn Finance is a perfect example to illustrate how a yield aggregator works. Currently sitting on a [total value locked](#) (TVL) of \$4.6B, Yearn Finance is one of the leading yield aggregators built on the Ethereum Network. It offers two investment products, namely Earn and Vaults (v1 and v2). Earn is an aggregator that deposits funds into lending protocols, including dYdX, Aave, and Compound. As interest rates fluctuate between protocols, Earn automatically withdraws funds from one protocol to another with a higher interest rate. Being Yearn's first product, Earn's single investment strategy applies to all types of assets deposited.

In contrast to Earn, Vault v1 involves a number of smart contracts with different roles. For instance, Vault acts as a window for investors to deposit and withdraw assets and Strategy implements the investment strategy with the assets deposited. Vault v1 also adopts a separate

investment strategy for each asset. Vault v2 aims to attain higher efficient uses of capital through allowing multiple strategies on each asset simultaneously. Same as a typical hedge fund, Vault v2 adopts a 'two and twenty' fee structure. Other competitors in this space also demonstrate their own edges. For instance, [Convex Finance](#) only charges investors 16% of the profits in the form of a performance fee, while [Harvest Finance](#) offers a wide range of [high-yielding farm strategies](#).

Top 10 Yield Aggregators by Total Value Locked (as on 23/09/2021)	
Yield Aggregator	Total Value Locked (USD)
Convex Finance	7.6B
Yearn Finance	4.6B
Tranchess	1.4B
Alpaca Finance	1.3B
Sunny	1.2B
Alchemix	1.1B
Autofarm	898.7M
Alpha Finance	787.5M
Beefy Finance	782.2M
Coinwind	706.0M

Source: DeFi Llama, Crypto.com Research

3.3. One-Stop Platforms

While yield aggregators act as automatic asset managers themselves, some one-stop platforms, such as Enzyme Finance and dHEDGE, allow the participation of both asset managers and investors. On these platforms, asset managers can create vaults or pools that gather assets from investors. They can employ whatever investment strategies they like. A broad spectrum of investment styles has been covered, ranging from traditional long-only and market-making funds to fancy robots and artificial intelligence strategies. On the investors' side, one huge benefit is information transparency, as they can easily track the fund flows and the asset managers' performance.

Some platforms even provide [leaderboards](#) that rank the best managers. Such a flexible and transparent set-up may facilitate [‘social trading’](#), a form of investing that allows investors to observe and replicate the trading strategies of their peers and professionals.

The following highlights the latest development of some leading one-stop platforms:

Enzyme Finance

In January 2021, Enzyme Finance launched its substantially upgraded [v2 version](#). It currently supports around 150 assets, which cover both standard tokens and derivative tokens (e.g. cTokens or inverse Tokens). It emphasises direct composability with other DeFi protocols like lending protocols, AMM pools, yield aggregators, and synthetic products. Asset managers can thus harness different protocols to achieve their investment goals. Starting from July 2021, Enzyme Finance has [enabled](#) access to Yearn vaults, allowing investors to flexibly allocate part of their portfolios to yield farming with cost-saving benefits.

dHEDGE

On the Ethereum network, dHEDGE is powered by the synthetic asset platform Synthetix, supporting more than 40 synthetic assets (e.g. forex, commodities, equity index tokens) that can be traded by asset managers. dHEDGE has recently announced its [v2 version](#). Launched on the Polygon Network, the new version aims to expand the space of assets and platforms that will be accessible to managers. The first product accessible on v2 is the decentralised exchange Sushi, where managers can stake liquidity for extra yield.

DePlutus Protocol

Founded in 2020, DePlutus Protocol has positioned itself as the first asset management protocol that enables the fund specific token function. After investing in funds on the platform, the investor receives the fund-specific tokens (DF Token), which stands for the investor’s share of ownership in the fund. Such tokens can be freely traded and staked for liquidity mining, thus boosting liquidity and capital efficiency. It is also actively expanding its presence in the institutional space. In August 2021, DePlutus Protocol [announced](#) its strategic partnership with the Huashe Asset Management Hong Kong Company, emphasising that they would provide financial services to both retail and corporate crypto investors within the regulatory scopes.

Top 3 Social Trading Platforms by Total Value Locked (on 23/09/2021)				
Platforms	Total Value Locked (USD)	Governance Token	Price (USD)	Market Capitalisation (USD)
Set Protocol	378.2M		N/A	
Enzyme Finance	123.7M	MLN	\$146.9	\$263.5M
dHEDGE	23.0M	DHT	\$1	\$17.8M

Source: DeFi Llama, CoinMarketCap, Crypto.com Research

3.4. Index Funds

In addition to yield optimisation and active strategies, some protocols feature tradable indices. These protocols transfer indices into tradable ERC-20 tokens, all of them fully backed by the underlying assets in the basket. The protocols handle all the work of fund administration and management, including token issuance and redemption and portfolio rebalancing. Investors who want to gain exposure to a variety of tokenised assets can do so by paying one transaction fee for the tokenised index. Index funds particularly fit investors who prefer to passively invest in the whole market, a theme, or a sector.

A popular example is [DeFi Pulse Index](#). Established by the analytics site DeFi Pulse, the DeFi Pulse Index is a capitalisation-weighted index that tracks the performance of significant DeFi projects that are available on Ethereum. Its fund token is created using [Set Protocol](#). The index fund (known as Set in the protocol) is maintained and reconstituted monthly, meaning that it can undergo additions, deletions, and rebalances of constituent tokens. The number of trendy and innovative index funds is ever-increasing, for example:

- o [Metaverse Index](#): capturing the trend of entertainment, sports and business shifting to a virtual environment
- o [Yearn Ecosystem Pie](#): providing complete exposure to the growing Yearn network.
- o [USD Index Pie](#): minimising exposure to stablecoin-specific risks with a diversified stablecoin portfolio

Top 10 Index Tokens by Market Capitalisation (on 23/09/2021)				
Index Token	Ticker	Price (USD)	24-Hour Volume (USD)	Market Capitalisation (USD)
DeFi Pulse Index (DPI)	DPI	\$325.1	\$2.4M	\$197.1M
ETH 2x Flexible Leverage Index	ETH2X-FLI	\$125.1	\$7.9M	\$115.2M
Metaverse Index	MVI	\$110.9	\$585.6K	\$18.5M
Yearn Lazy Ape	YLA	\$1.1	N/A	\$14.3M
DEFI Top 5 Index	DEFI5	\$83.2	\$174.0K	\$12.4M
DEGEN Index	DEGEN	\$4.9	\$74.7K	\$11.9M
BasketDAO DeFi Index	BDI	\$327.2	\$2.7K	\$9.1M
Total Crypto Market Cap	TCAP	\$260.2	\$169.3K	\$7.0M
Polylastic	POLX	\$0.0006	\$259.3K	\$5.7M
Cryptocurrency Top 10 Index	CC10	\$59.2	\$81.7K	\$4.0M

Source: CoinGecko, Crypto.com Research

4. Trends and Challenges of Institutional Adoption

In comparison to applications in lending and DEXes, protocols for asset management have been rather sluggish in terms of growth in total value locked (TVL) and users.

According to DeFi Pulse, the TVL in asset management currently weighs \$10.4B, accounting for around 11% of the aggregate TVL in DeFi. This figure approximates the asset under management (AUM) of a single big hedge fund, implying that the institutional adoption of asset management protocols is still in its early stages.

Let's go over the major trends and challenges that have arisen from the institutional adoption of asset management:

4.1. Liquidity and Capital Efficiency

Most asset management protocols are pushing hard on boosting the liquidity and capital efficiency of their fund products. The protocols' latest upgrades tend to include fund tokenisation. The funds' ownerships are represented by these tokens, which can be further traded on the market and utilised on other DeFi applications for generating more income sources (e.g. liquidity mining, collaterals for lending and borrowing). This idea is parallel to the exchange-traded funds (ETFs) on the stock market. Ideally, an improvement in liquidity can drive institutional investors to allocate more capital in this space. On top of that, the protocols are relentlessly integrating with other DeFi applications to expand the range of assets and investment tools that can be accessed by asset managers, allowing them to maximise the capital returns.

4.2. Security

Another blocker of institutional adoption is security. DeFi applications are still littered with loopholes, and it is not uncommon that huge sums of funds are drained through malicious exploits. In particular, yield aggregators have been frequently attacked since the DeFi boom in 2020. In February 2021, [the DAI vault of Yearn Finance lost \\$11M](#) due to an exploit through flash loans and price manipulation on the Curve pools.

Most institutions have thus stayed rather conservative on stepping into the exciting, yet risky, DeFi space. Fortunately, after learning lots of painful lessons from the previous exploit events, protocols are becoming increasingly

battle-tested. Third-party security audits are also necessary to identify the loopholes overlooked by the projects' developer teams.

Selected Major DeFi Hacks in 2021			
Date	Protocol	Attack Type	Capital Losses (USD)
05/02/2021	Yearn Finance	Flash Loan Attack	\$11.1M
13/02/2021	Alpha Homora	Flash Loan Attack	\$37.5M
04/03/2021	Meerkat Finance	Rug Pull	\$31M
05/03/2021	Paid Network	Infinite Mint Attack	\$100M
28/04/2021	Uranium Finance	Smart Contract Bug	\$50M
02/05/2021	Spartan Protocol	Flash Loan Attack	\$30M
08/05/2021	Rari Capital	Flash Loan Attack	\$11M
19/05/2021	PancakeBunny	Flash Loan Attack	\$200M
10/08/2021	Poly Network	Smart Contract Bug	\$610M

Source: Coindesk, Crypto.com Research

4.3. Compliance and Risk Management

Institutions are cautious whether their investments conform to the rules and laws and whether risks are properly managed. The regulation of DeFi remains under work in most jurisdictions, and many institutions adopt a 'wait-and-see' approach until the regulatory picture turns clearer. Protocols in the asset management space are trying to include more functions that are more in line with traditional standards of compliance and risk management.

Some protocols now empower asset managers to have better screening options for their clients. For instance, on both Enzyme Finance and dHEDGE, managers can opt to **whitelist** certain **addresses** that can invest in their portfolios. It is foreseeable that the protocols will adopt stricter anti-money laundering (AML) and know-your-customer (KYC) procedures. While stricter regulation may undermine decentralisation to a certain extent, institutions treat it as necessary protection for their assets.

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