

1) HouseCoin: Buying and selling real estate on The Blockchain

While in traditional markets only big players can take advantage of arbitrage and market-making opportunities, Defi allows for the ordinary investors to collectively pool capital and algorithmically become a unified and profitable market maker.

Born out of the ICO (Initial Coin Offering) era, which lead to Bitcoin's crash in 2018, it

Z authors of the Uniswap Whitepaper (Adams 2020) created the frameworks to allow for algorithmic, decentralized exchanges. Instead of utilizing order books as traditional exchanges do, Uniswap allowed third parties to provide and remove liquidity to markets without government regulation or regulations. Prices are determined by a constant product formula¹, relying on liquidity providers and arbitrageurs to keep the market in equilibrium.

In a typical order book market, there is what we call a bid and ask. These are the highest prices traders are willing to pay and the lowest sell price respectively. There inherently must be a distance between these two numbers; otherwise, both orders would find each other and be filled. When a new player comes into the market, they may place a limit order at any given price or have their order fill instantly with a market order. For someone who wants to make money off the market, they must position themselves on both the order book's buying and selling side. This way, no matter what kind of order, buy or sell, limit or market, the "market maker" will profit from the difference between their positions since they buy for less than they sell.

¹ This model is how simple automated market makers price their assets on the blockchain.
<https://github.com/runtimeverification/verified-smart-contracts/blob/uniswap/uniswap/x-y-k.pdf>

While this sounds technically sound, this market-making method has a few problems, one being its inequity. It required a substantial amount of capital, computer and programming resources, and close connections to an exchange computer (CNBC 2019). This isn't something an individual with \$20 in the bank account can make money on.

Years later, blockchain developers created a system for the everyday investor, one that does not require vast swaths of capital or immense technological capabilities. While providing capital markets to everyone, this system does not use order books (Adams 2020). Those who want to make money off trading will provide liquidity to a pool. This means that many individuals pool assets into one non-custodial fund that others will access daifd liquidity, in order to fill third party orders. The money is made by changing around a 0.3% fee, the typical spread in any liquid market.

On the trading side, the swap price is set by a price oracle, a decentralized technological function that aggregates several exchange prices. From here, one who wants to create an order or a swap will "call" the current market price and trade with a liquidity pool. The swapper pays a small fee to make the trade, and they go on their way.

RealT (featured below) uses Uniswap as a core part of its secondary market, allowing for liquid, trustless, and pseudo-anonymous secondary market transactions. We shall see later that the trading pair one chooses can affect liquidity. If it's a volatile asset, it would be better priced and arbitrated, and we will see that RealT has an opportunity to use floated funds to buy and crypto sell crypto for a profit, should they choose.

While pairing security tokens with cryptocurrencies in decentralized trading pairs may produce an interesting academic study, it is not realistic to ask institutions to buy or even trade

[Type here]

them. For instance, when the 1031 exchange launches, the trading pairs will be with stablecoins and not crypto. The stablecoins can be US Dollar based, or even HKD, GBP, CAD, AUD ect. A great fiat onboarding platform would be trusstoken² an institutional platform that enables multiple international currencies to be legally and transparently brought on chain.

This being said, it has become increasingly apparent that RealT is trying to hit a different model than the 1031 we envision. Started by two Quebecois brothers, RealT quickly started to acquire single family homes to sell on the blockchain. Because of the low individual asset values, the platform worked best for individual investors, both Reg D and Reg S (Non-U.S. investors and accredited american investors respectively). However, because the properties that are listed are the responsibility of the two brothers, they are ultimately responsible for making sure that the properties are occupied, maintained and properly managed.

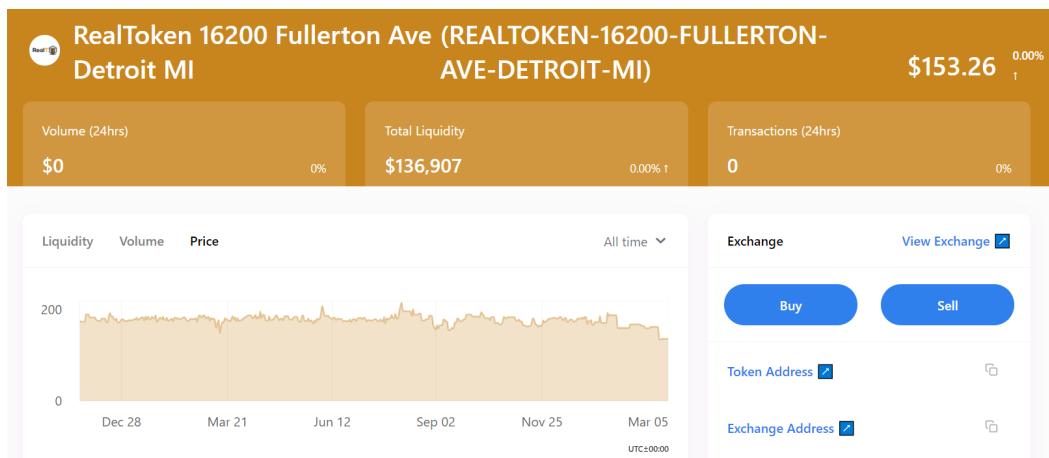
Ultimately, RealT has been an amazing case study to show how ethereum can be leveraged to create small scale, manageable security tokens. Their platform is incredibly well done, and the user interface is supreme. These are the two biggest takeaways that we will build our 1031 exchange on.

Instead of focusing on onboarding individual investors, we plan to focus on attacking financial institutions, looking to expand their real estate portfolios while having the tools to properly hedge and leverage their respective positions using the incredible framework that ethereum developers and early adopters of decentralized finance have built.

² <https://www.trusstoken.com/products/>

Technicals/ examples/ visualizations for section 1

Example security token uniswap (secondary) market dashboard



<https://v1.uniswap.info/token/0x22c8ecf727c23422f47093b562ec53c139805301>

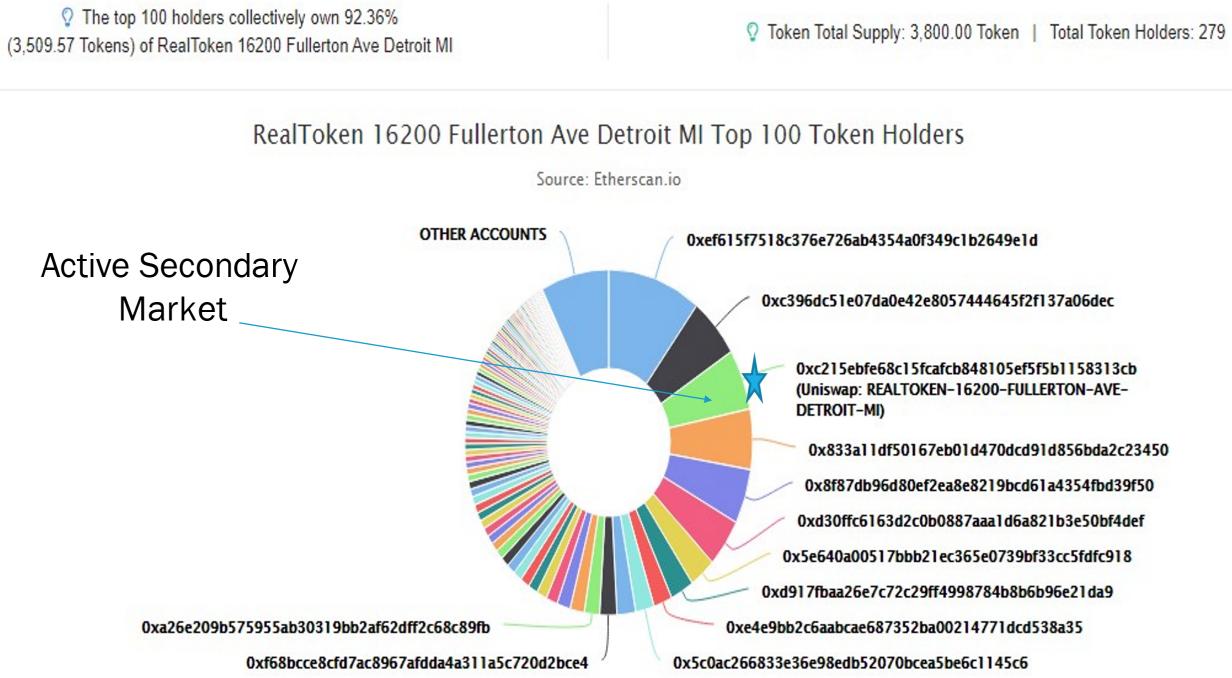
Eth price changes bring volume and liquidity



[Type here]

Asset transparency

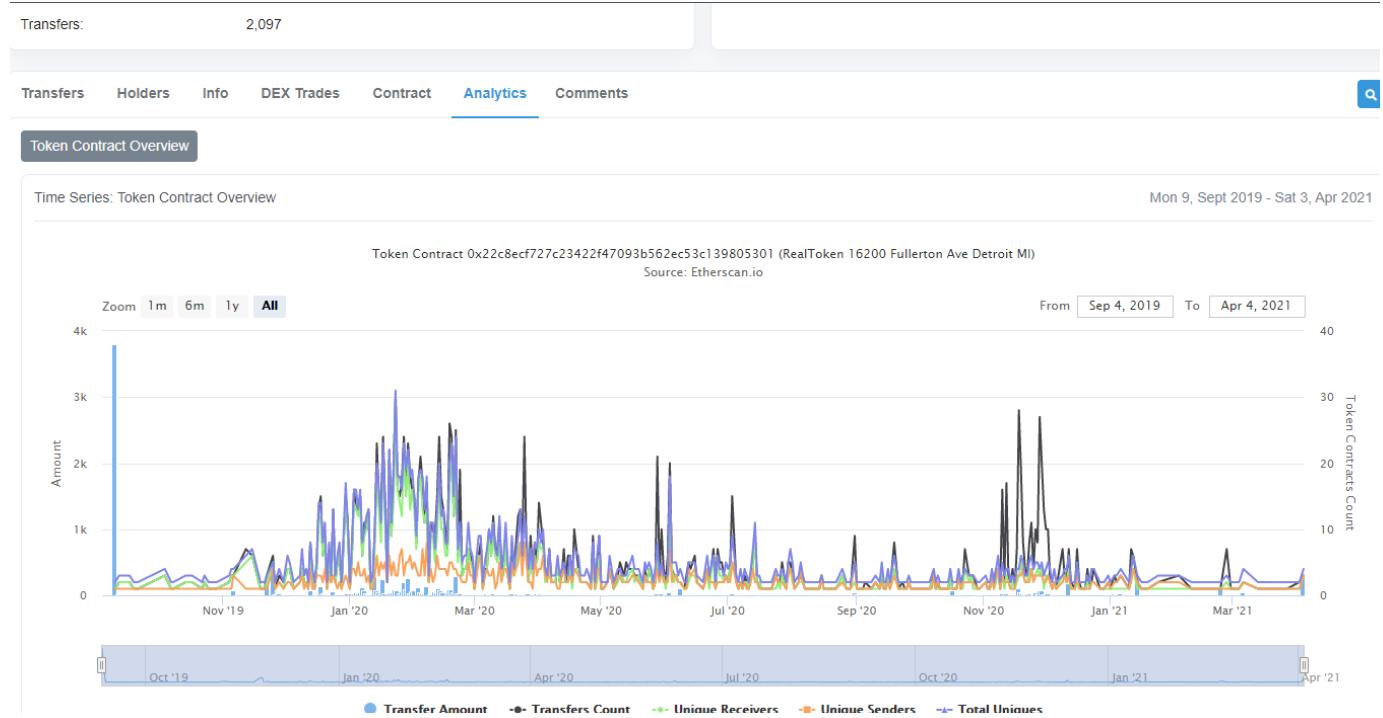
Because the platform is built on top of the ethereum blockchain, more data is publicly accessible, increasing asset transparency and the capital efficiency.



<https://etherscan.io/token/tokenholderchart/0x22c8ecf727c23422f47093b562ec53c139805301>

[Type here]

RealToken analytics, sends, trades, buys, contract interactions



<https://etherscan.io/token/0x22c8ecf727c23422f47093b562ec53c139805301#tokenAnalytics>

[Type here]

Trading dashboard, with yields included, price as bonds

Uniswap Price Tracker									
Prices for 1 RealToken									
Token	Price (USD)	Yield	Buy price (USD)	Buy difference	Buy yield	Sell price (USD)	Sell difference	Uniswap	
OLD-20200 Lesure	69.4	10.39%	114.20 0.064603 ETH	+44.80 USD +64.56%	6.31%	112.76 0.063789 ETH	+43.36 USD +62.48%	BUY	SELL
15777 Ardmore	44.34	11.04%	74.65 0.047132 ETH	+30.31 USD +68.37%	6.55%	67.76 0.042781 ETH	+23.42 USD +52.83%	BUY	SELL
OLD-25097 Andover	53.13	11.21%	69.16 0.039122 ETH	+16.03 USD +30.17%	8.61%	68.00 0.038465 ETH	+14.87 USD +27.98%	BUY	SELL
OLD-16200 Fullerton	144.74	9.45%	179.37 0.101468 ETH	+34.63 USD +23.93%	7.63%	177.51 0.100416 ETH	+32.77 USD +22.64%	BUY	SELL
OLD-8342 Schaefer	50.83	12.78%	53.77 0.030417 ETH	+2.94 USD +5.79%	12.08%	53.15 0.030065 ETH	+2.32 USD +4.56%	BUY	SELL
OLD-9943 Marlowe	63.75	12.90%	99.09 0.056051 ETH	+35.34 USD +55.43%	8.30%	97.92 0.055392 ETH	+34.17 USD +53.60%	BUY	SELL
OLD-18276 Appoline	52.32	12.13%	94.43 0.053415 ETH	+42.11 USD +80.48%	6.72%	92.66 0.052414 ETH	+40.34 USD +77.09%	BUY	SELL
OLD-5942 Audubon	77.73	12.40%	172.00 0.097296 ETH	+94.27 USD +121.28%	5.61%	169.41 0.095831 ETH	+91.68 USD +117.95%	BUY	SELL
OLD-9336 Patton	62.7	10.40%	114.81 0.064944 ETH	+52.11 USD +83.11%	5.68%	113.54 0.064230 ETH	+50.84 USD +81.09%	BUY	SELL
OLD-18900 Mansfield	51.31	11.26%	84.22 0.047642 ETH	+32.91 USD +64.14%	6.86%	81.87 0.046313 ETH	+30.56 USD +59.56%	BUY	SELL
OLD-10024-28 Appoline	145.56	11.47%	158.81 0.089838 ETH	+13.25 USD +9.10%	10.52%	156.88 0.088744 ETH	+11.32 USD +7.78%	BUY	SELL
OLD-15634 Liberal	48.98	13.20%	78.43 0.044369 ETH	+29.45 USD +60.14%	8.25%	76.36 0.043198 ETH	+27.38 USD +55.91%	BUY	SELL

<https://dashboard.realt.ch/uniswap>

This is a third party website, built on top of Ethereum, RealT and Uniswap. because of the underlying technologies interopability and ease of development, it would be more than reasonable for our exchange to be able to build custom dashboards for our corporate partners

[Type here]

3) Framework for real estate investing on the blockchain (similar to ETFs/REITs/real estate investments on the normal stock market)

At the 2021 Ares Conference, Muhammad Najib Razali³ spoke of the benefits of putting real estate transactional data, specifically land titles, onto the blockchain. Doing so would not only speed up the bureaucratic and technical process of updating government records, but provide a clear legitimacy of land titles.

OTOCO.IO

On the blockchain there is a sense that there is little regulation, just a bunch of semi anonymous wallet addresses interacting with smart contracts and with one other.

A website called otoco.io, started by a company by the same name, has created a solution for this exact problem.⁴ While it may seem like that for an outsider, there is a legal path for individuals and more importantly for our case, corporations to create a presence on-chain, and use that presence to create the framework for REIT/ETF structures, available to all investors.

Following OTOCO's example, a corporation can create an LLC on the blockchain, controlled, and operated by a multi-signature wallet. Through this structure, the "Blockchain LLC" can create future ERC 721 and ERC 20 tokens to represent individual properties, collections of properties, or even shares of real estate investment pools, similar to REITs in the traditional asset ecosystem . In addition, the property title can be legally transferred from whichever company holds the property to a digital LLC.

³ Blockchain Technology for Improving Land Registration System in Malaysia

⁴ otoco.io

This technology can more importantly be brought to this example, on ethereum. The Multisig wallet (a wallet address that can only signed when a certain amount of approved members vote)⁵ can create an authorized document, notarized and signed by all relevant entities to ensure the legitimacy of the security token that will be discussed later. So the goals of the multisignature wallet and authority are to create ERC 721 (described below) with property information, create basis for the property's value, location, and be the legal throughput to move from the real world and the blockchain.

ERC 721

The ERC 721 is a type of NFT, or Non-Fungible Token. Originally, the NFT was an ownable smart contract. However, as the years have gone by, everything from digital art to baseball cards have been issued as NFTs. The great benefits of NFTs are the fact that they are provable and immutable. Once they have been put onto the blockchain, the owners' wallet address and the token itself will be known to the world, highly resistant to censorship and alteration. Because of the non fungible technical aspect of the ERC 721, another framework is needed to create a tradable asset that can represent divisible shares of physical real estate.

Here is where the ERC 20 comes into play

The ERC 20 is the standard Ethereum token that some of us favor. Everything from PAXG, USDC and USDT (Prominent stablecoins) are all built as the ERC 20 token, as well as the RealT tokens.

ERC 20s are difficult to verify their legitimacy, and because of this many scam tokens are created. These scam tokens can be placed on Uniswap and can be easily brought up with high levels of liquidity, only for individuals to find out later that they have been duped.

⁵ gnosis.io

The Problem

	PROs	CONs
ERC 721	Verifiable, censorship resistant	non fungible
ERC 20	fungible, interoperability with decentralized finance	very little verifiable metadata

The solution

As you can see above, significant problems arise when we want to create a fungible, verifiable, secure security token. While the ERC 1155⁶ attempts to combine the ERC 20 and the ERC 721 into one uniform token, the token standard has yet to be fully developed into significant decentralized financial contracts and protocols for us to consider using said standard.

The multisignature wallet will deploy two separate token contracts, the ERC 721, containing property information and metadata and subsequently the ERC 20, representing fungible shares of said property. At this point the multisig will send said ERC 721 token to the ERC 20 contract, leaving it irretrievable and immutable, for the public and investors to see.

The AMM and the ETF

As we talked about before regarding Uniswap's automatic market makers, it is important to point out that other frameworks exist for creating liquidity pools on the blockchain. A great example is Balancer Finance⁷, which allows for custom features for AMM's including the ability to change weights, number of tokens and the changing of swap fees.

⁶ <https://eips.ethereum.org/EIPS/eip-1155>

⁷ <https://balancer.finance/whitepaper/>

[Type here]

Two most important features that can be utilized to set up an efficient 1031 exchange are the weight mechanisms, and the tokens inside those pools. A great implementation of the weight mechanism customizability is called the liquidity bootstrapper⁸.

A large problem in creating new tradable markets is price discovery. Because uniswap requires all eight distributions to be 50-50, creating a market can cost large amounts of capital and price swings in new and illiquid markets can create impermanent loss⁹. To avoid this, a pool will be started with to start listing a token, the weights in the pool will start out as 95Equity/5Stable. Utilizing balancer flexible pricing and weight framework, the controller will slowly shift towards 50/50 distribution to find prices, with sufficient liquidity to maintain its own market, without third party intervention¹⁰. Because of the inherent value of the equity and its provided cash flows, slowly the market will have sufficient liquidity providers ``betting'' equally on both the equity and the stablecoin.

With the token weights somewhat explained, the multi-token pool will be brought forth. As previously mentioned, balancers frameworks allow for multiple tokens to be placed inside a liquidity pool. This framework is very similar to an exchange traded fund (ETF) or a REIT, but with more customizability.

Unlike an ETF or REIT, a balancer pool is relatively easy to set up. All it requires is multiple equity tokens to be placed inside a pool, and either a stablecoin, and/or another balancer pool with an equity/stablecoin pairing (like the example mentioned above). Because the previous 95equity/5stablecoin pair already exists, a price along with liquidity are already in place, allowing an investor to swap between multiple tokens, using multiple pools.

The following pool would then be a redeemable, open ended, redeemable fund (Unlike an ETF or REIT in most cases), which uses arbitrageurs to take advantage of price differences to “rebalance” the pools. To

⁸ <https://docs.balancer.finance/smart-contracts/smart-pools/liquidity-bootstrapping-faq>

⁹ <https://finematics.com/impermanent-loss-explained/>

¹⁰

https://docs.google.com/spreadsheets/d/1t6VsMJF8lh4xuH_rfPNdT5DM3nY4orF9KFOj2HdMmuY/edit#gid=1392289526

[Type here]

avoid a liquidity drain, a customizable swap fee will be implemented (in respect top asset volatility or volume). This in effect creates a manageable swing trading pool¹¹, which earns income from its trading fees. Another way to go about restricting bad agents would be by redistricting allowed swappers/liquidity providers to certain, pre determined (KYC Compliant), whitelisted addresses.

The ecospace that decentralized finance has brought forward has proven to be incredibly interoperable, meaning in one transaction, an individual can interact with multiple protocols and projects at once, either to use leverage, take advantage of an arbitrage situation or exchange assets through or with multiple market makers.

5) Derivatives market framework: hedging, shorting and the ETF

Capital Markets

Because real estate investment is typically made with external financing, either by a bank or by private individuals, creating loans and leveraging equity for more capital. Similarly, within decentralized finance, leverage is even more crucial and has focused on much technological development; this is the financing part of DeFi.

Since margin lending has been outside traditional banking for decades at this point, the concept may not be fresh in everyone's mind. Let us say that you own one share of Apple stock. As a huge fan and a believer in its long-term performance, you do not wish to sell this asset anytime soon. So, your stockbroker introduces you to a man who does not think that Apple will perform well in the next few days. The man says to you, "I will pay you 5% APY to 'borrow' your security." This man wants to short sell Apple, meaning he will sell the stock now and repurchase it later for cheaper. At the end of the period, he will return the stock to you with 5% yearly interest. You and the broker are protected by a margin, or collateral, a more considerable

¹¹ <https://medium.com/balancer-protocol/high-fee-balancer-pools-for-swing-trading-8bc1c169a4c2>

amount of liquid value held in the borrower's portfolio. If Apple's share price goes up, the borrower will have to add more collateral or be forced to repurchase the stock at a loss and forfeit his or her collateral. This is because the borrowed value has exceeded the allotted amount, and for the protocol to have its NAV positive, bad borrowers must be rooted out.

The blockchain's margin lending system was created without the need for a trusted third party (like a lawyer or clearinghouse). A protocol called "Compound Finance" is an excellent example of this decentralized financial ecosystem (Leshner 2020). Like margin lending, there are two parties at play, one going long and the other going short. However, there is no broker, as this is done with pre-audited code called smart contracts. One party will post collateral, typically Ether, a popular cryptocurrency, and ask for a loan worth roughly 50% of the collateral value. The APY naturally fluctuates with supply and demand. Still, it is usually around 10%, a way more robust return on holding short-term funds than the current anemic rate (less than 1% APY). Another party will provide stablecoins to the borrower and collect the interest payment.

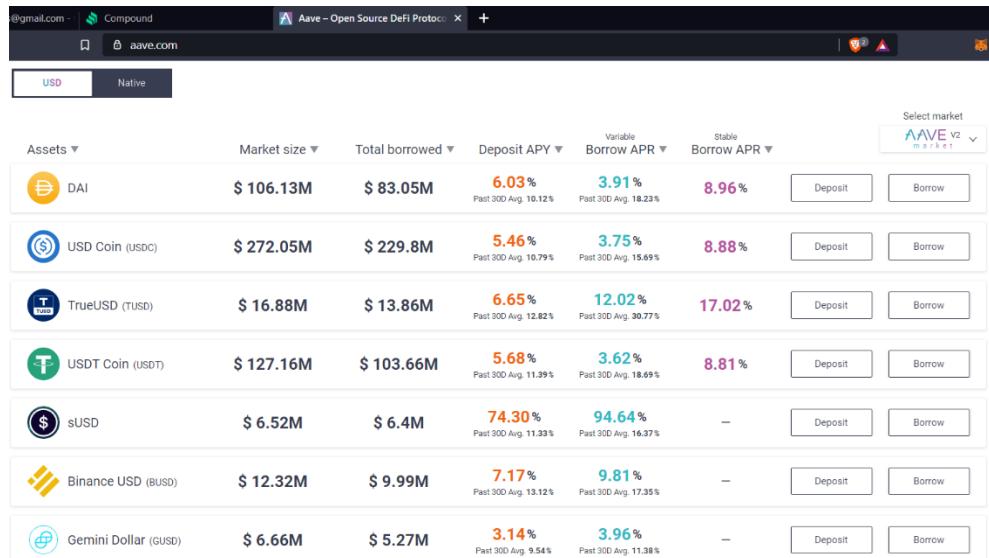
The collateral is managed by a system of computers known as keepers. They make sure that the collateral value is safe and will contact the borrower if there is a liquidation risk. If there is ever loan collateral that is reaching dangerous values, any individual may come in and purchase the debt. The purchaser is required to post the margin, and in return, they may redeem the underlying value.

So why would someone ever do this? Well, unlike margin lending, there is no one going short. Because the other asset is a stablecoin, considered a risk-neutral position, only one person is going long. If someone believes in Ether, they may almost double their work by using this protocol. Now, if the price goes up, they will easily be able to pay from their profits. If it goes down, then the lender will benefit. Either way, for the lender, this is a win-win.

[Type here]

As of late February 2021, \$35.1 billion was locked into these protocols, up over 100% the last few months. There have been many recent developments in this technology and a handful of capital firms and institutional investors heavily investing (e.g., Tesla). For someone who is distrustful of banks and embracing the future, it is the place to be financial.

Exhibit 4 is a screenshot of AAVE, an extensive lending protocol with a little less than \$10 billion in its system. As you can see, there are seven digital dollar markets—other protocols such as Compound Finance and MakerDao also employ "self-driving bank" technology.



The screenshot shows a web browser window for the Aave platform. The URL bar displays 'aave.com'. The main content area is a table listing seven digital dollar markets. Each row contains the asset logo, name, market size, total borrowed amount, and interest rates for depositing and borrowing. Buttons for 'Deposit' and 'Borrow' are present for each asset. A dropdown menu at the top right allows selecting a different market.

Assets	Market size	Total borrowed	Deposit APY	Variable Borrow APR	Stable Borrow APR	Select market
DAI	\$ 106.13M	\$ 83.05M	6.03% Past 30D Avg. 10.12%	3.91% Past 30D Avg. 18.23%	8.96%	<button>Deposit</button> <button>Borrow</button>
USD Coin (USDC)	\$ 272.05M	\$ 229.8M	5.46% Past 30D Avg. 10.79%	3.75% Past 30D Avg. 15.69%	8.88%	<button>Deposit</button> <button>Borrow</button>
TrueUSD (TUSD)	\$ 16.88M	\$ 13.86M	6.65% Past 30D Avg. 12.82%	12.02% Past 30D Avg. 30.77%	17.02%	<button>Deposit</button> <button>Borrow</button>
USDT Coin (USDT)	\$ 127.16M	\$ 103.66M	5.68% Past 30D Avg. 11.39%	3.62% Past 30D Avg. 18.69%	8.81%	<button>Deposit</button> <button>Borrow</button>
sUSD	\$ 6.52M	\$ 6.4M	74.30% Past 30D Avg. 11.33%	94.64% Past 30D Avg. 16.37%	--	<button>Deposit</button> <button>Borrow</button>
Binance USD (BUSD)	\$ 12.32M	\$ 9.99M	7.17% Past 30D Avg. 13.12%	9.81% Past 30D Avg. 17.35%	--	<button>Deposit</button> <button>Borrow</button>
Gemini Dollar (GUSD)	\$ 6.66M	\$ 5.27M	3.14% Past 30D Avg. 9.54%	3.96% Past 30D Avg. 11.38%	--	<button>Deposit</button> <button>Borrow</button>

Source: Aave.com

Our vision would be to have our 1031 exchange to include a similar money market accessible to all investors. Technologically speaking, it would not be difficult to allow both stablecoins and equity tokens to have their open ended (long/short) equity/money market. This will allow investors to take leveraged long and short positions on their capital and equity, allowing for a quality, yet simple derivatives market. As shown in the technicals, different interest rate

[Type here]

parameters can be enabled for different assets. These interest rate parameters can be edited by the controller, depending on market conditions and risk.

A great use case for the (long/short) market would be for two separate investors, both operating under different tax codes. Similar to a credit default swap, a swiss investor, who wishes to take a long position on a property, can lend out his idle equity towards the rest of the investor pool. At this point, a U.S. investor, who is interested in the 1031 exchange for its tax benefits can take a short position (borrow) on said equity and instead of selling the token, hoping for a drop (like melvin capital), said investor can take advantage of the properties depreciation write offs (Using a K1, generated by the multisig and the ERC 721) to lower their tax burden. Because of the clear use case and obvious financial benefits provided, the inclusion of an interest rate protocol would be beneficial to all.

The possibility to mention would be the use case of Liquidity Provision shares. When a liquidity provider adds their two sided long position to generate trading fee revenues, the balancer sends the user an ERC 20 token representing their liquidity provision position.

These tokens (named AMM derivative) can be utilized in two ways. Either the derivative product can be placed in yet another balancer pool, to allow non-whitelisted addresses to gain exposure towards the underlying equities, or can be used as a lendable/borrowable asset in the money market. The most interesting part about the AMM derivative tokens is accurately pricing them, as they are derivatives. Similar to black scholes, some mathematicians/computer scientists have created mathematical formulas to be able to price said LP tokens¹².

¹² <https://cmichel.io/pricing-lp-tokens/>

Technical Overview

- This is an example contract implementation of NFToken with metadata extension
constructor()

```
{  
    nftName = "Ex1111";  
    nftSymbol = "Homes";  
}
```

- At this point, we deploy the contract and everything subsequent is in the form of contract interactions
- Mint
 - o _to (Token address, mine in the example)
 - o _tokenID (Number in the series)
 - o _uri (link on internet to the file)
- Approve
 - o _aproved
 - o _tokenid
- Transferownership
 - o _newowner
- Transferfrom
 - o _from
 - o _to
 - o _tokenid
- Send ERC 721 (NFT) to the ERC 20 contract, effectively pinning said property with its respective records towards the traded token

[Type here]

Creating ERC 721 (NFT)

Transaction Details		
Overview	Logs (1)	State
[This is a Kovan Testnet transaction only]		
⑦ Transaction Hash:	0xd9c15a9a41e111b81c9403ffa39b1828592a29c3d4ab51a64ef29196afa10d03	
⑦ Status:	Success	
⑦ Block:	24061869	73891 Block Confirmations
⑦ Timestamp:	⑥ 7 days 1 hr ago (Mar-26-2021 03:27:08 PM +UTC)	
⑦ From:	0xba2ef5189b762bd4c9e7f0b50fbab65193935e8	
⑦ Interacted With (To):	Contract 0xf3fb25ad13a97b5e35f4776d56196d99702cc964	
⑦ Tokens Transferred:	From 0x000000000000... To 0xba2ef5189b762... For ERC-721 TokenID [1]	Real Estate ... (Homes)

Creating an ERC 20

Overview	State
[This is a Kovan Testnet transaction only]	
⑦ Transaction Hash:	0xf3daab832aa02aada6661f6d068db27f6bdce12532e04b18a89e8596e4ff0288
⑦ Status:	Success
⑦ Block:	24061833
⑦ Timestamp:	⑥ 7 days 5 hrs ago (Mar-26-2021 03:22:20 PM +UTC)
⑦ From:	0xba2ef5189b762bd4c9e7f0b50fbab65193935e8
⑦ To:	[Contract 0xf3fb25ad13a97b5e35f4776d56196d99702cc964 Created]

<https://kovan.etherscan.io/>

[Type here]

Token Dashboard

Token Real Estate Homes Fungible ⓘ

Overview [ERC-20]	Profile Summary
Max Total Supply: 100 HOUSES ⓘ	Contract: 0xf8990feee133690a2146072286dde716103e23a7
Holders: 2	Decimals: 18

FILTERED BY TOKEN HOLDER
0xba2ef5189b762bd4c9e7f0b50fbab65193935e8

BALANCE
47.9999 HOUSES

Transfers Contract

A total of 5 transactions found

Txn Hash	Age	From	To	Quantity
0xd84aae81824f8793...	3 days 21 hrs ago	0xba2ef5189b762bd4...	OUT 0x4e67bf5bd28dd4b5...	1
0xe15600dd235cbe0...	3 days 21 hrs ago	0xba2ef5189b762bd4...	OUT 0x4e67bf5bd28dd4b5...	1
0x2f94be04a3b5fd17...	7 days 4 hrs ago	0xba2ef5189b762bd4...	OUT 0x4e67bf5bd28dd4b5...	0.0001
0x4236accd2162789f...	7 days 5 hrs ago	0xba2ef5189b762bd4...	OUT 0x7ed8a489a609d9a...	50
0x248e4f13f37a690e...	7 days 5 hrs ago	0x0000000000000000...	IN 0xba2ef5189b762bd4...	100

First < Page 1 of 1 > Last

<https://kovan.etherscan.io/>

[Type here]

Sending Over ERC 721 to ERC 20 Contract

Transaction Details

Overview Logs (1) State

[This is a Kovan Testnet transaction only]

② Transaction Hash: 0x5274bf6f46d56e6335d749397f9a932c0f6376a8fc3b0f85b891533243169b50 ⓘ

② Status: Success

② Block: 2406205 73655 Block Confirmations

② Timestamp: 7 days 1 hr ago (Mar-26-2021 03:53:32 PM +UTC)

② From: 0xba2ef5189b762bd4cde7f0b50fbab65193935e8 ⓘ

② Interacted With (To): Contract 0xf3fb25ad13a97b5e35f4776d56196d99702cc964 ⓘ ⓘ

② Tokens Transferred: ↗ From 0xba2ef5189b762... To 0xf8990fee13369... For ERC-721 TokenID [1] ⓘ Real Estate ... (Homes)

② Value: 0 Ether (\$0.00)

② Transaction Fee: 0.00076454397215 Ether (\$0.00)

<https://kovan.etherscan.io/>

ERC 20 Contact with its Verified NFT stuck inside.

Contract Overview

Balance: 0 Ether

Token: 1 ⓘ

More Info

My Name Tag: Not Available

Creator: 0xba2ef5189b762bd4... at txn 0x248e4f13f37a690e...

Tracker: ⓘ Real Estate Homes Fungible (HOUSES)

Transactions Internal Txns Erc721 Token Txns Contract Events

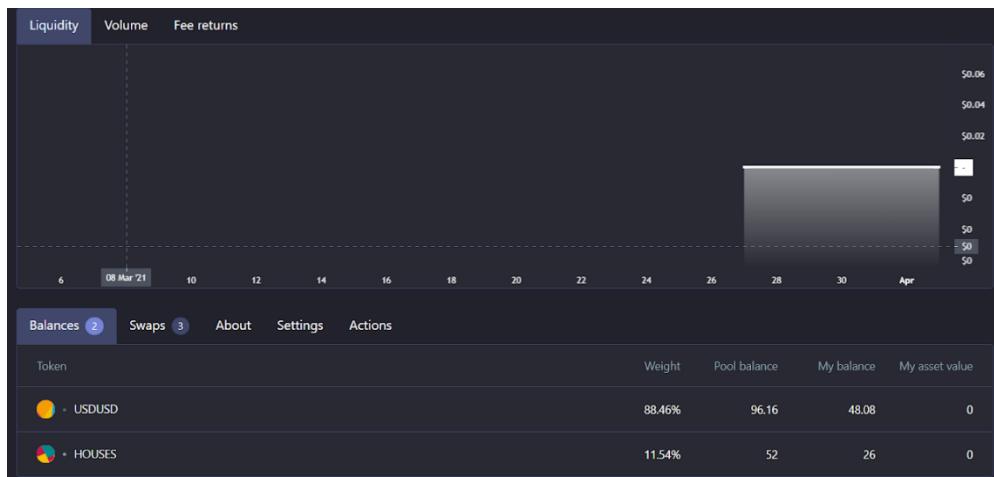
Latest 1 ERC-721 Token Transfer Event

Txn Hash	Age	From	To	Token ID	Token
0x5274bf6f46d56e63...	7 days 5 hrs ago	0xba2ef5189b762bd4...	IN ⓘ 0xf8990fee133690a...	1	ⓘ Real Estate ... (Homes)

<https://kovan.etherscan.io/>

[Type here]

Automated Market Maker Dashboard



<https://kovan.pools.balancer.exchange>

Example AMM controller dashboard

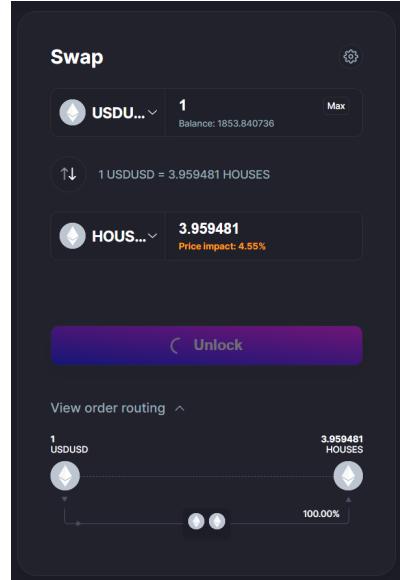
The dashboard allows setting up a new pool with the following fields:

- Token name:** Real ETF
- Initial supply:** 100
- Rights:**
 - Can pause swapping
 - Can change swap fee
 - Can change weights
- Minimum gradual update duration (in blocks):** 10
- Weight range limit:** Weight range limited to 4% - 96% when change weights enabled
- Add token time lock (in blocks):** 10
- Restrictions:**
 - Restrict LPs to a whitelist
 - Can limit total BPT supply
- Buttons:** 'Unlock HME52' (blue button) and 'Create Pool' (green button)

<https://kovan.pools.balancer.exchange>

[Type here]

Swapping Example



<https://kovan.balancer.exchange/#/swap>

Proof of Swapping Activity

② Transaction Hash:	0xd84aae81824f8793528ace0ea5190b84624ee1e43dfe2cf8aa68122fa4b2d34d
② Status:	Success
② Block:	24097029 40264 Block Confirmations
② Timestamp:	3 days 22 hrs ago (Mar-29-2021 11:08:20 PM +UTC)
② From:	0xba2ef5189b762bd4c9e7f0b50fbbab65193935e8
② Interacted With (To):	Contract 0x4e67bf5bd28dd4b570fbafe11d0633ecba2754ec
② Tokens Transferred:	<ul style="list-style-type: none">From 0xa2ef5189b762... To 0x4e67bf5bd28dd... For 1 Real Estate ... (HOUSES)From 0x4e67bf5bd28dd... To 0x8ec20c82869c5... For 1 Real Estate ... (HOUSES)From 0x8ec20c82869c5... To 0x4e67bf5bd28dd... For 1.882643849370500481 StableCoin T... (USDUSD)From 0x4e67bf5bd28dd... To 0xa2ef5189b762... For 1.882643849370500481 StableCoin T... (USDUSD)

<https://kovan.etherscan.io/>

[Type here]

ETF Example: These Tokens are example Stablecoins and real estate equity tokens

Assets

Asset	My balance	Weights	Percent	Amount	Price	Total value
0x899...23A7	48.000	60	60%	40	\$0	\$0
0x1802...13AB	100.000	40	40%	50	\$0	\$0
0x3601...42F6	1853.841	10	10%	1000	\$0	\$0

Add token

Swap fee (%)

0.15

Token symbol

ETF

<https://kovan.pools.balancer.exchange>

Derivative Example:

Liquidity Volume Fee returns

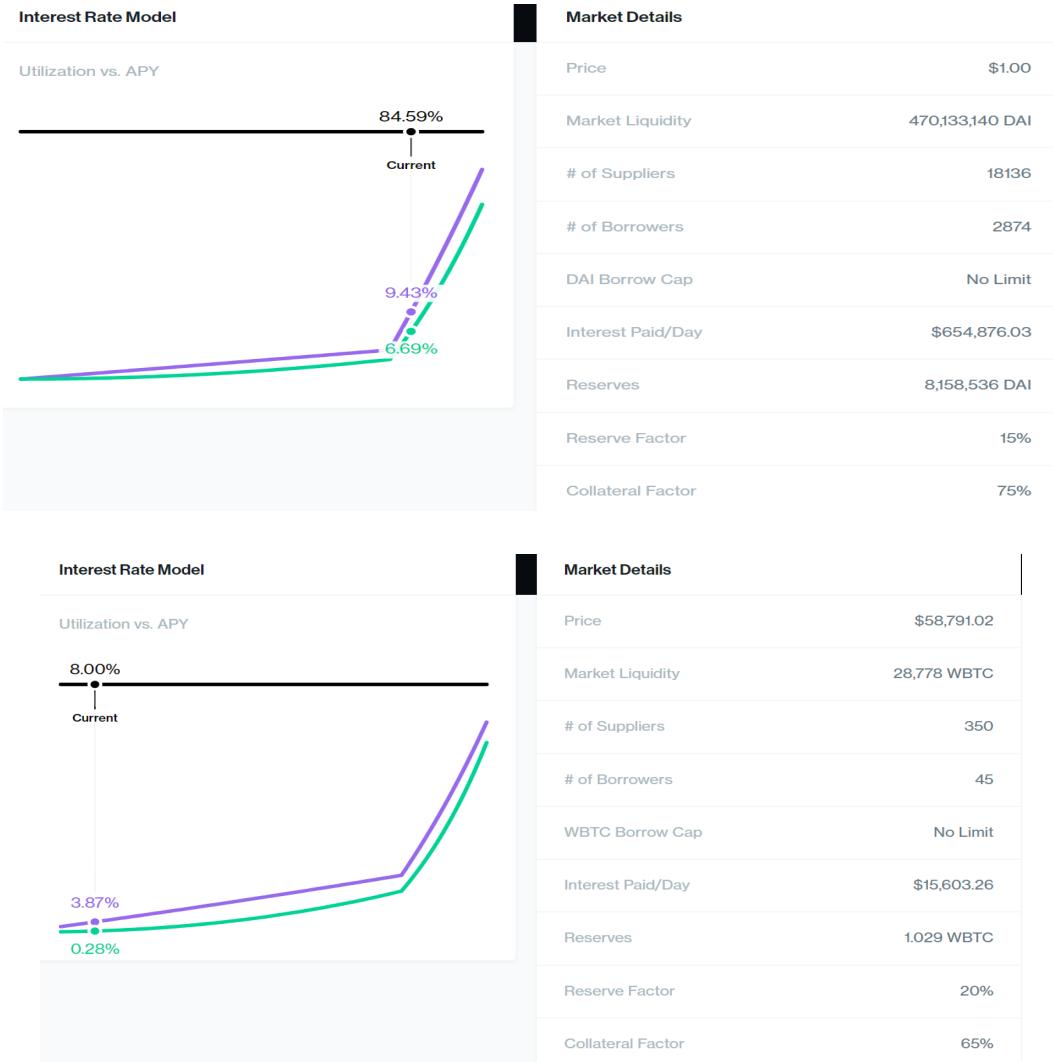
Balances 2 About Settings Actions

Token	Weight	Pool balance	My balance	My asset value
AMM Homes	50%	50	50	0
USDUSD	50%	50	50	0

<https://kovan.pools.balancer.exchange>

[Type here]

Interest rate model example, compound finance stablecoin DAI (Left), Bitcoin (Right)



Other important factors to consider would be the collateralization ratio, (which determines the LTV), and the reserve ratio (Amount of borrowers interest paid to go towards drainable reserves).

<https://compound.finance/markets/>

[Type here]

[Type here]