Reaching for Yield in Decentralized Financial Markets

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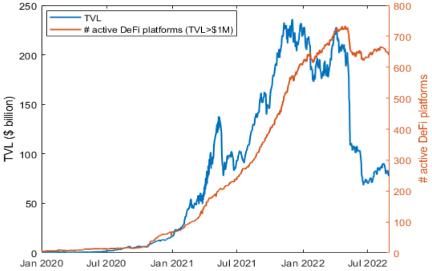
Motivation



♦ WSJ NEWS EXCLUSIVE | FINANCIAL REGULATION

Crypto's 'DeFi' Projects Aren't Immune to Regulation, SEC's Gensler Says

Some peer-to-peer trading and lending projects have features that may trigger the need for regulation, chairman says

Wall Street Journal, August 19, 2021

- **Rapid growth & increasing competition in DeFi**
- **Growth in DeFi has raised concerns by the SEC**
  - DeFi platforms attract liquidity providers by offering high, salient yields.
  - DeFi securities ≈ complex retail derivatives. (e.g. Henderson & Pearson, 2011)
  - Despite risk & complexity, easily accessible to retail investors.

This Paper

This paper studies a particular type of DeFi product: **Yield Farms**.

(1) Provide a conceptual framework to understand risk-return trade-offs.

(2) Study the mechanism of 'reaching for yield.'

- Similar to traditional markets: platforms vs. banks.
- Rich farm & investor data from blockchain. Shocks to info. display.
- Understand relation of RFY to complexity, salience & risk shrouding.

(3) Main Findings

1. Investors chase high yield farms that underperform ex-post.
2. Under-performance amplified by hidden costs & investor mistakes.
3. Information display & investor experience can reduce RFY.

Contribution

(1) **Investor behavior & reaching for yield (RFY).**

- Becker & Ivashina (2011); Choi & Kronlund (2018); Célérier and Vallée (2017); Gomes et al. (2022)
- **Bordalo, Gennaioli & Shleifer (2012, 2016): RFY arises in the presence of salience.**

(2) **Complex financial securities.**

- Allen et al. (1994); Duffie & Rahi (1995); Henderson & Pearson (2011); Pérignon & Vallée (2017); Célérier & Vallée (2017); Egan (2019); Ghent, Tourous & Valkanov (2019); Henderson, Pearson & Wang (2020); Vokata (2021); Shin (2021); Auh and Cho (2023)
- Ellison (2005); Campbell (2006); Gabaix & Laibson (2006); Carlin (2009); ...

(3) **DeFi.**

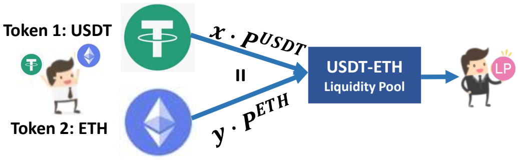
- Harvey, Ramachandran & Santoro (2021); Angeris et al. (2019); Ayoagi & Ito (2021); Neuder et al. (2021); Park (2021); Lehar & Parlour (2021); Han, Huang & Zhong (2021); Capponi & Jia (2021); Ayoagi (2022); Foley, O'Neil & Putnins (2022); John, Kogan & Saleh (2022); Makarov & Schoar (2022)

We exploit yield farms as an excellent laboratory to study investor RFY in the market for high-yield securities

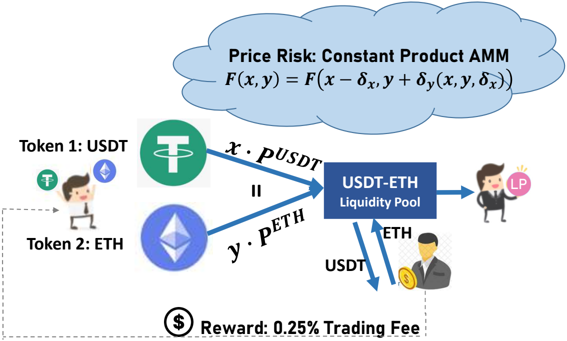
What is Yield Farming?

- Earning passive income as compensation for liquidity provision to DeFi platforms ($\approx$ Securities lending).

What is Yield Farming?



What is Yield Farming?



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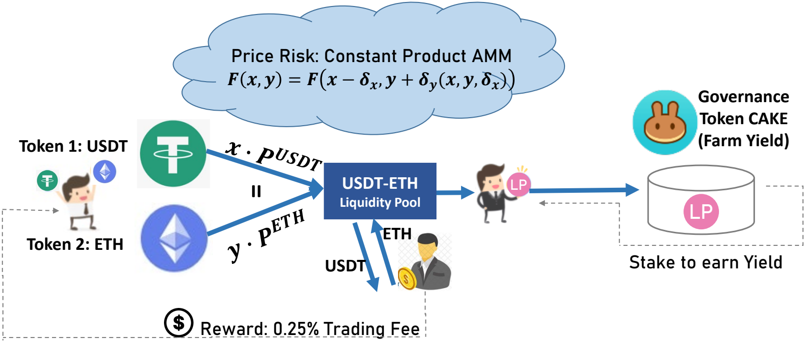
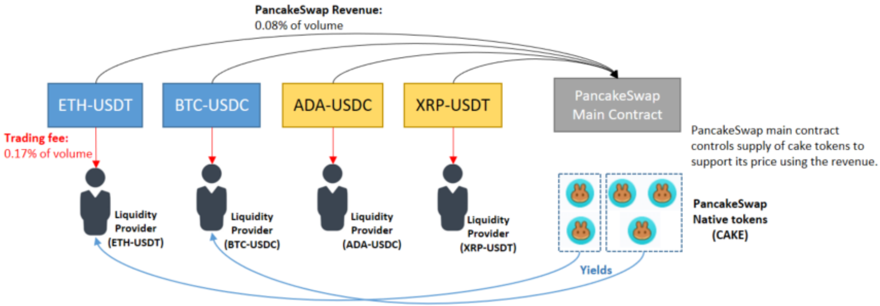


Source of Yield



- Yield income is strategically allocated to a subset of pools.
  - To increase the liquidity of certain pools.
- CAKE holders can participate in gov. and use platform services. cake
- PancakeSwap buys and burns CAKE tokens using its revenue.

Conceptual Framework - Returns

- Yield farmers' returns in a DEX are decomposed into four parts.

$$R^{i,frictionless}_{t,t+h} = \underbrace{\left(\frac{1}{2}R^A_{t,t+h} + \frac{1}{2}R^B_{t,t+h}\right)}_{\text{(a) capital gain}} - \underbrace{\frac{1}{2}\left(\sqrt{R^A_{t,t+h}} - \sqrt{R^B_{t,t+h}}\right)^2}_{\text{(b) impermanent loss}}$$

$$+ \underbrace{c \cdot \frac{V^i_{t,t+h}}{L_t}}_{\text{(c) trading revenue}} + \underbrace{\sum_{n=1}^{h} y^i_{t+n-1}/365}_{\text{(d) realized farm yield}} .$$

- Complexity from impermanent loss (b) – unique concept in DEXs.
- Determinant of farm yield

$$y^i_t = c\left(\frac{m_{i,t}}{M_t}\right)\left(\frac{P^{Cake}_t}{L_{i,t}}\right) \quad c = 28,800 \times 365 \times 40$$

  - $m_{i,t}$: farm multiplier (by voting), M_t: total multiplier, $L_{i,t}$ staked liquidity.

Conceptual Framework - Returns

- Four components of returns (**black**) and other frictions.

$$R^{i,friction}_{t,t+h} = (1-0.005)\lambda(f_t)\left(\underbrace{\left(\frac{1}{2}R^A_{t,t+h}+\frac{1}{2}R^B_{t,t+h}\right)}_{\text{(a) capital gain}} - \underbrace{\frac{1}{2}\left(\sqrt{R^A_{t,t+h}}-\sqrt{R^B_{t,t+h}}\right)^2}_{\text{(b) impermanent loss}}\right)$$

$$+ \underbrace{c\cdot\frac{V^i_{t,t+h}}{L_t}}_{\text{(c) trading revenue}} + (1-0.0025)k^* \underbrace{\sum_{n=1}^{h} y^i_{t+n-1}/365}_{\text{(d) realized farm yield}} - \frac{Gas_{t,t+h}}{I_t}.$$

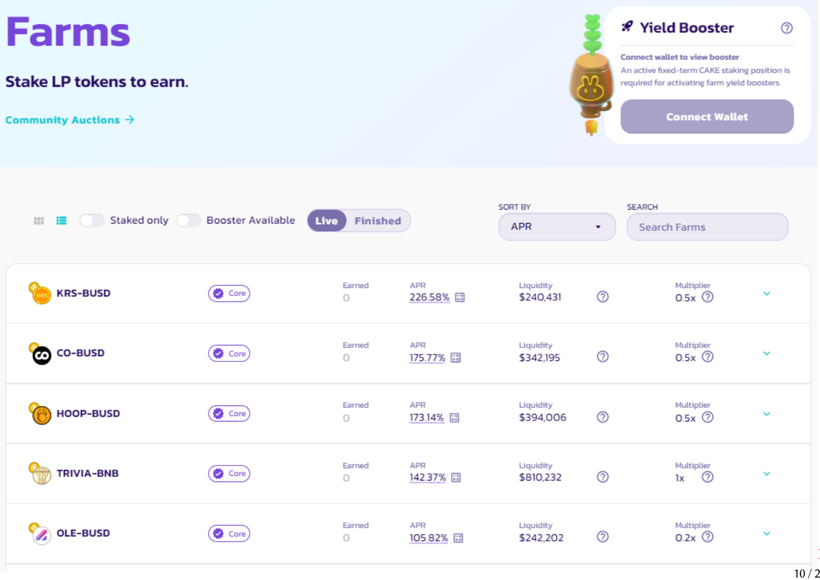
- $(1-0.005)\lambda(f)$: Trading fee & price impact ($\downarrow$ in $f_t = I_t/L_t$).
- $(1-0.0025)k^*$: Trading fee and investor mistake.
- $\frac{Gas_{t,t+h}}{I_t}$: Gas fee paid to miners (flat fee per transaction).

Data

- We analyze PancakeSwap on Binance Smart Chain.
  - PancakeSwap is the largest yield farm and the second largest spot DEX.
  - $<$2 years. 7.8M txs & about 500,000 wallets
  - Why PancakeSwap?
- **Dataset 1: Yield farm-level data (262 Farms)**
  - Liquidity, trading volume, yield, ...
- **Dataset 2: Yield farmer-level data**
  - Unique data. Hard to get in other traditional markets.
  - All histories of farmers' activities: liquidity provision, staking, ...

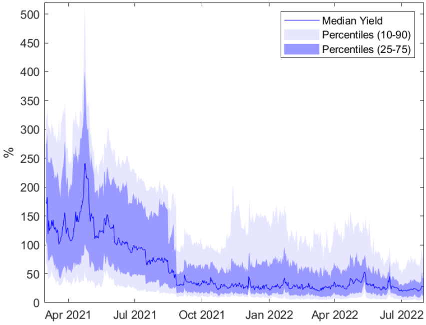
Stylized Facts - Salient Yields

- No historical performance or risk measures.



Stylized Facts - Farms

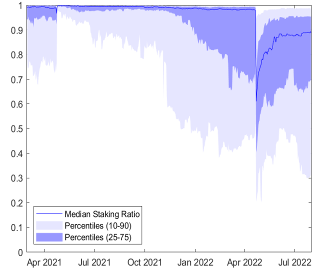
1. High yields: avg. is 77.6% with significant x-sectional heterogeneity.

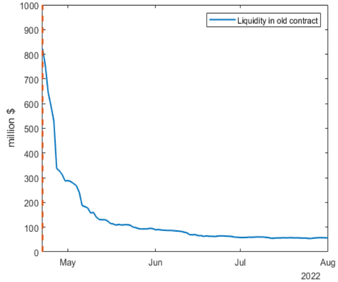


2. Complex investment strategy
   (a) Payoff complexity: 3 underlyings & nonlinearities (e.g., imperm. loss).
   (b) Execution complexity: stacked investment with up to 14 transactions.

Stylized Facts- Farmers

1. Lack of investor sophistication

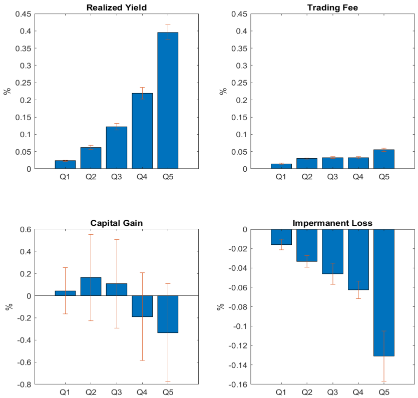


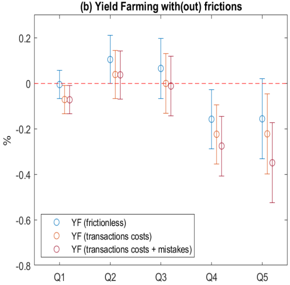


- Investment mistakes are more pronounced for small investors.
- Experience helps reduce mistakes, but not perfectly.

- CoinGecko's survey on 1,347 yield farmers in August 2020
  - 79% of farmers claim to understand risks & rewards of yield farming.
  - 33% do not know what impermanent loss is.

Performance Analysis





- High yield farms: lowest returns & largest imp. loss.
- Risk-adjusted returns on yield farming with(out) frictions
  - Seemingly lucrative farms perform worse after considering frictions.
  - Yield farming in Ethereum likely to perform worse (Gas Fee: $3 vs. $270).
  - PancakeSwap vs. SushiSwap

Yields and Investor Flows

	(1)	(2)	(3)
		$Flow_{t,t+7}$	
$Offered\ Yield_t$	**0.0541*****	**0.0537*****	
	(0.0098)	(0.0098)	
$Return_{t-7,t}$		0.0368**	
		(0.0149)	
$Capital\ Gain_{t-7,t}$			0.0196
			(0.0160)
$Impermanent\ Loss_{t-7,t}$			**0.1055**
			(0.2903)
$Trading\ Fee_{t-7,t}$			8.6621***
			(1.1559)
$Realized\ Yield_{t-7,t}$			2.2648***
			(0.4351)
Controls	Yes	Yes	Yes
Farm FE	Yes	Yes	Yes
Week FE	Yes	Yes	Yes
N	6538	6538	6538
adj. R^2	0.084	0.085	0.087

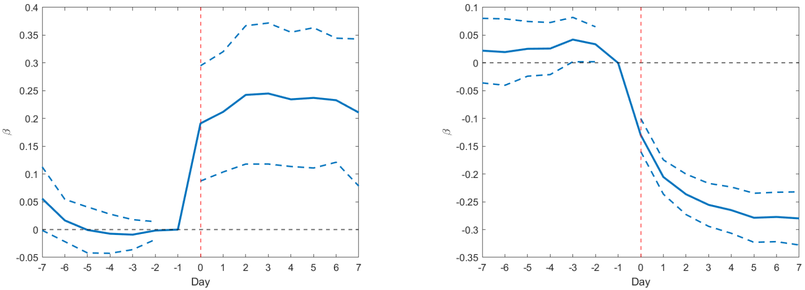
Controls: Lagged flow, Size of liquidity pool

- Offered yield is correlated with investor flows.
- Flows unaffected by impermanent losses.

Yields and Investor Flows

The impact of farm yield change by platform on the size of the pool. (DiD)

(a) Increase in yield ($\Delta m_{i,t} > 0$) (b) Decrease in yield ($\Delta m_{i,t} < 0$)



- Investors almost immediately respond to the platform's yield change.
  - Starkly different from pattern on remaining liquidity after the upgrade.
  - Investors are not sophisticated but attentive to salient feature.

Farmer-Level Returns

	(1)	(2)	(3)	(4)	(5)	(6)
	Avg. Daily Ret. (w/o Frictions)			Avg. Daily Ret. (Frictions)		
Avg. Offered Yield	**-0.0016****	**-0.0018****	**-0.0019****	**-0.0029*****	**-0.0022****	**-0.0022****
	(0.0007)	(0.0007)	(0.0007)	(0.0008)	(0.0008)	(0.0008)
# of Farms		-0.0000	-0.0001		0.0010***	0.0008***
		(0.0001)	(0.0001)		(0.0003)	(0.0002)
Avg. Size of Investment ($M)		-0.0109*	-0.0106*		0.1268***	0.1258***
		(0.0060)	(0.0058)		(0.0151)	(0.0143)
Avg. Size of Investment^2		0.0114	0.0105		-0.1479***	-0.1478***
		(0.0067)	(0.0066)		(0.0160)	(0.0153)
log(Avg. # of monthly Rebalancings)		0.0004	0.0006		-0.0056***	-0.0046***
		(0.0003)	(0.0003)		(0.0007)	(0.0006)
Avg. Staking Ratio		0.0017	0.0014		0.0195***	0.0184***
		(0.0015)	(0.0016)		(0.0021)	(0.0022)
Start Month	Yes	Yes	No	Yes	Yes	No
End Month	Yes	Yes	No	Yes	Yes	No
Start x End Month	No	No	Yes	No	No	Yes
N	439,639	439,639	439,639	439,639	439,639	439,639
adj. R^2	0.015	0.016	0.019	0.024	0.052	0.061

- Higher average yield $\implies$ lower average returns for investors.
- Returns concave in size.
- Frequent rebalancing leads to underperformance.

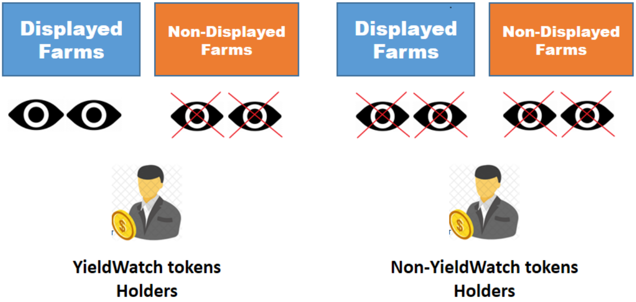
What Affects RFY?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				$Flow_{t,t+7}$			
Offered Yield	0.0148**	0.0168***		0.0147**		0.0201***	
	(0.0068)	(0.0059)		(0.0069)		(0.0061)	
High Size		-0.0384***	-0.0380***				
		(0.0034)	(0.0030)				
Offered Yield× High Size		-0.0035	-0.0042*				
		(0.0033)	(0.0022)				
High Experience (days)				0.0140***	0.0114***		
				(0.0020)	(0.0013)		
Offered Yield× High Exp. (days)				-0.0066**	-0.0044***		
				(0.0029)	(0.0017)		
High # Farms						0.0147***	0.0173***
						(0.0037)	(0.0035)
Offered Yield× High # Farms						-0.0127***	-0.0128***
						(0.0034)	(0.0027)
Farmer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Farm FE	Yes	Yes	No	Yes	No	Yes	No
Week FE	Yes	Yes	No	Yes	No	Yes	No
Farm x Week FE	No	No	Yes	No	Yes	No	Yes
N	9,705,043	9,705,043	9,705,043	9,705,043	9,705,043	9,705,043	9,705,043
adj. R^2	0.281	0.282	0.315	0.281	0.314	0.281	0.314

- Investment size not associated with RFY behaviour.
- More experience & more farms associated with lower RFY behavior.

Information Display & RFY: YieldWatch

- Customized information platform on yield farming.
- YieldWatch token holders access granular performance information.
  - Can trace all token transfer histories!
- Among 262 farms, 91 farms were displayed in YieldWatch.
- For displayed farms, YieldWatch tokens holders can see
  - Historical capital gain, imp. loss, trading fee rev., and realized yields
  - Yields are less salient for YieldWatch tokens holders.



Information Display & RFY: YieldWatch

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				$Flow_{t,t+7}$				log(1+Inv.)	Withdrawal
Offered Yield	0.0148**	0.0339***	0.0182**	0.0193**					
	(0.0068)	(0.0109)	(0.0086)	(0.0084)					
Displayed x Offered Yield		-0.0346**	-0.0151	-0.0158					
		(0.0143)	(0.0103)	(0.0104)					
YieldWatch				-0.0182***	-0.0099*	-0.0151***	-0.0135**	-0.1284***	0.0084
				(0.0069)	(0.0053)	(0.0053)	(0.0052)	(0.0346)	(0.0051)
YieldWatch x Offered Yield				0.0003	-0.0043	0.0025	0.0031	-0.0147	-0.0006
				(0.0042)	(0.0033)	(0.0034)	(0.0032)	(0.0237)	(0.0033)
Displayed x YieldWatch				0.0162***	0.0107***	0.0098***	0.0082**	0.2364***	-0.0104***
				(0.0057)	(0.0034)	(0.0034)	(0.0031)	(0.0362)	(0.0034)
Displayed x YieldWatch				-0.0146***	-0.0105***	-0.0076***	-0.0074***	-0.1494***	0.0084***
x Offered Yield				(0.0036)	(0.0026)	(0.0025)	(0.0024)	(0.0232)	(0.0025)
Farmer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Farm FE	Yes	Yes	Yes	Yes	No	No	No	No	No
Week FE	Yes	Yes	Yes	Yes	No	No	No	No	No
Farm x Week FE	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Investor Controls	No	No	No	No	No	Yes	Yes	Yes	Yes
Sample	All	YW	non-YW	All	All	All	Size>$10	All	All
N	9,705,043	592,897	9,109,178	9,705,043	9,705,043	9,705,043	7,844,242	9,680,642	9,705,043
adj. R-sq	0.281	0.300	0.281	0.281	0.314	0.321	0.325	0.734	0.336

- Yieldwatch reduces yield-chasing propensity by ≈ 50%.

‘Natural’ Experiment - APY.Vision Airdrop

- **APY.Vision airdrops**: Randomized info. disclosure.
  - **20 airdrops** b.w. Nov. 27, 2020 (first) and Apr. 8, 2022 (last).
  - *Random* investors get access to APY.Vision service through NFTs.
  - Among 634 NFT receivers, we focus on farmers at **Sushiswap**.
    - **57 treated** & 17,989 control investors.

	(1)	(2)	(3)	(4)
		$Flow_{t,t+7}$		
Offered Yield	0.0212***	0.0217***		
	(0.0035)	(0.0035)		
Offered Yield × APY.Vision NFT token		-0.0534**	-0.0529***	-0.0392**
		(0.0211)	(0.0196)	(0.0191)
Farmer FE	Yes	Yes	Yes	Yes
Farm FE	Yes	Yes	No	No
Week FE	Yes	Yes	No	No
Farm x Week FE	No	No	Yes	Yes
Investor Control	No	No	No	Yes
N	427,486	427,486	427,433	427,433
adj. R^2	0.158	0.158	0.173	0.182

Investor controls: log(inv. size), log(experience)

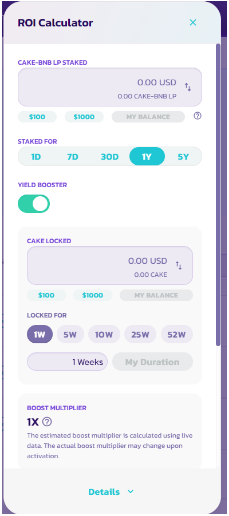
- Consistent with salient thinking - prominence (BGS,2012, 2016)
- Policy implications: useful to provide info. on YF risk for investor protection.

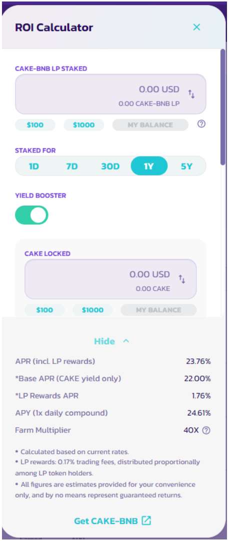
Conclusion

- Yield farming in DeFi is a complex financial security.
- Unique data to study RFY with salience, complexity, & risk shrouding.
- Main results support salience theory (BGS 2012, 2016):
  1. High yield farms attract flows but underperform ex-post.
  2. Investors make mistakes and face hidden downside risks.
  3. Investors 'reach for yields' which contributes to their underperformance.
  4. Info. display & investor experience can reduce RFY.

Yield Farming User Interface

- Difficult to find decomposition of returns.
- Hidden costs (e.g., slippage). ▶▶ Stylized Facts





Stylized Facts- Farmers

Yield Farmers Variables	Mean	SD	p25	Median	p75	OBS
No. Farms	2.014	2.6569	1.0000	1.0000	2.0000	497,598
LP Balance ($)	24,232.68	3,192,609.21	37.04	155.77	746.48	497,598
Time to Rebalance (Days)	34.1833	72.7022	0.4160	3.0603	26.6501	497,598
Offered Farm Yield	0.6034	0.6835	0.1826	0.3872	0.7322	497,598
Staking Time Ratio	**0.8081**	**0.3654**	**0.9215**	**0.9987**	**0.9999**	**497,598**

Yield Farmers by Balance.	No. Farms	LP Balance($)	Time to Rebal.(Days)	Offered Farm Yield	Staking Time Ratio	OBS
Quintile 1						
Mean	1.4484	**10.46**	76.0160	0.5661	**0.5759**	96,068
S.D.	(1.09)	(7.18)	(133.0179)	(0.6452)	(0.4692)	
...						
Quintile 3						
Mean	1.7880	**163.93**	29.0163	0.6482	**0.7899**	96,068
S.D.	(2.0062)	(52.34)	(63.3105)	(0.6974)	(0.3821)	
...						
Quintile 5						
Mean	3.0538	**120,361.70**	10.8072	0.5287	**0.8871**	96,068
S.D.	(4.3949)	(7,138,126.73)	(29.8475)	(0.6664)	(0.2974)	

- Many small yield farmers.
- Smaller investors have smaller staking ratios, sign. opportunity cost.

Determinants of Staking Ratio

	(1)	(2)	(3)
		Staking Ratio (0 or 1)	
3rd farm dummy	0.1735***	0.0867***	0.0682***
	(0.0102)	(0.0106)	(0.0079)
4th farm dummy	0.2076***	0.0964***	0.0765***
	(0.0152)	(0.0121)	(0.0088)
5th farm dummy	0.2322***	0.1082***	0.0783***
	(0.0148)	(0.0134)	(0.0118)
>5th farm dummy	0.2467***	0.1075***	0.0840***
	(0.0153)	(0.0156)	(0.0165)
Sample	All	All	inv. > $1000
Model		LPM	
Control	No	Yes	Yes
Week FE	No	Yes	Yes
Farm FE	No	Yes	Yes
unique farmers	438,449	438,449	165,514
N	10,473,902	10,390,840	2,021,994
adj. R-sq	0.049	0.534	0.686

- Base value in column (1) is 0.6061.
- Experience helps reduce mistakes, although not perfectly.

Benefits of AMM

1. Security improvement
   - Trading on DEX is more secure than trading in CEX. (e.g., hacking)
2. Technical improvement
   - Due to extreme computational burden and associated high gas fee, it is hard to implement order-based system on blockchain.
   - AMM is computationally more efficient and implementable.
3. Crowdsourcing liquidity
   - Market making systems rely on a small group of sophisticated and competitive large market makers setting the orders in real time.
   - In AMM, a large group of (unsophisticated) small investors can provide liquidity without having to set the orders in real time.
4. Improved (illiquid) token liquidity
   - Given the rapidly increasing number of tokens (over 20,000), challenging for a few market makers to set orders for many tokens in real time.
   - In AMM, it is easy to make markets for small illiquid tokens for which market makers are not very active in general.
5. In AMM, price impact is not dependent on asymmetric information.

Yield Farming Example

Constant-Product Model

$$x \cdot y = k$$

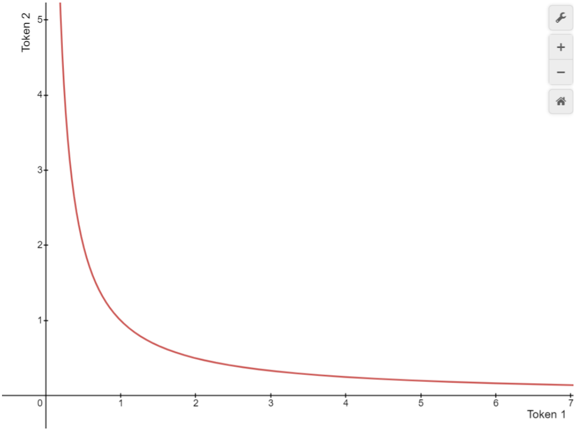
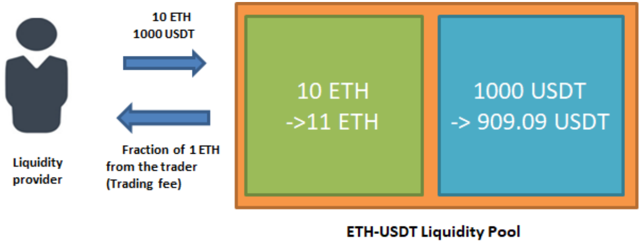


Figure: Set of Permissible Pool Balances

Yield Farming Example

Yield Farming Example



- Example: 1 ETH= 100 USDT (1 USDT = $1). AMM

1. **Liquidity provision**: x ETH and y USDT such that ETH/USDT = x/y.
   - Liquidity provider posts [10 ETH, 1000 USDT] to ETH-USDT liq. pool.
   - Constant Product Model: $x \cdot y = k \rightarrow 10 \times 1000 = 10,000 = k$ Plot
   - The liquidity provider receives LP tokens.

2. **Third party trader** swaps 1 ETH for $y - y'$ USDT via liquidity pool
   - CPM implies that $11 \cdot y' = 10000 \rightarrow y' = 909.09$.

Yield Farming Example

3. **Liquidity mining** by liq. provider (heuristically!)
   - Can withdraw [11 ETH, 909.09 USDT] not [10 ETH, 1000 USDT].
   - Price of ETH changes: 1 ETH = 909.09/11 $\approx$ 83 USDT.
     - Price impact related to size of trade relative to pool's liquidity.

$$\text{Impermanent loss} = \underbrace{(11 \times 83 + 909.09)}_{\text{Liquidity mining (=\$1822.09)}} - \underbrace{(10 \times 83 + 1000)}_{\text{Buy and hold (=\$1830)}} = -\$7.91 < 0.$$

   - Impermanent loss non-linear function of differential token returns.
   - Trading fee is compensation for impermanent loss.
   - What if trading fee is not enough?
     - Liquidity pool $\downarrow \rightarrow$ Price impact $\uparrow \rightarrow$ Trading fee $\downarrow \rightarrow$ Liquidity pool $\downarrow$ ...

4. **Yield farming**
   - Some DeFi platforms offer additional yields to incentivize liq. provision.
   - Liq. providers stake LP tokens in farms to earn yields.
   - Farm yields paid in native governance token.

Usage of Governance Tokens (CAKE)

1. Utility: Only CAKE holders can enjoy the following services.
   - NFT: need CAKEs to buy NFTs
   - Initial Farm Offerings: need to put CAKEs to become initial farmers.
   - Lottery: need CAKEs to enjoy gambling
2. Governance
3. Why CAKEs have positive value?
   - Utility and governance
   - Constantly burning tokens using its revenue.
     (Similar to dividend or buyback)
     - (a) Suppose 1 CAKE token is issued every year. $100M of revenue is distributed to all tokens holders. If you are the only token holder,

$$Profit = \frac{100}{1+r} + \frac{100}{(1+r)^2} + \ldots = \frac{100}{r}.$$

     - (b) Suppose you still own entire CAKEs. But if PancakeSwap team constantly uses $100M to buy certain amount of CAKE,

$$Profit = \frac{100}{1+r} + \frac{100}{(1+r)^2} + \ldots = \frac{100}{r}.$$

Determinants of Farm Yields

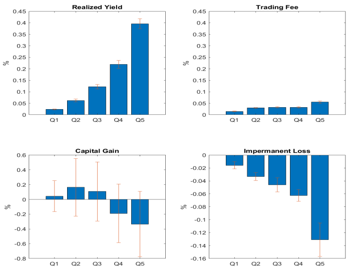
- Salient yields (i.e., APRs) driven by 4 components

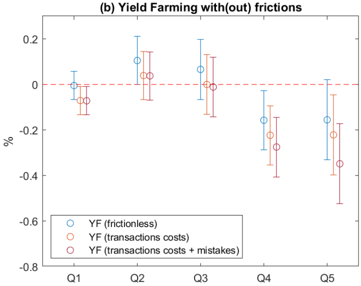
$$y_{i,t} = c \left(\frac{m_{i,t}}{M_t}\right)\left(\frac{P_t^{Cake}}{L_{i,t}}\right) \text{ where } c = 28800 \times 365 \times 40$$

  - c: Total number of CAKE tokens issued each year
  - $m_{i,t}$: Farm multiplier influenced by owners of governance token
  - M_t: Aggregate # of Cake tokens redistributed for staking
  - P_t^{Cake}: Price of governance token
  - $L_{i,t}$: Aggregate liquidity staked to farm

- Yield allocation, listing, and delisting decisions are strategic.
  - Decrease $m_{i,t}$ when the past trading fee is low.
  - Consistent with making strong (weak) farms stronger (weaker).

Performance Analysis (Risk-Adj. Returns)





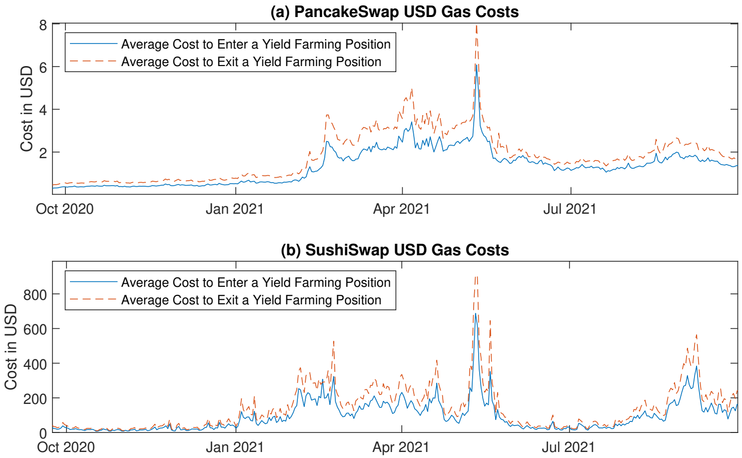
- Based on crypto factors (Liu, Tsyvinski, and Wu, 2021)
- Yield Farming vs. Liquidity Mining
  - Liquidity mining in high yield farms generate (-) alphas.
- Yield Farming with(out) frictions
  - Seemingly lucrative farms perform worse after considering frictions.
  - Yield farming in Ethereum likely to perform worse (Gas Fee: $3 vs. $270).
  - PancakeSwap vs. SushiSwap

Why Study PancakeSwap?

- A large cross-section of farms in a single platform.
- Why not Uniswap?
  - Uniswap does not have farms in its own platform.
- Useful to study investor behavior
  - Low fee and fast speed $\rightarrow$ Useful to produce generalizable results.
  - Ethereum-based YF has much larger frictions especially gas fee.
    - Ethereum 2.0 will make the transaction much more efficient.
    - Eventually, what we will observe in Ethereum in near future is close to the enviroment of BSC $\rightarrow$ Can produce more generalizable results.
  - Useful experimental settings (e.g. YieldWatch)

Data

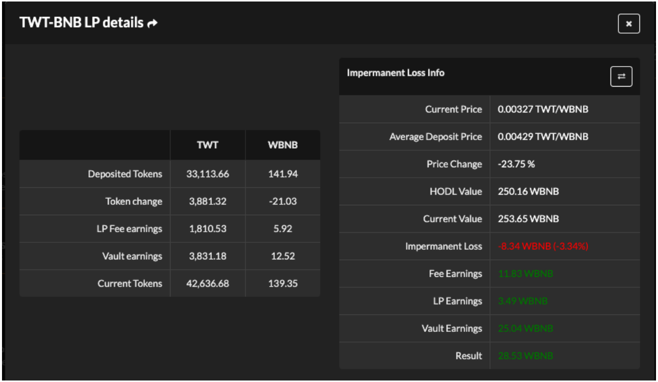
PancakeSwap and SushiSwap



▸▸ Risk Adj. Returns

(Natural) Experiment - YieldWatch

- Among 262 farms, 91 farms were displayed in YieldWatch.
- 79,472 farmers use YW - See more info, so yield is less salient.
- **Treatment:** Using YieldWatch $\times$ Investing in YW Displayed Farms.
- **Counterfactuals:**
  - Using YieldWatch $\times$ **NOT** Investing in YW Displayed Farms
  - **NOT** Using YieldWatch $\times$ Investing in YW Displayed Farms.


TWT-BNB LP details

	TWT	WBNB
Deposited Tokens	33,113.66	141.94
Token change	3,881.32	-21.03
LP Fee earnings	1,810.53	5.92
Vault earnings	3,831.18	12.52
Current Tokens	42,636.68	139.35

Impermanent Loss Info

Current Price	0.00327 TWT/WBNB
Average Deposit Price	0.00429 TWT/WBNB
Price Change	-23.75 %
HODL Value	250.16 WBNB
Current Value	253.65 WBNB
Impermanent Loss	-8.34 WBNB (-3.34%)
Fee Earnings	11.83 WBNB
LP Earnings	3.49 WBNB
Vault Earnings	25.04 WBNB
Result	28.53 WBNB

(Natural) Experiments - APY.Vision

- All-in-one analytics dashboard for liquidity providers & yield farmers.
- Giveaways: free premium access to randomly selected participants.
- Randomized giveaways in various chains (Sushiswap, Pickle, YAxis, ...)
- Staggered introduction of APY.Vision across chains/farms.

415/8615 liquidity pools ⓘ using data compiled until 2022-10-03 23:59:59 UTC — Clear results & filters

Name	Age	Volume 24h	Liquidity	Fees APY 24H/7D/30D	Impermanent loss 24H/7D/30D	Net APY	Farming rewards	Vault rewards
USDC/SNX Velodrome (optimism)	121	$842.97K	$1.46M	47.53% 20.96%↗ 18.60%↗	2.64% 1.26%↗ 8.19%↘	44.89%	44.14% VELO	38.77%
WETH/USDC Velodrome (optimism)	122	$1.12M	$4.26M	36.50% 38.46%↘ 51.74%↘	0.76% <0.01%↗ 5.47%↘	35.74%	13.72% VELO	13.2%
WAIT/WETH Uniswap (ethereum)	43	$107.41K	$342.50K	42.04% 90.09%↘ 72.82%↘	11.94% 1,398.60%↘ 678.13%↘	30.09%	-	-
OP/USDC Velodrome (optimism)	122	$1.02M	$3.65M	30.82% 32.86%↘ 70.88%↘	1.73% 0.560%↗ 11.96%↘	29.09%	32.35% VELO	33.53%
EHIVE/WETH Uniswap (ethereum)	23	$154.69K	$513.31K	73.15% 81.29%↘ 154.98%↘	44.22% 14.97%↗ <0.01%↗	28.93%	-	-
WAS/WETH Uniswap (ethereum)	512	$107.26K	$275.87K	28.37% 30.49%↘ 39.86%↘	0.12% 6.28%↘ 2.28%↘	28.25%	-	-
DAI/$LSVR Uniswap (ethereum)	77	$156.73K	$323.78K	41.11% 30.12%↗ 20.73%↗	13.73% 0.930%↗ 34.67%↘	27.37%	-	-
HEX/USDC Uniswap (ethereum)	866	$411.57K	$674.06K	34.35% 12.54%↗ 26.32%↗	7.48% 0.01000%↗ 6.19%↗	26.87%	-	-
xFUND/WETH	[illegible]	[illegible]	[illegible]	24.92%	0.01%	[illegible]	[illegible]	[illegible]