0.1 The Sink

Chapter 1

"Let that Sink in"

1.0.1 Historical Motivation and Future Expectation

Over the past few decades, maturation of traditional financial markets have resulted in the consistent compression of spreads across commoditized markets. In the early days of a new market, early actors are able to charge for access, or based on product differentiation. As the sector develops, more parties enter, decreasing novelty and differentiation of product, while simultaneously enabling more actors to enter. At that point, generic fee-based models quickly fall out of favor, as actors compete for market share by reducing the end-cost to users and hoping to monetize elsewhere[1].

As a result, companies are forced to look elsewhere to generate margins on their core business, often culminating in rehypothecation based 'Prime Brokerage' approaches. For context, in a modern Investment Bank, Prime Brokerage/Financing generally makes up ~35% of the Sales & Trading business (with Goldman's recent earnings report pegging it closer to 40%). That isn't to say that market making is a bad business, Citadel Securities still earns great money, and it remains a key value driver for most banks. This will remain especially true in crypto, as on-chain volumes will increase at a faster rate than spreads compress in the near term.

This will likely be especially true in a modular world with hundreds or thousands of L2s at the sequencer/prover level, which are the primary value drivers for chains today. Certain vertically focused chains, like app-chains, will remain able to extract value from their sequencer, as they'll have access to flows that are derivative of the application on the chain. General purpose DeFi chains will likely have their sequencer fees trend to zero over time, as highly successful and differentiated dApps will likely trend toward app-chains, to monetize more effectively[2].

As a result, in the end-state, we would expect that the most successful general purpose DeFi chains will be those that are able to create business models that allow them to optimize for and generate sustainable demand based on the Total Value Locked (TVL, also effectively AUM) on the chain.

1.0.2 Native Yield and Motivated Actors

The concept of introducing Native Yield into L2s is not novel. Two of the most popular recent launches, Blast ($2bn TVL[3]) and Manta ($1.83bn Total Value Bridged) have played into this narrative, allowing users to earn yield when they bridge assets like ETH or USDC to the chain.

[1] Note that this is primarily true for commoditized business lines. Specialized areas like Derivatives, Swaps, and Execution/Market Making can remain profitable over extended periods of time. This realizes in crypto as differentiation on the blockchain level for products like generic x*y=k AMM implementations.

[2] With the caveat that 'general purpose' DeFi chains that have levels of inherent specialization at the chain level, e.g. Monad, Berachain may withstand this more effectively, as there are core product differences that they can emphasize to onboard specialized dApps.

[3] As of February 25, 2024

However, these chains use them simply as an incentive to mitigate the opportunity cost of locking capital in the bridge for an indeterminate period of time. The yield generated is utilized to grow the chain or core businesses, and thus serves to help bolster demand, rather than create incremental network effects.

As a result, there is a meaningful opportunity today to create a more thoughtful system around native yield. One that is designed to maximize the amount of yield being generated by the chain, minimize the amount of non-canonical yield risk[4] taken on by the chain, and utilize the native yield to create an on-chain prime brokerage with network effects for dApps, users, and others deploying on the chain.

Additionally, it's worth identifying exactly which user groups create activity on L2, and their respective motivations. This allows us to better understand what outcomes to optimize for, with two major categories to address - dApps and Users. These two categories generally choose to interact with a new L2 for a few core reasons:

1. *Visibility & Novelty* - exposure to a new set of users increases TAM, and allows for increased revenue without large incremental engineering overhead (e.g. new products). On the user side, they're able to try out applications that may not exist anywhere else.
2. *Financial Incentives* - these can come in the form of incentives, airdrops, or other.
3. *Liquidity* - Liquidity is the lifeblood of DeFi, and a chain with more liquidity means more potential pie to capture share from, and more depth for integrations. More liquidity means more dApps, which creates more arbitrage/speculatory opportunities for users.
4. *Value Alignment* - Projects and users seek to deploy capital where they sense ethos alignment, as they're more likely to find success and get rewarded there.

To Summarize, a successful Native-Yield L2 Prime Brokerage would seek to:

1. Maximize the number of assets earning native yield, balanced by minimizing the amount of incremental risk added to the system
2. Create creative network effects using native yield to optimize for growing market share, attempting to compress competitors out of the market
3. Design a framework that is able to monetize the ability the non-canonical risk that users opt into
4. Allow dApps to tap into liquidity created, while then utilizing that demand to create a sustainable mechanism for user incentivization
5. Operate with higher capital efficiency, and lower opportunity cost of capital, through effective use of native yield.
6. Democratize distribution, distributing the vast majority of the value across the actors that contribute to the ecosystem, and largely eschewing traditional fundraising routes for a community-owned product.

1.0.3 Overview of The Sink

The Sink is an L2 chain designed to carry native-yield to its logical conclusion and create a positive sum metagame for outcome-driven dApps and users.

To start, a few definitions that will be widely used in this overview:

[4]The risk profile of ETH is fundamentally different to the risk profile of any LST (which introduces black-swan risk, etc... However, the risk profile of DAI isn't meaningfully different to the risk profile of sDAI. A failure in one would result in the collapse of the other, making their underlying risk ∼canonical.

1. *Native Yield* - Yield generated on assets bridged to an L2 through rehypothecation of the assets in the L1 bridge escrow contract.

2. *Canonical Native Yield* - Yield generated by a yield-bearing asset, relative to its non yield-bearing counterpart. Examples of this include DAI and sDAI, or sfrxETH and frxETH. In effect, it's a vanilla token and an LST, both issued by the same party, which mitigates the majority of counterparty risk. Any impact to one of the two assets, e.g. DAI, will cause a subsequent impact on the other, e.g. sDAI.

3. *Non-Canonical Native Yield* - Yield generated by a yield-bearing asset that has a different issuer that the underlying vanilla token. An example of this would be USDC deposited into USDM, as the issuer (Circle) of USDC is different from the issuer (Mountain) of USDM. This creates incremental risk for Native Yield on the chain, as impact to one counterparty can cause an on-chain depegging event, without the other asset affected.

As a native-yield L2, minimizing the amount of non-canonical risk, while ensuring that users who opt into it are aware of the underlying risk is crucial for the long-term health and success of the chain. Adding new canonical yield-bearing assets presents meaningfully lower chain risk, so long as the assets are effectively differentiated on the L2.

The Sink handles this very simply. Canonical vanilla assets bridged to L2 are deposited in their yield-bearing counterpart, but are reflected on-chain as the vanilla version from a UX perspective. As an example, any DAI bridged to The Sink (less a buffer, in the case of bank run) would be rehypothecated to sDAI on L1, but would have a receipt token on L2 named 'DAI'.

Assets without canonical yield-bearing counterparts would use gauges to determine where they are rehypothecated, allowing the users and dApps that hold these assets to directly decide which counterparties that they are comfortable taking counterparty risk from. As an example, ETH bridged to The Sink could have gauges for stETH, rETH, sfrxETH, etc... LSTs would be motivated to incentivize those gauges, as it would allow them to increase their TVL and market share at minimal expense relative to traditional models.

Generic ERC20s without any yield-bearing counterpart can also be bridged to The Sink, but will not benefit from the network effects created by the system.

At the core of The Sink sit two protocol-owned DeFi applications, a DEX and a Collateralized Debt Protocol (CDP).

Yield generated, rather than being passed through to the end user, will be operationalized on-chain to create alignment between the funds that users are bridging on-chain, and the dApps they use.

Vanilla 'Core' Assets

Vanilla assets on The Sink will be handled through a whitelisted gauge system that allows for incremental fee generation for token stakers. The whitelist will be managed by a council, which ensures that gauges for vanilla assets aren't overly risky to mitigate third party and governance risk for the protocol.

As an example, take WETH bridged to The Sink:

1. A base set of gauges is added: stETH, rETH, ETHX
2. Other LSTs / LRTs are able to add proposals to be added to the existing gauge system
3. TVL that's bridged over is rehypothecated into yield-bearing assets based on underlying gauge votes

   (a) e.g. 30% stETH, 30% rETH, 40% ETHX with $100m in WETH TVL would result in $30m in stETH, $30m of rETH, and $40m in ETHX

4. veSINK holders are able to use their voting power to determine which assets are used for each voting cycle, as well as to delegate their voting power to the highest bidder.

5. Protocols with gauges can 'bribe' token holders to vote for their assets, creating a positive-sum game, and a new avenue for fee generation.

   (a) E.g. Frax could elect to allocate $5,000 to 'bribing' veSINK voters. Based on the total number of 'bribes' in each cycle, delegated voters will opportunistically choose the highest revenue gauge to allocate their votes to.

   (b) Given the large amount of TVL in these vanilla assets able to be collected by The Sink, it can be a very capital efficient way for dApps to create new TVL in their asset.

   (c) This voting power also gives veSINK token holders a new way to monetize their underlying voting power, which increases the base utility of the token.

The primary concern with this model is that if any of the underlying rehypothecated assets experiences a black-swan event, the vanilla represented asset on The Sink chain will depeg (e.g. if 10% of gauge votes are toward an LRT that has issues, then ETH will depeg by 10%). To mitigate this, we use a whitelist voting style, which prevents governance attacks and helps remove some incremental counterparty risk.

Additionally, you can consider a variety of different designs to help create a sort of repegging 'insurance' via on-chain logic. One sample idea is looking at the value of assets bridged off over a certain fixed period, and then raising bridging fees as volume scales.

This serves similarly in effect to a variable interest rate. In the event of a black swan depegging, users will attempt to bridge off of the chain as quickly as possible to claim their share of the WETH underlying. As this occurs, the increased demand would cause rates to increase, which in turn would reduce the effective amount of WETH claimable on L1 for each ETH bridged off of the L2, serving to repeg the ETH on L2 during the flight to risk.

The DEX

The engine for initial network effects on the chain will be a ve-DEX. The DEX will feature only v2 style liquidity, to ensure sufficient design space remains open for third party applications building on the network.

In the first stage of the DEXs launch, prior to any initial airdrop, the distribution of Native Yield generated will pass through pro-rata to LPs on the DEX. This effectively reduces the opportunity cost of 'staking' (or holding a yield-bearing token) vs. providing liquidity to a pair.

Take as an example, DAI bridged to The Sink:

1. User bridges DAI to The Sink. For a user on the chain, they will see the wrapped asset reflected as 'DAI'. On L1, a large portion of the underlying DAI is converted to sDAI.

2. Yield generated by the underlying sDAI is then passed through to LP pools on the ve- DEX, thus raising the baseline rate (and lowering opportunity cost of capital) for liquidity provision.

3. This effect is magnified in LP pairs that have both yield-bearing asset pairs. As an example FRAX-frxETH pairs on The Sink will baseline yield 4.62% (3.75% from sfrxETH + 5.5% from sFRAX), plus fees generated on the pair.

The end result of this operation is a more capital efficient DEX than is available on any public chain without Native Yield, while maintaining all the base composability of the vanilla asset on-chain (no fractured liquidity across two assets).

Down the line, it would be interesting to see LPDfi solutions like Infinity Pools or Stryke (formerly Dopex) materialize. This would turn LP positions into derivatives like perps or options or volatility swaps, in turn generating more fees for the Dex and the LPers, while also giving users/traders more useful instruments at their disposal (e.g. being able to short a shitcoin or have non-liquidatable long exposure via calls).

The CDP

The basic design of the CDP is multi-collateral, with a stability pool for liquidations and redemptions for peg stability (can add stability mechanisms - interest rates, etc).

The Peg Stability Module (PSM) will include a mix of stablecoins. The protocol can include gauges for how the caps / proportions of each. Stables in the PSM can be deployed into a diversified, vetted mix of yield generating platforms.

The primary function of the CDP is to provide a high-yield stablecoin option on the chain. This is accomplished through the inclusion of a staking function that passes through a proportion of the native yield generated by the chain.

The Flywheel

At scale (read: 100% of assets bridged are deployed into protocol owned dApps), the baseline rate paid to LPs or stablecoin holders will converge on the native yield rate, meaning that the relative advantage LPing vs. simply holding the asset trends toward zero.

To solve this, The Sink taps into the fact that *all* vanilla assets bridged with native yield are rehypothecated, with Phase One yield being passed through to the DEX and CDP. However, The Sink is a general purpose chain, meaning any number of applications can be deployed onto the chain, utilizing liquidity in the same way they would on any other chain. Thus, a beautiful flywheel is created- let's extend the DAI DEX example above, while also adding in other applications to the fold.

1. DAI is bridged to the sink and converted to sDAI in the L1 escrow contract
2. Yield is passed through to LPs on the ve-DEX using DAI on The Sink
3. Liquidity is generated for core pairs, which allows the CDP (or any other DeFi application) to utilize it for operation, e.g. raising risk caps, etc...
4. Tokens moved into other DeFi applications are *not* participating in the native yield generated by bridging, thus raising the baseline LP rate for the ve- DEX
5. Higher baseline rate encourages more bridging, until it converges toward the native yield rate, plus a risk premium
6. That increased liquidity allows for raising of the risk caps on the CDP, increased usage of other applications, and increased visibility of deployment for new dApp deployments.

Additionally, the CDP would have a similar growth cycle, via staking the native stablecoin. Any native yield allocated to the CDP will only be accessible through staking the minted stablecoin. As a result, you get the yield boost through reduced claims on the native yield bridged over to the chain (same as the DEX), but also get incremental boost through the percentage of the stablecoin that's actually staked.

1. DAI is bridged to the sink and converted to sDAI in the L1 escrow contract
2. Yield is passed through to stablecoin stakers via the CDP on The Sink
3. This creates a utility sink for assets minted on the chain, and also creates a baseline stablecoin with good yield that can be utilized in third party money markets as supply collateral, or in perpetual DEXs as a margin asset
4. Result is a higher baseline rate for stables on the chain- similar to what Ethena has done for baseline yields in CDP/Money markets for stables. The higher base rate means that users may choose to borrow other stables to get more exposure to the CDP native yield.

The implication of this design is that the more TVL that is put into applications *other* than the ve- DEX, the higher the baseline rate is for liquidity pools. As a result, the chain has a strong incentive to encourage dApp deployments, the methodology of which will be discussed in more depth later.

Put simply- TVL in other dApps is directly correlated with the rate of return on LP the ve-DEX, and the staking rate of the stablecoin. The more demand there is on the chain, the more incentive there is to bridge over new liquidity to earn good yields on core assets. Additionally, unlike other mercenary capital operations, this yield is fundamentally *sustainable.* The more assets that are bridged over to farm core native-yield pools, the more total TVL there is earning native yield. This system is fundamentally scalable, and depending on market conditions, different assets may have different preference for sources of native yield (e.g. using aUSDC rather than sDAI for stable native yield in times where off-chain demand for leverage exceeds off-chain money market rates).

A major benefit of the Sink, is that all the core liquidity pairs will already be self incentivized (e.g. ETH/USDC), since veTOKEN holders will vote on pools that are likely to generate more fees. This bypasses the issue of requiring an external briber for each pool (although that definitely helps). All other spot dexes on the chain can then move away from needless spending on incentivizing core pairs, rather focus on other features or long-tail assets or LPing strategies.

To have an even more active liquidity flywheel, The Sink could direct a portion of Native Yield generated by the chain towards bribing the pools that generate the most trading activity (swap fees) on the Sink. This gives an extra source of income to veTOKEN holders, which will allow for a higher token valuation and thus more valuable emissions. Also, this form of self-bribing is a positive feedback loop. The most likely outcome is for more votes to go towards the most effective/profitable pools.

1.0.4 Phases of Growth

There would likely be three phases of growth for The Sink, with each Phase culminating in an airdrop. Each airdrop would target a different demographic on the chain, with the intention of moving through a liquidity bootstrapping phase, a network effects phase, and ending with a sustainability phase, which is designed to generate a path to sustainable revenue and growth for the chain.

Phase One: The Flood

1.1 Target alt-dApp TVL, to maximize liquidity flywheel

In this phase, 100% of the native yield generated goes to the native protocols (ve-DEX and CDP) at the center of the chain. This creates a basis of liquidity upon which dApps can begin to deploy, and ensures that the growth engine, if network effects can be built, will have as much momentum as possible.

However, to create a scalable flywheel, the real goal for Phase One is to onboard as many independent building teams onto the chain as possible. As a result, a meaningful portion of the all airdrop phases will go

to teams building on the chain, with some level of preference given to those dApps that are able to bolster large amounts of TVL in native-yield assets, as those directly create the network effects desired. Additionally, there can be added long-term alignment between dApp airdrop recipients and the chain created through a thoughtful token design.

At the end of Phase One, an initial batch of tokens would be airdropped. A core goal for this project is to make the project as community owned as possible, meaning minimizing up-front fundraising and cost, as well as ongoing operating expenses. This has the added side effect of ensuring that a large portion of the value created by the project will go directly back to users and dApps building on it (ideally 50+%).

Ideally in this phase, the chain is able to capture mindshare and foster growth of a handful of differentiated applications that will serve to generate incremental and non-mercenary user attention. In an interesting game theory point, in Phase One, dApps will actually be strongly incentivized to utilize their emissions on core pool assets locked in their protocol, which should increase both baseline demand and yield on the already high baseline yield pairs in the DEX.

Phase Two: The Ark

1.2 Begin dApp alignment, while maintaining steady DEX growth

In this phase, a meaningful portion of native yield generated goes to protocol-owned dApps, while the remainder goes to gauge voting that can be distributed by dApps and users holding the ve-token that serves as a hypothetical token design for The Sink.

dApps that commit to and grow TVL in native yield assets early are rewarded with voting power that they can then use to direct native yield either toward their non native yield assets in the ve- DEX, allowing them to sustainably grow their presence on the chain. Alternatively, users or dApps can offer their liquidity voting power to bribers, which then generates a sustainable revenue stream for token lockers.

Furthermore, by this phase the initial pace of growth will likely begin to trail off somewhat. New dApps and users will continue to migrate to the chain, as the promise of two more airdrops on a network that is seeing meaningful growth is appealing. Additionally, the chain will continue to be extremely competitive from a rates perspective, and dApps will remain incentivized to grow share of core pool TVL locked outside of the DEX.

At this time, liquidity in core pools, if the chain is successful, should be meaningful, with an added avenue to continuing market share gains. Here, the chain now focuses on integration into cross-chain routing, swaps venues, and utilizes the Polygon AggLayer to facilitate demand for assets across other chains.

This begins the process of creating a sustainable source of long-term demand- as a base liquidity sink for (largely blue chip) yield-bearing assets, that should have higher organic rates and deeper liquidity than any other chain.

Thus The Sink is truly born.

Phase Three: The Sink

1.3 Target sustainable volumes and liquidity depth on DEX, with long-term value for dApps

In Phase Three, a portion of native yield generated goes to the native protocols on respective pairs, and the remainder goes to gauges to be allocated by veToken holders.

Now, long-term dApps should be completely aligned with the success of the chain. The more TVL, the more firepower they have at their disposal to allocate - a protocol with 100m in TVL receives more rewards now based on *chain TVL, not just their own success.* This creates an ecosystem-level alignment, where dApps are incentivized to grow the entire pie, as it increases the absolute amount of yield that they control within their voting power.

Liquidity depth in a wide variety of blue-chip assets should be deep on the network, with a multitude of other L2s (appchains/general purpose chains) tapping into the depth through cross-chain liquidity aggregation infrastructure, as well as through organic demand on the base chain.

This finalizes the long-term vision for The Sink, one which features sustainable mechanisms, operating as a prime brokerage, that also uniquely rewards the teams and users most aligned with its vision. Ultimately, it wants to serve the role (as its name suggests) of a liquidity sink, with an added layer of game theory.

1.3.1 Glossary

Native Yield - Yield generated on assets bridged to an L2 through rehypothecation of the assets in the L1 bridge escrow contract.

Canonical Native Yield - Canonical Native Yield is yield generated by a yield-bearing asset, relative to its non yield-bearing counterpart. Examples of this include DAI and sDAI, or sfrxETH and frxETH. In effect, it's a vanilla token and an LST, both issued by the same party, which mitigates the majority of counterparty risk.

Non-Canonical Native Yield - Yield generated by a yield-bearing asset that has a different issuer that the underlying vanilla token. An example of this would be USDC deposited into USDM, as the issuer (Circle) of USDC is different from the issuer (Mountain) of USDM. This creates incremental risk for Native Yield on the chain, as impact to one counterparty can cause an on-chain depegging event, without the other asset affected.

Core Pool - A core pool is a pool that is composed of at least one, but preferably two, native yielding assets in a LP. This leads to a higher baseline rate of return, and newly bridged capital intending to farm it results in more assets earning native yield.

Alt. dApp - An 'Alt dApp' is a dApp that isn't one of the two protocol-owned applications, the ve- DEX and the CDP. Will come up with a snappier name later that isn't so 'insider' vs. 'outsider'.