“Perhaps the largest financial value built directly on reputation is credit and uncollateralized lending. Currently, the web3 ecosystem cannot replicate simple forms of uncollateralized lending.” — Vitalik Buterin

Main problems and solutions

Current DeFi lending suffers from 2 main problems:

- Over-collateralized loans
- Poor customization model

Over-collateralized Loans

In CeFI, the purpose of loans is to enable borrowers to consume more than they have. Then they would repay the loan when their income is higher.

The recent emergence of DeFi has brought loans to web3. It has improved the CeFi system in many ways with its programmatic and trust-less systems. However, to do so, only over-collateralized loans are allowed. Thus, losing the main purpose of loans.

There is a massive market gap for under and non collateralized lending in crypto, and avobankless is the solution that will close the gap between the two worlds.

We leverage on-chain and of-chain reputation to create a ***private and verifiable credit score.***

This, together with the protocol's flexibility and customization characteristics (see: Poor customization model) creates a unique market, where reduced, and free collateral loans are possible while still maintaining all the benefits of blockchain.

Borrowers can access transparent and efficient financing entirely on-chain.

> They can leverage their reputation and access loan opportunities that wouldn't be possible other-way. They benefit from **increased capital efficiency** and don't have the constant fear of liquidation and margin calls.
>
> **Payments are automatic**, so borrowers don't have to worry about manually making recurring payments and getting liquidated.

Poor customization model

Actual DeFi models force users into the same terms. There aren't that many options for customization based upon specific needs…. until now.

Avobankless is characterized by Its great flexibility and personalization.

Borrowers:
Can set the minimum and maximum liquidity ticks at which lenders can deposit their funds.

- Can add collateral at choice.
- Can add liquidity rewards at choice.

Lenders:

- Can choose specifically whom to lend to, based on the borrower's credit score and the different parameters set by borrowers.
- Can choose the exact interest rate at which to deposit their funds.

Market niche and strategy

The protocol's objective is to be **the go-to place to get short term loans and credit.**

In the traditional financial system, everyone with a bank has a credit score (known or unknown) and a credit line that adapts to this score. We aim to bring this system to blockchain and take advantage of all the benefits this technology provides.

Each user will have his own pool that will work as a recurrent credit line. Borrowers will incentivize lenders to leave liquidity by having a good score, leaving collateral and providing liquidity rewards. On the other side, lenders will analyze the borrower's pool risk and if they decide, lend their assets at the interest rate they see most fit.

However, we understand that such a goal is very ambitious and that the success of the project is based on its network.

That's why we'll first focus on onboarding businesses.

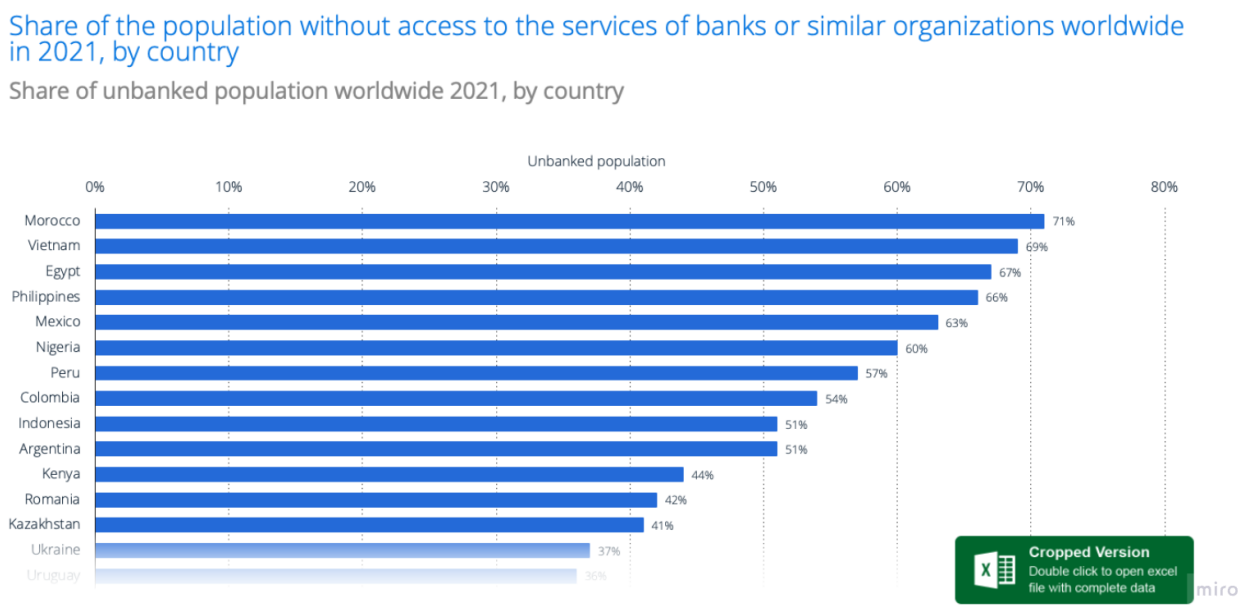
There are two types of businesses we are going to target.

1. Reputable businesses that need credit for themselves.

2. Reputable businesses that will function as **trusted delegates** to connect with the people outside web3. These will be organizations that will have a profile on avobankless and upload their lending strategies. If other lenders like these strategies and the organization's profile, they will deposit. Then the business will take out funds as needed and lend them to people that might know or not anything about web3.

This is an easier and faster way to break into the market than targeting every crypto user because we have to onboard fewer people. Fewer people need to understand and learn how to use the protocol. Also, businesses have higher reputation and pressure to repay loans than the average user. This lets them access greater loans. Therefore, there's going to be a higher demand of underlying assets and this will incentivize regular crypto users to join the protocol, first as lenders and then as borrowers. This will also allow **exploiting an often forgotten, thus very profitable market.** We said that delegate businesses will give out loans to regular people that might not be into web3. Many of these people will be unbanked. Nevertheless, unbanked, doesn't mean unfit. There are many countries, specially in Latin America, where due to the financial and governmental circumstances people can't

get or don't want a bank account. In fact, there are countries where the population without access to the services of banks or similar organizations reaches 70%.



Technical overview

Borrower Pools

Each borrower has his own specific pool that will function as a recurrent line of credit.

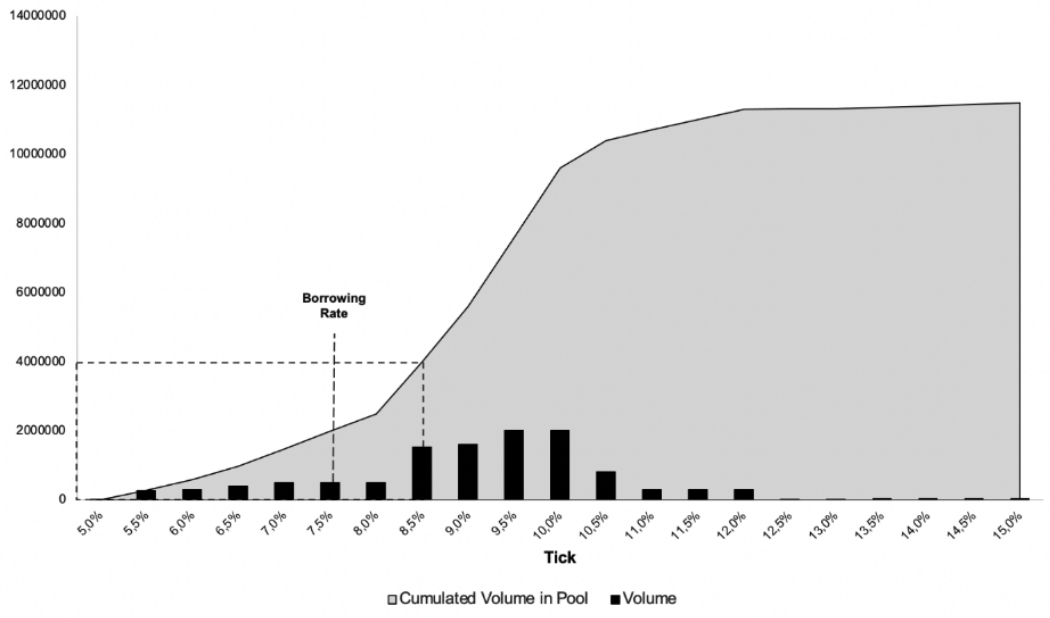
The core technical component of the avobankless protocol is its smart contract: BorrowerPools.

This is a contract that manages all the different liquidity pools that exist.

As lenders are the bigger risk-takers (as profit takers), rates shouldn't be set in an algorithmic manner.

Instead, the smart contract is built to give lenders freedom to choose the rates they see appropriate.

Each liquidity pool is split into multiple ticks representing the different lending rates.



Lenders can select at which tick to deposit their funds when lending.

This makes a liquidity pool work as an order book, giving lenders more **flexibility**, but in a competitive environment. Hence, giving borrowers **competitive lending rates.**

Borrowers can add collateral and liquidity rewards to their liquidity pools at choice. These possibilities are given, so borrowers can incentivize lenders to leave liquidity. These parameters are also discovered by the market. For example, the bigger the loan you want to take and the worse your credit score is, the fewer people that will want to lend you their assets and the higher the lending rates are going to be. To counter this effect, borrowers will be interested in adding collateral and to reward lenders for their increased risk taking.

Providing Liquidity

Lenders select the borrower's profile they are willing to lend too. Then, they select the interest rate they see most fit and deposit their funds. **An ERC-20 is giving to the lender, representing his position in the pool.** This token can then be traded in third-party markets, increasing the liquidity of the protocol. Until the funds are activity borrowed, they are deposited in a third-party yield provider where they benefit from their APY. The yield provider is actually Yearn Finance. However, this can be changed by governance and in the future by a DAO.

Once the funds are borrowed, lenders benefit from their chosen lending rate.

Lenders can select specifically to whom to lend and at which rate. Therefore, they are able to select the risk they are willing to take for the level of potential return, giving them **granular control over their portfolio.**

Borrowing

Borrowers are free to borrow from their line of credit at any time. Pools work like an order book, so they will start borrowing from the lowest rate, increasing, up to the highest one.To borrow, the borrower will first start a constant repayment stream using Superfluid technology. The repayment will

be done on a second basis, and it's calculated this way: Flow Rate = repayment amount / stream time + buffer time + penalty time.

If untouched and enough liquidity is provided, the loan will be automatically repaid by the pools' maturity date. Yet, if the stream is modified or if there's not enough liquidity, the borrower suffers the risk of defaulting and being **liquidated, penalized and accruing extra fees.**

If the stream is closed by mistake or by lack of liquidity, the borrower still has the possibility of reopening the stream. The new flow rate will be recalculated considering the accrued fees.

Credit score

The AVO score is a numeric representation of an on-chain creditworthiness, going from 0 to 850. The score is calculated using a machine-learning-based credit risk model, while the off-chain information is processed using a complex algorithm. These calculations are done considering the user's web3 transaction history.

The main on-chain contributing factors are: DeFi transaction history, liquidation history, loan safety margin, age, general wallet history, and market conditions.

The credit score will be linked to the borrower and its liquidity pool. Additionally, the borrower can also link web2 or web3 reputation. For example, a lens profile or a business profile. Although this could greatly help lenders to deposit funds into the borrowers pool, and it might be considered to be included on the Avo score, it is not necessary. We understand that the privacy needs of each user are different.

To increase security and privacy, the algorithm behind the credit score calculation is not public. However, we aim to utilize zero knowledge proof in the future, to demonstrate the scores are valid and were calculated as they should.

Glossary

Flow rate: The per-second rate that a sender decreases its balance and increases a receivers balance.

Buffer time: An extra deposit used to penalize the user for defaulting and calling different contract functions on-chain.

CeFi: Centralized finance.

DeFi: decentralized finance

References

Superfluid docs: https://docs.superfluid.finance/superfluid/

Yearn Finance docs: https://docs.yearn.finance/