FRINGE

Whitepaper, V1.1

January 2022

Abstract

The Decentralized Finance ecosystem has established a growing variety of financial services for the crypto space, including trading, lending, saving, insurance, options, futures and derivatives. There are established projects within this ecosystem that offer single-point solutions within this variety of services, as well as compound solutions that offer a combination of them. The predominant platforms in this ecosystem offer broad support of these financial services for the well-known, large capitalization cryptocurrencies. However, this support rapidly diminishes for smaller, less-known altcoins. There is a material magnitude of capital locked in these altcoins and yet their holders have limited opportunities to deploy their capital in the DeFi ecosystem.

In addition, there are a number of distinct disparate blockchains upon which these offerings are available. A challenge for investors and asset holders is that by and large these different blockchains represent separate environments where services are not currently freely interoperable across different chains. Some cross-chain interoperability exists, but such facilities are still reaching a state of maturity, with significant opportunity for improvement to provide seamless interoperability. Currently, assets are less mobile across the disparate environments, which increases costs for users to operate across them and limits capital efficiency.

The market to offer a broad set of financial services across multiple blockchains for holders of smaller, less-known altcoins is relatively untapped. Fringe Finance aims to offer owners of these altcoins a compound solution of borrowing/lending and saving facilities with added insurance capabilities and a flexible choice of variable and fixed-interest lending and savings solutions. Fringe Finance also aims to provide cross-chain interoperability for certain services. Our platform will also offer composability: where third-party projects can employ Fringe Finance's financial offerings into their own composite product offerings. We believe this will result in a platform with a unique value proposition and long-term viability that will act as a core platform component of future innovations in the rapidly expanding Decentralized Finance ecosystem.

Contents

1 Introduction

The Fringe Finance platform is dedicated to unlocking the capital in speculative cryptocurrency assets by providing loans collateralized by these assets. Holders of these more speculative assets who have conviction to the upside price opportunity of their tokens can now put them to productive work instead of just waiting idly for their price to appreciate.

The cryptocurrency market comprises a large number of cryptocurrencies. Some are well-known with large market capitalizations, high liquidity and with broad support by many DeFi platforms for trading, lending, borrowing and other services. There are other smaller *altcoin* cryptocurrencies that have smaller market capitalizations, lower liquidity and are not well-supported by a broad variety of DeFi platforms.

These smaller altcoins are often new or apply to a niche use case and therefore can be more speculative than more popular, large cap cryptocurrencies. The capital locked in these smaller altcoin assets often could not easily be deployed into the DeFi ecosystem because of the lack of broad support by DeFi platforms.

Fringe Finance solves this problem by accepting a large variety of smaller altcoin assets as collateral for stablecoin loans. Even though these smaller altcoins are often more volatile than the larger, more popular coins, Fringe Finance uses a variety of borrowing parameters and related mechanisms to maintain the stability and financial protection of the platform.

Fringe Finance's vision also includes cross-chain collateralization, fixed-interest loans, a truly decentralized UI and embedded DeFi insurance which will provide a platform rich in features to service the growing crypto economy. The Fringe Finance platform will sustainably adapt through transitioning governance to the Fringe Finance DAO so that its community of stakeholders can best guide its future direction to best suit the community.

The Fringe Finance Platform offers the following compelling benefits for its various participants:

Participant	Value Proposition
Lender	Lenders are institutional lenders, high net-worth individuals or stablecoin holders who wish to receive more attractive interest rates as compared to what they can receive in the traditional banking system by lending out their USD holdings on the Primary Lending Platform, by first converting them to whitelisted USD-pegged stablecoins.
Borrower	Borrowers who have conviction to the upside price opportunity of their assets can now put them to productive work instead of just waiting idly for their price to appreciate by taking out stablecoin loans on the Primary Lending Platform. They can also mint USB stablecoins on the USB Stablecoin Platform and deploy them as they see fit elsewhere in the crypto economy.
Altcoin Project	An altcoin project enjoys the same benefits as a Borrower by deploying their treasury into the platform so that they can take out loans for project expenditure or invest in new initiatives without needing to sell their project tokens.

	This has the additional benefit of removing from market supply the tokens they use as loan collateral, resulting in a positive impact for the price of their project token.
USB Staker	Any participant in the crypto economy who holds the USB stablecoin can stake their USB in the USB Stablecoin Staking facility to receive interest payments.
FRIN Staker	FRIN token holders can opt to stake their FRIN tokens to receive rewards derived from fees charged on the Fringe Finance Platform. FRIN Stakers can also participate in directing the evolution of the platform via voting for DAO proposals.
Liquidator	Liquidators help keep the platform stable by liquidating positions that fall below minimum collateralization levels – and receive the liquidated collateral assets at a discount – which they can sell on the open market to realize a profit.

Table 1: Benefits for participants in the Fringe Finance Platform

2 Platform Overview

Fringe Finance's market differentiator is to provide holders of low liquidity coins with a means to act as borrowers by accessing collateralized loans of stablecoins and to mint the Fringe Finance stablecoin (USB) to use as they see fit within the broader DeFi economy.

Lenders can also enjoy attractive interest rates by offering to lend out their stablecoin capital on the platform.

Fringe Finance also offers incentives for Liquidators to help stabilize the platform, for USB stakers to earn attractive interest rates and for FRIN token ($FRIN) holders to stake their tokens to earn rewards from fees charged on the Fringe Finance platform.

Finally, the Fringe Finance platform provides temporary yield farming opportunities to encourage various actors to interact with the platform, promoting awareness and adoption.

In all, the Fringe Finance platform offers a unique opportunity for low-liquidity coin holders and for all other participants who interact with the platform in alignment with this endeavor. The Fringe Finance Platform offers an immediate-term, sustained model of reciprocal economic incentives for all participants to establish and support this vision.

And with the Fringe Finance platform's future transition to governance by the community via the Fringe Finance DAO, the core platform can evolve and extend over time to add more value to holders of speculative altcoin assets which will lead to more value for $FRIN holders.

The Fringe Finance platform consists of the following facilities:

- **Primary Lending Platform:** A facility where lenders loan out their stablecoins and where borrowers borrow stablecoins against their altcoin collateral.
- **USB Stablecoin Platform**: A facility where borrowers mint and borrow stablecoins against their altcoin collateral and where USB stablecoin holders can stake USB to earn interest.
- **The FRIN Staking & Rewards Platform:** Where FRIN token holders can stake their $FRIN to earn rewards from the fees collected by the Fringe Finance platform.
- **Yield farming incentives:** To temporarily help kick-start the platform's adoption.

2.1 The Primary Lending Platform

The **Primary Lending platform** is a lending/borrowing facility.

The **Primary Lending platform** allows **Lenders** to deploy their capital to earn interest and allows **Borrowers** to take collateralized loans from the Lenders' pool of funds.

Lenders deposit whitelisted stablecoins to the Primary Lending facility's **Primary Capital Pool**. This mints a proportional amount of fTokens, which are assigned to the Lenders in return for their deposit.

Borrowers deposit collateral into a **Primary Collateral Safe** of their own and receive Primary Index Tokens (PIXT) in return to reflect their borrowing capacity arising from their deposited assets. The amount of PIXT a user receives is derived by multiplying the value of the deposited asset by its loan-to-value ratio, or LVR. Different assets can have different LVRs.)

Collateral types accepted into Primary Collateral Safes are classified as Tiers ranging from Tier 0 to Tier 2. Tiers refer to the varying classes of collateral assets types, reflecting their volatility and liquidity. Borrowers may take out loans of the capital from the **Primary Capital Pool** in exchange for their PIXT tokens. (i.e. loans are collateralized.) Corresponding PIXT tokens are returned to the Borrower on repayment of any loan amounts.

Interest rates apply within the Primary Lending Facility as follows:

- Borrowers are **charged interest** on their loans.
- Lenders are **paid interest** collected from Borrowers according to their proportion of the **Primary Capital Pool**.

Liquidations work as follows in the Primary Lending Platform:

A Borrower's loan must always be sufficiently capitalized above a Liquidation Threshold. Loans that fall below the Liquidation Threshold may be subject to liquidation by Liquidators who repay the loan and in return receive a greater portion of the position's collateral. Primary Liquidations are more fully described later in this document.

Note that the Primary Lending Platform is intended to be similar to the Compound platform, with the following key differences:

1. The Primary Capital Pool will be limited to select stablecoins,
2. Primary Collateral Safes will accept a larger variety of assets (Tier 0 – Tier 2),
3. Platform fees will be distributed as rewards to FRIN token stakers.

2.2 The USB Stablecoin Platform

The USB Stablecoin Platform allows Minters to deposit collateral and to mint USB stablecoin ($USB) against their deposited collateral. USB is a USD-pegged stablecoin backed by crypto assets. USB stablecoins are burned when the Minter re-deposits USB against their open position.

The USB Stablecoin facility allows Minters to deposit altcoin collateral into a **USB Collateral Safe** of their own and receive a Line of Credit (LOC). Collateral assets accepted by USB Collateral Safes are whitelisted Tier 0 to Tier 4 assets Minters may mint USB stablecoins

against their LOC (i.e. USB stablecoins are collateralized.) Upon repayment of USB, the USB is burned and the Minter's LOC is unlocked according to the amount repaid.

Minters are charged a Stability Fee as part of the mechanism to keep the USB stablecoin stable. This Stability Fee is the cost to mint and hold USB – and therefore effectively acts as an interest rate on borrowing. Stability fees are pooled and paid out to USB stablecoin holders who stake their USB to receive interest. This dynamic between Minters' Stability fees and USB Stakers' interest is part of the economic mechanism that elegantly stabilizes the price of the USB stablecoin to parity with $1 USD.

Liquidations work as follows in the USB Stablecoin Platform:

A Minter's position must always be sufficiently capitalized above a Liquidation Threshold. Positions that fall below the Liquidation Threshold may be subject to liquidation by Liquidators who repay the minted USB and in return receive a greater portion of the position's collateral. USB Stablecoin Liquidations are more fully described later in this document.

The USB Stablecoin facility is intended to be similar to the DAI stablecoin platform, with the following key differences:

1. The USB Stablecoin platform mints and burns the USB stablecoin (as opposed to DAI),
2. USB Collateral Safes will accept a larger variety of assets (Tier 1 – Tier 4 altcoins),
3. Platform fees will be distributed as rewards to FRIN token stakers.

2.3 FRIN token staking & Rewards Platform

For FRIN token holders to receive rewards (a share of fees collected by the Fringe Finance Platform), FRIN tokens must first be staked to the FRIN Staking Pool. Rewards are awarded to the $FRIN stakers according to their proportion of the FRIN Staking Pool. Rewards are more fully described later in this document.

2.4 Yield farming facility

Yield farming opportunities will be enabled temporarily to incentivize users' participation in various functions of the Fringe Finance platform. For example, users may stake their B tokens as evidence they are participating as lenders within the platform and consequently receive FRIN token yield farming rewards. Yield farming is paid out in FRIN tokens from the FRIN treasury**.**

2.5 Fees

A (small) fee is charged for various interactions and events within the Fringe Finance Platform. Fees accumulate in the **Rewards Pool.** The majority of fees collected are paid to FRIN token stakers as rewards.

2.6 Asset Types Supported

Projects may apply to have their coin whitelisted so that it can be accepted within the Primary Lending Platform and/or the USB Stablecoin Platform. The Fringe Finance Admin will accept or reject the application. The Admin function will initially be centralized and operated by the Fringe Finance team but will transition to the decentralized community (DAO) once the DAO is live.

Different collateral asset types will be assigned different Loan to Value Ratios (LVR) based on their 'risk profile.' When assessing a new coin, various criteria will determine its Tier classification. This is described in further detail later in the document.

2.7 Fringe Finance Platform packages

The Fringe Finance Platform comprises the following packages:

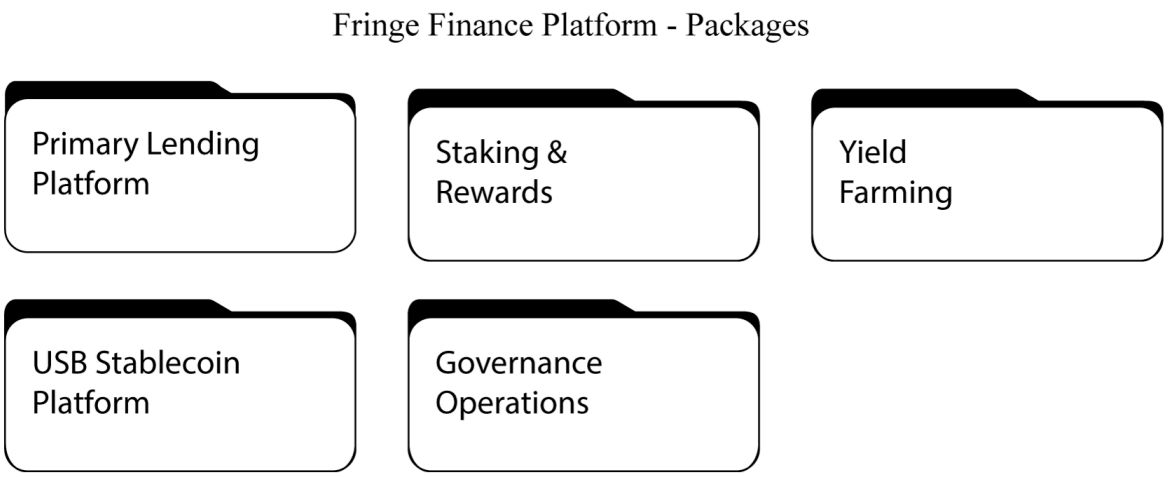

Figure 1: Packages comprising the Fringe Finance Platform.

Package Descriptions

Package	Description
Primary Lending Platform	The Primary Lending Platform is based on Compound. The key differences are that only a whitelist of stablecoins are loaned out and that the accepted types of collateral is a range of Tier0-Tier2 ERC-20 assets. Rewards **Lenders** for depositing (whitelisted) stable coins made available to be lent to Borrowers.

	Allows **Borrowers** to take out over-collateralized stable coin loans against whitelisted 'high-quality' collateral. Contains a facility to allow **Liquidators** to liquidate Borrower loans that fall below minimum collateralization levels. The **System** administers the following: • Interest payments to Lenders • Levies interest charges on Borrowers' loans • Collection of fees and diverts them to the Rewards Pool
USB Stablecoin Platform	The USB Stablecoin Platform is based on DAI with the key difference being that accepted collateral assets are a (wide) range of Tier0-Tier4 assets. It also: • Allows **Borrowers** (i.e. Minters) to mint USB stablecoins against a range of whitelisted collateral. • Allows USB stakers to stake their USB stablecoin - so as to earn interest. • Contains a facility to allow **Liquidators** to liquidate Minters' positions that fall below minimum collateralization levels. The **System** administers the following: • Levies stability fees on Minters' positions. • Pays interest to USB stablecoin stakers. • Collection of fees and diverts them to the Rewards Pool.
Staking Rewards	Allows **FRIN token holders** to stake (and unstake) $FRIN - to earn staking rewards. The **System** pays staking rewards to $FRIN staking positions. FRIN Staking rewards are paid from the Rewards Pool. The Rewards Pool accumulates fees collected by the platform.
Governance	Allows a **Project** to apply for listing on the USB Stablecoin platform. i.e. where USB Collateral Safes accept the project's ERC20 coin. The **Admin** actor assesses the application then either accepts or rejects it. Accepting an application will result in the Project's token being listed on the USB Stablecoin platform. To note: • An external oracle service will classify a coin into a Tier level - which is the determining factor in assigning it an LVR setting. • The Admin actor will be replaced by the DAO community once governance decentralization occurs. • The Primary Lending facility is a re-work of Compound and given the USB Stablecoin facility is a re-work of Dai some additional governance actions will apply as per the Compound and Dai governance operations. These additional governance operations are not described here in this

	document but can be found in the relevant Compound and Dai documentation.
Yield Farming	Temporary yield farming will be offered to incentivize early user adoption of the platform. Specifically, it: • Encourages Lenders to lend to the **Primary Capital Pool** and • Encourages USB stakers to stake USB stablecoins in the **USB Stablecoin platform**. As a knock-on effect of the above direct yield farming incentives, Borrowers are indirectly incentivized to use the platform as follows: • Encourages Borrowers to borrow from the **Primary Lending Platform** and • Encourages Borrowers to borrow from the **USB Stablecoin Platform.**

Table 2: Description Fringe Finance packages.

2.8 Fringe Finance Platform Actors

The actors for each component of the Fringe Finance Platform are as follows:

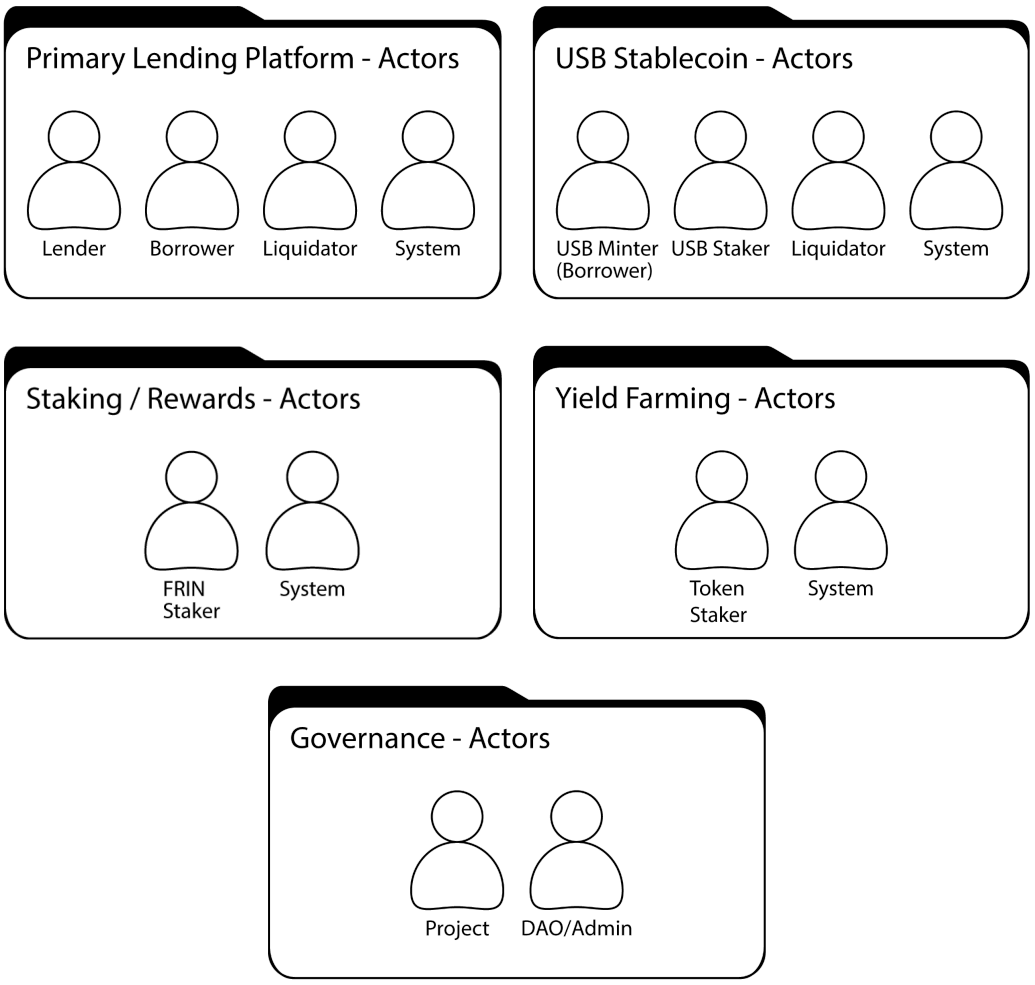

Figure 2: Fringe Finance Platform actors

Actor Descriptions

Package	Actor	Description
Primary Lending Platform	Lender	Any user who supplies whitelisted stable coins as capital to the **Primary Capital Pool** to be made available for Borrowers to borrow. Receives interest payments for supplied capital, via higher redemption value of their fTokens. Described below.

	Borrower	Any user who supplies collateral to a **Primary Collateral Safe** to take out a stable coin loan from the capital within the Primary Capital Pool.
	Liquidator	Any user who identifies and then liquidates a loan that is below the minimum collateralization level in the Primary Lending Platform. The USB stablecoin also has a liquidator role.
	System	The Fringe Finance Platform, which takes fees for users' interactions with the platform, charges Borrowers interest for open loans, pays interest to Lenders and pays platform rewards.
USB Stablecoin Platform	USB Minter (Borrower)	Any user who supplies collateral to a USB Collateral Safe and mints USB stablecoins against their deposited collateral.
	USB Staker	Any $USB holder who stakes their $USB to the USB Staking Pool to receive interest.
	Liquidator	Any user who identifies and then liquidates a loan below the minimum collateralization level in the USB Stablecoin facility. The Primary Lending facility also has a liquidator role.
	System	The Fringe Finance Platform, which takes fees for users' interactions with the platform, charges Minters Stability Fees for open positions, pays $USB Stakers interest and charges platform fees.
Staking/Rewards	Staker	Any FRIN token holder who stakes $FRIN in the Fringe Finance Staking Pool to seek rewards of a portion of fees collected by the Fringe Finance Platform.
	System	The Fringe Finance Platform, which awards a proportion of the fees to Stakers based on their proportion of the stake in the Fringe Finance Staking Pool.
Governance	Project	ERC-20 Project that makes an application to the Fringe Finance Platform to have their coin listed as a collateral type accepted by USB Stablecoin Collateral Safes.
	DAO/Admin	Accepts or rejects projects' requests for listing - and assigns parameters for accepted projects (LVR, maximum aggregate loan amount.)

Table 3: Description of the Fringe Finance Platform actors.

3 Primary Lending Platform

Within the Primary Lending Platform:

Lenders can deposit whitelisted stablecoin assets to the Primary Capital Pool to earn interest from Borrowers who borrow these stablecoins.

Borrowers deposit whitelisted altcoin assets to Primary Collateral Safes which can be used as collateral against which they can borrow stablecoins from the Primary Capital Pool.

The following diagram illustrates the key functions and participants in the Primary Lending Platform:

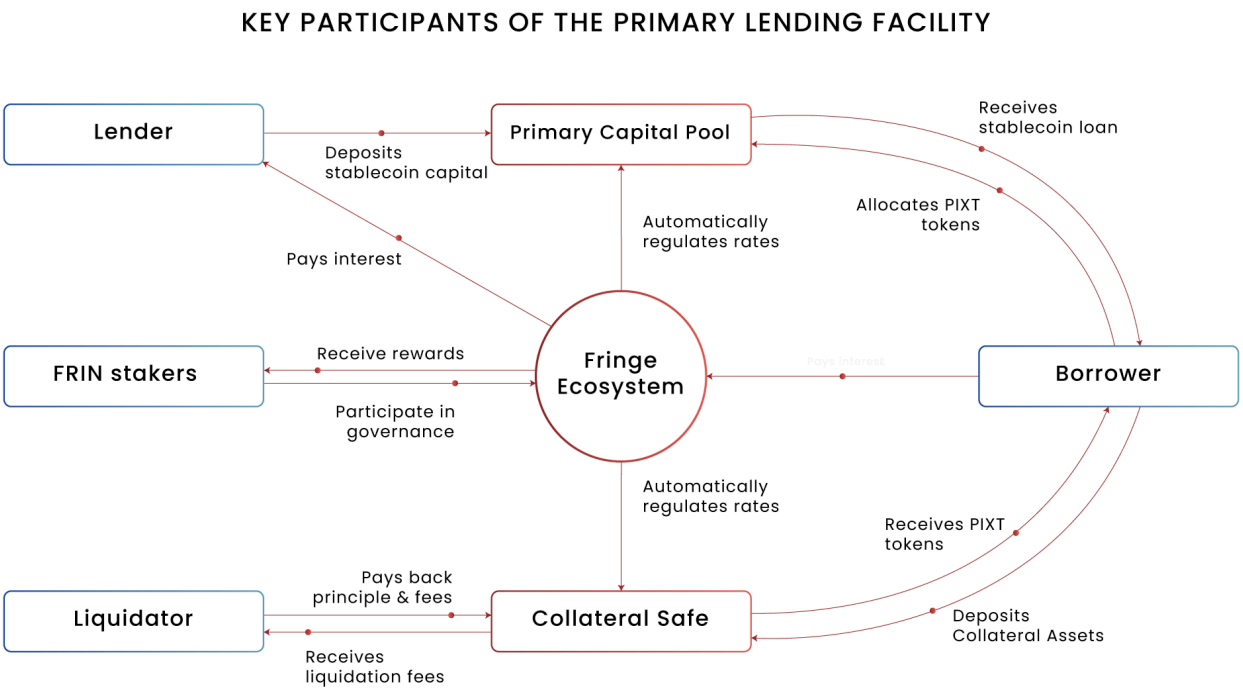

Figure 3: Functioning of the Primary Lending Platform

Users can interact with the Platform in a number of ways, fulfilling different roles, as described by the diagram below:

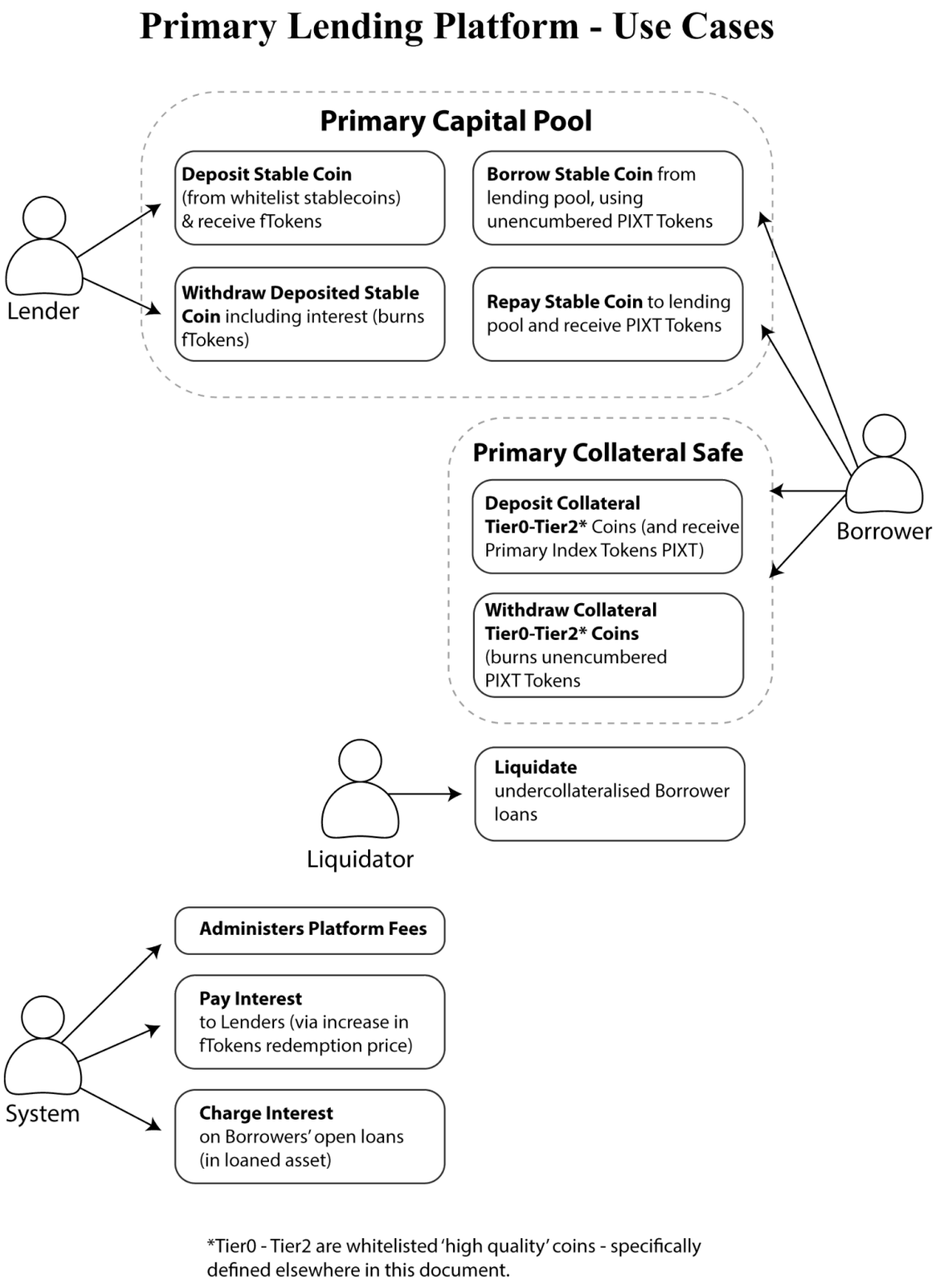

Figure 4: Primary Lending Platform use cases

3.1 Lenders – Depositing stablecoins

Lenders deposit whitelisted stablecoins to the Primary Capital Pool and receive fTokens in return to reflect their deposit. The Primary Capital Pool is composed of separate markets of each whitelisted stablecoin.

Unlike an exchange or peer-to-peer platform, where a user's assets are matched and lent to another user, the Fringe Finance protocol aggregates the supply of each user; when a user supplies an asset, it becomes a fungible resource. This approach offers significantly more liquidity than direct lending. Unless every asset in a market is borrowed, users can withdraw their assets at any time, without waiting for a specific loan to mature.

3.2 Lenders – Receiving interest

Assets supplied to a market are represented by an ERC-20 token balance ("fTokens"), which entitles the owner to an increasing quantity of the underlying collateral asset. As the money market accrues interest, which is a function of borrowing demand, fTokens become convertible into an increasing amount of the underlying asset. In this way, earning interest is as simple as holding an ERC-20 fTokens.

Indeed, a holder of fTokens does not need to redeem them on the Fringe Finance platform to regain their deposited stablecoin assets – they can instead sell the fTokens on the open market for whatever asset they wish, as long as an external market exists.

3.3 Lenders – Withdrawing stablecoins

Lenders redeem their fTokens to withdraw stablecoins from the Primary Capital Pool. Their fTokens reflect the interest they have earned by an increase in the redemption rate of fTokens since they received them.

3.4 Borrowers – Depositing altcoin collateral

Altcoin holders can deposit whitelisted altcoins to the Primary Lending platform into a user-specific and asset-specific Collateral Safe within the Primary Lending Platform. For example, if the user deposits two different projects' tokens, they will establish two different Collateral Safes.

In return for their altcoins, users receive a non-transferable token, PIXT, which standardizes their collateral assets. Each PIXT is pegged to $1 USD. As such, PIXT represents the Borrower's borrowing capacity in USD.

The amount of PIXT tokens awarded to the Borrower for the assets they deposit is based on the LVR for the asset deposited. PIXT value can be calculated using the following formula:

$$\mathbf{PIXT = AssetPrice_c * CountOfTokens_c * LVR_c}$$

Where:

- $AssetPrice_c$ = USD price of the collateral asset
- $CountOfTokens_c$ = Number of collateral asset tokens deposited
- LVR_c = The collateral asset's LVR

The amount of a user's PIXT (i.e. borrowing capacity) will fluctuate with the market price of their collateral assets deposited on the platform.

3.5 Borrowers – Undertaking stablecoin loans

Borrowers can undertake stablecoin loans from the Primary Capital Pool based on the amount of PIXT tokens they have available.

Each specific loan is taken out in relation to a particular Collateral Safe. Therefore, a user may have multiple loan positions open at any time, associated one-to-one with multiple Collateral Safes.

If the Borrower has remaining borrowing capacity for a given Collateral Safe (i.e. remaining PIXT tokens), the loan amount can be extended by borrowing additional stablecoins.

3.6 Borrowers – Interest charges on open loan positions

Interest is charged on each of the Borrower's open loan positions. This is calculated per block and is accrued to each loan position.

The platform presents both the loan principal amount and the accrued interest amount for each loan.

Accrual of interest increases the amount the Borrower needs to repay to settle the loan. Accrual of interest also reduces the amount of the Borrower's available PIXT tokens. i.e. reduces their remaining borrowing capacity.

3.7 Borrowers – Repaying stablecoin loans

Any repayment of stablecoins to settle a loan position is first applied to the accrued interest amount and then applied to the loan principal amount.

Repaying any part of a loan increases the Collateral Safe's borrowing capacity. i.e. increases the amount of available PIXT tokens.

3.8 Interest rate dynamics on the Primary Lending Platform

Borrowers are charged interest on their open positions. Lenders receive interest on the capital they contribute to the Primary Capital Pool.

The Primary Lending Platform automatically adjusts the interest rate charged to Borrowers so that a balance occurs to economically incentivize Borrowers' and Lenders' participation in the platform.

- When there is **high Borrower demand**, the interest rate they are charged will be algorithmically **increased**. This will attract **more Lenders** to the platform – who will receive a share of the greater interest charges collected from Borrowers.
- When there is **low Borrower demand**, the interest rate they are charged will be algorithmically **decreased**. This will attract **more Borrowers** to the platform.

The term Utilization Rate is used to describe demand from Borrowers. A low Utilization Rate will tend to decrease interest rates and a high Utilization Rate will tend to increase interest rates. Each stablecoin market offered by the Primary Lending Platform will have its own interest rate dynamic according to its Utilization Rate.

As a result of this dynamic of automatically balancing interest rates, there is no deterministic fixed interest rates. The market determines interest rates. This allows the Fringe Finance Platform to remain competitive in the crypto economy – since deterministic fixed interest rates would cause the platform to swing into and out of being competitive in relation to other crypto platforms.

Note, however, it is likely that Lenders will enjoy higher interest rates for their stablecoin assets using the Fringe Finance Platform as compared to other platforms. This is because the Fringe Finance platform will be a predominant lender for many speculative collateral assets that do not have other well-established lending markets.

4 USB Stablecoin Platform

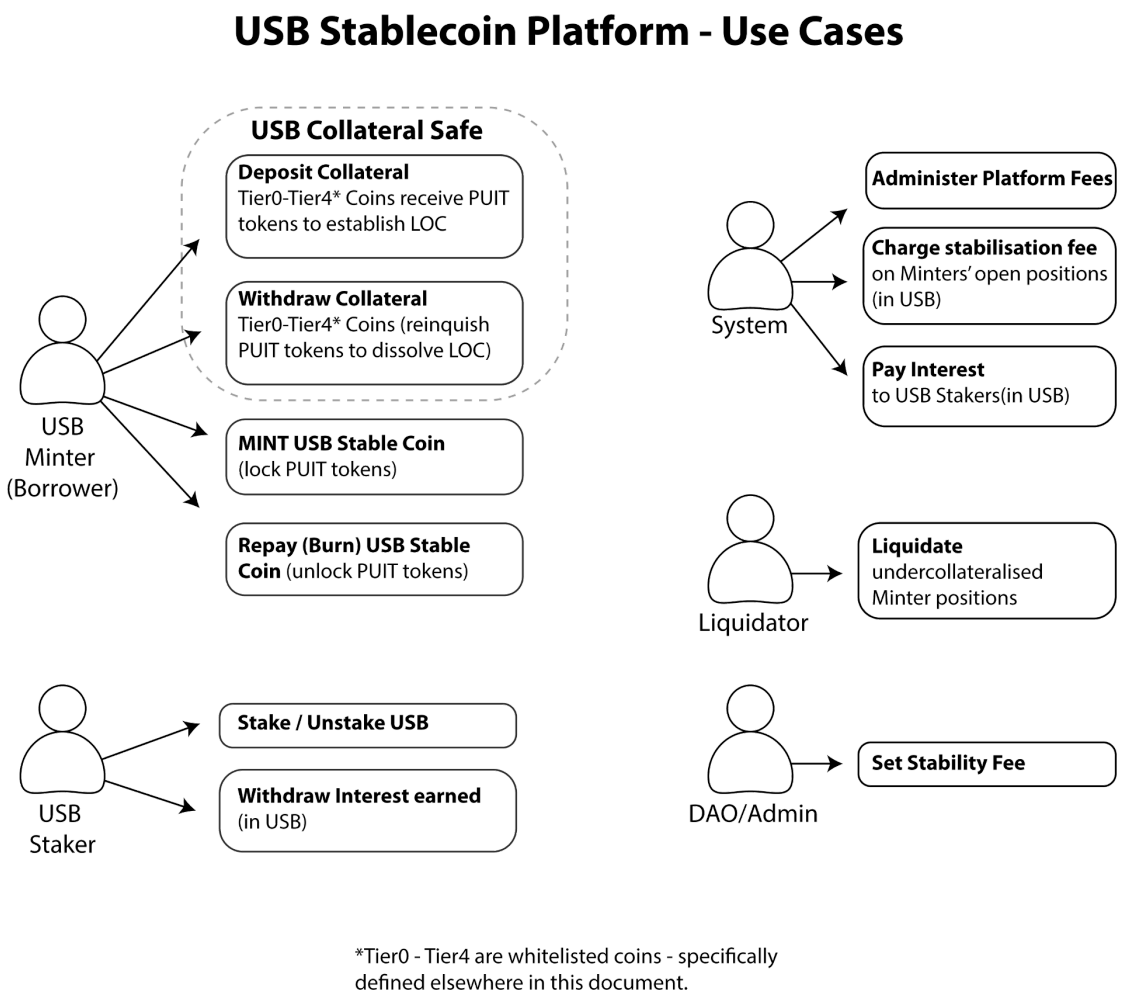

Figure 5: USB Stablecoin Platform use cases

Though we use the terminology of "Borrowers" in the descriptions below, this is really the participant who mints the USB stablecoin. i.e. the 'minter.'

4.1 Borrowers – Depositing altcoin collateral

Altcoin holders can deposit whitelisted altcoins to the USB Stablecoin Platform (USP) into a user-specific and asset-specific Collateral Safe in the USP. For example, if the user deposits two different projects' tokens, they will establish two different Collateral Safes.

In return for their altcoins, users receive a non-transferable token, $PIUT, which standardizes their collateral assets. Each PIUT is pegged to $1 USD. As such, $PIUT represents the Borrower's borrowing capacity in USD.

The amount of PIUT tokens awarded to the Borrower for the assets they deposit is based on the LVR for the asset deposited. $PIUT value can be calculated using the following formula:

$$\mathbf{PIUT = AssetPrice_c * CountOfTokens_c * LVR_c}$$

Where:

- $AssetPrice_c$ = USD price of the collateral asset
- $CountOfTokens_c$ = Number of collateral asset tokens deposited
- LVR_c = The collateral asset's LVR

The amount of a user's PIUT (i.e. borrowing capacity) will fluctuate with the market price of the assets they deposited on the platform as collateral.

4.2 Borrowers – Minting $USB

Borrowers can mint USB stablecoins ($USB) based on the amount of PIUT tokens they have available. (It can be thought of as a $USB loan that eventually will need to be paid back. The remainder of this description will use the analogy of a $USB loan.)

A specific loan is taken out in relation to a specific Collateral Safe. Therefore, a user may have multiple loan positions open at any one time, associated one-to-one with multiple Collateral Safes.

If the Borrower has remaining borrowing capacity for a given Collateral Safe (i.e. remaining PIUT tokens), the loan amount can be extended by borrowing additional USB stablecoins.

4.3 Borrowers – Interest charges on open positions

The USB Stablecoin's prevailing Stability Fee can be thought of as the 'interest rate' charged to open $USB loan positions.

Interest is charged on each of the Borrower's open loan positions. This is calculated per block and is accrued to each loan position.

The platform presents both the loan principal amount and the accrued interest amount for each loan.

Accrual of interest effectively increases the amount the Borrower needs to repay to settle the loan. Accrual of interest also reduces the amount of the Borrower's available PIUT tokens. i.e. reduces their remaining borrowing capacity.

4.4 Borrowers – Repaying USB positions

Any repayment of USB stablecoins to settle a loan position is first applied to the accrued interest amount and then applied to the loan principal amount.

Repaying any part of a loan increases the Collateral Safe's borrowing capacity. i.e. increases the amount of available PIUT tokens.

4.5 USB Stakers – Staking USB tokens

USB token holders may stake their $USB on the USB Stablecoin Platform to earn interest.

4.6 USB Stakers – Receiving interest

USB Stakers receive interest in the form of USB stablecoins. Interest accrues against their position and is displayed by the platform.

Interest is sourced from stability fees charged against $USB Borrowers. i.e. interest charge to Borrowers against their open $USB loan positions.

Interest paid to $USB Stakers is calculated based on the proportion of the $USB staking pool their stake represents.

Interest is expressly claimed by the USB Staker – in the form of USB tokens – and can be withdrawn to their connected wallet.

4.7 USB Stakers – Withdrawing USB tokens

USB Stakers can withdraw their $USB at any point, back into their connected wallet.

4.8 Interest rate dynamics on the USB Stablecoin Platform

Borrowers are charged interest on their open positions. i.e. Stability Fee charges. USB Stakers receive interest on the USB tokens they stake in the USB Staking Pool.

The USB Stablecoin Platform allows the Platform Admin to periodically adjust the Stability Fee (i.e. interest rate) charged to Borrowers so that a balance occurs to economically incentivize Borrowers' and Lenders' participation in the platform.

- When there is **high Borrower demand**, the interest rate they are charged will be periodically manually **increased**. This will attract **more USB Stakers** to the platform – who will receive a share of the greater interest charges collected from Borrowers.
- When there is **low Borrower demand**, the interest rate they are charged will be periodically manually **decreased**. This will attract **more Borrowers** to the platform.

As a result of this dynamic that automatically balances user participation, there is no deterministic fixed interest rates. The market determines the interest rates via the Admin adjustments to the Stability Fee.

This allows the Fringe Finance Platform to remain competitive in the crypto economy – since deterministic fixed interest rates would cause the Platform to swing into and out of being competitive in relation to other crypto platforms

Note, however, is it is likely that USB Stakers will enjoy higher interest rates for their USB stablecoin assets using the Fringe Finance Platform as compared to using other stablecoins and staking them on other platforms. This is because the Fringe Finance platform will be a predominant lender for many speculative assets that do not have well-established lending markets.

5 Liquidations

A Borrower's loan must always be sufficiently capitalized above a Liquidation Threshold. i.e. Collateral Value * LVR. Loans that fall below the Liquidation Threshold may be subject to liquidation by Liquidators who repay the loan and in return receive a greater portion of the position's collateral.

A liquidation event incurs the fees of Liquidator Fee and Platform Liquidation Fee. The Liquidator Fee and Platform Liquidation Fee vary for each collateral type.

As an example, say a Borrower supplies $1000 worth of collateral which has an LVR of 60%, a Liquidator Fee of 15% and a Platform Liquidation Fee of 10%.

The *maximum borrowing capacity* of that collateral is $600. Let's say the Borrower takes out a loan of $500 USDC. Their loan position's Health Factor is $600/$500 = 1.2. A Health Factor greater or equal to 1 is above the Liquidation Threshold and is safe from liquidation.

If, because of a downward movement in price of the collateral, the Total Collateral Value falls to $800. The *maximum borrowing capacity* of that collateral is now $480. The loan position's Health Factor is $480/$500 = 0.96. The position is subject to liquidation.

The liquidator pays out the loan ($500 USDC) and in return receives collateral to the value of the loan plus the Liquidator Fee of 15%. i.e. 115% * $500 = $575.

The Fringe Finance Platforms takes the Platform Liquidation Fee of 10%. i.e. $50.

This leaves the Borrower with $175 in collateral value.

6 Fees

Fees are charged for events within the Fringe Finance Platform. Some of these events are user interactions (such as taking out a loan) and some events do not involve a user interaction (such as interest being charged against a loan.)

Fees are set at 0.25% except for Liquidations which incur a percentage fee depending on the collateral asset's Tier assignment.

The following table lists the **events,** whether a fee is charged, who it is charged to and what the fee is based on.

6.1 Primary Lending Platform events

Event	Fee or No Fee	Charged To	Notes
Deposit/withdraw to/from the Primary Capital Pool	Fee	Lender	Percentage of deposit/withdrawal amount.
Deposit/withdraw to/from a Primary Collateral Safe	No Fee	Borrower	The reason no fee is charged for this event is because a stablecoin fee cannot be charged since there is no stablecoin involved in the transaction. If a fee was charged, it would have to be of the asset deposited/withdrawn. This would leave the Fringe Finance platform with a myriad of altcoins to convert to $FRIN to pay out rewards to $FRIN stakers.
Borrow from the Primary Capital Pool	Fee	Borrower	% of loan drawdown amount.
Repay loan to the Primary Capital Pool	Fee	Borrower	% of loan repayment amount.
Charge interest on Borrower loans	Fee	Borrower	% of interest charged.
Pay interest to Lender	Fee	Lender	% of interest paid.

Table 4: Fee events - Primary Lending Platform

6.2 USB Stablecoin Platform events

Event	Fee or No Fee	Charged To	Notes
Deposit/withdraw to/from a USB Collateral Safe	No Fee	Minter	To note: The reason no fee is charged for this event is because a stablecoin fee cannot be charged since there is no stablecoin involved in the transaction. If a fee was charged, it would have to be of the asset deposited/withdrawn leaving the Fringe Finance platform with a myriad of altcoins to convert to $FRIN to pay out rewards to FRIN stakers.
Mint $USB from the USB stablecoin facility	Fee	Minter	% of $USB minting amount.
Repay $USB to the USB stablecoin facility	Fee	Minter	% of $USB repayment amount.
Charge stability fee on Minter open positions	Fee	Minter	% of stability fee charged.
Deposit/withdraw $USB to/from USB Staking Pool	Fee	USB Staker	% of $USB staked/unstaked.
Withdraw interest earned	Fee	USB Staker	% of interest withdrawn. Note that this event never expressly occurs because it is included in the above action - where interest earned simply increases the $USB deposit position. It is mentioned here for completeness only.

Table 5: Fee events – USB Stablecoin Platform

6.3 Liquidation events

Event	Fee or No Fee	Charged To	Notes
Liquidate a position that falls below the minimum collateralization level. (Liquidations can occur on both the Primary Lending Platform and the USB Stablecoin Platform.)	Fee	Liquidator	Charged in the form of the stablecoin the Liquidator uses to pay back the loan that is below the minimum collateralization level.

Table 6: Fee events - Liquidations

6.4 FRIN staking/rewards events

Event	Fee or No Fee	Charged To	Notes
Stake/unstake FRIN tokens	No Fee	Staker	--
Pay staking rewards to staker	No Fee	Staker	--

Table 7: Fee events – Staking/Rewards

Note, per the table above, no fees are charged for FRIN staking/unstaking and staker rewards payments - because any such fees collected would mostly be paid back to FRIN stakers in the form of rewards.

6.5 Governance events

Event	Fee or No Fee	Charged To	Notes
Project application	No Fee	Project	--
Project acceptance	Fee	Project	Set by or negotiated with the Fringe Finance DAO (or Platform Admin prior to transition to DAO.)

Table 8: Fee events – Governance actions

6.6 Yield farming staking/rewards events

Event	Fee or No Fee	Charged To	Notes
Stake/unstake FRIN or USB tokens	No Fee	Staker	--
Pay Yield Farming rewards to staker	No Fee	Staker	--

Table 9: Fee events – Yield farming actions

Note, per the above table, no fees are charged on Yield Farming staking/unstaking and staker rewards payments – given yield farming is only a temporary scheme specifically designed to incentivize adoption.

6.7 Denomination of platform fee charges in stablecoins

Rewards are **paid** to FRIN stakers in FRIN tokens. These rewards are derived from fees charged to users of the platform.

Fees **charged** to users of the platform are not FRIN tokens. This would result in a poor user experience, where users would have to first purchase FRIN tokens to use the platform. The Fringe Finance platform avoids this friction.

Fees **charged to** users of the platform are a contained list of stablecoin assets relevant to the event they are partaking in. This avoids the need for the platform to convert the large number of asset types supported by the platform to FRIN tokens (and hence minimizes gas fees during conversion to FRIN tokens, currency risk and slippage risk. These are all real costs that ultimately would fall onto FRIN token holders because they could receive less rewards.)

Therefore, fees charged to users of the platform are as follows:

- Within the Primary Lending Platform, users are charged in the stablecoin borrowed.
- Within the USB Platform, users are charged in $USB.

The platform will exchange the (stablecoin and $USB) fees charged into FRIN tokens on the open market. The Fringe Finance Platform performs this automatically via integration with a third-party DEX platform.

6.8 The Fringe Finance Reserve Pool

The Reserve Factor in Fringe Finance is the parameter that controls how much of the interest for a given asset is routed to that asset's Reserve Pool. The Reserve Pool protects lenders against borrower default and liquidation malfunction. For example, a 5% Reserve Factor means that 5% of the interest that borrowers pay for an asset would be routed to the Reserve Pool instead of to lenders.

Reserves accumulate in each fToken contract and can be deployed by the Governance process for any variety of use cases to either stabilize the platform or benefit $FRIN holders. For example, this could create value for $FRIN stakers in the future only once the platform is stable with enough operational history by distributing reserves that accumulate above a certain threshold to holders.

As the internal market grows, it is important that the Reserve Pool grows commensurately in order to adequately protect lenders – and therefore to ultimately ensure the stability of the platform. A couple of considerations are that:

- Reserve Factors are the protocol's fee to offset risk (which is incurred when there is borrowing outstanding)
- Reserve Factors incentivize behavior, by acting as a component of interest rate models.
- When Reserves are large relative to borrowing demand, Reserves functionally add liquidity to a market.

Changing Reserve Factors does not immediately change the risk of the protocol (compared to changing a Loan-to-Value Ratio), which should make them flexible levers to consider adjusting.

The Reserve Factor for each collateral asset is set by Governance to reflect the volatility of the collateral asset and can be changed over time. For example, 10%. The Reserve Factor for new collateral asset types may initially be set to be a higher value to accumulate Reserves and then later be reduced.

7 FRIN Staking & Rewards

The Rewards platform use cases are depicted in the following diagram:

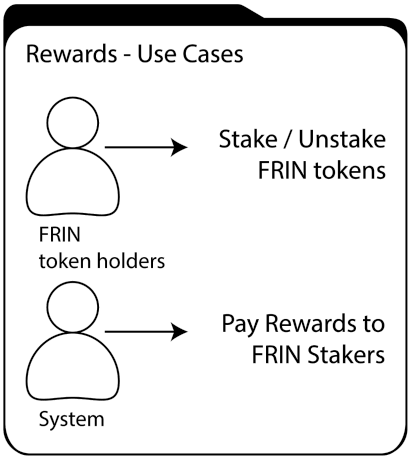

Figure 6: FRIN staking & rewards use cases

Rewards are paid from the Rewards Pool. The Rewards Pool is funded by fees collected by the platform. A portion of Rewards are paid out to $FRIN stakers according to their portion of the FRIN Staking Pool. The DAO determines the portion of Rewards paid to $FRIN stakers.

Rewards are paid as follows:

Behaviour Rewarded	Reward Notes
Staked FRIN tokens	Staker receives a proportion of rewards per their proportion of the FRIN Staking Pool. The DAO will decide which portion fees collected are to be paid to $FRIN stakers.
To note: No other actors receive rewards of a share of platform fees.	

Table 10: List of Rewards

The mechanism of the fee collection, conversion to FRIN tokens and FRIN token Rewards payout is presented in the diagram below:

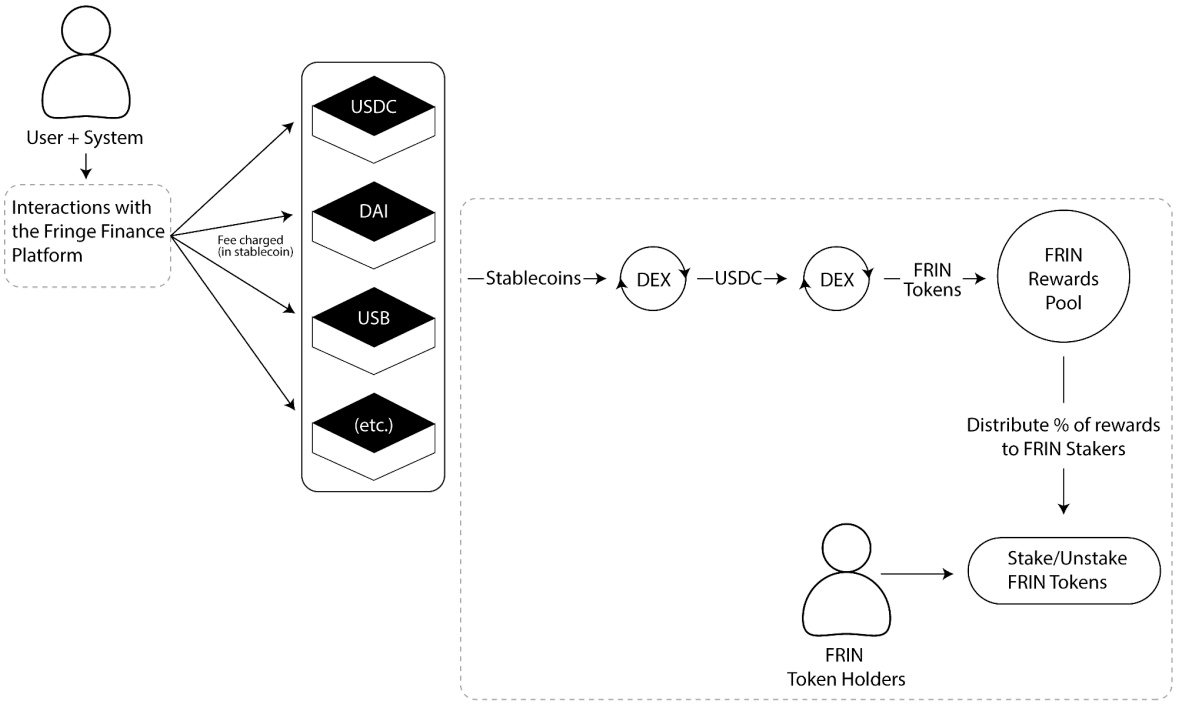

Figure 7: Fee collection, conversion to FRIN and FRIN Rewards payouts mechanism.

8 Yield Farming

8.1 Yield Farming overview

Yield farming will be initially temporarily enabled to incentivize users' participation in the Fringe Finance platform by paying FRIN tokens from the Treasury for various user actions.

The Yield Farming use cases are depicted in the following diagram:

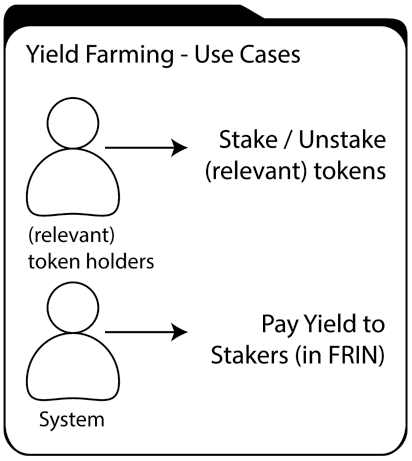

Figure 8: Yield Farming use cases

8.2 Yield farming actions

The user actions that will initially be incentivized via Yield Farming are as follows:

Actor Incentivized	Action Incentivized	Method
Lenders (Primary Lending Platform)	Lending	Lenders stake their fTokens to receive $FRIN yield farming rewards. To note: As a result of Lenders receiving yield-farming rewards, Borrowers are indirectly incentivized. This occurs because additional Lenders are attracted to the platform to enjoy the yield farming rewards, resulting in an overweight of Lender deposits versus Borrower loans. This low utilization rate will cause a reduction in the interest rate via the variable interest rate mechanism, attracting more Borrowers to the platform.
USB Stablecoin stakers	USB Staking	$USB stakers will receive an extra yield-farming reward of FRIN tokens in addition to the interest they receive for staking their USB stablecoins.

(USB Stablecoin platform)		

Table 11: Yield Farming actions that will be expressly incentivized

The above initial yield farming opportunities are designed to foster adoption of the core components of the Primary Lending Platform and the USB Stablecoin Platform.

In the future, when new functionalities are added to the Fringe Finance Platform, a decision will be made by the DAO as to whether yield farming incentives may be provided to promote their adoption. Any such yield farming options will be designed and implemented along with the new functionalities.

8.3 Yield Farming schedule

Yield farming will be incentivized in the following manner:

Primary Lending Platform

From the date of Mainnet release of the Primary Lending Platform, Lenders will be able to stake their fTokens to receive $FRIN yield farming rewards.

An issuing schedule for these FRIN tokens to be advised, but will reflect a number of tokens per month for, say, the first three months.

The rationale for incentivizing Lenders with this yield program is that it will attract Lenders to the platform – which will in turn attract Borrowers due to the relative low interest rates due to the low Utilization Rate.

USB Stablecoin Platform

From date of Mainnet release of the USB Stablecoin Platform, USB Stakers will be able to receive $FRIN yield farming rewards.

An issuing schedule for these FRIN tokens to be advised, but will reflect a number of tokens per month for, say, the first three months.

The rationale for incentivizing USB Stablecoin Stakers with this yield program is that this will attract Stakers to the platform, which will enable a lower Stability Fee to be charged to Borrowers which will in turn attract more of them.

9 Governance

The Governance use cases are depicted in the following diagram:

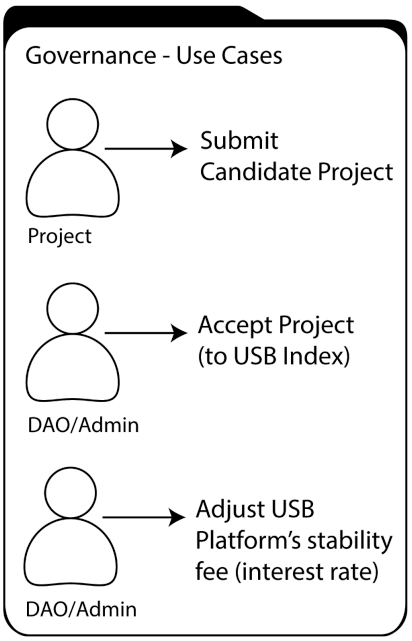

Figure 9: Governance use cases

9.1 Submitting a candidate project

The Fringe Finance smart contracts expose a public method to allow a token project to submit an application for inclusion of their token in the Fringe Finance platform.

The Fringe Finance platform provides a user interface to allow new token submissions to be made.

9.2 Accepting a Project into the Platform

The Fringe Finance Admin will assess the new token application and, if accepted, will assign a Token Tier to the token and configure it for inclusion to the Fringe Finance platform. Accepted Project tokens can then be deposited by Borrowers as collateral for loans.

Each Token Tier assignment carries an associated set of parameters that reflect the token's 'risk' rating. These parameters are its Loan to value ratio (LVR) and Maximum Aggregate Loan Amount.

Different asset types will be assigned different Loan to Value Ratios (LVR) based on their 'risk.'

When assessing a new coin, the following criteria will determine its initial Tier classification:

Criteria	Notes
Liquidity within a 'close range' of market price	Liquidity on available markets within a fairly close range (e.g. 10% either side if reasonable) of the market price indicates the ability for the market to efficiently clear liquidated collateral tranches. This affects the ability of Liquidators to sell the altcoin assets on the open market that they receive when liquidating positions on the Fringe Finance Platform.
Price volatility	Historic price volatility is a heuristic considered. Tokens with a lower price volatility will be considered as lower risk, and therefore will tend to receive a lower (better) Tier rating.
Non-circulating supply	Non-circulating supply and the remaining lockup/vesting periods for tokens are considered. An imminent supply release could be a risk factor for changes in a token's short/medium-term volatility.
Ratio of impending non-circulating supply vs liquidity	The above factor of non-circulating supply is considered in relation to liquidity. The smaller this ratio, the lower impact it will have on the risk rating for the token. Correspondingly, a larger ratio will have a larger impact on risk rating.

Table 12: Criteria used when assessing a token being added to the Fringe Finance Platform.

LVR can be determined based on Liquidity, Volatility, Possible Changes to Volatility, and ratios of these figures. Then, a safety margin can be applied. This allows for the calculation of LVR for non-attack scenarios. For attack scenarios – e.g. a price manipulation attack where a malicious actor attempts to manipulate the price of an asset to use it as collateral to take out a loan – we mitigate risks by adjusting the LVR and also by limiting the aggregate amount of loans that can be taken out using that asset as collateral.

The Tier definitions are as follows. To note, these parameters may be subject to change as new information comes to light regarding market conditions prior to launch.

Tier	LVR	Liquidator Fee	Platform Liquidation Fee	Notes
Tier 0	60%	15%	10%	e.g. ETH, WBTC.
Tier 1	40%	15%	10%	
Tier 2	30%	15%	10%	
Tier 3	30%	20%	10%	
Tier 4	10%	20%	10%	
Stablecoin USDC, USDT, DAI	100%	N/A	N/A	To note: On the USB Stablecoin Platform, select stablecoins used as collateral will have an LVR of 100%. The reason for this is to

				enable arbitrage opportunities to efficiently bring the value of $USB back to $1 peg in the event it diverges from the peg. This is one of the key aspects of the stability mechanism for the platform.

Table 13: Token Tier parameters

9.3 Adjusting a project token's Tier classification

Over time, a token's assigned Tier may be re-classified by Governance to reflect its risk level.

Governance will advise the internal market of impending changes to a collateral asset's Tier assignment to allow Borrowers with open positions to adjust them as may be required to avoid liquidations.

9.4 Adjusting the USB Platform's stability fee

Note the governance operations presented in this document are only a subset of the Fringe Finance platform governance operations. The Governance operations presented in this document do not include the actions that are already described in the Compound and DAI governance operations. This is because the Primary Lending Platform borrows heavily from Compound and therefore inherits its governance operations. Likewise, the USB Stablecoin Platform borrows heavily from DAI and therefore inherits DAI's governance operations. See the relevant Compound and DAI documentation for further information regarding their governance operations.

10 Price Feeds

The Fringe Finance platform will employ price feeds from well-known and reliable price feed oracles.

A key component of our criteria in selecting a source of price feeds are reliability and resistance to price manipulation attacks. Price manipulation attacks are frustrated by the need for attackers to maintain their price attack for extended periods of time and/or for them to use significant capital to perform a price manipulation attack, therefore making it too expensive for attackers. Over time, the Fringe Finance Platform will continue to list additional tokens which can be used as collateral to secure loans. At this point, Chainlink has proven to be a reliable source of price data, given Chainlink has a set of minimum threshold parameters for which they will establish a price feed. These threshold parameters include a collateral asset's minimum liquidity, minimum daily volume, the spread of exchanges on which an asset is traded and a preference for assets that have a large portion of their volume traded on centralized exchanges off-chain (which limits the ability for price manipulation attacks using on-chain flash loans.) These threshold minima employed by Chainlink best assure that lending platforms such as the Fringe Finance Platform are protected from price manipulation attacks. As a result, the Fringe Finance Admin will consider Chainlink as the viable source of price feeds.

Given the evolving nature of the DeFi landscape, Fringe Finance will continue to assess price feed reliability and performance to ensure the Fringe platform is suitably protected from price manipulation attacks and failure of oracle price feeds.

11 Cross-Chain Support

Cross-chain support will include the following facilities:

- **Borrowers**: Ability for Borrowers to collateralize loans using collateral on another chain.
- **Borrowers**: Ability for Borrowers to also receive borrowed assets on another chain.
- **Lenders**: Ability for Lenders to deposit assets using assets on another chain.
- **Lenders**: Ability of Lenders to also receive interest payments on another chain.

Fringe Finance will employ proxy contracts to support these cross-chain scenarios. The aim is to enable full composability so that the Fringe Finance Platform can be used flexibly within any number of new DeFi constructs.

Detailed designs and delivery sequence of chain-specific cross-chain bridging will be published once a full review of emerging options and partnerships occur. These will be produced on a case-by-case basis given the specific technical details of each.

The Fringe Finance Platform will employ a combination of Bridging models, Notary models and Hash Time-Lock Contract (HTLC) protocols that are becoming available and are maturing to satisfy the industry's cross-chain requirements. At the time of writing, a number of candidate technology solutions and HTLC protocols are establishing their viability relating to Fringe Finance's purposes. These include StakerDAO (Algorand, Tezos, Ethereum), Moonbeam (Polkadot<>Ethereum) and Wormhole (Solana<>Ethereum), as well as Bits Labs' cross-chain protocols. Fringe Finance already has partnerships with non-Ethereum blockchains and will be assessing their current and emerging cross-chain bridging facilities.

Fringe Finance is undertaking a systematic analysis of viable technologic solutions to achieve cross-chain collateralization. Our technical team will then prototype a selection of technologies to gauge the trade-offs of each platform before deciding on the set of solutions to be employed to realize this cross-chain collateralization vision.

The key considerations in Fringe Finance's cross-chain collateralization implementation will include security, non-custodianship/trust minimization, user experience, insurability, breadth of token support, breadth of chains supported, cost and restrictions. Fringe Finance may implement varied solutions depending on cross-chain availability and cross-chain type as indicated by the following set of considerations:

	Hash Time Lock	Notary Overcollateralization	Notary Credibility	Bridging Chain (General Solution)	Bridging Chain (Isomorphic cross-chain dedicated solution)
Restrictions	N/A	At least one chain needs to be Turing-complete	N/A	Both chains have to be Turing-compl ete	Sub-chains to conform to the established framework
Security	High	High	Centralized notaries run the risk of malpractice	High	High
Cross chain Costs	Low	High	Low	Relatively Low	Low
Cross chain Depth	Only cross-chain transactions are possible	Enables assets cross-chain	Enables assets cross-chain	Enables assets cross-chain	Enables cross-chain interoperability of assets and many more forms of cross-chain interoperability

Table 14: Cross-chain model considerations.

Fringe Finance's generalized target conceptual cross-chain architecture will vary according to the considerations tabled above.

In deciding the best cross-chain options to implement, Fringe Finance will take into consideration the community's demand and the best value for FRIN token holders.

12 Fixed Interest

Fringe Finance will in the future provide Lenders and Borrowers with the option of fixed interest rates. This will be valuable for those who aim for predictability and to enable greater adoption of the platform, especially by institutional actors and DAOs.

Interest rates are a critical input in the construction and valuation of any financial asset. Businesses can avoid interest rate risk by engaging in fixed-rate borrowing. Fixed-rate borrowing is the most common form of borrowing in traditional markets.

In order for large traditional businesses to meaningfully adopt borrowing in DeFi, rates need to be more predictable and stable as compared to the currently prevalent variable interest rates found in DeFi. A business that borrows $100M on-chain paying 2% is very unlikely to be comfortable with the rate spiking to 20% a week later, for example, because of an unrelated liquidity mining farm paying extremely high yields. The business will either want to 1) enter into a fixed-rate, fixed-term loan, or 2) have hedging access for their variable rate exposure.

Fixed interest rates will satisfy the market for on-chain DAO-to-DAO business lending which is expected to grow significantly. As businesses mature, debt financing becomes the major source of funding and DAOs will be no different.

There are various methods by which fixed interest rates can be achieved in DeFi. There are trade-offs between each method and Fringe Finance is continuing to explore these options to determine the most suitable approach and partnerships to adopt to best achieve this strategic roadmap item.

The various methods include the following:

- **Zero-Coupon Bonds:** Whereby the borrower creates a generalized bond token (not to be confused with the FRIN token, $FRIN) that settles on a specific date which can be sold on the open market at a known discount (from which is derived the effective interest rate incurred by the borrower.)
- **Yield Stripping:** Where fTokens are split between the principal and interest components and the interest component is traded away.
- **Stable Rates**: Where the borrower is offered a fixed rate that is higher than the variable rate to account for rate volatility.
- **Contracts for Difference (CFDs) and Interest Rate Perpetual Contracts:** Whereby a collateralized leverage position is taken against interest rates.

A short comparison of some of the trade-offs between these different methods is presented below:

Construction	Capital Efficiency	Explicit shorting possible	Liquidation Risk	Synthetic rate exposure	Leveraged rate exposure	Open-term or fixed-term	Fixed-rate Lending	Fixed-rate Borrowing
Zero-coupon bonds	No	Possible depending on collateral	Medium	No	Possible depending on collateral	Fixed-term	Yes	Yes
Yield stripping	On long side	No	Low	No	Long side	Fixed-term	Yes	Possible
Stable rates	No	No	Medium	No	No	Open-term	No	Yes (until rebalance)
IR perpetual contracts	Yes	Yes	High	No	Yes	Open-term	Possible	Possible

Table 15: Trade-offs between different methods to effectively achieve fixed interest rates.

13 Decentralized UI

The Fringe Finance UI will initially be hosted by the Fringe Finance project. However, to ensure greater decentralization and reduce the likelihood of coercion by, for example, a state regulatory actor, Fringe Finance will allow anyone to deploy the client-side user interface. Fringe Finance will deploy the client-side code on a decentralized file server –such as IPFS Interplanetary File System– from which users can download and execute the client code. The client code will interact with the smart contracts already operating in a decentralized manner on the blockchain.

14 Insurance

Fringe Finance has partnered with Union Finance to leverage their insurance facility to allow Borrowers on Fringe Finance to take out insurance to protect against collateral asset volatility –and thus allow a greater loan-to-value ratio to be achieved (or, conversely, allow less likelihood of a loan falling below the minimum collateralization ratio and therefore being subject to liquidation).

The process for this will entail:

- A borrowing process (purchasing insurance policy) that improves the value of the Borrower's collateral.
- Therefore, our platform takes the ERC-721 token that represents the Borrower's insurance position.
- Users can select the amount of coverage they wish through a sliding scale to allow them to set out their risk vs cost preferences.
- Union Finance employs a binomial options pricing model using historical volatility.

This model of insurance that Fringe Finance intends to pursue is where the insurance facility is able to balance low-cost premiums, security and user experience with respect to purchasing coverage and making claims.

To achieve low-cost premiums, it is necessary that the insurance protocol is able to spread risk across a number of DeFi protocols. Since the insurance is hosted by the Fringe Finance platform and targets only Fringe Finance positions, it is not possible to spread risk across a number of other DeFi protocols. Hence, this will result in inefficient insurance provision and higher-cost premiums for our platform participants.

Therefore, we believe it is in order to partner with Union Finance as an external DeFi insurance provider to meet our platform's and users' goals.

15 Composability

The Fringe Finance Platform's various services, including lending, borrowing, insurance and fixed-interest, will be presented in such a way so as to enable composability. This will allow the Fringe Finance Platform's services to be employed by third-party solutions that specialize in niche markets, whereby our services can be extended to the customers of those third-party solutions.

We see this as a key factor in the long-term success of the Fringe Finance platform –since we anticipate the DeFi ecosystem to continue to grow over time and as more and more third-party solutions provide services to a growing global permissionless marketplace, composability will ensure a growing and long-term use of the Fringe Finance Platform.

16 Terms used in this document

Term	Meaning
Tier	Refers to a coin's risk profile. Tiers are assigned a commensurate profile within the Fringe Finance Platform in respect of LVR, Liquidator Fee and Platform Liquidation Fee.
PIXT Token	Primary Index Tokens, which represent a Lender's borrowing capacity based on the collateral they have deposited multiplied by the asset's LVR. PIXT Tokens are minted by the Primary Lending Platform in response to Borrowers depositing coins to a Primary Collateral Safe. PIXT tokens represent the specific asset deposited. PIXT Tokens are burned in exchange for Borrowers withdrawing their coins from a Primary Collateral Safe.
UIXT Token	USB Index Tokens, which represent a Lender's borrowing capacity based on the collateral they have deposited, multiplied by the asset's LVR. UIXT Tokens are minted by the USB Stablecoin Platform in response to Borrowers depositing coins to a USB Stablecoin Collateral Safe. UIXT tokens represent the specific asset deposited. UIXT Tokens are burned in exchange for Borrowers withdrawing their coins from a USB Stablecoin Collateral Safe.
$USB	Fringe Finance's USD-pegged stablecoin.
Primary Capital Pool	Capital pool into which Lenders deposit capital. There is a Primary Capital Pool for each asset type that Lenders can deposit into the Primary Lending Platform.
Primary Collateral Safe	Collateral location specifically linked to the user into which Borrowers deposit collateral, against which they secure collateralized loans from the Primary Capital Pool. A user may have multiple Collateral Safes - one for each asset type, against which they may borrow stablecoins. To note: There is no notion of a single 'Collateral Pool' for the entire Primary Lending Platform because each loan position is collateralized by assets in a specific Collateral Safe.
USB Collateral Safe	Collateral location specifically linked to the user into which ($USB) Minters deposit collateral, against which they secure the minting of USB stablecoins. A user may have multiple Collateral Safes - one for each asset type, against which they may borrow stablecoins.

	To note: There is no notion of a single ‘Collateral Pool’ for the entire USB Stablecoin Platform because each loan position is collateralized by assets in a specific Collateral Safe.
Liquidation Threshold	Threshold of a Lender’s loan position that triggers liquidations. This is Collateral Value * LVR
LVR	Loan-to-Value Ratio. This is represented as a percentage between 1% and 100%. For example, a token with an LVR of 60% would allow the user to borrow 600 USDC for each $1000 in collateral value before it was subject to liquidation. To note: On the USB Stablecoin Platform, select stablecoins will have an LVR of 100%. The reason for this is to enable arbitrage opportunities to bring the value of $USB back to its $1 peg in the event it diverges from it.
Rewards Pool	A pool of funds collected through the Platform fees as a result of interactions with the Fringe Finance Platform. Rewards are eventually paid out to FRIN token stakers.
Reserve Pool	A pool of Reserve funds accumulated from a portion of interest paid by Borrowers. These Reserve funds can be deployed by the Governance process for any variety of use cases to either stabilize the platform or benefit FRIN token holders.
fTokens	Lenders deposit whitelisted stablecoins to the Primary Capital Pool and receive fTokens in return to reflect their deposit. The Primary Capital Pool is composed of separate markets of each whitelisted stablecoin. fTokens are the interest-earning representation of users’ deposited capital assets.

17 List of tables

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