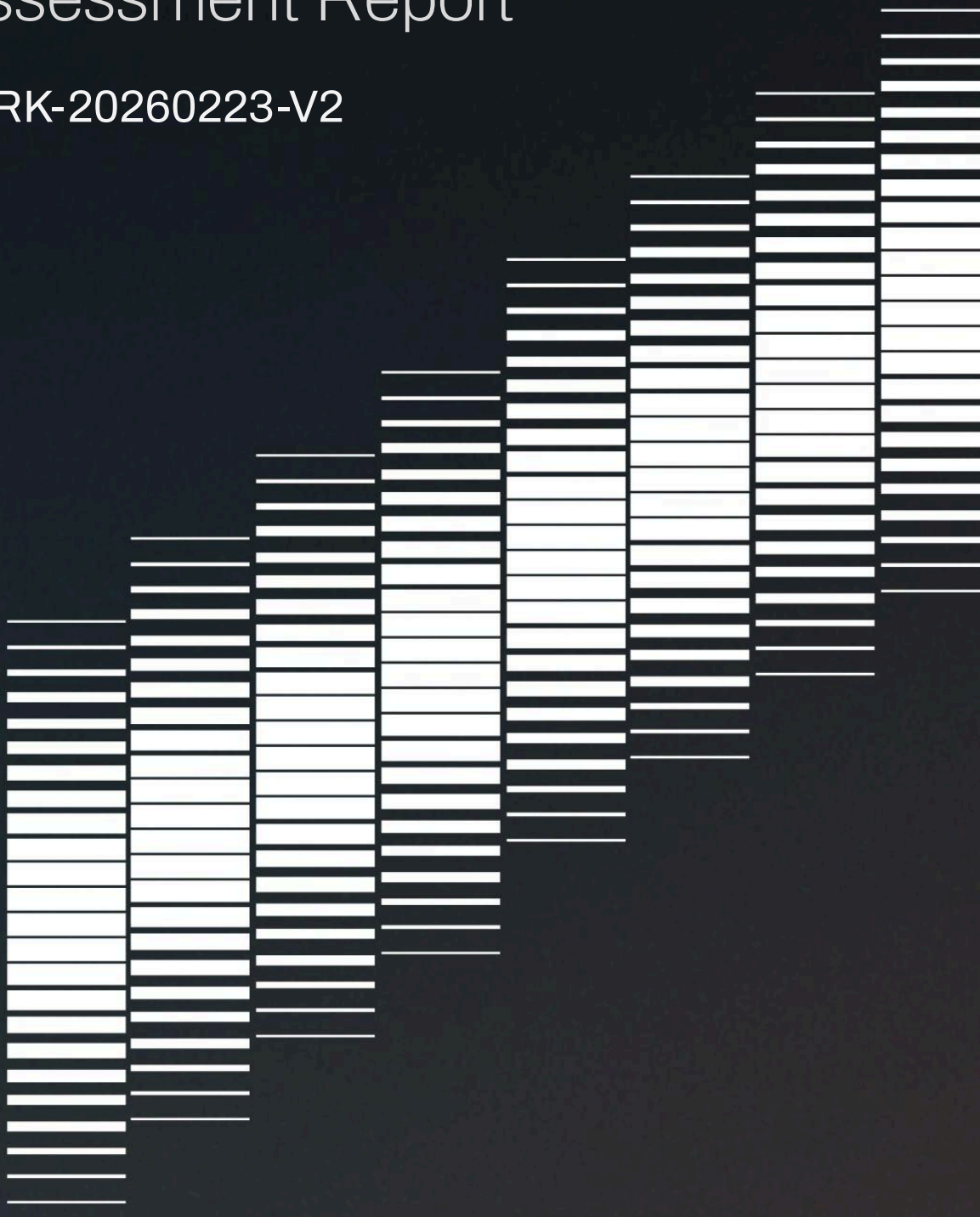
credora by RedStone

# Spark Savings

## Risk Assessment Report

REP-SPARK-20260223-V2



Updated - 23.02.2026

# Executive Summary

***Live Data Notice:*** *Credora monitors collateral composition and market parameters on a continuous basis. The ratings and PSL figures in this report reflect conditions as of the effective date above. Reports and API ratings are updated as needed when there are meaningful changes in the factors. Underlying data feeds are live controlled internally and ratings may be updated within 24 hours of any material exposure change.*

## Rating Summary

This report presents Credora's credit risk assessment of six Spark Savings Vaults. The assessment evaluates the collateral positions backing USDS using Credora's Methodologies to derive the Probability of Significant Loss (PSL). Risk modifiers are then applied to assess the financial and structural characteristics of USDS and the Spark Savings Vault architecture. The output is a DeFi credit rating and PSL for each vault.

To learn more about the methodology and rating scale, visit Credora Docs.

**Table 1.** Final Savings Vaults Rating Results

| Vault Name | Address | PSL | Rating |
|---|---|---|---|
| **Savings USDS** | 0xa3931d71877c0e7a3148cb7eb4463524fec27fbd | 0.70% | **A-** |
| **Savings USDC** | 0x28B3a8fb53B741A8Fd78c0fb9A6B2393d896a43d | 0.67% | **A-** |
| **Savings USDT** | 0xe2e7a17dFf93280dec073C995595155283e3C372 | 0.67% | **A-** |
| **Savings PYUSD** | 0x80128DbB9f07b93DDE62A6daeadb69ED14a7D354 | 0.20% | **A** |
| **Savings ETH** | 0xfE6eb3b609a7C8352A241f7F3A21CEA4e9209B8f | 0.25% | **A** |
| **Staked USDS** | 0x99CD4Ec3f88A45940936F469E4bB72A2A701EEB9 | 1.03% | **B+** |

*Note: Although these offerings are categorized as Spark Savings Vaults, Spark acts solely as the distributor. Ownership, structuring, and product origination are the responsibility of Sky*

The six Spark Savings vaults have been assigned ratings ranging from **A** to **B+**. Rating differentiation corresponds to distinct underlying risk exposures: USDS-linked vaults (Savings USDS, USDC, USDT and PYUSD) carry exposure to USDS collateral backing with different entry points; Savings ETH carries exposure to SparkLend's ETH lending market; and Staked USDS absorbs additional credit risk from an isolated SKY-collateralized lending market.

# Ratings Rationale

**USDS** is a stablecoin backed by a diversified collateral portfolio of assets under categories of Stablecoins, On-Chain Lending, OTC Lending, T-Bills, and Private Credit, with positions rated **A-** or higher constituting the majority of exposure. Negative rating pressure stems from regulatory ambiguity, limited legal recourse for token holders, and governance composition.

**Savings USDS** is a yield-bearing savings vault accruing returns from USDS deployed. The sole rating driver is the underlying USDS rating.

**Savings USDC, Savings PYUSD, and Savings USDT** are yield-bearing savings vaults where user deposits are deployed to diversified yield strategies via Spark Liquidity Layer, with a portion held as idle liquidity in the deposited currency for withdrawals. The primary rating drivers are the underlying USDS rating and idle liquidity amounts.

**Savings ETH** is an ETH-based savings vault. Deposited assets are used to earn yield through SparkLend's lending market, with 10% held idle for liquidity. The rating is determined by the credit quality of the underlying SparkLend ETH market. This rating measures the incremental credit risk of holding Savings ETH versus holding ETH; it does not incorporate ETH price depreciation risk.

**Staked USDS Vault** rating represents the risk from supplying USDS to an isolated lending market where SKY token holders can borrow against their staked positions. The elevated PSL is compensated with the enhanced yield generated by the lending market exposure. This rating measures the incremental credit risk of holding Staked USDS; it does not incorporate USDS default risk.

# Overview

## Spark Savings vaults have a diversified structure designed to generate yield while preserving capital stability

### Spark Savings Vaults Breakdown

Spark Savings comprises yield-generating vaults from Spark Protocol that enables users to deposit stablecoins and ETH to receive yield from vault's underlying assets.

Savings vault yields derive from returns generated by deploying assets across diversified, low-risk DeFi strategies, including crypto lending protocols, Real-World Asset (RWA) products, and yield-bearing stablecoins. Fund deployment is managed by the Spark Liquidity Layer (SLL) and by separate SubDAOs, which utilize off-chain monitoring software combined with smart contracts to dynamically allocate capital across different protocols and blockchains. The SLL continuously rebalances and deploys funds based on predefined strategies and risk parameters, with all deployment use cases approved by Sky Governance.

Currently, there are eight Spark Savings vaults: Savings USDS, Savings USDC, Savings USDT, Savings PYUSD, Staked USDS, Savings ETH, Savings USDC (Legacy), and Savings DAI. The latter two are legacy vaults and are excluded from this report.

**Table 2.** Description of Spark Savings vaults

| Vault | Exposure | Description |
|---|---|---|
| **Savings USDS** | USDS collateral backing with different entry points and slightly different exposures | Accrues the Spark Savings Rate, derived from yields generated across Spark's deployed strategies |
| **Savings USDC** | | |
| **Savings USDT** | | |
| **Savings PYUSD** | Mainly PYUSD-backed liquidity with minimal USDS exposure | |
| **Savings ETH** | Exposure to ETH market on SparkLend | Earns yield by supplying ETH to SparkLend's lending market |
| **Staked USDS** | USDS collateral backing and risk of lending to SKY holders | Earns interest from an isolated market where SKY holders borrow against staked positions |

*Note: Savings USDS, USDC, USDT, and PYUSD share the same underlying credit exposure. Deposits are pooled into common collateral portfolios regardless of entry asset, where they may be converted to another stablecoin or allocated directly.*

Given that four of the rated vaults derive their risk profile primarily from USDS collateral backing, the assessment begins with a comprehensive evaluation of USDS credit quality. This establishes the baseline Probability of Default that propagates through to each final rating. The remaining two vaults — Savings ETH and Staked USDS — carry distinct risk exposures, therefore are assessed independently in the end. The following section details the USDS collateral structure, position-level ratings, and the risk modifiers that determine its final credit assessment.

# USDS Risk Assessment

## USDS is collateralized by a diversified spectrum of positions, including Stablecoins, RWAs, and Lending Markets

USDS is a decentralized stablecoin issued by the Sky Protocol—the successor to DAI. It is overcollateralized and pegged to the U.S. dollar, meaning it is designed to maintain a value at or close to one dollar.

The analysis begins with an Anchor Probability of Default (PD) derived from USDS's collateral quality assessment, which then serves as input to subsequent analytical layers, ensuring core risk drivers carry through to the final rating.

## USDS Collateral Analysis

The primary data source for collateral analysis is the BlockAnalitica API, which delivers real-time position-level data on USDS collateral. Key fields include collateral and underlying assets, protocol and network, Liquidation Loan-to-Value (LLTV), and the managing Stars (SubDAOs).

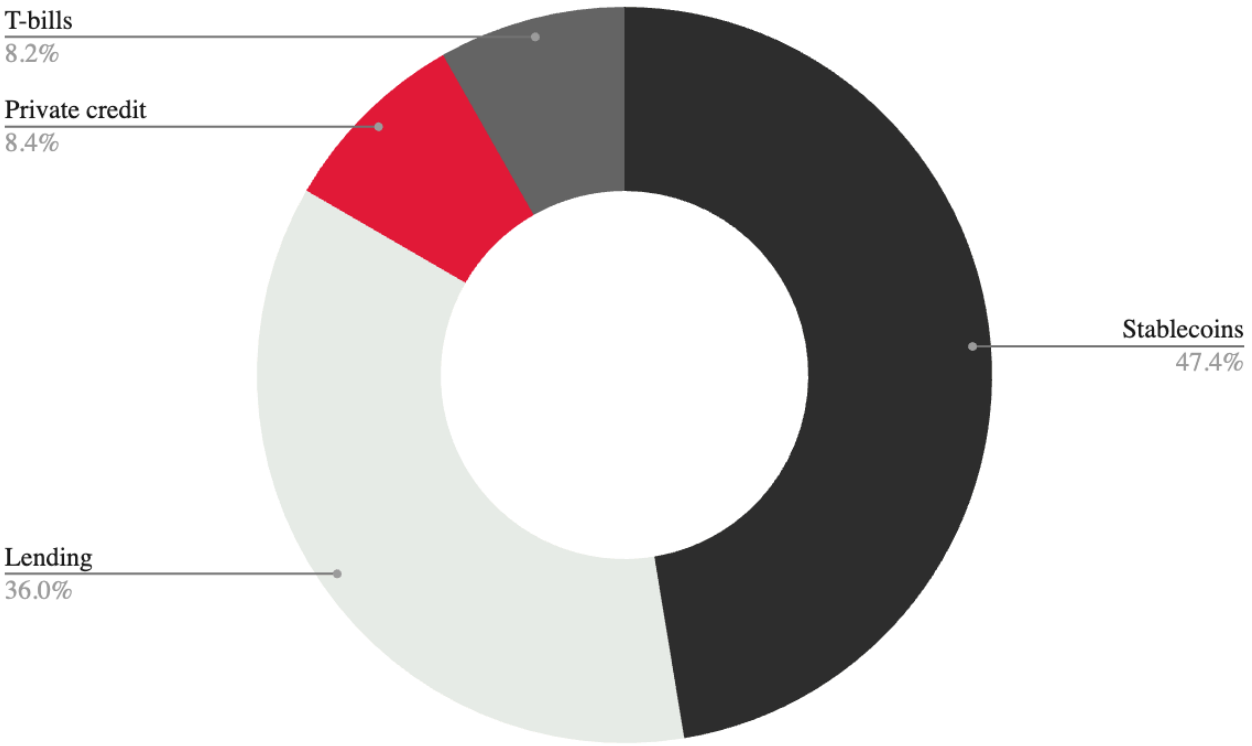
At the time of analysis, USDS was backed by over 180 distinct positions. Collateral is concentrated within a limited subset representing the majority of total backing. The analysis excludes minor allocations that do not meaningfully affect the aggregate rating. Credora monitors collateral composition daily, automatically recalculating position weights, with ratings updated within 24 hours of any material exposure change.

Collateral positions are classified into four categories:

**Table 3.** Category descriptions of USDS collateral

| Category | Definition |
|---|---|
| **Stablecoins** | Idle stablecoin holdings, redemption liquidity and on-chain liquidity provisioning |
| **Lending Markets** | On-chain (SparkLend, Morpho) and OTC lending positions where stablecoins are traded |
| **Private Credit** | Allocations to private credit RWA products |
| **T-Bills** | Allocations to tokenized U.S. Treasury products |

Current allocation across these categories is shown below:




**Picture 1**. Distribution of USDS collateral by categories

Credora applies the appropriate methodology to each position, producing a rating and PD/PSL for each.

**Table 4**. Coverage by Credora Methodology

| Methodology | Coverage |
|---|---|
| **Asset Methodology** | T-Bills, Private Credit, and standalone Stablecoin positions |
| **Lending Markets Methodology** | OTC lending, Morpho Vaults Exposures and Lending Pools (SparkLend, Aave) |
| **Liquidity Pool Methodology** | Liquidity Pool positions |

The Overview section introduced the collateral structure by asset group. The following section details the rating process for each position.

## 1. Stablecoins (47.4%)

The Stablecoins asset category includes stablecoin reserves and liquidity pool positions. Reserves support price stability, maintain pegs, and provide cross-chain liquidity.

**Table 5**. Breakdown of Stablecoins and LP Positions

| Underlying asset | Type | Weight |
|---|---|---|
| **USDC** | Stablecoin - RWA Backed | 33.57% |
| **PYUSD** | Stablecoin - RWA Backed | 5.32% |
| **Others** | Others | 3.56% |
| **RLUSD** | Stablecoin - RWA Backed | 2.33% |
| **USDT** | Stablecoin - RWA Backed | 0.87% |
| **PYUSDUSDS** | Liquidity Pool | 0.87% |
| **sUSDSUSDT** | Liquidity Pool | 0.44% |
| **AUSDUSDC** | Liquidity Pool | 0.22% |
| **UNIV3-LP-AUSD-USDC** | Liquidity Pool | 0.22% |

This category comprises four stablecoin assets and four liquidity pools with relevant allocations. USDC carries the largest weight, both within the Stablecoins group and across total collateral. A subset of assets, for which detailed information was unavailable, has been grouped as "Others" and assigned a conservative 1.50% PD.

All stablecoin assets have been assessed using the Credora Asset Methodology. The group generally exhibits a low risk profile, with RLUSD representing the highest risk at a **B+** rating, driven by the opacity around its governance structure and smart contract maturity.

The four LP positions mentioned (Curve: PYUSDUSDS and sUSDSUSDT, Uniswap: UNIV3-LP-AUSD-USDC and AUSDUSDC), are evaluated using the Liquidity Pool Methodology. The total LP risk comprises three distinct components:

1. **Smart contract risk** (protocol vulnerabilities)
2. **Impermanent loss risk** (price divergence exposure)
3. **Asset default risk** (default of either underlying asset in the pair)

## 2. Lending Markets (35.95%)

OTC and On-Chain Lending Markets are rated under the Lending Markets Methodology.

Market simulations capture the PSL arising from bad debt accumulation within the market. The assessment involves collecting relevant data points for each collateral-loan pair: market

characteristics, position distributions, historical price data, DEX liquidity, collateral PD, and lending volumes across DeFi. When Spark supplies assets from its portfolio to external markets, the loan asset's credit risk is incorporated to derive the final PSL.

## 2.1. On-Chain Lending (26.21%)

The majority of USDS backing within Lending Markets is concentrated in the On-Chain Lending category. A detailed breakdown of these positions is presented below.

**Table 6**.Top On-chain Lending positions under USDS backing

| Vault name | Borrow asset | Protocol* | Weight |
|---|---|---|---|
| **ETH-C** | DAI | Sky | 7.55% |
| **SparkLend DAI Market** | DAI | SparkLend | 4.23% |
| **ETH-A** | DAI | Sky | 4.11% |
| **SparkLend USDT Market** | USDT | SparkLend | 3.27% |
| **SparkLend USDS Market** | USDS | SparkLend | 2.16% |
| **wstETH-B** | DAI | Sky | 1.83% |
| **AAVE Horizon RWA market** | RLUSD | AAVE | 1.82% |
| **SparkLend USDC Market** | USDC | SparkLend | 0.42% |
| **wstETH-A** | DAI | Sky | 0.39% |
| **SparkLend PYUSD Market** | PYUSD | SparkLend | 0.30% |
| **Grove x Steakhouse High Yield AUSD** | AUSD | Morpho | 0.11% |
| **Grove x Steakhouse USDC High Yield (ETH) V2** | USDC | Morpho | 0.01% |
| **Grove x Steakhouse USDC High Yield (Base)** | USDC | Morpho | 0.01% |
| **Spark Blue Chip USDC Vault** | USDC | Morpho | 0.01% |

**"Sky" protocol positions are hosted on the Summer.fi platform, accessible only through direct interaction via smart contracts*

The majority of On-Chain Lending exposures are associated with the SparkLend protocol, as well as legacy Summerfi contracts.

### Spark Lend

SparkLend operates on a unified pool architecture where all assets are connected to a common lending pool. This design enables capital efficiency but introduces rehypothecation dynamics, where a user's collateral assets can be borrowed based on the relationships permitted within the market configuration.

Loan positions within SparkLend Markets are decomposed into loan-collateral pairs and run through a two-step Monte Carlo simulation process that captures rehypothecation risk. Finally, the results are aggregated to produce ratings for each market, reflecting their actual loan exposures.

SparkLend markets operate with conservative liquidation thresholds, with LLTVs ranging from 75% to 86%. Collateral is concentrated in high-quality, liquid assets with substantial DEX depth. Simulation results indicate a low probability of bad debt accumulation under stressed conditions, supporting an **A** rating across all SparkLend markets.

Overall, on-chain lending exhibits the lowest PSL among all collateral categories, with exposures concentrated in markets with blue-chip collateral assets that maintain sufficient on-chain liquidity to support orderly liquidations. To learn more about the Simulation Methodology visit Credora Docs.

**Morpho**

For isolated lending on Morpho, the price simulations estimate how often the market hits liquidations. When that occurs, the framework stress tests whether liquidations create bad debt by simulating them against stressed liquidity conditions across competing protocols. Finally, vault-level modifiers and protocol risk factors are applied to the simulation outputs to arrive at the overall market assessment. The Morpho implementation of Credora Methodology can be found in the Credora Docs.

Similar to SparkLend, the deployed Morpho Vaults each receive an **A** rating, driven by their exposure to blue-chip assets, robust on-chain liquidity, and conservative market configurations.

## 2.2. OTC Lending (9.75%)

In addition to On-Chain Lending positions, the Lending Markets category includes an OTC Lending segment, which notably consists of three positions:

**Table 7**. OTC Lending positions under USDS backing

| Collateral asset | Borrow asset | Protocol | Weight |
|---|---|---|---|
| **syrupUSDC** | N/A | Maple | 7.53% |
| **BTC** | USDC | Anchorage | 1.78% |
| **GACLO-1** | N/A | Inx | 0.44% |

**syrupUSDC and GACLO-1** are asset-backed stablecoins that consolidate multiple underlying lending positions into a single exposure.

**BTC/USDC position** aggregates OTC loans executed through Anchorage. A conservative PD is assigned to reflect limited transparency into underlying deal terms and counterparty composition**.**

Ratings range from **A-** to **B+**, reflecting a mix of strengths and limitations. Positive factors include overcollateralization, robust custodial set-ups, and on-chain reserve transparency and management track record. Offsetting risks include regulatory ambiguity (no stablecoin licenses), limited operating and price histories, and governance risks from short timelock periods.

## 3. Private Credit (8.42%)

A total of four positions have been classified under the Private Credit category, as shown in the table below.

**Table 8**. Private Credit positions under USDS backing

| Collateral asset | Weight |
|---|---|
| **JAAA** | 6.22% |
| **STAC** | 0.88% |
| **Legacy RWAs** | 0.87% |
| **ACRDX** | 0.45% |

These assets are simply held in Sky custody, not deployed on any markets.

The collateral composition within Private Credit is robust, with individual positions rated between **A** and **B**. These tokenized funds are characterized by strong regulatory compliance, high-quality underlying assets — primarily AAA-rated collateralized loan obligations (CLOs) —, and custody arrangements with well-established off-chain custodians.

Among these positions, **JAAA** represents the largest allocation. Legacy RWA positions have limited disclosure, resulting in a conservative **B** rating to reflect reduced visibility into underlying risks.

## 4. T-Bills (8.22%)

A total of two positions have been classified under the T-Bills category, as shown below.

**Table 9**. T-Bills positions under USDS backing

| Collateral asset | Weight |
|---|---|
| **JTRSY** | 4.90% |
| **BUIDL-I** | 3.32% |

Similarly to the Private Credit assets, these assets are held in Sky custody and not deployed on any markets.

T-Bills represent the lowest-risk segment of USDS backing, with positions rated on the **A** category. While categorized as RWAs, these short-term tokenized U.S. Treasury securities benefit from the credit quality and liquidity of their underlying instruments, backed by the full faith and credit of the U.S. government.

**JTRSY** constitutes the primary exposure, while **BUIDL-I** provides additional diversification. Both positions offer principal preservation and stable yields while maintaining the transparency and redemption mechanisms characteristic of institutional-grade tokenized securities. The T-Bills category serves as a high-quality liquidity buffer within the overall collateral framework.

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In summary, **Stablecoins** represent the largest exposure category and carry moderate inherent risk, yet contribute the lowest category-level PSL due to the credit quality of constituent assets. **On-Chain Lending** positions introduce risks driven by the loan asset credit quality and third-party protocol exposures. **OTC Lending** contributes marginally to total portfolio risk, reflecting its limited allocation weight. **Private Credit** exhibits the highest individual risk profile among collateral categories; however, its limited portfolio weight constrains systemic impact on the overall assessment. **T-Bills** provide a low-risk anchor within the portfolio, contributing minimal PSL commensurate with their modest allocation.

# USDS Anchor PD

The Anchor PD is calculated as the union probability of the PSLs across all rated collateral positions, reflecting the composite credit quality of the underlying portfolio.

**Table 10**. Anchor PD

| Metric | USDS |
|---|---|
| **Underlying / Reserve Asset Quality** | As covered above, the reserve composition of the underlying USDS assets emphasizes liquidity, short duration, and credit quality, reducing loss severity under reserve stress scenarios.<br><br>*Underlying PD:* ***0.32%*** |
| **Smart Contract Audit and Contract Maturity** | USDS smart contracts are the continuation of DAI contracts, with more than 8 years of independent operation, supported by multiple fully-scoped audits with no critical findings and an active ~$10m bug bounty, materially lowering implementation and exploit risk.<br><br>*Smart-contract custody risk PD:* ***0.20%*** |
| **Anchor PD** | **0.52%** |

# USDS Risk Modifiers

The Anchor PD is then adjusted using notch-based adjustments (N.A.) to produce the Final PD. These modifiers capture risks not reflected in the base asset or implementation assessments.

**Table 11**. Asset Modifiers

| Modifier | USDS |
|---|---|
| **Regulatory Coverage** | No issuer-level financial or stablecoin licenses.<br>No tokenholder or issuer-level bankruptcy remoteness; bankruptcy remoteness exists only indirectly at the underlying asset level (e.g., RWA products with segregated custodians), not as an enforceable right for USDS holders.<br><br>***Total N.A.= -0.33*** |
| **Reserves Transparency & Management** | Reserves are transparently reported on-chain, in collaboration with BlockAnalitica ***(N.A.=+0.25)***<br><br>Reserve allocation and counterparties are set via DAO governance (MakerDAO/Sky), with 2+ years of operational history managing over-collateralized strategies, though without a fiduciary asset manager. ***(N.A.=-0.10)***<br><br>***Total N.A.= +0.15*** |
| **User Rights** | Redemption: No explicit contractual right to redeem USDS for reserve assets. |

| | |
|---|---|
| | Segregation: No clear legal segregation of reserves for the benefit of token holders.<br>Beneficial ownership: USDS holders are not designated beneficiaries of a trust or SPV holding reserves.<br><br>User protections are conferred via protocol mechanics and DAO governance rather than enforceable legal instruments.<br><br>***Total N.A.= -0.50*** |
| **Peg Track Record** | 30-day average trading volume significantly exceeding $1m, >365 days of observable price history, low average annualized volatility (0–5%), and residual frequency of <1% deviations over the trailing year.<br><br>***Total N.A.= 0.25*** |
| **Market Cap** | Large market capitalization, relative to same-category stablecoins.<br><br>USDS is among the larger stablecoins, signaling strong market trust, operational capacity, and heightened scrutiny.<br><br>***N.A.= +0.50*** |
| **Governance** | DAO-governed protocol with token-weighted voting and defined execution rules.<br><br>Governance actions and smart contract upgrades are subject to a 48-hour timelock. However, reliance on discretionary, mutable DAO decisions for upgrades, rather than a legally accountable issuer, introduces higher risk in stress and recovery scenarios, compared to centralized, licensed structures.<br><br>***N.A.= -0.30*** |
| **Final PD** | **0.70%** |
| **Final USDS Rating** | **A-** |

Incorporating these adjustments to the Anchor PD yields a Final PD of **0.70%**, which corresponds to **A-** Rating on Credora's DeFi Rating Scale, placing it among the higher-quality stablecoins rated by Credora within DeFi.

# Savings Final Ratings

Savings USDS, USDC, USDT, and PYUSD share the same underlying USDS collateral exposure, except the loan asset PD is excluded for lending positions denominated in the user's entry stablecoin, since that default risk is already assumed at deposit.

Each of these vaults represents exposure to a vault where user deposits are converted to USDS and deployed via the Spark Liquidity Layer into diversified yield strategies, with a portion held as idle liquidity in the deposited currency to facilitate withdrawals. While all vaults share the same underlying USDS collateral exposure, the size of this idle liquidity buffer varies across vaults, resulting in slightly different degrees of exposure to USDS backing risk.

**Table 12**. Savings Vaults and Ratings

| Vault | Loan Asset Risk Treatment | Liquidity buffer, % | PSL | DeFi Rating |
|---|---|---|---|---|
| **Savings USDS** | Includes all loan asset PD | Not Applicable | 0.70% | A- |
| **Savings USDC** | Excludes USDC loan asset PD | 4.01% | 0.67% | A- |
| **Savings PYUSD** | Excludes PYUSD loan asset PD | 99.93% | 0.20% | A |
| **Savings USDT** | Excludes USDT loan asset PD | 2.86% | 0.67% | A- |

*Note: The present risk assessment does not incorporate the probability of default of the deposited asset itself. In practice, holders of Savings USDT, USDC or PYUSD remain exposed to one single deposited asset risk. In contrast, users who enter with USDS retain the flexibility to redeem into multiple supported assets, effectively diversifying their single-asset exposure on exit.*

## Savings ETH Vault

The Savings ETH Vault represents a yield-bearing ETH position composed of:

- **90%**: ETH deposited in SparkLend's ETH lending market for yield generation
- **10%**: Idle ETH reserves maintained for liquidity and redemption purposes

Given this composition, Savings ETH risk primarily derives from the SparkLend ETH market exposure.

**Table 13**. Savings ETH PD calculation

| Position | Market PSL | Smart Contract Risk | Weight | Final PSL | DeFi Rating |
|---|---|---|---|---|---|
| **SparkLend ETH Market** | 0.01% | 0.24% | 90% | 0.25% | A |
| **Idle ETH** | - | 0.24% | 10% | 0.25% | A |
| **Savings ETH** | - | - | - | 0.25% | A |

As Savings ETH represents direct exposure to the SparkLend ETH Market, its credit risk is derived from that market's assessment.

Simulations indicated negligible rehypothecation risk, supported by healthy on-chain liquidity, robust oracle configuration, conservative market parameters and high-quality, liquid collateral assets.

*Note: The rating excludes ETH price depreciation risk, when assessing the PSL.*

## Staked USDS Vault

Staked USDS is a yield-bearing vault that offers enhanced returns relative to Savings USDS by accepting additional credit risk. The vault functions by depositing USDS into an isolated lending market where SKY governance token holders borrow against their staked positions. In exchange for supplying liquidity to this market, Staked USDS holders earn interest paid by borrowers.

The risks of deploying capital into this market can be summarized as: (1) the risk of holding USDS, as assessed in the preceding section, and (2) the risks inherent to the lending market itself. The following analysis focuses on the second component which represents the incremental credit exposure specific to Staked USDS.

The table below summarizes the key risk parameters for the SKY/USDS lending market, as of the report date. Credora monitors these inputs daily and updates ratings through the API when material changes occur.

**Table 14.**Inputs for Staked USDS Market Analysis

| Parameter | Value | Relevance |
|---|---|---|
| **Collateral Asset** | SKY Governance Token | Determines the volatility profile and liquidity characteristics that drive liquidation risk |
| **Loan Asset** | USDS | The asset at risk of loss if bad debt accumulates; its credit quality is assessed separately |
| **Issued Debt** | $125 million | Total exposure at risk; larger debt increases systemic impact of liquidation failures |
| **Collateral Value** | $943 million | Provides the buffer against borrower defaults; subject to fluctuation with SKY price |
| **LLTV** | 83% | Liquidation threshold; higher LLTV reduces the buffer before liquidation triggers |
| **Weighted Average LTV** | 12.50% | Current positioning of borrowers; low average indicates substantial overcollateralization |
| **LIF** | 13% | Liquidator incentive; the 13% rate exceeds typical 1–6% range, encouraging rapid liquidation execution |
| **Oracle Type** | Dynamic | Price feed mechanism; dynamic oracles adjust update frequency based on market conditions |
| **Daily Volatility** | 4.67% | Measures typical price variation; higher volatility increases probability of rapid collateral devaluation |
| **On-Chain Liquidity (2% depth)** | $600,000 | Available liquidity for liquidations; insufficient depth can prevent orderly liquidation execution |

The market operates with a Liquidation Loan-to-Value (LLTV) threshold of 83% and a Liquidation Incentive Factor (LIF) of 13%, higher than comparable isolated markets that operate at 1 to 6%.

The debt distribution across LTV bands reveals meaningful concentration risk: approximately 62% of total debt ($78 million) is clustered in the 28%–33% LTV range, with smaller concentrations at lower LTV levels. This distribution is relevant for liquidation cascade analysis.

**Table 15**. Positions distribution across SKY/USDS Market

| LTV Buckets | Total Debt | Weight |
|---|---|---|
| 38%-43% | $1,815,312 | 1.44% |
| 33%-38% | $1,215,470 | 0.96% |
| 28%-33% | $78,084,186 | 61.95% |
| 23%-28% | $11,345,799 | 9.00% |
| 18%-23% | $10,400,877 | 8.25% |
| 13%-18% | $22,820,698 | 18.10% |
| 8%-13% | $338,691 | 0.27% |
| 3%-8% | $30,502 | 0.02% |

On-chain liquidity for SKY stands at approximately $600,000 at 2% depth across Uniswap and Curve pools, which is insufficient to absorb cascading liquidations given the $78 million in positions clustered around 30% LTV. In the event of an extreme 70% price decline, successful liquidation of these positions would be improbable.

The likelihood of these extreme tail events is estimated using historical price data and used to calculate the probability of bad debt in the lending market. The simulation engine outputs a **1.03**% PSL and rating of **B+** for Staked USDS.

# Rating Outlook

The outlook for Spark Savings Vaults is **Stable**. This reflects Credora's expectation that collateral composition, protocol parameters, and governance practices will remain broadly unchanged over the near term. The diversified collateral structure, conservative liquidation thresholds, and demonstrated peg stability provide a foundation for rating stability under both baseline and stressed market conditions.

For **USDS**-exposed vaults:

**Downward pressure** on ratings could emerge from:

- For **Savings PYUSD**, a significant increase in USDS exposure (which currently benefits from high exposure to idle PYUSD) would compress its rating toward **A-**, aligning it with its pees;
- Material deterioration in collateral quality, particularly a shift in aggregate portfolio composition toward positions rated **B** or below;
- Increase in USDS/USD price deviations exceeding 3% od days over trailing 365 days, or annualized price volatility rising above 5% will result in a downgrade.

**Upward pressure** on ratings could emerge from:

- Meaningful improvements in regulatory clarity or issuer-level licensing for USDS;
- Establishment of legally enforceable token holder rights and bankruptcy-remote structures.

# Conclusions

Credora's risk assessment of the six Spark Savings Vaults culminated in credit ratings ranging from **A to B+**, reflecting meaningfully differentiated risk-return profiles across yield-generating vault structures backed by diversified DeFi collateral.

The assessment applied three analytical frameworks—Asset Methodology, Lending Markets Methodology, and Liquidity Pool Methodology—selected based on the nature of each underlying exposure. Collateral composition is monitored daily, with PSL recalculation and rating updates triggered within 24 hours of any material change.

Ratings reflect each vault's distinct risk drivers:

- **Savings ETH** receives the highest rating (**A**), driven by its exposure to SparkLend's well-collateralized ETH lending market, which benefits from deep on-chain liquidity and conservative market parameters;
- **Savings USDS, USDC and USDT** are rated A-, sharing common exposure to USDS collateral backing. Rating variation within this group is driven by the size of each vault's idle liquidity buffer and the exclusion of entry-stablecoin loan asset default risk;
- **Savings PYUSD** deviates from USDS exposure having almost 100% of its backing in PYUSD, leading into updated **A** grade;
- **Staked USDS** carries the highest risk (**B+**), reflecting its incremental exposure to an isolated SKY/USDS lending market where limited DEX liquidity constrains orderly liquidation under stress conditions.

A key structural limitation applies across all six vaults: the absence of issuer-level regulatory licensing, enforceable token holder rights, and bankruptcy-remote legal structures caps the maximum achievable ratings and amplifies tail risk in stress scenarios. These constraints are not unique to collateral quality but are inherent to DAO-governed DeFi architecture more broadly, and represent the primary ceiling on further rating improvement absent regulatory or governance developments.

# Glossary

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| **Bad Debt:** Outstanding debt that cannot be recovered when collateral value falls below the debt amount and liquidation mechanisms fail to execute effectively. | **Probability of Default (PD):** The likelihood that a token fails to honor redemption requests or that its reserves become insufficient to fully back its circulating supply over a given time horizon. |
| **BlockAnalitica API:** Real-time data platform providing position-level information on USDS collateral composition, including asset identifiers, protocols, networks, USDS amounts, and liquidation thresholds. | **Protocol Risk:** Systemic vulnerabilities inherent to DeFi protocol design, including smart contract bugs, governance attacks, and operational dependencies. |
| **CLO (Collateralized Loan Obligations):** Structured debt securities backed by pools of loans, typically rated by traditional credit agencies. | **PSL (Probability of Significant Loss):** Likelihood of experiencing material loss beyond normal volatility, incorporating both default probability and loss severity. |
| **Debt Distribution:** The allocation of total borrowed amounts across different loan-to-value ranges within a lending market. | **Regulatory Compliance:** Adherence to established financial regulations and reporting requirements, providing investor protection and operational legitimacy. |
| **Governance:** Decision-making system for protocol parameters, upgrades, and treasury management, typically through token holder voting. | **Rehypothecation:** Practice where borrowed collateral can be re-lent or re-used by the borrower, creating layered exposure chains. |
| **Idle Reserves:** Cryptocurrency holdings not deployed in yield-generating activities, maintained for liquidity and redemption purposes. | **Spark Liquidity Layer (SLL):** Capital management system using off-chain monitoring software and on-chain smart contracts to dynamically allocate funds across protocols and blockchains. |
| **Impermanent Loss:** Value reduction experienced by liquidity providers when deposited asset price ratios diverge from initial deposit proportions. | **Spark Savings:** Yield-generating product suite allowing stablecoin and ETH deposits into savings vaults |
| **Isolated Market:** Lending market structure where risk is compartmentalized-defaults in one market don't affect others due to separate collateral and debt parameters. | **SparkLend:** Lending protocol within Spark/Sky ecosystem offering borrowing and lending services with unified pool architecture. |
| **LIF (Liquidation Incentive Factor):** Bonus percentage awarded to liquidators who repay borrower debt and seize collateral, designed to incentivize rapid execution. | **Stablecoins:** Cryptocurrencies designed to maintain stable value relative to reference assets (typically USD) through collateralization, algorithms, or fiat backing. |
| **Liquidity Pool (LP):** Smart contract-locked token collection providing decentralized trading liquidity; depositors earn fees as liquidity providers. | **SubDAO:** Subsidiary decentralized autonomous organization managing specific protocol functions like asset categories or operations. |
| **LLTV (Liquidation-Loan-to-Value):** Maximum debt-to-collateral ratio before liquidation eligibility; the threshold triggering liquidation mechanisms. | **Tail Risk:** Probability of extreme losses occurring beyond normal distribution assumptions, requiring specialized statistical modeling. |
| **LTV (Loan-to-Value):** Current ratio of debt to collateral value in an active lending position, indicating proximity to liquidation threshold. | **Tokenized Securities:** Traditional financial instruments converted to blockchain-based tokens enabling on-chain integration and programmability. |
| **Monte Carlo Simulation:** Statistical technique using repeated random sampling to model probability distributions and risk outcomes under uncertainty. | **TWAP (Time-Weighted Average Price):** Oracle mechanism calculating average asset price over time period to reduce short-term manipulation impact. |
| **Notch Adjustment:** Qualitative modification to credit rating | **Loan-Collateral Pairs:** Analytical decomposition of unified pool positions into discrete borrowing relationships for simulation purposes. |
| **Oracle Configuration:** Price feed mechanism setup including update frequency, data sources, manipulation resistance (TWAP), and failure handling. | **Volatility:** Statistical measure of price variation over time; higher volatility increases liquidation risk in collateralized lending. |
| **OTC (Over-The-Counter) Lending:** Direct lending arrangements between parties outside formal protocols, including asset-backed stablecoin structures. | **Yield-Bearing Vault:** An on-chain capital allocation structure that programmatically deploys digital assets into predefined yield strategies—such as staking or lending—to generate risk-adjusted returns through automated smart contract execution. |

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