Mars Updates

Introducing Mars Protocol's Risk Framework 2.0

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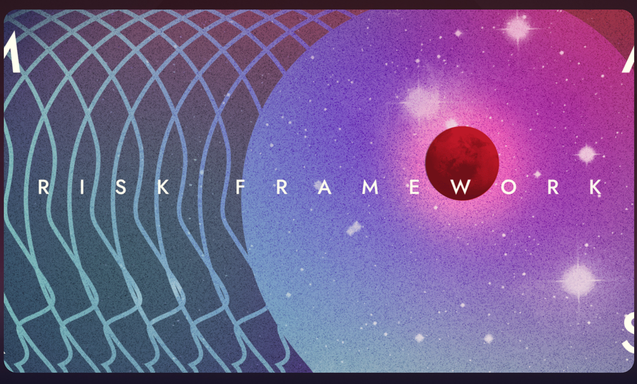

At the heart of Mars, risk and opportunity lie intertwined. Each new protocol and asset approved for borrowing and lending come with both, and it's the job of the Martian Council to balance these risks and rewards to maximize the protocol's potential and viability in the long-run.

Today, Mars contributors are proposing a rigorous risk framework to help guide those decisions for Mars v2 and beyond. Designed to assess the riskiness and determine the risk parameters of protocols and assets to be incorporated to the protocol, this framework adapts internationally used best practices to the fast-changing, experimental reality of DeFi. While the framework is initially put at the disposal of the Mars Council, it could be applied more broadly to any DeFi platform that needs to evaluate asset or protocol-related risks. It would supersede Mars' original risk framework, and covers new protocol integrations as well as two specific token types:

- Single-asset tokens (i.e. OSMO)
- Liquidity provisioning (LP) tokens (i.e. OSMO-axlUSDC LP tokens)

Framework summary

While many of the mechanisms driving DeFi are new, the underlying components of risk – liquidity, volatility and trust – are not. The traditional finance (TradFi) industry has adopted international standards to quantify and assess risk. The Mars risk framework marries these proven TradFi risk metrics (i.e. Conditional Value at Risk or CVaR) with new crypto-specific metrics (including oracle analysis and decentralization tests) to standardize how risk is measured in DeFi.

A two-step process is proposed to incorporate a new protocol or asset into the platform. The first step (or filter) involves assessing the protocol or asset's technical and centralization risks. In the second step, the framework defines how the different risk parameters should be set for the given asset/LP token based on market and liquidity risk metrics.

The risk framework assesses all assets on a spectrum. The riskier an asset is, the greater the limitations the protocol should impose on that asset. For example, riskier assets should be assigned lower loan-to-value (LTV) ratios.

Let's take a high-level look at the proposed process for analyzing new protocols and tokens and how the framework should benefit end users.

DeFi integrations

Mars will establish outposts on numerous blockchains in the Cosmos ecosystem starting with Osmosis. Pre-existing DeFi protocols on each chain can potentially be integrated with Mars. When considering these integrations, the Martian Council should analyze two broad categories of risk: technical and centralization.

Technical considerations include a protocol's Lindiness (time since launch), its audit track record, quality of smart contracts, critical vulnerabilities, and bug bounty programs.

Centralization assessments should consider who has control over the protocol and what the party (or parties) in control can do with that power. Critically, this assessment includes analyzing whether permissioned addresses (such as contract admins or owners) exist, what they can do (i.e. can they upgrade contracts or just tweak some parameters?) and how they are handled (i.e. are they controlled by a multisig or a DAO?).

Mars' risk framework proposes minimum and ideal technical and centralization requirements that should be considered before any protocol is incorporated into Mars.

Supporting new assets and LP tokens

Like new protocols, any new asset or LP token under consideration for support on Mars should be carefully examined for technical and centralization risks, as well as two additional risk vectors: oracle and bridging risks (where applicable).

Once an asset passes this initial filter, the framework suggests a quantitative methodology to determine the LTV of the asset or LP token. The main purpose of the LTV is to avoid insolvencies by establishing a margin of safety that allows liquidations to happen as intended. Thus, the key question at the heart of determining the LTV is: once a position becomes liquidatable, how much can the price of the collateral fall before it becomes liquidated? The more an asset can drop in value during this period, the higher the margin of safety required and the lower the LTV should be. And this is exactly how the risk framework approaches LTVs. Specifically, the LTV is adjusted based on two asset-specific metrics:

1. **The CVaR (Conditional Value-at-Risk)**. Based on historical price movements, the CVaR determines the maximum price drop (or worst-case threshold) an asset is expected to experience over a given time horizon. This variable offers reasonable certainty (with a given probability) that an asset will not breach the bounds of this threshold.
2. **The real historical liquidity of the asset.** The liquidity risk metric used intends to capture the potential further decline in the price of an asset that's specifically caused by a liquidation event. The liquidity risk will be high when, for example, a large position is being liquidated over a short period of time in an insufficiently liquid market.

Based on these two metrics, the LTV is calculated as follows:

LTV = 1 - CVaR - Liquidity Adjustment

Note: this is a simplified version of the process that attempts to give a high level overview of the methodology. For interested readers who wish to dive deeper reading the full risk framework document is highly recommended.

The above methodology stands out within DeFi in two important ways. First, it determines the LTV by measuring exactly what needs to be measured: how much an asset's price is expected to decrease over the liquidation window. Secondly, it does so using robust statistical methods that have been established as international best practices in TradFi.

Framework benefits

Arguably, the Mars risk framework is as important as the protocol's underlying smart contract code. By providing a qualitative, step-by-step framework to guide the Martian Council, the Mars risk framework should help:

- Minimize the risk of shortfall events
- Encourage MARS staking by giving participants more confidence in the protocol's stability
- Eliminate politics and ensure objectivity in the governance process

By guiding LTV parameters, the framework should also improve capital efficiency for end users by helping them more confidently assess the riskiness of their own leveraged positions. If a user's account indicates their positions are high risk (and have low health factors), they should act appropriately to lower their liquidation threshold. If an account indicates low risk, users should have more confidence in their leveraged positions.

Risk is ever-present in any market. Quantifying it requires a careful risk framework based on actual data. Mars contributors strived to build out that framework, and are excited to share their proposal in the Mars Protocol Github: https://github.com/mars-protocol/mips/blob/main/Mars-Risk-Framework.md

While it's specifically written for Mars, we encourage it to be used, improved and adopted by different protocols throughout the industry. Please share your thoughts to make it even better in the Mars Forum or Discord now.

The future awaits.

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