



Pendle SparkLinearDiscountOracle Audit Report

Oct 2, 2024



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Summary

This report has been prepared for SparkLinearDiscountOracle smart contract, to discover issues and vulnerabilities in the source code of their Smart Contract as well as any contract dependencies that were not part of an officially recognized library. A comprehensive examination has been performed, utilizing Static Analysis and Manual Review techniques.

The auditing process pays special attention to the following considerations:

- Testing the smart contracts against both common and uncommon attack vectors.
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Ensuring contract logic meets the specifications and intentions of the client.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- Thorough line-by-line manual review of the entire codebase by industry experts.



Overview

Project Summary

Project Name	SparkLinearDiscountOracle
Codebase	https://github.com/pendle-finance/pendle-core-v2/
Commit	da6e79bf7dc5b254dafcd39895f6bc664a13dea5
Language	Solidity

Audit Summary

Delivery Date	Oct 2, 2024
Audit Methodology	Static Analysis, Manual Review
Total Issues	1

[WP-I1] `latestRoundData()` can revert due to underflow issue when interest rates are high and maturities are long.

Informational

Issue Description

For example, a rate of 20% over 5 years or 10% over 10 years may cause `latestRoundData()` to revert due to an underflow. This behavior may be unexpected.

The `getDiscount()` function is called within `latestRoundData()` to calculate a discount based on the remaining time to maturity. When the discount exceeds `1e18`, `1e18 - discount` will cause an underflow.

<https://github.com/pendle-finance/pendle-core-v2/blob/c0b2874a83656ca712f45e93463f658c02059c6b/contracts/oracles/PendleSparkLinearDiscountOracle.sol>

```

20  function latestRoundData()
21      external
22      view
23      returns (uint80 roundId, int256 answer, uint256 startedAt, uint256 updatedAt,
    uint80 answeredInRound)
24  {
25      uint256 timeLeft = (maturity > block.timestamp) ? maturity - block.timestamp :
    0;
26      uint256 discount = getDiscount(timeLeft);
27      return (0, int256(1e18 - discount), 0, 0, 0);
28  }

```

Status

✓ Fixed

Appendix

Timeliness of content

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