



# FRANKENSTEIN

## Smart Contract Security Audit

May, 2021  
TechRate

# Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

# Background

TechRate was commissioned by FRANKENSTEIN to perform an audit of smart contracts:

- <https://github.com/FrankenDefi/contracts/blob/master/contracts/MasterChef.sol>
- <https://github.com/FrankenDefi/contracts/blob/master/contracts/NativeToken.sol>
- <https://github.com/FrankenDefi/contracts/blob/master/contracts/StrategyNative.sol>
- <https://github.com/FrankenDefi/contracts/blob/master/contracts/StrategyPancake.sol>
- <https://github.com/FrankenDefi/contracts/blob/master/contracts/StrategyPCS.sol>

Last commit (Audit made exactly for this **commit**):

**502912de04483592dfb5e4016a3df75fd6cc725c**

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

# Issues Checking Status

| №  | Issue description.   | Checking status |
|----|--|-----------------|
| 1  | Compiler warnings.   | Passed          |
| 2  | Race conditions and Reentrancy.<br>Cross-function race conditions. | Passed          |
| 3  | Possible delays in data delivery.                                  | Passed          |
| 4  | Oracle calls.  | Passed          |
| 5  | Front running.   | Passed          |
| 6  | Timestamp dependence.  | Passed          |
| 7  | Integer Overflow and Underflow.                                    | Passed          |
| 8  | DoS with Revert.   | Passed          |
| 9  | DoS with block gas limit.  | Low issue       |
| 10 | Methods execution permissions.                                     | Passed          |
| 11 | Economy model.   | Passed          |
| 12 | The impact of the exchange rate on the logic.                      | Passed          |
| 13 | Private user data leaks.   | Passed          |
| 14 | Malicious Event log.   | Passed          |
| 15 | Scoping and Declarations.  | Passed          |
| 16 | Uninitialized storage pointers.                                    | Passed          |
| 17 | Arithmetic accuracy.   | Passed          |
| 18 | Design Logic.  | Passed          |
| 19 | Cross-function race conditions.                                    | Passed          |
| 20 | Safe Zeppelin module.  | Passed          |
| 21 | Fallback function security.  | Passed          |
| 22 | Access Control Logic   | Passed          |

# Security Issues

## High Severity Issues

### ~~1. No access for withdraw~~

Issue:

- ❑ In StrategyPancake contract `farmContractAddress` can get tokens by public `farm` function. But if `isNativeVault` is `false` users will not be able to withdraw their tokens.

Recommendation:

Add `require(isNativeVault, "!isNativeVault");` into `farm` function.

Fixed on commit:

[3791be56f49a9ae55440bf953339c50e16555fb7](#)

## Medium Severity Issues

No medium severity issues found.

## Low Severity Issues

### 1. Out of gas

Issue:

- ❑ The function `massUpdatePools` uses the loop to update reward variables. Function will be aborted with `OUT_OF_GAS` exception if there will be a long excluded pool list.

Recommendation:

Do not use long arrays.

### ~~2. Unused code~~

Issue:

- ❑ If somebody by fault will deploy StrategyNative with `true` value in `isNativeVault` argument it will cause an logic issue for `wantLockedTotal` property. `wantLockedTotal` won't increase.
- ❑ Only in StrategyNative `onlyGov` variable and `setOnlyGov` function is not used.

- ❑ There are more examples of unused and independent lines of code without any risk.

Recommendation:

Remove unused code to decrease the complexity of contracts.

Fix commit:

[3791be56f49a9ae55440bf953339c50e16555fb7](#)

### ~~3. Reentrancy attack~~

Issue:

- ❑ In StrategyPancake contract `deposit` and `earn` functions have state updates after external calls.

Recommendation:

Use `nonReentrant` modifier as it is used for `farm` and `withdraw` functions.

Fix commit:

[3791be56f49a9ae55440bf953339c50e16555fb7](#)

## Conclusion

Smart contracts do not contain high severity issues.

Techrate note:

*Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.*