

Smart contracts security assessment

Final report

Fariff: Standard

BEBU Finance

September 2022





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□ Introduction

This report has been prepared for the BEBU Finance team upon their request.

The audited project is a fork of the Tomb Finance Project. The code is available at Github BebuFinance/bebu-finance. The code was checked in the <u>02b769c</u> commit.

The purpose of this audit was to ensure that no issues were introduced with the changes to the original code and that known vulnerabilities (e.g. <u>circumventing</u> the protocol's fee system) are fixed prior to deployment.

Further details about BEBU Finance are available at the official website: https://bebu.finance/.

Name	BEBU Finance
Audit date	2022-08-31 - 2022-09-05
Language	Solidity
Platform	Polygon Network

Contracts checked

Name	Address
Bebu	https://github.com/BebuFinance/bebu-finance/blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/contracts/TOKEN/BEBU/Bebu.sol
BEARETH1X	https://github.com/BebuFinance/bebu-finance/blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol
BULLETH1X	https://github.com/BebuFinance/bebu-finance/ blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/ contracts/TOKEN/TOKEN/ETH/BULLETH1X.sol

BebuRewardPool https://github.com/BebuFinance/bebu-finance/

blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/

contracts/Reward_pool/BebuRewardPool.sol

StableFarmingRewardPool https://github.com/BebuFinance/bebu-finance/

blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/

contracts/Reward_pool/

StableFarmingRewardPool.sol

Oracle https://github.com/BebuFinance/bebu-finance/

blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/

contracts/Oracle/Oracle.sol

BEARETH1X Treasury https://github.com/BebuFinance/bebu-finance/

blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/

contracts/Treasury/ETH_Treasury/

BEARETH1X_Treasury.sol

BULLETH1X Treasury https://github.com/BebuFinance/bebu-finance/

blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/

contracts/Treasury/ETH_Treasury/

BULLETH1X_Treasury.sol

Boardroom https://github.com/BebuFinance/bebu-finance/

blob/02b769c80e4dbca8c68d4be6555fb925651e4f5e/

contracts/Boardroom/Boardroom.sol

Multiple contracts

Procedure

We perform our audit according to the following procedure:

Automated analysis

- Scanning the project's smart contracts with several publicly available automated Solidity analysis tools
- Manual verification (reject or confirm) all the issues found by the tools

Manual audit

- Manually analyze smart contracts for security vulnerabilities
- Smart contracts' logic check

Known vulnerabilities checked

Title	Check result
Unencrypted Private Data On-Chain	passed
Code With No Effects	passed
Message call with hardcoded gas amount	passed
Typographical Error	passed
DoS With Block Gas Limit	passed
Presence of unused variables	passed
Incorrect Inheritance Order	passed
Requirement Violation	passed
Weak Sources of Randomness from Chain Attributes	passed
Shadowing State Variables	passed
Incorrect Constructor Name	passed
Block values as a proxy for time	passed
Authorization through tx.origin	passed
DoS with Failed Call	passed
Delegatecall to Untrusted Callee	passed
Use of Deprecated Solidity Functions	passed
Assert Violation	passed
State Variable Default Visibility	passed
Reentrancy	not passed



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<u>Unprotected SELFDESTRUCT Instruction</u> passed

<u>Unprotected Ether Withdrawal</u> passed

<u>Unchecked Call Return Value</u> passed

Floating Pragma not passed

Outdated Compiler Version passed

Integer Overflow and Underflow passed

<u>Function Default Visibility</u> passed

Classification of issue severity

High severity High severity issues can cause a significant or full loss of funds, change

of contract ownership, major interference with contract logic. Such issues

require immediate attention.

Medium severity Medium severity issues do not pose an immediate risk, but can be

detrimental to the client's reputation if exploited. Medium severity issues may lead to a contract failure and can be fixed by modifying the contract

state or redeployment. Such issues require attention.

Low severity Low severity issues do not cause significant destruction to the contract's

functionality. Such issues are recommended to be taken into

consideration.

Issues

High severity issues

No issues were found

Medium severity issues

1. Contract ownership (Multiple contracts)

Status: Open

The governanceRecoverUnsupported() function (found in the Boardroom, BebuRewardPool, StableFarmingRewardPool, Bebu, BEARETH1X, BULLETH1X, BEARETH1X_Treasury and BULLETH1X_Treasury contracts) can remove all tokens from the contract balance if the operator or owner role is compromised.

Recommendation: There are a large number of functions with the onlyOperator() modifier, there is a possibility that the operator can be compromised. It is recommended to create multiple roles for different kinds of functions to reduce the operator's problem. It is also recommended to add a time delay to the especially important set functions using the TimelockController. We also recommend that you look through the entire codebase to find functions that are dangerous for you as the owner of the project (mainly set functions), if there are any, then add a call to them via multisig wallet. This will help avoid the issue of owner compromise.

Low severity issues

1. Reentrancy attack (BebuRewardPool)

Status: Open

When withdrawing, some pool tokens may be subject to a reentrancy attack. The variable user.rewardDebt on 262L is updated after calling pool.token.safeTransfer().

Recommendation: It is recommended to update the value of the user.rewardDebt variable before calling pool.token.safeTransfer().

2. Reentrancy attack (StableFarmingRewardPool)

Status: Open

When withdrawing, some pool tokens may be subject to a reentrancy attack. The variable user.rewardDebt on 381L is updated after calling pool.token.safeTransfer().

Recommendation: It is recommended to update the value of the user.rewardDebt variable before calling pool.token.safeTransfer().

3. Functions lacks validation of input parameters (StableFarmingRewardPool)

Status: Open

The constructor(), addTwoPool(), setOperator() contract functions do not check the input addresses against a null address.

4. Unused variable (StableFarmingRewardPool)

Status: Open

The TOTAL REWARDS variable is not used in the contract.

5. Few events (Multiple contracts)

Status: Open

Many set functions from contracts are missing events when changing important values in the contract.

Recommendation: Create events for these set functions.

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Conclusion

BEBU Finance Bebu, BEARETH1X, BULLETH1X, BebuRewardPool, StableFarmingRewardPool, Oracle, BEARETH1X_Treasury, BULLETH1X_Treasury, Boardroom, Multiple contracts were audited. 1 medium, 5 low severity issues were found.

The BEBU Finance Project was compared with the Tomb Project. BEBU Finance has changed the implementation of Boardroom, BebuRewardPool, and Bebu contracts. A blacklist has been added.

Disclaimer

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This report should not be used in any way to make decisions around investment or involvement with any particular project. This report in no way provides investment advice, nor should be leveraged as investment advice of any sort. This report represents an extensive assessing process intending to help our customers increase the quality of their code while reducing the high level of risk presented by cryptographic tokens and blockchain technology.

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Slither output

```
UniswapV20racleLibrary.currentBlockTimestamp() (contracts/utils/library/
UniswapV2OracleLibrary.sol#13-15) uses a weak PRNG: "uint32(block.timestamp % 2 ** 32)
(contracts/utils/library/UniswapV2OracleLibrary.sol#14)"
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#weak-PRNG
Reentrancy in BebuRewardPool.deposit(uint256,uint256) (contracts/Reward_pool/
BebuRewardPool.sol#224-243):

⊠External calls:

    \[
    \omega - \text{safeBebuTransfer(_sender,_pending) (contracts/Reward_pool/BebuRewardPool.sol#233)
    \]

MM- returndata = address(token).functionCall(data,SafeERC20: low-level call failed)
(contracts/utils/token/SafeERC20.sol#69)

⊠⊠- Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/BebuRewardPool.sol#283)

MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)

\[ \overline{\text{W}} \overline{\text{Bebu.safeTransfer(_to,_amount)} (contracts/Reward_pool/BebuRewardPool.sol#285)
\]

Ø- pool.token.safeTransferFrom(_sender,address(this),_amount) (contracts/Reward_pool/
BebuRewardPool.so1#238)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
BebuRewardPool.sol#239)
Reward pool/BebuRewardPool.sol#241)
Reentrancy in StableFarmingRewardPool.deposit(uint256, uint256) (contracts/Reward_pool/
StableFarmingRewardPool.sol#330-360):
MExternal calls:
M- safeBebuTransfer(_sender,_pending) (contracts/Reward_pool/
StableFarmingRewardPool.sol#339)

MM - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.sol#69)

■M- Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/
StableFarmingRewardPool.sol#394)
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#396)
```

```
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.so1#119)
M- pool.token.safeTransferFrom(_sender,feeTo,tax) (contracts/Reward_pool/
StableFarmingRewardPool.sol#348)
Ø- pool.token.safeTransferFrom(_sender,address(this),_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#350)

⊠External calls sending eth:

M- safeBebuTransfer(_sender,_pending) (contracts/Reward_pool/
StableFarmingRewardPool.sol#339)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
M- user.amount = user.amount.add( amount) (contracts/Reward pool/
StableFarmingRewardPool.sol#351)
M- user.TimerStart = poolStartTime (contracts/Reward_pool/
StableFarmingRewardPool.sol#354)
M- user.TimerStart = block.timestamp (contracts/Reward_pool/
StableFarmingRewardPool.sol#356)
Reward_pool/StableFarmingRewardPool.sol#358)
Reentrancy in StableFarmingRewardPool.depositTwoTokens(uint256, uint256) (contracts/
Reward_pool/StableFarmingRewardPool.sol#313-319):
MExternal calls:
M- deposit(_pool0,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#317)

MM - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.so1#69)

■M- Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/)

StableFarmingRewardPool.sol#394)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#396)
MM- pool.token.safeTransferFrom(_sender,feeTo,tax) (contracts/Reward_pool/
StableFarmingRewardPool.sol#348)
MM- pool.token.safeTransferFrom(_sender,address(this),_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#350)

⊠⊠- returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.so1#69)
MM- Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/
StableFarmingRewardPool.sol#394)
```

```
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#396)
MM- pool.token.safeTransferFrom(_sender,feeTo,tax) (contracts/Reward_pool/
StableFarmingRewardPool.sol#348)
MM- pool.token.safeTransferFrom(_sender,address(this),_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#350)
MExternal calls sending eth:
M- deposit(_pool0,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#317)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
M- deposit(_pool1,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#318)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
MM- pool.lastRewardTime = block.timestamp (contracts/Reward_pool/
StableFarmingRewardPool.sol#298)

⊠⊠- pool.isStarted = true (contracts/Reward_pool/StableFarmingRewardPool.sol#302)

            ⊠ - pool.accBebuPerShare = 
/pool.accBebuPerShare.add(_BebuReward.mul(1e18).div(tokenSupply)) (contracts/Reward_pool
StableFarmingRewardPool.sol#308)
MM- pool.lastRewardTime = block.timestamp (contracts/Reward_pool/
StableFarmingRewardPool.sol#310)
M- deposit(_pool1,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#318)
MM- totalAllocPoint = totalAllocPoint.add(pool.allocPoint) (contracts/Reward_pool/
StableFarmingRewardPool.sol#303)
\boxtimes \subseteq user.amount = user.amount.add(\_amount) (contracts/Reward\_pool/
StableFarmingRewardPool.sol#351)
MM- user.TimerStart = poolStartTime (contracts/Reward_pool/
StableFarmingRewardPool.sol#354)
MM- user.TimerStart = block.timestamp (contracts/Reward_pool/
StableFarmingRewardPool.sol#356)

⊠⊠- user.rewardDebt = user.amount.mul(pool.accBebuPerShare).div(1e18) (contracts/
Reward pool/StableFarmingRewardPool.sol#358)
Reentrancy in Boardroom.stake(uint256) (contracts/Boardroom/Boardroom.sol#217-228):

⊠External calls:

    Share.safeTransferFrom(msg.sender,feeTo,tax) (contracts/Boardroom/Boardroom.sol#223)
```

```
MM- returndata = address(token).functionCall(data,SafeERC20: low-level call failed)
(contracts/utils/token/SafeERC20.so1#69)

⊠⊠- share.safeTransferFrom(msg.sender,address(this),amount) (contracts/Boardroom/
ShareWrapper.so1#28)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)

⊠External calls sending eth:

MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
M- members[msg.sender].epochTimerStart = treasury.epoch() (contracts/Boardroom/
Boardroom.sol#226)
Reentrancy in Boardroom.withdraw(uint256) (contracts/Boardroom/Boardroom.sol#230-237):

⊠External calls:

☑- claimReward() (contracts/Boardroom/Boardroom.sol#234)

MMS - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.so1#69)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.so1#119)

MMS - token.safeTransfer(msg.sender,reward) (contracts/Boardroom/Boardroom.sol#250)

MM - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.so1#69)

⊠M - share.safeTransfer(msg.sender,amount) (contracts/Boardroom/ShareWrapper.sol#36)

MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
☑- claimReward() (contracts/Boardroom/Boardroom.sol#234)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
M- super.withdraw(amount) (contracts/Boardroom/Boardroom.sol#235)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
MM- _balances[msg.sender] = memberShare.sub(amount) (contracts/Boardroom/
ShareWrapper.so1#35)
Reentrancy in BebuRewardPool.withdraw(uint256,uint256) (contracts/Reward_pool/
BebuRewardPool.sol#246-264):

⊠External calls:
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```
    SafeBebuTransfer(_sender,_pending) (contracts/Reward_pool/BebuRewardPool.sol#255)

MM - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.so1#69)

⊠⊠- Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/BebuRewardPool.sol#283)

MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/BebuRewardPool.sol#285)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
M- user.amount = user.amount.sub( amount) (contracts/Reward pool/
BebuRewardPool.so1#259)
Reentrancy in BebuRewardPool.withdraw(uint256,uint256) (contracts/Reward_pool/
BebuRewardPool.sol#246-264):

⊠External calls:

MM - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.so1#69)

MMS - Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/BebuRewardPool.sol#283)

MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.so1#119)
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/BebuRewardPool.sol#285)
BebuRewardPool.so1#260)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.so1#119)
M- user.rewardDebt = user.amount.mul(pool.accBebuPerShare).div(1e18) (contracts/
Reward_pool/BebuRewardPool.sol#262)
Reentrancy in StableFarmingRewardPool.withdraw(uint256,uint256) (contracts/Reward_pool/
StableFarmingRewardPool.sol#363-383):

⊠External calls:

☑- safeBebuTransfer(_sender,_pending) (contracts/Reward_pool/
StableFarmingRewardPool.sol#372)

MMS - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.sol#69)

■Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/)
```

StableFarmingRewardPool.sol#394)

```
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#396)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
MExternal calls sending eth:
M- safeBebuTransfer(_sender,_pending) (contracts/Reward_pool/
StableFarmingRewardPool.sol#372)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)

State variables written after the call(s):

M- user.amount = user.amount.sub(_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#377)
Reentrancy in StableFarmingRewardPool.withdraw(uint256,uint256) (contracts/Reward_pool/
StableFarmingRewardPool.sol#363-383):

⊠External calls:

M- safeBebuTransfer(_sender,_pending) (contracts/Reward_pool/
StableFarmingRewardPool.sol#372)

MMS - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.sol#69)

■Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/)

StableFarmingRewardPool.sol#394)
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#396)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
M- pool.token.safeTransfer(_sender,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#378)
oxtimes - safeBebuTransfer(_sender,_pending) (contracts/Reward_pool/
StableFarmingRewardPool.sol#372)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
M- user.TimerStart = block.timestamp (contracts/Reward_pool/
StableFarmingRewardPool.sol#380)
M- user.rewardDebt = user.amount.mul(pool.accBebuPerShare).div(1e18) (contracts/
Reward pool/StableFarmingRewardPool.sol#381)
Reentrancy in StableFarmingRewardPool.withdrawTwoTokens(uint256, uint256) (contracts/
Reward_pool/StableFarmingRewardPool.sol#321-327):
MExternal calls:
M- withdraw(_pool0,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#325)
```

```
⊠Multiply = MMultiply = M
(contracts/utils/token/SafeERC20.so1#69)
MM- Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/
StableFarmingRewardPool.sol#394)
MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#396)
MM- pool.token.safeTransfer(_sender,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#378)

    withdraw(_pool1,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#326)

MM - returndata = address(token).functionCall(data,SafeERC20: low-level call failed)

(contracts/utils/token/SafeERC20.so1#69)
MM- Bebu.safeTransfer(_to,_BebuBal) (contracts/Reward_pool/
StableFarmingRewardPool.sol#394)

MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)
MM- Bebu.safeTransfer(_to,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#396)
MM- pool.token.safeTransfer(_sender,_amount) (contracts/Reward_pool/
StableFarmingRewardPool.sol#378)

    withdraw(_pool0,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#325)

MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)

    withdraw(_pool1,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#326)

MM- (success, returndata) = target.call{value: value}(data) (contracts/utils/
Address.sol#119)

    withdraw(_pool1,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#326)

MM- pool.lastRewardTime = block.timestamp (contracts/Reward_pool/
StableFarmingRewardPool.sol#298)

MM - pool.isStarted = true (contracts/Reward_pool/StableFarmingRewardPool.sol#302)

    □□ - pool.accBebuPerShare = 
pool.accBebuPerShare.add(_BebuReward.mul(1e18).div(tokenSupply)) (contracts/Reward_pool/
StableFarmingRewardPool.sol#308)
\[ \overline \text{\text{W}} - \text{pool.lastRewardTime} = \[ \text{block.timestamp} \] (contracts/Reward_pool/
StableFarmingRewardPool.sol#310)

☑- withdraw(_pool1,amount) (contracts/Reward_pool/StableFarmingRewardPool.sol#326)

MM- totalAllocPoint = totalAllocPoint.add(pool.allocPoint) (contracts/Reward_pool/
StableFarmingRewardPool.sol#303)
```

```
    withdraw( pool1, amount) (contracts/Reward pool/StableFarmingRewardPool.sol#326)

\[ \sqrt{a} \sqr
StableFarmingRewardPool.sol#377)
MM- user.TimerStart = block.timestamp (contracts/Reward pool/
StableFarmingRewardPool.sol#380)
MM- user.rewardDebt = user.amount.mul(pool.accBebuPerShare).div(1e18) (contracts/
Reward_pool/StableFarmingRewardPool.sol#381)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-
vulnerabilities
Bebu.governanceRecoverUnsupported(IERC20,uint256,address) (contracts/TOKEN/BEBU/
Bebu.sol#144-150) ignores return value by _token.transfer(_to,_amount) (contracts/TOKEN/
BEBU/Bebu.so1#149)
BEARETH1X.governanceRecoverUnsupported(IERC20,uint256,address) (contracts/TOKEN/TOKEN/
ETH/BEARETH1X.sol#412-418) ignores return value by _token.transfer(_to,_amount)
(contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol#417)
BULLETH1X.governanceRecoverUnsupported(IERC20,uint256,address) (contracts/TOKEN/TOKEN/
ETH/BULLETH1X.sol#412-418) ignores return value by _token.transfer(_to,_amount)
(contracts/TOKEN/TOKEN/ETH/BULLETH1X.sol#417)
BEARETH1X_Treasury._sendToBoardroom(uint256) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.sol#264-287) ignores return value by
IERC20(token).transfer(daoFund,_daoFundSharedAmount) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.so1#270)
BEARETH1X_Treasury._sendToBoardroom(uint256) (contracts/Treasury/ETH_Treasury/
BEARETH1X Treasury.sol#264-287) ignores return value by
IERC20(token).transfer(devFund,_devFundSharedAmount) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.so1#277)
BULLETH1X_Treasury._sendToBoardroom(uint256) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#264-287) ignores return value by
IERC20(token).transfer(daoFund,_daoFundSharedAmount) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.so1#270)
BULLETH1X_Treasury._sendToBoardroom(uint256) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#264-287) ignores return value by
IERC20(token).transfer(devFund,_devFundSharedAmount) (contracts/Treasury/ETH_Treasury/
BULLETH1X Treasury.sol#277)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unchecked-
transfer
BebuRewardPool.pendingShare(uint256,address) (contracts/Reward_pool/
BebuRewardPool.sol#179-190) performs a multiplication on the result of a division:
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Reward pool/BebuRewardPool.sol#186)
(contracts/Reward_pool/BebuRewardPool.sol#187)
BebuRewardPool.updatePool(uint256) (contracts/Reward pool/BebuRewardPool.sol#201-221)
performs a multiplication on the result of a division:
☑-_BebuReward = _generatedReward.mul(pool.allocPoint).div(totalAllocPoint) (contracts/
Reward_pool/BebuRewardPool.sol#217)

⊠-pool.accBebuPerShare = 
pool.accBebuPerShare.add(_BebuReward.mul(1e18).div(tokenSupply)) (contracts/Reward_pool/
BebuRewardPool.sol#218)
StableFarmingRewardPool.pendingShare(uint256,address) (contracts/Reward_pool/
StableFarmingRewardPool.sol#269-280) performs a multiplication on the result of a
division:
M-_BebuReward = _generatedReward.mul(pool.allocPoint).div(totalAllocPoint) (contracts/
Reward_pool/StableFarmingRewardPool.sol#276)
(contracts/Reward_pool/StableFarmingRewardPool.sol#277)
StableFarmingRewardPool.updatePool(uint256) (contracts/Reward_pool/
StableFarmingRewardPool.sol#291-311) performs a multiplication on the result of a
division:
M-_BebuReward = _generatedReward.mul(pool.allocPoint).div(totalAllocPoint) (contracts/
Reward pool/StableFarmingRewardPool.sol#307)

□-pool.accBebuPerShare = 
pool.accBebuPerShare.add(_BebuReward.mul(1e18).div(tokenSupply)) (contracts/Reward_pool/
StableFarmingRewardPool.sol#308)
BEARETH1X._calculateTax(uint256,uint256,uint256) (contracts/TOKEN/TOKEN/ETH/
BEARETH1X.sol#308-313) performs a multiplication on the result of a division:

☑-tax = amount.mul(numerator).div(denominator).mul(taxCoefficient).div(10000) (contracts/
TOKEN/TOKEN/ETH/BEARETH1X.so1#312)
BEARETH1X._calculateReward(uint256,uint256,uint256) (contracts/TOKEN/TOKEN/ETH/
BEARETH1X.sol#336-341) performs a multiplication on the result of a division:
M-reward = amount.mul(numerator).div(denominator).mul(rewardCoefficient).div(10000)
(contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol#340)
BULLETH1X._calculateTax(uint256,uint256,uint256) (contracts/T0KEN/T0KEN/ETH/
BULLETH1X.sol#308-313) performs a multiplication on the result of a division:
\boxtimes-tax = amount.mul(numerator).div(denominator).mul(taxCoefficient).div(10000) (contracts/
TOKEN/TOKEN/ETH/BULLETH1X.so1#312)
BULLETH1X._calculateReward(uint256,uint256,uint256) (contracts/TOKEN/TOKEN/ETH/
BULLETH1X.sol#336-341) performs a multiplication on the result of a division:
(contracts/TOKEN/TOKEN/ETH/BULLETH1X.so1#340)
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```
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#divide-before-
multiply
BebuRewardPool.updatePool(uint256) (contracts/Reward pool/BebuRewardPool.sol#201-221)
uses a dangerous strict equality:
StableFarmingRewardPool.updatePool(uint256) (contracts/Reward_pool/
StableFarmingRewardPool.sol#291-311) uses a dangerous strict equality:

    \[
    \oldsymbol{\text{S}} - \text{tokenSupply} == 0 (contracts/Reward_pool/StableFarmingRewardPool.sol#297)
    \]

Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dangerous-
strict-equalities
Reentrancy in Boardroom.blacklistFundWithdraw(address,address) (contracts/Boardroom/
Boardroom.so1#270-285):

⊠External calls:

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Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-
vulnerabilities-1
Boardroom.setFee(uint256) (contracts/Boardroom/Boardroom.sol#138-141) contains a
tautology or contradiction:
M- require(bool,string)(_fee >= 0 && _fee <= 10000,out of range) (contracts/Boardroom/</p>
Boardroom.sol#139)
StableFarmingRewardPool.setPeriod(uint256) (contracts/Reward_pool/
StableFarmingRewardPool.sol#125-128) contains a tautology or contradiction:
M- require(bool,string)(_period >= 0 && _period <= 86400,out of range) (contracts/</p>
Reward_pool/StableFarmingRewardPool.sol#126)
StableFarmingRewardPool.setFee(uint256) (contracts/Reward_pool/
StableFarmingRewardPool.sol#136-139) contains a tautology or contradiction:
M- require(bool,string)(_fee >= 0 && _fee <= 10000,out of range) (contracts/Reward_pool/</p>
StableFarmingRewardPool.sol#137)
BEARETH1X.setTaxCoefficient(uint256) (contracts/TOKEN/TOKEN/ETH/BEARETH1X.so1#182-185)
contains a tautology or contradiction:

    \[
    \overline{\text{Bool}, string}\) (_taxCoefficient >= 0 && _taxCoefficient <= 20000, out of range)
</p>
(contracts/TOKEN/TOKEN/ETH/BEARETH1X.so1#183)
BEARETH1X.setRewardCoefficient(uint256) (contracts/TOKEN/TOKEN/ETH/
BEARETH1X.sol#205-208) contains a tautology or contradiction:
M- require(bool,string)(_rewardCoefficient >= 0 && _rewardCoefficient <= 20000,out of</p>
range) (contracts/TOKEN/TOKEN/ETH/BEARETH1X.so1#206)
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BEARETH1X.setTaxThreshold(uint256) (contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol#265-268)
contains a tautology or contradiction:
(contracts/TOKEN/TOKEN/ETH/BEARETH1X.so1#266)
BEARETH1X.setRewardThreshold(uint256) (contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol#270-273)
contains a tautology or contradiction:
range) (contracts/TOKEN/TOKEN/ETH/BEARETH1X.so1#271)
BEARETH1X.setBurnRate(uint256) (contracts/TOKEN/TOKEN/ETH/BEARETH1X.so1#275-278)
contains a tautology or contradiction:
M- require(bool,string)(_burnRate >= 0 && _burnRate <= 10000,out of range) (contracts/</p>
TOKEN/TOKEN/ETH/BEARETH1X.so1#276)
BULLETH1X.setTaxCoefficient(uint256) (contracts/TOKEN/TOKEN/ETH/BULLETH1X.so1#182-185)
contains a tautology or contradiction:
M- require(bool,string)(_taxCoefficient >= 0 && _taxCoefficient <= 20000,out of range)</p>
(contracts/TOKEN/TOKEN/ETH/BULLETH1X.sol#183)
BULLETH1X.setRewardCoefficient(uint256) (contracts/TOKEN/TOKEN/ETH/
BULLETH1X.sol#205-208) contains a tautology or contradiction:
range) (contracts/TOKEN/TOKEN/ETH/BULLETH1X.so1#206)
BULLETH1X.setTaxThreshold(uint256) (contracts/TOKEN/TOKEN/ETH/BULLETH1X.sol#265-268)
contains a tautology or contradiction:
M- require(bool,string)(_TaxThreshold >= 0 && _TaxThreshold <= 10000,out of range)</p>
(contracts/TOKEN/TOKEN/ETH/BULLETH1X.so1#266)
BULLETH1X.setRewardThreshold(uint256) (contracts/TOKEN/TOKEN/ETH/BULLETH1X.sol#270-273)
contains a tautology or contradiction:
☑- require(bool,string)(_RewardThreshold >= 0 && _RewardThreshold <= 10000,out of</p>
range) (contracts/TOKEN/TOKEN/ETH/BULLETH1X.so1#271)
BULLETH1X.setBurnRate(uint256) (contracts/TOKEN/TOKEN/ETH/BULLETH1X.so1#275-278)
contains a tautology or contradiction:
M- require(bool,string)(_burnRate >= 0 && _burnRate <= 10000,out of range) (contracts/</p>
TOKEN/TOKEN/ETH/BULLETH1X.so1#276)
BEARETH1X_Treasury.setPeriod(uint256) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.sol#193-197) contains a tautology or contradiction:
M- require(bool,string)(_period >= 0 && _period <= 172800,_period: out of range)</p>
(contracts/Treasury/ETH_Treasury/BEARETH1X_Treasury.sol#194)
BEARETH1X Treasury.setSupplyTiersEntry(uint8,uint256) (contracts/Treasury/ETH Treasury/
BEARETH1X_Treasury.sol#232-243) contains a tautology or contradiction:

☑- require(bool,string)(_index >= 0,Index has to be higher than 0) (contracts/Treasury/
ETH_Treasury/BEARETH1X_Treasury.so1#233)
BEARETH1X_Treasury.setMaxExpansionTiersEntry(uint8,uint256) (contracts/Treasury/
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ETH_Treasury/BEARETH1X_Treasury.sol#245-251) contains a tautology or contradiction:
M- require(bool,string)(_index >= 0,Index has to be higher than 0) (contracts/Treasury/
ETH_Treasury/BEARETH1X_Treasury.sol#246)
BEARETH1X Treasury. calculateMaxSupplyExpansionPercent(uint256) (contracts/Treasury/
ETH_Treasury/BEARETH1X_Treasury.sol#320-328) contains a tautology or contradiction:
M- tierId >= 0 (contracts/Treasury/ETH_Treasury/BEARETH1X_Treasury.sol#321)
BULLETH1X_Treasury.setPeriod(uint256) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#193-197) contains a tautology or contradiction:
M- require(bool,string)(_period >= 0 && _period <= 172800,_period: out of range)</p>
(contracts/Treasury/ETH_Treasury/BULLETH1X_Treasury.sol#194)
BULLETH1X_Treasury.setSupplyTiersEntry(uint8,uint256) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#232-243) contains a tautology or contradiction:
M- require(bool,string)( index >= 0,Index has to be higher than 0) (contracts/Treasury/
ETH_Treasury/BULLETH1X_Treasury.so1#233)
BULLETH1X_Treasury.setMaxExpansionTiersEntry(uint8,uint256) (contracts/Treasury/
ETH_Treasury/BULLETH1X_Treasury.sol#245-251) contains a tautology or contradiction:
oxtimes- require(bool,string)(\_index >= 0,Index has to be higher than 0) (contracts/Treasury/
ETH_Treasury/BULLETH1X_Treasury.sol#246)
BULLETH1X_Treasury._calculateMaxSupplyExpansionPercent(uint256) (contracts/Treasury/
ETH_Treasury/BULLETH1X_Treasury.sol#314-322) contains a tautology or contradiction:
M- tierId >= 0 (contracts/Treasury/ETH_Treasury/BULLETH1X_Treasury.sol#315)
Epoch.setPeriod(uint256) (contracts/utils/access/Epoch.sol#78-81) contains a tautology
or contradiction:
M- require(bool,string)(_period >= 0 && _period <= 172800,_period: out of range)</p>
(contracts/utils/access/Epoch.sol#79)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#tautology-or-
contradiction
BEARETH1X._gettokenPrice()._price (contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol#213) is a
local variable never initialized
BEARETH1X._getTokenTwapPrice()._price (contracts/TOKEN/TOKEN/ETH/BEARETH1X.so1#221) is
a local variable never initialized
BULLETH1X._gettokenPrice()._price (contracts/TOKEN/TOKEN/ETH/BULLETH1X.sol#213) is a
local variable never initialized
FixedPoint.mul(FixedPoint.uq112x112,uint256).z (contracts/utils/math/FixedPoint.sol#44)
is a local variable never initialized
BULLETH1X._getTokenTwapPrice()._price (contracts/TOKEN/TOKEN/ETH/BULLETH1X.so1#221) is
a local variable never initialized
UniswapV2Library.getAmountsOut(address,uint256,address[]).i (contracts/utils/library/
UniswapV2Library.sol#72) is a local variable never initialized
BEARETH1X_Treasury.getTokenUpdatedPrice().price (contracts/Treasury/ETH_Treasury/
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BEARETH1X Treasury.sol#151) is a local variable never initialized
BEARETH1X_Treasury.getTokenPrice().price (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.sol#143) is a local variable never initialized
BULLETH1X Treasury.getTokenUpdatedPrice().price (contracts/Treasury/ETH Treasury/
BULLETH1X_Treasury.sol#151) is a local variable never initialized
BULLETH1X_Treasury.getTokenPrice().price (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#143) is a local variable never initialized
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#uninitialized-
local-variables
BEARETH1X._gettokenPrice() (contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol#212-218) ignores
return value by IOracle(tokenOracle).consult(address(this),1e18) (contracts/TOKEN/TOKEN/
ETH/BEARETH1X.so1#213-217)
BEARETH1X. getTokenTwapPrice() (contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol#220-226)
ignores return value by IOracle(tokenOracle).twap(address(this),1e18) (contracts/TOKEN/
TOKEN/ETH/BEARETH1X.so1#221-225)
BEARETH1X.isPair(address) (contracts/TOKEN/TOKEN/ETH/BEARETH1X.sol#86-105) ignores
return value by IUniswapV2Router01(_recipient).factory() (contracts/TOKEN/TOKEN/ETH/
BEARETH1X.so1#95-99)
BULLETH1X._gettokenPrice() (contracts/TOKEN/TOKEN/ETH/BULLETH1X.sol#212-218) ignores
return value by IOracle(tokenOracle).consult(address(this),1e18) (contracts/TOKEN/TOKEN/
ETH/BULLETH1X.so1#213-217)
BULLETH1X._getTokenTwapPrice() (contracts/TOKEN/TOKEN/ETH/BULLETH1X.so1#220-226)
ignores return value by IOracle(tokenOracle).twap(address(this),1e18) (contracts/TOKEN/
TOKEN/ETH/BULLETH1X.so1#221-225)
BULLETH1X.isPair(address) (contracts/TOKEN/TOKEN/ETH/BULLETH1X.sol#86-105) ignores
return value by IUniswapV2Router01(_recipient).factory() (contracts/TOKEN/TOKEN/ETH/
BULLETH1X.so1#95-99)
BEARETH1X_Treasury.getTokenPrice() (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.sol#142-148) ignores return value by
IOracle(tokenOracle).consult(token,1e18) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.sol#143-147)
BEARETH1X_Treasury.getTokenUpdatedPrice() (contracts/Treasury/ETH_Treasury/
BEARETH1X Treasury sol#150-157) ignores return value by
IOracle(tokenOracle).twap(token,1e18) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.sol#151-155)
BEARETH1X_Treasury._sendToBoardroom(uint256) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.sol#264-287) ignores return value by
IBasisAsset(token).mint(address(this),_amount) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.so1#265)
BEARETH1X_Treasury.boardroomAddAddressBlacklist(address) (contracts/Treasury/
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ETH Treasury/BEARETH1X Treasury.sol#364-366) ignores return value by
IBoardroom(boardroom).addAddressBlacklist(_address) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.so1#365)
BEARETH1X Treasury.boardroomRemoveAddressBlacklist(address) (contracts/Treasury/
ETH_Treasury/BEARETH1X_Treasury.sol#368-370) ignores return value by
IBoardroom(boardroom).removeAddressBlacklist(_address) (contracts/Treasury/ETH_Treasury/
BEARETH1X_Treasury.so1#369)
BULLETH1X_Treasury.getTokenPrice() (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#142-148) ignores return value by
IOracle(tokenOracle).consult(token,1e18) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#143-147)
BULLETH1X_Treasury.getTokenUpdatedPrice() (contracts/Treasury/ETH_Treasury/
BULLETH1X Treasury.sol#150-157) ignores return value by
IOracle(tokenOracle).twap(token,1e18) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#151-155)
BULLETH1X_Treasury._sendToBoardroom(uint256) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#264-287) ignores return value by
IBasisAsset(token).mint(address(this),_amount) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.so1#265)
BULLETH1X_Treasury.boardroomAddAddressBlacklist(address) (contracts/Treasury/
ETH_Treasury/BULLETH1X_Treasury.sol#362-364) ignores return value by
IBoardroom(boardroom).addAddressBlacklist(_address) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.so1#363)
BULLETH1X_Treasury.boardroomRemoveAddressBlacklist(address) (contracts/Treasury/
ETH Treasury/BULLETH1X Treasury.sol#366-368) ignores return value by
IBoardroom(boardroom).removeAddressBlacklist(_address) (contracts/Treasury/ETH_Treasury/
BULLETH1X_Treasury.sol#367)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-return
```

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