



Smart contracts security assessment

Final report

[Tariff: Standard](#)

Champion Finance BVIC

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Introduction

The report has been prepared for Champion Finance.

The Champion Finance Protocol allows users to farm BVICTokens. The BVICToken is a rebase token. The BVICToken owner (taxOffice) can set a fee on token trading or set a limit on the amount of the sale of the token.

Contracts BVICTreasury and BVICBoardroom allow keeping a stable price of the BVICToken using rebase mechanism.

The code is available at the GitHub [repository](#) and was audited after the commit [6d309c479c474582a0dff378d34dce318dc69882](#).

Report Update.

The contract's code was updated according to this report and rechecked after the commit [b121ac0ea90d9dd762710bf1846e9a8dc3949c89](#).

Only 3 contracts with their dependencies were audited: BVICToken, BVICBoardroom, BVICTreasury, BVICGenesis.

Name	Champion Finance BVIC
Audit date	2022-09-27 - 2022-09-29
Language	Solidity
Platform	Avalanche Network

Contracts checked

Name	Address
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BVICToken	
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BVICBoardroom	
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BVICTreasury

BVICGenesis

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
<u>Unencrypted Private Data On-Chain</u>	passed
<u>Code With No Effects</u>	passed
<u>Message call with hardcoded gas amount</u>	passed
<u>Typographical Error</u>	passed
<u>DoS With Block Gas Limit</u>	passed
<u>Presence of unused variables</u>	passed
<u>Incorrect Inheritance Order</u>	passed
<u>Requirement Violation</u>	passed

<u>Weak Sources of Randomness from Chain Attributes</u>	passed
<u>Shadowing State Variables</u>	passed
<u>Incorrect Constructor Name</u>	passed
<u>Block values as a proxy for time</u>	passed
<u>Authorization through tx.origin</u>	passed
<u>DoS with Failed Call</u>	passed
<u>Delegatecall to Untrusted Callee</u>	passed
<u>Use of Deprecated Solidity Functions</u>	passed
<u>Assert Violation</u>	passed
<u>State Variable Default Visibility</u>	passed
<u>Reentrancy</u>	passed
<u>Unprotected SELFDESTRUCT Instruction</u>	passed
<u>Unprotected Ether Withdrawal</u>	passed
<u>Unchecked Call Return Value</u>	passed
<u>FloatingPragma</u>	passed
<u>Outdated Compiler Version</u>	passed
<u>Integer Overflow and Underflow</u>	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

No issues were found

Low severity issues

1. Gas optimization (BVICToken)

Status: Open

1. The visibility of the `setMarketLpPairs()` function can be changed to external to save gas.
2. The `require` check on L328 is redundant because there is no way to set `polWallet` to zero-address.

2. Incorrect comments (BVICTreasury)

Status: Fixed

There are incorrect comments with `'WETH'` token symbol on L188, L189, L415, L416.

3. Payouts to funds 100% rewards (BVICTreasury)

Status: Open

The contract operator can set a 50% reward amount for each fund: `daoFundSharedPercent` and

polFundSharedPercent (in total 100%). This means that all rewards will go to these funds. And there will be nothing left for all boardroom contracts.

```
function _expansionBoardroom(uint256 _tokenPrice) internal {  
    ...  
    uint256 _daoFundReward =  
boardroomReward.mul(daoFundSharedPercent).div(100);  
    uint256 _polReward = boardroomReward.mul(polFundSharedPercent).div(100);  
    uint256 _boardroomReward =  
boardroomReward.sub(_daoFundReward).sub(_polReward);  
  
    daoFundReward = daoFundReward.add(_daoFundReward);  
    polReward = polReward.add(_polReward);  
  
    mainTokenErc20.mint(address(this), _boardroomReward);  
    IERC20(mainToken).safeApprove(boardroomAddress, 0);  
    IERC20(mainToken).safeApprove(boardroomAddress, _boardroomReward);  
    boardroom.allocateSeigniorage(_boardroomReward);  
    ...  
}
```

Recommendation: Consider lowering the total payment to the funds.

Conclusion

Champion Finance BVIC BVICToken, BVICBoardroom, BVICTreasury, BVICGenesis contracts were audited. 3 low severity issues were found.

1 low severity issue has been fixed in the update.

According to this report 1 low issue was fixed by the Champion Finance team.

We strongly recommend writing unit tests to have extensive coverage of the codebase minimize the possibility of bugs and ensure that everything works as expected.

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