

Avantgarde Finance Ltd.

London

Independent Limited Assurance Report
on the smart contract code in its version as per
January 11th, 2021

to the Management

Independent Limited Assurance Report

on smart contract code in its version as per January 11th, 2021 to the Management of Avantgarde Finance Ltd.

London - United Kingdom

We have been engaged by the Management of Avantgarde Finance Ltd. ("Avantgarde") to perform assurance procedures to provide limited assurance on the smart contract code in its version as per January 11th, 2021 of Avantgarde implemented in accordance with Avantgarde's functional specification. Not subject to our engagement were all other aspects related to the smart contracts code other than the code itself.

Avantgarde Finance Ltd is providing smart contract development services. The smart contracts, which are in scope of this engagement, implement a fund management platform on an Ethereum blockchain. The smart contract code was implemented in the responsibility of the Management of Avantgarde based on Avantgarde's functional specification (the "suitable Criteria").

Inherent limitations

Security assessments cannot uncover all existing vulnerabilities; even an assessment, in which no vulnerabilities are found, is not a guarantee of a secure smart contract. However, code reviews enable discovery of vulnerabilities that were overlooked during development and areas, where additional security measures are necessary. In most cases, applications are either fully protected against a certain type of attack or they are completely unprotected against it. Some of the issues may affect the entire smart contract application, while some lack protection only in certain areas. This is why we carried out a source code review aimed at determining all locations that need to be fixed. Within the customer-determined timeframe, PwC has performed a review in order to discover as many vulnerabilities as possible.

The focus of our assessment was limited to the smart contract code on whether it is used in accordance with its specifications by the user meeting the suitable Criteria predefined in the specification. We draw attention to the fact that due to inherent limitations in any software development process and software product an inherent risk exists that even major failures or malfunctions can remain undetected. Further, uncertainties exist in any software product or application used during the development, which itself cannot be free from any error or failures. These preconditions can have an impact on the smart contract code and/or functions and/or operation. We did not assess the underlying blockchain infrastructure, which adds further inherent risks as we rely on the correct execution of the smart contract by the blockchain itself. Report readers should also take into account the facts that over the life cycle of any software product, changes to the product itself or to its environment, in which it is operated, can have an impact leading to operational behaviours other than initially determined in the functional specification.

As part of our limited assurance engagement, we did not check the completeness, accuracy and correctness of the machine code generated by the used compiler. Any unintended or incorrect behaviour of the compiler can negatively affect the security, correctness and access management of the smart contract functionality.

Avantgarde's responsibility

Avantgarde is responsible for setting up the functional specification and implementing the smart contract code in its version as per January 11th, 2021 in accordance with Avantgarde's functional specification on its Ethereum blockchain environment. This responsibility includes the design, implementation and maintenance of the internal control system related to the life cycle of the smart contract code in its version as per January 11th, 2021 that are free from material misstatement, whether due to fraud or error. Furthermore, Avantgarde is responsible for the selection and application of the fundamentals for Avantgarde's functional specification and adequate record keeping.

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PricewaterhouseCoopers AG is a member of the global PricewaterhouseCoopers network of firms, each of which is a separate and independent legal entity.

Independence and quality control

We are independent of Avantgarde in accordance with the International Code of Ethics for Professional Accountants (including International Independence Standards) issued by the International Ethics Standards Board for Accountants (IESBA Code). We have fulfilled our other ethical responsibilities in accordance with the IESBA Code, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

PricewaterhouseCoopers AG applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Practitioner's responsibility

Our responsibility is to perform an assurance engagement and to express a conclusion on the smart contract code in its version as per January 11th, 2021. Not subject to our engagement were all other aspects related to the smart contracts code other than the code itself as well as the software compilation process and related controls. We conducted our engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised) 'Assurance engagements other than audits or reviews of historical financial information'. Those standards require that we plan and perform our procedures to obtain limited assurance whether the Smart Contract Code is faithfully written, in all material aspects, in accordance with Avantgarde's functional specification as per January 11th, 2021.

Based on risk and materiality considerations, we performed our procedures to obtain sufficient and appropriate assurance evidence. The procedures selected depend on the assurance practitioner's judgement. A limited assurance engagement under ISAE 3000 (Revised) is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks. Consequently, the nature, timing and extent of procedures for gathering sufficient appropriate evidence are deliberately limited relative to a reasonable assurance engagement and therefore less assurance is obtained with a limited assurance engagement than for a reasonable assurance engagement.

We verified whether the code adheres to the functional specification provided by Avantgarde.

Further details are provided in the Appendix III – Smart Contract Code Assessment (Technical Report). Both the functional specification, which corresponds to the suitable Criteria, and the smart contract code, which corresponds to the subject matter, are included as Appendix I and II, respectively.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Conclusion

Based on the work we performed, nothing has come to our attention that would cause us to believe that the smart contract code in its version as per January 11th, 2021 of Avantgarde is not faithfully implemented, in all material respects, in accordance with Avantgarde's functional specification as set by Avantgarde's Management.

Intended users and purpose of the report

This report is prepared for, and only for, the Management of Avantgarde, and solely for the purpose as described in the preceding paragraphs and no other purpose. We do not, in giving our conclusion, accept or assume responsibility (legal or otherwise) or accept liability for, or in connection with, any other purpose for which our report including the conclusion may be used, or to any other person to whom our report is shown or into whose hands it may come, and no other persons shall be entitled to rely on our conclusion.

We permit the disclosure of our report, in full only, and in combination with the suitable Criteria, to enable the Management to demonstrate their accountability by commissioning an independent assurance report over smart contract code in relation with the suitable Criteria, without assuming or accepting any responsibility or liability to any third parties on our part. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Management of Avantgarde for our work or this report.

PricewaterhouseCoopers AG

Ralf Hofstetter

Andreas Eschbach

Zurich, 19 January 2021

Enclosures:

- Appendix I – Functional specification as provided by Avantgarde
- Appendix II – Smart Contract Code as provided by Avantgarde
- Appendix III – Smart Contract Code Assessment (Technical Report)

Appendix I – Functional specification as provided by Avantgarde

Please refer to the file “audit-docs.pdf” of the specification provided to us by Avantgarde. This file must be made accessible to the reader of this report. The file is included in our reporting package.

The file hash of the “audit-docs.pdf” file is

cd0a5d9b65cd885bb972d6722125571d27a5a4c3395d1cc36f6f55ab5d070c48

The file hash was generated using the sha256 algorithm on an OS X operating system using the following command:
“shasum -p -a 256 audit-docs.pdf”

Appendix II – Smart Contract Code as provided by Avantgarde

Please refer to the file “avantgardefinance_protocol_code-c91d25afe23286704f446d6e52ac2f1d92243607.zip” of the source code provided to us by Avantgarde. This file must be made accessible to the reader of this report. The file is included in our reporting package.

The file hash of the zip file “avantgardefinance_protocol_code-c91d25afe23286704f446d6e52ac2f1d92243607.zip” is 6795fcc7cbe02f30e8f42b278a41ba5668a02dc05c1422c209ad50f7ffd57cec

The file hash was generated using the sha256 algorithm on an OS X operating system using the following command: “shasum -p -a 256 avantgardefinance_protocol_code-c91d25afe23286704f446d6e52ac2f1d92243607.zip”

Appendix III – Smart Contract Code Assessment (Technical Report)

Please refer to the file “report.pdf” for the detailed technical report of the smart contract code assessment. This file can be made accessible to the reader of this report by Avantgarde. The file is included in our reporting package.

The file hash of the zip file “report.pdf” is b5beafce84fed14c25b2047e3190b1a5e773170844bb922df5a5f8ef190592d6

The file hash was generated using the sha256 algorithm on an OS X operating system using the following command:
“shasum -p -a 256 report.pdf”