



## Rules of the Quant Invest 2.0

### AI in ESG Investing

#### 1. Introduction

This document contains information and rules of the Quant Invest: AI in ESG Investing quantitative competition, organized by QuantFin - the Quantitative Finance Professional Development Foundation and CFA Society Poland.

#### 2. Basic information

AI in ESG Investing is a competition organized by QuantFin - the Quantitative Finance Professional Development Foundation and CFA Society Poland. The participating teams are made up of undergraduate and / or graduate students.

#### 3. The task

The teams' task is to create an ESG index based on financial, non-financial and alternative data and to evaluate the effectiveness of using ESG criteria in the investment process. The assessment covers, *inter alia*, innovativeness of the data and methods used (application of numerical methods and machine learning), their adaptability and the possibility of using them in the capital allocation process.

The competition consists of **two** phases::

- In **Phase I**, after approval of the team's registration in the competition, the task is to develop and describe a set of at least 3 variables relating to the ESG criterion based on financial and non-financial (alternative) data. The report with the description should have 2 A4 pages at most (extended abstract) and should be prepared in accordance with the template developed by the competition organizers.

The evaluation committee then evaluates the teams based on the submitted application forms and reports, and selects up to 6 best reports that will be promoted to Phase II.

- In **Phase II**, the selected teams work on developing the models from Phase I. Based on the proposed variables, they build quantitative models (based on numerical and ML methods) and evaluate the results of the investment portfolio built on the basis of selected ESG criteria. The report with the solution should consist of no more than 6 A4 pages, drawn up in accordance with the prepared template.

During each phase of the competition, the team must prepare a report in the form of a publication containing the solution to the competition task, which should have practical and significant application in the investment industry, as well as in the academic environment. The report should consist of:

1. description of data and variables that were used in the process of building the indicator and to assess the effectiveness of using ESG criteria in the investment process;

2. description of the methods used - the methodology of building the indicator should be based on measurable and objective criteria;
3. numerical results;
4. technical documentation - references, data, code, etc.

- **Finale**

The six finalists will present their solutions during the final meeting organized by QuantFin and CFA Society Poland.

### Schedule

Phase	Stage	From	Till
kick-off	The official start of the competition	19.01.2021	
I	Registration	19.01.2021	11.03.2021
	Preparation and sending of the report	12.03.2021	06.04.2021
	Assessment	06.04.2021	15.04.2021
	Phase I results announcement	15.04.2021	
II	Announcement / handing over of the 2nd task	16.04.2021	
	Preparation and sending of the report	16.04.2021	14.05.2021
	Assessment	14.05.2021	24.05.2021
	Phase II results announcement - 6 finalists selected	24.05.2021	
Finale	Presentations and award ceremony	07.06. 2021	

### 1. Detailed information

#### Teams

Each team should be composed of no more than 4 students, regardless of whether they're from the same or different universities. All of them have to be bachelor's or master's degree students. In addition, each team can optionally have one academic mentor, which should be chosen by the students (in special cases, the academic mentor may be chosen by the organizers).

A team may make changes in their team composition only during phases I and II of the competition.

#### Team registration

Each team has to:

1. register until 11.03.2021 at office@cfa.com.pl and, if qualifying for the competition, send a task solution report by day 06.04.2021;
2. accept the terms and conditions of participating in the competition, including the personal data processing clause; a document will be sent by organizers after registration.

#### Limitations

A person may not take part in the tournament if:

1. they are employed by the Organizer/Partner;

2. there exists another potential conflict of interests between the team member and the Organizer or a Partner.

### **Academic mentor**

Each (optional) academic mentor:

1. has to be currently employed by a college/university;
2. may help the team through providing tips, suggestions or comments through every phase of the competition;
3. may not work directly or indirectly on the report, except as provided under b);
4. may not devote more than 6 hours to the team throughout the competition.

During Phase II of the competition, each team will be assigned a mentor, who will support the research process of the team. The mentor may not devote more than 6 hours to the team.

### **Phases of the competition**

The competition is divided into the two following phases:

1. Phase I – registration; solution of a shortened version of the competition task;
2. Phase II – a maximum of 6 chosen teams works on an extended version of the competition task;
3. The Finale – 6 best teams will have a chance to present the results of their written reports during the finale event.

### **Competition tasks**

#### *Phase I*

In Phase I, after accepting the competition registration of a team, the task is to develop and describe a set of at least 3 variables relating to the ESG criterion based on financial and non-financial (alternative) data.

Conditions:

1. The data and indicator that are the result of the project relate to the ESG components: environment, social responsibility and corporate governance;
2. The uniqueness of the data sets and the proposed approach to the analyses used in the task will be particularly important in the evaluation process;
3. The solution should be adapted to the analytical process.

The report along with the description should be no longer than 2 A4 pages (extended abstract) and should be prepared in accordance with the template provided by the competition organizers. The evaluation committee will then evaluate the teams on the basis of the application forms and reports submitted, and will subsequently choose 6-8 best teams which will go through to Phase II.

#### *Phase II*

In Phase II, the promoted teams will further develop an extended solution of the task from Phase I – on the basis of the proposed variables, they will build quantitative models (based on numerical methods and ML) and evaluate the results of the investment portfolio built on the basis of ESG criteria.

The final report containing the solution should be no longer than 6 A4 pages prepared in accordance with the template provided. The Phase II task may be further clarified before the

beginning of Phase II. The evaluation committee will then evaluate the teams on the basis of the Phase II reports and will subsequently choose 6 best teams that will have a chance to present their solutions.

The solution of the Phase I and Phase II task should be written in the form of a report that must meet the requirements set out in the Written Reports section.

## The Final

During The Final, the best 6 teams present their solutions to the evaluation committee. A presentation should consist of a maximum 7 slides and last up to 5 minutes. After the presentation session there will be time for Q&A session (which should last 5 minutes).

## Written reports

In the first and second stage of the competition, each team shall prepare a written report in the form of a publication, which must meet the following requirements:

1. The report shall consist of
  - a. title page containing the name of a team and a brief summary of a solution;
  - b. solution of a task, which should not exceed 2 A4 pages in Stage I and 6 A4 pages in Stage II. A solution shall consist of:
    - i. description of data and variables that were used in an indicator building process and a process of evaluation the effectiveness of using ESG criteria in the investment procedure;
    - ii. description of methods used - a methodology of building an indicator should be constructed on a basis of measurable and objective criteria;
    - iii. numerical results.
  - c. technical documentation in a form of attachments.
2. The report shall be:
  - a. written in English;
  - b. written by team members under the sole supervision of a tutor (a tutor function is optional). In Stage II of the competition each team will be assigned a business mentor.
  - c. it is recommended for groups to use actual existing researches, however all the analyses / models shall be groups' own work. The analyses / models shall not be copied. The materials used should be cited by using commonly established rules of citation;
  - d. based only on a publicly available data and information;
  - e. sent by the date specified on the competition website;
  - f. prepared from the perspective of an independent market analyst.

Written reports will be evaluated by an evaluation committee according to established criteria.

Participants of this competition allow both the Partner and the Organisers to use and further develop the subject of the competition established in works without obtaining further approvals. The choice of tools and methods of task realisation are up to the participants of the competition. Neither the Organisers nor the Partner provide the tools to accomplish the tasks.

## The results

Each team will be informed about the results via email. The decision made by the evaluation committee binds and is not a subject to appeal.

Teams qualified for Stage II and the Final of the competition are required to provide information about this fact on chosen social media.

## **Supplement**

### **Assessment criteria**

Competition works will be assessed in the following three categories:

Goal accomplishment - weight: 0.4 - Does a report contain a solution of the task and how good is this solution?

Innovative character - weight: 0.4 - Is a solution based on novel techniques? Is it innovative? In this competition innovative character shall be defined as an adoption of mathematical methods and machine learning;

Report quality - weight: 0.2 - Is a report clear and logical? Is a solution to the task described in an understandable way? Does a report refer to scientific research? Are these researches properly cited in the text and do the authors use the appropriate format while creating the visualisation?

The work may score from 0 up to 10 points in every category. A weighted sum of the scores in every category will be the team's final grade.

In the case of the best 6 teams presenting their solution during the Final, additional 2 points will be awarded after the presentation.