Portfolio Management Assessment Measures

This section presents the 14 measures that have been used to evaluate portfolio management in recent editions of the simulation[1]. Presenting these measures in this guide is not, however, an obligation for the simulation jury to apply them again in the evaluation of the portfolio management of the participants in the 2019 edition of the simulation..

1. Realism of the investor's situation

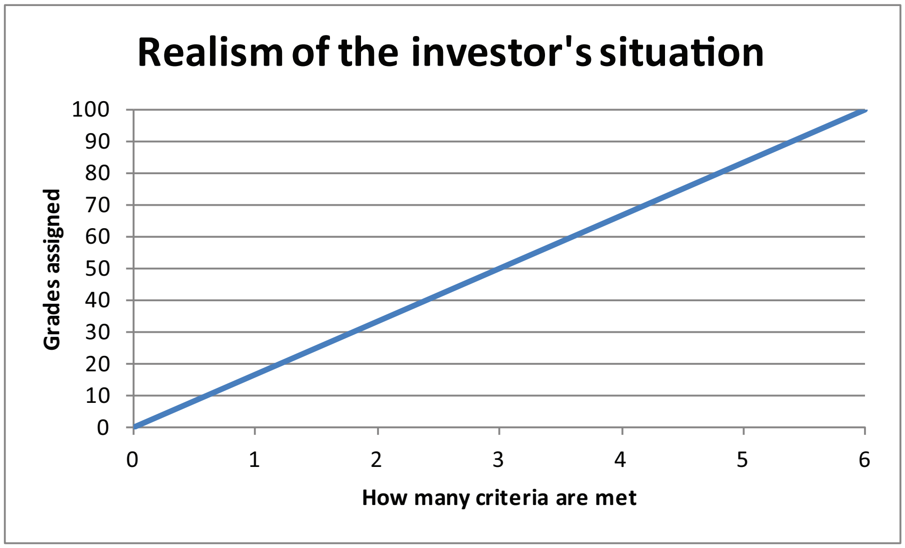
The six criteria used to measure this characteristic were as follows:

- The investor has net assets (total assets less debts) between $ 300,000 and $ 1,000,000
- Debts / Income ratio is less than 3
- The investor is between 25 and 65 years old
- The target return as dividends is less than 7%
- The target return as capital gains is greater than 4%
- The investor's sensitivity to the concepts of responsible investment reaches the minimum score of 3 on a scale of 1 to 5

The participant obtained 16.7% for each criterion met. Figure 1 illustrates the ratings assigned for this measure according to the number of criteria met.

[1] To facilitate the understanding of the text, dates have generally been modified to bring them in line with the 2019 deadline.

FIGURE 1 REALISM OF THE INVESTOR'S SITUATION - GRADES ASSIGNED



2. Coherence between the investor profile and their risk sensitivity

Participants concluded the definition of their fictitious investor by indicating their investor profile: cautious, speculative or half-way between the two.

First, we examined the position of the fictitious investor on ten risk-sensitivity factors for investing:

- Presence of children in the household
- Job security less than 3 on a scale of 1 to 5
- Risk tolerance below 3 on a scale of 1 to 5
- Net assets less than $ 300,000
- Age under 30 or over 60
- Debts / Income ratio is greater than 1.5
- Financial investing experience lower than 3 on a 1 to 5 scale
- Investment knowledge of less than 3 on a scale of 1 to 5
- Annual income less than or equal to $ 90,000
- Debt ratio greater than or equal to 40% (Debts / Total assets)

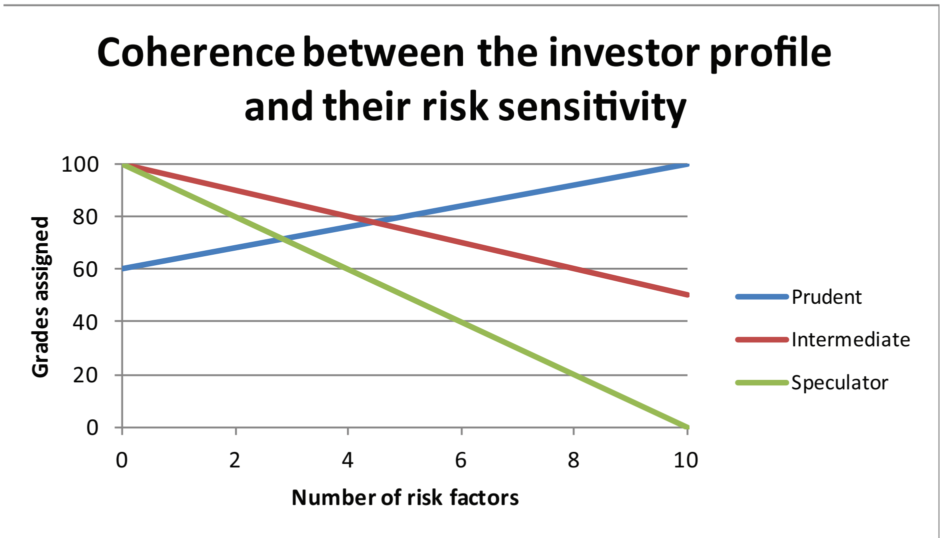
For a conservative investor, the rating assigned was 60 *plus* 4 points for each factor present.

For an investor half way between conservative and speculator, the score was 100 *minus* 5 points for each factor present.

For a speculator, the score was 100 *minus* 10 points for each factor present.

Figure 2 illustrates the allocation of ratings for each type of investor profile.

FIGURE 2 COHERENCE BETWEEN THE INVESTOR PROFILE AND THEIR RISK SENSITIVITY - GRADES ASSIGNED



3. Coherence between sector weights in the strategy in effect on February 24th and the investor profile

In setting out their basic management strategy, participants were asked using weights totaling 100 how they would allocate their funds across seven sectors. The different sectors between which managers had to allocate their funds are as follows :

- Liquid assets (1)
- Bonds (2)
- Utilities (3)
- Financial services (4)
- Consumer products (5)
- Industrial products (6)
- Natural resources (7)

The order in which these sectors are presented in the above enumeration generally corresponds to the increase in the level of risk, with the least risky sectors being liquidity, bonds and the utilities sector and the riskier ones, those of products industrial and natural resources.

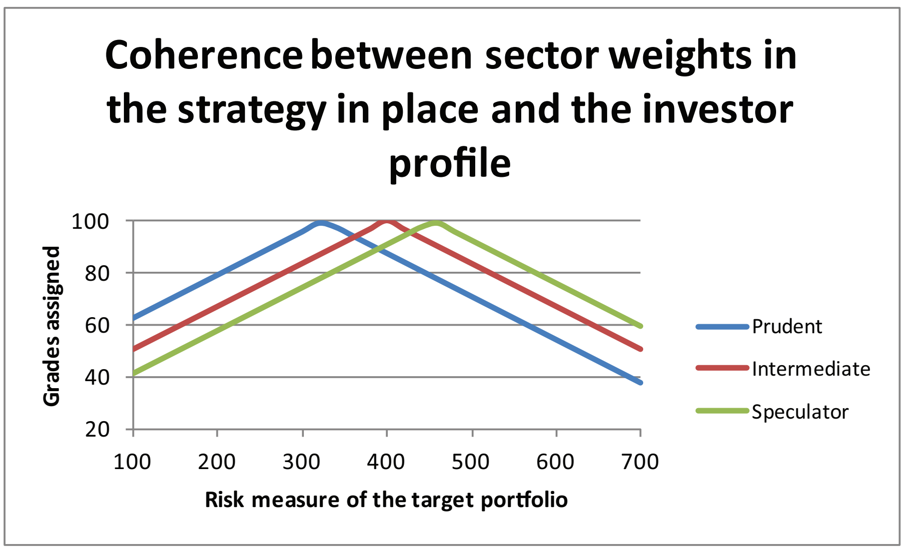
A risk index for the projected portfolio was constructed by summing the weights *multiplied by* the risk rating of the sector. This index takes values between 100 for very low risk and 700 for very high risk.

The attribution of the grade is done using 4 parameters:

- the target index for a conservative investor: 325
- the target index for an investor half way between conservative and speculator: 400
- the target index for a speculator: 455
- the penalty per score point of difference from the target: 0.165%

Figure 3 illustrates the ratings assigned according to the risk profile and the risk index corresponding to the portfolio described in the current strategy.

FIGURE 3 COHERENCE BETWEEN PORTFOLIO WEIGHTS AND INVESTOR PROFILE



4. Coherence between sector weights in the strategy in place on March 24th and the investor profile

This measure was calculated in the same way as the previous measurement. Two measures were calculated to take into account that after defining a first strategy by the February 24 deadline, participants could define a new strategy between February 25 and March 24. This opportunity has been offered because it has often been found in the past that after a few weeks of simulation, some participants changed their management style to incorporate learning from the first few weeks.

5. Coefficient of learning index at the beginning of the simulation

Until February 24, participants had the opportunity to describe the learning objectives they wanted to achieve by participating in the simulation. They also had to specify, in each case, the taxonomic level of the objective:

- Remembering (1)
- Comprehending (2)
- Applying (3)
- Analyzing (4)
- Synthesizing (5)

Note that it was checked whether the participant had actually entered a text in the entry field inviting him to describe the objective, but that the content of the texts as such was not analyzed. However, a summary analysis showed that, overall, the objectives corresponded well to the taxonomic levels indicated.

6. Estimation of learning realized during the simulation

This calculation was done with an approach similar to that of the previous measure except that the added value was 5 and not 3. In addition, it was verified whether texts had been entered both in the area allowing to describe the objective and in that to describe the learning achieved (text of 10 characters or more).

7. Financial performance considering the investor profile

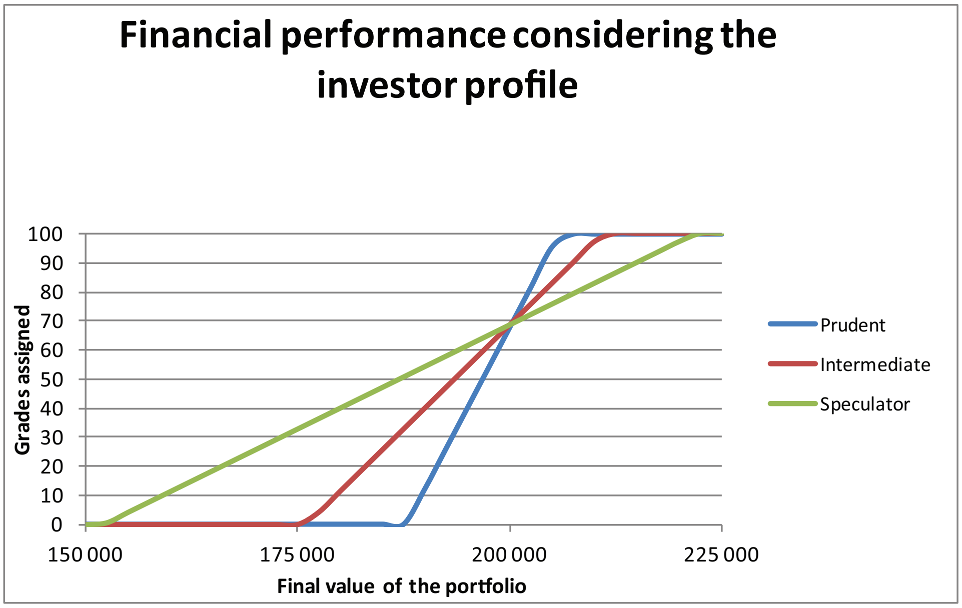
This measure reflects an evaluation criterion that has been used in recent years by juries charged with awarding prizes for portfolio management. It aims to verify whether the financial performance achieved is in line with the investor's profile.

The attribution of the grade is done using 6 parameters:

- portfolio value at the 40% threshold for a conservative investor: $ 195,000
- portfolio value at the 40% threshold for a midway investor: $ 190,000
- portfolio value at the 40% threshold for an aggressive investor: $ 180,000
- Premium / penalty per $ 100 for a conservative investor: 0.556%
- Premium / penalty per $ 100 for a midway investor: 0.286%
- Premium / penalty per $ 100 for an aggressive investor: 0.143%

Figure 4 shows the ratings given for financial performance by investor profile.

FIGURE 4 FINANCIAL PERFORMANCE RELATED TO THE INVESTOR PROFILE - GRADES ASSIGNED



8. Average liquid balance maintained during simulation

For each participant, the average cash balance was calculated over the days between the beginning and the end of the simulation. This is actually the calculation of the average cash balance for the duration of the simulation.

The attribution of the grade is done using 4 parameters:

- exemption for which no penalty is applied: $ 5,000
- liquid balance threshold for which the A penalty is applied: $ 25,000
- penalty A per $ 5,000: 5%
- penalty B per $ 5,000, which applies beyond the penalty threshold A: 7.5%

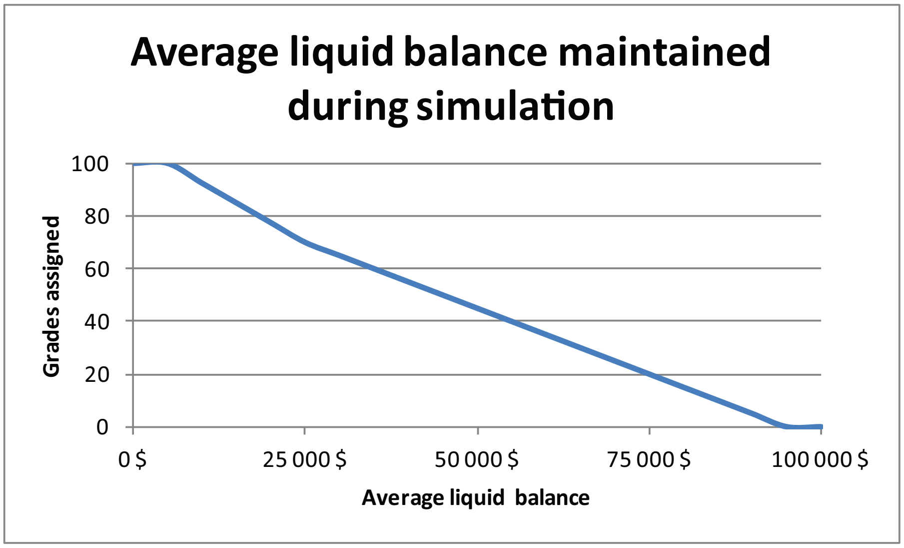
Figure 5 shows the ratings given for financial performance by investor profile.

9. Compatibility of additional justifications with the fundamental / technical profile

In defining their investment strategy, participants were asked if they intended to use the following technical analysis methods:

- Determination of highs and lows (-1)

FIGURE 5 AVERAGE CASH BALANCE MAINTAINED DURING SIMULATION - GRADES ASSIGNED



- Analysis of moving averages (-1)
- Tracking short-term fluctuations (-1)

and the following methods of fundamental analysis:

- Analysis of financial ratios (+1)
- Determination of the fundamental value (+1)
- Analysis of the management and projects of the company (+1)

By assigning -1 for the use of a technical method and +1 for the use of a fundamental method, a fundamental / technical score was calculated to measure the extent to which a portfolio manager intended to use the fundamental approach, the technical approach or a mixture of both. The possible values of this score and the associated meanings are shown in this table:

F / T rating	Meaning
-3	Very Technical
-2	Technical
-1	Slightly Technical

0	Neutral
1	Slightly Fundamental
2	Fundamental
3	Very Fundamental

When making transactions, participants had 48 hours to provide additional justifications. In each case, they had to state the justification and classify it into one of four categories:

Type of justification	ID number
justification relating to the economy	199
justification relating to the industrial activity	299
justification based on company-specific factors	399
justification relating to the prices of investment securities	499

Portfolio managers who follow the technical approach believe that they can predict the future fluctuations of a security based on its past fluctuations in value. They use mainly 499-type justifications. Portfolio managers relying on fundamental analysis base their decisions on the economic prospects and profitability potential of the industrial sectors and enterprises. They mainly use type 199, 299 or 399 justifications.

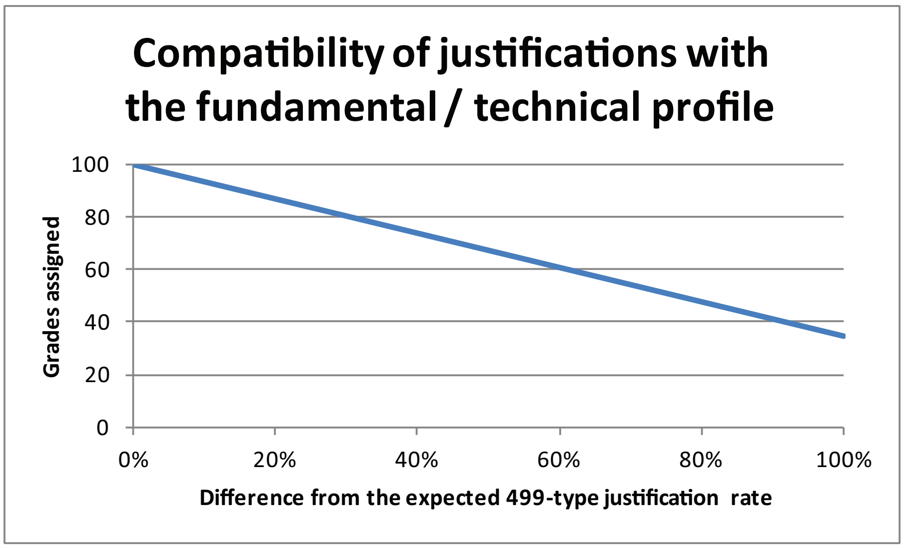
Therefore, it was considered that, based on the F / T rating, the expected rates of Type 499 justifications should be those described in this table:

F / T rating	Meaning	Expected Rate of Type 499 (%)
-3	Very Technical	100
-2	Technical	80
-1	Slightly Technical	60
0	Neutral	50
1	Slightly Fundamental	40

2	Fundamental	20
3	Very Fundamental	0

To apply this method, the difference in absolute value between the expected rate of type 499 justifications and the actual rate of such justifications was compared for all portfolio managers who provided more than three additional justifications. Grades between 35 and 100 were awarded as shown in Figure 6.

FIGURE 6 COMPATIBILITY OF JUSTIFICATIONS WITH THE FUNDAMENTAL / TECHNICAL PROFILE- GRADES ASSIGNED



Participants who did not define a management strategy received a score of 0.

Participants who defined a management strategy but provided fewer than 4 additional justifications of types 199, 299, 399, and 499 received a score that corresponds to the product of the number of justifications provided multiplied by 10.

10. Weight of sectors in the portfolio on February 24 Vs weightings of the investment strategy

Participants had to define a basic portfolio management strategy in which they had to indicate how they intended to share their portfolio among the following seven categories:

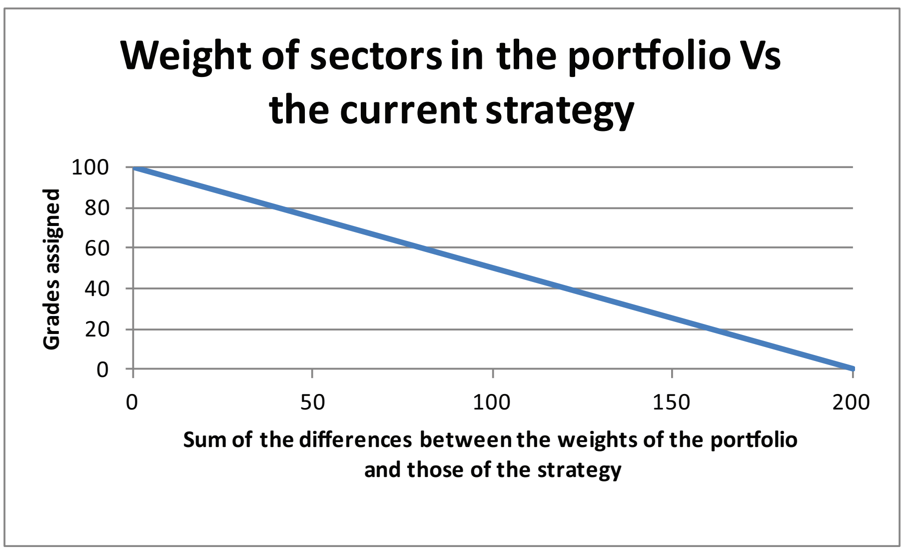
- Liquid assets
- Bonds

- Utilities
- Financial services
- Consumer products
- Industrial products
- Natural resources

The actual weightings in the portfolio held on February 24 at 11:59 pm were verified and the sum of the absolute differences between the target weights and the actual weights (SumDiff) was calculated. This calculation will normally give values between 0 and 200[2].

The score on 100 was calculated as: 100 minus (SumDiff divided by 2). Negative scores were modified to 0. Figure 7 shows the allocation of scores for the different values taken by SumDiff at 11:59 pm on February 24th.

FIGURE 7 WEIGHT OF SECTORS IN ACTUAL PORTFOLIO vs STRATEGY IN EFFECT - GRADES ASSIGNED



[2] A value of 0 means that the actual portfolio is identical to the target portfolio for each category, while a value of 200 represents major differences between the target portfolio and the actual portfolio. A participant who has maintained large short positions may obtain a value greater than 200 for this calculation.

11. Weight of sectors in the portfolio on March 24 Vs weightings of the investment strategy

This measure was calculated as the previous measurement.

12. Assessment of the impact of transactions on the weights of the sectors in the portfolio

While submitting a transaction, it was mandatory for the participant to indicate whether the transaction would result in an increase, decrease or change in the portfolio for each of the following seven sectors:

- Liquid assets
- Bonds
- Utilities
- Financial services
- Consumer products
- Industrial products
- Natural resources

The *Securities of Bourstad 2019 - weights of the asset classes and industrial sectors*[3] document, which gives the weight of each of the 599 securities traded across the seven sectors or asset classes, can be viewed from the web application documentation. Whether it's a buy or sell order, it's easy to determine how much impact on the portfolio will all possible transactions have.

This evaluation measure is calculated after the end of the simulation.

Participants who have completed the minimum number of qualifying transactions or more receive a score that is directly proportional to the rate of accurate declarations of impacts in their buy and sell transactions. The grades allocation is as shown on Figure 8.

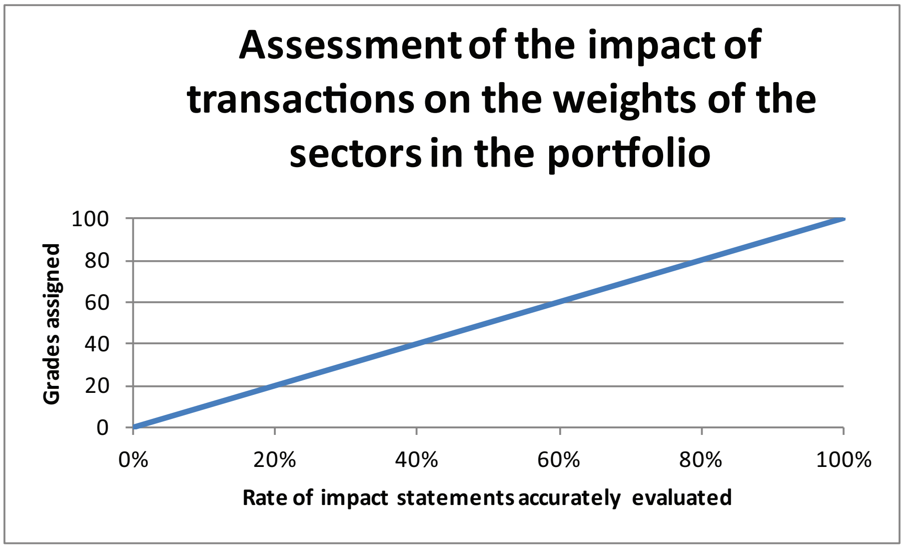
Participants who have not completed the minimum number of 8 eligible transactions are given a score of 0 for this measure.

13. Estimation of the liquid balance after transactions

For each transaction order, the participant had to indicate the cash balance they thought they would have in the portfolio after the transaction had been processed. For all accepted transactions, the average of the difference between the reported amounts and the amounts actually held after the transaction has been calculated. The marks out of 100 were awarded by applying a penalty of 2 points for every % difference beyond a deduc-

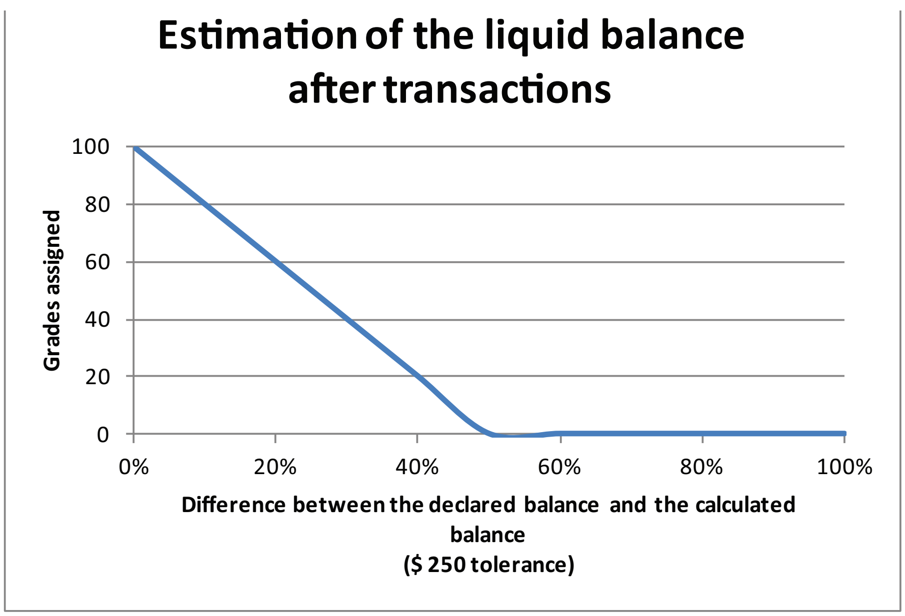
[3]. This document can be found in the *Information on securities* folder.

FIGURE 8 ASSESSMENT OF THE IMPACT OF TRANSACTIONS ON THE PORTFOLIO - GRADES ASSIGNED



tible of $ 250. Figure 9 illustrates the marks assigned for different average gap rates between the reported balance and the calculated balance.

FIGURE 9 ACCURACY OF ESTIMATED LIQUID BALANCE AFTER TRANSACTIONS - GRADES ASSIGNED



14. Taking into account risks related to corporate social responsibility (ESG)

Participants must, in stating their strategy, announce whether they intends to take into account the risks associated with ESG factors, considered separately. They must indicate whether they intend to take into account (yes or no):

1. Environmental risks,
2. Social risks,
3. Risks related to corporate governance.

Throughout the simulation, the participant has the opportunity, during the 48 hours following a transaction, to justify it based on considerations related to ESG factors, considered separately.

Calculation method used in the application of this measure (for a minimum score of 0 and a maximum of 100)

1. The participant receives 10 points for each ESG factor that he announces to take into account in his declared strategy (if the participant chooses to redefine his strategy, he 2nd defined strategy is used)
2. Participants receive 15 points for each ESG justification that they provide in relation to a type of risk that they have announced to consider in their strategy.
3. Participants receive 10 points for an ESG justification that they provide in relation to a type of risk that they *have not* announced to take into consideration in their strategy.
4. Participants lose 10 points for each ESG factor that they have stated to consider while providing no justification fof this type during the simulation.