All output can be found in Jupyter notebook.

1a. Model 1:

- Optimal risk = 0.0001774932651657861
- Solver time = 0.04 seconds
- Weights:
    o MSFT: 23.71%
    o GS: 2.59%
    o PG: 0.00%
    o SCHP: 73.70%

1b. Model 2:

- Optimal risk = 2.8785375543938808e-05
- Solver time = 0.10 seconds

1c. Model 3:

- Optimal risk = 6.75347076072811e-05
- Solver time = 51.09 seconds
- Stocks and weights
    o CME: 12.64%
    o LLY: 7.55%
    o NVDA: 4.38%
    o BND: 75.44%

2a. The optimal risk is higher in Model 1 than it is in Model 2. This is because, in Model 2, we have a wider variety of stocks to choose from and we aren't restricted to the 4 stocks like we were in Model 1.

2b. The optimal risk is lower in Model 2 than it is in Model 3. This is because, in Model 2, we are allowed to take a small piece of any of the 390 stocks available to us. In Model 3, however, we are restricted to only 4 of these stocks, so our optimal risk suffers.

(3a and 3b – see code and output in notebook)

3a. The objective function value with the imposed time limit of 30 seconds is 6.753470760728e-05, which is essentially equal to the value obtained without the time limit (see 1c).

3b. The solver time with a gap of 10% is 37.41 seconds, which is roughly 13 seconds faster than the solver time without the modified gap parameter (see 1c).