**CaoZeng: Report for Robust Mean and Covariance Estimate by GAN**

Summary of the report:

The project performed robust mean and covariance matrix estimate using TV-Gan and JS-GAN on a financial dataset.

Describe the strengths of the report:

The mathematical explanations of the used techniques (GAN, PCA) were clearly described.

GAN was applied in an interesting application outside of image generation. The authors additionally ran a simple simulation to show the importance of hidden layers in GAN.

Describe the weaknesses of the report:

The methodology of how the techniques (JS-GAN and TV-GAN) were specifically applied to produce the results was unclear e.g. network architecture, training parameters etc.

Evaluation on quality of writing: 4

Report is generally well-written and organized. In Figure 1, the grey line should be listed in the legend and the title is misspelled (‘Hidden’). Reading flow would improve in Figure 2 was moved under section 3.1 instead of 3.1. Figure 3 is difficult to understand, I’m assuming the orange dotted lines represent outliers but that should be clearly stated. In Conclusion, ‘model’ collapse is misspelled.

Evaluation on presentation: 4

Presentation is mostly fluent with some minor interruptions in between.

Evaluation on creativity: 3

Although this project applied GANs for an interesting application, the results were unconvincing. As the authors mentioned, it is unclear whether the model has converged and what network architecture is best for the task.

Confidence on your assessment: 3