

Exercise 1.

1.a. and 1.d. did not present particular issues and the great majority of students got them correct. For 1.b and 1.c. the students were asked whether they agreed with the colleague or not, and to justify the answer. Thus, those two questions had two parts: take a position and explain the logic behind it. An answer that did not cover those two components is not considered complete.

Exercise 2.

2a. Many people didn't justify their choice of option combination having non-negative cost. Others included a choice that didn't have a non-negative cost, or didn't specify enough to ensure the cost was correct.

Some choices of combination weren't suitable for a bet on stock prices rising.

Some people including investing at the risk-rate as well as options.

However, most people were able to identify a good combination of options to use that had the correct properties.

2b. Some people just stated put call parity with no dividends with no justification.

Some people didn't know how to include the dividend, included it incorrectly, or didn't know how the dividend worked - and so made errors in an attempted derivation.

A few students tried to use the binomial pricing model again in some form which we asked not to do in the question.

This question was generally answered okay though.

2c. Call proof was fine from most students.

Many didn't give an example where puts can be early exercised, which was asked for in the question. Many just showed the standard proof for calls fails in the case of puts, but you also need an example.

Exercise 3.

a. and b. did not present particular issues. Some students got the convexity wrong (e.g., added a minus sign in its definition) or did not compute it.

3c. Generally answered well - some didn't derive the forward rates as stated in the question.

3d. First part - seemed challenging to solve the Lagrangian system, but many set it up correctly and the steps they did take were fine even if they couldn't make it to the end.

Some people jumped from mid-way through to the conclusion in a way that was unclear and required more intermediate steps.

Second part - most people obtained the correct mean and the value of the minimum variance, but didn't show that the covariance of the min-variance portfolio with any other was in fact equal to the minimum variance, which was required for all marks.