GSFM 2022 – Quizzes and Solutions

Quiz 1

The answers to this quiz have been uploaded as a separate spreadsheet.

Question 1

Suppose a financial manager has two investment projects available. Each project can only be done once.

Project	CF 0	CF 1	CF 2	CF 3
A	-100	30	40	40
B	-50	10	10	40

Assume the following downward-sloping term structure of interest rates.

r(0,1)	r(0,2)	r(0,3)
5%	4%	3%

Which project(s) should the manager invest in?

Question 2

Assume the term structure is flat with a risk-free rate of 5% p.a..
A manager is deciding on investing into a risky project that in one year pays out 100 Euros if the general economy grows. Should there be a recession, the project only pays out 50 Euros. Both states of the economy are equally likely.

What is the NPV of the project if the initial investment today is 70 Euro.

Question 3

You want to value a stock and assume that it will pay a dividend of 5 Euros in one, two, and three years from now. After that, you assume that the yearly dividend stays constant at 3 Euros forever.

What is closest to the present value of the dividend stream? Assume that the appropriate discount rate is flat at 10% p.a..

Quiz 2

In this quiz, you were given data on the S&P 500 and asked to check for normality of returns. There are many ways to do this, see lecture slides.

Quiz 3

Question 1

Assume a constant risk-free rate of 2%. A risky asset has an expected return of 3% with a return standard deviation of 6%. What is closest to the asset's Sharpe ratio?

Answer: 0.167

Question 2

Assume there is no risk-free borrowing (but risk-free lending is available). Is the following statement true or false: All investors should hold a combination of the same risky portfolio and the risk-free asset.

Answer: False (risky portfolio may differ because of no risk-free borrowing)

Question 3

Assume you are constructing a portfolio of two risky assets.
The two assets have a correlation of 40%.

	Asset A	**Asset B**
Expected Return	8%	10%
Standard Deviation	6%	12%

What is closest to the standard deviation of an equally weighted portfolio?

Answer: 7.7%

Quiz 4

Question 1

True or false: The CAPM implies that if you could find an investment with a negative beta, its expected returns would be less than the risk-free interest rate. (Assuming $r_m > r_f$)

Answer: True (due to its diversification benefits)

Question 2

Stock A has volatility σ_A = 0.3 , stock B has σ_B = 0.2 . If the CAPM holds, a risk-averse investor would require a higher expected return on stock A.

Answer: Can't say (would need beta or covariances with market)

Question 3

Assume that the returns of a stock have a correlation of 40% with the market. The stock has a volatility (std. dev.) of 30% while for the market it is 20%. The expected return of the market is 10% and the risk-free rate is 5%.

Under the CAPM, what is the expected return of the stock?

Answer: 8%

Quiz 5

Question 1
Semi-strong form market efficiency implies that technical analysis is useless.

Answer: True (in the sense that semi-strong form implies weak-form efficiency)

Question 2

Empirically observed deviations from the CAPM prove that investors in the real world act irrationally.

Answer: False (could for example be due to frictions like transactions costs)

Question 3

Earnings-per-share is an important factor in the FF3 model.

Answer: False (FF test it, but it is not an important factor when controlling for the other factors and hence not included in the commonly used FF3 model)

Question 4

Tests on asset pricing models always have to be done using portfolios rather than individual assets.

Answer: False (they are often done using portfolios, but may also be done on individual assets)

Quiz 6

Question 1

Assume for this questions that market risk is the only systematic risk factor and that the market is the benchmark. The market has a standard deviation of 5%.

Further assume that a fund manager can generate an alpha of 50bps. Her portfolio has a standard deviation of 10% and a beta of 1.2.

What is her information ratio?

Answer: 6.25%

Quiz 7

Question 1

Assume there is the following company:

- The company's equity has a market value of 100 and a β of 2.
- Its market value of debt is 100.

You further know the following:

- r_f =1%
- Market risk premium ($E\left[r_m - r_f \right]$) = 5%

What is the cost of capital for this company?

Hint: Use the CAPM to estimate r_d and r_e while assuming that the debt does not co-vary with the market.

Answer: 6%

Quiz 8

Question 1

Suppose a company produces only one product. It has an inventory period of 4 weeks. The operating cycle is 8 weeks. The company has to pay for its raw materials after 3 weeks. For how many weeks does the company need financing, i.e., how long is the cash cycle?

Answer: 5 weeks

Question 2

A drawback of scenario analysis is that it ignores interdependencies between different forecasts.

Answer: False (in the sense that it incorporates forecasts for multiple variables in a single scenario)

Question 3

In Monte Carlo simulations, you specify the joint distribution of the relevant variables contained in the forecasts instead of manually specifying many scenarios.

Answer: True

Quiz 9

Question 1

Selling an asset quickly at below market value to obtain short-term liquidity to repay due debt is an example of...

Answer: Indirect financial distress costs / a fire sale

Question 2

Assume the MM assumptions hold. The only equity a company has issued is common stock. The total assets of the company have a beta of 1.2 while its debt has a beta of 0.2.
Further assume the company's CFO wants the company's stocks to have a beta twice as high as the market. What debt ratio (total debt to total assets) should she pick?

Answer: 0.8

Question 3

True or false: A company usually prefers to issue equity instead of using internal funds because in doing so it communicates to potential shareholders that it is confident in its future growth opportunities.

Answer: False (at least according to the pecking order theory and the reasoning of asymmetric information, a company communicates that it thinks its shares are overvalued by issuing new equity)

Quiz 10

Question 1

What is the worst rating a bond can have to still be considered investment grade?

Answer: BBB-

Question 2

Only exchange-listed bonds can be traded in the secondary market.

Answer: False

Question 3

Assume you have invested 1,000.00€ in a bond of a corporation with a rating of B. You estimate that you can recoup 300€ of your investment in case of default, the rest would be lost.

Using the table from the lecture on cumulative average default rates by rating category, what is your expected loss over 5 years? Assume for simplicity that the bond price does not change and that there are no interest payments.

Answer: 144.06

Quizzes 11 and 12

The answers are group project specific.