

EW MBA 203 Finance Core, Sample Waiver Exam
Professor Fedyk and Sraer

Please read now:

- This exam is closed book and closed notes. You may use a copy of the executive summary distributed with this exam. You may also use a calculator and/or a computer but **you may use your computer only for calculations in Excel. No other programs may be open.**
- This is a 3-hour exam. You must take the exam in a proctored room only. **Turn in the hard-copy: All answers must be written on this exam. You may not turn in an Excel printout or email any files to anyone.**
- **You may not share this exam nor any notes/files you make during the exam with other current or future students.**
- This is an individual exam, not a group assignment. Solve the problems on your own, without consulting anyone. The Haas Code of Conduct applies.
- You may not use a phone or any other photographic device at any time during the exam. You may not access the Internet or any other data or voice network during this exam.
- This is a cover page. There are 6 questions and 14 pages (including this one and the Honor Code page) in total.
- The points for each question are given on page 3. Show all work to receive partial credit. If you cannot answer one part of a question, you can still get full marks for the remaining parts, so don't leave anything blank.

NAME, date, start-time:

Good luck!

Please read the Haas Code of Conduct below, then sign at the bottom to acknowledge having read it and to indicate your agreement to abide by its terms.

Haas Code of Conduct

We expect you to maintain high standards of integrity in your academic work and your conduct while you are a Haas student.

At the Haas School, it is our goal to prepare you to be a skilled, innovative and ethical business leader. Part of that preparation is found in the standards of conduct we expect of all students.

In particular, please note:

- All work you turn in to an instructor must be undertaken by you and you alone. Joint work is permitted only when the conditions for that joint work have been clearly established between the students and the instructor.

- All work will be the product of new research undertaken by students for the purpose of the designated course. Exceptions are allowed only with a prior agreement between student and instructor.

- In cases of blatant academic dishonesty (see below), a faculty member will assign to the student a final course grade of F and recommend to the Center of Student Conduct and Community Standards a one-semester suspension. Blatant academic dishonesty includes, but is not limited to:
 - Arranging for another student to take an exam, or taking another student's exam.

 - Plagiarizing by including, without proper citation, more than 50 words composed by someone else.

 - Submitting an exam answer that is virtually verbatim to that of another student, or willfully allowing other students to copy one's own exam answers.

 - Communicating with another student or using a resource (e.g., the Internet) when taking an in-class or take-home exam, where the instructor has explicitly stated in writing that such communication or resource usage is impermissible.

I have read and agree to abide by the Haas Code of Conduct.

NAME:

SIGNATURE:

Short questions (5 points each; 30 total):

1. Under the proposed new tax bill, the corporate income tax rate will fall from 35% to 20%. Based on the Trade-off theory of capital structure, how do you expect firms will adjust their capital structure?

2. According to the Expectations Hypothesis, when the yield curve is upward sloping, interest rates are expected to decrease in the future. True or False?

3. A high-tech entrepreneur can never find a positive NPV project since in an efficient market, there are no arbitrage opportunities. True or False?

4. A conglomerate has calculated that its asset beta is 1.2, so that, applying the CAPM, the required rate of return on its assets is 12%. Should it use 12% to discount the cash-flows of its new projects?

5. Shareholders are better off when a firm issues dividend relative to buying back shares, since they can use the dividends to consume today. True or False?

6. You are currently doing the DCF analysis for a new project at your firm. One particular source of risk is that the project manager who has been working on the project may decide to leave to start an MBA at Haas. How should you change your DCF to take this into account?

Question 1: (35 points) Suppose the market is comprised of two risky stocks (HAAS & CAL) and a risk-free asset. You have the following information about the returns on these assets:

	Expected Return	Volatility
HAAS	19%	30%
CAL	7%	22%
Risk-Free Asset	4%	0%

The correlation between HAAS & CAL is $\rho_{H,C} = 0.40$.

a) Suppose your current portfolio, p , consists of 30% HAAS, 40% CAL & 30% in the risk-free asset.

i) What is the expected return of your portfolio?

ii) What is the volatility of your portfolio?

b) You realize that your current portfolio might not be efficient so you decide to construct the MVE portfolio.

i) What are the weights of the two stocks in the MVE portfolio?

ii) What is the Sharpe ratio of the MVE portfolio?

c) Assume the CAPM holds for this market (implying supply of the risky assets equals their demand).

i) What is the *beta* of the MVE portfolio? (No need to do any calculations, just explain your intuition)

ii) What is the market risk premium?

- d) You've decided that you are comfortable with the amount of risk you took on in part (a), but are wondering if you can get a higher return for that amount of risk. Call this new portfolio, p^* .
- i) What weights will you put on each of the three assets in p^* ?

- ii) What is the expected return on p^* ?

Question 2: (35 points) Trader Joe's is considering opening a new grocery store in Berkeley. The expected (after-tax) free cash flows from this project are given by:

Date	0	1	2	3	4
Free Cash Flow (in \$M)	-12.8	1	4	6	5.5

Trader Joe's policy always maintains a constant debt-to-value ratio of 1/2. The debt beta for Trader Joe's is currently 0.15. You aren't sure what value to use for Trader Joe's asset beta. You, however, have the following information about Trader Joe's two closest competitors, Safeway (SWY) and Whole Foods (WF):

	Safeway	Whole Foods
Cash (in \$B)	5	2
Debt (in \$B)	20	8
Equity (in \$B)	10	8
Debt Beta (β_D)	0.30	0.05
Equity Beta (β_E)	2.25	1.2

The current tax rate is 35%. The risk-free rate is currently 4% and the market risk premium is 6%.

- a) What is the expected return on Trader Joe's debt ($E[r_D]$)?

b) What is your best estimate for the asset beta β_A for Trader Joe's?

c) What is the unlevered cost of capital (i.e. $E[r_A]$) for Trader Joe's?

d) What is the post-tax weighted cost-of-capital (WACC) for Trader Joe's?

e) What is the NPV of the new store? Should Trader Joe's open it?

f) Suppose it was just announced that firms are no longer able to deduct interest paid (i.e. no more interest tax shield). What is the new NPV of the store? Would this change Trader Joe's decision?

Question 3: (20 points) You just decided to purchase a new car. In order to pay for the car, you decided to take a \$25,000 loan with an APR of 5.5%. The term of the loan is 6 years with monthly payment (i.e. 72 total payments).

a) What will your monthly payments be?

b) It is now 2 years in the future. How much do you still owe on the car?

c) Your bank is offering a new deal where they will lower your APR to 3% for a 6-year loan. They, however, will charge \$1,000 in closing costs to refinance your loan. If these closing costs are capitalized into the loan (i.e. they are added to the principal when you take out the loan), what will your new monthly payments be?

d) Should you refinance your loan? Why or why not?

Question 4: (10 points) You are the CFO of Disney and you are considering issuing new 3-year bonds that you figure will be rated AAA (and hence can be considered risk-less). You observe the following information about zero-coupon risk free bonds:

$$B_1 = \$95$$

$$B_2 = \$92$$

$$B_3 = \$87$$

a) What is the yield-to-maturity on each of the zero-coupon bonds?

b) The bonds you want to issue will have a \$100 face-value and pay an annual 4% coupon. For what price can you sell each bond?

c) What is the yield-to-maturity on each of the bonds you will issue?