

Midterm Exam #1
Finance 325
September 28, 2010

Name: _____

Exam Instructions:

- This exam should have 6 pages (including this one) and 5 questions. The point value is given for each problem. The entire exam is worth 100 points.
- You may use a calculator and the provided formula sheet on this exam.
- You must show your work in order to receive credit for your answers. Partial credit will be given for partially correct answers.
- If a question asks “Why/Explain”, you should give an explanation that would convince a skeptic.
- You may use the back of a page if you need additional space to write an answer.

Suggestions:

- Use your time wisely. Move on to another problem if you feel like you’re stuck.
- You may ask me questions if you are unclear about a problem. I may be able to clarify the problem for you.

GOOD LUCK!!

4. I want to start a college fund for my youngest son (who is 7 months old). For this problem, assume that he will start college 18 years from today. My wife and I have \$3,000 that we can invest today. We also want to make monthly contributions to his fund until he enters college... but due to other financial obligations, we will start monthly contributions 3 years from next month. We think that we can earn a nominal rate of 8% APR, compounded monthly, on his college fund investments.

We anticipate that he will attend WSU for college. Tuition today is \$8,600 per year and we expect tuition rates to increase with inflation (in other words, it will stay constant in REAL value.) We want to save enough money to fully fund 5 years of education for our son.

- a. If we make our contributions so that we invest the same NOMINAL amount each month, how much will our monthly contributions be? (12 pts)

b. If we make our contributions so that we invest the same REAL amount each month (in today's dollars), what will be the NOMINAL value of the first contribution (3 years and 1 month from today)? (12 pts)

c. In the future, our son (who is already showing signs of great intelligence... inherited from his mother, of course) ends up graduating from WSU in only 3 years. My wife and I decide to give him the remaining sum in his college fund as a graduation present. How much would my son receive at his graduation (which would be 21 years from today)? (12 pts)

5. It is now September 2010. You are looking at investing some money into bonds. A friend of yours is selling a bond... she doesn't know the specific information about the bond, but knows that it has the following cash flows:

Today	Mar 2011	Sept 2011	Mar 2012	Sept 2012
	40	40	40	840

- a. What are the coupon rate, par value and maturity of this bond? (8 pts)
- b. Given the yield curve information below, how much would you pay to purchase this bond from your friend? Assume that the APRs are compounded *quarterly*. (10 pts)

	APR	T-strip
Dec 2010	8.1%	
Mar 2011	7.9%	
Jun 2011		94:19
Sept 2011		93:01
Dec 2011		91:19
Mar 2012		90:08
June 2012	6.7%	
Sept 2012	6.5%	

- c. Coupon bond prices follow a peculiar "saw-tooth" pattern. Below is a graph of the value of the bond above as a function of time, assuming that the YTM of the bond stays constant (in other words, to eliminate the effect of changes in discount rates.) Given what you know about finance, why do coupon bonds follow this saw-tooth pattern? Be specific. (6 pts)

