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Fin 320 HW 1

**Chapter 2**

7. Adverse selection is the act of participating in a financial transaction where one party has more information about the transaction than the other. If you are related to an individual, you have a much longer history with him/her than a stranger and thus possibly have more information pertaining to their credit-worthiness in comparison to a stranger.

13. You bear none of the default risk that your neighbors loan contains. The bank can absorb the default and still pay your 5% rate. In the worst case, the bank defaults in which the FDIC kicks in and pays your deposit insurance. If you lend directly and your neighbor defaults, you have a much higher risk of losing your principle.

**Chapter 3**

**Non-Computational**

2. A decline in interest rates effects the long end of the yield curve substantially more than the short end. The approximate change in price of a bond given a fluctuating interest rate is the -duration multiplied by the change in the interest rate over 1 plus the current yield to maturity. If the duration is longer, the change in price is exacerbated. I would much rather hold **Long-term** in this case because as interest rates decline, the price of the securities rises to account for the new lower YTM. The long term bonds do, however, carry more interest rate risk.

4. The real interest rate for the period before the rate increase is 5% - the 2% appreciation in the asset = 3% real cost to borrow. In the event of rate increases the real interest rate for borrowers becomes 10% mortgage rate – 9% growth rate which yields 1% real rate. People would be more inclined to borrow given the lower real rate.

**Computational**

4. $1000 FV, PMT = 10%, PV = $1,150, n = 8 -> YTM = 7.44%

7. PV of perpetuity = PMT / r -> (2.66% \* $100,000) / 9% -> $29,555.56

8. Real rate of return is 2% and the inflation rate is 6%. The current interest rate is just the summation of those two rates giving us a required rate of return of 8%. At the end of 1 year, you will have 1,080 which will be more than enough to buy the stereo.

11 & 12. See picture in the Appendix. I was actually quite surprised. The estimated change in price was an increase of 66 basis points and the actual change in price was +66.4 basic points.

13. 100 million portfolio -> 10-year duration. Added 40 million and the average duration is 12.5 years. 71.42% of the portfolio \* 10 years + 28.57% of the portfolio \* x years. The final value for x is 18.753 years

**Chapter 4**

6. See Appendix for the picture of the graph. The supply curve shifts to the right and therefore decreases the price of bonds on the market. Interest rates are inversely tied to prices so prices increase.

7. See the Appendix for the graphs. Essentially as the economy expands, the demand for bonds increases lowering the price and raising the interest rate. When the economy is in contraction the demand for bonds decreases as does the supply (less profitable projects available) and the prices of bonds increases which lowers interest rates.

**Additional problems**

1. Application of duration (24points)

* Draw the price-ytm(*i*) graph for a 5% fixed-coupon bond that has 10 years to maturity (assuming annual coupon payments).
* Calculate the duration for this bond if the interest rate is 3%.
* What is the approximate percentage change in price if the interest rate rises to 5%? (calculate the price change using the duration approach)
* What is the actual percentage change in price if the interest rate rises to 5%?

1. Return vs. Yield-to-maturity (10 points)

* Explain the difference between return and yield-to-maturity of a bond. Please be precise and give examples if necessary.

1. Application of duration
   1. See Appendix for the graph of

**Multiple Choice**

1. D

2. D

3. B

4. D

5. E

6. A

7. B

8. A

9. C

10. C