Name: ______________________________

Quiz 1: Answers
266: Fi. Markets and Institutions
Spring 2011
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DIRECTIONS: We are looking for very concise answers. To the extent possible, write the answers in the space provided. Put your name on the quiz.

NOTE: There are 4 parts and in some parts you have some choice about which items you answer. If you do more than the required number of elements, we will grade only those up to the required number and ignore the rest.

NOTE: Each correct answer is worth 2 points.

NOTE: Properly labels and units matter.

Answers Note: total of 28 points

1 **Do all of these.** Some facts about reality.

1.1 What is the approximate magnitude of nominal GDP in the United States?
Answer/Comment

US nominal GDP is approximately 15 trillion dollars.

1.2 The nominal interest rate the U.S. government must currently pay for short-term borrowing is approximately what?
Answer/Comment

The yield on short term government securities is approximately zero percent. Anything under 2 percent accepted.

1.3 Throughout the period since 1900, the Baa bond interest rate in the U.S. has occasionally risen to levels much higher than in normal times. List the two main factors responsible for these upward spikes in the Baa rate.

Answer/Comment

Short: Expected inflation and default risk are the two major factors.

Longer: As we discussed in the class, there are three major peaks that Baa bond yields experienced during the last century. First peak happened around early 1980s due to the huge spike in the expected inflation rate (in line with Fisher equation). During 1980s, realized inflation was around 10 percent. The other two (in early 1930s and 2008) happened due to financial crises. They are mainly associated with the increase in the uncertainty which drives the probability of default risk up for Baa corporate bonds. Mentioning two of the above would be enough to get full credit.

1.4 Household debt in the U.S. as a share of GDP expanded rapidly in the 5 years before the recent financial crisis. Household debt as a share of GDP had ________________ for several decades preceding the recent rise. Circle 1: fallen/been very stable/risen steadily

Answer/Comment

risen steadily

2 **Do 4 of these.** Financial market basics.

2.1 The price of stock in Bieber Corp. (ticker: NSN) over the past three years has gone from \$0.25 to \$37.50. What is the annualized rate of capital gain in percent?

Answer/Comment

$$(1+i) = \left(\frac{P_{t+3}}{P_t}\right)^{1/3}$$

where $P_{t+3} = 37.5$, $P_t = 0.25$ and holding period (hp) is three years. So $i \approx 4.312$, or in percent as requested, 431.2.

2.2 Aside from the capital gain examined in the previous question, what is the other main possible component of the financial return to holding shares in Bieber Corp.

Answer/Comment

Short: Dividends.

Longer: Any cash payments that the instrument provides. In the case of a stock, these cash payments are called dividends.

2.3 We are at time t and a financial stream pays $\$s_{t+1}, \ldots, \$s_{t+M}$, where s_{t+j} is paid at the end for year $t + j$. Denote the j-year interest rate at time t by i_{jt} (for any j). Give a formula for the present value of this stream.

Answer/Comment

$$PV = \sum_{j=1}^{M} \left[\frac{s_{t+j}}{(1 + i_{jt})^j} \right]$$

2.4 Suppose the stream in the previous question sells for P_t at time t. Give a formula relating the internal rate of return, call it i, the price, and the payment stream.

Answer/Comment

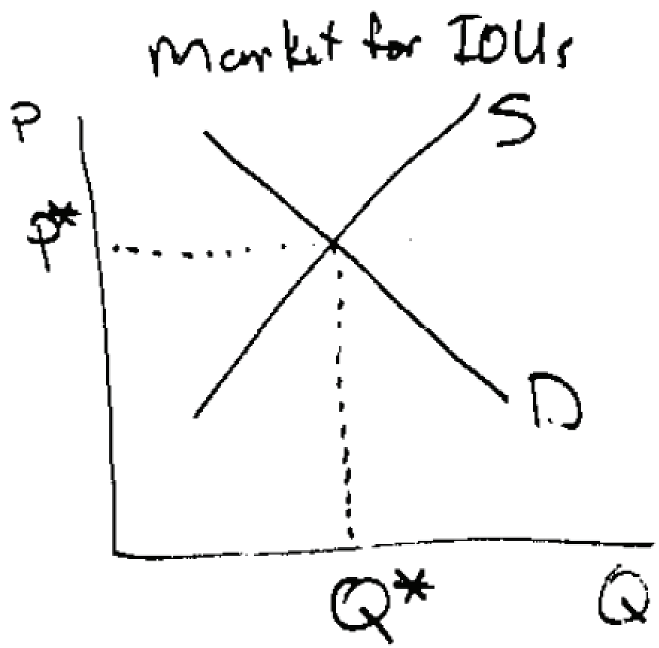
$$P_t = \sum_{j=1}^{M} \left[\frac{s_{t+j}}{(1 + i)^j} \right]$$

2.5 Consider a standard 30-year mortgage (stream: 360 equal monthly payments) and a standard 30 year coupon bond (stream: you should know this). Which of these has longer duration? (Hint: you don't need to calculate anything about duration to answer this.)

Answer/Comment

Although both assets pay off over a period of 30 years, the bond has a large payoff at the end, while the mortgage pays off in in equal amounts every period. Because a large share of the present value of the bond's payments come later, it has a longer duration.

3 **Do all of these** The following is a figure depicting the supply and demand curves for the IOUs of Smith Corp. Price of the IOUs is on the vertical axis.



3.1 On the fig. above, label the horizontal axis and the supply and demand curves.
Answer/Comment

Horizontal axis is Quantity (and labeled as Q), the downward sloping curve is quantity demanded and finally the upward sloping curve is quantity supplied.

3.2 On the fig. above Label the equilibrium price and quantity.
Answer/Comment
Equilibrium price and quantity are reached at the intersection (crossing point) of downward and upward sloping curves given above.

3.3 Why does the demand curve slope the way it does?
Answer/Comment

A decline in the price of the IOU, ceteris paribus, (meaning that everything else stays constant) should raise the quantity of IOUs demanded by lenders. A lower price means a higher yield on the loan; potential lenders substitute other assets or spending to benefit from higher return that this particular IOU provides.

3.4 What might general boom economic activity in the U.S. do to the supply curve and why?
Answer/Comment

Suppose that the boom improves the business prospects of Smith Corp. so this might increase the quantity of IOUs supplied at any price implying a rightward shift in the supply curve. The increase in borrowing at any price would raise fund sto finance business opportunities. For example, Smith Corp. might want to expand its factory.

4 Do 2 of these. Concepts

4.1 Give one example of how asymmetric information has important effects in financial markets.
Answer/Comment

Many different examples have been given in class and were acceptable here. The basic idea is that asymmetric information in a market for goods, services, or in particular assets refers to differences (or asymmetries) between the information available to buyers and the information available to sellers. Problems arising in markets due to asymmetric information are typically divided into two basic types: 'adverse selection' and 'moral hazard.' I consider lending you money to set up a factory, but I don't really know if you will invest it or will throw a party and declare bankruptcy.

4.2 What is the key difference between debt and equity?
Answer/Comment

The key difference is that debt generally invovles a fixed payment obligation, while equity just gives the holder a claim to a share of whatever value the entity in question has (no fixed payment obligation). In the case of an equity, in return for some cash now, the owner of the business sells the buyer a claim to a fixed portion or share of any dividends or a share of any residual value if the business closes. Whereas, in the case of debt, the owner of the business sell an IOU promising to pay a fixed amount at a fixed date in the future.

4.3 What role do limited liability laws play in financial markets?
Answer/Comment

Limited liability laws limit what owners of a firm or other issuers of debt can be forced to pay and/or do if they are unable to pay debts. Thus, if someone cannot repay a debt in the modern day U.S., you cannot legally break their knees or put them into debt slavery as in ancient Greece. Similarly, if a corportation cannot repay debts, you cannot legally go after the assets (or the knees) of the owners of the corporation. These laws are often viewed as essential to expanding the use of debt and equity to levels that will support progress such as like the industrial revolution.