

Name: \_\_\_\_\_

Quiz 2: answers  
266: Fi. Markets and Institutions  
Spring 2010  
Jon Faust

DIRECTIONS: We are looking for very concise answers. Write the answers in the space provided. Put your name on the quiz.

NOTE: There are three parts and in each part 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.

1 Give a brief definition of the following. DO ANY 5 OF THESE.

1.1 Insurable interest

**Answer/comment**

Basic: If you stand to suffer a direct loss when an event happens you have an insurable interest. Extra: Thus, you have an insurable interest in the event 'a house that you own burns down.' You do not have an insurable interest in the event 'Jon Faust's house burns down.'

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1.2 Private placement

**Answer/comment**

Basic: Private placement is a term used to refer to securities sold directly large investors without ever being marketed to the public at large. Extra: These placements are less regulated than are public issues of securities.

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### 1.3 Junk bond

#### Answer/comment

Basic: Junk bond is a way of referring to certain low rated (below investment grade) bonds. Extra: Usually BB rated or lower.

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### 1.4 Fully amortized (mortgage loan)

#### Answer/comment

Basic: A mortgage where the present value of the regular payments equals the full value of the loan. Thus, there is no additional principal left to repay at maturity. Extra: Each monthly payment has both an interest and principal component. By maturity, all the principal payments have paid off the loan so there is no final payment of principal at the end. In contrast, with standard bonds, the periodic coupons are interest, and the repayment of principal is delayed until the time of maturity.

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### 1.5 Prepayment risk

#### Answer/comment

Basic: If someone takes out a fixed rate mortgage and then interest rates fall, it is in that person's interest to repay the high interest rate loan and take out a new loan at the new lower rate. For an investor holding the loan, this uncertainty about when the mortgage will be repaid is called prepayment risk. Extra: If you are trying to match the duration of your assets and liabilities, you have to figure out what the duration of the mortgage is. This is a difficult question because you have to forecast when the mortgage will be repaid, which in turn depends on macroeconomic factors such as whether market rates go up or down.

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## 1.6 Margin requirement/margin call

### **Answer/comment**

When you buy stock through a broker, the broker can lend you the money you use to buy the stock. This is called buying on margin. You must, however, post collateral with the broker that is worth a certain share (say 50 percent) of the loan. This 50 percent is the margin requirement. If the value of the shares you buy subsequently falls, then you would not be able to pay off the loan by selling the shares. If the value of the shares falls enough, you will be required to post additional collateral. This request for additional collateral is a margin call.

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2 Provide a very short answer. DO ANY 3 OF THESE.

2.1 What the major functions of investment banks in underwriting the issuance of a security?

**Answer/comment**

- 1) Consult with the issuing firm about how to structure the deal,
  - 2) Help with the regulatory and practical matters (registering, etc.),
  - 3) Purchase the entire issue,
  - 4) Sell the issue to the public.
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2.2 Name three 'core' investment banking activities

**Answer/comment**

Underwriting public offerings, Private Placements, Mergers and Acquisitions, selling off chunks of firms (opposite of merger), various advisory roles about related topics.

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2.3 Give two primary reasons why agents pre-pay a fixed rate mortgage

**Answer/comment**

1) Interest rates have fallen, so they refinance at a lower rate, 2) They move houses (also if they can afford it, prepay simply to minimize interest payments).

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2.4 Why is it important that a monoline insurance company maintain a Aaa rating?

**Answer/comment**

The monoline insurance policy only has value to the insured party if the monoline company has enough resources to pay off claims against the insurance. If the insurer is unsafe, then buyers of the insurance won't pay much for the insurance, and the insurance won't raise the value of the insured bonds. In short, its hard to sell insurance that might pay off and might not.

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3 A bit analytic. DO 3 OF THESE

- 3.1 Give a formula relating the stream of payments from a 30-year fixed rate mortgage, the mortgage interest rate, and the value of the mortgage

**Answer/comment**

30-year, fixed rate mortgage has 360 monthly payments of equal size  $c$ . Suppose the (annualized) interest rate is  $i$ :

$$P_t = \sum_{j=0}^{359} \frac{c}{(1 + i/12)^j}$$

Details: If you ran the sum from 1 to 360 instead, that's ok, but in reality you often make the first payment the moment you get the mortgage, so 0 to 359 is more accurate. The denominator might also be stated  $(1 + i)^{j/12}$  which amounts to a different treatment of compounding. The formula stated above is right if the  $i$  as stated was a on a simple annual rate basis.

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- 3.2 Briefly explain the 'tranching' of a mortgaged backed obligation

**Answer/comment**

In the mortgage backed obligation we pool a group of mortgages and sell off claims to the stream of monthly mortgage payments coming from the homeowners. If we arrange things so that everyone simply gets a pro rata share of the payments, then we have only 1 tranche. Instead we could divide up the stream of payments from the homeowners into two or three or more different streams (which in total must sum to the original stream) and sell these separately. We call this dividing the payments into tranches.

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3.3 Briefly explain the efficient markets hypothesis Answer/comment

Shortest: there is a correct price for securities and market prices equal the correct price at all times. More: Given the information in the system, there will be a correct, and market prices efficiently reflect the information all the time, meaning they equal the correct price. More still: Different versions of the hypothesis can be defined based on what subset of ‘all information in the system’ we assume is fully reflected in prices: only public information on the past price of the security, all public information of any kind, all information private or public.

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3.4 Briefly explain the role of investment bank reputation in underwriting.

Answer/comment

We’ve now done this thoroughly a couple times in class. Short version: Firm selling the security is expert in its business (e.g., widget making) but is not expert in finance or financial markets. Buyers of the security are experts in finance but not in the particulars of the business. These two will have trouble selling directly to each other. Investment bank gets a reputation for treating both sides fairly and facilitates getting the securities out of the hands of the firm (buys them for a ‘fair price’) and into the hands of investors (sells them for a ‘fair price’)

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