

266: FI. MARKETS AND INSTITUTIONS

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FINAL, PRACTICE QUESTIONS

1 General

The exam will be similar in form to the midterms. Bring a calculator.

2 Short definitions.

Note: As before, all of these will come from the terms listed on the syllabus. Here are a few examples:

Definitions. Give the definition of the following words.

- 1 Short sell.

Answer/comment

Sell a security you don't presently own. A broker borrows the security in order to complete the sale; you must later purchase the security to replace the one borrowed.

- 2 FOMC

Answer/comment

Federal Open Market Committee, the main monetary policymaking body at the Federal Reserve.

- 3 PPP

Answer/comment

Purchasing power parity. The theory that the exchange rate adjusts so that the price level across two countries is the same in either currency. PPP a version of the law of one price where the 'good' in question is a broad market basket of things in each country (generally not the same basket!).

- 4 European Call option

Answer/comment

A contract giving the owner the right, but not the obligation to buy an item at a stated price at a given expiration date.

- 5 Defined benefit pension

Answer/comment

A pension plan that promises workers a specified flow of payments or other benefits

upon retirement in return for pension contributions from the worker while working.

6 Seasoned offering

Answer/comment

The sale of a security to the public when that security is already trading in secondary markets and has a well-established price.

7 Interest rate swap

Answer/comment

A derivative contract in which one party trades or swaps the interest payments on some contract for the interest payments on another. For example, party A agrees to pay party B the interest payments on a 10-year fixed interest rate loan and B agrees to pay A the interest payments on a 10-year floating rate loan.

8 federal funds rate

Answer/comment

The interest rate on an overnight loan of reserves between banks.

9 Forward guidance (monetary policy)

Answer/comment

When the central bank makes statements about the likely stance of monetary policy in the relatively distant future such as a year or more.

3 Facts and sizes of things

We do not promise that these are the only facts we will ask about, but the questions on the final will be at this level of generality and specificity.

- 1 Short-term government interest rates in the U.S. were near zero in the Great Depression, rose to a peak of around 18 percent around 1980 and then fell back again. Since late 2008 they have again been near zero.
- 2 Longer-term interest rates followed a similar pattern, but did not rise as high in 1980 and have not fallen as low. The rate on 10-year government bonds now stands near 2 percent.

- 3 On average over long periods, the term structure slopes upward (long-term rates a bit higher than short-term)
- 4 Short-term interest rates in the euro zone and some other European countries are now negative.
- 5 Nominal exchange rates are extremely volatile: changes in value of 20% or more are common over fairly short periods of time.
- 6 PPP does not hold: exchange rates move much more than do relative prices levels.
- 7 UIP does not hold: when UIP suggests that the exchange rate is expected to rise in value, it is as likely (or, in many periods, more likely) to fall.
- 8 In its existence of less than 2 decades, the value of the euro in terms of U.S. dollars has fluctuated between \$0.80 and \$1.60. The value of the euro is currently a bit more than \$1.
- 9 U.S. nominal GDP is between \$17–18 trillion at present.
- 10 Total credit market debt in the U.S. by sector:
 - 10.1 Households and nonfinancial business are each at about 75
 - 10.2 Government (all levels): about 100% of GDP
- 11 Government debt to GDP ratios vary widely across advanced economies: Japan is near 200%, others are well under 50%.
- 12 The market capitalization of North American stock markets is around \$25 trillion, representing roughly 1/3 of total world market capitalization.
- 13 China has several of the largest banks in the world by assets. The largest banks have assets of about \$3 trillion
- 14 The largest 4 U.S. banks have assets between \$1.5 and 2 trillion.
- 15 Banks play a much larger role in financing business in most countries than in the U.S. where various forms of market-based finance (such as bonds and commercial paper) are used more heavily.
- 16 In the U.S., large institutional investors such as insurance companies and pensions have assets of \$20–30 trillion.
- 17 As a result of the large-scale asset purchases, the Fed now holds over \$4 trillion in securities and total reserves of the banking systems are about \$3 trillion (almost all of the reserves are excess reserves). In normal times before the crisis, excess reserves tended to be quite minimal.

Here are a few sample questions.

Give the approximate size of the following. Be sure to state the units.

- 1 U.S. nominal GDP.

Answer/comment

\$17–18 trillion.

- 2 What is the level of short-term German (euro denominated) government debt?

Answer/comment

Just below zero.

- 3 In the *normal times* before the crisis, the excess reserves in the banking system were usually less than \$1 trillion. [True/False]

Answer/comment

True

- 4 The total value of assets of insurance companies and pension funds in the U.S. is about how large?

Answer/comment

\$20–30 trillion

- 5 What is the Fed's desired level of inflation?

Answer/comment

2 percent (This is an example of the sort of fact we might ask that is not on the list above.)

- 6 The notional value of the underlying on which protection is purchased in credit default swap markets is often much larger than the total value of the underlying. [True/False]

Answer/comment

True. (This one also is not on the list above, and is admittedly a bit more obscure than the inflation target question. This is about as obscure as we would get.)

4 More general questions

These will be much as on the midterms. Expect one or more questions about how to use derivatives in hedging. There is likely to be a UIP or PPP question regarding the exchange rate. There is likely to be a question about normal times monetary policy and/or forward guidance and large scale asset purchases.

1 Monetary policy.

- 1.1 Suppose we are in normal times and the Federal Funds rate has been pretty constant at its ‘normal rate’ of, say, 4 percent. Markets are expecting the rate to remain at its normal level. Some (public) economic news comes in, and the Federal Reserve announces a cut in the Federal Funds rate due to this incoming public information on the economy. What sort of macroeconomic news might precipitate this federal funds rate cut?

Answer/comment

The Fed is a dual mandate central bank, so presumably either the information indicated inflation or employment was going to be too low. Cutting rates would be expected to stimulate both. An unexpectedly high unemployment rate is one example.

- 1.2 Generally, the markets will expect that the cut in the federal funds rate will be followed by further cuts, which are subsequently reversed, returning the funds rate to its normal level. Under the expectations theory of the term structure, explain how this change in the expected path of the Federal Funds rate should affect longer-term interest rates.

Answer/comment

Under the expectations hypothesis, the long-term rate is the average expected future short rates. If the market expects the short-term rate to be persistently lower for a time, this will imply that long-term rates should move lower.

- 1.3 The Federal Funds rate is currently very near zero. Since the Fed cannot further cut the federal funds rate in order to stimulate the economy, it has engaged in large scale asset purchases (LSAPs) of long-term assets. Using a supply and demand figure for long term assets, explain how the LSAPs might have a similar effect on long-term rates and the economy as the temporary reductions in the federal funds rate have in normal times. (Note: Assume that LSAPs affect the demand curve but not the supply curve for the long-term assets.)

Answer/comment

The LSAPs will shift the demand curve to the right. The equilibrium price of

the long-term assets will then increase. Since the interest rate and the price are inversely related, this means that the long-term rates will decline due to the LSAPs. You should know how to draw this figure.

2 Derivatives and Hedging.

Suppose one ton of barley grain currently costs \$40 on the spot market. The table below presents the market's assessment of what the (spot) price of barley will be in 3 months:

Price in 3 months		
Outcome	Prob.	Price (\$)
1	0.1	75
2	0.3	70
3	0.6	35

2.1 What is the expected spot price of 1 ton of barley in 3 months?

Answer/comment

$$.1(75) + .3(70) + .6(35) = 49.50$$

2.2 Suppose that Duff brewing company knows it will need to buy 1 ton of barley in 3 months. Duff is concerned about the risk that the spot barley price will jump. What is a futures contract and how might Duff use a futures contract to limit its exposure to this risk?

Answer/comment

A futures contract is an agreement to buy or sell an underlying asset at a given price at a given point in the future. Duff could use a futures contract to agree to buy the barley it needs in three months at a price set today, thus allowing Duff to know for sure (ignoring counterparty risk) what price it will pay for its barley.

2.3 Suppose instead that Duff buys a 3-month European call option on 1 ton of barley with a strike price of \$60. Ignoring the price paid for the option, what is the expected price Duff will end up paying for the ton of barley in 3 months?

Answer/comment

$$.1(60) + .3(60) + .6(35) = 45$$

2.4 The difference in the expected price in parts 1 versus 3 can be seen as the expected net cash flow (that is, proceeds) Duff receives after 3 months from purchasing the option. What one additional piece of information do we need to

know in order to use our conventional reasoning to determine what price Duff should be willing to pay today for the option?

Answer/comment

The interest rate used to discount the future cash flows.

- 2.5 Dry Creek Holdings, a hedge fund, develops improved weather forecasting techniques and learns that the barley growing season will be much drier than Duff and the market generally expect. The drier season would mean that the barley harvest will be poor and that the price of barley is likely to be higher than the price reflected in the above table.

To profit from this information, might Dry Creek buy or sell the call options described above? (Buy/sell and explain)

Answer/comment

Dry Creek would want to buy the call options. Roughly, with higher prices at the settlement date, the options contract will have a higher payoff, implying that it should carry a higher price today. Thus, the call option is underpriced by the market. So, Dry Creek can buy the cheap assets and thus reap a high expected rate of return.

- 2.6 We have argued that financial market participants who create better information and trade based on that information can help increase market efficiency. Briefly explain this argument and how it might be that Dry Creek purchasing a large volume of call options could have this desirable effect.

Answer/comment

Market participants who create new information and trade based on it can push prices toward their “fundamentally correct” value, which improves the efficiency of credit flows. Specifically, by buying large amounts of the underpriced call options, Dry Creek will increase the demand for and price of the contracts. It is in Dry Creek’s interest to continue buying the contracts until the contracts are priced correctly (from the perspective of their new and better information). This pushes the price of the options contract to the “correct” price.

3 Investment banking

- 3.1 Briefly describe three core activities of investment banks.

Answer/comment

Investment banks provide various advisory services to firms engaging in mergers or acquisitions. They may help locate likely targets for acquisition and help value, structure, and finance the deal.

Investment banks underwrite initial public offerings of bonds or equity, providing various advisory roles and then ultimately buying the entire issue and placing it with the public.

Investment banks help firms undertake major deals such as selling a portion of their business.

- 3.2 Explain three broad functions an investment bank plays when it helps a firm with an initial public offering.

Answer/comment

Three of the following: Advise the firm issuing securities on what type/how much of security to offer, help fulfill regulatory requirements for the IPO, buy a rating (if issuing debt), help with various other legal/bureaucratic steps, set a price and buy the securities from the firm, and sell the securities to the public.

- 3.3 Explain why reputation of the investment bank is important in attracting clients for IPOs of equity.

Answer/comment

The firm doing the IPO will have limited knowledge of the process and of the value it should receive for the equity. The firm will want to deal with an investment bank that has a good reputation for giving firms something close to fair value.

4 Pensions.

- 4.1 Explain the statement that the employee expecting a defined benefit pension is an unsecured creditor of the firm.

Answer/comment

The employee may have paid into the pension plan, but if the firm goes bankrupt, the employee generally has no more claim to any remaining assets of the firm than any unsecured creditor.

- 4.2 Because of the Pension Benefit Guaranty Corporation, a defined benefit pension is a nearly risk free asset to an employee who has earned the pension. [true/false and explain]

Answer/comment

False. The PBGC is currently underfunded and unless this changes, the PBGC will likely not be able to meet its obligations.
