Solution Key
Problem set 2
266: Fi. Markets and Institutions
Spring 2016
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**Directions.** You are to do this problem set alone.

**Due Date/time.** Your work is due by beginning of class (10:30am) March 31. You can hand the work in to me at the beginning of class. If you put the work under my office door, it must be in before I leave for lecture at about 10:20 am.

**Questions.** If you have questions, email me or one of the TAs, raise them in class, or come to office hours.

**Grading.** Each question is worth 5 points, for a total of 95.

**Note:** Be sure to note the proper units (e.g., millions, billions, etc.) in the following answers.

**Please pay attention:** We have divided up two of the questions below such that certain folks are assigned the even numbered parts and others are assigned the odd numbered parts. As you'll see, this allows us to cover more cheats, screw ups, and scandals in total.

1 Reading a 10-k report.

Obtain the latest 10-k report for JPMorgan Chase (covering 2015). Directions: i) go to http://www.sec.gov/, ii) Under 'filings' in the top bar, choose 'Company Filings Search', iii) In the Fast Search box, put JPM and search; iv) in the Filing Type box put 10-k and hit search; v) Under the Format heading, select Documents; click on the Form 10-K.)

Hint: If the question has a phrase in 'single quotes,' searching for this phrase, perhaps repeatedly, in the 10-k will generally get you to the answer.

1.1 Other than the 'Board of Governors of the Federal Reserve System', name three additional regulatory authorities JPM lists when discussing its standing as a 'bank holding company' and financial holding company?

**Answer/comment**

Additional regulators include the Office of the Comptroller of the Currency (OCC), the Federal Deposit Insurance Corporation (FDIC), Commodity Futures Trading Commission (CFTC), Consumer Financial Protection Bureau (CFPB), and the Securities and Exchange Commission (SEC).

1.2 How has JPM stock performed relative to the indices examined in the 'FIVE-YEAR STOCK PERFORMANCE' table and chart (not looking for values, just relative position)?

**Answer/comment**
Between 2010-2015, JP Morgan's stock grew by 77 percent, faster than the KBW Bank Index (54 percent) and the S&P Financial Index (64 percent), but slightly slower than the S&P (80 percent).

1.3 What does JPM report as thet value of 'Total capital ratio' for each of the last 5 years?

**Answer/comment**

- 2011:15.1%
- 2012:13.1%
- 2013:14.3%
- 2014:15.2%
- 2015: 15.3%

1.4 What does JPM define as 'reputation risk'?

**Answer/comment**
"Reputation risk is the risk that an action, transaction, investment or event will reduce trust in the Firms integrity or competence by our various constituents, including clients, counterparties, investors, regulators, employees and the broader public"

1.5 Provide JPM's definition of 'Tier 1 leverage ratio' and its values for each of the last 5 years.

**Answer/comment**

Tier 1 leverage ratio is Tier 1 capital divided by adjusted average assets.

- 2011:6.8%
- 2012:7.1%
- 2013:7.1%
- 2014:7.6%
- 2015: 8.5%

1.6 What effect does JPM expect the Dec 2015 increase in the federal funds will have on 'net interest margin' during 2016?

**Answer/comment**
JPM thinks net interest income will be larger during 2016 due to the Dec 2015 hike: "management expects net interest income could be approximately $2 billion higher than in 2015, reflecting the Federal Reserves rate increase in December 2015 and loan growth"

1.7 What does JPM report as the value of credit exposure to the 'Oil & Gas' industry, in dollar value as well as percent of the firm's credit exposure? What is the dollar value of 'provision for credit losses' in 2015 and 2014?

**Answer/comment**

Credit exposure to Oil & Gas was 42 billion dollars, or about 5 percent of total credit exposure.
The provision for credit losses in 2015 was $3.8 billion, up from $3.1 billion in 2014.

1.8 What does JPM report as thet value of 'Return on common equity (ROE)' for each of the last 5 years?

**Answer/comment**

- 2011:11%
- 2012:11%
- 2013:9%
- 2014:10%
- 2015:11%

2 Value at Risk (VaR). (Hint: read the VaR, 'value-at-risk,' discussion in the JPM 10-k.)

2.1 If a firm says that its 1-day 95 percent value at risk is \$100 million, what does this mean?

**Answer/comment**

On any given day, the firm expects to lose less than \$100 million 95 percent of the time. In other words, the firm expects to lose more than \$100 million only 5 percent of the time.

2.2 According to the JPM 10-k examined above, on how many trading days in 2015 did trading losses exceed the 95 percent one-day VaR computed by the firm? (Hint: Search for 'value-at-risk' and/or 'band break' repeatedly until you find the info.)

**Answer/comment**

The firm experienced band-breaks on three trading days in 2015.

2.3 Of the 260 trading days reported for 2015 on how many did JPM report trading gains?

**Answer/comment**

The firm posted gains on 117 of the 260 trading days in 2015, or about 45 percent of the trading days.

3 Screwing up, perhaps in criminal manner. Provide a brief answer to each of the following. You should be able to find these answers easily using standard web search tools.

Note: If your last name begins with A–J, do the even numbered parts. Otherwise to the odd.

3.1 What market did Overend, Gurney, and Company develop and dominate? How did they go broke?

**Answer/comment**

When issuing loans, banks and merchants would hold bills of exchange, which carry all sorts of risk, such as maturity, default, and liquidity risk. Overend Gurney created a centralized market for bills of exchange.

Overend Gurney suffered losses on their investments, especially railways investments in the early 1860s. They went public in 1865 to raise equity. The losses continued, however, and the firms exposure to bank runs (since their assets were of a longer maturity than their liabilities) proved fatal. The firm suffered from bank runs and the Bank of England refused to extend a bail out. The company filed for bankruptcy in June 1866, and a financial crisis ensued.

3.2 What market did Drexel Burnham Lambert help develop and then dominte? What scandal played a large role in its downfall?

**Answer/comment**

Drexel Burnham Lambert was a major investment bank in the 80s. They helped create the junk bond market, which allowed small, less well-known firms to issue bonds.

In the late 80s, Drexel employees, including Michael Milken, nicknamed the Junk Bond King, were accused by the SEC of insider trading, stock parking, and stock manipulation. Rudy Guiliani, then U.S. Attorney for the Southern District of New York, threatened to indict Drexel under the Racketeer Influenced and Corrupt Organizations (RICO) Act. A RICO indictment would have allowed the government to collect assets before bondholders. The threat of the indictment panicked investors, and forced Drexel to agree to pay a then-historic fine ($650 million) and accept guilt on 6 felony charges in 1989. The firm couldn't recover from the reputation blow, and filed for bankruptcy in February 1990.

3.3 What was Barings Bank and why did it fail?

**Answer/comment**

Barings Bank (1762-1995) was the second oldest merchant bank in the world. They went bankrupt after Nick Leeson, its head derivatives trader in Singapore, made bad bets that drove the company bankrupt. Leeson was supposed to be arbitraging differences in Nikkei 225 futures listed on the Osaka Securities Exchange and Singapore International Monetary Exchange. Instead, Leeson simply held future contracts, thereby making bets on Nikkei. He accumulated losses for months, but posted profits instead.

Company management was unaware that Leeson was losing hundreds of millions of dollars, because Leeson was both head and auditor of his trading desk. When Barings found out, Leeson had already lost 1 billion dollars  enough to drive the second oldest merchant bank to bankruptcy in 1955.

3.4 What is HSBC? How did it aid drug cartels? (hint: google HSBC drug cartels)

**Answer/comment**

HSBC was fined 1.9 billion dollars in 2013 for failing to monitor more than 670 billion dollars in wire transfers from HSBC Mexico, some of which allowed for money laundering, such as allegedly 1 billion dollars in wire transfers by the Mexican Sinaloa drug cartel (of Joaquin Chapo Guzman, who was recently re-re-captured) and the Colombian Norte del Valle cartel. HSBC also failed to monitor money transfers and dollar purchases to banks tied to terrorist organizations in Saudi Arabia, Iran, Bangladesh, and Russia.

3.5 What is BNP Paribas? What criminal charge did the firm recently plead guilty to?

**Answer/comment**

BNP Paribas is a large French multinational bank, with offices around the world. BNP agreed to pay 8.9 billion dollars for breaking US trade sanctions against Iran, Sudan, and Cuba during 2002-12. As an example, Sudanese banks would transfer funds to BNP, which would then conceal the origin of the money and transfer to U.S. banks for withdrawal.

3.6 What alleged fraud led Goldman Sachs to pay a fine of over $500 million? And who was the 'Fabulous Fab.'?

**Answer/comment**

Goldman Sachs was fined 550 million dollars for selling bad mortgage backed securities (specifically, a type known as CDOs) in 2007, without disclosing to investors that the underlying securities were selected because they were likely to fail. John Paulson and Goldman's Fabrice Tourre (Fabulous Fab) picked bad mortgages to create a bundle called ABACUS. Paulson then bought insurance on ABACUS and made 1 billion dollars. The insurance providers and buyers of ABACUS were not informed of Paulsons involvement, or that the mortgages composing ABACUS were chosen because they were likely to fail.

This particular fine was one of the first to come. By early 2016 Bank of America, Goldman Sachs, JPMorgan, and Citigroup have paid about 42 billion dollars in fines related to the handling of mortgage-backed securities during the crisis.

For more info see Bloomberg: Goldman says it will settle US mortgage probe:

4 Running a *fair* and *comptetitive* market is hard.

Note: If your last name begins with A–J, do the even numbered parts. Otherwise to the odd.

4.1 Briefly explain the Salomon Brother's Treasury auction scandal.

**<u>Answer/comment</u>**

Salomon Brothers was a major investment bank. They pioneered the development of mortgage backed securities in the 80s.

Treasury rules forbid any primary dealer from purchasing over 35 percent of any particular U.S. bond, to prevent any particular buyer from influencing prices. Salomon's Paul Mozer broke this rule by submitting extra bids: Mozer claimed the bids were for clients when in reality they were for his own trading desk. Salomon Brothers was fined 290 million dollars in 1991, the largest fine on an investment bank then. The scandal weakened the firm, which was acquired by Travelers Group, in turn eventually absorbed by Citigroup.

4.2 Briefly explain the NASDAQ collusion case of the mid-1990s. (Hint: google NASDAQ collusion) What was the settlement?

**<u>Answer/comment</u>**

Nasdaq used to quote share prices in eights of a dollar, rather than decimals. So shares would sell for $12\frac{1}{8}$ rather than 12 and five cents, for example.

When trading in the Nasdaq, investors placed orders and market makers competed with each other to meet the investors orders. A couple of economists noticed that Nasdaq dealers rarely quoted prices in odd eights of a dollar, meaning that shares were much more likely quoted at, say, $12\frac{4}{8}$ rather than $12\frac{5}{8}$. The evidence implied that Nasdaq market-makers were colluding to keep bid-ask spreads high. If a dealer bought stock shares for $12\frac{3}{8}$, they would then sell the shares to investors at $12\frac{4}{8}$, for example. Other dealers would not compete to offer a better deal. In 1996, 30 securities firms were fined 910 million dollars on price-fixing charges.

4.3 What is the LIBOR rate? Briefly explain the LIBOR fixing scandal. Name 3 firms involved. (Hint: goolgle LIBOR scandal)

**Answer/comment**

LIBOR stands for London Interbank Offered Rate. Each trading day, large banks in London self-report the rate at which they think they could borrow in various currencies and maturities. For each currency and maturity, the headline Libor rate is the average rate at which banks borrow from each other. For example, the 3-month US dollar rate is the average rate at which large banks in London are borrowing from each other in dollars for 3 months.

Libor rates serve as benchmark rates for over 300 trillion dollars in financial products, from derivatives and mortgages (e.g, a mortgage rate could be the 3-month US dollar Libor plus a risk spread).

The scandal consisted of traders asking Libor submitters to adjust daily rates. Traders hoped to influence market rates and thereby profit from bets. Banks also admitted to submitting low rates to appear safer during the crisis. The scandal was aggravated by the release of lots of internal communication portraying traders as immoral and immature: heres a sample from the :WSJ:

Barclays, Citi, JPMorgan, RBS, Bank of America, and UBS were fined about 5.8 billion dollars in 2012.

4.4 Explain the foreign exchange price fixing scandal? Name 3 firms involved. (Hint: google FOREX scandal)

**Answer/comment**

With over 5 trillion dollars worth of trades executed daily, the forex market is the largest in the world. Because of its size, individuals are likely unable to influence market prices, but traders at major banks such as HSBC, JPMorgan, Citibank, UBS, and RBS worked together to do just that. Traders would place orders at the same time seconds before 4 pm London time, when daily benchmark rates are set to move exchange rates for their own gain. Banks have been fined about 6 billion dollars for this particular scandal.

4.5 Briefly explain what a 'dark pool' is. What is the dark pool scandal? (Hint: google dark pool scandal)

**<u>Answer/comment</u>**

Dark pools are private trading venues (as opposed to public exchanges such as the NYSE). Investors interested in placing large orders worry they will get bad prices if traders know they are intending to buy/sell large orders. In dark pools, firms can (mostly) anonymously trade with each other.

Barclays aggressively promoted their own dark pool and were successful – by early 2014, they operated the largest dark pool in the US. They became successful because they promised investors a safe and fair trading venue. In particular, they promised protection from from high frequency traders.

High frequency traders have the technology to learn about market orders and place or cancel orders extremely quickly. So, for example, if you place a market order for 1 million Apple shares, a high frequency trader could learn that, quickly place an order for Apple shares at the current price, raise the price by a penny, and fill part of your order at a price higher than you might have otherwise been able to obtain.

Barclays advertised that they protected investors from high frequency traders. In fact, they did the opposite: they invited high frequency traders to their dark pool and provided them with additional informational advantages. High frequency traders bring in a lot of liquidity, which allowed Barclays dark pool to grow. Barclays and Credit Suisse settled SEC charges by paying 150 million dollars in fines in early January. Read more:

4.6 Michael Lewis wrote a book called Flash Boys. Sketch the alleged manner in which U.S. markets were exploited. (Hint: google flash boys)

**<u>Answer/comment</u>**

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5 Troubled asset relief program (TARP). TARP was enacted with the goal of stabilizing the economy at the height of the crisis. TARP has been extremely controversial with traditional liberals criticizing it as a handout to corporate fat cats and free market conservatives criticizing the government's unwillingness to let market forces rule. Supporters often take the position that TARP was the lesser of the evils on the table at the time—that some rapid and large government action, distasteful as it would be, was needed to reduce the risk of a Great-Depression-style collapse. Reasonable people disagree on these issues and you should form your own opinion.

This question focusses mainly on some of the facts.

5.1 What did the government receive in return for the TARP payments that were given out?

**Answer/comment**
The first round of TARP funds were used to buy preferred stock in banks, in late 2008. In early 2009, TARP funds were used to buy toxic assets, such as residential loans and mortgage backed securities.

5.2 How much did the government make or los make or lose on the TARP program? (That is, direct financial gains or losses. This does not count any indirect economic benefits or cost of the program. Estimates vary a bit on this. If you are concerned, just indicate your source.)

**Answer/comment**
We will accept a wide variety of answers here as sources vary based on different accounting approaches. All of the acceptable answers are however, quite small relative to the money at risk. Some say a small profit; some a small loss. In either case, under 10 percent of the total funds committed (less than $40 billion).