Final Exam
Finance 826

Professor Helwege
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You have the entire class period to answer these questions. You may use scrap paper, a calculator, and a writing implement. If you think certain assumptions are important in determining the answer and those assumptions are not made clear in the question, feel free to write them down so that you may receive partial credit. Total points = 100.

PART I. Answer every question in this section to receive full credit (80 points possible).

(3 pts.) 1. Mr. Green works at a steel mill and has two more years to go before he retires and receives his defined benefit pension. Based on his years of service, he expects to receive about $2200 a month as a pension. However, this morning the firm he works for filed for Chapter 11 and announced that they cannot return to profitability unless they reduce their labor costs, including the costs of their pension expenses. Moreover, their pension fund is severely underfunded. How should this affect Mr. Green's retirement plans? (Circle ONE answer.)

a. Not at all because a defined benefit plan is essentially the same as an investment in a mutual fund and that money cannot be touched by the firm
b. He can still retire because the PBGC guarantees pensions of up to $30,000 a year
c. He will have to file a claim in the Chapter 11 case and negotiate like any creditor
d. He should search for another job because it is highly likely that he will need to work for many more years

(4 pts) 2. Which of the following instruments are likely to be used as a source of funding by a finance company like GMAC or Ford Motor Credit? (Circle ALL that are true)

a. A 30 year bank loan
b. A 2 year medium term note
c. A floating rate public bond
d. A3/P3 commercial paper

(3 pts) 3. Which of the following instruments is the most likely to be used by a B-rated nonfinancial firm in the U.S? (Circle ONE answer)

a. A 30-year revolver
b. A 5-year secured term loan
c. A junk bond with a coupon of 400 over LIBOR
d. A fully amortizing 10 year junk bond

(4 pts.) 4. Which of the following assets would likely be sold by a bank that has a leverage ratio of 3.8%? (Circle ALL that are true.)

a. A pool of 7% home mortgages when market rates on new mortgages are 8%
b. A loan owed by a B3-firm that is about to be acquired by a Baa1-rated firm
c. An I/O strip that was issued a few years ago when rates were 9% (new mortgage rates are 8%)
d. A data processing center facility that was built 20 years ago in the Tuttle Crossing area when the surrounding area was almost all farmland

(4 pts) 5. Evidence that economies of scale exist in banking is supported by the fact that: (Circle ALL that are true.)

a. Community banks find a large pool of good mortgage applicants among their own depositors.
b. Community banks are able to diversify their mortgage holdings by purchasing pass-throughs guaranteed by Freddie Mac.
c. ATMs are a more profitable method of servicing withdrawals for larger banks
d. The provision of credit cards is more profitable if the card is marketed nationally and the service center is in a remote location, such as South Dakota

(4 pts.) 6. Which of the following instruments are likely to account for more than ten percent of some banks' assets? Be sure your answer applies to banks, not bank holding companies. Moreover, it need not be the case that all banks have more than 10% in this asset, just more than a tiny fraction of them. (Circle ALL that are true).

a. Plant, property and equipment ("bricks and mortar")
b. Fixed rate home mortgages
c. C & I loans
d. Shares in the S&P 500

(4 pts) 7. Which of the following is true of the regulation of insurance companies? (Circle ALL that are true.)

a. Insurance companies have risk-based capital requirements
b. Unlike the dual banking system, insurance companies are regulated only at the federal level
c. Insurance companies are required to pay premiums into state insurance funds to cover losses to policyholders in the event of insolvency
d. "Prudent man" laws require that they keep most of their money in equities

(3 pts) 8. In what ways did Glass-Steagall and the McFadden Act help reduce the size of U.S. banks compared to banks in countries like Germany and Japan?__Foreign banks often do__ investment banking, which Glass Steagall prevented US banks from doing, making the _______ organization smaller on average. The McFadden Act prevented banks from doing interstate____ branching, meaning it was difficult for any one bank to get very large if it relied on deposits.___

(3 pts.) 9. If the Mutual of Omaha insurance company decided that it did not have a sufficient level of capital, what could it do to change its situation?___Do a mutual to stock conversion __IPO and raise more equity (also allowing it to do an SEO later) or issue surplus notes or ___ __sell off some risk to a reinsurance co or issue CAT bonds.__________________
____

(3 pts.) 10. Explain why money market mutual funds are unlikely to ever "Break the Buck". ___It's_easy to keep the NAV at $1 if the value of the assets almost never changes, and they__ _don't change much because they are short duration instruments with little or no credit risk. It's _hard to make or lose much money on these investments.________________________
____

(3 pts) 11. True or False: Banks are required to use mark to market accounting on all of their assets but mutual funds are not. _F__

(3 pts) 12. True or False: Nonbank banks arose because some products, such as credit cards, were more profitably offered on a national basis and at the time banks were not able to offer these products throughout the country in their branches. _T__

(3 pts) 13. True or False: Interstate branching restrictions arose around the same time that Western states were promoting "Free Banking." __T_

(3 pts) 14. True or False: The problem of disintermediation was reduced by the introduction of NOW accounts. __T_

(3 pts) 15. True or False: Catastrophe bonds are floating rate bonds where the interest rate increases as the claims related to a disaster increase. __F_

(3 pts) 16. True or False: More than half of the banking industry's assets are loans. _T__

(3 pts) 17. True or False: The market value of a typical P&C insurer's liabilities varies less than the market value of its assets. ___F_

(6 pts) 18. For each question below, fill in the blank to complete the sentence.

a. A _captive finance____ company exists to help finance the purchase of the parent firm's products.

b. The NAV is the price per share you would receive if you cashed out of a __open-ended_______ mutual fund (assuming it has no back-end load).

c. ERISA is a law that governs what is proper behavior for a _pension fund_______.

d. Insurance companies are regulated by _state insurance commissioners or NAIC_______.

e. _Forbearance______ occurs when a bank regulator overtly or covertly allows an undercapitalized or insolvent institution to continue operations.

f. A _combined _____ ratio of 1.06 means a P&C insurance company needs a 6% investment return to break even.

(4 pts) 19. An insurance company has assets of $200 million, an average duration of its assets equal to 6 years and the average duration of its liabilities is 12.1. We observe that if its (annual) interest rates rise from 10% to 11%, equity increases by $9.09 million. What is the insurance company's leveraged adjusted duration gap?__________

Change in equity = $200 * LADG *.01/1.1

9.09 m = -200 * .00909 * LADG

9.09m = 1.818 * LADG

LADG = -5

(6 pts.) 20. You are the manager of a high yield bond mutual fund with 23 million shares outstanding. Your fund has $110 million in CCC-rated bonds with a modified duration of 4.6, $220 million in B-rated bonds with a duration of 4.9 and a YTM of 12%, and $150 million in BB-rated bonds with a duration of 6.1 and a YTM of 10%. The fund also has $15 million in cash. You expect that over the next year the spreads on the CCC will widen by 200 basis points, the YTM on the B-rated bonds will rise to 13.5% and the BB-rated bonds will trade at a YTM of 10.5%.

A. (2 pts) What will be the new NAV if your estimates are correct? _20.23_____

B. (2 pts) Prior to these events unfolding, some savvy market timers withdrew 600,000 shares from the fund. What is the new NAV, once the spreads have widened? _20.19___

c. (2 pts) If your annual bonus is tied to how well you outperform Lehman's high yield bond index, what actions would you take, given your expectations?__Sell the CCC bonds if you can__ __and put the money into cash. Cash can't lose value, so by reducing losses you beat the index._

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110 in CCC rated bonds
220 in B-rated bonds
150 in BB-rated bonds
15 in cash
___
495 / 23 = 21.52 (current NAV)

Changes in yields lead to these changes in bond values:

CCC: -4.6 * 200 = -9.2% Or 99.88 m.

B: -4.7/1.06 = 4.62 * 150 = 6.93% or 204.75

BB: -6.1/1.05 = 5.81 * 50 BP = 2.905% or 145.64m

so new NAV is
99.88 in CCC bonds
204.75 in B bonds
145.64 in BB bonds
15 in cash
\- - - -
465.27 / 23 = 20.28

If had withdrawals of 600,000 at 21.52 (or 12.912 m),
NAV would be 465.27-12.912=452.358/22.4=20.19

(8 points) 21. A bank has the following assets: $900 million in C&I loans; $50 million in Treasury bills; $100 million in home mortgages; $150 million in Fannie Mae pass-through securities; $100 million in auto loans; and $100 in cash. These assets are funded with $1 billion in insured deposits, $310 million in uninsured deposits, $30 million in subordinated debt and the rest in equity.

a. What are the bank's risk-based assets? __1080_______

b. How much Tier I capital should the bank have to meet the risk based capital ratio? (in dollars)? _43.2_______

c. Does the bank currently meet the total risk based capital requirements? _yes______

d. If the bank does a share repurchase of $5 million by issuing new subordinated debt, will it be in compliance with all capital regulations? _no - it would be short on the leverage ratio_______

Assets	Liabilities
900 C&I loans	1 billion deposits
50 Tbills	310 uninsured deposits
100 auto loans	30 sub debt
100 mortgages	60 equity
150 Fannie Mae	
100 cash	
1.4 billion	1.4 billion

RBA = (100% *900) +(0%*50)+(100%*100)+(50%*100)+(20%*150) +(0%*100)=1080

.04*1080= 43.2 is the amount of RBC that has to be in the form of equity

.08*1080=86.4 is the total amount of RBC, which it meets with 30 equity + 60 sub debt

.04*1.4 billion=56 million is the amount required for the leverage ratio

Part II. Choose <u>two</u> of the following three questions (20 points possible - 10 each). If you answer all three questions, only the first two will be graded.

(10 pts.) II. 1. The counterpart of the SEC in Italy has come to visit the U.S. to determine how Italy can boost its economic growth through financial market reforms. In particular, the agency is considering ways in which to increase the number of IPOs. Currently, there are only a few dozen IPOs each year in Italy. Given the phenomenal returns on the Nasdaq last year and the growth of the internet economy, the Italians are thinking of revising their regulations so as to encourage an IPO market like that in the U.S. Besides the fact that the Nasdaq has been down recently and some of the internet firms have gone out of business, what else can you tell the Italian version of the SEC about the IPO market in the U.S.? In particular, what information would lead them to *reconsider* whether mimicking the U.S. is the appropriate goal and what information could you provide that suggests that they should try to *encourage* a similar environment? Feel free to mention alternative sources of funding besides the IPO market, if those markets are relevant.____

___The U.S. market is very active, typically with hundreds of IPOs a year, not dozens. The IPOs are typically done by small, fast growing firms, so this suggests that emulating the US IPO_____ _market is good for encouraging growth in the economy. Moreover, they raise a lot of money__ _relative to their size - often 50% of assets. Some of the companies are very new, another indication that this market is good for growth. Also, with such an active market for the equity of young firms, it is easy to also have a strong VC market (as they use the IPO market to cash out.)_ __With a large VC market, small firms have even more financing choices. A final positive ____ consideration is the fact that many IPO firms come back to the market again to do follow-on___ offerings, raising additional capital and may even proceed on to the bond market.____________ __The bad news is twofold: first, when the stocks are offered there is a fair amount of_________ underpricing on average, which means IPO firms pay a lot for the funding. A more sanguine___ __view of underpricing is that it is an intentional aspect of the bookbuilding process. But even_ __that still leaves open the question of whether IPO firms pay too much to do an IPO. Second,_ a troublesome piece of evidence is that the LT returns of IPOs are terrible - indicating that this__ market is too easy to tap (IPO firms get too much money.) Further support of that idea is the fact that IPO firms who don't come back to the market usually find it easy to stick around, sometimes funding losses for the next ten years out of their IPO proceeds.__________________________

(10 pts.) II. 2. Managers at Laredo Bank are planning on changing the attributes of the NOW account offered by the bank. In particular, currently a NOW account at Laredo Bank pays 4.2% a year as long as the average monthly balance is $1500 (the interest is on the full balance as long as it meets the minimum average requirement). This account allows 10 free checks a month, but the eleventh and higher checks incur a fee of five cents, which is exactly what it costs the bank to offer these checks. ATM withdrawals costs the bank $2. They would like to make the account more appealing than a similar account at Bonanza Bank, which has an all-in-return of 3.5%. They have determined that you are the type of customer the account should be tailored to, so they want to give out just enough free ATM withdrawals a month to make Laredo more appealing to you than Bonanza. You are in the habit of writing 15 checks a month and making 6 ATM withdrawals each month. You always have a monthly average balance of $1000, except in July and August when you keep $2000 in the bank. Given these habits, how many free ATM withdrawals each month will Laredo allow on the NOW account?

Average balance: (10/12 * 1000) + (2/12 * 2000) = 1166.67

Explicit interes(0 on the 1000 balance months) 2000 * 4.2 * 2/12 = $14

Implicit interessubsidies on the checks: 10 * .05 * 12 = $6

Total payout on Laredo: $20

The goal of the bank is to add another freebie, worth x, to the $20 it already pays, so that the all in return is 3.5%

20 + x = .035 * 1166.67 = 40.83

x = 20.83

The bank must give out $20.83 worth of free ATM withdrawals to match Bonanza Bank's value.

Assuming it is done on a monthly basis, 20.83/12 = $1.74 a month. Since it is hard to give out partial ATM withdrawals, the bank has to actually give out more value ($2) by giving out 1 free ATM withdrawal a month.

If so, the value of the all in return on this balance goes up to 24+20 or 44.

(10 pts) II.3. A bank has the following items on its balance sheet:
A $150 million fixed rate loan to Proctor and Gamble with a modified duration of 5.1; a $50 million floating rate loan to Station Casinos at a spread of 200 over LIBOR; $60 million of 5 year Treasury notes with a duration of 4.39 and a YTM of 6%; $20 million in a fixed rate loan to Argentina with a modified duration of 3.4;$20 million in cash; $31 million in subordinated debt; $259 million in insured deposits and $10 million in equity. Answer parts a-d below.

a. (2 pts.) What is the bank's leverage ratio?_3.33_____
b. (4 pts) Recently, market prices on the loans and securities have changed. The Fed has cut rates so the Treasuries and the P&G loan have higher market values than before. Specifically, the P&G loan has seen its spread narrow by 50 basis points and the Treasuries now trade at a YTM of 5.5%. However, the Station Casinos loan has been trading at a market value of $48 million and the Argentina loan has seen its spread widen by 100 bp. Draw a new balance sheet to reflect how the bank would respond to these changes.
c. (2 pts) What is the term used to describe the action done in (b)?_cherrypicking______
d. (2 pts) If all of the capital currently included in Tier II capital were instead part of core capital, would your balance sheet in (b) show more or less of the action you stated in (c)? _less, because they have plenty of tier II capital and they probably would prefer not to sell loans_

Assets	Liabilities
150 C&I loan to P&G	259 insured deposits
60 Tbills	31 sub debt
50 loan to Station	10 equity
20 Argentina loan	
20 cash	
300 million	300 million

Leverage ratio = 10/300 = 3.33%

P&G: - 5.1 * -50 bp = 2.55% or an increase to 153.825

This can only be realized by selling the loan

The T-bills are marked to market, so they gain as follows: -4.39/1.03 * -50bp = 2.13%

Because the bank was undercapitalized at 3.33% and the Station loan is not that awful looking,

they will avoid taking LLR on the Station loan. Likewise on the Argentina loan.

Assets	Liabilities
153.825 cash from sale of P&G loan	259 insured deposits
61.28 Tbills	31 sub debt
50 loan to Station	15.11 equity
20 Argentina loan	
20 cash	
305.11 million	305.11 million