Seminar Question and Answer

1. Which of the following is NOT a potential cause of liquidity risk for a bank?
A. A decrease in the bank's stock price caused by market factors.
B. An increase in requests to fund large amounts of loan commitments.
C. A decrease in the availability of short-term borrowed funds.
D. An increase in requests by depositors to withdrawal large amounts of deposits.

2. Which type of financial intermediary is more highly exposed to liquidity risk?
A. Property-casualty insurance companies.
B. Life insurance companies.
C. Mutual funds.
D. Depository institutions.

3. As of August 2015, required reserve ratios in the U.S. for demand deposits were
A. 0 percent, 3 percent, and 10 percent.
B. 10 percent on all deposits.
C. 3 percent on all deposits.
D. 0 percent on all deposits.

4. An bank offers a $2,500 minimum balance NOW account paying 4 percent annual interest, and there are no service charges as long as the customer maintains the minimum balance. The customer maintains a balance of $5,000, and averages 750 checks per year. Each check has a processing cost to the FI of $0.15. What is the annual gross interest return on this account to the customer?
A. $112.50.
B. $100.00.
C. $312.50.
D. $137.50.

Gross return = (avg. balance above minimum × explicit interest rate) + (implicit interest)
Gross return = [(5,000 × 0.04) + (750 × 0.15)] = (200 + 112.5) = $312.50.

Calculation Questions

5. Walls Farther Bank has the following balance sheet (in millions of dollars).

Assets		Liquidity level	**Liabilities and Equity**		Run-off factor
Cash	$ 12	Level 1	Stable retail deposits	$ 55	3%
Deposits at the Fed	19	Level 1	Less stable retail deposits	20	10
Treasury securities	125	Level 1	Unsecured wholesale funding from:		
GNMA securities	94	Level 2A	Stable small business deposits	80	5
Loans to AA rated corporations	138	Level 2A	Less stable small business deposits	49	10
Loans to BB rated corporations	106	Level 2B	Nonfinancial corporates	250	75
Premises	20		Equity	60	
Total	$514		Total	$514	

Cash inflows over the next 30 days from the bank's performing assets are $5.5 million. Calculate the LCR for Walls Farther Bank.

The liquidity coverage ratio for Walls Farther Bank is calculated as follows:

Level 1 assets = $12 + $19 + $125 =		156
Level 2A assets = ($94 + $138) x 0.85 = $197.20		
	Capped at 40% of high-quality liquid assets = $156 x 0.40 =	62.4
	Stock of high-quality liquid assets	$218.4
Level 2B assets = $106 x 0.50 = $53.00	40% cap on Level 2 assets already met	0.0
	Stock of high-quality liquid assets	$218.4

Cash outflows:		
Stable retail deposits	$55 x 0.03 =	$ 1.65
Less stable retail deposits	$20 x 0.10 =	2.00
Stable small business deposits	$80 x 0.05 =	4.00
Less stable small business deposits	$49 x 0.10 =	4.90
Non-financial corporates	$250 x 0.75 =	187.50
Total cash outflows over next 30 days		$200.05
Total cash inflows over next 30 days		5.50
Total net cash outflows over next 30 days		$194.55

Liquidity coverage ratio = $218.4m/$194.55m = 112.26%. The bank is in compliance with liquidity requirements based on the LCR.

6. The following net transaction accounts and cash reserves at the Fed have been documented by a bank for computation of its reserve requirements (in millions) under lagged reserve accounting.

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
April	**10th**	**11th**	**12th**	**13th**	**14th**
Net transaction accounts	$200	$300	$250	$280	$260
Reserves at Fed	20	22	21	18	27

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
	17th	**18th**	**19th**	**20th**	**21th**
Net transaction accounts	$280	$300	$270	$260	$250
Reserves at Fed	20	35	21	18	28

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
	24th	**25th**	**26th**	**27th**	**28th**
Net transaction accounts	$240	$230	$250	$260	$270
Reserves at Fed	19	19	21	19	24

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
May	**1st**	**2nd**	**3rd**	**4th**	**5th**
Net transaction accounts	$200	$300	$250	$280	$260
Reserves at Fed	20	22	21	18	27

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
	8th	**9th**	**10th**	**11th**	**12th**
Net transaction accounts	$280	$300	$270	$260	$250
Reserves at Fed	20	35	21	18	27

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
	15th	**16th**	**17th**	**18th**	**19th**
Net transaction accounts	$240	$230	$250	$260	$270
Reserves at Fed	20	35	21	18	28

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
	22th	**23th**	**24th**	**25th**	**26th**
Net transaction accounts	$200	$300	$250	$280	$260
Reserves at Fed	19	19	21	19	24

The average vault cash for the computation period has been estimated to be $1 million per day.

a. What level of average daily reserves is required to be held by the bank during the maintenance period, May 11 - 24? If the required reserve rate is as followed.

Type of Deposit		Percentage
Net Transaction accounts		
Exempt amount	$14.5m	0
Up to	$103.6m	3%
Over	$103.6m	10%

Average daily net transaction accounts deposits = $300m + $250m + $280m + $260m + $260m + $260m + $280m + $300m + $270m + $260m + $250m + $250m + $250m + $240m = $3,710m/14 = $265m

Reserve requirement = ($14.5m - $0)(0) + ($103.6m – $14.5m)(0.03) + ($265m – $103.6m)(0.10) = $0 + $2.673m + $16.140m = $18.813m

After subtracting the average daily balance of vault cash of $1 million, the bank needs to maintain a target daily average of $17.813 million ($18.813 million - $1 million) during the maintenance period.

b. Is the bank in compliance with the requirements?

The maintenance period begins on Thursday, May 11th.
Average Reserves at Fed = $18m + $27m + $27m + $27m + $20m + $35m + $21m + $18m + $28m + $28m + $28m + $19m + $19m + $21m = $336m/14 = $24m.

Excess over required reserves = $24m - $17.813 = $6.187m

c. What amount of required reserves can be carried over to the following computation period?

Excess that can be carried over = 0.04 x $18.813 million = $0.7525 million.

d. If the average cost of funds to the bank is 8 percent per year and deposits at the Fed pay 0.5 percent, what is the effect on the income statement for this bank for this reserve period?

Loss = (6.187m - 0.7525m) x (0.080 - 0.005)(14/365) = $15,6933.49.

7. An FI has estimated the following annual costs for its demand deposits: management cost per account = $140, average account size = $1,500, average number of checks processed per account per month = 75, cost of clearing a check = $0.10, fees charged to customer per check = $0.05, and average fee charged per customer per month = $8.

a. What is the implicit interest cost of demand deposits for the bank?

Cost of clearing checks = $0.10 x 75 x 12	=	$90.00
Cost of managing each account	=	$140.00
Per check fee per account = $0.05 x 75 x 12	=	-$45.00
Fee received per account = $8 x 12	=	-$96.00

Total cost per account = $89.00

The average (imputed) interest cost of demand deposits = $89.00/1,500 = 5.93 percent.

b. If the FI has to keep an average of 8 percent of demand deposits as required reserves with the Fed paying no interest, what is the implicit interest cost of demand deposits for the FI?

If the bank has to keep 8 percent as reserves, its use of funds is limited to 0.92 x $1,500 per account, or $1,380. The average (imputed) interest cost = $89/$1,380 = 6.45 percent.

c. What should be the per-check fee charged to customers to reduce the implicit interest costs to 3 percent? Ignore the reserve requirements.

For an average imputed interest cost of 3 percent, the total cost per account = 1,500 x 0.03 = $45. This means that the total cost per account should be decreased by $44 ($89 - $45) and the per-check fee charged to customers should be increased to $89 ($45 + $44). Thus, the fee per-check should be raised to $89/(75 x 12) = $0.0989 per check.