



Introduction of course

# **Commercial Bank Management I**

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## Chapter 10

# Liquidity Management at CBs

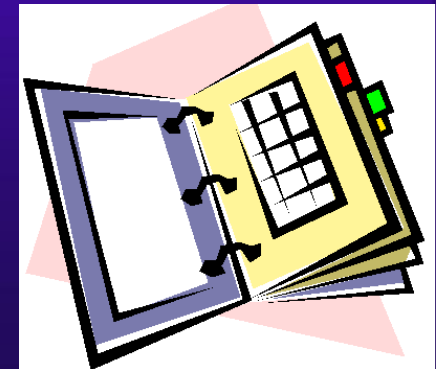
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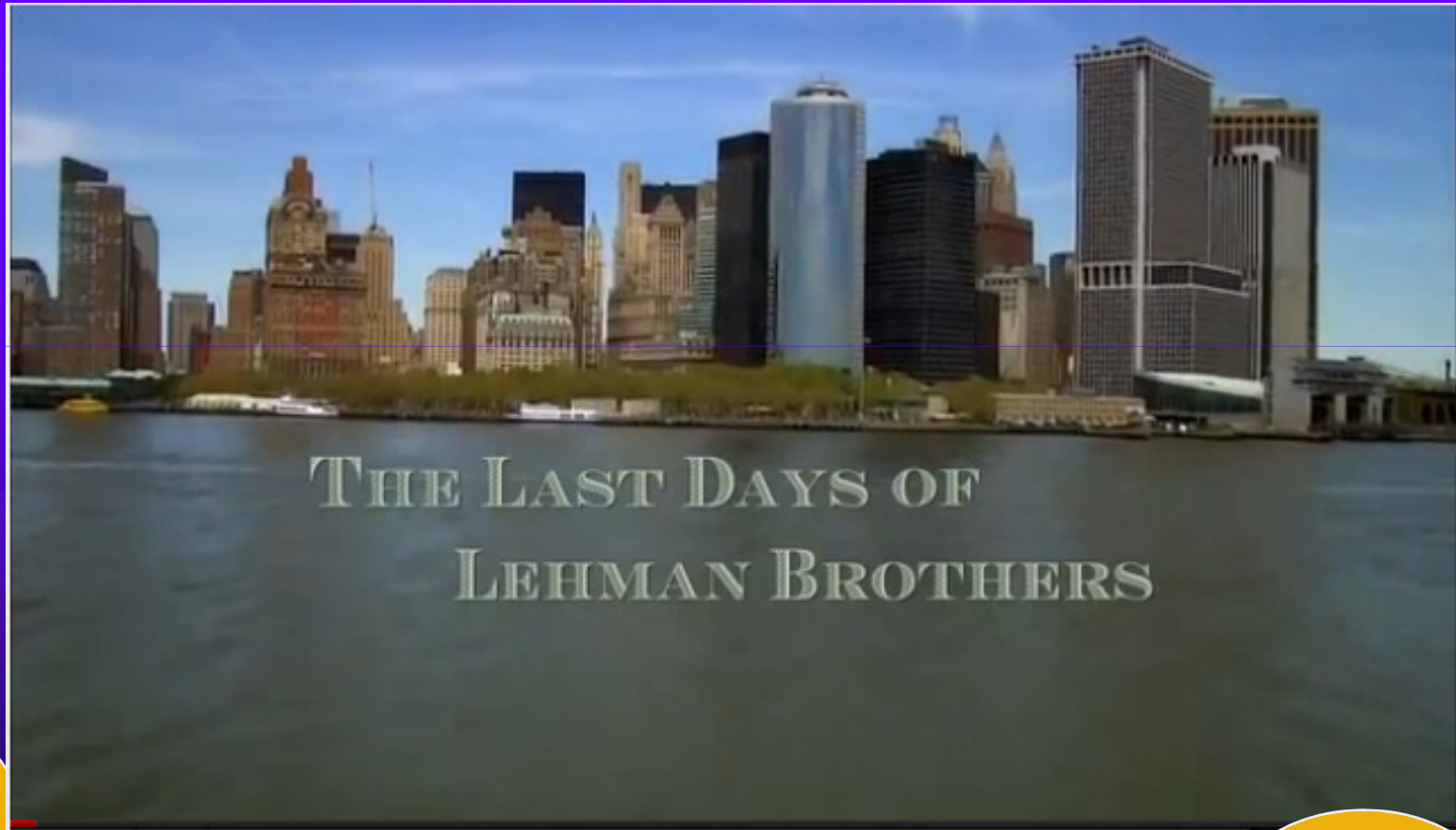
# Agenda

1. Overview
2. Basic Concepts
3. Estimating liquidity need of CBs
4. Liquidity ratios
5. Liquidity of CBs during financial crisis
6. Summary



# Introduction

## Liquidity & bankruptcy



\$85 b  
trouble  
loans

<http://www.youtube.com/watch?v=RLWIPyQXcRE&feature=related>

Thousands  
lost job



# Introduction

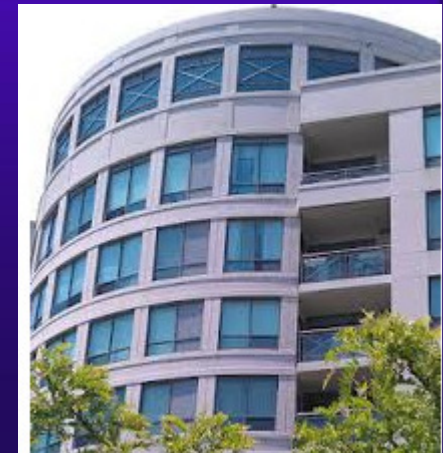
## Lehman Brothers Case

- The imbalance between terms of different types of deposits and terms of different types of loans becomes one reason for the liquidity risk and leading to bank collapse.



## Overview

- Once the bank is considered as lack of liquidity, a large number of customers will withdraw their deposits or investments. It causes liquidity risk for that bank.







## Basic Concepts

- Bank liquidity definition, generally:  
Banks provide many medium and long term loans, while they receive many short-term deposits. Bank liquidity can be understood as the ability to pay back its financial obligations when they come due.



**CHANGE  
AHEAD**



## Basic Concepts

- Net liquidity position (NPL)

It is the difference between the supply of liquid funds available and the demand for liquid funds







# Basic Concepts

- Liquidity supply

- Deposits of customers (individual and business)

- Revenues from selling non-deposit services

- Selling assets

- Lending from interbank or monetary market





# Basic Concepts

- Liquidity demand

- Customers withdraw money from their accounts
- Loan applications from high quality customers
- Pay dividends in cash
- Pay back interbank lending
- Administration, marketing and selling costs



# What is Net liquidity position (NLP)

- Formula:

NLP of the  
bank

=

Deposits +  
Revenues of  
non-deposit  
services +  
Repayment of  
debts from  
customers +  
Borrowing on  
monetary  
market

-

(Deposits  
withdrawn +  
Accepted  
Application  
loans + Debt  
repayment of  
the bank +  
Spending for  
operation +  
Dividend  
Payment)



# Question

- Where could we find out liquidity information of a bank?





## Answer

- Financial reports:
  - + Balance sheet
  - + Profit & Loss statement





## Answer

- Financial reports:
  - + Balance sheet
  - + Profit & Loss statement
- Or Income statement







## BALANCE SHEET

	Year 0	Year 1
		unit: \$ m
<b>Assets</b>		
Federal funds sold and securities purchased to resell	160000	177000
Residential mortgage	161000	178000
Credit card	81000	98000
Direct/indirect customers	102000	119000
Commercial	93000	110000
<b>* total loans and leases</b>	<b>665000</b>	<b>682000</b>
other earning assets	22000	39000
<b>*total earning assets</b>	<b>704000</b>	<b>721000</b>
cash and cash equivalents	15000	32000
Allowance for loans and lease losses	62000	79000
<b>Total asset</b>	<b>815000</b>	<b>832000</b>



## BALANCE SHEET

	Year 0	Year 1
unit: \$ m		
<b>Liabilities</b>		
Domestic interest-bearing deposits		
Savings	22000	39000
Now and money market deposit accounts	219000	236000
CDs and time deposits	117792	134792
<b>Total interest-bearing deposits</b>	<b>392792</b>	<b>409792</b>
Federal funds purchased, securities sold to repurchase and other short term borrowings	111171	128171
long term debts	59037	76037
<b>Total interest-bearing liabilities</b>	<b>597000</b>	<b>614000</b>
Non interest-bearing liabilities	131000	148000
Shareholders' equity	53000	70000
<b>Total liabilities and S.E</b>	<b>815000</b>	<b>832000</b>



# Income statement

	Year 0	Year 1
	Interest income/expense	Interest income/expense
Revenues		
Interest income	9800	9100
Interest expense	4500	3800
<b>Net interest income</b>	<b>5300</b>	<b>4600</b>
Non interest income	4600	3900
<b>Total revenue</b>	<b>9900</b>	<b>9200</b>
Expense		
Provision for loan losses	1000	300
Non interest expense	4800	4100
<b>Total expense</b>	<b>5800</b>	<b>5100</b>
<b>Profit before tax</b>	<b>4100</b>	<b>3400</b>
<b>Income tax expense</b>	<b>1339</b>	<b>639</b>
<b>Profit after tax</b>	<b>2761</b>	<b>2061</b>



# Estimating liquidity need of CBs

- Formula:

$$\begin{array}{l} \text{Projected Liquidity} \\ \text{Deficit (-) or} \\ \text{Surplus (+)} \end{array} = \begin{array}{l} \text{Projected} \\ \text{Change in Total} \\ \text{Deposit} \end{array} - \begin{array}{l} \text{Projected} \\ \text{Change in Total} \\ \text{Lending} \end{array}$$





## Example 1

- Figure 1 – Projected deposits of a bank:

unit: \$ m

Projected Deposits for	Value of deposits (trend)	Seasonal factor	Cycle factor	Total projected deposits
	(1)	(2)	(3)	(4)=(1)+(2)+(3)
Week 1 of Month 1	1210	-4	-6	1200
Week 2 of Month 1	1212	-54	-58	1100
Week 3 of Month 1	1214	-121	-93	1000
Week 4 of Month 1	1216	-165	-101	950
Week 1 of Month 2	1218	70	-38	1250
Week 2 of Month 2	1220	-32	-52	1136

Note: Seasonal factor compares weekly deposits or lending in 10 years to average deposits or lending of the last week of Dec in 10 years



## Example 1

- Figure 2 – Projected loans of a bank:

unit: \$ m

Projected Loans for	Value of	Seasonal	Cycle	Total projected
	loans (trend)	factor	factor	loans
	(5)	(6)	(7)	(8)=(5)+(6)+(7)
Week 1 of Month 1	799	6	-5	800
Week 2 of Month 1	800	59	-9	850
Week 3 of Month 1	801	174	-25	950
Week 4 of Month 1	802	166	32	1000
Week 1 of Month 2	803	27	-80	750
Week 2 of Month 2	804	98	-2	900

Note: Cycle factor reflects the difference between the sum of trend factor + seasonal factor AND the real deposits or lending of the last year



# Example 1

- Figure 3 – Projected Liquidity Deficit /Surplus of a bank:

unit: \$ m

Borrowing  
decision  
needed

Period	Total projected deposits (4)	Total projected loans (8)	Projected deposit change (9)	Projected lending change (10)	Projected liquidity Deficit/Surplus (9)-(10)
Week 1 of Month 1	1200	800			
Week 2 of Month 1	1100	850	-100	50	<b>-150</b>
Week 3 of Month 1	1000	950	-100	100	<b>-200</b>
Week 4 of Month 1	950	1000	-50	50	<b>-100</b>
Week 1 of Month 2	1250	750	300	-250	550
Week 2 of Month 2	1136	900	-114	150	-264



## Liquidity ratios of CBs

- Cash ratio: if it is higher, the bank has stronger financial capacity

- Formula:

(1) Cash ratio = (cash + deposit at financial institutions) / total asset





## Liquidity ratios of CBs

- Liquid securities ratio: if government securities held are higher, the liquidity of CBs are better
- Formula:  
(2) Liquidity securities ratio = (government securities) / total asset



## Liquidity ratios of CBs

- Lending ability ratio: if it is higher, the liquidity is low
- Formula:

(3) Lending ability ratio = (Net loans + Net leasing) / total asset



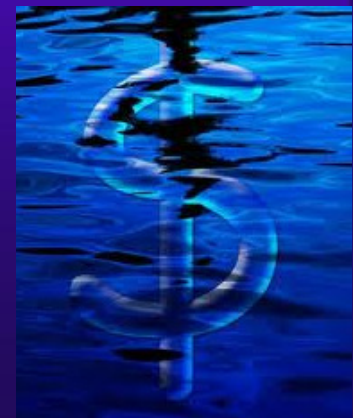


# Liquidity of CBs During Financial Crisis

- Deposit structure ratio: if it is lower, the deposits are more stable and liquidity need will be decreased

- Formula:

(4) Deposit structure ratio =  $\frac{\text{Current accounts}}{\text{Saving accounts}}$





# Liquidity of CBs During Financial Crisis

- Below ratios might be used as measures for the ability of CBs to meet cash requirements:
- Quick ratio : how CBs meet short-term cash needs
- Formula:  
(5) Quick ratio = (Cash + Current accounts at other banks) / (Total liabilities – Bonds – Other debts – Government & central bank debts)





## Liquidity of CBs During Financial Crisis

- Current ratio : ability of CBs meet short-term cash needs
- Formula:

(6) Current ratio = (Cash + Current accounts at other banks + Trading Securities + Investment securities available for sale) / (Total liabilities – Bonds – Other debts – Government & central bank debts)



# Liquidity of CBs During Financial Crisis

- Liquidity coverage ratio (Basel III): requires a bank holds enough funds to cover its net cash outflow in 30 days (from 2015)



## Example in Viet Nam

- SCB, Tin Nghia Bank, and ...has to be merged in 2011-2012 due to lack of liquidity after the crisis 2007-2010





## Example in Viet Nam

- Reasons for lack of liquidity of 3 above banks:
- + cash is invested in many large real estate projects and can not be sold immediately
- + very high lending rate (>22%) makes businesses unable to repay loans on time
- + downturn in the stock market makes the public investment slow



## Example in Viet Nam

- Figure : Inflation during the crisis

Year	Inflation	GDP	USD/VND rate
2012	Target 8%-9%	Target 6%	20.828
2011	18%	5,89%	20.670
2010	11,75% (Estimated at Dec 2010)	6,5% (expected)	19.495
2009	6,88%	5,2%	17.000
2008	22%	6,23%	17.700
2007	12,63%	8,44%	16.132
2006	6,6%	8,17%	
2005	8,4%		
Note	approximately		



## Example in Viet Nam

- Figure : Interest rates during the crisis

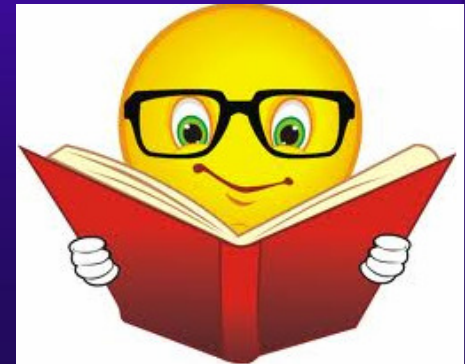
Year	Borrowing Interest rates	Deposit Rates	Note
2012	14%-16%	9%-12%	Lending rate 15% since 8/May, target 10% deposit rate end of 2012
2011	18%-22%	13%-14%	
2010	19%-20%	13%-14%	Approximately (2007: required reserves ratio at SBV is changed from 5% to 10%) (2009: special supporting interest rate is 4%)
2009	9%-12%	9%-10%	
2008	19%-21%	15%-16,5%	
2007	12%-15%	9%-11%	





## Summary

- If the bank does not pay attention to liquidity, it can go to bankruptcy as Lehman Brothers
- The bank can project liquidity, the difference b.t deposits and loans
- By liquidity ratios, the bank knows about its liquidity





## References

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## Multiple Choice Question

1. Which below factor makes NLP increase:
  - a. Total Deposits
  - b. Revenues from selling non-deposit services
  - c. Lending on interbank market
  - d. Debt repayment from companies
  - e. All



## Multiple Choice Question

2. Which of the following does NOT make NLP decreases:
- a. Some of Deposits withdrawn
  - b. Approved application loans
  - c. Borrowing on monetary market
  - d. Debt repayment of the bank
  - e. All



## MCQ-Answers

1. E
2. C