

# International Monetary Economics: Banks and Financial Intermediation

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September 12, 2011

# Part I

## Introduction: Banks

# Why Start with Banks?

- Banks play a key role in the financial system and in the economy.
- And, as we will see, monetary policy works largely through the influence that it has on the banking system.
- Finally, the banking sector is largely responsible for the financial market turmoil that has caused headaches for governments everywhere in recent years (not just in Ireland) and lead to the severe global recession.
- So, we will start by explaining how banks emerged, how they work and the important role they play in the economy.

## Some History: Early Banking

- Once coin and paper money replaced barter, the question arose of where people stored their money. You could keep it all at home (perhaps under the mattress) but this would not be very safe.
- Banks began as safe depositories for cash: You had your own separate locker in the bank's vaults for your cash.
- And you could go to the bank when you needed to get out your cash.
- But why waste your time going yourself? Why not pay your bills with a special piece of paper (clearly identifiable as coming from you) that says the bearer is entitled to payment of cash from your account?
- And so the cheque was born!
- After a while, most people that you were paying with a cheque weren't exchanging it for cash but instead instructing the bank to move cash from your locker to theirs.

# Clearinghouse Banks

- Suppose Bank A's depositors look to have their accounts credited by €10 million by presenting cheques from Bank B's depositors.
- At the same time, Bank B's depositors look to be credited €9 million from Bank A depositors.
- We could send €19 million in cash around town to the various vaults.
- But the couriers could get held up by bandits!
- Better idea: Settle accounts at a clearinghouse bank. At end of the day, the clearinghouse orders the transfer of €1 million from B's vaults to A's.
- Actually, you could mingle all the cash together and the clearinghouse just deducts €1 million from the ledger entry for Bank B's account and adds it Bank A's.
- But all deposits are still fully backed up by cash in the vaults.
- These clearinghouses were the forerunners of today's central banks.

# Fractional-Reserve Banking

- Most of the time (most being an important qualifier!) only a small fraction of a bank's total deposits will be demanded on any given day.
- And new money also gets deposited every day. Bank A-Bank B example: Despite €10 million in total claims against it, Bank B still only needed to hand over €1 million at the end of the day.
- Eureka moment: Why do we have to keep all this cash sitting around doing nothing to back up the deposits?
- Why not *lend* out some of these deposits and just keep enough cash reserves on hand to deal with day-to-day demands?
- And so, during the 1800s, the modern practise of fractional-reserve banking was born: Banks don't keep all your money in a vault anymore. They lend it out to other people.
- This is called *fractional-reserve banking* because they only keep a fraction of the money you've deposited with them "on reserve" in case people come looking for their money.

# Bank Balance Sheets

- Over the next few lectures, the key tool we will be using to understand banks is the bank balance sheet.
- This lists the bank's assets on the left and its liabilities on the right.
- The liabilities side shows the *sources* of the bank's funds (where it got them from) and the asset side shows the *uses* of funds (where they went).
- Here's a really stylized one:

<b>Assets (Uses of Funds)</b>		<b>Liabilities and Equity (Sources of Funds)</b>	
Cash	€15	Deposits	€100
Loans	€95	Equity Capital	€10
Total	€110	Total	€110

- This bank took in €100 in deposits and added this to €10 in funds that belong to its owners (equity capital).
- It then took these €110 in funds and handed out €95 in loans and kept €15 in cash (in case some of the depositors come looking for money quickly—loaned funds can be hard to get back quickly.)

## Balance Sheet of US Banks, January 2010

<b>Assets (Uses of Funds)</b>		<b>Liabilities and Equity (Sources of Funds)</b>	
Reserves and Cash	10%	Deposits	65%
Securities	20%	Borrowings	17%
Business Loans	12%	Other Liabilities	7%
Real Estate Loans	32%	Equity Capital	11%
Consumer Loans	6%		
Other Loans	12%		
Other Assets	8%		
Total	100%	Total	100%

- Note that, as in our stylized example, banks are keeping only a small percentage of their deposits on hand in cash or reserves held at the central bank.
- The rest has been invested or loaned out.

# Bank of Ireland Balance Sheet: Assets

	Note	31 December 2010 €m	31 December 2009 €m
<b>ASSETS</b>			
Cash and balances at central banks		1,014	4,241
Items in the course of collection from other banks		491	400
Trading securities	21	151	403
Derivative financial instruments	22	6,375	5,824
Other financial assets at fair value through profit or loss	23	10,045	9,679
Loans and advances to banks	24	7,458	5,031
Available for sale financial assets	25	15,576	20,940
NAMA senior bonds	26	5,075	-
Loans and advances to customers	27	114,457	119,439
Assets held for sale to NAMA	28	804	9,581
Interest in associates	30	26	23
Interest in joint ventures	31	199	194
Intangible assets – goodwill	32	44	48
Intangible assets – other	32	408	459
Investment properties	33	1,304	1,265
Property, plant and equipment	34	372	404
Current tax assets		125	134
Deferred tax assets	44	1,128	865
Other assets	35	2,291	2,170
Retirement benefit asset	45	11	6
Other assets classified as held for sale	36	119	-
<b>Total assets</b>		<b>167,473</b>	<b>181,106</b>

# Bank of Ireland Balance Sheet: Liabilities

## EQUITY AND LIABILITIES

Deposits from banks	37	41,075	17,903
Customer accounts	38	65,443	84,812
Items in the course of transmission to other banks		293	198
Derivative financial instruments	22	5,445	6,037
Debt securities in issue	39	28,693	43,144
Liabilities to customers under investment contracts	40	5,271	5,050
Insurance contract liabilities	40	7,188	6,658
Other liabilities	42	3,102	2,778
Current tax liabilities		139	121
Provisions	43	64	142
Deferred tax liabilities	44	91	134
Retirement benefit obligations	45	435	1,638
Subordinated liabilities	41	2,775	6,053
Liabilities held for sale to NAMA	28	-	1
Other liabilities classified as held for sale	36	52	-
<b>Total liabilities</b>		<b>160,066</b>	<b>174,669</b>
<b>Equity</b>			
Capital stock	47	1,210	699
Stock premium account	48	3,926	4,092
Retained earnings		3,740	3,263
Other reserves		(1,510)	(1,580)
Own stock held for the benefit of life assurance policyholders		(15)	(87)
<b>Stockholders' equity</b>		<b>7,351</b>	<b>6,387</b>
Non-controlling interests		56	50
<b>Total equity</b>		<b>7,407</b>	<b>6,437</b>
<b>Total equity and liabilities</b>		<b>167,473</b>	<b>181,106</b>

# What Equity Capital Is

- It's the gap between the value of the its assets and the value of its liabilities.
- In other words, equity capital measures how much you would have left if the bank had to sell off assets to pay off all its liabilities today.
- Equity capital can only be raised by either getting an outside investment or making a profit and retaining the earnings.
- Equity capital is considered to be “the shareholders’ funds”, i.e. it tells you what fraction of the banks assets can be considered to be owned by the shareholders rather than owed to creditors.
- Note that equity capital is very much a static “accounting concept”. The level of equity capital depends on the valuation that is applied to the assets. It also does not take into account what may happen in the future, e.g. the bank may grow and pay lots of dividends.
- A bank with negative equity capital is termed insolvent bank—its assets do not cover its liabilities. Often, particularly in a crisis, it is not clear what the value of a bank's assets actually is. This can lead to debates about whether the bank is insolvent or not.

# What Equity Capital Is Not

- The word “capital” gets used a lot in economics and can have different meanings, so perhaps it’s not surprising that people often misunderstand its meaning when used in banking discussions.
- What Equity Capital Is Not:
  - ▶ It’s not cash reserves or “working capital” i.e. liquid funds to pay for its day-to-day operations.
  - ▶ It’s not a specific “ringfenced asset” that you can point at.
  - ▶ It’s not deposits or bond liabilities.
  - ▶ It’s not the the stock market value (i.e. capitalisation) of the bank. That can be higher or lower than the “book value” equity capital we are talking about here, depending on the market’s assessment of the future profitability of the bank and also on their view of the accounting valuation of the bank’s assets.
- Beware of bad terminology from journalistic or political discussion about banks: “Capital reserves” (makes it sound like its cash reserves), “hoarding capital” (makes it sound like it’s a specific asset), sometimes people talk about “raising capital” when a bank is just borrowing from the bond market.

## Part II

# Fractional-Reserve Banking: Positives and Negatives

# Advantages of Fractional Reserve Banking

- Fractional-reserve banking has generated a lot of criticism over the years along the lines of “how dare these people pretend they have your money when they’ve actually given it to someone else.”
- Don’t take these criticisms too seriously. Banks don’t pretend they have your money in the vault but they will (almost always) give you your money back on request if you ask.
- But it has huge advantages:
  - ① Saves depositors money: Banks can charge interest on their loans. Without this interest income, the only way a bank can make a profit is to charge fees to depositors. Interest earned can be used as an alternative source of income for banks and (assuming competition between banks) this reduces the need for fees related to safeguarding their money.
  - ② It makes banks an intermediary between those that have money and those that need to borrow money. This *financial intermediation* function is a crucial aspect of the modern economy.

# Why Do We Need Financial Intermediaries?

Why can't those with savings just lend them directly to those who want to borrow?

- 1 Pooling Savings: Many savers deposit small amounts. Someone looking for a big loan can get it from a bank rather than having to look for a saver with the correct amount of funds.
- 2 Risk Diversification: Savers lending their funds to an individual borrower face idiosyncratic risk. If that borrower fails to pay back, they lose everything. The bank can lend to many borrowers, take its cut, and pass a safe return back to the saver.
- 3 Liquidity Transformation: If I want to have my savings back when I want them, I won't lend the money for one year or more, as borrowers may want. Banks can make these long-term loans, knowing that (hopefully) each period, only some of its depositors will want their money back.
- 4 Information Processing: Banks can specialize in screening borrowers, processing and sharing information, and in writing sophisticated debt contracts.

# Things Financial Intermediaries Help You Do

- There are other financial intermediaries apart from banks and insurance companies. Pension funds, mutual funds and private equity funds are three examples that play important roles in the economy.
- Financial intermediation plays a crucial role in modern economies.
  - ① Buying a house: Without financial intermediation, you could only obtain the money to buy a house by saving all the money over years and then eventually having enough money saved to finance the purchase.
  - ② Starting a business: Most businesses take a number of years before they can turn a profit. Without financial intermediation, only those who had substantial accumulated wealth could consider starting a business. Having such wealth is still an important advantage but the financial system plays an important role in encouraging innovation by new businesses.
  - ③ Insurance: Sometimes bad things happen to people and they need a large amount of money (perhaps more than they have saved). Insurance companies are financial intermediaries that take from those looking to be insured and use the funds to pay out to those that need the money due to bad luck.

# An Important Disadvantage: Potential for Instability

- Having listed all the advantages of fractional-reserve banking, it turns out there is also a very important *disadvantage* associated with it.
- Banks are supposed to have assets greater than liabilities owed to non-investors (i.e. positive bank capital).
- What if the bank makes bad loans to borrowers that default?
- What if customers suspect the bank does not have assets to pay back money to depositors?
- If this happens, the earlier arguments that only some customers wanting their money back may turn out to be incorrect.
- We may have a run on the bank: Lots of depositors look to get their money back. Banks are generally not able to cope with these runs.
- For these reasons, fractional reserve banking systems are subject to occasional periods of instability, such as the one we are currently experiencing.

# Maturity Mismatch

- In an ideal world, a bank would have the maturity of its assets closely match the maturity of its liabilities, e.g. if it has €100 million euro of demand deposits, it would have the same amount in cash, if it had €500 million in five year deposits, it would have the same amount in five year loans.
- This would limit the possibility of demands for withdrawals that can't be met from liquid funds.
- However, there are limits to this. *Maturity mismatch* is a standard feature of banking: People who supply funds tend to want to have it available for return at shorter terms than people who the bank lends funds out to.
- In the past, governments imposed regulations to limit maturity mismatch: Mortgage lenders took in longer-term savings, banks who had demand deposits only made shorter loans.
- However, these restrictions have generally been lifted over the years.
- Most banks are thus vulnerable if situations arise in which there are demands to pay back a large amount of liabilities over a short period of time.

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## Recap: Key Points from Part 2

Things you need to understand from these notes:

- 1 Meaning of fractional-reserve banking.
- 2 Understanding bank balance sheets: Liabilities and assets.
- 3 Meaning of “equity capital” for banks.
- 4 Advantages of fractional-reserve banking.
- 5 Meaning of financial intermediation and why it is better than direct lending from savers to borrowers.
- 6 Things financial intermediaries help you do.
- 7 Why bad loans cause problems for banks.
- 8 Maturity mismatch.