

# International Money and Banking:

## 2. Banks and Financial Intermediation

Karl Whelan

School of Economics, UCD

Spring 2017

# Banks

- While currency still plays an important role, the vast majority of economic transactions today use bank deposits for payment.
- 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.
- The banking sector played a key role in the financial market turmoil that generated the severe global recession of 2008-2009 and banking problems have also played a key role in the economic problems that continue to afflict the Euro area.
- In these notes, we will start with a simple introduction to banks and their role in the economy.
- As the course goes on, we will introduce more complex topics, focusing on banking crises and their impacts as well as a detailed discussion of issues related to banking regulation.

## Some History: Early Banking

- Once coins 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?
- As we noted before, this was how the earliest bank notes came into existence. Cheques can also be used to make payment without using cash.
- Once many people had bank accounts, then they weren't taking money out of the bank after receiving a cheque. Instead, they were instructing the bank to move cash from someone else's 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!
- A better idea was the following: 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. Consider the example on the previous slide: 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, 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

- A bank's balance sheet lists its assets and liabilities.
- 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 simple example of a balance sheet:

<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.)

## Balance Sheet of US Banks, December 2016

<b>Assets (Uses of Funds)</b>		<b>Liabilities and Equity (Sources of Funds)</b>	
Reserves and Cash	14%	Deposits	72%
Securities	21%	Borrowings	12%
Business Loans	13%	Other Liabilities	5%
Real Estate Loans	26%	Equity Capital	11%
Consumer Loans	9%		
Other Loans	8%		
Other Assets	9%		
Total	100%	Total	100%

- Note in this case that banks were keeping 14% of their deposits on hand in cash or reserves held at the central bank.
- The rest had been invested or loaned out.
- The next two pages show the balance sheet of Bank of Ireland, as of June 2016 (the first column) comparing each entry with the figures for December 2015 (the second column).

# Bank of Ireland Balance Sheet: Assets

	Note	30 June 2016 €m	31 December 2015 €m
<b>Assets</b>			
Cash and balances at central banks		5,990	6,603
Items in the course of collection from other banks		268	294
Trading securities		127	3
Derivative financial instruments		4,436	3,064
Other financial assets at fair value through profit or loss		12,389	12,280
Loans and advances to banks	15	3,784	4,578
Available for sale financial assets	16	10,208	10,128
Held to maturity financial assets		1,897	1,922
NAMA senior bonds	17	801	1,414
Loans and advances to customers	18	80,215	84,689
Assets classified as held for sale		-	20
Interest in associates		53	56
Interest in joint ventures		94	83
Intangible assets		534	526
Investment properties		829	841
Property, plant and equipment		323	334
Current tax assets		4	13
Deferred tax assets	26	1,403	1,453
Other assets		2,909	2,640
Retirement benefit assets	27	3	19
<b>Total assets</b>		<b>126,267</b>	<b>130,960</b>



# Bank of Ireland Balance Sheet: Liabilities and Equity

<b>Equity and liabilities</b>			
Deposits from banks	20	3,372	952
Customer accounts	21	77,508	80,164
Items in the course of transmission to other banks		445	239
Derivative financial instruments		3,626	3,619
Debt securities in issue	22	10,146	13,243
Liabilities to customers under investment contracts		5,460	5,729
Insurance contract liabilities		10,636	10,403
Other liabilities	23	2,533	4,103
Current tax liabilities		55	35
Provisions	25	100	97
Deferred tax liabilities	26	43	68
Retirement benefit obligations	27	1,196	755
Subordinated liabilities	24	2,443	2,440
<b>Total liabilities</b>		<b>117,563</b>	<b>121,847</b>
<b>Equity</b>			
Capital stock		2,545	2,558
Stock premium account		571	1,135
Retained earnings		4,194	4,950
Other reserves		662	(260)
Own stock held for the benefit of life assurance policyholders		(9)	(11)
<b>Stockholders' equity</b>		<b>7,963</b>	<b>8,372</b>
Other equity instruments		740	740
<b>Total equity excluding non-controlling interests</b>		<b>8,703</b>	<b>9,112</b>
Non-controlling interests		1	1
<b>Total equity</b>		<b>8,704</b>	<b>9,113</b>
<b>Total equity and liabilities</b>		<b>126,267</b>	<b>130,960</b>

# 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 important 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 **Maturity 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 its 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.

## 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 Maturity mismatch.
- 8 Why banks can potentially become unstable.