BRUNEL UNIVERSITY
Economics and Finance

EC1004 LECTURE 9

Introduction to commercial banking

Reading: Madura Chapter 17

In this lecture we are going to discuss the functions of commercial banks, mainly by reference to the balance sheet and profit and loss account of a typical UK bank (Royal Bank of Scotland). We shall then discuss the key functions of banks – brokerage and qualitative asset transformation, the range of risks banks face and then information needs for lending which is the key profit-making activity of a commercial bank.

1 Introduction to bank functions

- Banks provide liquidity services - distributors of currency and producer and server of demand deposits (current accounts). Banks offer a form of liquidity insurance to depositors (you can always get your money back without notice) as well as safe-keeping for wealth. They also provide a means of making payments, e.g. to pay bills.
- Banks are a link in the monetary policy process – central banks (Lecture 3) set the money market interest rate that is then passed on by banks to the rest of the economy, notably mortgage borrowers and companies.
- Banks undertake lending and sale of guarantees (debt finance). Conceptually, by lending banks are carrying out “qualitative asset transformation” by exchanging a short term liability (deposit) with a long term asset (a loan), which is also often larger than the deposits that finance it.
- Financial advice – banks have economies of scale in information gathering that give them advantages over households trying to invest directly themselves.

2 Bank’s balance sheet

- the balance sheet is a snapshot of the financial condition of a firm, showing assets and liabilities.
- we shall look at the balance sheet of an individual institution – good way of getting a feel for what banks are and what they do.

How does a bank’s balance sheet differ from the balance sheet of a commercial company (e.g. a retailer or manufacturer)?

- Banks have low equity relative to their assets, usually around 8% compared with 50%. This means they are more risky and vulnerable to bankruptcy, although the risk is partly balanced by better diversified assets.
- Low fixed assets – banks only need a branch network and not factories etc.
- Assets are mainly loans and securities
- Liabilities are mainly deposits
- Banks carry out a lot of off balance sheet activities, using derivatives, because of their expertise in financial markets
- Ownership structure of banks is often “mutual” owned by customers (e.g Nationwide) as well as a PLC owned by shareholders (e.g. Lloyds TSB).

Royal Bank of Scotland

Consolidated Balance Sheet as at 30 June 2000

	Actual 30 June 2000 £m
Assets	
Cash and balances at central banks and items in the course of collection	**6,449**
Treasury bills and other eligible bills	**5,332**
Loans and advances to banks	**37,324**
Loans and advances to customers	**156,292**
Debt securities and equity shares	**54,297**
Intangible fixed assets	**12,121**
Other assets	**24,132**

	295,947
Long-term assurance assets attributable to policyholders	**10,258**

Total assets	**306,205**

Assets of a bank are mainly loans (50%) but also securities (20%) which are more liquid. Fixed assets only 5%. Small amount of very liquid assets (cash and treasury bills) to make short term payments. Some lending to banks also (10%)

Liabilities	
Deposits by banks and items in the course of transmission to other banks	**35,472**
Customer accounts	**166,221**
Debt securities in issue	**23,614**
Other liabilities	**37,348**
Subordinated liabilities	**10,092**
Minority interests	**759**
Shareholders' funds including non-equity interests	**22,441**

	295,947
Long-term assurance liabilities to policyholders	**10,258**

Total liabilities	**306,205**

Memorandum items:	
Contingent liabilities and commitments	**99,699**

Liabilities of a bank are mainly deposits or customer accounts (55%) but also interbank deposits and bonds they have issued. Low level of equity (shareholders funds) to protect against losses, subject to regulation by FSA. Contingent liabilities are those from off balance sheet transactions e.g. in futures markets.

G-7 Banking sector portfolios 2000
Percent of total assets/liabilities

Financial assets	UK	US	Germany	Japan	Canada	France	Italy
Deposits	35	2	9	11	3	35	16
Money market paper	4	1	1	8	6	9	1
Loans	46	61	60	50	73	32	59
Bonds	7	27	20	19	10	8	15
Equity	3	4	8	11	4	13	8
Liabilities							
Deposits	84	73	62	80	51	75	60
Money market paper	9	12	2	4	0	7	0
Loans	0	6	0	9	42	1	6
Bonds	5	3	27	4	5	8	14
Equity	3	5	9	3	3	8	20
Memo							
Assets /GDP	346	86	252	275	106	276	151

International differences in balance sheets across countries show that on the asset side, UK banks have more interbank claims (deposits) and less loans. Elsewhere, banks often hold more securities including shares. On the liabilities side, UK banks finance themselves more by customer deposits while the UK banking sector is the largest in the G-7 (due to the City of London).

3 Bank’s profit and loss

- the profit and loss account shows flows of income and expenditure for the firm, giving rise to profitability over a given time period
- profit and loss from individual institutions is again a good way of getting a feel for what banks are and what they do.

How does it differ from the profit and loss of a commercial company (e.g. a retailer or manufacturer)?
- Banks have high interest income and expenditure, reflecting the level of debt on the asset side (loans) and liability side (deposits). Profits are made from the spread (difference) between low interest deposits and high interest loans, subject to costs due to defaults on the loans (provisions).
- Main other expense is staff costs, since banking is a service industry not a manufacturing industry
- Growing share of non-interest income, such as fees and commissions, trading and dealing in securities, partly arising from banks’ advantage in financial advice provision.

Royal Bank of Scotland

Consolidated Profit and Loss Account (pro forma basis)

	6 months ended 30 June 2000 £m	6 months ended 30 June 1999 £m
Interest receivable	**7,059**	6,005
Interest payable	**4,191**	3,412
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Net interest income	**2,868**	2,593
Dividend income	**17**	18
Fees and commissions receivable	**1,970**	1,753
Fees and commissions payable	**(394)**	(334)
Dealing profits	**574**	526
Other operating income	**489**	552
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	2,656	2,515
General insurance - earned income	**621**	425
- reinsurance	**(171)**	(78)
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Non-interest income	**3,106**	2,862

High net interest income - reward for qualitative asset transformation – changing short-term, liquid deposits into illiquid, long-term loans. But also sizeable non interest income.

Total income	**5,974**	5,455
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Administrative expenses		
- staff costs	**1,747**	1,771
- premises and equipment	**425**	430
- other	**769**	673
Depreciation of tangible fixed assets	**389**	399
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Operating expenses	**3,330**	3,273
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Profit before other operating charges	**2,644**	2,182
General insurance - gross claims	**462**	356
- reinsurance	**(139)**	(67)
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Profit before provisions for bad and doubtful debts	**2,321**	1,893
Provisions for bad and doubtful debts	**284**	242
Amounts written off investments	**26**	12

Staff costs most important expense besides interest expenses. Provisions are profits held back when borrowers default.

Group operating profit before goodwill amortisation and integration costs	**2,011**	1,639
Goodwill amortisation	**308**	280
Integration costs	**189**	-
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Group profit before tax	**1,514**	1,359
Tax	**(548)**	(484)
	--------	**--------**
	966	875
	--------	**--------**
Group profit after tax	**966**	875
Minority interests	**(22)**	(27)
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Profit after minority interests	**944**	848
Preference dividends	**162**	145
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Profit attributable to ordinary shareholders	**782**	703

See how little of profits reaches the shareholder! The bank has a low return on assets (pretax profit/assets) (1%) but high return on equity (13.4%) (pretax profits/equity). After this account it bought NatWest and became yet larger.

4 Restructuring of the banking sector

	Concentration (share of 5 largest banks in total assets)			Number of branches				Employment			
	1990	1997	2003	1990	1997	2003	Change	1990	1997	2003	Change
US	13	21	24	72.8	77.3	84.8	0.0	1911	1847	2129	0.0
Japan	42	39	42	24.7	25.4	22.7	–11.8	593	561	447	–27.8
Germany	17	17	22	43.3	47.1	38.2	–22.3	696	751	732	–3.5
France	52	38	45	25.7	25.5	26.2	0.0	399	386	384	–3.8
UK	49	47	41	19.0	14.3	12.9	–32.4	423	360	360	–15.0
Italy	24	25	27	17.7	25.6	29.9	0.0	324	343	341	–4.3
Canada	83	87	87	8.7	9.4	10.4	0.0	211	264	279	0.0
Spain	38	47	55	35.2	37.6	39.4	0.0	252	242	239	–6.6
Australia	65	69	77	6.9	6.1	4.9	–31.2	357	308	344	–3.4
Netherlands	74	79	84	8.0	7.0	3.7	–54.1	123	120	140	–9.6
Belgium	48	57	83	8.3	7.4	5.6	–33.2	79	77	75	–5.6
Sweden	70	90	90	3.3	2.5	2.0	–37.2	45	43	42	–7.7
Austria	35	44	44	4.5	4.7	4.4	–6.2	75	75	75	–2.4
Switzerland	54	73	80	4.2	3.3	2.7	–35.9	120	107	100	–16.8
Norway	68	59	60	1.8	1.6	1.2	–32.9	31	24	22	–22.4
Finland	65	77	79	3.3	1.7	1.6	–55.8	50	30	27	–49.3

Banking sectors are becoming more concentrated (i.e. dominated by the five largest banks)
In many countries the number of branches is declining because banks find they have "excess capacity". Banks are also reducing the number of employees.
These patterns result from increasing competition following financial deregulation (e.g. removal of controls on interest rates or lending volume).

5 Key concepts in banking

5.1 Two key functions of banks

(1) Match transactors (information based financial services) - brokerage

- Fee based compensation
- No position taking involved, although reputation risk
- Basis of cost of gathering information reusability of information at zero cost
- Larger the grid, the more the saving, and the more difficult observation is
- Can be reused cross sectionally or through time

Examples: transactions services, financial advice, screening, origination, issuance, funding

(2) Manage risks and transform nature of claims – qualitative asset transformation or QAT

- Provide better alternative to finding a counterpart for every transaction
- Transformations include duration, divisibility, credit risk, liquidity, currency
- Mismatch involves risk of loss to the intermediary
- Diversify (mutual funds) shift risk to others (derivatives) or accept exposure (banks)
- Examples: monitoring, management expertise, guaranteeing, liquidity creation

Exists continuum from brokerage to QAT, e.g. “firm commitment” and “best efforts” of investment banker

5.2 Key theoretical problems of banking: asymmetric information and incentive problems

Adverse selection: pricing policy induces low average quality of sellers in market, where asymmetric information prevents buyer from distinguishing quality
Example of adverse selection: used cars

Moral hazard: incentive of beneficiary (agent) of a fixed value contract in presence of asymmetric information and incomplete contracts, to change behaviour after contract has been signed, to maximise wealth to the detriment of provider of the contract (principal). Example:
Distinction of moral hazard from fraud

Production plan	Payoff in period 2		Market value in period 1		
	State 1	State 2	Total	Debt	Equity
a	7	7	7	5	2
b	1	10	5.5	3	2.5

(a) Banks and screening
- To overcome adverse selection, banks can screen quality of entrepreneurs and firms, they communicate proprietary information at lower cost than borrowers, then sell claims to a diversified portfolio to investors.

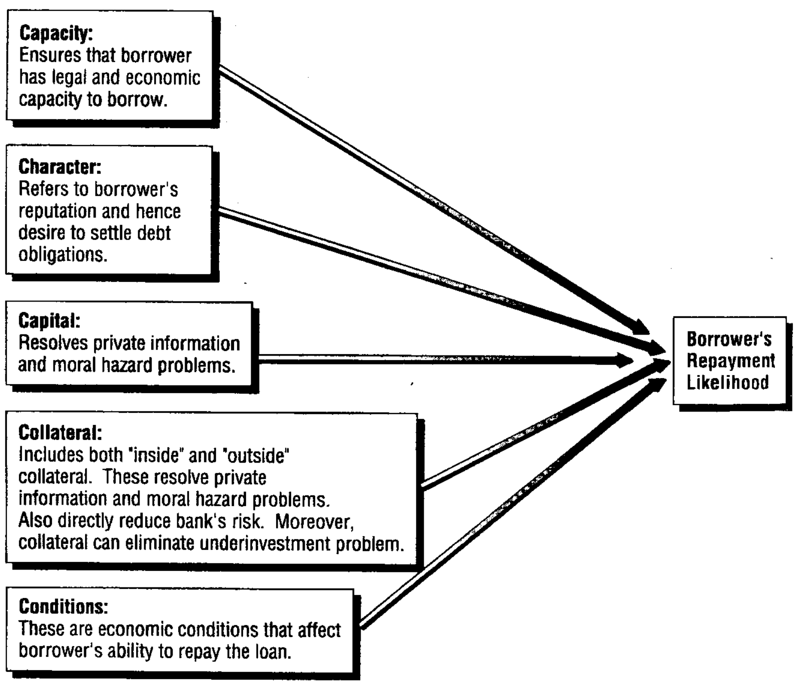
(b) Banks and monitoring
- Banks act as delegated monitors (from depositors) to overcome asymmetric information, and risk of moral hazard.
- Technology of monitoring offers economies of scale (e.g. obtained from ongoing credit relations, deposit history, transactions services)
- Diversification lowers borrowing costs (projects are too large for investors to finance alone).
- Investors need to monitor the intermediary, e.g. via non pecuniary penalties or the threat of a "run" (costs of this less than benefits from scale economies in monitoring investment projects)

In practice screening and to a lesser extent monitoring takes place via the process of credit analysis.

5.3 Credit analysis and credit information

Analysis seeks to assess ability and willingness of borrower to repay. Crucial to do the analysis before lending (screening) and also periodically when loan is outstanding (monitoring)
Underlying issue – bank owns asset while borrower has option to not repay, at the cost of going bankrupt.

Factors in credit analysis:



5.4 Introduction to bank risks

What is risk? – danger that a certain unpredictable contingency can occur, which generates randomness in cashflow. Banks seek to profit from risk, either by accepting risk, hedging against it or diversifying appropriately (lecture 7)

Risk and uncertainty – risks may be described using probability analysis (business cycle, company failures), while events subject to uncertainty cannot (financial crises, wars etc.)

Risk and variability – variability alone may not entail risk as long as known for sure ex ante

The nature of qualitative asset transformation- gives rise to risks because of mismatched balance sheet.

Main forms of risk

Credit risk – risk that a party to contract fails to fully discharge terms of the contract

Interest rate risk – risk deriving from variation of market prices owing to interest rate change, which may affect assets differently from liabilities (Market risk – more general term for risk of market price shifts)

Liquidity risk – risk that asset owner unable to recover full value of asset when sale desired (or for borrower, that credit is not rolled over). Key risk for banks is that depositors will all seek to cash deposits at once (“bank run”).

Market liquidity risk – risk that a traded asset market may vary in the liquidity of the claims traded

Other risks

- operational risk
- risk of fraud
- reputation risk

Systemic risk – that the financial system may undergo contagious failure following other forms of shock, which may be a consequence of realisation of any of the above forms of risk

Exercises

What are the main functions of banks?

Consider analysing a mortgage borrower – what information would you want before making a loan?

What are the key risks banks run?

Find the latest results of Royal Bank of Scotland
http://www.rbs.co.uk/Group_Information/Investor_Relations/Company_Announcements/2004/pdfs/RBS_Interim_Results_2004.pdf

pp 5-8 Chief Executive statement
What key banking activities are emphasised?
Is RBS best seen as a bank or a "conglomerate" of many businesses?
pp 28-29 balance sheet and profit and loss
Has the return on equity or on assets improved?
What about bad debt provisions?
Is the bank more involved in interest or non interest activities now?