How the Financial System Works

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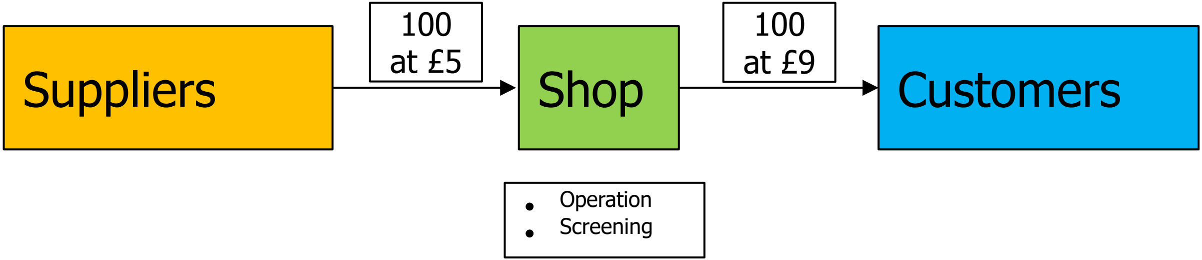
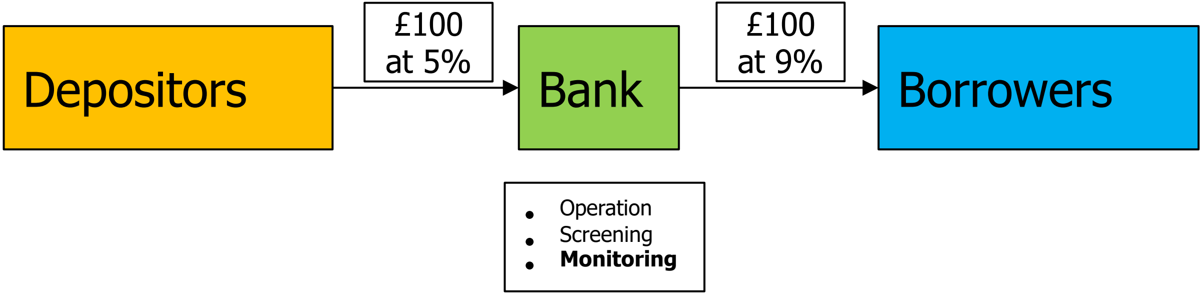
I: How Banks Work

How Shops Work



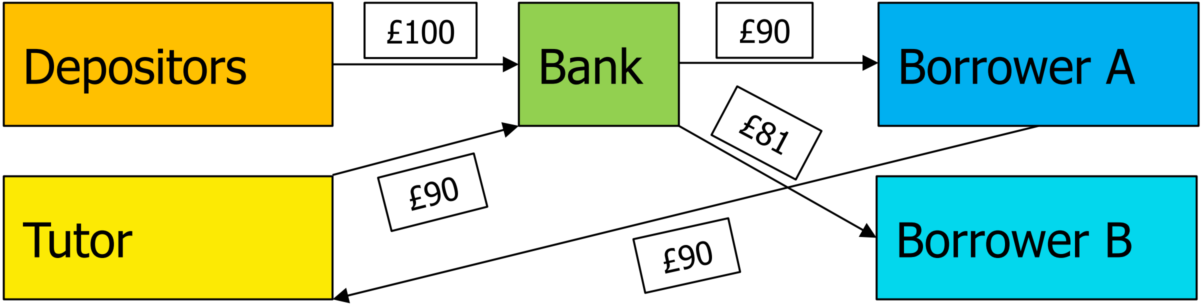
How Banks Work



But what if borrowers don’t pay back the full £100?

Fractional Reserve Banking

- Reserve ratio = how much you hold in reserve and don't lend out
  - Assume 10%



Money Creation

Stage	Deposited	Lent	Reserves
1	100	90	10
2	90	81	9
3	81	72.9	8.1
4	72.9	65.6	7.3
5	65.6	59.0	6.6
… to ∞			
Total	1,000	900	100

- Money multiplier of 10 (= 1 divided by reserve ratio)

Insolvency Risk

Stage	Deposited	Lent	Reserves
Total	1,000	900	100
	Short-term	Long-term	

- Operation
- Screening
- Monitoring
- **Maturity transformation**

- What if depositors want to withdraw > 100?
  - If bank can only sell its loans for 50% (450), then withdrawals > 550 will lead to insolvency – *even if* all loans are safe
- Depositors' need for cash should be uncorrelated, so withdrawals shouldn't exceed 100
- But what if depositors think others will withdraw? *Bank run*
  - Role for *deposit insurance* (£85,000 in the UK)


northern rock
6·71%
1 year
fixed
rate
bond
POLICE
BX55 EJY

Building Societies

- Banks have shareholders and are listed on a stock exchange
- Building societies are *mutual* organisations owned by their members
  - They get to vote at AGM, and may benefit from better interest rates
  - E.g. Nationwide, Yorkshire, Coventry, Leeds
  - Fewer branches, and potentially few products
- Many building societies *demutualised* in the 1990s, e.g. Halifax, Northern Rock, Woolwich, Bradford & Bingley
  - Members received *windfall shares*
- Also exist in Australia and New Zealand; used to exist in Ireland and several Commonwealth countries

II: How the Stock Market Works

How the Stock Market Works

- A *share* is partial ownership of a company, entitling you to future dividends and votes (see Lecture 1)
  - What if you want cash now? You can sell it (second-hand) to someone else
  - Can do so *over-the-counter*, but may be difficult to find a buyer
- How do you buy fruit and vegetables?

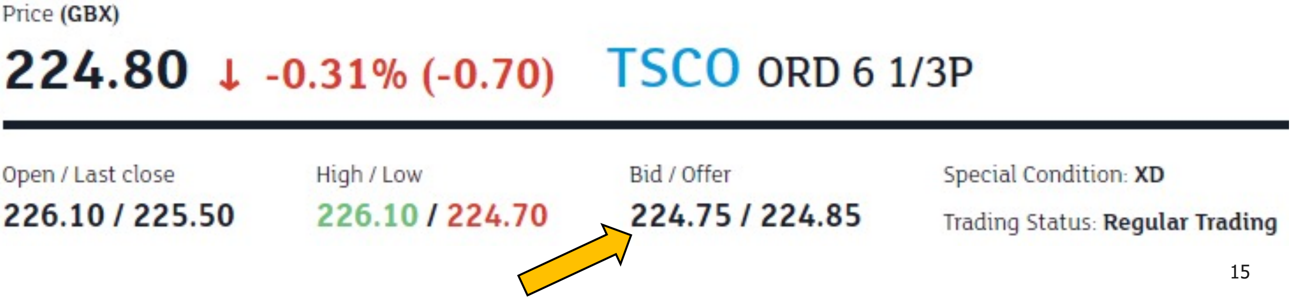

£1
£1
£1
£1
£1

The Stock Market

- The *stock market* is a market for shares *listed* on that market
  - Sellers post an *ask price / offer price* – minimum they're willing to sell for
  - Buyers post a *bid price* – maximum they're willing to pay
- A trade is made when a buyer accept the ask or seller takes the bid
- Open outcry (abolished in 1986 "Big Bang")

Market Makers

- Market makers provide *liquidity* by quoting *two-sided markets*: both bid and ask price
  - Make money on the *bid-ask spread*
  - E.g. Peel Hunt, Canaccord Genuity
- Many market makers on the same stock



Trading Shares

- How do you or I get access to market makers?
  - Through brokers (e.g. Hargreaves Lansdown) in return for a commission
- Market order: will pay the current ask or accept the current bid
- Limit order: set a min/max price you'll trade it

◉ **Buy limit**

Number of shares:	500	
Price (p):	200	11% below the buy price of 224.45p
Expires after:	90 calendar days	Expires: 16:30, 1/9/2021

Raising Equity

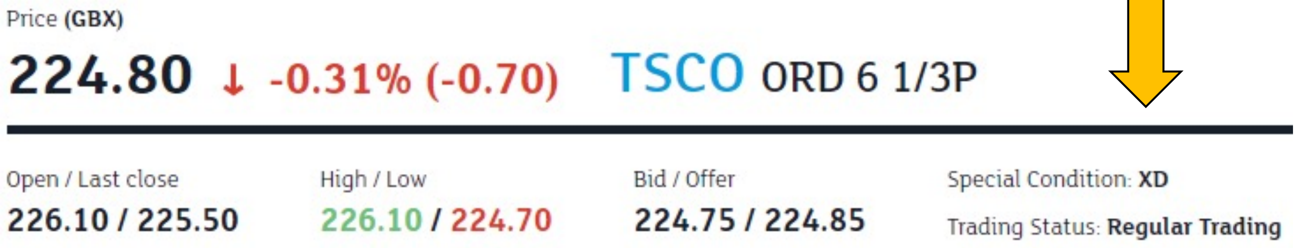
- Start-ups raise equity privately at the start
  - Business partners, angel investors, venture capitalists (e.g. Sequoia Capital, Octopus Ventures): seed funding
  - Often follow-up financing rounds: Series A, B, C
- Why go public?
  - A company wants to raise more *primary equity* and needs to broaden its investor base to do so
  - Initial investors wish to cash out and need a *secondary market* to do so
- Going public involves *listing* on a stock market
  - Initial Public Offering: new shares are sold to the public
    - Underwriter sets price of new shares, finds new investors, guarantees sale of certain number
  - Direct Listing: no new shares created; only existing shares are sold

Listed Equity

- Different markets have different *listing rules*
  - LSE Premium List: need to comply with UK Corporate Governance Code
  - LSE Main List
  - Alternative Investment Market
- Companies can undertake
  - Seasoned Equity Offerings: raising new equity
  - Share buybacks: repurchase equity

The Rights of Shareholders

- Broker holds shares in a *nominee account*. Are the legal owner, but you are the real owner and retain ultimate rights
- Receive all future dividends
  - If share is "ex dividend", you don't receive the next dividend



- Vote at AGMs, but you need to request this from broker

III: How Mutual Funds Work

Actively-Managed Mutual Funds

- A fund manager invests according to an investment strategy

BAILLIE GIFFORD POSITIVE CHANGE

FUND OBJECTIVE

Investment Objective The Sub-fund aims to outperform (after deduction of costs) the MSCI AC World Index, as stated in Sterling, by at least 2% per annum over rolling five-year periods. Investment Policy The Sub-fund will invest at least 90% in shares of companies anywhere in the world whose products or behaviour make a positive impact on society and/or the environment in the investment manager's opinion. Investments will be made in companies addressing critical challenges in areas such as, but not limited to; education, social inclusion, healthcare and the environment. The Sub-fund will be actively managed,

CHARGES AND SAVINGS

Initial charges	
Initial charge:	5.00%
Initial saving from HL:	5.00%
HL dealing charge:	Free
Net initial charge:	**0.00%**

Annual charges	
Performance fee:	No
Ongoing charge (OCF/TER):	0.81%
Ongoing saving from HL:	0.10% i
Net ongoing charge:	**0.71%**

Platform fees charged by broker for servicing

Actively-Managed Mutual Funds

- Offered by *asset managers*. An asset manager offers several funds
- Fund manager chooses stocks
- Responsible investment / Stewardship department (AM-wide) specialises in voting / engagement
  - Asset manager may be a signatory to the UK Stewardship Code, UN Principles for Responsible Investment etc.
- Either Accumulation or Distribution units
- Can invest and withdraw at any time; trade with the AM, not another investor via an exchange. Open-ended

BAILLIE GIFFORD POSITIVE CHANGE CLASS B - ACCUMULATION (GBP)

Sell: **349.50p** | Buy: **349.50p** | ↓ 0.70p (0.20%)

Passively-Managed Mutual Funds

- Also known as index funds or trackers

VANGUARD FTSE 100 INDEX

FUND OBJECTIVE

The Fund seeks to track the performance of the FTSE 100 Index.

Annual charges	
Performance fee:	No
Ongoing charge (OCF/TER):	0.06%
Ongoing saving from HL:	0.00%
Net ongoing charge:	**0.06%**

Exchange-Traded Funds

- Typically passive, but some are active
- When you buy or sell, you do so with another investor on the exchange, not with the company

ISHARES II PLC GLOBAL CLEAN ENERGY UCITS ETF (DIST) (INRG)

Sell: **898.75p** | Buy: **899.50p** | ↓ 2.75p (0.31%)

- Investment trusts are similar, but
  - Mainly active
  - Closed-ended
  - May trade at a discount to net asset value

IV: How Pension Funds Work

Defined Contribution Pensions

- You invest an amount of your choice in funds of your choice, and bear the entire investment risk
  - External and internal funds (e.g. USS Growth Fund)
- Tax-free annual allowance of £40,000
  - Falls by £1 for every £2 your "adjusted income" exceeds £240,000, to a minimum of £4,000
- Employer may match your contribution

Defined Benefit Pensions

- You are guaranteed a certain income in retirement, based on your salary (e.g. 1/75th)
  - You make a contribution today (e.g. 8% from employee, 18% from employer)
  - Pension fund bears the investment risk; *underfunded* if assets < liabilities. E.g. £571m when BHS collapsed in 2016
  - Employee bears the risk if pension fund becomes insolvent Pension Protection Fund provides insurance
- Multiply by 20 to get tax charge. E.g. £55k salary gives you £55k/75 extra in retirement. This is worth 20 × £55k/75 = £14,667 today
- External and internal funds
  - Many engage with beneficiaries to find underlying preferences

6. When it comes to sustainability, what is your top area of concern? (Select one)

- ☐ Impact on the environment, including climate change
- ☐ Human rights, including labour rights and modern slavery
- ☐ Corporate governance, including corruption, tax avoidance and executive pay
- ☐ Unhealthy or dangerous products, such as tobacco or weaponry
- ☐ Other (please specify) ______________________

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7. Which of the following Sustainable Development Goals would you most like your investments to support? (Select up to three)

☐	No poverty	☐	Industry, innovation and infrastructure	☐	Gender equality	☐	Climate action
☐	Zero hunger	☐	Reduced inequalities	☐	Clean water and sanitation	☐	Life below water
☐	Good health and well-being	☐	Sustainable cities and communities	☐	Affordable and clean energy	☐	Life on land
☐	Quality education	☐	Responsible consumption and production	☐	Decent work and economic growth	☐	Peace, justice and strong institutions

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8. Which outcomes would you like your investments to avoid? (Select all that apply)

- ☐ High carbon emissions
- ☐ Environmental degradation and biodiversity loss
- ☐ Human rights abuses
- ☐ Poor working conditions
- ☐ Corruption
- ☐ Tax avoidance
- ☐ Tobacco
- ☐ Gambling
- ☐ Pornography
- ☐ Weapons

Summary

- Banks transform short-term deposits into long-term loans
  - But may go bankrupt if many depositors cash in – even if loans are safe
  - Deposit insurance reduces the risk of a bank run
- Exchanges are where investors can buy or sell shares. Market makers provide liquidity by quoting two-sided markets, and make money through the bid-ask spread
- Mutual funds allow investors to diversity and benefit from an active fund manager's expertise
- Pension funds can either be
  - Defined benefit: fund bears the investment risk
  - Defined contribution: employee bears the investment risk