



Finance Refresher

Agenda

Day 1 – Financial and Business Performance

Day 2 – Traditional Asset Classes & Valuation

Day 3 – Capital Markets and Asset Managers

Day 4 – Derivatives & Options

Day 5 – Swaps & Regulatory Frameworks

Day 1

Accounts and Business Models

Objectives for the day

- Frameworks for Financial Reporting
- Interpreting Financial Statements
- The Purpose of Audit Reports
- Audit Report Contents

Financial Statements

Frameworks and Context



Scope of Financial Statement Analysis

Role of Financial Reporting

To Provide information

- Company performance
- Financial position
- Changes in financial position
- Useful to a wide range of users in making economic decisions

Role of financial statement analysis

Analyze financial information

- Evaluate
 - Past, current & prospective performance and financial position of a company
- Purpose
 - Making investment, credit, and other economic decisions

Scope of Financial Statement Analysis

Analysis of performance: Assessment of profitability and cash flow generating ability

Profitability

- Earn a profit from delivering goods and services

Cash flow

- Cash is needed to pay employees, suppliers etc.
- Essential to continue as a going concern
- Positive cash flow leads to funding flexibility

Liquidity

- Ability to meet short-term obligations

Solvency

- Ability to meet long-term obligations

Accounting Principles: GAAP and IFRS

- GAAP simply means the combination of principles, standards and laws which must be followed in a particular country e.g., 'US GAAP', 'UK GAAP'
- Important ones to note are
 - **IFRS – International Financial Reporting Standards**
 - Set by the International Accounting Standards Board (IASB) and applicable to EU listed companies and other countries which follow IFRS such as Singapore
 - **US accounting standards**
 - Set by the Financial Accounting Standards Board (FASB) and applicable to US companies
- There is an ongoing project which aims for all countries to eventually follow the same standards (IFRS)

Financial Statements

The Key Financial Statements



Business Activities

Business activities are classified into three groups:

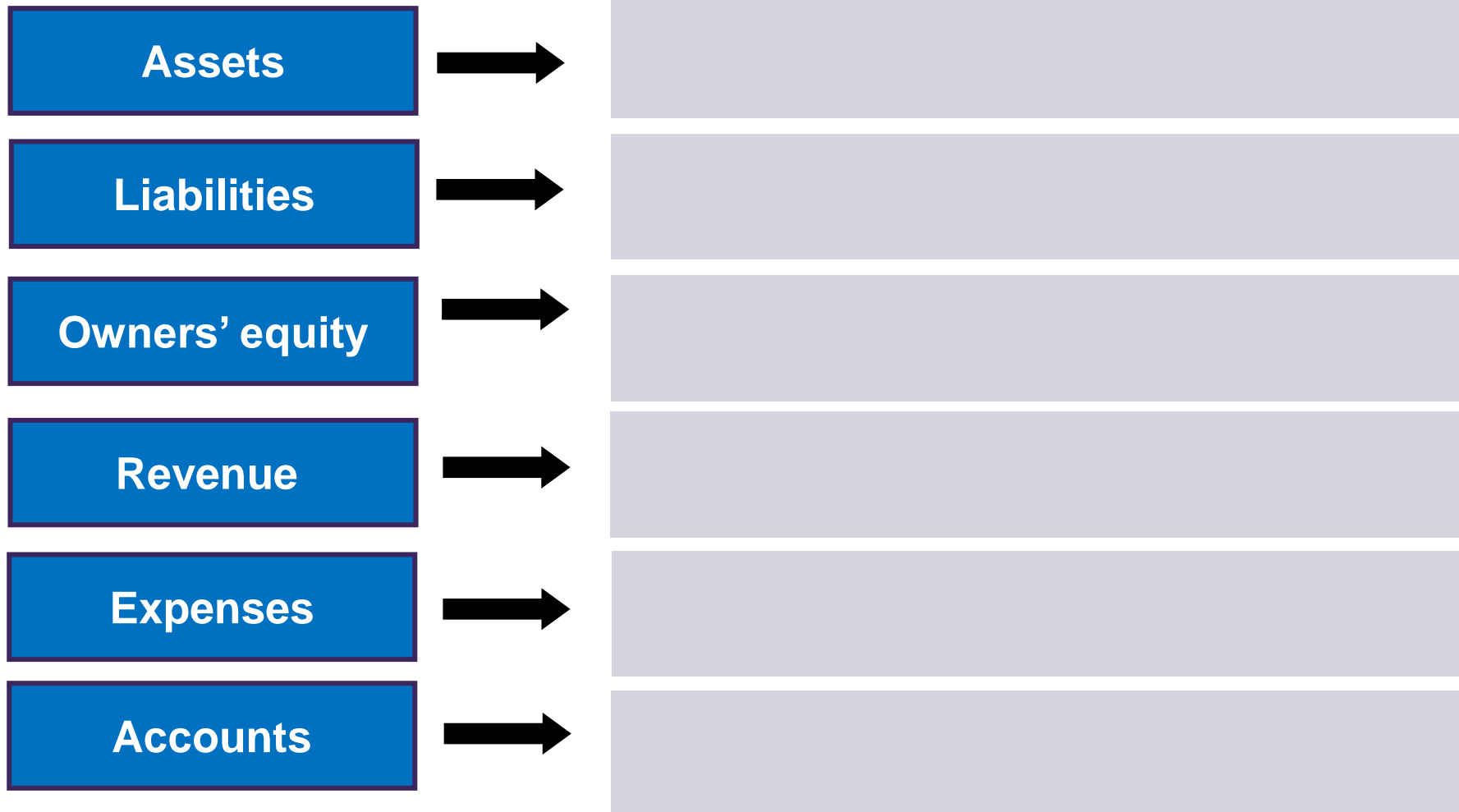
- Operating activities
 - Day-to-day business functioning of an entity
- Investing activities
 - Associated with the acquisition and disposal of long-term assets
- Financing activities
 - Related to obtaining or repaying capital

Classifying activities

What is the correct classification for each of the below activities? Please mark in the adjacent column	Revenue	Expense	Asset	Liability	Equity
<i>Operating activities:</i>					
Selling goods to customers					
Paying taxes					
Holding inventory					
<i>Financing activities:</i>					
Issuing shares					
Paying dividends					
Taking out a long-term loan					
<i>Investing activities:</i>					
Buying shares in a business					
Buying equipment					

Business Activities

Business activities are reflected as the following elements:



Main Financial Statements: Part 1

Balance sheet

- Statement of financial position/condition
- Presents company's financial position at a point in time
- Accounting equation

Formula:

Income statement

- Statement of operations or profit and loss account
- Results of financial performance over a period of time
- Basic form equation

Formula:

The Basic Accounting Equation

- The accounting equation is:
Total Assets = Total Financing
- This is shown on a company's balance sheet as:
Total Assets = Total Liabilities and Equity

All company transactions are recorded using a method the accountants call '**double entry bookkeeping**' which ensures that the above equation always holds true. Hence the balance sheet 'balances'

Recording Transactions

If a company buys a building for \$10m cash

Property	Increases \$10m
Cash	Decreases \$10m

- Total assets = Total liabilities and equity
- **No change** in total assets, **no change** in total liabilities and equity.
- The balance sheet balances.

Recording Transactions

If a company pays its suppliers \$2m cash.

Accounts payable	Decreases \$2m
Cash	Decreases \$2m

- Total assets = Total liabilities and equity
- Total assets **decrease**, total liabilities and equity **decrease**.
- The balance sheet balances.

Recording Transactions

If a company issues shares for \$3m cash.

Cash	Increases \$3m
Equity	Increases \$3m

- Total assets = Total liabilities and equity
- Total assets **increase**, total liabilities and equity **increase**.
- The balance sheet balances.

Exercise – Neville Ltd

- Neville Ltd. is a new company. It is a retailer which purchases goods and sells them on to clients.
- Use the following information and templates provided to:
 1. Identify the impact of the accounting double-entries
 2. Construct the income statement and balance sheet



Exercise

- Please refer to the Excel Worksheet (Double Entry)

Neville Ltd – Transactions in First Year of Trading

1. Issued shares for 120,000
2. Issued long-term debt for 85,000
3. Paid interest on the debt at 4%
4. Bought an office building for 150,000
5. Bought inventory for cash of 80,000
6. Bought inventory on credit for 145,000
7. Sold inventory which cost 40,000 for 60,000 on credit
8. Sold inventory which cost 20,000 for 60,000 in cash
9. Paid operating expenses of 45,000 in cash
10. Paid taxes @ 20% profit before tax, in cash

Components of Balance Sheet

- Non-current Asset – Those assets which are not convertible to cash within a year
- Current Asset – Assets that can be converted to cash in less than a year
- Current Liabilities – Short-term debts that are paid off within a year
- Non-current liabilities – Long-term debts that are paid off after 12 months.
- Equity - Equity represents the residual interest in the assets of a company after deducting its liabilities. It includes capital stock, retained earnings, and other reserves

Sainsbury 2022: Balance Sheet Assets

	Note	5 March 2022 £m
Non-current assets		
Property, plant and equipment	14	8,402
Right-of-use assets	15	5,560
Intangible assets	16	1,006
Investments in joint ventures and associates		3
Financial assets at fair value through other comprehensive income	18	604
Trade and other receivables	20	65
Amounts due from Financial Services customers and other banks	21	2,026
Derivative financial assets	32	213
Net retirement benefit surplus	37	2,283
		20,162
Current assets		
Inventories	19	1,797
Trade and other receivables	20	683
Amounts due from Financial Services customers and other banks	21	3,163
Financial assets at fair value through other comprehensive income	18	196
Derivative financial assets	32	78
Cash and cash equivalents	33	825
		6,742
Assets held for sale	22	8
		6,750
Total assets		26,912

Sainsbury 2022: Balance Sheet Liabilities and Equity

Current liabilities		
Trade and other payables	23	(4,546)
Amounts due to Financial Services customers and other deposits	24	(4,444)
Borrowings	35	(54)
Lease liabilities	15	(526)
Derivative financial liabilities	32	(29)
Taxes payable		(169)
Provisions	25	(100)
		(9,868)
Net current liabilities		
		(3,118)
Non-current liabilities		
Other payables	23	(24)
Amounts due to Financial Services customers and other deposits	24	(815)
Borrowings	35	(707)
Lease liabilities	15	(6,095)
Derivative financial liabilities	32	(3)
Deferred income tax liability	11	(806)
Provisions	25	(171)
		(8,621)
Total liabilities		
		(18,489)
Net assets		
		8,423
Equity		
Called up share capital	26	668
Share premium	26	1,406
Merger reserve	26	568
Capital redemption reserve	27	680
Other reserves	27	409
Retained earnings	29	4,692
Total equity before perpetual securities		
		8,423
Perpetual securities	28	–
Total equity		
		8,423

Components of Income Statement

- **Revenue:** Total amount of money earned by the company during a specific period, usually a fiscal year. It includes all sales, services, and other income earned by the company.
- **Cost of Goods Sold (COGS):** Direct costs associated with producing the products or services that the company sells. This includes the cost of materials, labor, and overhead expenses.
- **Gross Profit:** Difference between revenue and COGS. It represents the amount of money the company has left over after deducting the direct costs associated with producing its products or services.
- **Operating Expenses:** Indirect costs associated with running the business, such as rent, salaries, advertising, and utilities.
- **Net Income:** Final amount of money that the company has earned after deducting all expenses from its revenue. It represents the company's overall profitability and is a key metric used by investors and analysts to evaluate a company's financial health.

Sainsbury 2022: Income Statement

52 weeks to 5 March 2022

		Total £m
Revenue	6	29,895
Cost of sales		(27,529)
Gross profit/(loss)		2,366
Administrative expenses		(1,430)
Other income		220
Operating profit/(loss)		1,156
Finance income	10	20
Finance costs	10	(322)
Profit/(loss) before tax		854
Income tax (expense)/credit	11	(177)
Profit/(loss) for the financial period		677

If we were looking at a Bank's Income Statement, what differences would you expect?

Main Financial Statements: Part 2

Other Comprehensive Income

- Discloses revenues, expenses, gains and losses which are excluded from Income Statement
- Typically consist of amounts that have not been realized yet
- Has the objective of ‘smoothing’ net income, by separately disclosing unrealized gains and/or losses
 - Unr. Gains or losses from AFS Investments, cash flow hedges, FX and pension plans
- Evaluates earnings of the company in totality
- Net impact transferred to Statement of Changes in Equity

Statement of changes in Equity

- Statement of shareholders’ equity or statement of retained earnings
- Reports changes in the owners’ investment in business over time
- Assists in understanding changes in financial position

Sainsbury 2022: Other Comprehensive Income

	Note	52 weeks to 5 March 2022 £m
Profit/(loss) for the financial year		677
Items that will not be reclassified subsequently to the income statement		
Remeasurement on defined benefit pension schemes	37	1,457
Movements on financial assets at fair value through other comprehensive income		76
Cash flow hedges fair value movements – inventory hedges	32	73
Current tax relating to items not reclassified		–
Deferred tax relating to items not reclassified	11	(461)
		1,145
Items that may be reclassified subsequently to the income statement		
Currency translation differences		(1)
Movements on financial assets at fair value through other comprehensive income		(5)
Items reclassified from financial assets at fair value through other comprehensive income reserve		4
Cash flow hedges fair value movements – non-inventory hedges	32	131
Items reclassified from cash flow hedge reserve	32	7
Deferred tax on items that may be reclassified	11	(57)
		79
Total other comprehensive income/(loss) for the year (net of tax)		1,224
Total comprehensive income/(loss) for the year		1,901

Sainsbury 2022: Statement of Changes in Equity

	Note	Called up share capital £m	Share premium account £m	Merger reserve £m	Capital redemption and other reserves £m	Retained earnings £m	Total equity before perpetual securities £m	Perpetual capital securities £m	Perpetual convertible bonds £m	Total equity £m
At 7 March 2021 (as previously reported)		637	1,173	568	847	3,131	6,356	–	248	6,604
Opening balance adjustment		–	–	–	–	97	97	–	–	97
At 7 March 2021 (restated)		637	1,173	568	847	3,228	6,453	–	248	6,701
Profit for the period	29	–	–	–	–	677	677	–	–	677
Other comprehensive income	27, 29	–	–	–	285	1,457	1,742	–	–	1,742
Tax relating to other comprehensive income	29	–	–	–	(87)	(431)	(518)	–	–	(518)
Total comprehensive income for the period ended 5 March 2022		–	–	–	198	1,703	1,901	–	–	1,901
Cash flow hedges gains and losses transferred to inventory	27, 32	–	–	–	28	–	28	–	–	28
Transactions with owners:										
Dividends	13, 29	–	–	–	–	(238)	(238)	–	–	(238)
Share-based payment	38	–	–	–	–	60	60	–	–	60
Purchase of own shares	29	–	–	–	–	(48)	(48)	–	–	(48)
Allotted in respect of share option schemes	26, 29	5	17	–	–	(1)	21	–	–	21
Conversion of perpetual convertible bonds	28	26	216	–	–	(2)	240	–	(240)	–
Repayment of perpetual convertible bonds		–	–	–	–	–	–	–	(8)	(8)
Other adjustments		–	–	–	16	(13)	3	–	–	3
Tax on items charged to equity		–	–	–	–	3	3	–	–	3
At 5 March 2022		668	1,406	568	1,089	4,692	8,423	–	–	8,423

Main Financial Statements: Part 3

Cash Flow Statement

- Discloses sources and uses of cash
- Evaluates company's liquidity, solvency and financial flexibility
 - Financial flexibility: Ability to react and adapt to financial adversities and opportunities
- Classification of cash flows
 - Operating, investing and financing
- Sum of net cash flows = Net change in cash

Business Activities

Business activities are classified into three groups:

- Operating activities
 - Day-to-day business functioning of an entity
- Investing activities
 - Associated with the acquisition and disposal of long-term assets
- Financing activities
 - Related to obtaining or repaying capital

Sainsbury 2022: Cash Flow Statement

	52 weeks to 5 March 2022	
	Note	£m
Cash flows from operating activities		
Profit/(loss) before tax		854
Net finance costs		302
Operating profit		1,156
Adjustments for:		
Depreciation expense	14, 15	1,069
Amortisation expense	16	151
Net impairment loss on property, plant and equipment, right-of-use assets, intangible assets	14, 15, 16	9
Non-cash adjustments arising from acquisitions		–
Financial Services movement in loss allowance for loans and advances to customers		19
Loss/(profit) on sale of non-current assets and early termination of leases	33	(6)
Non-underlying fair value movements	5	(76)
Share-based payments expense	38	58
Defined benefit scheme expenses	37	4
Cash contributions to benefit schemes	37	(71)
Operating cash flows before changes in working capital		2,313
Changes in working capital	33	
(Increase)/decrease in inventories		(179)
Decrease in financial assets at fair value through other comprehensive income		115
Decrease in trade and other receivables		33
Decrease in amounts due from Financial Services customers and other deposits		161
Increase in trade and other payables		28
(Decrease) in amounts due to Financial Services customers and other deposits		(1,030)
(Decrease)/increase in provisions and other liabilities		(80)
Cash generated from operations		1,361
Interest paid		(329)
Corporation tax paid		(23)
Net cash generated from operating activities		1,009
Cash flows from investing activities		
Purchase of property, plant and equipment	33	(416)
Initial direct costs on new leases		(3)
Purchase of intangible assets	33	(278)
Proceeds from disposal of property, plant and equipment		46
Dividends and distributions received		2
Net cash used in investing activities		(649)
Cash flows from financing activities		
Proceeds from issuance of ordinary shares	26, 29	21
Proceeds from borrowings		–
Repayment of borrowings		(248)
Repayment of short-term borrowings		–
Repayment of perpetual capital securities		(8)
Purchase of own shares	29	(48)
Repayment of capital element of lease obligations		(493)
Dividends paid on ordinary shares	13	(238)
Dividends paid on perpetual securities		(4)
Net cash used in financing activities		(1,018)
Net (decrease)/increase in cash and cash equivalents		(658)
Opening cash and cash equivalents		1,476
Closing cash and cash equivalents	33	818

Main Financial Statements: Part 4

- **Financial notes and supplementary schedules**

- Provides explanatory information
 - Business acquisitions/disposals, legal proceedings, stock option plans and related party transactions

- **Footnotes**

- Information about methods and assumptions used to prepare financial statements
 - Aids comparability of financial statements between companies
- Required for complete presentation in conformity with US GAAP and IFRS

- **Management discussion and analysis (MD&A)**

- Required by US GAAP for publicly held companies, similar report required for IFRS
- Highlight favourable or unfavourable trends
- Identify significant events and uncertainties
 - Affect liquidity, capital, resources and results of operations
- Provide information about effects of inflation, changing prices or other material events
- Discuss critical accounting policies requiring subjective judgments

Example: Revenue Recognition Footnote

- Revenue (aka sales) is a key number affecting not only profits but also valuation multiples for companies, hence any manipulation here has a significant impact on analysis
- Revenue is **typically recognised once a service has been performed or goods have been delivered**. Some alternative rules exist, e.g. for certain **long-term contracts**
 - Revenue can be recognised gradually over the life of the long-term contract or
 - Recognised gradually based on costs incurred to date
- If goods are sold with manufacturer warranties, the company must estimate the likely future cost and create a warranty provision at the time of sale
- **From 2018 under US GAAP and IFRS** there will be a **‘5 step model’** to determine when revenue should be recognised (**IFRS 15, ASU 606**)

Links between Financial Statements

Income Statement

- (+) Sales Revenue
- (-) Cost of Goods Sold
- (-) Depreciation
- (=) *Gross Profit*
- (-) SG&A (operating expenses)
- (=) *Operating Profit*
- (-) Interest Expense
- (-) Income Taxes
- (=) *Net Income*

Balance Sheet

- (+) Cash and Marketable Securities
- (+) Accounts Receivable
- (+) Inventories
- (+) Other Current Assets
- (+) P P & E (Net)
- (+) Other Assets
- (=) *Total Assets*
- (+) Accounts Payable
- (+) Other Current Liabilities
- (+) Long-Term Debt
- (+) Other Non-current Liabilities
- (+) Common Stock
- (+) Retained Earnings
- (=) *Total Liabilities & Shareholders Equity*

Cash Flow Statement

- (+) Net Income
- (+) Depreciation
- Change in Working Capital
- (-) Accounts Receivable
- (-) Inventories
- (-) Other Current Assets
- (+) Accounts Payable
- (+) Other Current Liabilities
- (=) *Cash Flow from Operations*
- (-) Capital Expenditures
- (=) *Cash Flow from Investing*
- (+) Increase in Long-Term Debt
- (+) Issue of Common Stock
- (=) *Cash Flow from Financing*
- (+) *Change in Cash*
- (+) Cash at the beginning of the year
- (=) *Cash at the end of the year*

Measuring Business Performance

Financial Ratios

Financial Ratios can be compared with

- Historical financial ratios (Trend Analysis)
- Budgeted financial ratios (Forecast Analysis)
- Industry-average ratios (Peer/Competitor Analysis)
- Cross-industry ratios
- Cross-country ratios



Horizontal vs Vertical Analysis

Ways to look at financial ratios could be through either:

Horizontal analysis

- Where we compare the year on year performance of a company
- We can review overall performance and establish any trends

Vertical analysis

- Where we compare the performance of the firm against its peer group to gauge how well the firm is doing within its own industry

Horizontal vs Vertical Analysis

Ratio Analysis Trend Analysis

Vertical:

- Select one item from the financial statement to be the base value, e.g. sales, net worth, etc.
- Calculate every value (including the base value) as a percentage of the base value (base value becomes 100) for that period
- Repeat the process for several periods to identify trends

Horizontal:

- Select one year as the reference or base year
- Calculate each value in subsequent years as a percentage of the corresponding value in the base year (base year value becomes 100)

Horizontal vs Vertical Analysis

Feature	Vertical Analysis	Horizontal Analysis
Definition	Vertical analysis compares different components of a financial statement to the total value of that statement.	Horizontal analysis compares the same component of a financial statement across multiple periods.
Purpose	To determine the proportion of each item on a financial statement relative to the total amount.	To identify trends or changes in a company's financial performance over time.
Calculation	Each item on the financial statement is expressed as a percentage of the total value of that statement.	Each item on the financial statement is expressed as a percentage change from a base year or period.
Example	Comparing the cost of goods sold to the total revenue on an income statement.	Comparing the revenue from year to year on an income statement.
Focus	Focuses on the current financial statement, highlighting the relationship between the different components.	Focuses on the trend of a specific component over multiple periods, highlighting the change or growth.
Usefulness	Helps to identify any significant changes in the composition of the financial statement.	Helps to analyze the overall financial performance and growth of the company over time.

Financial Ratio Analysis

- **Profitability**
How successful the business is in making return on investments
- **Liquidity/Accounting**
The quality and adequacy of current assets to meet current liabilities as they come due
- **Activity/Efficiency**
The efficiency with which the business uses its resources
- **Leverage/Financial risk ratio/ Solvency Ratio**
Business Ability to service its debt
- **Investor Ratio**
Investors' evaluation of business performance

Profitability Ratio

Profitability ratios look at how well the company is performing:

1. Revenue growth:

$$\frac{\text{TY Revenues} - \text{LY Revenues}}{\text{LY Revenues}} \times 100\%$$

2. Gross profit margin (GPM):

$$\frac{\text{Gross Profit}}{\text{Sales}} \times 100\%$$

3. Operating Profit (EBIT) margin (OPM):

$$\frac{\text{Operating Profit}}{\text{Sales}} \times 100\%$$

4. Net profit margin (NPM):

$$\frac{\text{Net Profit}}{\text{Sales}} \times 100\%$$

Liquidity Ratio

Liquidity ratios are designed to look at whether a firm can cover its liabilities in the short term, using its short term assets:

1. Current ratio:

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} \times 100\%$$

Often the convention is to quote 2:1 i.e. the firm has 2x as many current assets as liabilities.

2. Liquid, Quick or Acid Test ratio:

$$\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}} \times 100\%$$

Efficiency Ratio / Activity Ratio

Efficiency ratios measure how efficiently the firm is managing its assets – both in the short and long term

1. Inventory days on hand (DOH) ratio
2. Payables DOH ratio
3. Receivables DOH ratio
4. Total asset turnover ratio
5. Fixed asset turnover ratio

Efficiency Ratio / Activity Ratio

The Days-on-Hand ratios tell you about:

- The length of time customers take to pay the company
- The length of time the company takes to pay its suppliers
- The length of time that inventory is held by the company before being sold

Receivable days	$\frac{\text{Accounts receivable}}{\text{Sales}}$	x 365
Payable days	$\frac{\text{Accounts payable}}{\text{Purchases}^*}$	x 365
Inventory days	$\frac{\text{Inventory}}{\text{Cost of goods sold}}$	x 365

* Or use Cost of Goods Sold

Efficiency Ratio/Activity Ratio

1. Asset Turnover ratio:

$$\frac{\text{Sales}}{\text{Total Assets}} \times 100\%$$

2. Fixed Asset Turnover ratio:

$$\frac{\text{Sales}}{\text{Fixed Assets}} \times 100\%$$

Solvency Ratios

Solvency ratios measure the firm's financial leverage and ability to meet its long term obligations

- The two basic types of ratio are 'leverage' and 'coverage':
 - Leverage ratios tell you about the amount of debt in the company
 - Coverage ratios tell you about the ability of the company to meet its interest obligations
- There are many variations of how these ratios are calculated:
 1. Gearing and Leverage
 2. Interest coverage ratio

Solvency Ratios

1. Gearing

$$\frac{\text{Debt}}{\text{Equity}} \times 100\%$$

All on-balance sheet short & long term debt e.g. o/d, CPLTD, Loans, Bonds, Commercial Paper

2. Leverage

$$\frac{\text{Total Liabilities}}{\text{Equity}} \times 100\%$$

Equity or Shareholders' Funds comprise of Share Capital, Share Premium, Retained Earnings & Reserves

Total Liabilities include all short and long term liabilities, so debt as above, plus payables, o/s tax & dividends, accrued expenses

Coverage ratios

Interest coverage ratio

$$\frac{\text{EBIT}}{\text{Interest Paid}} \times 100\%$$

- The ratio tells us how many times the firm can cover its interest costs from profits
- Note use of pre-interest profits i.e. EBIT
- Many analysts now supplement this ratio with a cash flow metric, as the numerator as ultimately interest costs are paid in **cash**

Investor Ratios

- Investor ratios are largely concerned with the equity investor
- As analysts we use these ratios selectively, tending to focus on:
 1. EPS
 2. Dividend Payout rate
 3. ROE

Return on Equity Breakdown

Return on equity (ROE) measures the returns to shareholders only.

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Total Shareholders' Equity}}$$

- ROE can also be analysed through the **DuPont method**:

$$\text{ROE} = \frac{\text{Net income}}{\text{Total equity}} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Equity}}$$

↑

Profitability

↑

Efficiency

↑

Leverage


Return on Equity Breakdown

Return on equity (ROE) measures the returns to shareholders only.

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Total Shareholders' Equity}}$$

- ROE can also be analysed through the **DuPont method**:

$$\text{ROE} = \frac{\text{Net income}}{\text{Total equity}} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Equity}}$$

$$\frac{\text{Net Income}}{\text{Pretax Income}} \times \frac{\text{Pretax Income}}{\text{Op Income}} \times \frac{\text{Op Income}}{\text{Sales}}$$


Which Ratio?

- Is the company's pricing policy correct?
- Are operating expenses being carefully controlled?
- How good is the credit control department at collecting sales revenue?
- Is the company stock/inventory piling (i.e. building up stock?)
- How easily can the company pay off its current liabilities?
- How efficient are the assets of the company at generating revenue?
- How easily is the company covering its interest commitments?
- How much funding does the company have compared to its net worth?
- What is the return that the company is making in relation to its net worth?
- Excluding stock (inventory), how easily can the company pay off its current liabilities?

Financial Ratios: Limitations

- No single ratio has all the answers
- They are not that useful when viewed in isolation
- Differ for different industries
- Hard to determine a perfect peer group
- Inflationary effects / seasonality impact
- Firms can 'window dress' / gear up for end year date
- Impact of different accounting methods
- Mixed Industries are hard to read
- We need to be mindful of ratio overload

Management Reports and Views



Management's Point of View

- **Analyzing financial statements:** Management plays a crucial role in analyzing and interpreting financial statements to assess the company's financial performance, identify areas of improvement, and make informed business decisions.
- **Accuracy and Transparency:** From the management's point of view, financial statements must be accurate and transparent to ensure that the company's financial position is correctly presented to stakeholders. This includes ensuring compliance with accounting standards and regulations.
- **Focus on key performance indicators (KPIs):** Management typically focuses on specific KPIs such as revenue growth, profit margins, and cash flow to measure the company's financial performance and make strategic decisions. These KPIs may vary depending on the industry, company size, and other factors.
- **Communication with stakeholders:** Management is responsible for communicating financial information to stakeholders such as investors, creditors, and regulatory authorities. This includes preparing financial reports, holding investor meetings, and responding to inquiries from stakeholders.
- **Continuous improvement:** Management continually reviews and evaluates financial reports to identify areas for improvement and ensure that the company's financial position remains strong. This includes implementing internal controls, optimizing financial processes, and making strategic investments to support growth.

Owner's Point of View

- **Understanding profitability:** Owners typically want to see the bottom line of the financial statements, including net income and profit margins. They want to understand how much money the business is making and how profitable it is.
- **Evaluating cash flow:** In addition to profitability, owners want to know how much cash is coming in and going out of the business. This information is important for making strategic decisions such as investing in new equipment or expanding the business.
- **Assessing risk:** Owners need to understand the risks that the business is facing, including both internal and external factors. This includes evaluating the financial health of the business and assessing any potential legal or regulatory risks.
- **Identifying growth opportunities:** Owners want to know how the business is performing in comparison to its competitors and what growth opportunities are available. They may also be interested in understanding the potential for expansion into new markets or product lines.
- **Making informed decisions:** Ultimately, owners want management reports and financial statements that provide them with the information they need to make informed decisions about the future of the business. This includes understanding financial performance, risks, and growth opportunities, as well as having access to clear, concise reports that are easy to understand.

Lender's Point of View

- **Creditworthiness assessment:** Lenders analyze financial statements to evaluate the borrower's ability to repay the loan. They focus on factors such as liquidity, solvency, profitability, and cash flow.
- **Risk assessment:** Lenders assess the risk involved in lending to a particular borrower. They consider the industry, market trends, and economic conditions to determine the probability of default and the overall risk associated with the loan.
- **Collateral evaluation:** Lenders look at the collateral that the borrower has offered to secure the loan. They evaluate the value of the collateral, the marketability, and the ease of liquidation in case of default.
- **Debt capacity analysis:** Lenders analyze the borrower's debt capacity to ensure that the borrower can service the debt. They consider the borrower's debt-to-equity ratio, debt-to-income ratio, and other financial ratios to determine the borrower's debt capacity.
- **Financial covenants:** Lenders impose financial covenants on borrowers to ensure that the borrower maintains certain financial ratios and meets certain financial obligations. They monitor the borrower's financial performance and may take corrective actions if the borrower fails to meet the financial covenants.

EVA & NPV

- Economic Value Added (EVA) is a measure of a company's financial performance that takes into account its cost of capital.

$$\text{EVA} = \text{Net Operating Profit after Tax} - \text{Cost of Capital}$$

- EVA helps management assess whether the company is creating value for its shareholders, as it takes into account the cost of capital that the shareholders have invested in the company.
- Net Present Value (NPV) is a method used to evaluate the profitability of an investment. It compares the present value of cash inflows generated by the investment to the present value of cash outflows required by the investment.
- NPV helps management assess whether an investment is worth pursuing, as it takes into account the time value of money and the opportunity cost of investing in a particular project.
- Both EVA and NPV are useful tools for management to evaluate the financial performance of a company and make informed decisions about future investments and strategic planning.

Effective Models: Foundations

Analysis Framework

What are the main drivers?

Build a suitable model

Develop assumptions

Effective Models: Foundations

Analysis Framework



- **Macro**
- **Industry**
- **Business**
- **Management**

What are the main drivers?

Build a suitable model

Develop assumptions

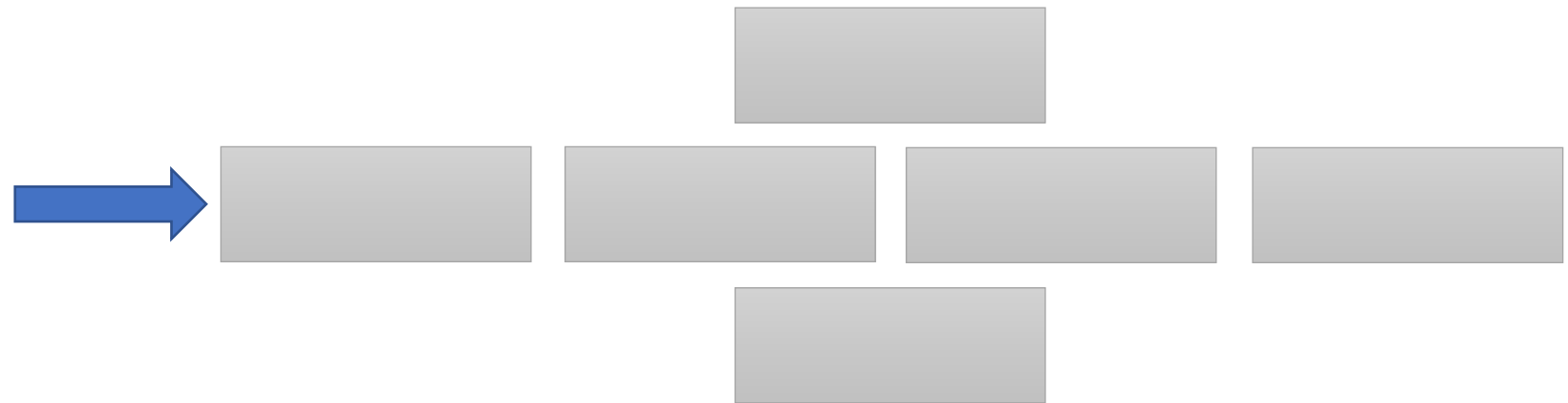
Effective Models: Foundations

Analysis Framework

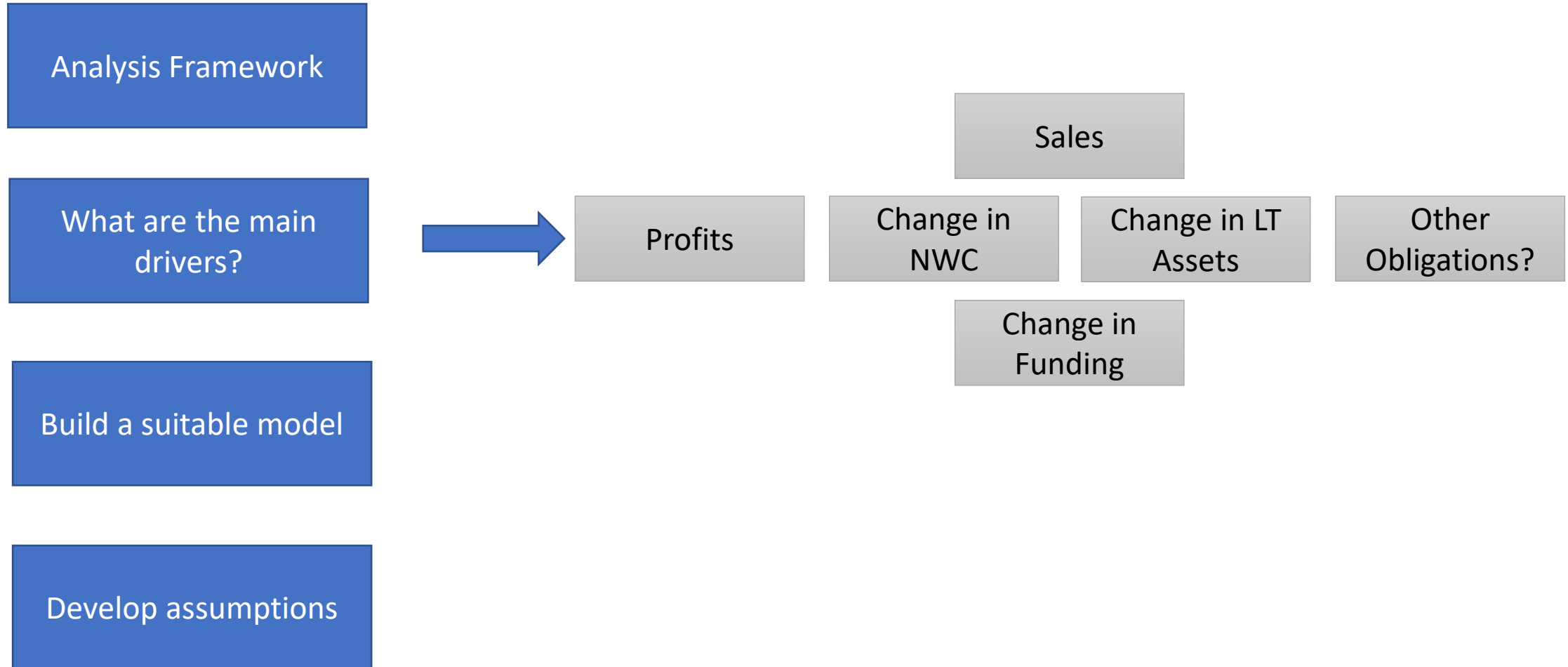
What are the main drivers?

Build a suitable model

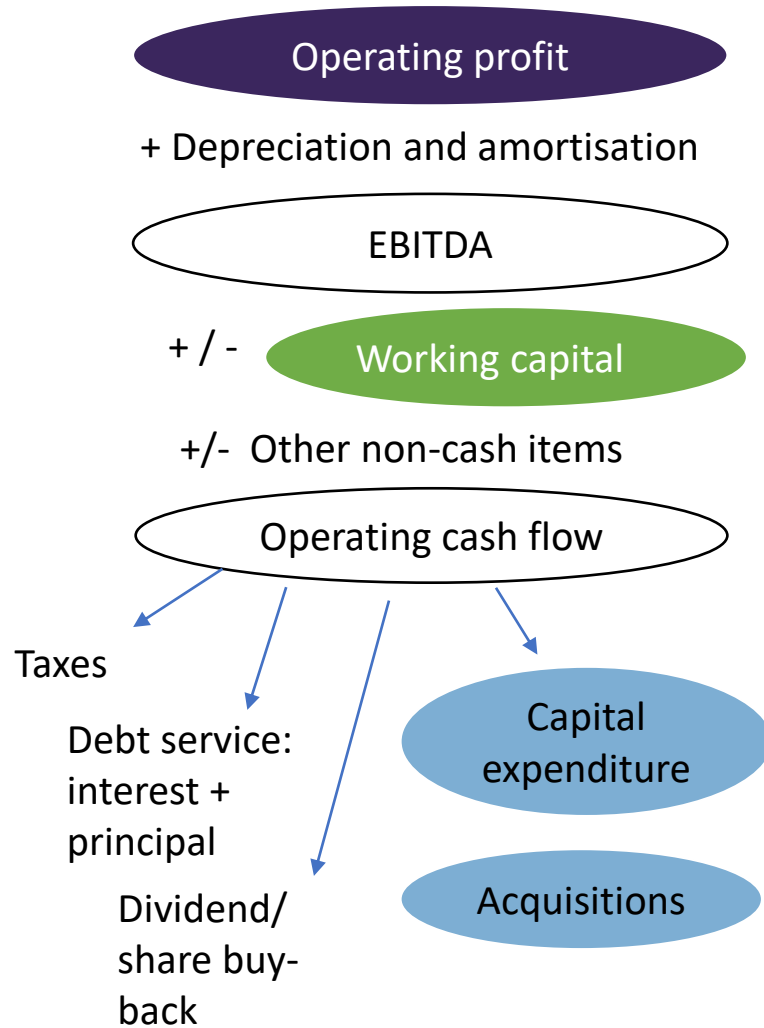
Develop assumptions



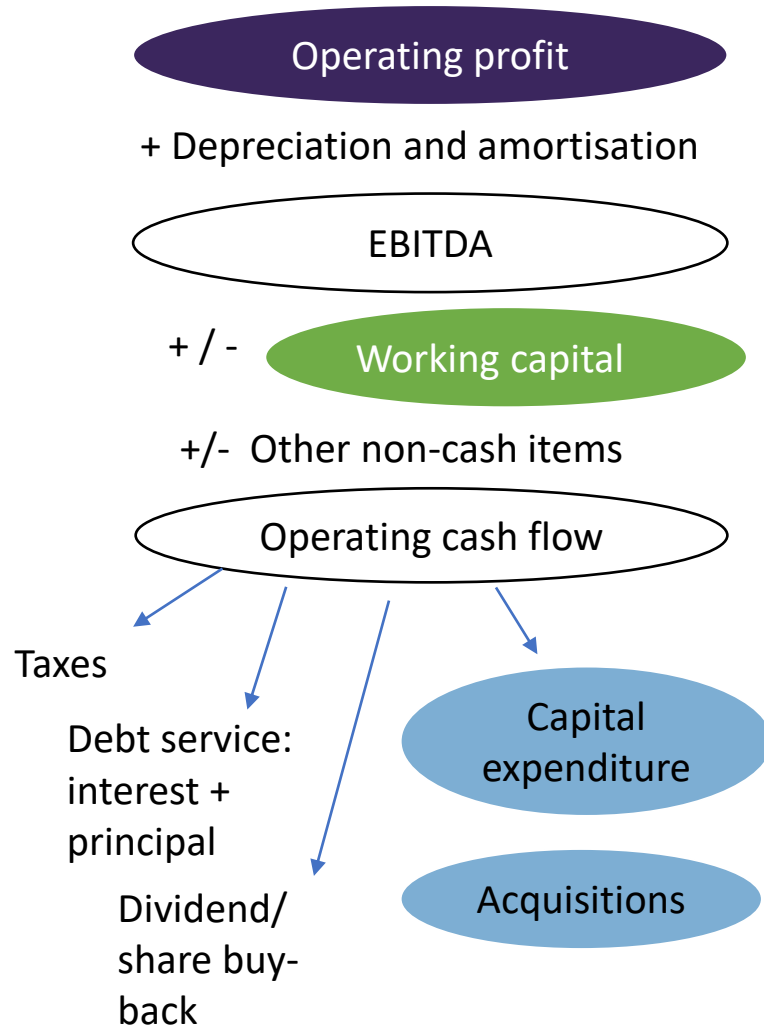
Effective Models: Foundations



Linking Profits to Cash Flow



Linking Profits to Cash Flow



- Margin pressures: Lower prices/higher marketing costs to retain or gain market share
- Inability to transfer increasing raw material/energy costs

- Increase of trade receivable days to support revenue
- Loss of ability to negotiate supplier terms

- Higher capital expenditures required to fuel growth, improve products, increase efficiency or change/shift product mix
- M&A activity may be required to reduce competition or as alternative to capital expenditure

Differences: Financial Accounting vs Cost Accounting

Cost Accounting deals with:

- determining costs of producing a good and/or service
- can be used for determining costs of real transaction
- can be used for cost estimation
- determining variations between cost actuals and estimates
- approaches used could be budgetary control and/or standard costing

Standard Costing

Example:

	Standard Cost	Actual Cost
Price per KG	13.2	10.8
Input quantity KG	480	360
Hours	360	420
Rate per hour	10.8	9.6
Output quantity KG	240	192
Standard quantity (Actual Output)		
Standard hours (Actual Output)		
Direct material cost		
Direct labour cost		
Total Standard Cost		

Intersection of Finance Functions: Example

Strategic Financial Objectives

- *Improve cash management efficiencies*
- *Minimise supply chain disruptions*
- *Develop supplier relationships*

Financial Accounting

- *Evaluating payable cycle and efficiencies*
- *Appropriate accounting classifications*

Accounts Payable Process

Financial Policy

- *Timeliness of payments*
- *Provider (bank/system) requirements*
- *Authorisations and Responsibilities*
- *Risk policies for AP management*

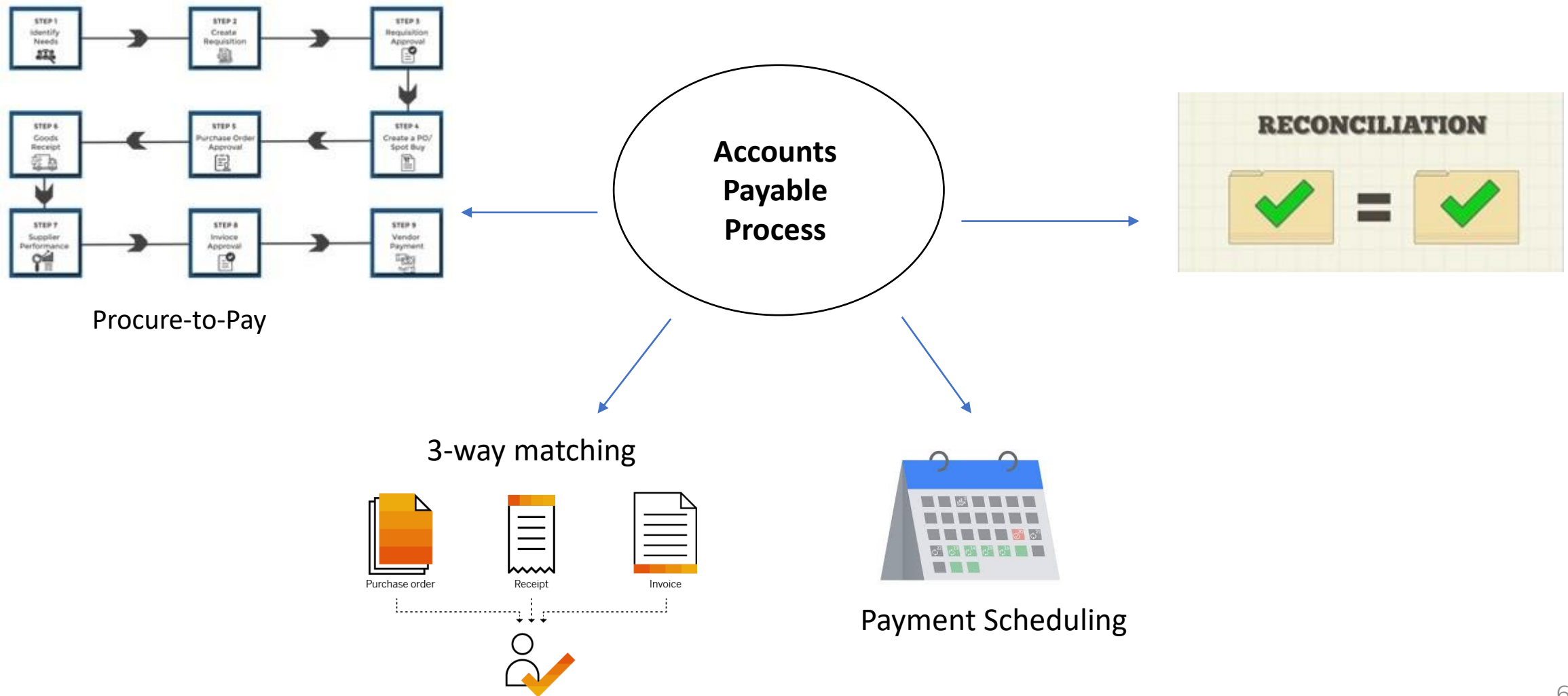
Cost Accounting

- *Spend Data*
- *Payment Processing Time/ Cost Analysis*
- *Category Data Analysis*
- *Payment forecasting*

Financial Review and Audit

- *Vendor payment outstanding compliance*
- *Regulatory compliance for specified vendors/sectors*
- *Policy compliances*

Intersection of Finance Functions: Example



Day 2

Traditional Asset Classes and Valuation

Data Collection Methods

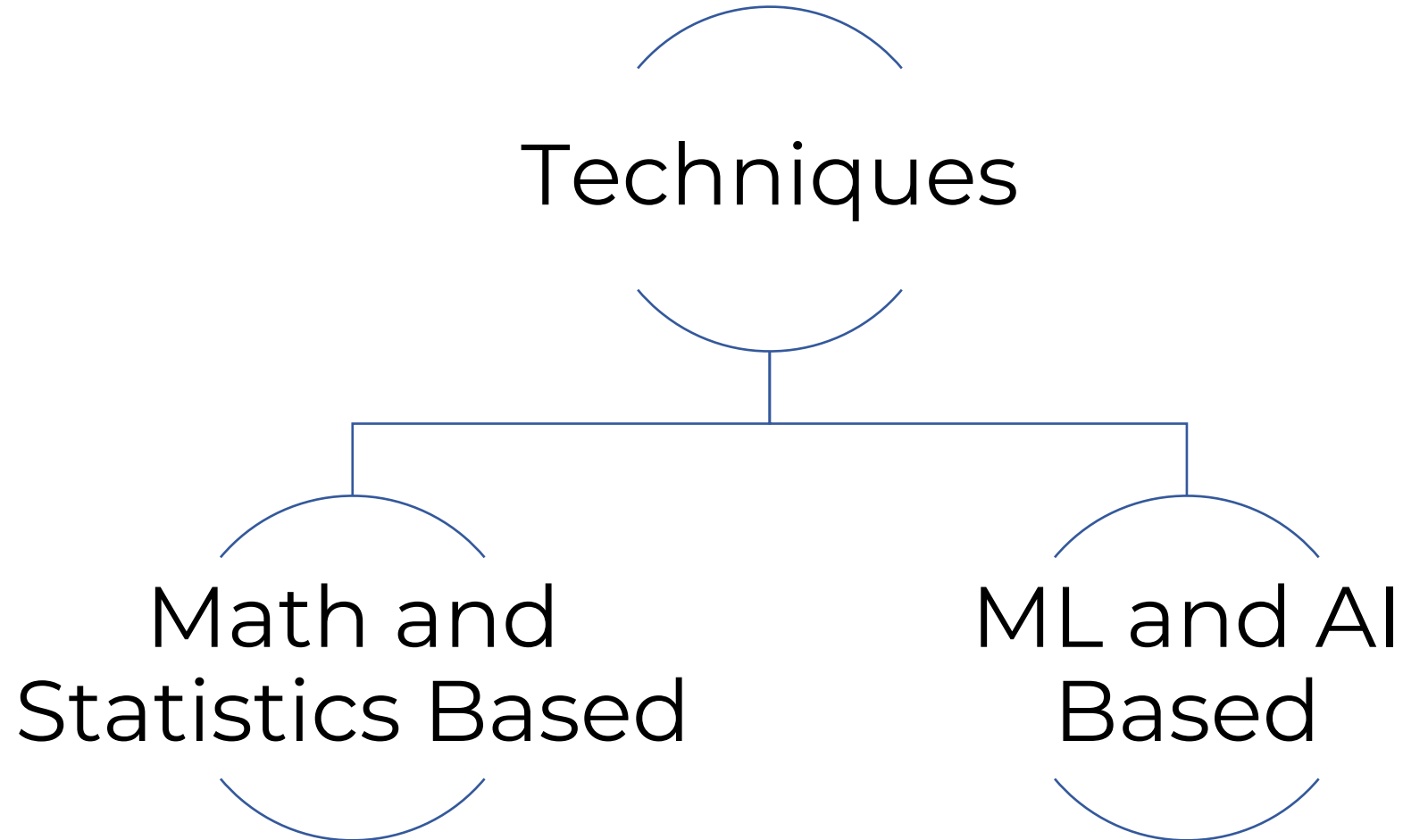
Primary Methods

- Statistical Methods
- Surveys and Polls
- Interviews
- Focus Groups
- Market Research
- Due Diligence

Secondary Methods

- Financial Reports
- Sales Reports
- Industry Reports
- Publications
- Web/ Social Media

Data Analysis



Math and Statistics Based

Commonly used in Financial Markets:

- Averages
- Standard Deviation
- Regression
- Correlation
- Time Series Analysis
- Factor Analysis
- Decision Trees
- Simulation
- + others

Corporate Financing Decisions

Debt vs Equity



What is Capital Structure and why is it so Important?

- The term Capital Structure refers to the way a company finances its assets through some combination of equity, debt or hybrid securities
- A firm's capital structure is therefore the composition or structure of its liabilities

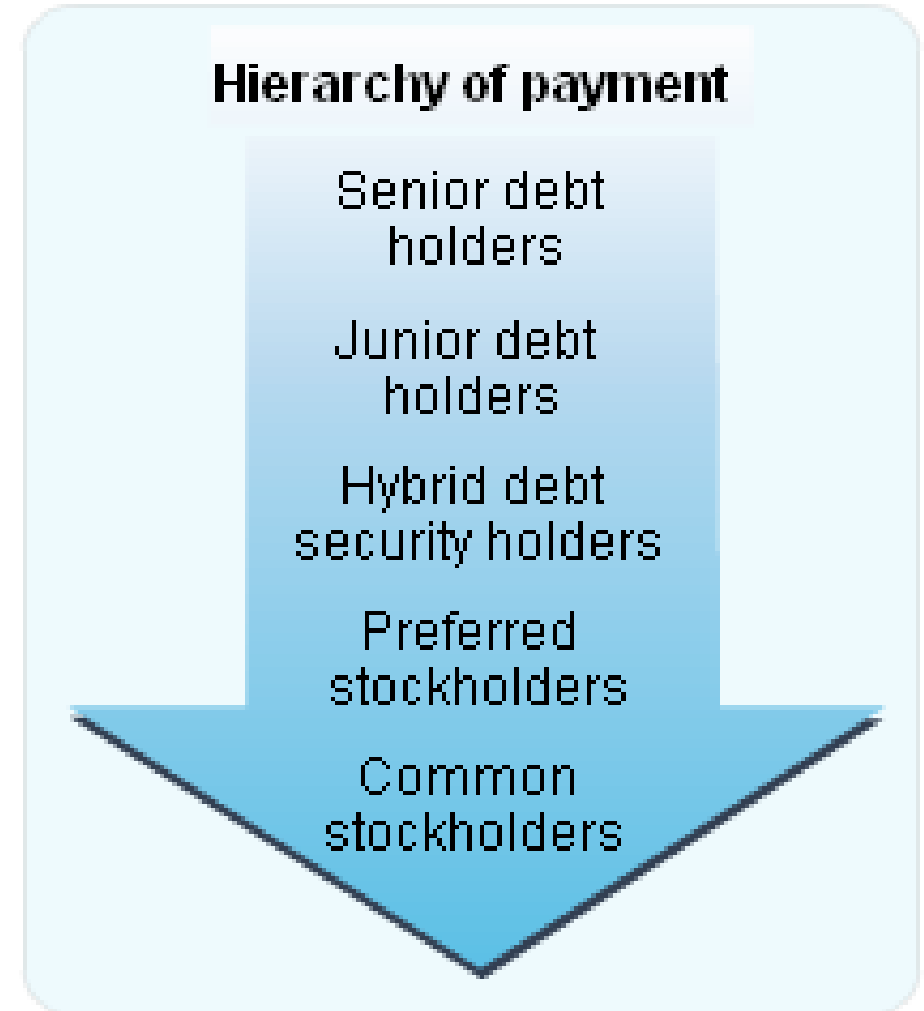
Debt vs. Equity

- Using the table below outline as many differences as you can between Debt and Equity Capital:

Debt	Equity

Debt vs. Equity

- All debt holders are senior to equity/shareholders.
- Senior debt must be repaid before subordinate debt holders have any recourse.
- 'Hybrid' debt securities are sometimes issued which generally rank above preferred shareholders, but below some subordinated debt.



Which is better?

All else being equal, companies want the cheapest possible financing. Since Debt is almost always cheaper than Equity, Debt is almost always the answer.

Debt is cheaper than Equity because interest paid on Debt is tax-deductible, and lenders' expected returns are lower than those of equity investors (shareholders).

The risk and potential returns of Debt are both lower.

But there are also constraints and limitations on Debt – the company might not be able to exceed a certain Debt / EBITDA, or it might have to keep its EBITDA / Interest above a certain level.

Let's look at the Profile of Debt

What is Debt?

- A written promise to repay a debt
- Debt Capital is raised with (usually) a fixed obligation in terms of interest and principal payments
- The different types of debt that we named earlier offer the borrower potential flexibility on maturity, liquidity, interest rates, investor types ...
- Question: How many different debt products can you think of?

Features of Debt:

- Providers of debt normally demand lower returns than ordinary shareholders
- Debt is lower risk for an investor than equity:
- Debt ranks higher than share capital in a liquidation
- Debt is commonly secured by assets such as land and property
- The issuer of debt has a legal obligation to repay the interest and the loan principal at maturity
- Debt investors do not have voting rights in the company
- In most countries interest payments are tax deductible
- There are limits on the amount of debt a company can raise – leverage/gearing
- Debt finance allows company directors to ‘negotiate’ terms & conditions
- Debt finance can be much quicker to raise than equity capital

Advantages of Debt

Tax shield – as a company takes on more debt, the value of the tax shield increase. Additionally, the higher the tax rate of a firm, the more valuable the tax shields

Added discipline – added debt makes a company's managers more disciplined in their project selection and management

Disadvantages of Debt

Bankruptcy costs – as a company continues to take on leverage, the present value of future financial distress increases and the cost of debt increases

Agency cost – added responsibility to bondholders often limits the flexibility of an organisation and increases the potential costs of ‘missing projects’

Loss of financial flexibility – the cost of missing opportunistic investments because debt financing is too expensive

Let's look at the Profile of Equity

What is Equity?

- Ownership interest possessed by shareholders in a company
- Issued Share Capital - that part of a company's share capital that has been subscribed by shareholders, either paid up or partially paid up
- The different types of equity potentially offer the borrower flexibility on: maturity date, return & the type of investor

Profile of Equity

Types of Equity

- Common Equity (are there any variations?)
- Preference Shares (what are some variations?)
- Depositary Receipts
- Hybrid Securities

The Profile of Equity

Features of Equity:

- Common share/stockholders are owners of the company
- Equity is considered risk capital - in a liquidation, ordinary shareholders are repaid last as equity is a residual claim on the company assets
- Equity investors benefit from the growth in the company through a rise in the capital value of the shares & an increase in the dividend stream
- Investors are compensated with a dividend – which the company is not obliged to pay
- Equity is considered to be more expensive than debt:
- Lack of tax deductibility
- Investors demand a higher return to reflect their risk

Overview of Equity Valuation Approaches

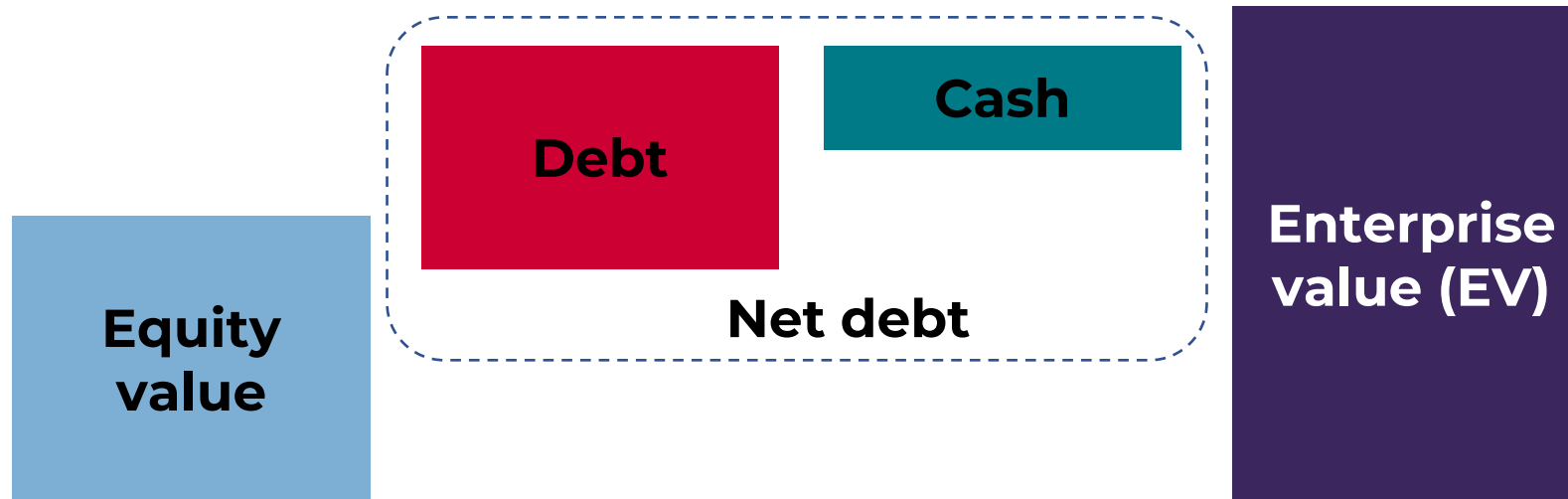


Definitions – Equity Valuation

- Book Value – the value of the company on the balance sheet. The assets less the liabilities of the company OR the equity value on the balance sheet
- Market Value – the value of the company in the market, i.e. the share price of the company
- Fair Value – the intrinsic value of the company i.e. what the price should be

What are we valuing?

- Usually, we value a firm. A firm is a group of assets (and associated liabilities) used to generate profit for its owners:
 - Equal to the value of the financing to support operations (at its simplest, debt, cash and/or equity)
- Valuation can be done at equity or enterprise level:
 - Equity value reflects only the claims due to equity holders
 - Enterprise value reflects the value of claims by all stakeholders



Valuation Methodologies



Relative



References what other people think about the value of the asset we are looking at

- Using multiples (P/E, P/B, P/S, P/CF, EV/EBITDA)
- Comparable company analysis (using public companies)
- Comparable transaction analysis (M&A based comparables)



Absolute



Based on assumptions of future performance of the company

- DCF = PV of future operating cash flows available to stakeholders
- Implied private equity valuation – range based on target returns given a certain capital structure and exit timeframe
- Other approaches: Dividend Discount, Asset Based Valuation

DCF Valuation Framework

Equity Valuation

Equity value = PV of cash available for distribution to equity holders

- Free Cash Flow To Equity (FCFE)
- Discounted at required return of equity

Often used to value financial institutions (no ability to distinguish operational and financial assets)

Enterprise Value

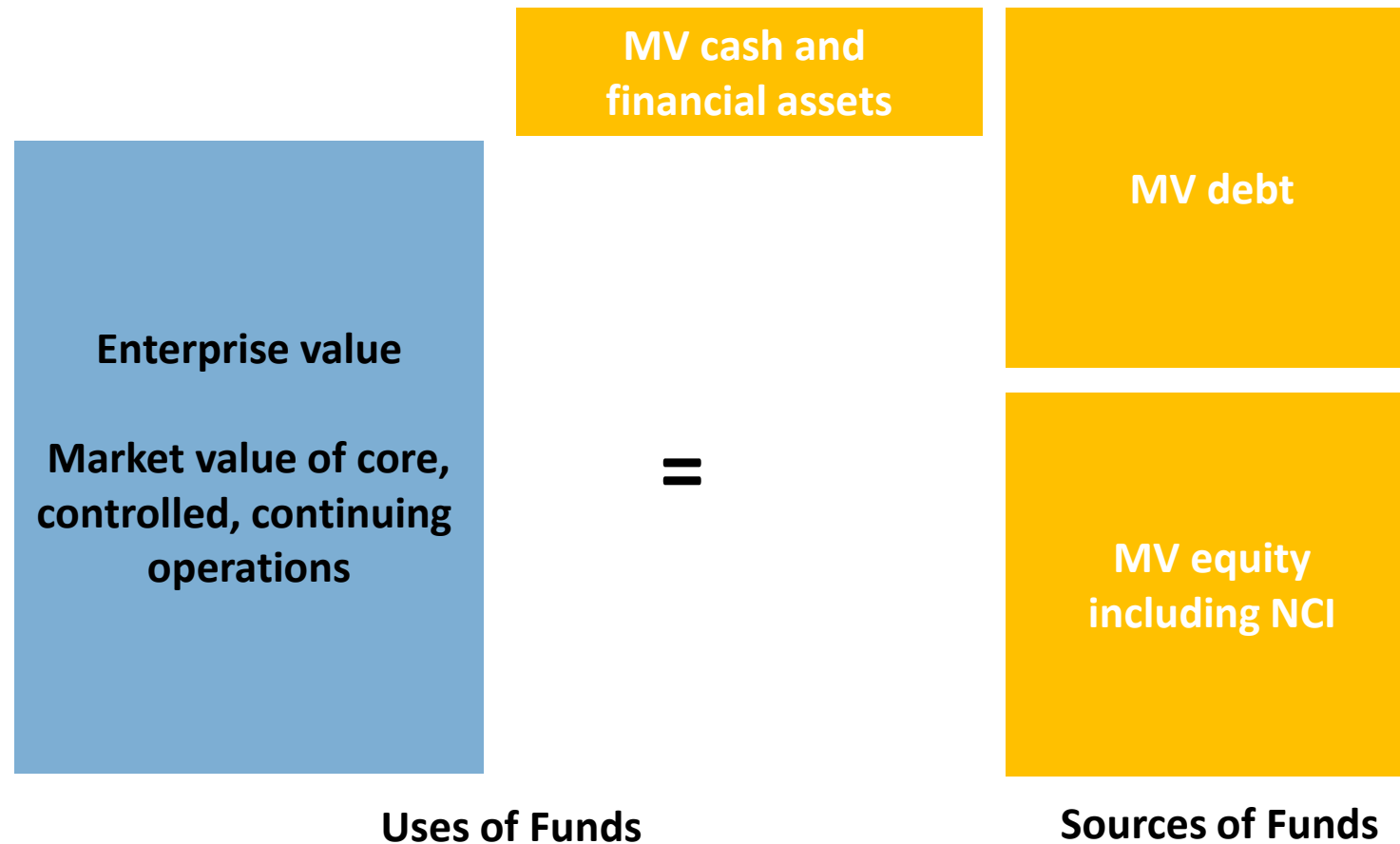
Enterprise value = PV of cash flows from operations available for distribution to all capital providers

- Free Cash Flow To Firm (FCFF)
- Discounted at weighted average required return of all capital providers (WACC)

Will need to bridge from Enterprise/ Firm Value to Equity value

Enterprise Value (EV): The Intuition

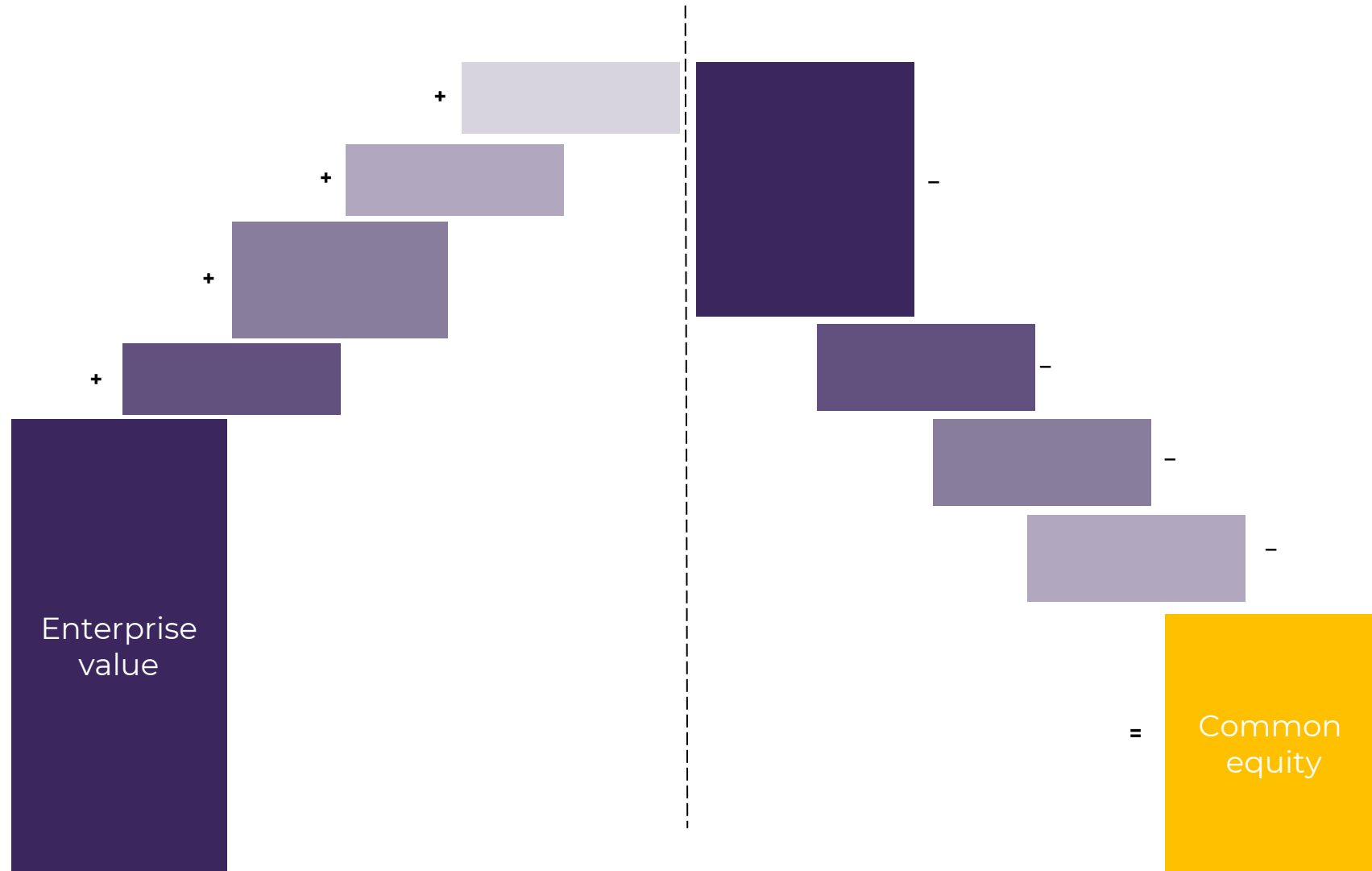
$$\text{Enterprise value} = \text{MV equity} + \text{MV debt} - \text{MV financial assets}$$



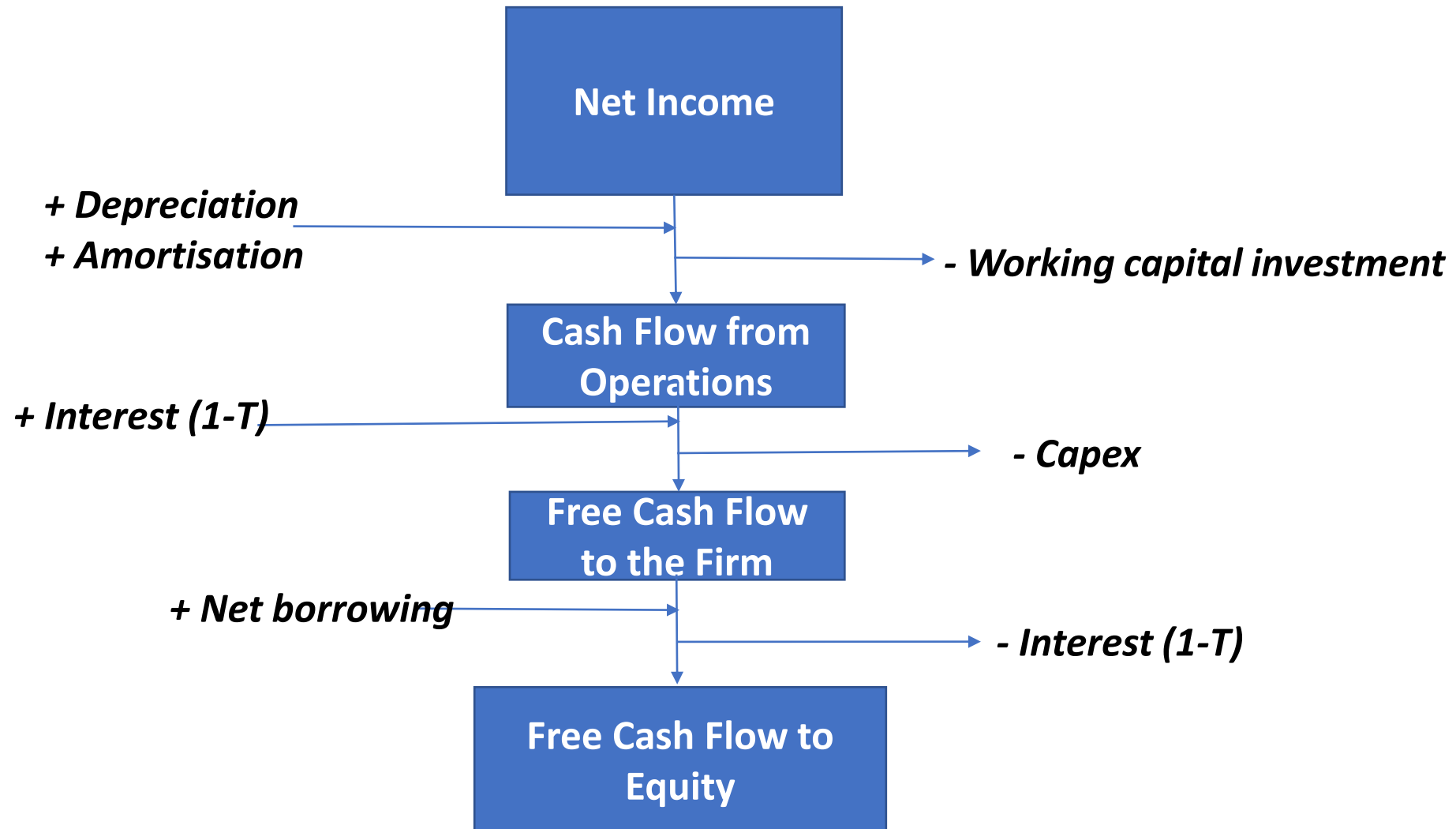
Enterprise Value

- Enterprise Value = Market value of debt + Market value of equity – cash – short term investments
- Common multiple used is: Enterprise value / EBITDA
- Example: A company has total debt outstanding of 232m, 36m of cash and 18m of short term investments. Assuming an enterprise value of 518m, calculate the value of equity

Enterprise to Equity Value: Derivation



Free Cash Flow Overview



Deriving FCFF/ Unlevered FCF

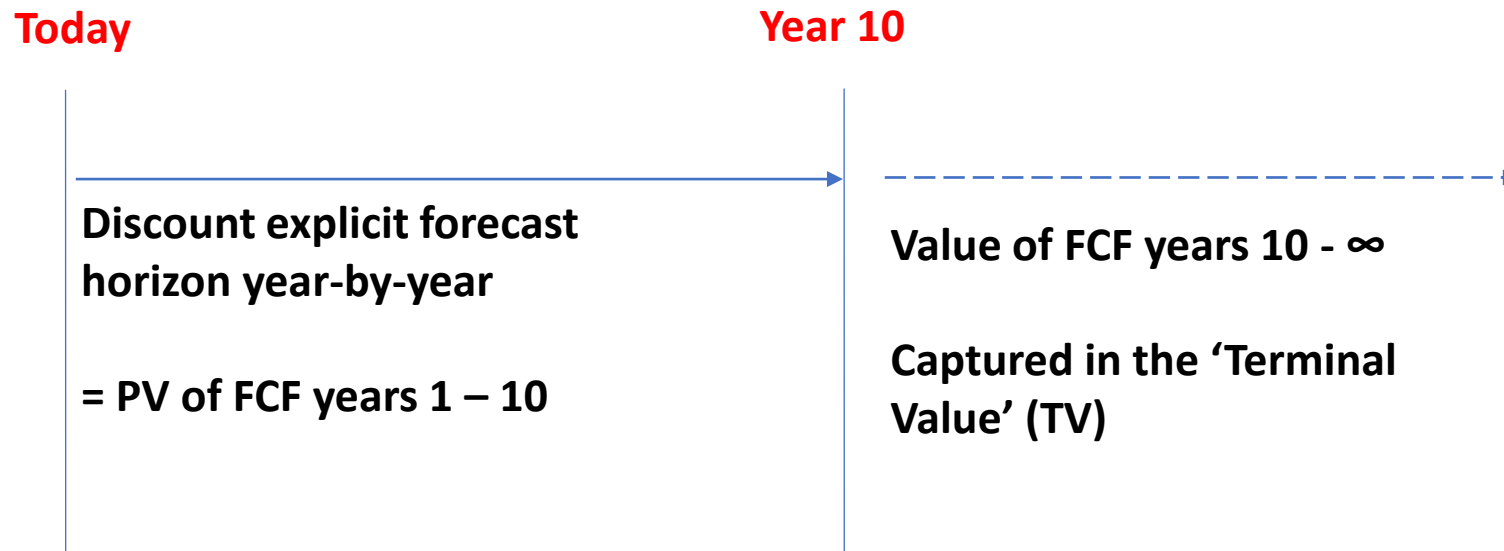
EBIT	43,200
Effective tax rate	23.0%
NOPAT [EBIT x (1-t)]	33,264
Capex (net of disposal proceeds)	(3,900)
Depreciation	1,640
Amortization	345
(Inc.) / dec. in net working capital	(750)
(Inc.) / dec. in other operating assets	(278)
Inc. / (dec.) in other operating liabilities	102
Unlevered FCF	30,423

Forecast of **operating items only** is required:

- Excludes any income from financial assets
- Excludes claims of financing capital providers

FCF Forecast

- Good DCF will be based on valid, justifiable forecasting assumptions
- Forecast horizon may be 5 to 10 years
- Need to forecast until reach sustainable mid-cycle position, viz, 'Steady state'



Terminal Value Methods

Growing perpetuity

- Assumes constant long-term growth rate (LTG) in FCF in perpetuity.
- Ensure integrity of final forecast FCF.

- Should reflect steady state

$$TV_N = \frac{\text{Steady state } FCF_N \times (1 + LTG)}{(WACC - LTG)}$$

- Requires discounting back from final year (N)
- May ignore link between reinvestment and growth

EV multiple

- Use a multiple of final forecast EBIT(DA).
- Ensure integrity of final year forecast.
- The multiple must reflect steady state growth and margins

- Use a mature multiple

$$TV_N = \text{Steady State EBIT(DA)}_N \times \text{Multiple}$$

- Requires discounting back from final year (N)

Weighted Average Cost of Capital (WACC)

- The weighted average cost of capital looks at the cost of debt and equity within the company and calculates a weighted average.

Formula

Weight of debt (W_d) = Market value of debt / total market value of debt and equity

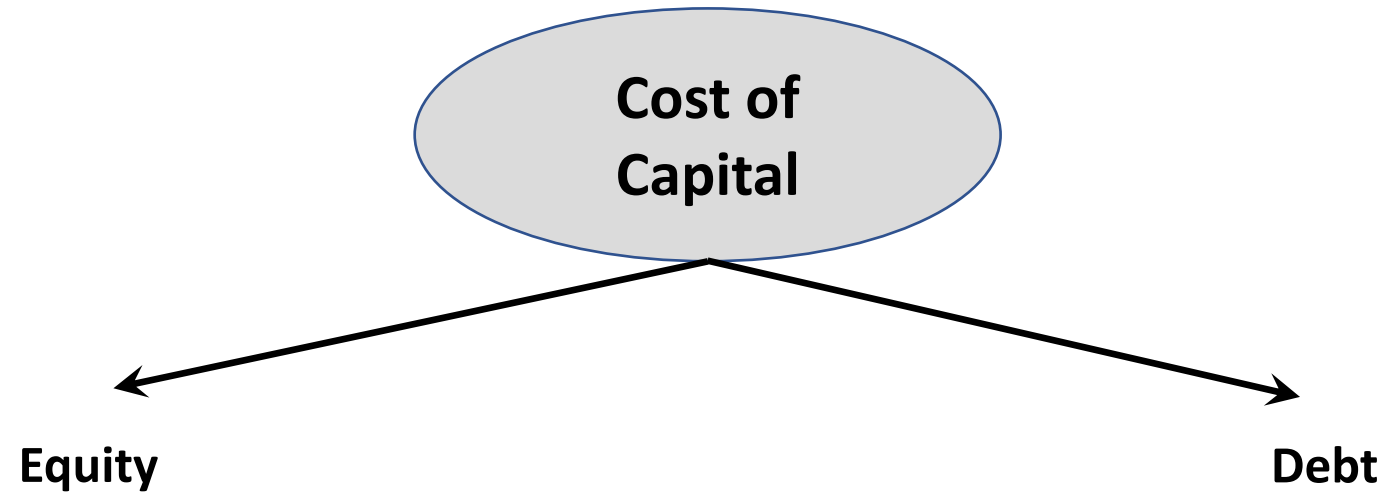
Formula

Weight of equity (W_e) = Market value of equity / total market value of debt and equity

Formula

$WACC = W_d \times \text{cost of debt} \times (1-t) + W_e \times \text{cost of equity}$

Cost of Debt and Equity: Overview



Methods: CAPM (most common),
Dividend Discount, Build-up
method

$$\text{CAPM: } K_e = R_f + \beta (R_{\text{market}} - R_f)$$

Beta: estimator of stock's return
vs equity market return

$$\text{Interest Rate } (R_d) = R_f + \text{Risk Premium}$$

Risk Premium: comparables, credit
ratings, fundamental analysis

$$K_d = R_d * (1 - \text{tax rate})$$

Steps in Undertaking a DCF Valuation

Forecast cash flows for an initial period e.g 5 years

Form a terminal value assumption and calculate the terminal value representing cash flows after the initial period

If using FCFE, discount at the cost of equity

If using FCFF, discount using WACC

Calculate the value of equity

Forecast Cash Flows

A company has sales of \$14 per share in 2022 and is expected to grow at 15% over the next 3 years. The profit margin is 35%. Working capital investment is 8% of sales, capex is 20% of sales, depreciation is 10% of sales and interest after tax is 6% of sales. Forecast the next 3 years of free cash flow to the firm:

	2022	2023 Forecast	2024 Forecast	2025 Forecast
Sales (per share)	14	16.10	18.52	21.29
Net Income (per share)	4.9	5.64	6.48	7.45
+ depreciation	1.4	1.61	1.85	2.13
- WC Investment	1.12	1.29	1.48	1.70
+ interest (1-t)	0.84	0.97	1.11	1.28
- Capex	2.8	3.22	3.70	4.26
= FCFF	3.22	3.70	4.26	4.90

Comparable Valuation

Identify comparable companies

Select an appropriate multiple e.g. P/E, or P/B ratio

Collect comparable data, and use relevant average

Value the equity

Identify Comparable

- Companies within the same sector / industry as the company you are trying to value, is the start of a selection for comparable companies.
- Ensure you are looking at similar size companies, and where appropriate, similar geographies.

Company Name	Size (\$bn)	Industry	Geographical Focus	P/E Ratio
ARC PLC	200	Telecoms	Canada	12.5x
DEN PLC	180	Construction	Canada	11.6x
GER PLC	24	Telecoms	Malawi	8x
SPY PLC	260	Telecoms	Canada	13x

- Which of the above companies are an appropriate peer group for MOT PLC, who are a \$215bn market capitalisation company operating in the Canadian Telecoms industry

Selecting the Correct Multiple

Multiple	Advantages	Disadvantages
P/E	<ol style="list-style-type: none"> 1. Commonly used 2. Clear link between earnings and share price 	<ol style="list-style-type: none"> 1. Earnings may be negative 2. Earnings may be volatile 3. Can be manipulated
P/S	<ol style="list-style-type: none"> 1. Sales cannot be negative 2. Useful for companies that operate at a fixed margin 	<ol style="list-style-type: none"> 1. Ignores cost structure 2. Sales can be manipulated
P/B	<ol style="list-style-type: none"> 1. Book value is unlikely to be negative 2. Useful for banks and fund managers 	<ol style="list-style-type: none"> 1. Book value is not market value 2. Can be manipulated
P/CF	<ol style="list-style-type: none"> 1. Difficult to manipulate 	<ol style="list-style-type: none"> 1. No consensus on correct cash flow measure 2. Cash may not show profitability

Value the Equity

Company Name	Size (\$bn)	P/E Ratio	P/B Ratio	P/S Ratio
Average		10.35x	1.95x	2.75x
ARC PLC	200	11.2x	1.8x	3.0x
SPY PLC	260	9.5x	2.1x	2.5x

- MOT PLC has an expected EPS of \$1.5 per share, BVPS of \$11 and sales per share of \$6. MOT PLC has a current share price of \$20.
- MOT PLC is in the same sector as the above two companies. Using the peer group average, calculate a fair value for MOT PLC share price using each multiple.

Overview of Bond Fundamentals

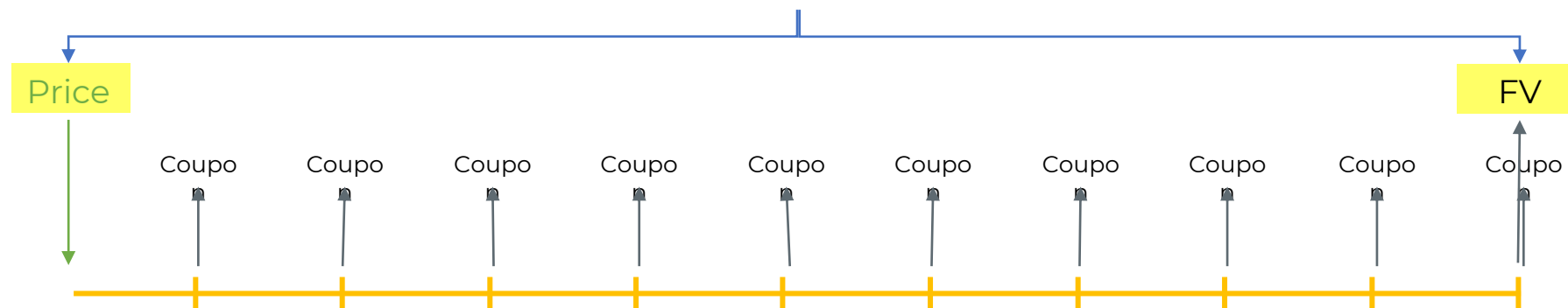


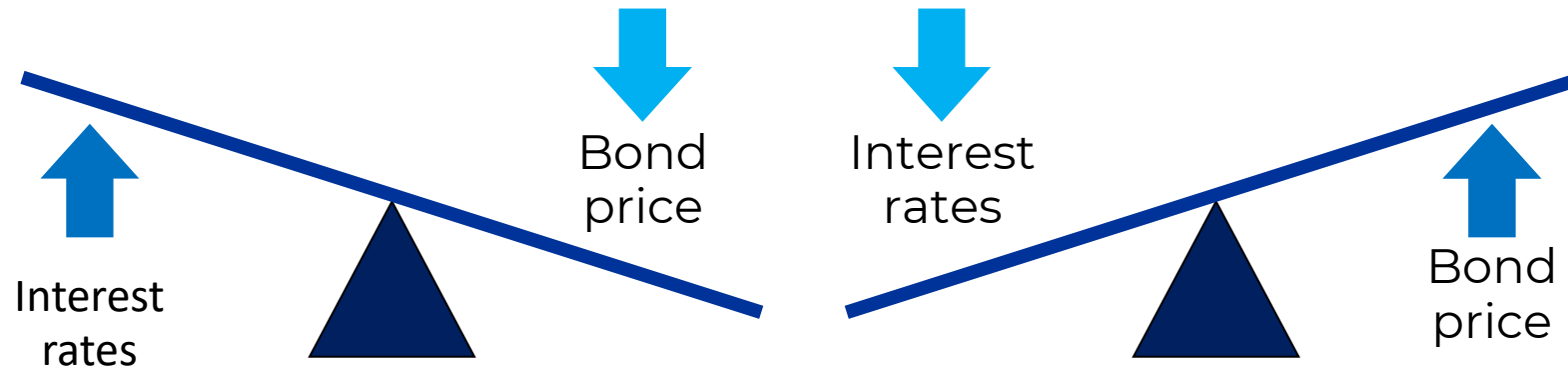
Cash Flows from a Bond

An investor who buys a bond at the issuing auction and holds it until maturity will receive both **income** and **growth** return.

- They will receive coupons (income return);
- As well as a capital gain (or loss) at redemption.

Capital gain/loss at redemption





Bond prices and interest rates move in opposite direction.

Pricing a Bond

A bond's yield = its IRR = the discount rate on all cash flows.

3 year yields are 2.8%. Price a 3-year bond with an annual coupon of 2.375%.

Rate: 2.80%

Year	Cash flow	Discount factor	PV
1	\$2.375	0.9727626	\$2.310
2	\$2.375	0.9462672	\$2.247
3	\$102.375	0.9204934	\$94.236
		Total:	\$98.79

- 'Discount factor' is another way of discounting future cashflows.
- Instead of dividing by $(1+r)^n$ we multiply by $1/(1+r)^n \rightarrow$ the same thing.
- So the Year 3 discount factor of 0.9204934 is $1/(1.028^3)$.

Pricing a Bond in Excel

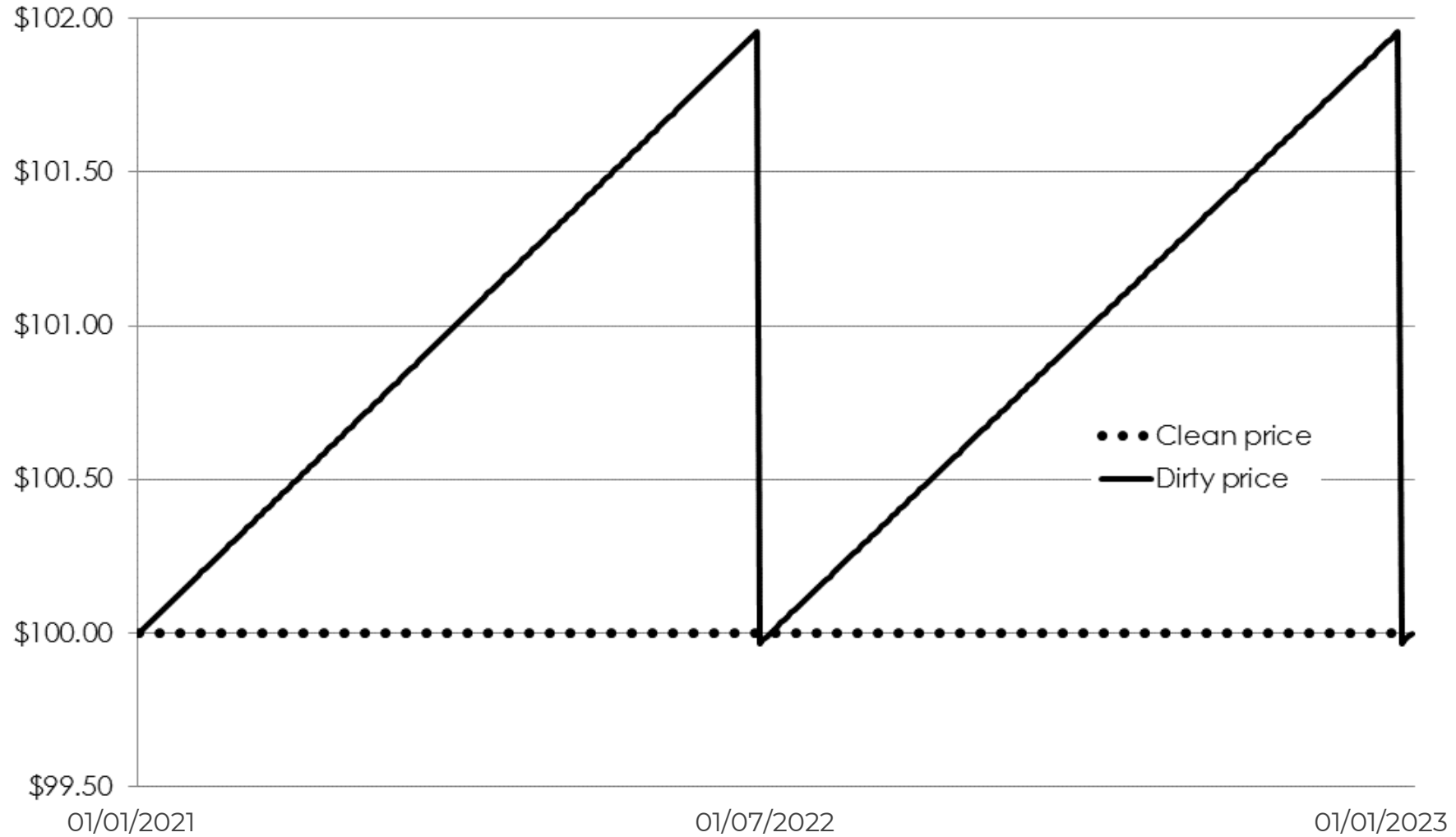
Value these two bonds. Calculate your price for 100 of par and state your answer to two decimal places

	Coupon	Maturity	Yield	Price
Bond 1	4.25% annual	10 years	4.05%	
Bond 2	3.50% semi-annual	5 years	3.72%	

Note:

- Value date = coupon date (ie coupon periods will be 1,2,3 etc)
- When cash flows occur semi-annually, use half the per annum yield as to discount the (semi-annual) cash flows

Clean and Dirty Prices



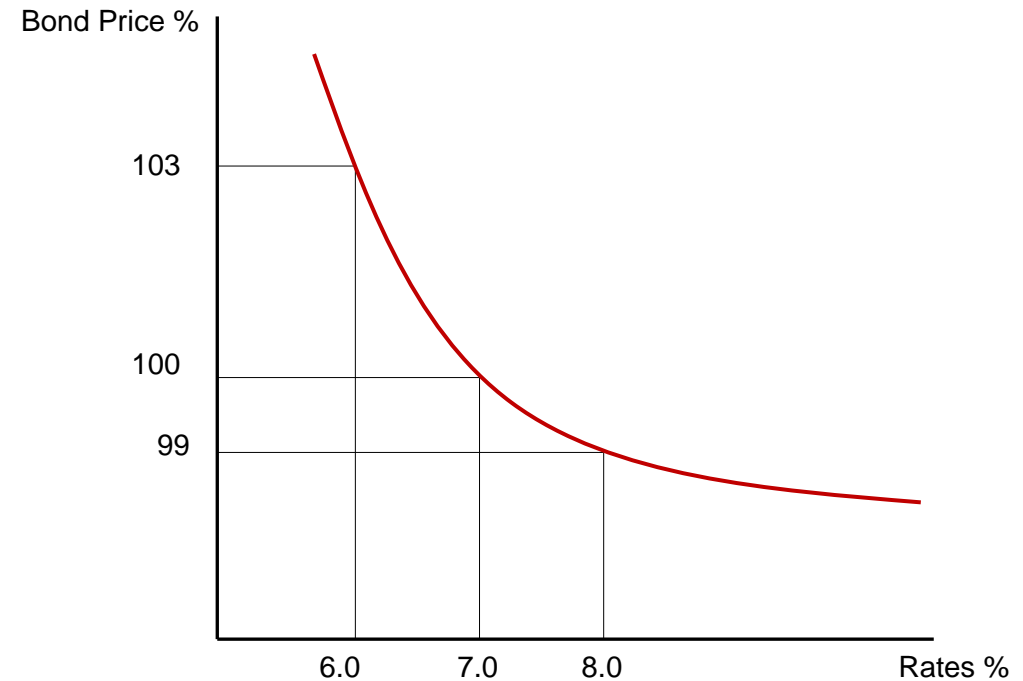
Convention

- Bonds are **quoted on a clean / quoted price** basis as if a full coupon period always existed.
- However, they are **settled on a dirty / full price** basis (inclusive of accrued interest) which is the PV of the bond's cash flows to the settlement date.

Fixed Income: Price-Yield Relationship

What is happening to the sensitivity of bond prices when:

- interest rates move up?
- interest rates move down?



Major Bond-Related Risks

Interest rate

- Bond prices exhibit an inverse relationship with rates – this is measured via ‘duration’

Credit

- The risk of default or a credit rating change or a change in credit spread

Reinvestment

- The unknown future reinvestment rate that the holder can reinvest the periodic bond cash flows at

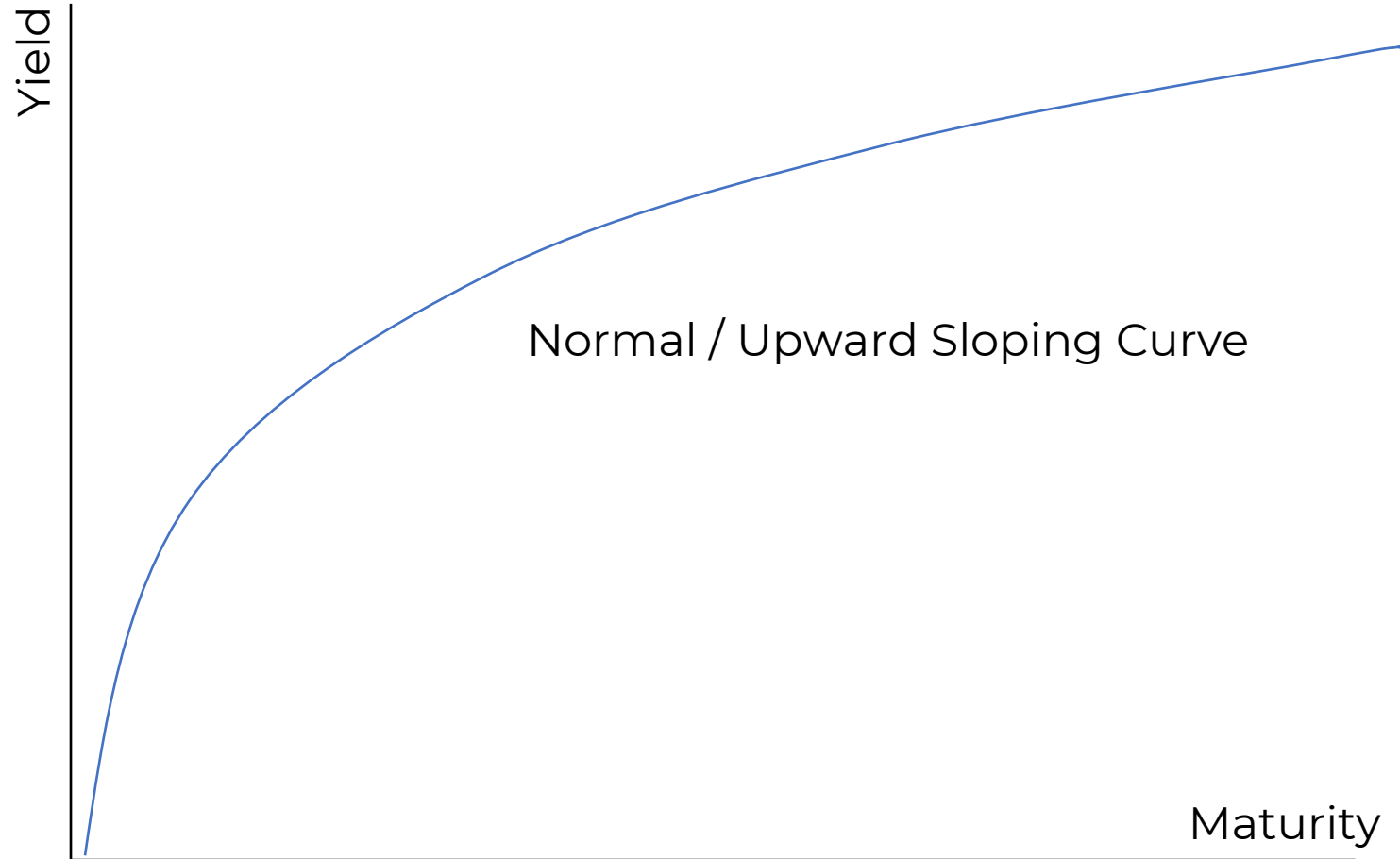
Prepayment

- Callable and quasi-callable bonds (MBS) may have their repayment accelerated, at the option of the issuer

Liquidity

- The inability to trade the bond at a given price for lack of a liquid market

The Yield Curve



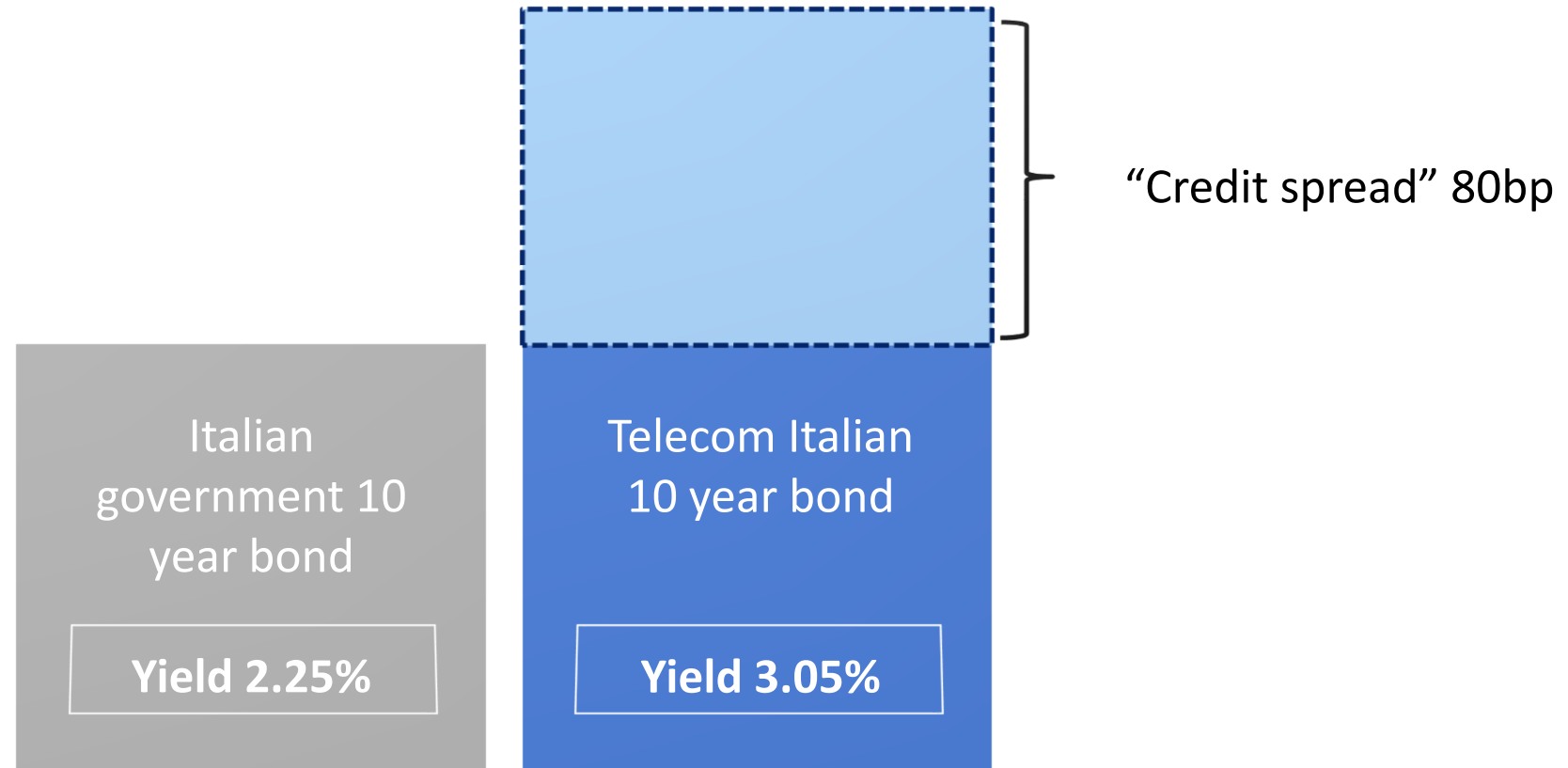
Credit Risk

Compared to a low risk government, the extra return investors require for lending to a corporate is known as the credit spread:

- This is to compensate them for the credit risk of the bond
- Credit risk is assessed by an issuer's credit rating



Credit Spread: Example



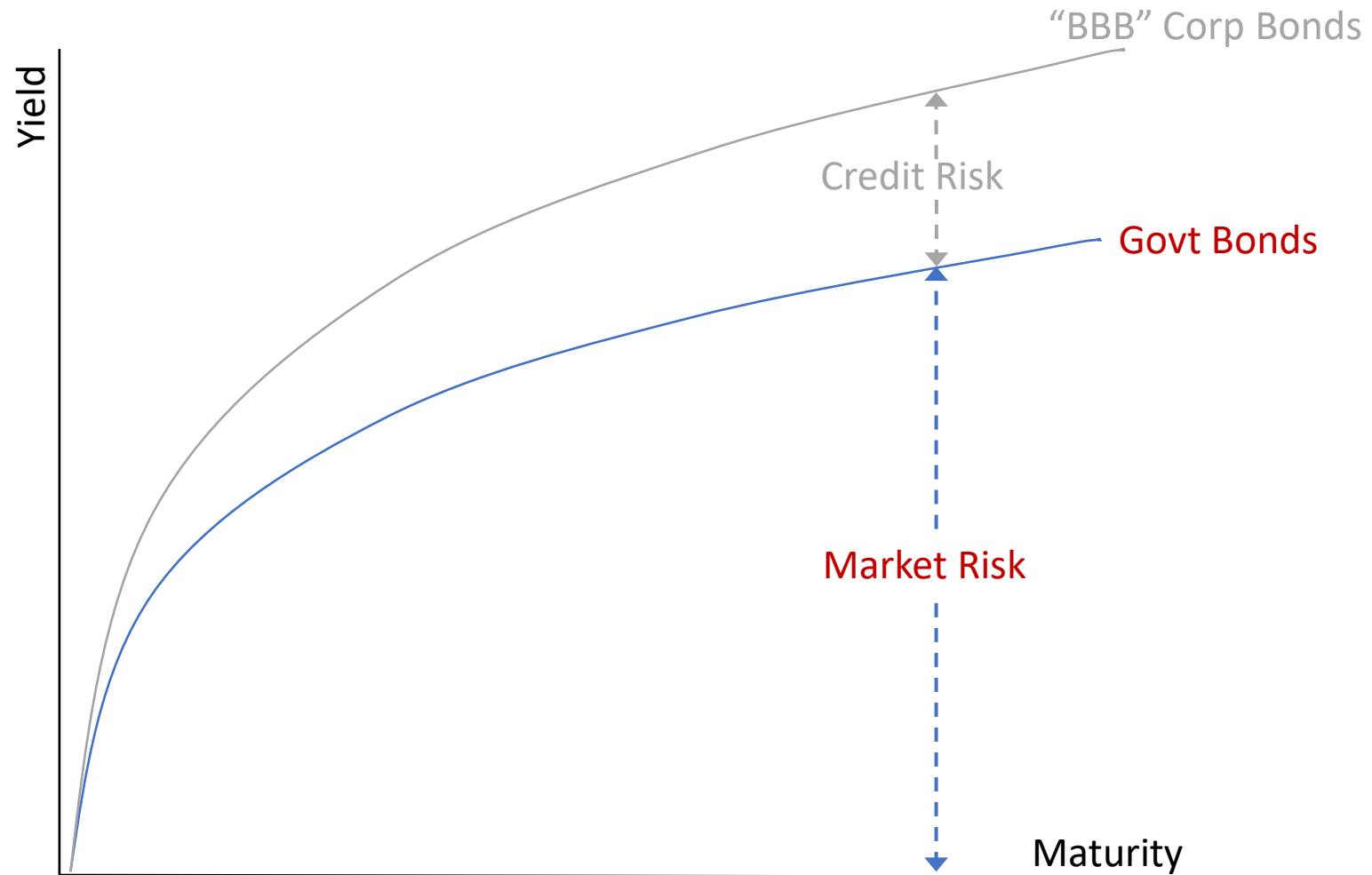
Credit Rating Agencies

- S&P, Moody's and Fitch are credit rating agencies.
 - They publish reports on the creditworthiness of bond issuers – best rating is AAA.
 - Not how likely you are to make a profit, how likely you are to make a loss.
- Provide a **rating** and an **outlook** (positive, negative, stable or developing).
 - i.e. level of risk and direction of likely movement.
- Credit-watch: when major corporate events announced or expected.

Credit Ratings

Grade	Category	S&P	Moody's	Fitch
Investment Grade	AAA / Aaa	AAA	Aaa	AAA
	AA / Aa	AA+	Aa1	AA+
		AA	Aa2	AA
		AA-	Aa3	AA-
	A / A	A+	A1	A+
		A	A2	A
		A-	A3	A-
	BBB / Baa	BBB+	Baa1	BBB+
		BBB	Baa2	BBB
		BBB-	Baa3	BBB-
Non Investment Grade or 'Junk'	BB/ Ba	BB+	Ba1	BB+
		BB	Ba2	BB
		BB-	Ba3	BB-
	B / B	B+	B1	B+
		B	B2	B
		B-	B3	B-
	CCC / Caa	CCC+	Caa1	CCC+
		CCC	Caa2	CCC
		CCC-	Caa3	CCC-
	CC / Ca	CC	Ca	CC
C	C	C	C	
Default	D	D		D

The Yield Curve



Example: Apple Bond Issue

AAPL 3.85 05/04/43		\$120.826	+0.026	98.1 bp vs T 2.00 02/15/2050
		As of 05 Jun		Source BMRK
AAPL 3.85 05/04/43 Corl		Settings ▾	Actions ▾	Page 1/12 Security Description: Bond
		94) <input type="checkbox"/> No Notes	95) Buy	96) Sell
25) Bond Description		26) Issuer Description		
Pages	Issuer Information		Identifiers	
11) Bond Info	Name APPLE INC		ID Number	EJ6592533
12) Addtl Info	Industry Technology (BCLASS)		CUSIP	037833AL4
13) Reg/Tax	Security Information		ISIN	US037833AL42
14) Covenants	Mkt Iss Global		Bond Ratings	
15) Guarantors	Country	US	Currency	USD
16) Bond Ratings	Rank	Sr Unsecured	Series	Moody's Aa1
17) Identifiers	Coupon	3.850000	Type	Fixed
18) Exchanges	Cpn Freq	S/A	Iss Price	99.41800
19) Inv Parties	Day Cnt	30/360	Maturity	05/04/2043
20) Fees, Restrict	MAKE WHOLE @15.000000 until 05/04/43/BULLET			
21) Schedules	Iss Sprd	+100.00bp vs T 2 3/4 11/15/42		
22) Coupons	Calc Type	(1)STREET CONVENTION		
Quick Links	Pricing Date	04/30/2013		
32) ALLQ Pricing	Interest Accrual Date	05/03/2013		
33) QRD Qt Recap	1st Settle Date	05/03/2013		
34) TDH Trade Hist	1st Coupon Date	11/04/2013		
35) CACS Corp Action	Min Piece/Increment 2,000.00 / 1,000.00			
36) CF Prospectus	Par Amount 1,000.00			
37) CN Sec News	Book Runner DB,GS			
38) HDS Holders	Reporting TRACE			
66) Send Bond				

Risk Factors for a Bond

Price of a bond influenced by:

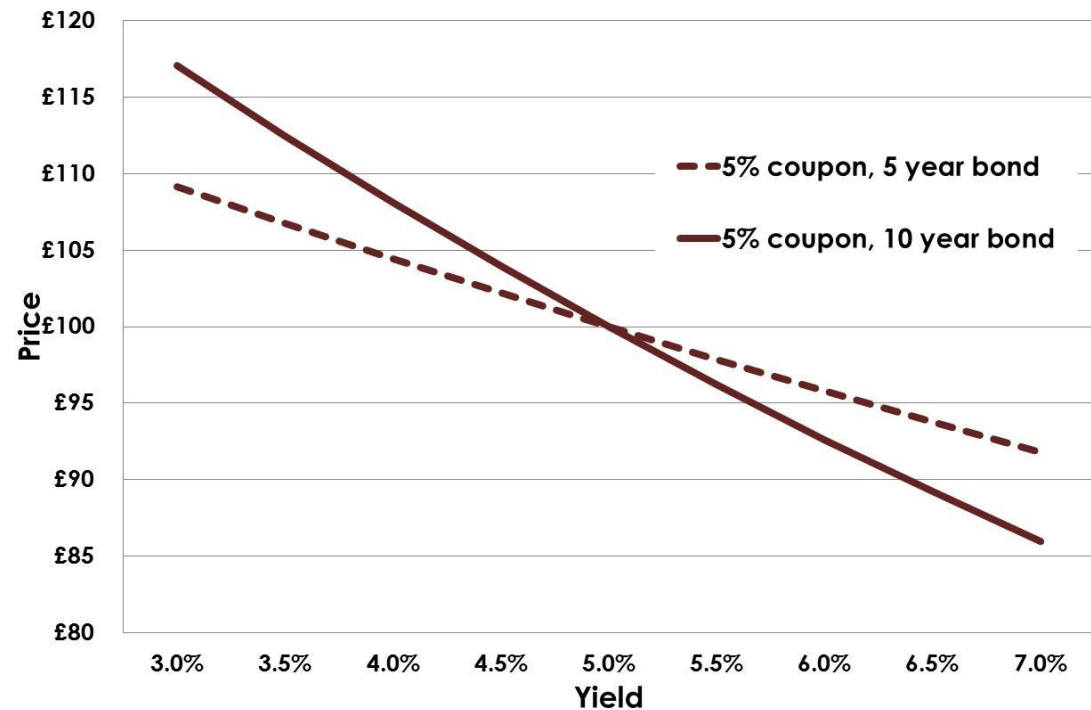
- Term.
- Cash flows (coupons).
- Required yield.

The risk of a bond is also determined by these factors... but only the yield follows an unknown path over time.

Longer maturity bond more sensitive to yield change

As rates fall from 7% to 3%

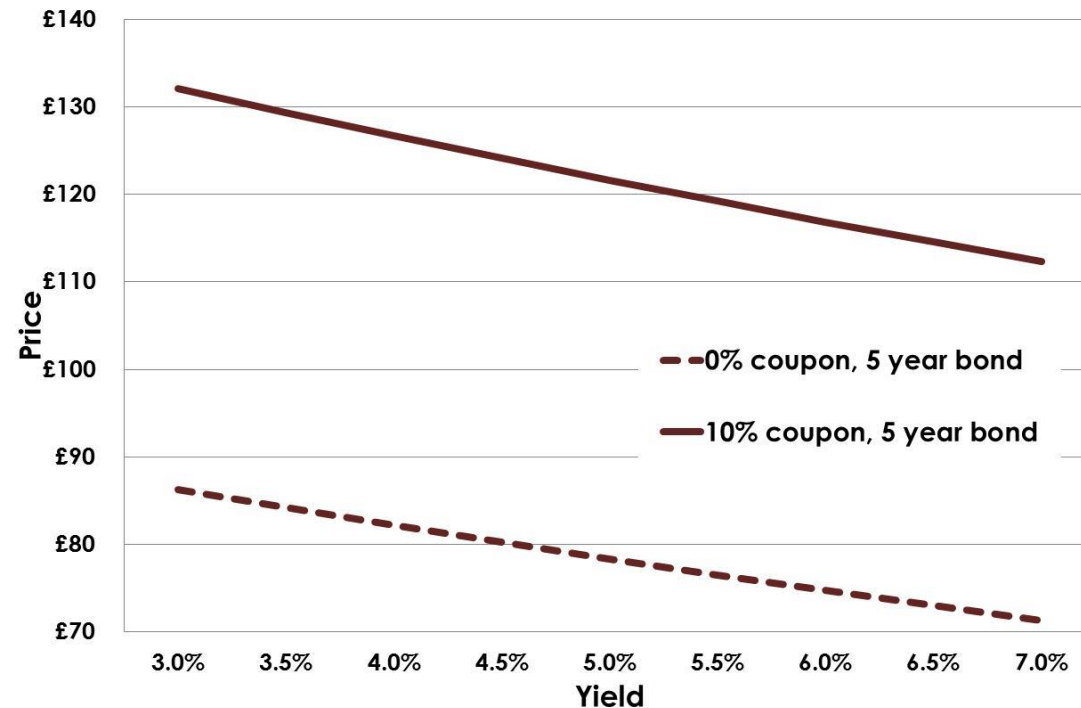
- 5 year bond \$91.80 → \$109.16
 - A rise of 18.9%
- 10 year bond \$85.95 → \$117.06
 - A rise of 36.2%



Lower coupon bond more sensitive to yield change

As rates fall from 7% to 3%:

- 0% bond \$71.30 → \$86.26
 - A rise of 20.98%
- 10% bond \$112.30 → \$132.06
 - A rise of 17.59%



Duration concepts

All important, but some better than others:

- Macaulay
- Modified
- Dollar
- DV01

Macaulay Duration

Longer → more rate sensitivity:

- Weighted average life of each (Present Valued) Cash Flow.
- Important for buy-side – long or short duration vs. index.
- 3 yr GBP 4% annual coupon bond, yielding 4.2%.

$$D_{Mac} = \sum_{i=1}^n \frac{iPV_i}{BondValue}$$

$$= \frac{286.98}{99.447}$$

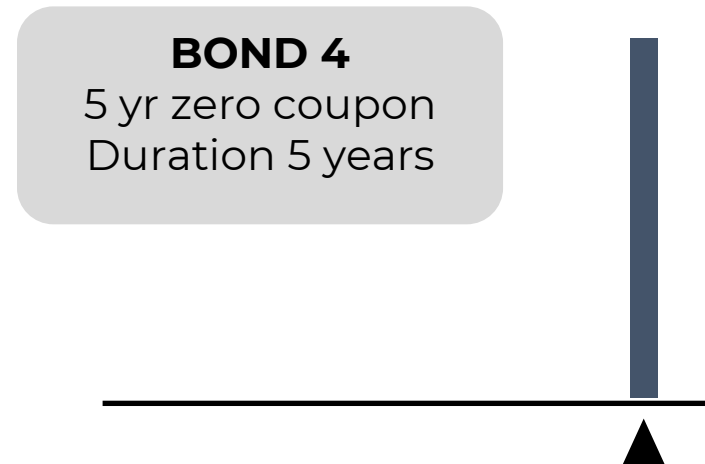
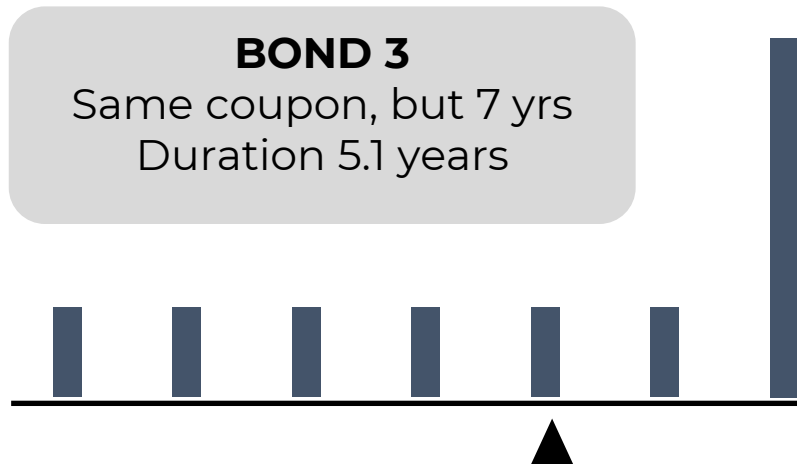
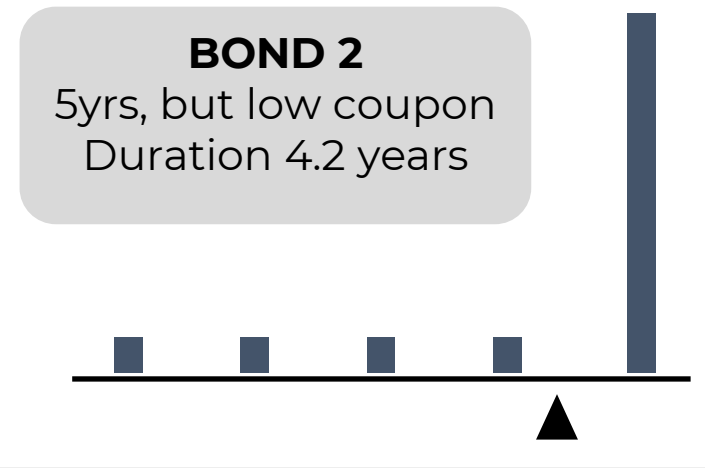
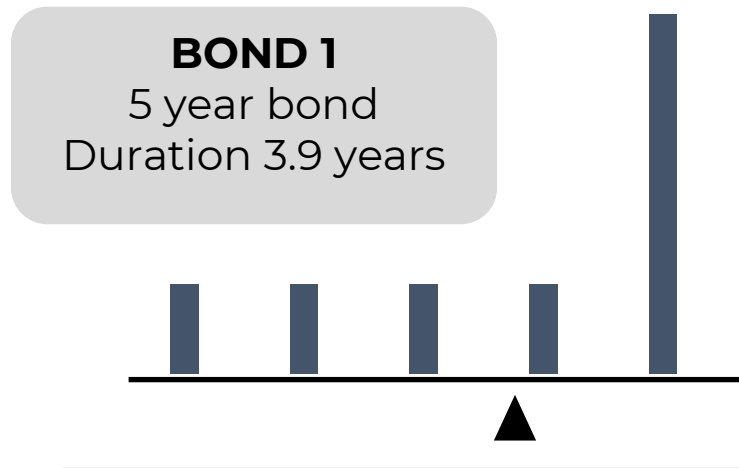
$$= 2.886 \text{ years}$$

Time (i)	CF	PV (CF)	PV (CF) * i
1	4	3.839	3.839
2	4	3.684	7.368
3	104	91.924	275.773
TOTALS		99.447	286.980
		"A"	"B"

B/A	2.886
Macaulay Duration	2.886 years

Intuitive approach

“Balance” the Cash Flows



Modified duration

More useful risk metric: how much the bond price moves for a 1% change in yield (approximately):

$$Dur_{MOD} = \frac{Dur_{MAC}}{(1 + ytm / k)} \div 100$$

$$= \frac{2.886}{1 + 0.042 / 1} \div 100$$

$$= 2.769\%$$

K= coupon frequency per year.

[÷100] scales to per cent.

Often expressed as an absolute positive number:

- More correctly, negative for long positions, positive for short.

What does modified duration give you?

A risk metric: % change in bonds price, for a 1% point change in yield

Our 3yr % bond, with yield 4.2%, priced at \$99.447:

- If yields move to 5.2%.
- Price drops to \$96.744.

Time (i)	CF	PV (CF)
1	4	3.802
2	4	3.614
3	104	89.328
		96.744

Dollar duration

- Modified duration gives the % P&L for a 1% yield shift.
- Dollar duration gives the cash P&L for same shift.
- We have already calculated dollar duration on previous page.

Estimating via modified duration:

- 100bp yield shift should move this bond by 2.769%.
 - $\$99.447 * 2.769\% = \2.754 .
 - $\$99.447 - \$2.754 = \$96.693$. Close to actual new price.
-
- Dollar duration = mod duration * bond price.

DV01

Dollar value of a basis point, or basis point value. Our preferred method, as:

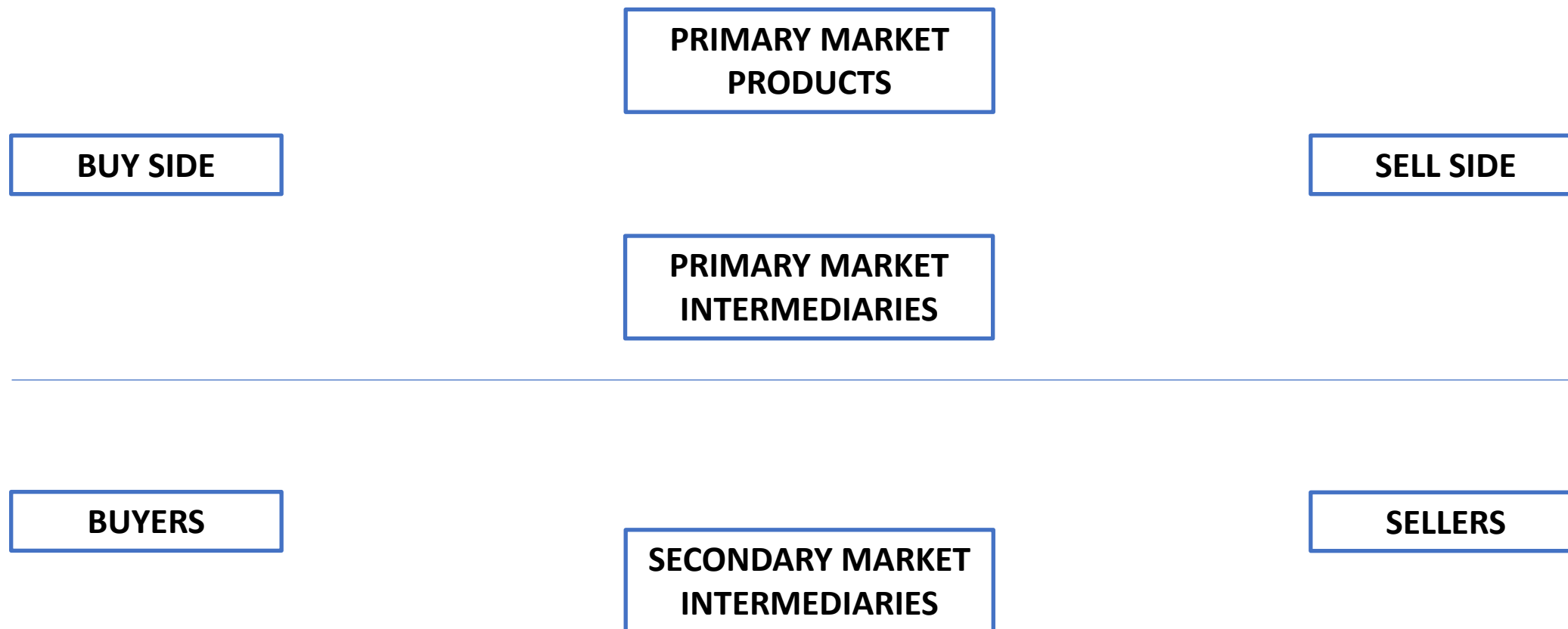
- 1 bp move in yields is more likely than a 1% move.
- DV01 is less approximate than duration.
- We shift “key rates” *up and/or down* 1bp and measure impact on book.

$$\mathbf{DV01 = Dur_{mod} \times (Dirty) Price of Bond \times 0.01}$$

Day 3

Capital Markets and the Role of Asset Managers

Introduction: Capital and Financial Markets



Benefits of Collective Investment

Rationale:

- Pool the resources of a large number of investors, with the aim of pursuing a common investment objective

Benefits:

- Economies of scale
- Diversification
- Access to professional investment management
- Access to geographical markets, asset classes or investment strategies which might otherwise be inaccessible to the individual investor
- In some cases, benefit of regulatory oversight
- In some cases, tax deferral

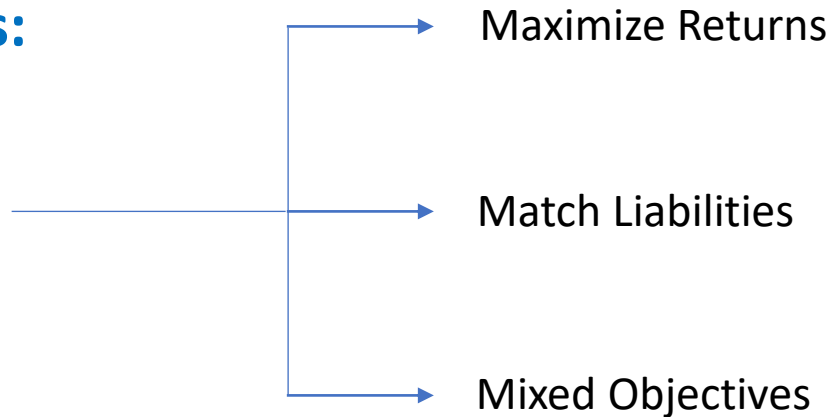
What are the drawbacks?

Investment Managers

Business Model:

- Financial advisory services for investments
- Develop Investment Portfolios for Client
- Monitor Performance of Portfolios

Typical Client Objectives:



Fund Management Firms and Fees

Fund management firms use their expertise in research and risk in order to invest clients' money. By doing so, they earn fees, including initial charges (can be rebated), annual management charges (AMC) on assets under management (AUM), performance fees (on hedge fund type strategies) and sometimes exit fees for early redemption.



Investor Objectives: The Details

Objectives

Risk

- Willingness vs. ability
- Source/measure of wealth
- Stage in lifecycle
- Time horizon

Return

- Primary (required) and secondary (desired) goals
- Capital vs. income
- Influenced by risk tolerance and time horizon

Constraints

Liquidity

- Any interim spending needs?

Time horizon

- Links to goals and impacts risk/return
- Single/multistage

Tax

- Capital gains vs. income
- Tax efficient investing

Unique

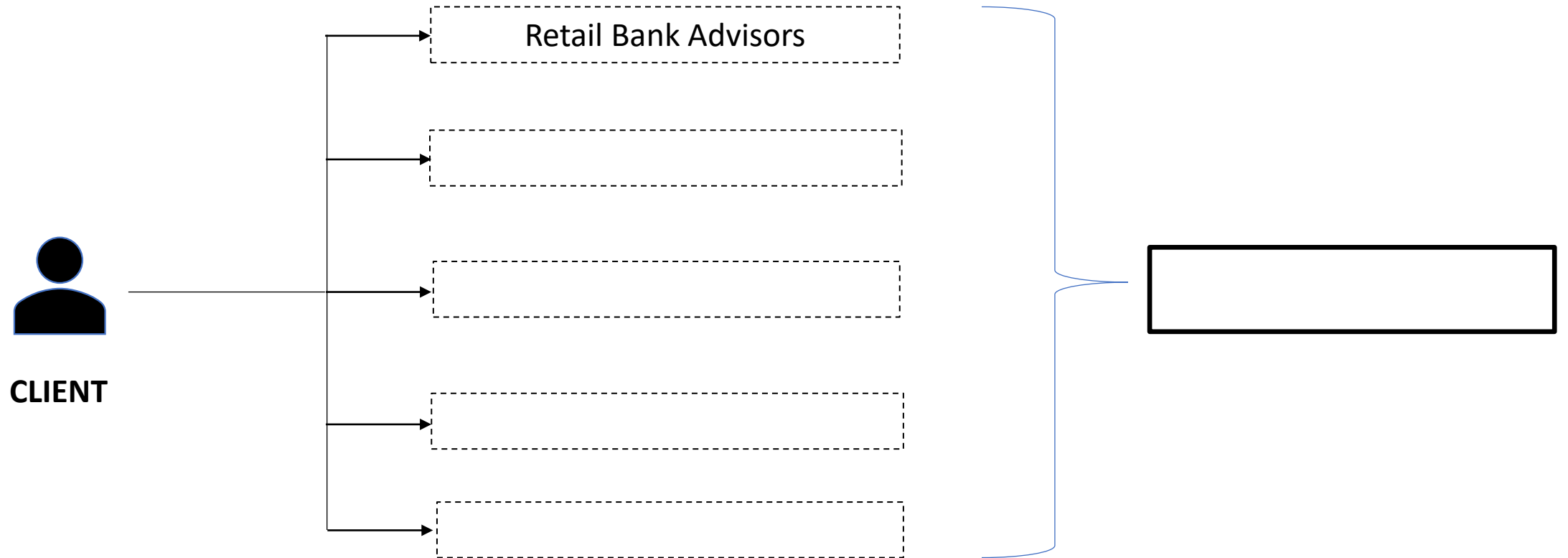
- Socially responsible investing
- Sharia Law
- Other, e.g. concentrated stock

Regulatory

- Institutions (usually)
- Use of derivatives
- Investment grade debt only?

Investment Managers: Exercise

Name at least 5 types of intermediaries that offer financial advisory services to investors? Who is typically on the other (non-client) side of the intermediaries?



Professional Asset Managers

Legal Structures:

- Corporations (e.g, some mutual funds)
- Trusts (e.g, US mutual funds, UK unit trusts)
- Managed accounts (e.g, tailored investments)
- Partnership (e.g, hedge funds)

Additional Fund Characteristics

Aside from the Legal Structure, what are the other decisions would a Fund need to make?

-
-
-
-
-
-
-

Fund Characteristics

Onshore versus Offshore

- When a fund is created it will be incorporated in a financial centre
- Offshore refers to the range of offshore financial centres who specialise in investment services and who offer attractive legal and tax regimes for funds

Authorisation

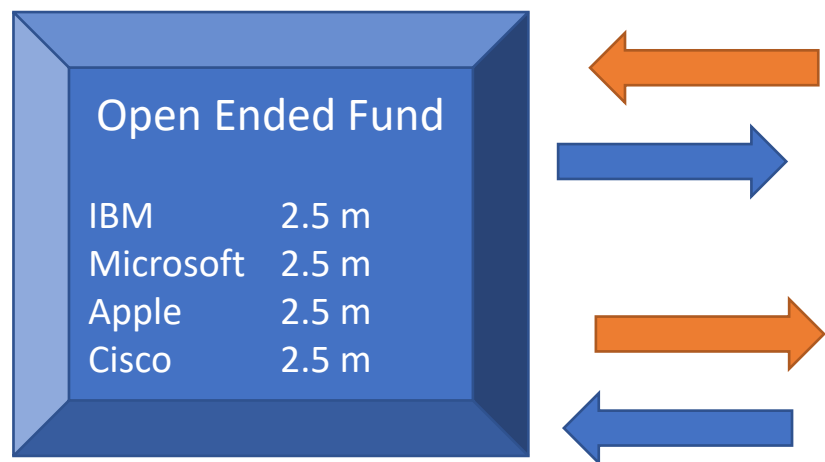
- Funds can be classified as authorised or unauthorised
- Regulatory authorisation enables marketing to retail investors

Tax Treatment

- Funds - tax treatment will vary depending upon whether it is onshore or offshore
- Investors - offshore funds may not be taxed in the same way as onshore

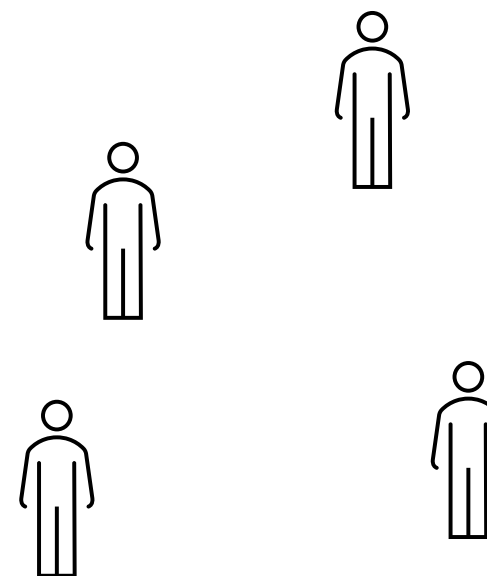
Open Ended Fund

“Open Ended with a Variable Number of Shares”



Example: Open Ended Investment Company
 Raised USD 10 mln and invested full amount

New Investor



Existing Investors

US Open Ended Funds

Legal Structure	<ul style="list-style-type: none"> Company
Share Capital	<ul style="list-style-type: none"> Open ended
Management	<ul style="list-style-type: none"> Investment management – investment advisers Custody – custodian bank
Pricing	<ul style="list-style-type: none"> Based on NAV Purchases – NAV + charges Sales – NAV – charges
Dealing	<ul style="list-style-type: none"> Direct with Fund Group Settlement – 7 days
Charges	<ul style="list-style-type: none"> Operating expenses – management fees; distribution fees; other costs – custody, legal, accounting, administration Disclose operating expense ratio Charges for purchases – front end load; back end load; no load Charges for sales – exit fee
Share classes	<ul style="list-style-type: none"> Class A shares – front end charge; lower operating expenses Class B shares – no front end charge; possible back end load Class C shares – either front end or back end charges; higher operating expenses

European Open-ended Funds

SICAV

- Societe D'Invesstisement Capital a Variable
- ICVC – Investment Company with Variable Capital
- Corporate structure and open ended fund
- Requires appointment of depositary to exercise oversight on the fund
- Major fund type used in Luxembourg for cross-border marketing
- Single Priced
- Linked to NAV

FCP

- Alternative legal structure for European funds
- Fonds Commun de Placement
- Contract structure between scheme manager and investors
- No legal personality – administered by a management company.
- Administration similar to SICAV

Unit Trust

- Structured using a Trust Deed
- Trustee is the legal owner of assets
- Unit holders are the beneficial owners
- Unit Trust Manager is responsible for marketing and management of the fund
- Trustee safeguards assets and undertakes checks on manager for investor protection
- Dual-priced basis – bid and offer price

OEIC

- Requires appointment of an Authorised Corporate Director to manage the company
- Fund investments are held by an independent depositary – who is the legal owner
- OEIC is beneficial owner
- Can be single or dual priced

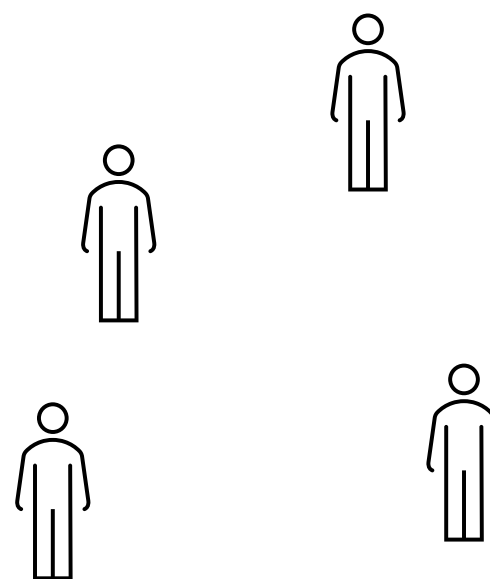
Closed Ended Fund

“Closed Ended with a Fixed Number of Shares”

Open Ended Fund	
IBM	2.5 m
Microsoft	2.5 m
Apple	2.5 m
Cisco	2.5 m

Example: Closed Ended Investment Company
 Raised USD 10 mln and invested full amount

New Investor



Existing Investors



US Closed Ended Funds

US Closed End Funds

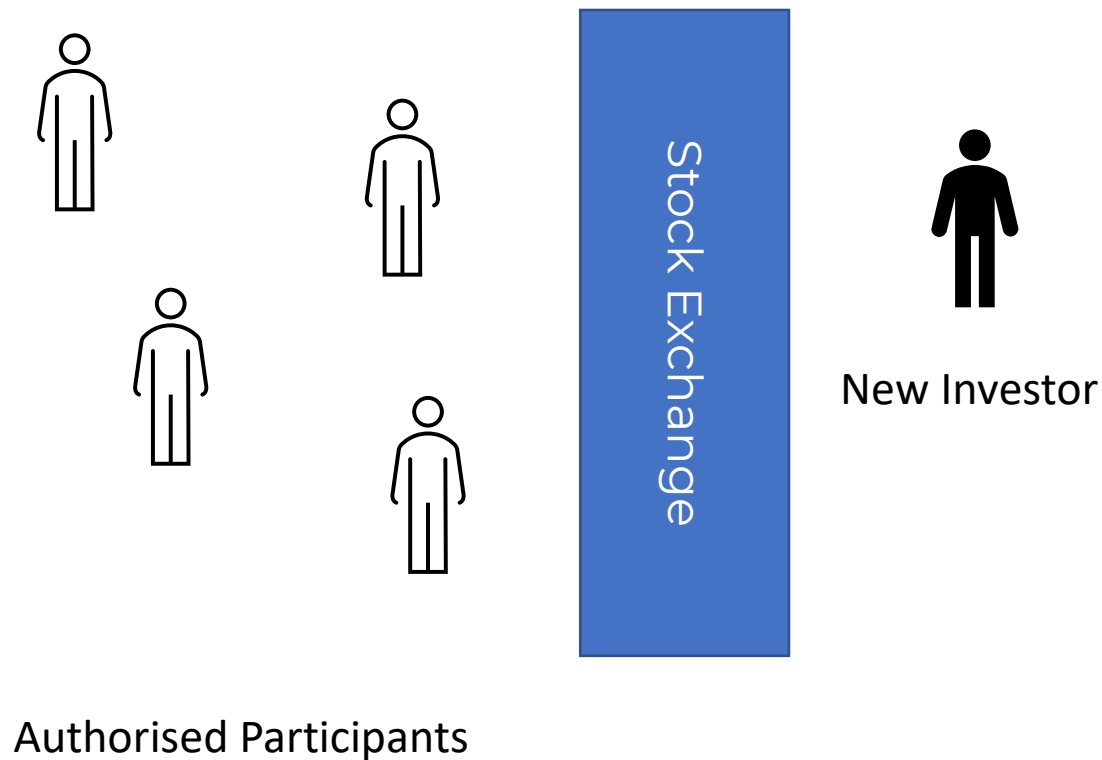
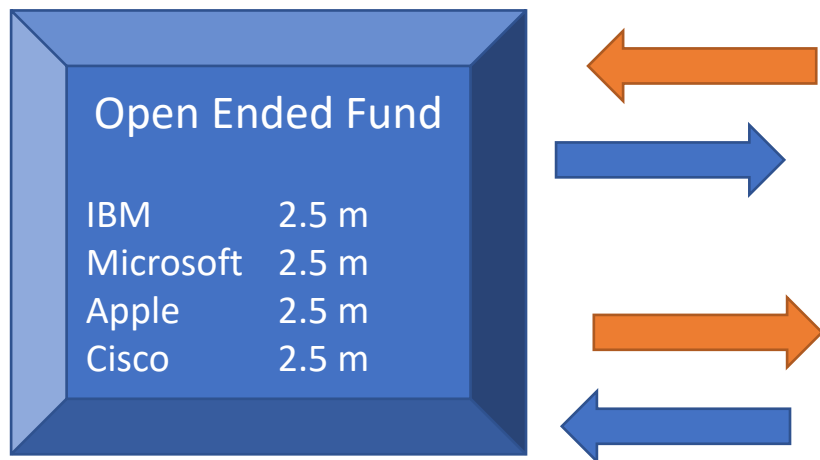
- Have fixed capital and traded on a stock exchange
- Can have different investment objectives, strategies, and investment portfolios
- Also can be subject to different risks, volatility, and charges
- Permitted to invest in a greater amount of "illiquid" securities than are mutual funds

Unit Investment Trust

- Buys and holds a relatively fixed portfolio of securities for life of the fund
- Does not actively trade its investment portfolio
- It will usually make an initial public offering of its shares (or units) like a closed-end fund
- But the sponsors of the fund will maintain a secondary market
- Allows owners of UIT units to sell them back to the sponsors and allows other investors to buy UIT units from the sponsors

Exchange Traded Fund

“Open Ended with Shares Traded on Exchange”



Example: Exchange Traded Fund
 Raised USD 10 mln and invested full amount
 Shares bought and sold with ETF only

Exchange Traded Products – ETP

Are a type of security that is derivatively priced

- Derived from other investment instruments, such as a commodity, a currency, a share price or an interest rate.

Generally benchmarked to stocks, commodities or indices.

Can also be actively managed funds.

ETPs include exchange-traded funds (ETFs), exchange-traded vehicles (ETVs), exchanged traded notes (ETNs) and certificates.

Traded on many global stock exchanges

Portfolio Management Styles

Active v Passive Portfolio Management

Active

- Regularly trade to enhance returns/generate alpha
- Believe **markets not efficient**, hence mispriced securities do exist

Passive

- Establish and maintain a policy
- Believe **markets are efficient**, hence no mispricing exists
- E.g. index funds, ETFs, bond immunization

Hybrid Styles

- Core and Satellite Funds
- Enhanced indexation, e.g. portfolio tilting
- Smart beta

Investment Styles

- **Income investing** = Stable income from regular dividends:
 - Mature companies
 - Sustainable dividends
- **Value investing** = Stocks with:
 - Low expected growth (low P/E)
 - Cheap relative to fundamentals (perhaps oversold distressed companies)
- **Growth investing** = Stocks with:
 - High expected growth (high P/E)
 - Expect outperformance from momentum/aggressive investment style
- **GARP** = Effort to reconcile value and growth investing :
 - any P/E is OK provided: **$P/E \leq \text{earnings growth rate}$**
 - Normally expressed as **PEG ratio ≤ 1.0**

Appraising Performance: Sharpe Ratio

A measure of how well a fund is rewarded for the risk it incurs:

$$\frac{\text{Return of fund} - \text{Risk-free return}}{\text{Standard deviation of fund returns}}$$

- The higher the ratio, the better the return per unit of risk taken
- Sharpe ratio of 1 indicates that the rate of return is proportional to the risk assumed in seeking that reward
- Sharpe ratio of > 1 means returns are high relative to risk

Appraising Performance: Treynor Ratio

Like Sharpe but **Treynor uses Beta** of the portfolio vs. the market as the denominator, assuming a completely diversified portfolio

$$\frac{\text{Return of fund} - \text{Risk-free return}}{\text{Fund } \beta}$$

For both Sharpe and Treynor, the higher the value of the reward-to-risk ratio, the better the risk-adjusted return i.e., **the higher the return per unit of risk.**

Appendix: Audit Reports

Breaking down the components

Introduction to Audit Reports

- An independent external auditor is responsible for examining a company's financial records
- The outcome of this process is an Audit Report, which is a written statement by the auditor
- The report presents the auditor's evaluation of whether the company's financial statements, including the balance sheet, adhere to:
 - Generally accepted accounting principles (GAAP) or International Financial Reporting Standards IFRS)
 - And are devoid of significant errors
- Audit Report is accompanied by the company's annual report.
- It is required by all stakeholders

Overview of an Audit Report: Part 1

Independent audit report

1. _____

2. _____

3. _____

First or 'opinion' paragraph/ section

Provides unqualified audit opinion

- True or fair view (IFRS) and/or Fairly presented (IFRS and US)
- Clean opinion

Also provides qualified opinion, giving limitations or exceptions to accounting standards and explanatory paragraphs regarding exceptions

Second or 'basis of opinion' paragraph/ section

Describes the basis for providing the opinion

Accounting Standards under which the Audit was conducted

Confirmation of independence and ethical standards of auditors

'Going concern' conclusions

Third or 'scope' paragraph/ section

Details the nature of the audit process

Types of Audit Opinions

 **Unqualified opinion**

→ Clean opinion

FINANCIAL STATEMENTS
CORRECT

Financial statements are free from any material errors and omissions

 **Qualified opinion**

FINANCIAL STATEMENTS
FAIRLY PRESENTED

There are some major exceptions to the accounting rules but, overall, financial statements are fairly presented

 **Adverse opinion**

FINANCIAL STATEMENTS
WRONG

There are material and pervasive issues in the financial reports

Financial statements are misrepresented or misstated

 **Disclaimer of opinion**

FINANCIAL STATEMENTS
INSUFFICIENT EVIDENCE

Auditors are unable to express an opinion

Overview of an Audit Report: Part 2

Independent audit report

4. _____

5. _____

6. _____

Fourth or 'Key Audit Matters' paragraph/ section

Highlight for the users/ reader of the report

- The existence of significant events that should be disclosed
- Any areas that involved significant judgment
- Emphasis of Matter

Fifth paragraph/ section

Describes the materiality thresholds for the usability of the financial statements

Directors responsibilities towards the financial statements

Auditors' responsibilities towards the audit

Sixth paragraph/ section

Any other reporting responsibility (legal and/or regulatory)

Key Audit Matters

Definition:

Key Audit Matters (KAM) are based on topics which are discussed with those (on the company's side) responsible for governance. The auditor then assesses these matters and identifies which ones require significant attention during the audit

Identification Criteria required by the auditor to consider:

- Areas that are deemed to be susceptible to higher risks of material misstatements.
- Any area that requires significant auditor's judgement.
- The effect on the audit of significant events or transactions that have taken place during the period.

Key Audit Matters - Examples

	The risk	Our response
<p>Existence, accuracy and presentation of accruals</p> <p>Group: £502.8m (FY21: £350.3m)</p> <p>Parent Company: £206.4m (FY21: £229.7m)</p> <p>Refer to page 111 (Audit & Risk Committee Report) and page 195 (financial disclosures).</p>	<p>Accounting treatment</p> <p>The recent strong performance of the Group and Company may provide management an incentive to manipulate the Group and Company's results. As a result, accruals may be an area more susceptible to management bias.</p> <p>As described above, we also assessed there to be an increased potential management override risk.</p> <p>As noted within our provisions KAM, there is increased risk over the presentation of accruals versus provisions given historically there have been a number of balances recognised as accruals which should have been classified as provisions.</p>	<p>Given the nature of the balance, we would expect to obtain audit evidence primarily through the detailed procedures described below, rather than seeking to rely on any of the Group's or Company's controls. As a result of the increased risk identified, our substantive work described below was expanded, for example by increasing the items tested.</p> <p>Our procedures included:</p> <p>Test of details: we discussed with management the rationale for a sample of accruals and agreed to supporting invoices, calculations and/or third party correspondence as appropriate. We also performed analytical procedures on other balances where appropriate expectations could be set;</p> <p>Accounting analysis: we retained a particular focus on the classification between accruals and provisions and challenged management to provide rationale where a reclassification appears to be required; and</p> <p>Assessing transparency: we assessed the adequacy of the Group and Company's classification in respect of accruals.</p> <p>Our results</p> <p>We consider the existence, accuracy and presentation of accruals to be acceptable.</p>

Emphasis of Matter

- An EOM paragraph aims to highlight to the users a crucial matter that has already been disclosed in the financial statements, which the auditor deems essential for their comprehension.
- In other words.....



you know that note in the financial statements, the one about the uncertainty surrounding the legal dispute? We, the auditors, think it's really important, so make sure you read it!

Emphasis of Matter – Example of Boeing 737 MAX Grounding

Liabilities related to the 737 MAX Grounding – Refer to Notes 13 and 21 to the financial statements

Critical Audit Matter Description

In 2019, following two fatal 737 MAX accidents, the Federal Aviation Administration (FAA) and non-U.S. civil aviation authorities issued orders suspending commercial operations of 737 MAX aircraft (the “737 MAX Grounding”). Deliveries resumed in the U.S. in late 2020 following rescission by the FAA of its grounding order. The 737 MAX remains grounded in certain non-U.S. jurisdictions. In addition, multiple legal actions have been filed against the Company following the fatal accidents and various governmental and regulatory investigations and inquiries continue relating to the accidents and the 737 MAX aircraft.

During 2019, the Company recorded an initial liability in connection with estimated payments, concessions and other in-kind consideration it intends to provide to customers for disruptions related to the 737 MAX Grounding and associated delivery delays. This liability totaled \$5.5 billion at December 31, 2020 and is reflected in the financial statements in Accrued liabilities. This represents the Company’s best estimate of future concessions and other consideration to its customers, and is necessarily based on individual negotiations with customers and the substance of such negotiations.

Significant judgment is involved in management’s ability to assess and reasonably estimate potential additional financial statement effects or a range of loss, if any, resulting from the outcome of 737 MAX-related litigation and the results of the various ongoing governmental and regulatory investigations and inquiries related to the 737 MAX.

The subjectivity of the liability associated with providing consideration to customers resulting from the 737 MAX Grounding and the complexity of assessing the outcome of the ongoing litigation and investigations related to the 737 MAX required a high degree of auditor judgment and increased audit effort.

What are the Auditors trying to tell you?

1. During 2019, Boeing recorded a liability of \$5.5 billion related to estimated payments, concessions, and other consideration that it intends to provide to customers for disruptions caused by the Grounding and associated delivery delays.
2. This liability, which reflects Boeing's best estimate of future concessions and consideration to customers, is based on individual negotiations with customers and the substance of such negotiations.
3. However, the liability is subjective, and the complexity of assessing the outcome of the ongoing litigation and investigations requires a high degree of auditor judgment and increased audit effort.

Audit Reports – Qualified Report

A qualified opinion in an auditor's report signifies that there was either

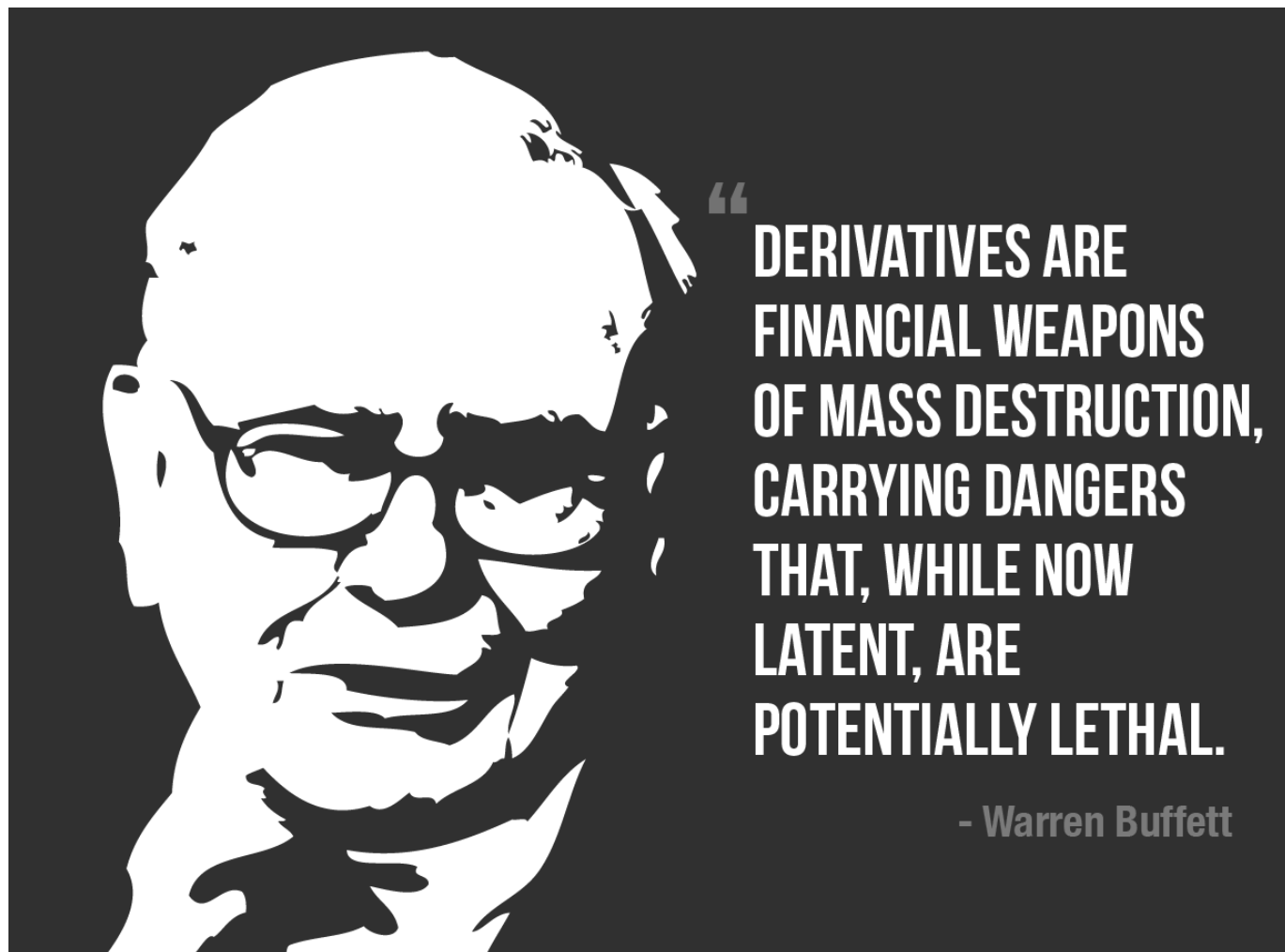
- A scope limitation
- A non-pervasive issue discovered during the financial audit
- An insufficient footnote disclosure

In essence, the auditor believes that the financial statements are presented fairly, subject to the qualifications submitted

Day 4: Derivatives & Options

Introduction to Derivatives





Introduction

- Derivatives are financial contracts, set between two or more parties, that derive their value from an underlying asset, group of assets, or benchmark.
- Main categories
 - Financial (share, index, bond, interest rate)
 - Energy based (oil, gas)
 - Commodity (metals)
 - Agricultural (wheat, soya bean etc.)
 - Other (weather, property etc.)

The Main Types of Derivatives

- You can split derivatives into 3 main types:

Futures & Forwards
'I will'
(An Obligation)

Options
'I may'
(A right)

Swaps
'Lets exchange cash flows'
(but not principles)

Which derivatives have you heard of?



Characteristics

- **Definition of a future**

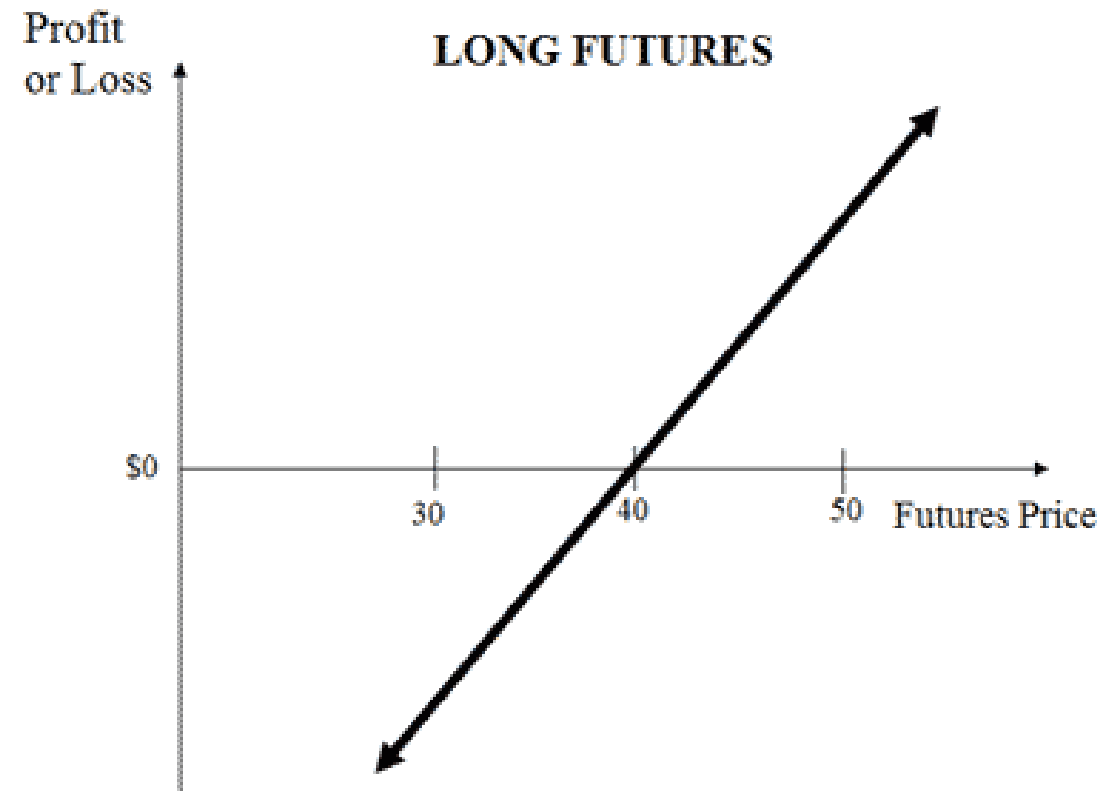
A **legally binding agreement** to buy/sell:

- A **specified quantity** (and quality) of:
 - A **specified** asset
 - At a **date in the future**
 - For a **price agreed today**

- Can be physically settled or cash settled as specified in the contract
- Buyer of the future (long future) is obligated to buy
- Seller of the future (short future) is obligated to sell

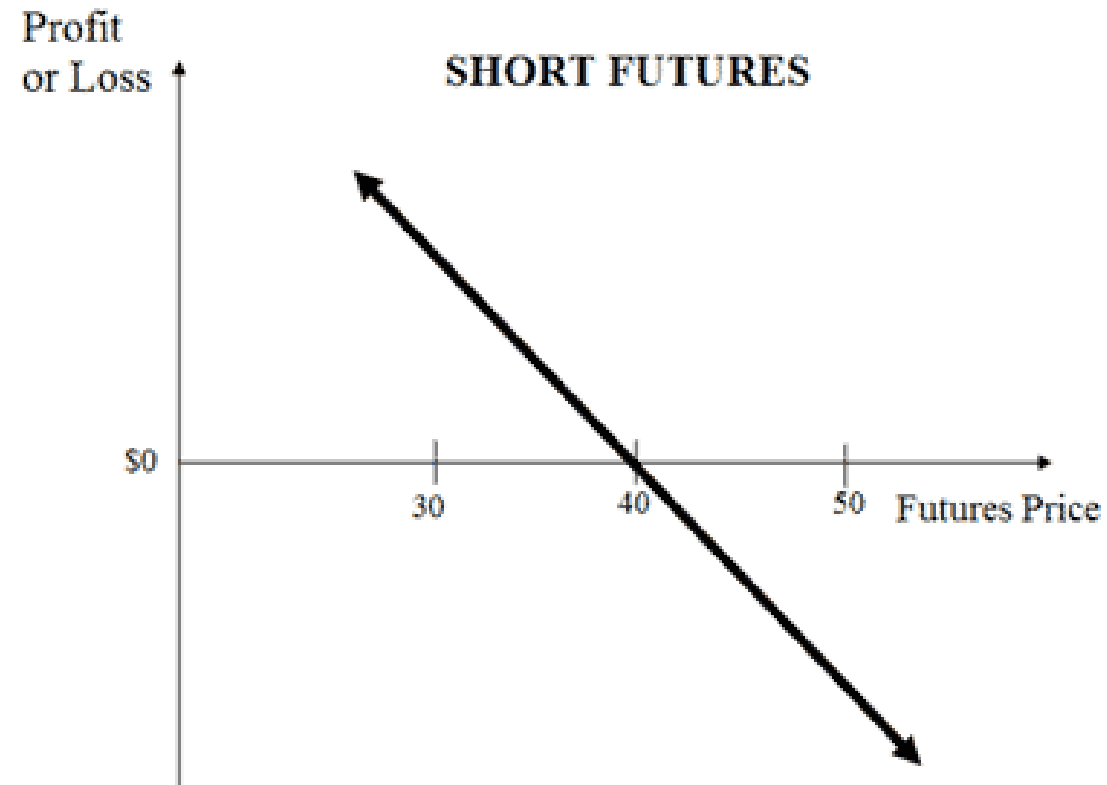
Basics of a Futures

- Long position



Basics of a Futures

- Short position



Basis

$$\text{Basis} = \text{Cash Price} - \text{Futures Price}$$



Usually negative because the futures price is normally greater than the cash price (as it includes the costs of carry)

- **Contango market:** basis is negative
- **Backwardation:** basis is positive

Basic Settlement Features

- Futures subject to margin
 - Charged once contract has been 'novated'
 - Protects clearing house from default risk
 - Initial – goodwill deposit as cash or collateral (T + 1)
 - Variation – based on daily mark to market movements
 - Initial margin returned at the end of the contract once:
 - Physical delivery has occurred; or
 - Contract has been closed out
- Initial margin is a small percentage of exposure. This leads to a gearing effect.

Fair Value

- Futures have a fair value, which includes the value of the time to maturity
- **Fair value = cash price + cost of carry**
- **Example:**
- What is the fair value of a future deliverable in 6 months' time if:
 - Spot oil trades today at USD 95 / barrel?
 - Interest rates are 10% pa?
 - Insurance and storage costs are USD 5 / barrel pa?
 - Are the futures price and underlying price closely linked?

Fair Value

- **Fair value of an index future**
 - Cash price + cost of carry - benefit of carry; or
 - **Cash price + (cash price x (interest rate - dividend yield))**
- **Example:**
- What is the fair value of a 12 month index future deliverable if:
 - The S&P 500 index is currently at 3,800 points?
 - The money market term deposit rate is 3.5%?
 - The annual dividend yield is 2.5%?; or
 - The annual dividend yield is 4.5%?

OTC or Exchange Traded

Exchange:

- Standardized.
- Liquid.
- Centrally cleared.
- Heavily regulated.
- Few products.

OTC:

- Bespoke.
- Less liquid.
- No clearing house.
- Lightly regulated.
- Product proliferation.

Exchange-Traded vs. Over-the-Counter Markets

- OTC products are not standardised; the terms of the contracts are negotiated bilaterally and are therefore more flexible
- OTC products are described as bespoke and can more closely hedge risk
- OTC markets are generally not centrally cleared so credit risk of counterparty is a consideration
- OTC markets are generally not as liquid as exchange-traded markets

Risk

- **Hedging**

- Definition: protect the value of assets by buying/selling derivatives against them – the profit on the derivatives position offsets the loss on the underlying and vice versa
- E.g., a farmer hedging adverse movement in price of crop would sell futures

- **Reasons to be careful using futures:**

- Contract standardisation means underlying movements may not be matched by futures contract (basis risk)
- Upside potential is sacrificed (opportunity cost)

Futures Hedge

Example:

- Emirates Airline has to purchase 20,000 barrels of oil (or Jet fuel) in 6 months time. The price of oil is currently USD 95 and the 6 month future is priced at 98.
- By purchasing the futures contract, Emirates can guarantee a price of \$98 per barrel. This reduces the company's risk because it will be able to close its futures position and buy 20,000 barrels of oil for \$98 per barrel in six months at the contract's expiration date.

Introduction to Options

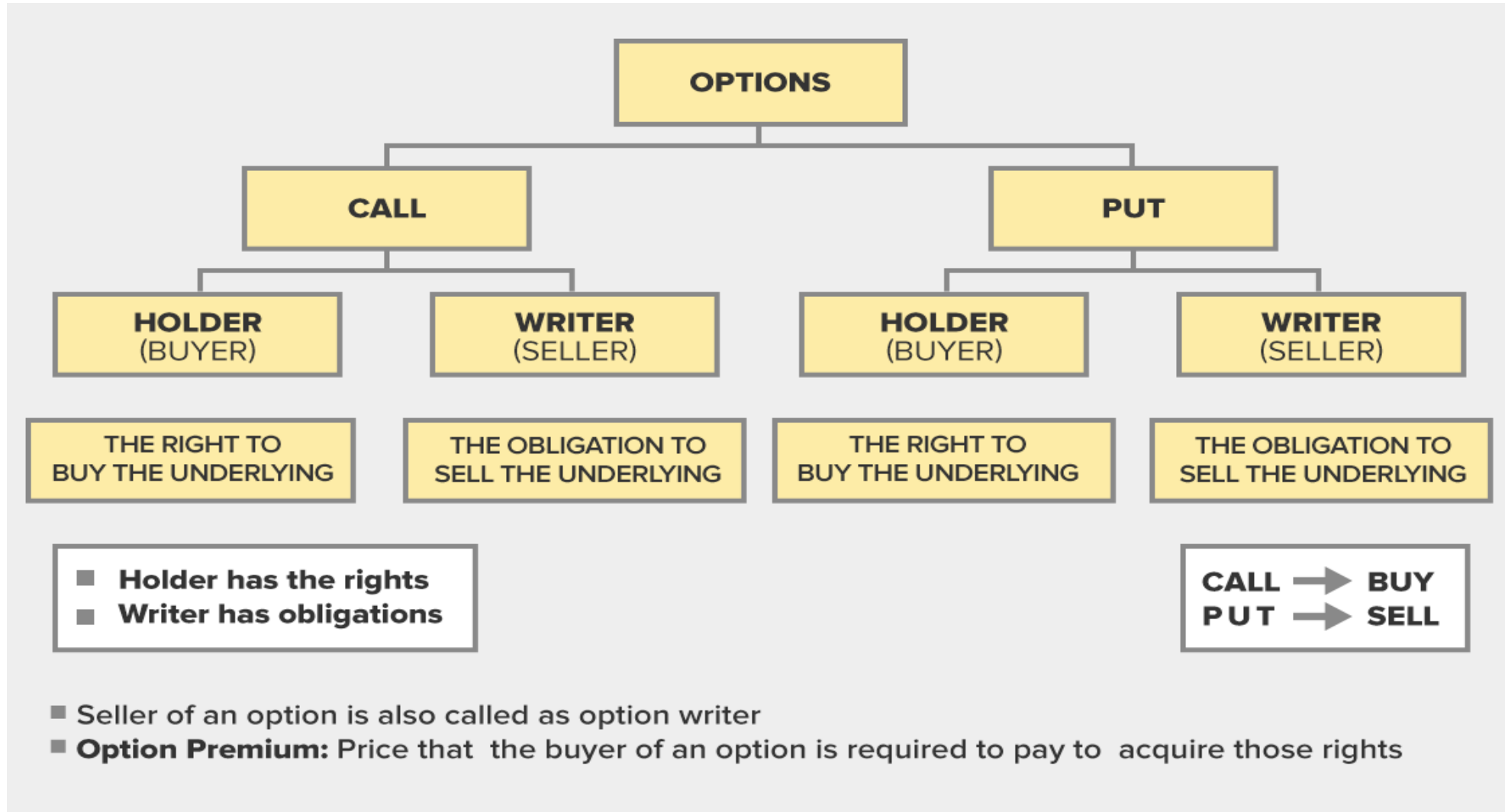


Characteristics

Definition of an option

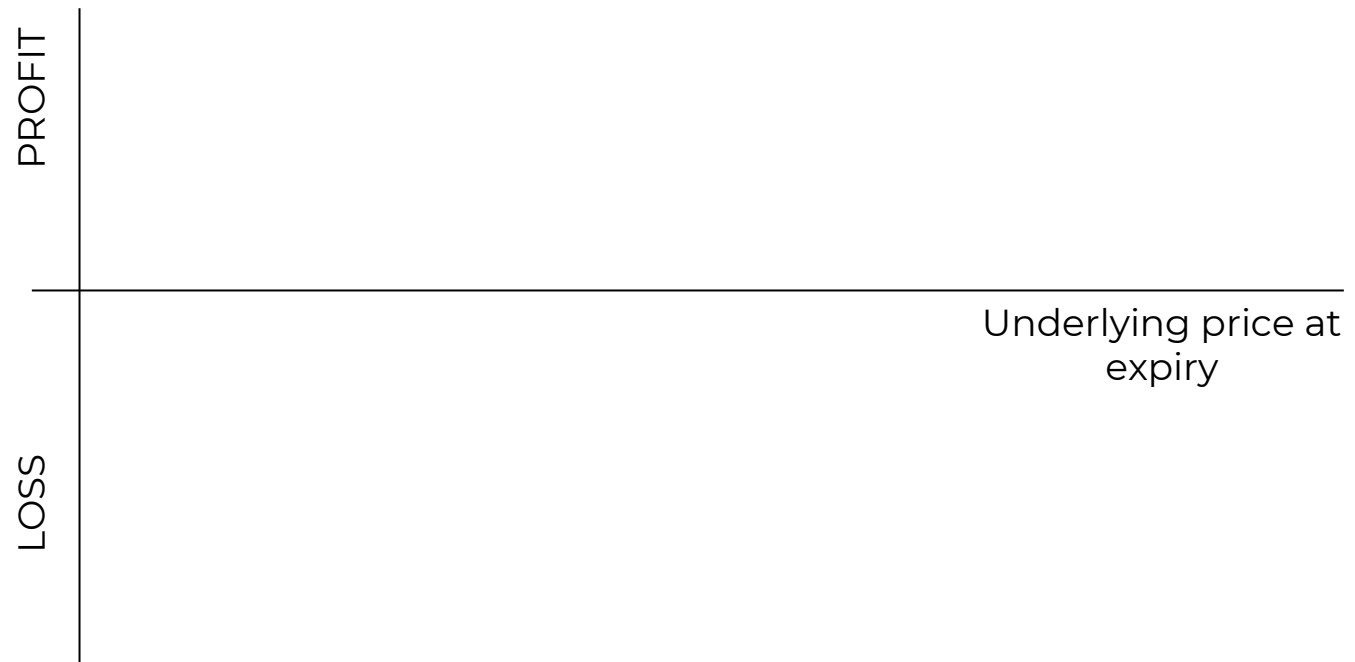
- Options are financial derivatives that give buyers the right, but not the obligation, to buy or sell an underlying asset at an agreed-upon price and date.
- Call options and put options form the basis for a wide range of option strategies designed for hedging, income, or speculation.
- Although there are many opportunities to profit with options, investors should carefully weigh the risks.

Options: Rights and Obligations



Long Call Option

- What is the payoff profile of a long call option (buyer of a call) with the following features?
 - Strike 200
 - Premium 20



Long Put Option

- What is the payoff profile of a long put option (buyer of a put) with the following features?
 - Strike 100
 - Premium 8



Profits and Losses for Calls and Puts

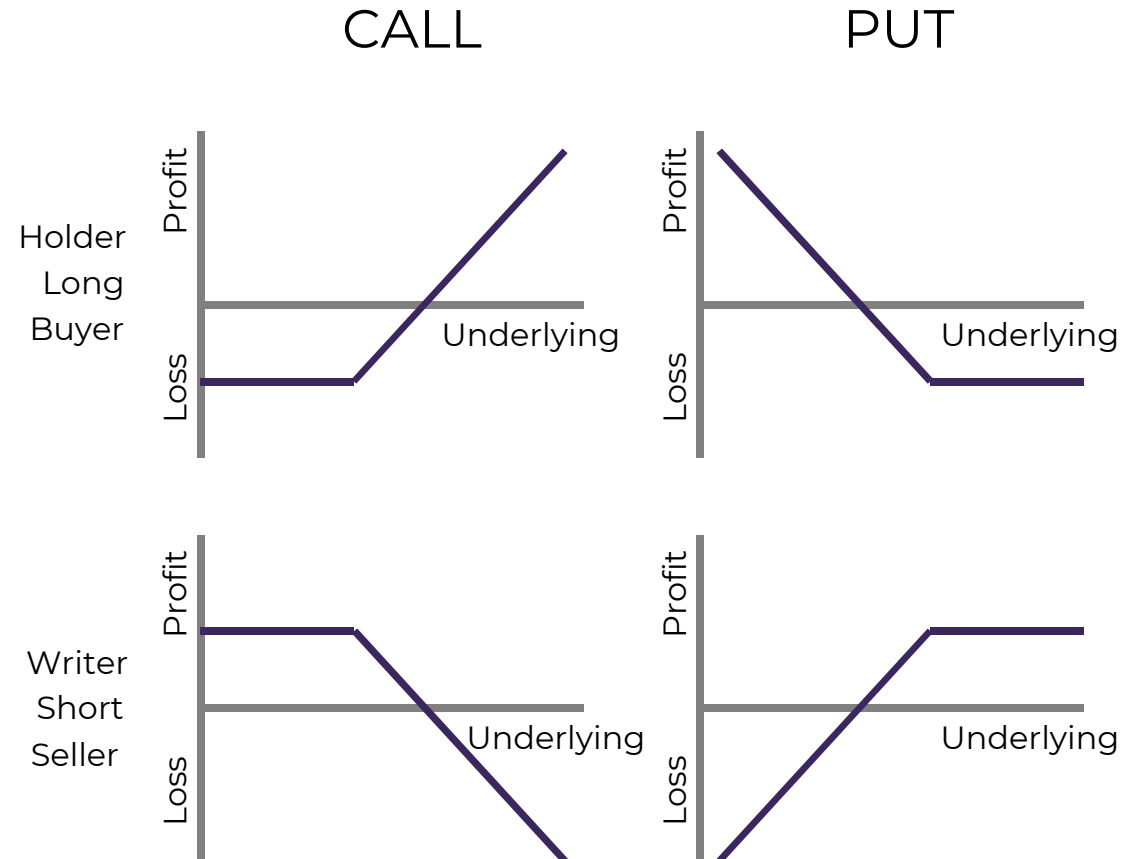
- **Call options**

- Holder – maximum profit unlimited, maximum loss premium
- Writer – maximum loss unlimited, maximum profit premium

- **Put options**

- Holder – maximum profits strike minus premium, maximum loss premium
- Writer – maximum loss strike minus premium, maximum profit premium

Example of Options Trade: Summary



Option Styles

- American: exercise at any time up until expiry
- European: exercise on expiry date only
- Bermudan: exercise on certain dates, but not anytime
- Asian: no strike as it is determined retrospectively from an average of the underlying's price over certain periods
- Bermudan and Asian are traded primarily OTC

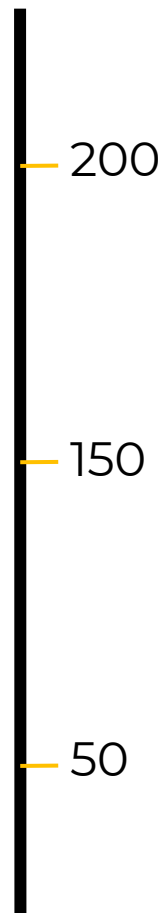
Option Jargon

- An option with a strike of 150

Put option

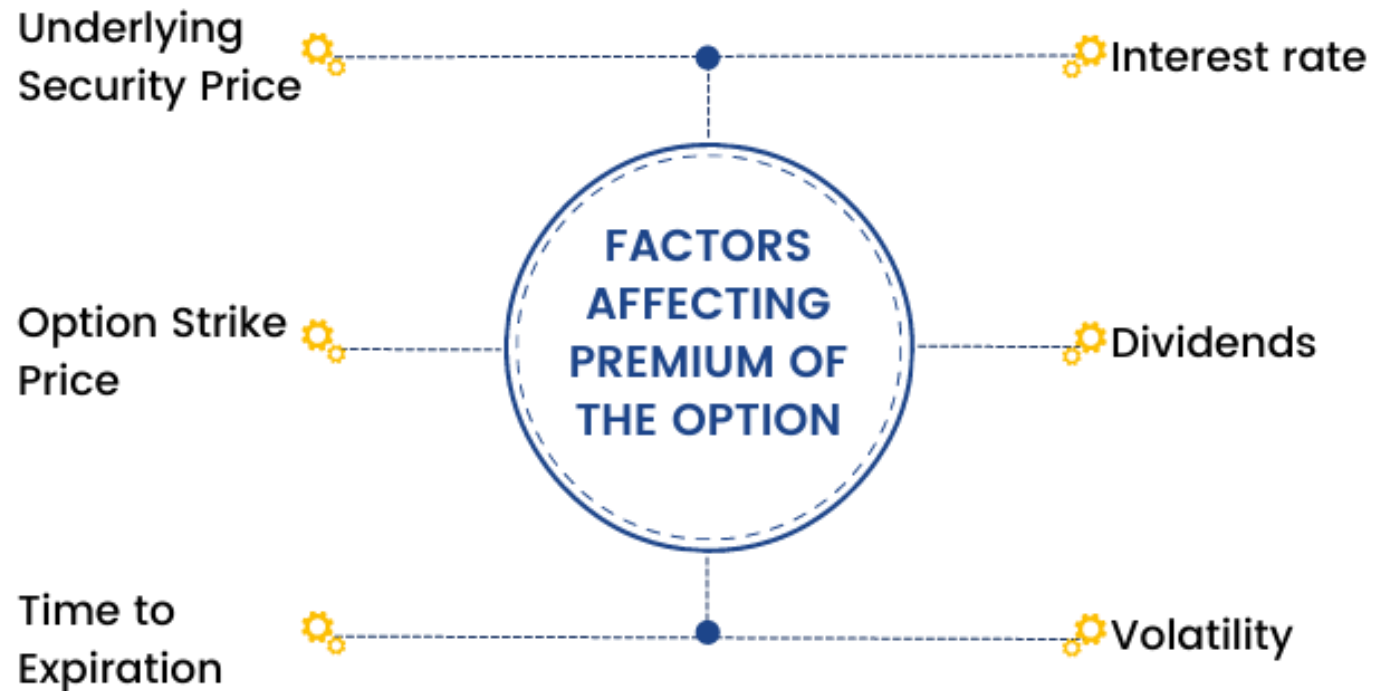
The market

Call option



Factors That Influence the Option Premium

- These are six factors that drive option premiums:



Option Premiums

- Paid by holder to writer T + 1
- Writer deposits initial margin
- Option holder choices:
 - Exercise
 - Abandon
 - Trade the option
- Writer can close a position by buying the option back and buyer of the option can sell the same option to close
- Cost of options
 - Number of contracts x contract size x premium

Option Hedge

- Hedging with options involves opening a position – or multiple positions – that will offset risk to an existing trade. This could be an existing options position, another derivative trade or an investment.
- While hedging strategies can't entirely remove all your risk – as creating a complete net-zero effect is nearly impossible – they can limit your risk to a known amount.
- The theory of hedging is that while one position declines in value, the other position (or positions) would make a profit – creating a net zero effect, or even a net profit.

Option Strategies

- **Covered call**

- A trade designed to enhance income
- Combines a long position in the underlying with a written call option
- Offers some protection if prices fall
- Offers income enhancement if prices remain stable
- ‘Covered’ because the writer holds the underlying shares

Option Strategies

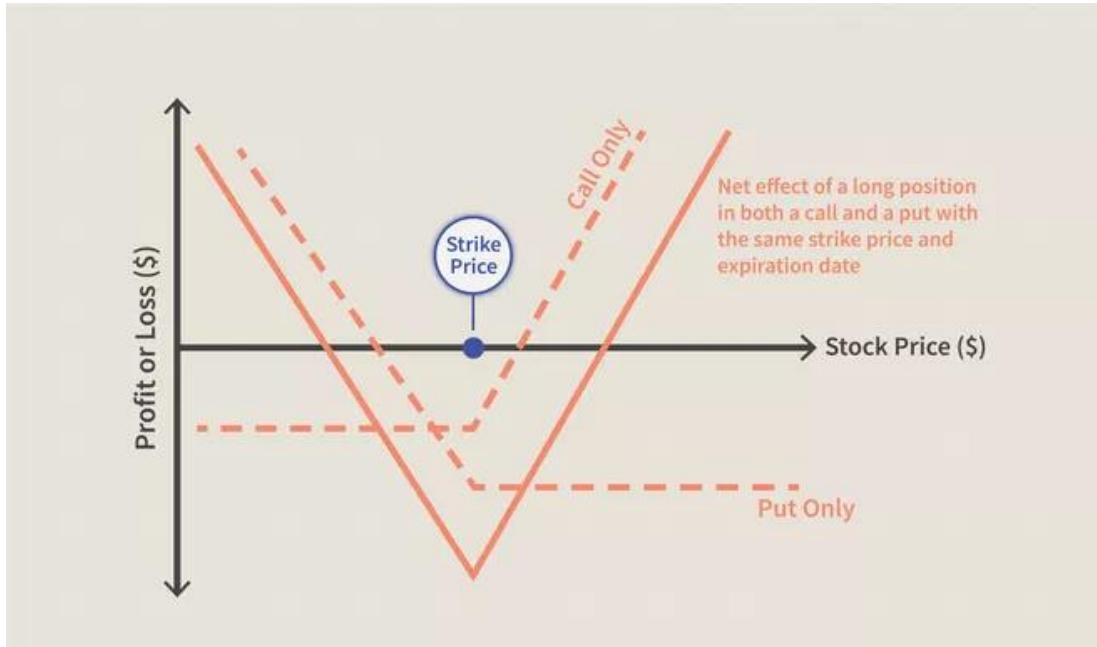
- **Straddles**

- A trade based on volatility
- Combines a call and a put with the same strike
- Holder believes volatility will increase
- Breakeven points are at the strike price
 - Plus both premiums; and
 - Minus both premiums
- For the holder
 - Maximum loss – both premiums
 - Maximum profit – unlimited

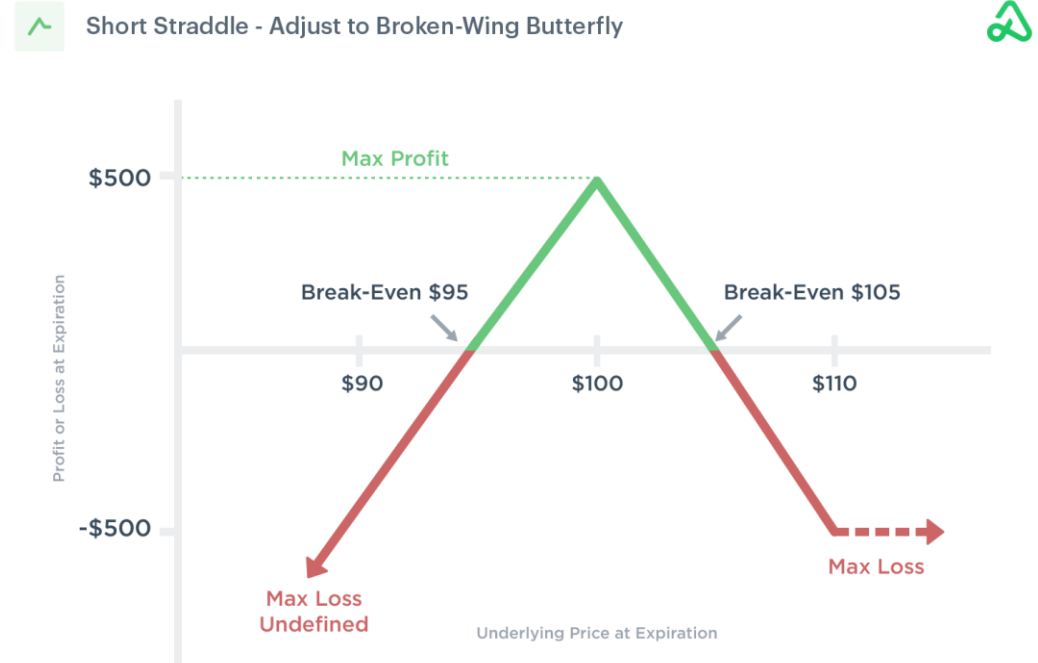
- **Strangles:** call and puts have different strikes.

Long & Short Straddle

Long straddle



Short straddle



Long & Short Strangle

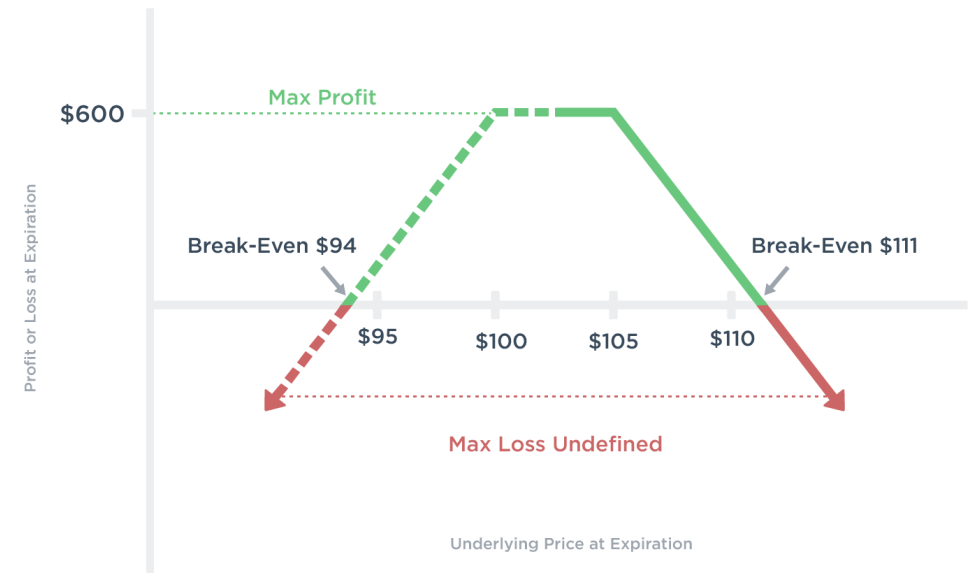
Long strangle

✓ Long Strangle

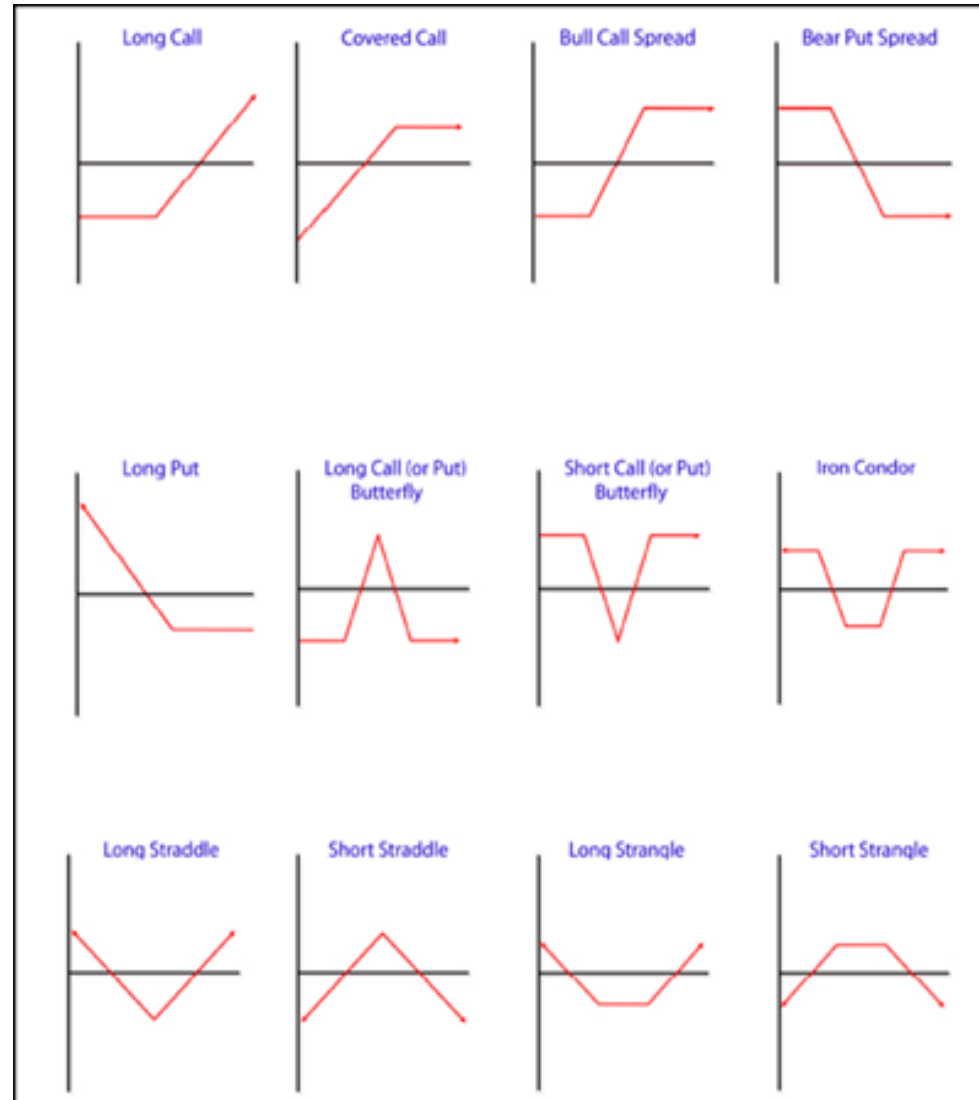


Short strangle

^ Short Strangle - Adjust Up



Option Strategies: Synthetic Positions

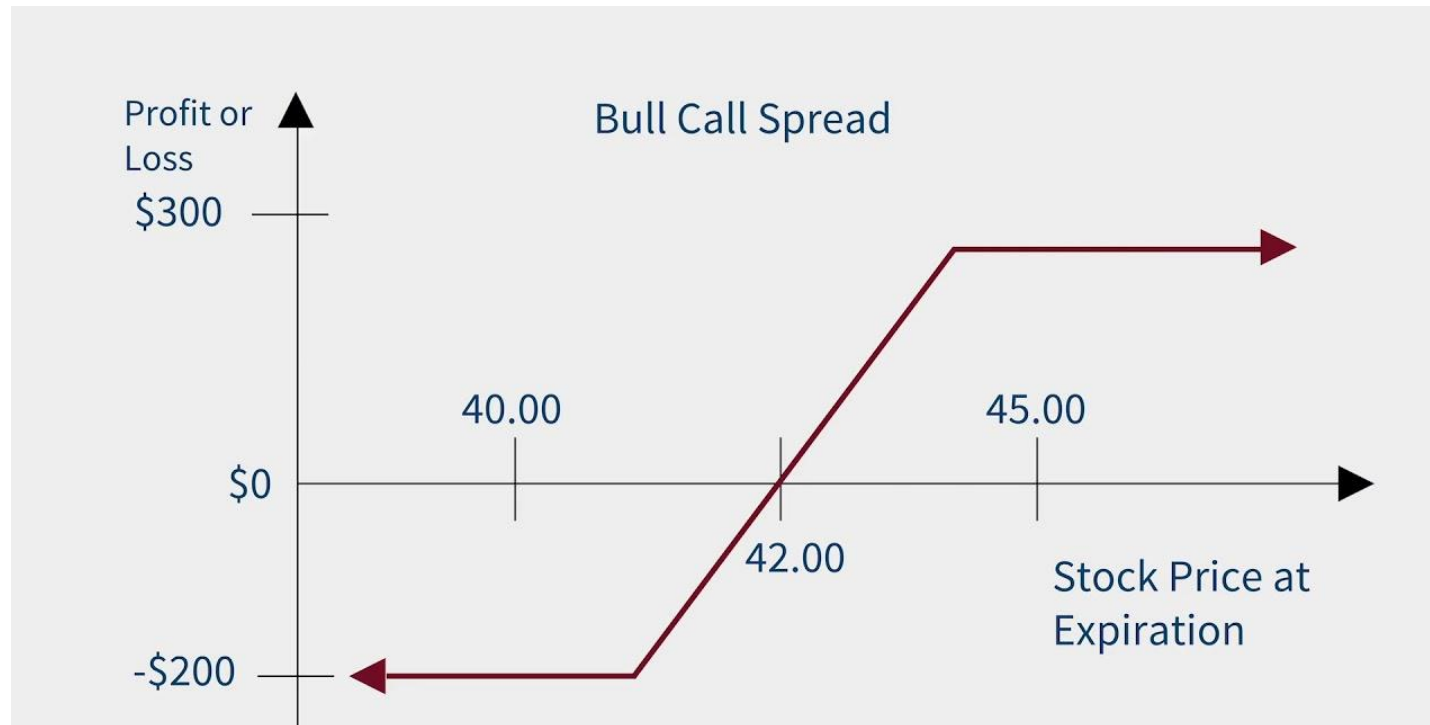


Option Strategies: Vertical Spreads

- **Spreads**
 - A bull or bear trade
 - Combines two calls or two puts
 - Profit for holder if prices move within a range
 - Less risk than holding single call or put
- **Basic bull spread**
 - Hold a low strike call
 - Write a higher strike call
- **Basic bear spread**
 - Hold a high strike put
 - Write a low strike put

Vertical Call Spread

- A call vertical bull spread involves buying and selling call options, while a put spread involves buying and selling puts.
- The bull part looks to take advantage of a bullish move, while the vertical part describes having the same expiration



Day 5: Swaps & Regulatory Frameworks

Introduction to Swaps

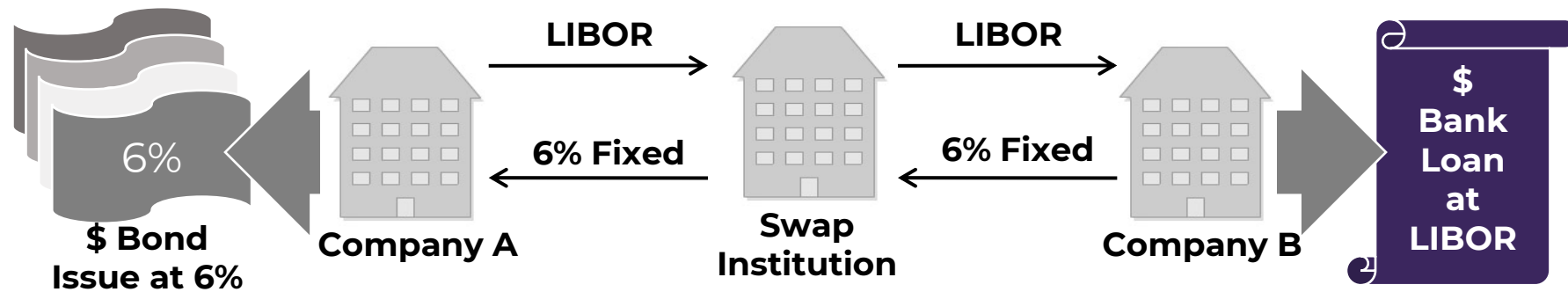


Interest Rate Swaps (IRSs)

Definition

- An IRS is an agreement to exchange over an agreed TERM, two periodic payment streams each calculated using a different type of interest rate but which are based on the same notional principal amount.
- Also known as ‘vanilla swaps’ (fixed-for-floating) or ‘basis swaps’ (floating-for-floating)
- Payer – agrees to pay fixed and receives floating
 - Payer thinks interest rates will rise
- Receiver – receives fixed and pay floating
 - Receiver thinks interest rates will fall

Interest Rate Swaps (IRSs)



Terminology & Example

Interest rate swaps:

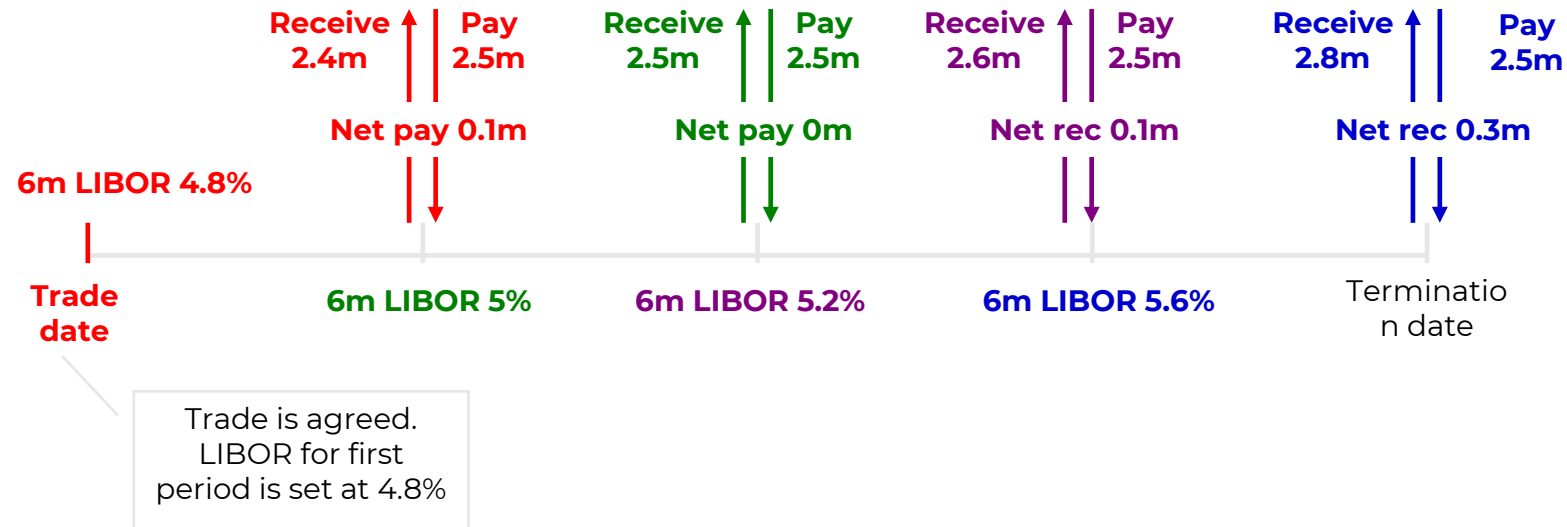
- An interest rate swap is an agreement in which floating interest payments are swapped for fixed interest payments. An IRS will have three basic features:
 - The term – this is the length of time the swap lasts for.
 - The notional amount – this is the size of the swap. The notional is a reference amount and is not paid by anyone to anyone else.
 - The frequency – this is how often each year the payments are swapped.

Example:

- A bank is quoting the two-year six-month swap rate as 5% p.a. This means that we may either pay 5% on a notional amount and receive a floating rate, or receive 5% and pay the floating rate:
 - Supposing we choose to pay fixed and receive floating.
 - Let's also say that the notional amount is \$100m and the six-month floating rate is to be six-month US dollar LIBOR.
- We are the fixed rate payer in the swap. What direction would we want interest rates to move in?

Interest Rate Swaps

- Below are the cash flows we would pay and receive over the swap's term:



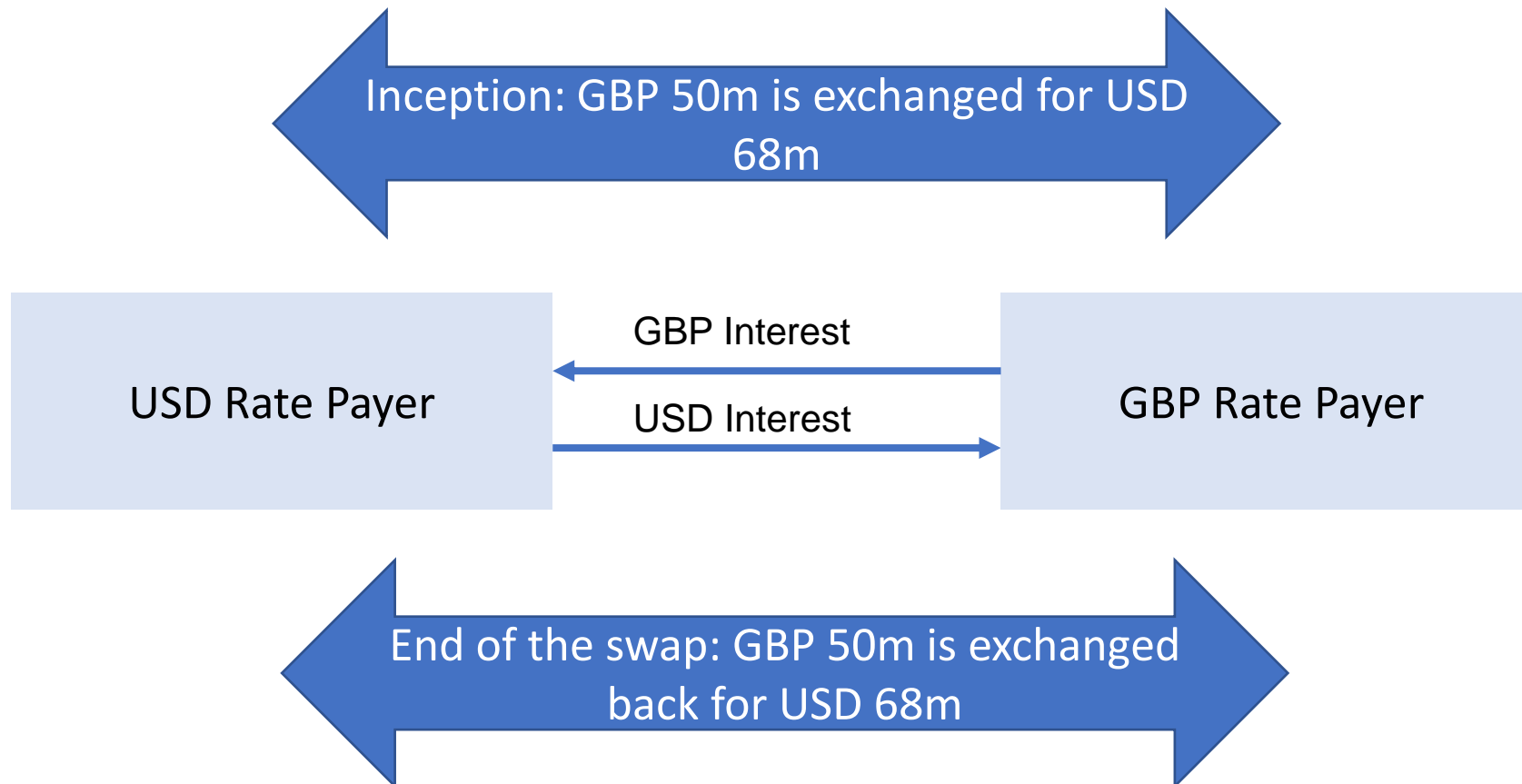
- Notice that:
 - The payment amounts are calculated on a six-monthly basis
 - The payments are netted
 - The LIBOR for each period must be set in advance

Other Types of Swaps

- Currency swaps
 - Each party makes interest payments to the other in different currencies
 - Transactions
 - Initial exchange of principal
 - Counterparties borrow in their strongest, i.e. cheapest, currency
 - Principal is then swapped between counterparties
 - Periodic coupon payments
 - Payments will be made in different currencies, so are not netted
 - Return of principal

Cross Currency Swap

- A cross currency swap is similar to an interest rate swap, except the principal exchanges hands at the start and end of the swap:



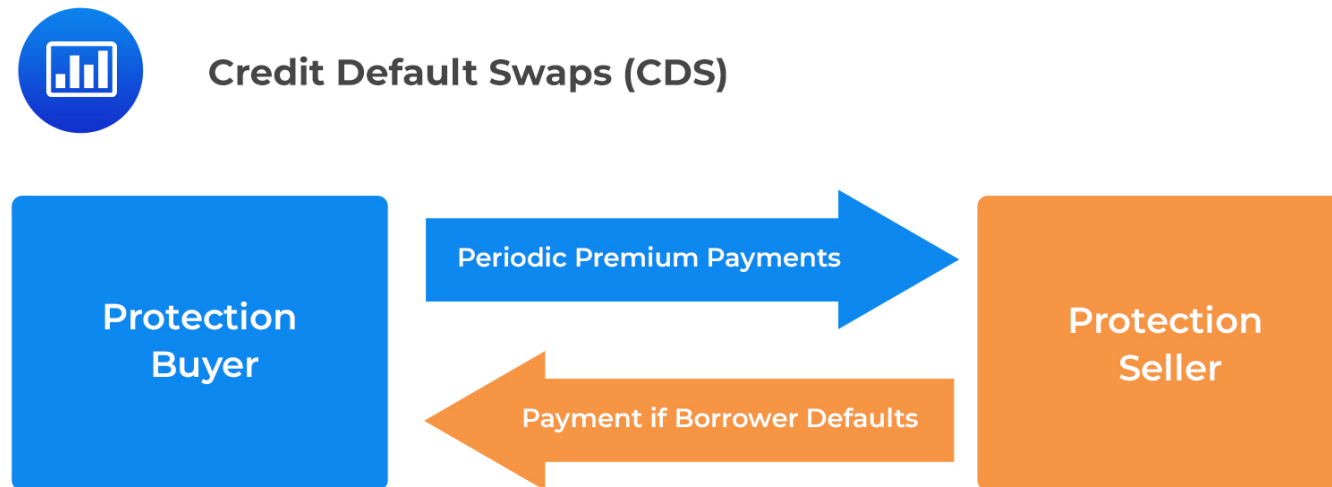
Equity Swaps

- Swap structure:
 - Equity swaps are agreements involving exchange of cash flows that arise from a notional amount of equity, or equity index, in return for an interest rate over a fixed period.
 - Example:
 - Term of swap: Two years, six-monthly settlement
 - Equity return: S&P500 total return index
 - Interest rate: Six months Eurodollar LIBOR (NB: day count conventions)
- In the swap above the two counterparties are funded – this means they hold the assets on which the swap requires them to make payments.

Credit Default Swaps

- **What are credit default swaps?**

- Credit default swaps (CDSs) are the main building block of more complex credit derivatives structures.
- A CDS is an agreement between two parties. In this agreement, the **protection seller** receives a **fee**. In return for this fee the seller is obliged to compensate the **protection buyer** if a **credit event** occurs with respect to a **notional amount** of debt of the reference entity.



BASEL III



Introduction to Basel III

Basel III is an international regulatory accord that introduced a set of

- reforms designed to improve the regulation, supervision and risk management within the banking sector.

Why Basel III?

Shortcomings of Basel II:

- Failed to enhance financial stability.
- Lacked robust capital reserves.
- Missed a holistic risk management approach.
- Absence of a standardized capital definition.



Aims and Objectives:

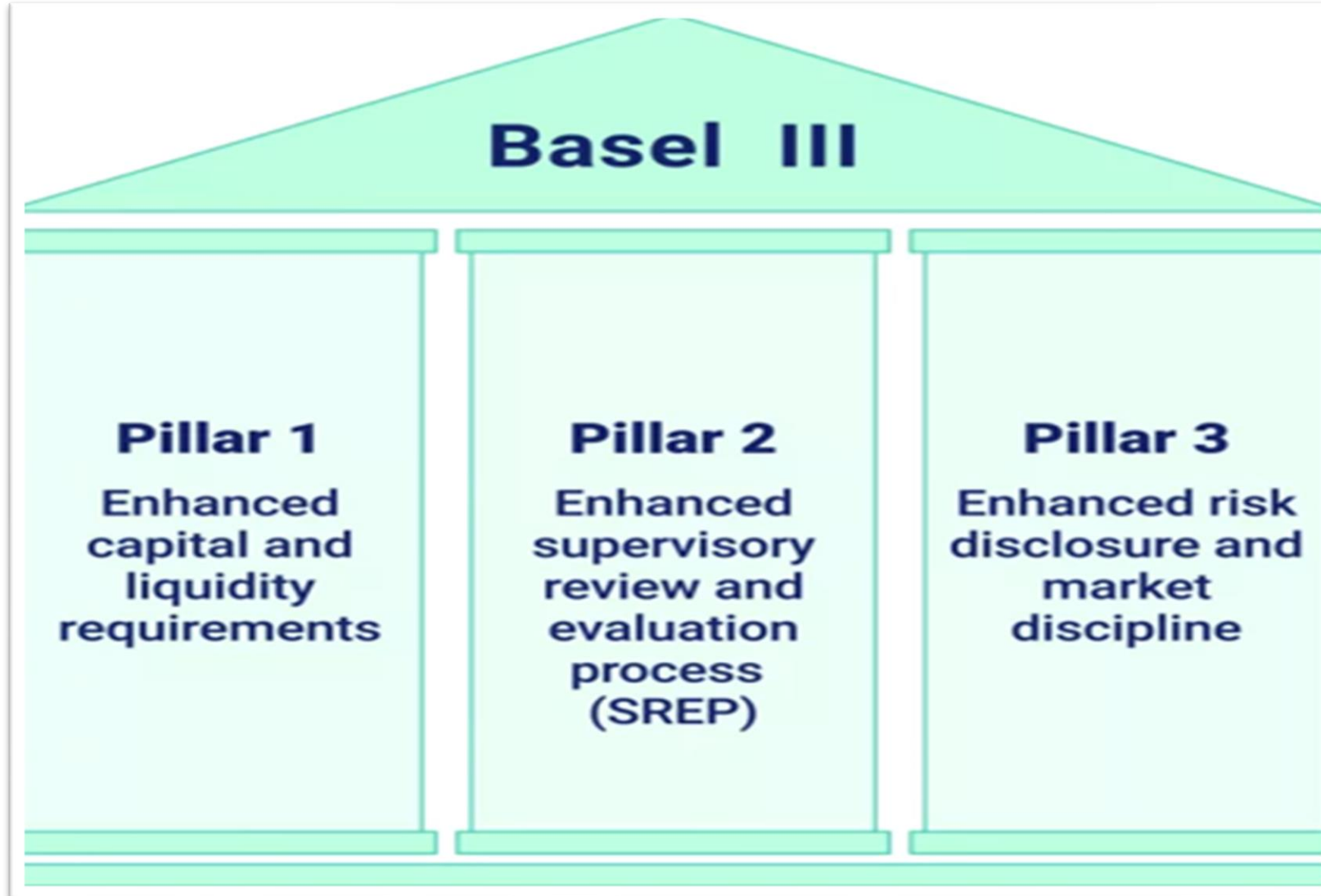
- Reduce the probability of repeated crises.
- Enhance resilience to financial shocks.
- Bolster risk management and governance.
- Boost transparency and disclosure practices.



Key Elements of Reform:

- Increasing the quality and quantity capital
- Enhancing risk coverage of capital
- Introducing Leverage ratio
- Improving liquidity rules
- Establishing additional buffers
- Managing counter party risks

The Pillars of Basel III



Pillar I: Minimum Capital Requirement

The first pillar Minimum Capital Requirement is mainly for total risk including the credit risk, market risk as well as operational risk .

- **Two Main Silos of Capital:**
 - **Tier 1:** Core capital, equity, and disclosed reserves.
 - **Tier 2:** Supplementary capital like undisclosed reserves and unsecured subordinated debt.
 - Tier 1 is more liquid and considered more secure.
- **Requirements:**
 - Banks must maintain a total capital ratio of 8% of risk-weighted assets (RWAs).
 - Minimum Tier 1 capital ratio set at 6%.



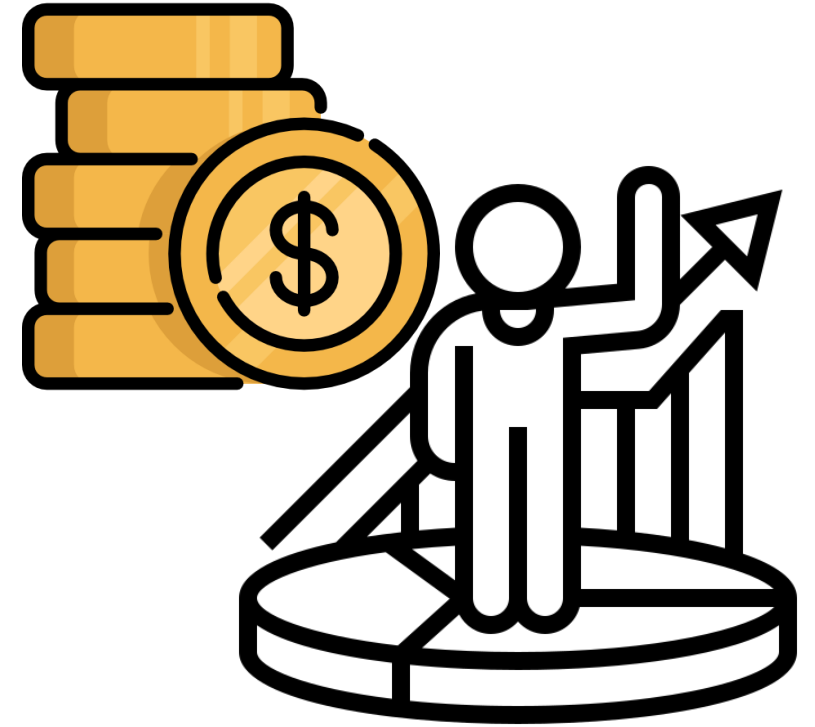
Pillar II: Supervisory Review Process

- Pillar II seeks to guarantee that the bank's board and top management uphold their duty in formulating and sustaining risk protocols and internal checks. Additionally, it promotes the adoption of monitoring tools and procedures to oversee risks across the institution.
- The central bank must regularly oversee all bank operations.



Pillar III: Market Discipline

- Pillar 3 acknowledges that market discipline can enhance the effectiveness of minimum capital requirements (Pillar 1) and supervisory evaluation (Pillar 2), thereby fostering stability and robustness in banking and financial infrastructures.
- The term "market discipline" describes how market actors can shape a financial entity's actions by observing its risk stance and financial status. Everyone who contributes funds to a financial entity, from regular account holders to expert investors in advanced debt tools, is considered an investor.



Strengthening Financial Stability with Basel III

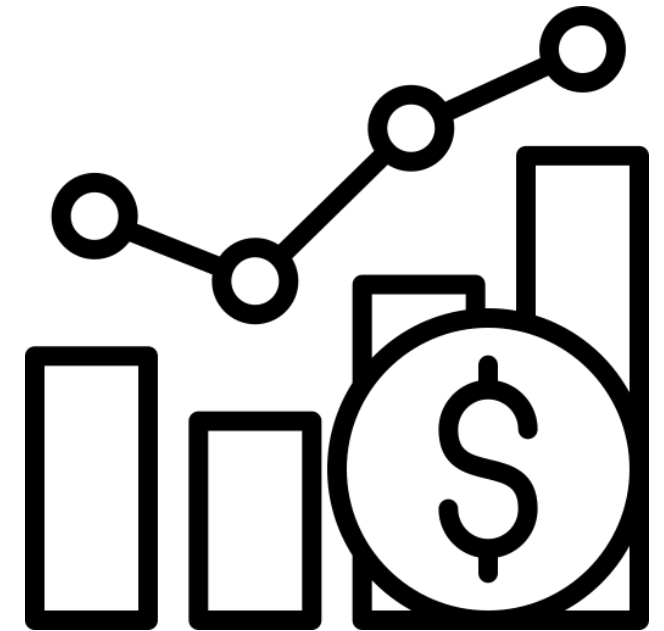
- Ensures banks' resilience during financial stress with adequate leverage & liquidity.

Leverage Ratio:

- For "global systemically important banks".
- Minimum of 3% using Tier 1 capital to total assets.

Liquidity Metrics:

- LCR: Banks need HQLA for potential 30-day stress events.
- NSFR: Encourages stable long-term funding & reduces risk of bank runs.



Reserves required for Tough Times

- **Countercyclical Capital Buffers:** Introduced to serve as a safety net for banks.
- Ranges from 0% to 2.5% of a bank's RWAs.
- Can be imposed during economic expansion to ensure capital availability during contractions.
- Composed entirely of Tier 1 assets.

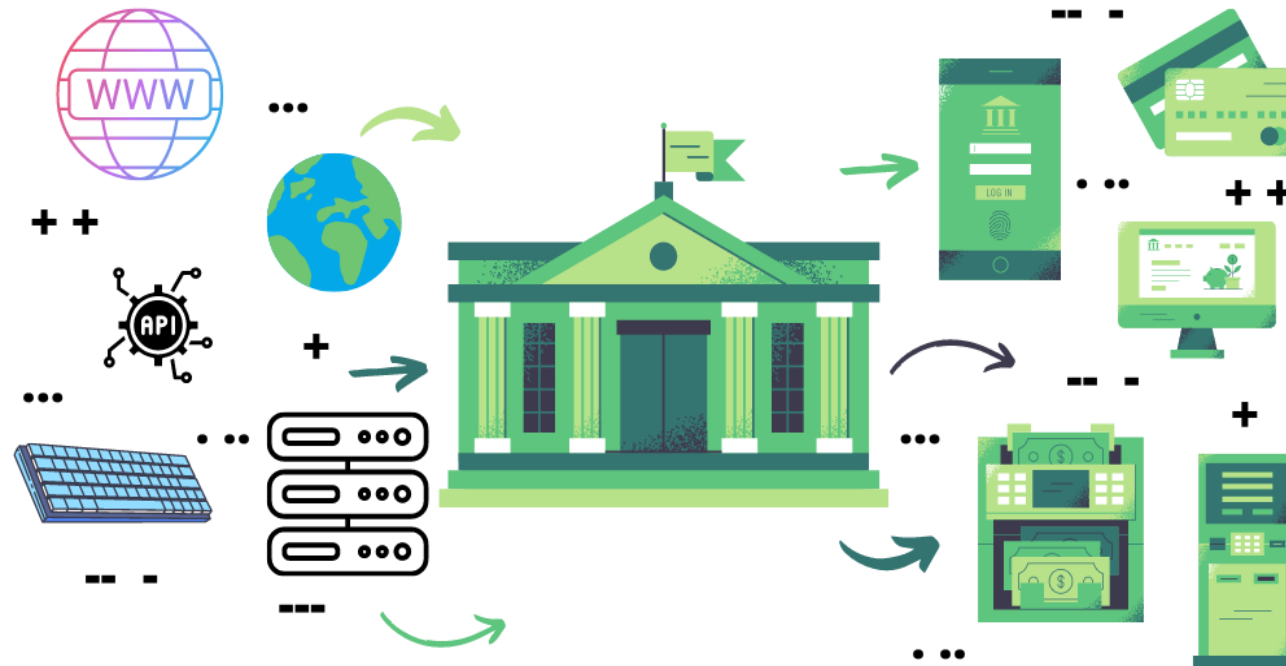


Dodd Frank Act



Dodd-Frank Act

- Aims to bolster U.S. financial safety and prevent crises like 2007-2008.
- Passed in response to the 2007-2008 financial downturn.
- **Goal:** Protect consumers and taxpayers from risky financial behaviors and potential future catastrophes.



Component of the Dodd-Frank Act

- **Financial Stability:** Oversight on top financial entities for risk prevention. Empowers FSOC & Orderly Liquidation Authority.
- **CFPB:** Curbs predatory lending, standardizes mortgage terms, and oversees consumer loans.
- **Volcker Rule:** Limits banks' speculative trading and derivative usage to avert systemic risks.
- **SEC Credit Ratings:** Upholds agency accountability and guarantees robust credit ratings.
- **Whistleblower Program:** Augments SOX 2002, motivating violation reports.



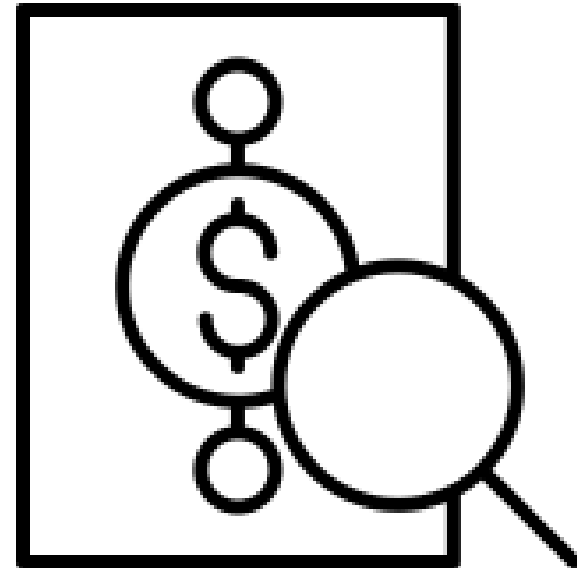
Criticism of the Dodd-Frank Act

- **Main Critique:** Dodd-Frank could harm the competitiveness of U.S. firms relative to foreign counterparts.
- **Impact on Small Banks:** Regulatory requirements might burden community banks and smaller institutions.
- **Notable Voices:** Larry Summers, Stephen Schwarzman, Carl Icahn, and Jamie Dimon suggest that increased capital constraints lead to a more illiquid market.



Possible Effects of the Dodd-Frank Act on the Bond Market

- **Liquidity Challenges:** Higher reserve requirements mean banks keep more assets in cash, reducing their holdings in marketable securities, impacting liquidity in the bond market.
- **Limitation on Role of Banks:** With the new regulations, banks might not be as effective as market makers, potentially making it challenging for buyers and sellers to find counterparts in the bond market.



Dodd-Frank Act

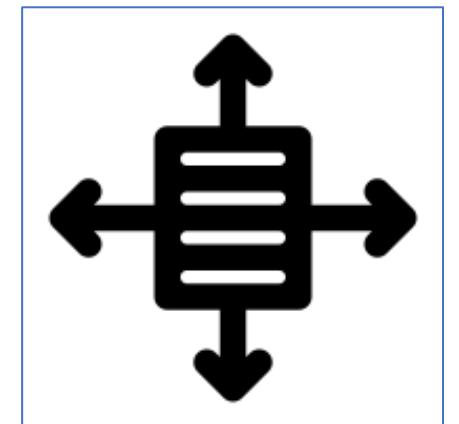
- **Dodd-Frank Today:** Although still in effect, the regulatory strength of Dodd-Frank was diluted with the passage of the Economic Growth, Regulatory Relief, and Consumer Protection Act in 2018.
- **2018 Regulatory Rollback:** This act relaxed regulations for medium-sized banks, with the asset threshold increased from \$50 billion to \$250 billion, impacting oversight on institutions like Silicon Valley Bank.

MiFID II

- A legislative framework by the EU to regulate financial markets and bolster investor protection.
- Restore trust in the industry post the 2008 crisis.
- Rolled out on January 3, 2018, as an improved version of the original MiFID from November 2007.
- **Key Features:**
 - Extensive coverage across assets and professions.
 - Regulation of off-exchange & OTC trading, emphasizing transparency and record-keeping.

Understanding the Scope

- Scope: Covers equities, commodities, debt, futures, options, ETFs, currencies. Applicable in EU regardless of trader's location.
- Financial Impact:
 - Preparation cost: \$2.1 billion.
 - Affects bankers, traders, fund managers, brokers, institutional and retail investors.
- Key Regulations:
 - No third-party inducements for investment firms/advisors.
 - Separate research & transaction fees.
 - Enhanced reporting (50+ data points).
 - Must keep records, including phone calls.



Outcome of MiFID II

- Transparent and standardized financial environment in the EU.
- Greater investor protection and renewed industry trust.
- Regulated practices in high-frequency trading and dark pools for a more equitable trading landscape.



Operational Risk



Definition of Operational Risk

Basel Committee Definition

The risk of loss resulting from **inadequate** or **failed internal processes**, people and systems or from external events.

- It covers **legal risk**. E.g.: fines, penalties and punitive damage
- Excludes **reputation risk**

Basel Operational Risk Event Types

The following are crucial elements of an effective operational risk management framework:

- Clear risk oversight by the board and senior management
- A strong **operational risk culture**
- A strong **internal control culture**
 - Clear lines of responsibility and Segregation of duties
- Effective **internal reporting**
- **Contingency planning**



Types of Operational Risks

Internal fraud

Losses due to acts of a type intended to **defraud, misappropriate property** which involves an **internal party**

External fraud

Losses due to acts of a type intended to **defraud, misappropriate property** by a **third party**

Employment practices and workplace safety

Losses arising from acts inconsistent with employment, **health or safety laws**, from payment of **personal injury claims**.



Types of Operational Risks

Business disruption and systems failures

Losses arising from disruption of **business or system failure**

Execution, delivery, and process management

Losses from **failed transaction processing** from relations with trade counterparties and vendors

Clients, products and business practices

Losses arising from an unintentional or negligent **failure to meet a professional obligation** to specific clients

Damage to physical assets

Losses arising from **loss or damage to physical assets** from natural disaster or other events



Distinguishing Operational Risk

Operational Risk as a Distinct Risk Class

Historically, organizations had accepted operational risk as an **unavoidable** cost of doing business and considered any risk that was not market or credit risk to be operational.

Operational Risk and its Consequential Effects

When an operational risk **materializes**, it often causes other risk issues:

Reputational risks

If clients or the media become **aware of the issue**.

Compliance/Regulatory risks

Certain process failures will result, for example, in customers not being **treated fairly**.

Credit risks

Areas in the credit function where operational risk issues can lead to losses are

- **data errors**, lack of **adequate monitoring** & **legal risk**



Distinguishing Operational Risk

Operational Risk and its Consequential Effects (cont...)

Market risks

An **undetected error** in the portfolio management system might lead to a breach of a market risk limit.

Liquidity risks

A process breakdown in the finance department could lead to the firm having **insufficient liquidity** to pay staff salaries.

Investment risks

Carelessness on the part of a fund manager, coupled with a process that contains no subsequent checking, could cause a mandate limit breach



Operational Risk Policy

Defining the

- firm's **operational risk appetite**.
- methodology used to **identify the operational risks**.
- methodology used to **measure the significance of the identified risks**.

Assigning responsibility to line managers to mitigate **actions required to reduce risk** exposures.

Assigning responsibility for **monitoring the effects of the mitigating actions**.

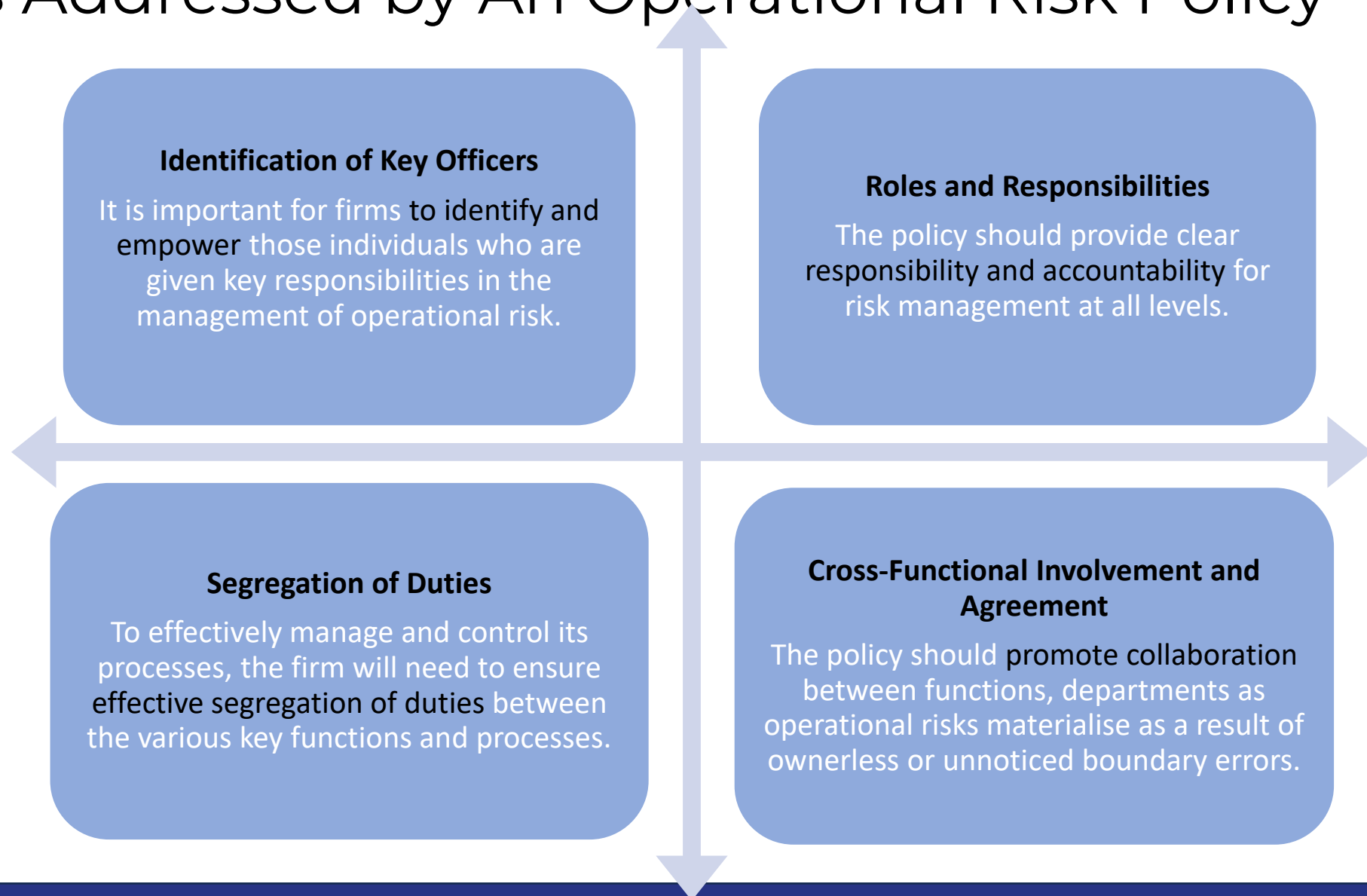
Establishing the reporting for risk issues to all levels of the organisation to ensure **transparency and aid the decision-making process**.

Operational policy which exists globally

- A balance between the **global standardization** and **regional differences**.
- **Objectivity** when risk prioritisation needs to be performed.
- A sense of fairness when **rewarding risk performance**.
- Centralised control of the overall **capital adequacy assessment**.



Areas Addressed by An Operational Risk Policy



Operational Risk Mitigation

Physical Security

- The operational risks associated with physical security can be reduced by firms making often quite **simple arrangements**

Risk Awareness Training

- **Risk awareness training** for all relevant staff should be given by the firm to help staff understand the principle of reducing the likelihood of risk occurring.

Data Protection

- Firms are legally obliged to take the greatest care with **data relating** to their customers.

Program: Associate Training Program | Finance Refresher Cohort 2

