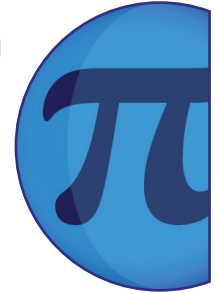




Why Do Shares Change Price?

Key Learning Content

This film describes how shares are valued and traded around the world. Examples of factors that could affect the value of a share are given. Factors can be tangible, such as a new product, or intangible, such as company reputation. A case study of the investment bank Lehman Brothers is given, which declined from a market value of almost \$60 billion to bankruptcy. The film can serve as an introduction to financial mathematics.



Core Outcomes

Learning Points

- Be able to understand how shares are traded and the factors that influence their price.
- Be able to understand the language of probability in terms such as 'outcomes', 'events' and 'random walks'.
- Be able to carry out calculations using money.

Suggested Activities

- Set up virtual portfolios of shares and track their value over time.
- Calculate the value of companies based on the number of shares and share price.

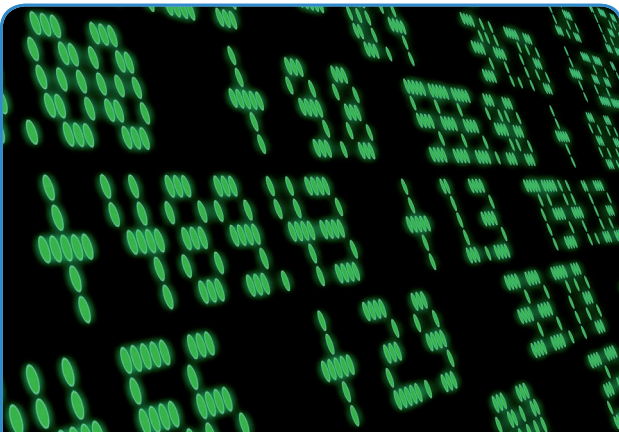
Extension Outcomes

Learning Points

- Be able to understand the concepts of profit, loss and cash flow.
- Be able to understand the concept of a discount rate.
- Be able to understand the concept of net present value and how it relates to share price.
- Be able to understand and use estimates or measures of probability from theoretical models.

Suggested Activities

- Model the profit and loss of virtual businesses.
- Value businesses based on their profit and loss statements.



The price of shares is very hard to predict.

Related Films

To use before the lesson plan:

The Card Counter

This film shows how knowledge of probability helped a mathematician make money in a casino.

To use after the lesson plan:

Beating the Stock Market

This film explains how academics sought to eliminate risk by using complex mathematics.

Could You Owe More Than America?

This film discusses how a company that doesn't raise money through shares needs to borrow and incur debt – but how much debt is a manageable amount?

Fractional Reserve Banking

This film details one of the principles that underpins the banking world.

Insuring the Titanic

This film shows how risks at sea are measured and covered by insurance.

Variables: Dating By Numbers

This film explores an arguably even more ambitious undertaking than predicting share prices: that of predicting whether you can find the right partner in love.

How Algorithms Change the World

This film shows how equations are used for vital functions in different environments, ranging from hospitals to cars.

Guide Lesson Plan

Introduction

Discuss with students how people make money on stock markets: by buying low and selling high. Then ask why share prices go up and down: when no one wants the shares, prices fall, when everyone wants them, prices rise. Conclude that the trick is to buy shares when no one wants them, and sell them when everyone does.

Show Film

Why Do Shares Change Price?

Main Activity

Foundation

Obtain the share prices of 20 or so companies (ideally household names) at different dates over several months. Then give students a notional budget and let them buy shares with their money at the starting date. Then give the share prices at the next date and get students to revalue their portfolios. Allow them to buy and sell shares. Repeat until the end of the time period and assess who has made most money. Ask how the winners managed to make the better choices and reflect that the best explanation of share price movements is that they are a random walk.

Advanced

Give students an example of a company's summary profit and loss (P&L) account and describe what the individual line items mean. Explain what is meant by cash flow and calculate cash flows from the P&L. By making assumptions about the trend in future sales and costs, project future cash flows. Explain that \$100 today is worth more than the promise of \$100 in a year's time and that future cash flows are therefore discounted using a discount rate. Sum discounted future cash flows to arrive at a net present value (NPV) for the business. Relate this to share price.

Extension Activity

Foundation

Take the share price of companies and find out the number of shares issued. Multiply share price by number of shares to calculate the market value of the companies.

Advanced

Take the P&Ls of two or three companies quoted on the stock market and project future cash flows based on current performance. Value the companies by calculating the NPV of future cash flows. Subtract the total debt of the companies to arrive at a market value of the companies' shares. Divide by total shares issued and compare with the current share price of the companies.

Optional Extra

Research how discount rates are calculated and how risk affects the discount rate. What is the Capital Asset Pricing Model and which statistics are used in its calculation?

Historical Price of Lehman Brothers (LEH)



In 2008, Lehman's announced losses of \$7.8 billion. This led to the mass selling of shares and the share price plummeted by 95%.