

# Managing my investments



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# Week 1: Why and how should we invest for the future?

## Introduction

Welcome to Week 1 of *Managing my investments*. Martin Upton, Director of the True Potential Centre for the Public Understanding of Finance, based at The Open University Business School, presents a summary of the subjects and issues that will be explored during the next six weeks. Martin is a specialist in personal and corporate finance, and will guide you through this free course.

Video content is not available in this format.



In this first week we will explore:

- the current features and recent record of personal investment activity
- the first building blocks for constructing an investment strategy
- the factors that determine the levels of interest rates – one key determinant of investment returns

- the driving forces of movements in share prices – another key determinant of investment returns.

In examining these subjects, you look closely at recent trends in interest rates and share prices and the specific factors that have recently impacted on their levels.

At the end of the week you will have an understanding of personal investment behaviour and two of the most important determinants of returns you get from investing.

This course is presented on OpenLearn with the kind support of True Potential LLP.

[The True Potential Centre for the Public Understanding of Finance](#) (True Potential PUFIn) is a pioneering Centre of Excellence for research in the development of personal financial capabilities. The establishment and activities of True Potential PUFIn have been made possible thanks to the generous support of True Potential LLP, which has committed to a five-year programme of financial support for the Centre totalling £1.4 million.

Before you start, The Open University would really appreciate a few minutes of your time to tell us about yourself and your expectations of the course. Your input will help to further improve the online learning experience. If you'd like to help, and if you haven't done so already, please fill in this [optional survey](#).

## 1.1 Savings and investments

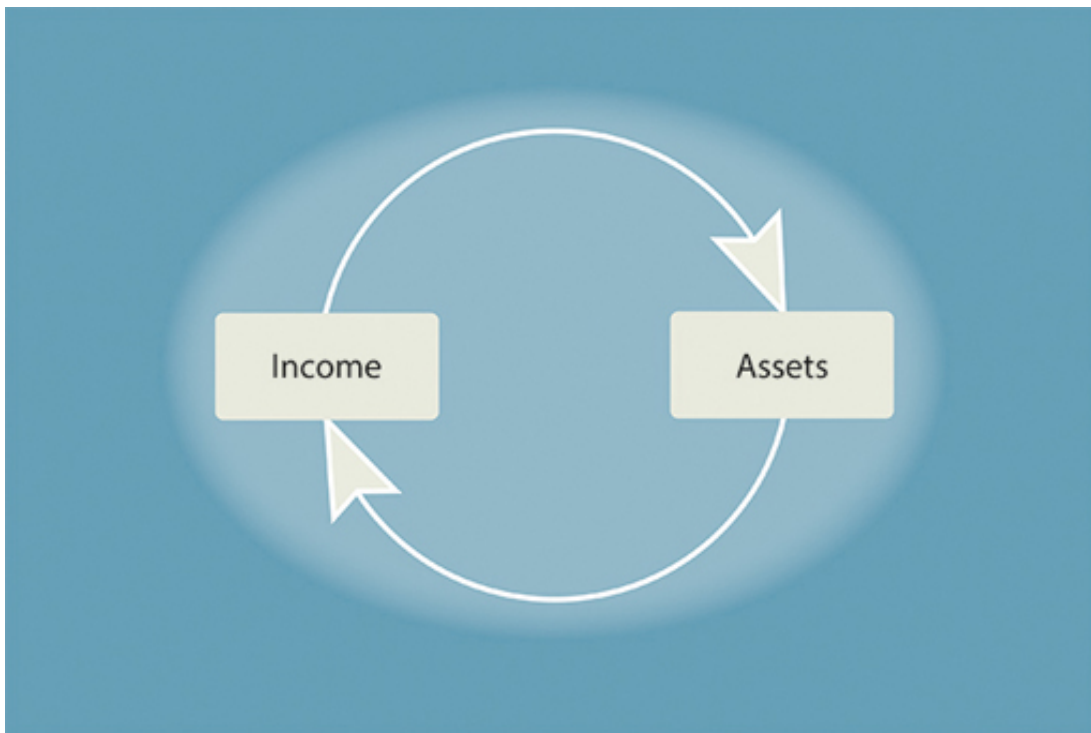


Figure 1 The circular relationship between assets and income

In Charles Dickens's book *David Copperfield*, Mr Micawber famously mused that an annual income of £20, coupled with an expenditure of £19, 19 shillings and sixpence (leaving sixpence over to save) was happiness itself. Whereas the result of spending £20 and sixpence (and having to borrow the difference) would be misery. Linking happiness or misery to having surplus income or surplus expenditure may be somewhat simplistic, but



for many people having spare income, and thus an ability to invest for the future, can indeed help make life easier and more rewarding.



Figure 2 WC Fields as Mr. Micawber from the film 'David Copperfield', 1935

This course starts by looking at the importance of savings, why households save and invest, and the features of personal investment activity in the UK. We begin by defining some terms you are going to come across.

First, we want to draw a distinction between the definitions of saving and savings. Saving refers to a flow of money in a particular time period – such as putting money into a building society account. By contrast, savings (note the plural) are the current value of the total accumulated sum of previous saving. Savings are therefore the value of the stock of such savings that a household has at a particular point in time. Saving is connected to savings because saving in any given time period will add to the accumulated stock of savings. Consequently, if I already have £100 in a savings account, that £100 is my savings, but if I put an additional £25 a month into the account, I am saving £25 a month – after two months, my savings will have increased to £150 (plus any interest – the return paid on savings – earned).

We use the terms 'saving' and 'savings' in the same way as the UK Government's official definitions, to encompass putting money into both 'savings products', such as deposit accounts, and 'investment products', such as shares, government bonds, and investment funds – including pension funds. However, you will notice that this section is called 'Savings and investments'. This is because in personal finance a distinction is often made between the two with savings being associated with money held in bank and building society accounts, while investments relate to money held in **shares, bonds and funds**.

A key point about saving is that it defers (or puts off) consumption today in favour of consumption at some time in the future. This future may be a night out or holiday in the coming months or year, or even many years away in the case of a young person saving for retirement. Saving can even be for after death, such as when people save in order to

bequeath or leave money for their children. This contrasts with the taking out of debt, which is bringing consumption forward by buying now and paying later.

You should also note the relationship between assets held in the form of savings and investments and income. The receipt of income immediately adds to assets, for instance, when income is paid into a bank account. Such assets may only be temporary because the money is then used in the typical outgoings of a household, paying bills and living expenses, but any surplus income that isn't used adds to a household's savings and other assets. In turn, assets like savings usually produce an income in the form of interest on a savings account, for example. This interrelationship is summarised in the diagram above.

One other important point to note is that households often have debts and savings simultaneously – they are not mutually exclusive. For example, many households have a mortgage and a savings account. They can also be saving (for example, contributing to a pension fund) and taking out more debt (for instance, adding more to a credit card bill).

### 1.1.1 Why should we save and invest?



Figure 3

Saving and investing defers consumption from the present to a time in the future. Therefore, when thinking about the reasons for households to invest, we're really thinking about why households are deferring consumption rather than consuming now.

One important reason for saving is known as the 'precautionary motive' – perhaps more commonly known as 'saving for a rainy day'. This involves building up funds to provide for unexpected events and bills. If you have no savings and an unexpected event with financial consequences occurs (such as a car being damaged or someone becoming too ill to work and losing their income), then there are only three alternatives:

1. receiving a payout from any insurance taken out against such an unexpected event

2. borrowing money (from family, friends or financial institutions) to pay the unexpected bills
3. defaulting on any commitments, for example not making payments on a car loan or a mortgage, with the consequent risk of repossession and negative impact on future credit ratings.

Having funds set aside in investments is an important means of preparing for unexpected life events – the savings act as a buffer to protect a household against these other possibilities.

A second reason for investing is to do so for a specific purpose. You can put a certain amount aside each month (or week), based on a calculation of how much you need for a particular goal. One of the most significant purposes for saving is for retirement, but investing can also be for many other reasons, for instance saving for a child's university education, sending money abroad to family or paying the costs of a nursing home for a parent. You can also invest money temporarily – normally in savings accounts – for events that occur in the relatively near future, like a holiday or Christmas, or for buying a car.

A third reason for investing could be to accumulate wealth for which, as yet, there is no defined purpose. The savings may later be spent on a variety of things, for example a second home, a series of holidays after retirement or leaving an inheritance to children. These three reasons all underline an important overall aim of having investments – to give a sense of independence and autonomy to do things. Having sufficient funds in your investments could enable you to leave a job, to take a break for a few months. It could also enable you to do or buy things that you want, or to take advantage of opportunities that arise (such as being able to pay for education or start a business).

### 1.1.2 Why are savings and investments important for the economy?

Watch the video below to hear Anthony Nutt, an investment fund manager, talk about the importance of personal investments to the economy and the impact of economic policy on savings behaviour.

Video content is not available in this format.



As well as being important for an individual or household, investments are important for the broader economy.

There is interdependence between the household sector and other sectors of the economy, such as the corporate sector. For example, in the act of saving, households are not buying the goods and services that firms sell. However, by saving, households are placing money in financial institutions and this provides a potential source of funds for firms to expand and to invest themselves.

Governments also have an interest in household savings. One reason for this is that governments often spend more than the receipts they have from taxation – this has most certainly been the case since the 2007/2008 financial crisis which saw the budget deficit (the difference between tax receipts and government spending) rise to a record level. To cover such a shortfall, governments have to borrow, including directly from the public. Governments have encouraged people to put money into government savings schemes (and, effectively, loan the government money), such as National Savings and Investments Certificates and Premium Bonds.



### 1.1.3 Savings and the life course



Figure 4

Households are motivated to save at different stages of the life course, such as those depicted in Figure 4, weddings, holidays and motoring.

Households are often targeted by the marketing departments of financial institutions according to their stage in the life course and the type of household. These are significant factors in the selling of different types of saving and investment products.

#### Activity 1.1 Your reasons for saving

Think about the following questions then post your answers in the [course forum](#) and discuss with other learners. When posting in the forum you should head your post with the title of the activity so other learners can join in.

- What are your reasons for saving money?
- Are your reasons for saving the same as any of those given in the image above?

## 1.2 Savings behaviour in the UK



Figure 5

So how much savings do UK households have?

Data based on the Family Resources Survey 2012/13 (Department for Work and Pensions (DWP), 2014) provides evidence to explore this question. Remember, by referring to savings we mean the stock of such savings that UK households have.

**Table 1.1 Percentage of households by amounts of savings and investments, 2012/13**

Savings	All households (%)
No savings	35
Less than £1500	13
£1500 but less than £3000	7
£3000 but less than £8000	13
£8000 but less than £10,000	3
£10,000 but less than £16,000	7
£16,000 but less than £20,000	3
£20,000 or more	20

Note: Figures do not add up to 100, due to rounding.

DWP, 2014, Table 2.8

As you might expect, households have different levels of savings, with 35 per cent having no savings at all, while 20 per cent have savings of more than £20,000.

The Office for National Statistics (ONS) says significant caution needs to be exercised when drawing firm conclusions from data on savings such as that presented above.

### Activity 1.2 Caution

Why do you think the ONS might suggest such caution?

Make some notes in the box below.

*Provide your answer...*

### Discussion

The responses provided to surveys where people have to provide personal information – particularly information about their finances – need to be treated with care.

The reason for the caution is linked to how data on savings is collected. Much official government data is based on surveys where households are asked to complete a questionnaire. An estimated one in four households simply does not know the value of its investments, while others may deliberately understate the value of any assets they have. Disclosing financial data can be seen as sensitive, and so collecting such data accurately can be problematic.

## 1.2.1 UK household investments (excluding pensions)

The table below provides a breakdown of the types of savings, investments and accounts that households have in the UK. As you can see, over nine out of ten households have a current account, and over half have other (savings) accounts, with bank or building society savings accounts and ISAs dominating. Lower proportions of households have stocks and shares, and over one-fifth of households have investments in premium bonds. In 2012, two per cent of households had no kind of bank account, let alone any investments. We shall be looking at some of these products in more detail in Week 2.

**Table 1.2 Types of formal financial assets in UK households, 2010/2012**

Type of account	% of households
Current account	93
NS&I savings account	5
Basic bank account	6
Post Office Card Account (POCA)	6
Individual Savings Account (ISA)	39
Other bank/building society account	45

Stock & shares/member of a 'share club'	15
Unit trusts	3
Endowment policy (not linked to mortgage)	1
Premium bonds	20
Company share scheme/profit sharing	3
Credit union investments	1
Any type of investment	1
Any type of account	98

Department for Work and Pensions, 2014, Table 2.7

These figures are interesting, but do not tell us very much about exactly why some households have savings and other financial assets and others do not.

The Family Resources Survey (DWP, 2010; DWP, 2014) breaks down investments by some of the social and economic variables such as income, household composition, age and ethnicity of households, and these can help explain the differences in household investment behaviour.

The findings can be summarised as follows:

- As might be expected, low-income households tend to have a lower value of investments and higher-income households have a higher value of investments.
- Households where the named head, or spouse of a household head, is unemployed or disabled are much more likely to have no investments at all.
- Pensioner couples, single male pensioner households, and couples without children tend to have higher investments, while single adults with children households have the lowest levels of investments.
- Asian and Black ethnic groups are slightly more likely to have no investments than White households.

Some of the above points remind us that investing will not be easy for everyone. It is easier to build up investments as household income increases. For those on lower incomes, investments have to be built up through careful budgeting.

## 1.2.2 The UK's savings ratio

Another type of data to look at, apart from that of savings, is data about saving. This is usually done by examining what is called the household savings ratio (the percentage of annual household disposable income that is saved rather than spent).

Figure 6 shows the household savings ratio for the UK has ranged from less than zero (in other words, borrowing rather than saving) in the late 1940s and early 1950s to a peak of 12.3% in 1980. The savings ratio then dipped to a low of 3.9% in 1988, rising to another peak of 10.8% in 1992. By early 2008 (during the financial crisis), the ratio had slumped to 2% but recovered sharply the following year to reach 6.3%. This shows how the household savings ratio tends to be quite cyclical.



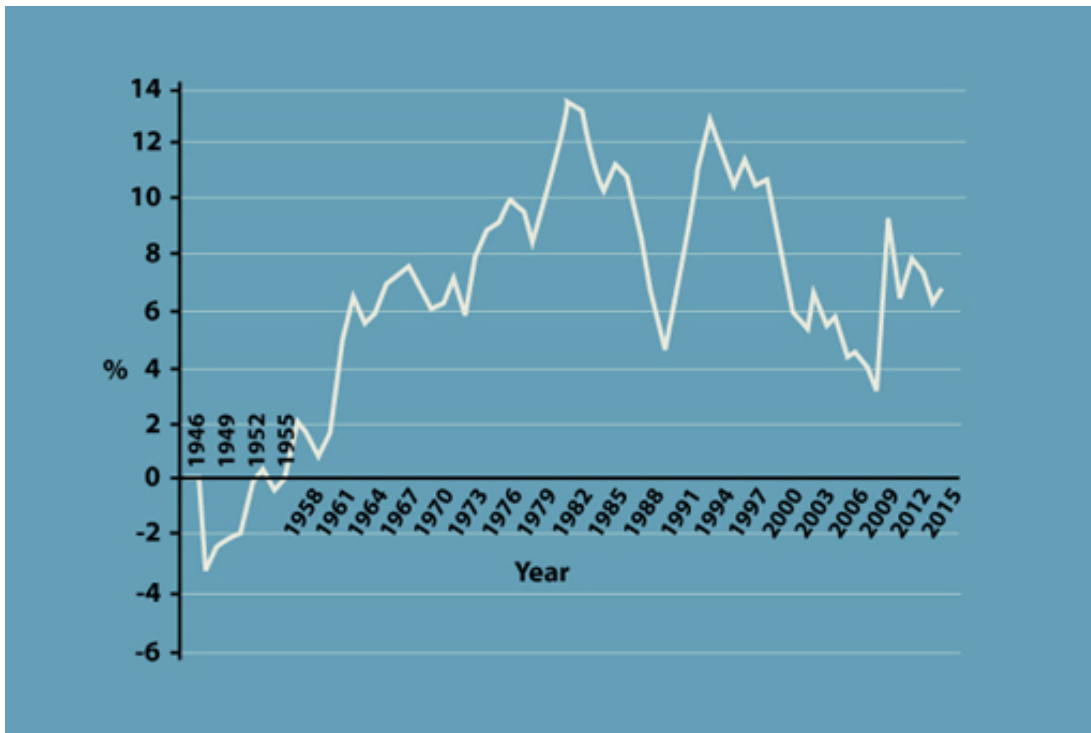


Figure 6 UK household savings ratio 1946–2015

How can we explain these changes? One factor has been the state of the UK economy. When the economy has been growing quickly (and so, personal incomes have been rising), the household savings ratio has been lower. This can be explained by the fact that when things are going well, confidence is high and people tend to spend more. This was the picture in the late 1980s and in the early 2000s. When the economy has experienced very low growth or even recession, such as in the early 1980s, 1989–1992 and again following the financial crisis, and incomes have not risen as fast or have been falling, the household savings ratio was higher. This is because when people are more concerned about their future, they tend to cut back on spending and save more.

Other factors also help to explain the changes in the UK household savings ratio. When inflation was high in the mid and late 1970s, for example, households needed to save more to stop the real value of their savings falling – consequently the household savings ratio increased. The household savings ratio averaged 8.5% during the period of relatively higher inflation between 1969 and 1991 (inflation averaged 10%), but it averaged 4.3% during the periods of relatively low inflation in the 1960s, and 4.3% since 1998 when inflation has again been low.

### 1.2.3 How the housing market affects savings activity

When examining investment behaviour, data suggests the state of the housing market may also be important. Figure 7 shows changes in the household savings ratio and changes in house prices in the UK between 1970 and 2014.

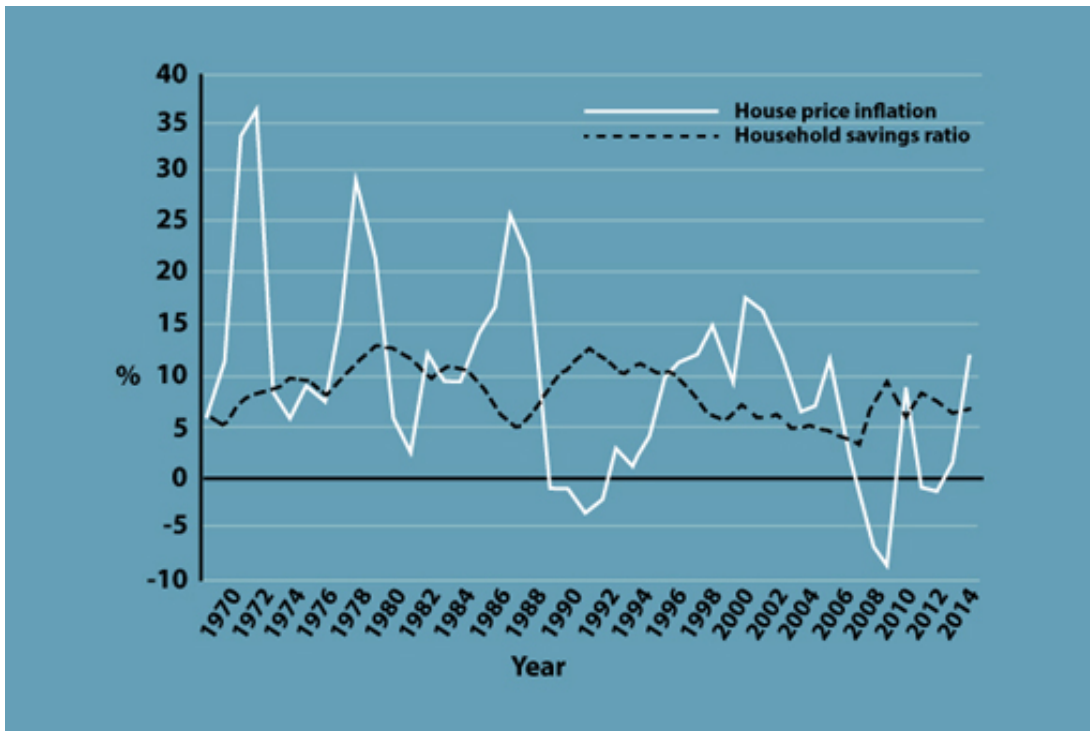


Figure 7 Changes in the household savings ratio and changes in house prices in the UK between 1970 and 2014

### Activity 1.3 House prices and saving

Note your answers to the following questions:

- Look at the chart and consider any pattern between house prices and the household savings ratio.
- Can you think of any reasons to explain this pattern?

*Provide your answer...*

#### Discussion

There appears to be an inverse relationship between house prices and the household savings ratio. That is, when house price increases were higher (for example, in the late 1980s and most of the 2000s), the household savings ratio was lower, and when house prices were lower (for instance, in the early 1990s and 2009), the household savings ratio was higher.

This may be because people often feel that they do not have to save as much when their wealth is increasing due to the increased value of their house. Conversely, in 2009 there was an increase in saving as house prices fell and households repaid some of their borrowings. The slight dip in the savings ratio since 2009 may be linked to the pickup in house prices after 2012.

### 1.2.4 Savings in an international context

The UK has a relatively low household savings ratio compared with other countries, as shown in Table 1.3.

**Table 1.3**  
**Household**  
**savings ratios**  
**2012**

Canada	3.3
France	16.1
Germany	11.0
Italy	4.3
Japan	1.9
Portugal	10.5
Spain	11.6
Switzerland	12.1
United Kingdom	6.6
United States	4.3

Note: The ratio for the UK in 2012 was measured at a different point in the year to that for the graphs in previous sections.

Office for Economic Cooperation and Development, 2012

The data shows the household savings ratio varying significantly between countries. The data is cross-sectional – a snapshot of a moment in time. As a result, we cannot draw too many conclusions – for example, Portugal had a negative savings ratio in 2008, but in 2012 had a savings ratio of 10.5%.

The UK household savings ratio is higher than those of Japan and the United States, but lower than those of many other European Union (EU) countries, such as France and Germany.

The reasons for these differentials are various. Cultural reasons are a key factor with some societies having a stronger tradition of saving and investing – sometimes due to the greater incidence of natural catastrophies. The financial strength of economies is also vital since households with growing affluence are better placed to have surplus income to save for the future. Access to finance is also critical: if you are confident of the ability to be able to borrow money to finance life's major expenditures or to cover unexpected events, you may be less inclined to save to provide the funds needed to cover these.

### 1.2.5 Why aren't we saving and investing more?



Figure 8

There are many factors that may explain weak savings behaviour.

- Falling real incomes – after the 2007/2008 financial crisis there was a period where the real value of earnings fell with wage rises on average being less than the prevailing rate of price inflation. This diminished the scope for surplus income to place in investments.
- Poor education – a lack of awareness of products and how to invest may also be impacting on personal investment volumes.
- Delayed benefits of investment – one key behavioural trait when it comes to money is a dislike of delayed rewards. Investing money for the future means forsaking consumption today – and this may deter people from making investments.
- Inertia – while most people know they need to invest for the future to provide for emergencies and a pension, many of us simply don't get round to doing something about it until we are forced to do so.
- Low returns in recent years – low returns, specifically from savings accounts, may have encouraged many to spend money today rather than save for the future
- Access to debt if there is a need for cash – the continued and widespread availability of personal debt products, albeit some with exorbitant interest charges, may discourage savings. Why save when you can borrow money when needed to cover for a contingency or special occasion?
- The culture of impulse spending rather than impulse saving. Research has shown that adults in the UK spend, on average, £672 a year on impulse purchases. Investing this sum each year over the course of a working life could result in a material enhancement to the pension resources available on retirement.



## 1.2.6 Investment and retirement planning: the UK experience

To complete our review of savings and investment activity, watch this presentation by Alexandra Chesterfield, Head of Behavioural Insights at the consumer organisation 'Which?'. The video explores some features of, and shortcomings in, savings and investment behaviour (including pension planning).

Video content is not available in this format.

### Overview

1. The current status quo and three key issues
2. Why people don't like risk (in a pensions context)
3. Would guarantees impact perceptions & behaviour?
4. Conclusions (questions)



Which? works for you

## 1.3 Investment planning needs a long-term perspective

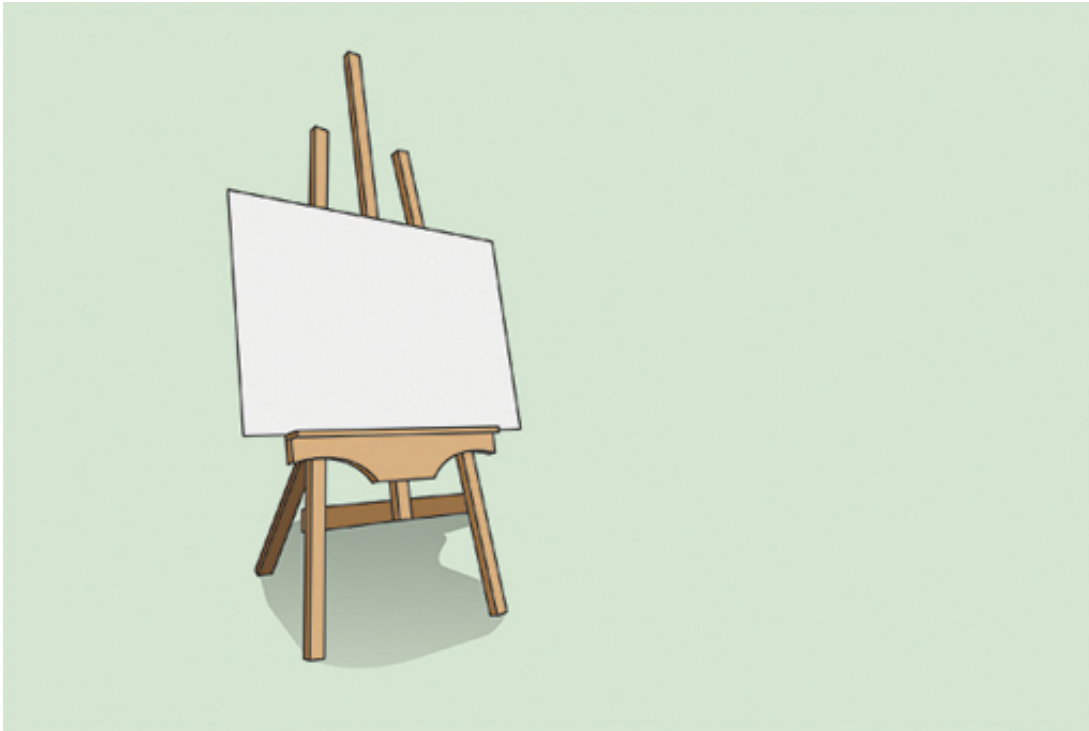


Figure 9

We have now completed our review of savings and investment activity, with an emphasis on the UK. Clearly there is evidence of poor personal investment planning.

To avoid these pitfalls when it comes to our finances we now need to start thinking about how we should go about the business of effective investment management. Let's build the foundations of an investment strategy.

### Looking ahead – investment planning is a long-term activity

Investment planning means looking ahead – often a great many years ahead. Whether it is for a future major purchase or for retirement, the process of building up investments may take several years or even decades. This long-term time horizon requires us to assess a number of things.

First, it requires a forecast to be made of how inflation will affect the future cost of the item to be acquired or the level of income needed for retirement. When planning investments, it is crucial that inflation is taken into account (planning is done in 'real terms'). This means that forecasts of future values should all be in terms of today's money, so that you're looking at what the money invested might buy after taking into account the possibility of price rises between now and cashing in the investment.

Second, the time horizon is vital in determining the structure of investments. If the horizon is the near future, there is little sense in investing in products that may fall in nominal value. The longer the time horizon, the greater the capacity to ride out periods when investments don't perform well, in order to benefit from their gains over the medium to longer term.

Recalibration is also vital. Checking regularly (at the very least annually) that your investments are on track to achieve your goals is vital. If they are going off track then decisions may need to be made, including increasing the amount of current income diverted into investments (increasing the sacrifice of today's spending to benefit from greater income in the future). Alternatively, the structure of the investment portfolio may need to be revised to improve expected performance over the chosen time horizon.

Even if you invest passively and let others (i.e. fund managers) look after the management of your assets, the responsibility for monitoring and managing the investment portfolio ultimately lies with yourself.

## Filling the blank canvas

The planning process should involve:

- Starting with a blank canvas by not letting previous investment experiences and plans dictate what you plan to do now.
- Linking your investment plans to your life's goals and the timing of these goals – for example, the time you expect your children to go to university and, consequently, require substantial financial support to ensure that they do not become over-indebted with student loans.
- Prioritising your goals. You cannot necessarily achieve all goals, particularly simultaneously, but you can have a list that comprises of 'must haves', 'would like to haves' and 'would like to haves, if possible'.
- Taking into account that your investment planning is not a fixed plan that is set in stone. Rather, it is a living document that needs to be reviewed as circumstances change (which may increase or reduce both the need or the ability to invest for the future).
- Embedding investment activities into your life's routines – for example, by setting up direct debits to make contributions to your investment funds monthly. This will avoid putting off, and perhaps ultimately not undertaking, investments that need to be made for the future. The default should be that you have to take action to stop investing, rather than having to take action to invest.

We can summarise this planning process through the four stage financial management model – a model that can be deployed for making all personal financial decisions including those relating to personal investments (Figure 10).

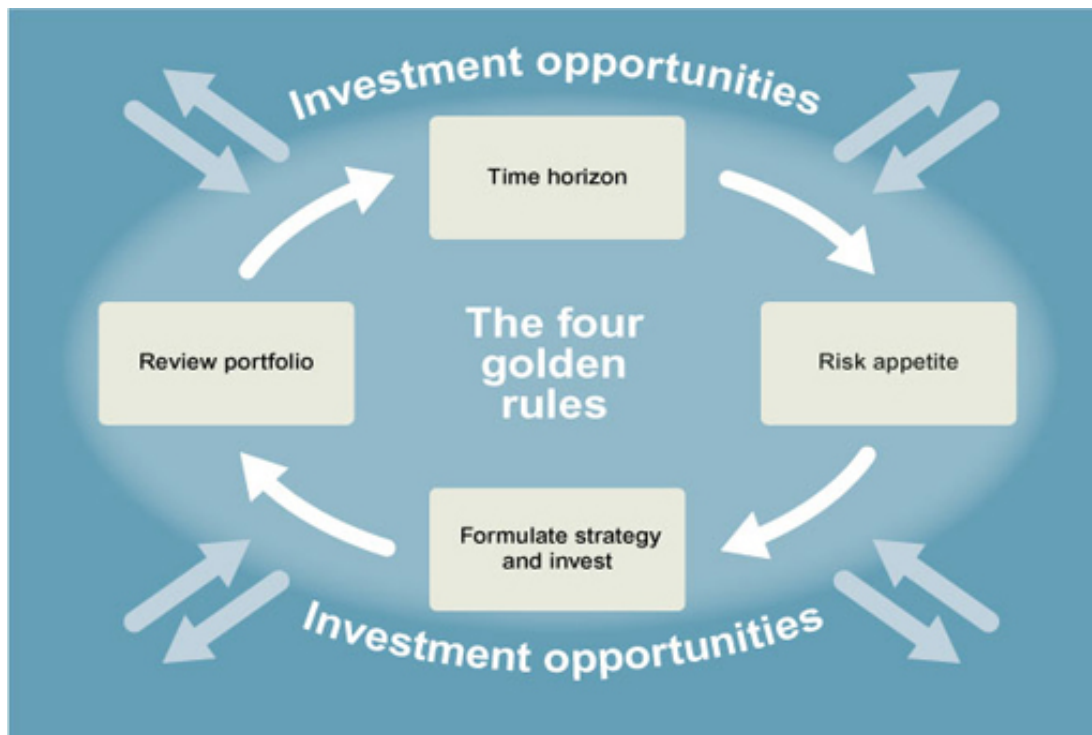


Figure 10 The four golden rules of investment

You can apply this financial planning model to your own decisions as you work through the course to help you build your investment strategy and compile your portfolio.

### 1.3.1 Retirement: the longest time horizon



Figure 11

Planning for retirement is the most important aspect of investment management.

The scale of the funds that need to be accumulated for a comfortable retirement dwarfs those needed for other investment goals like saving to buy a house or car, or to pay school fees.

The time span between commencing retirement planning and cashing in the investments to provide income in retirement can – and should – span decades rather than years.

Growing longevity also means that despite the choice of many to work well into their 60s, the time period spent in retirement is, on average, growing, with the related implications for the resources needed to provide an adequate pension income.

To consider how an individual or household can plan ahead for their retirement years, a robust financial planning model needs to be adopted and applied. This, or similar planning models, would be used by a financial adviser as the foundation for advice about retirement planning and provides an approach that you can also use for yourself.

Central to the situation is the goal of a comfortable retirement. The need is to have enough income throughout retirement to finance a certain standard of living. The amount required will be determined largely by expectations of spending in retirement.

This raises a question: whose spending needs? Should the financial plan look at the individual or the household? The danger of basing the plan on the household is that many households change over time as, for example, couples split up, family members and friends decide to share a home or leave, or people die.

Traditionally, married couples have adopted the household approach, and the resulting financial plans have often proved inadequate in the face of death or divorce. This is a key reason why women account for such a high proportion of the poorest pensioners today.

The advantage of a retirement plan based on the individual is that each member of the household has their own pension arrangements, which they retain even if the make-up of their household changes.

Spending in retirement can be estimated from the individual's or household's current level and pattern of spending. Yet there are some good reasons to think that spending in retirement may be different from spending while working, and that spending needs in early retirement may differ from those later on. You'll look more closely at this in the next section.

An alternative might be to base estimated spending needs on the spending patterns of current pensioners, but bear in mind that what today's pensioners actually spend may reflect the constraints of the income they ended up with rather than the income they wanted to have.

Note that Week 5 of this course is entirely devoted to the key personal investment matter of pension planning.



## 1.3.2 Investment returns

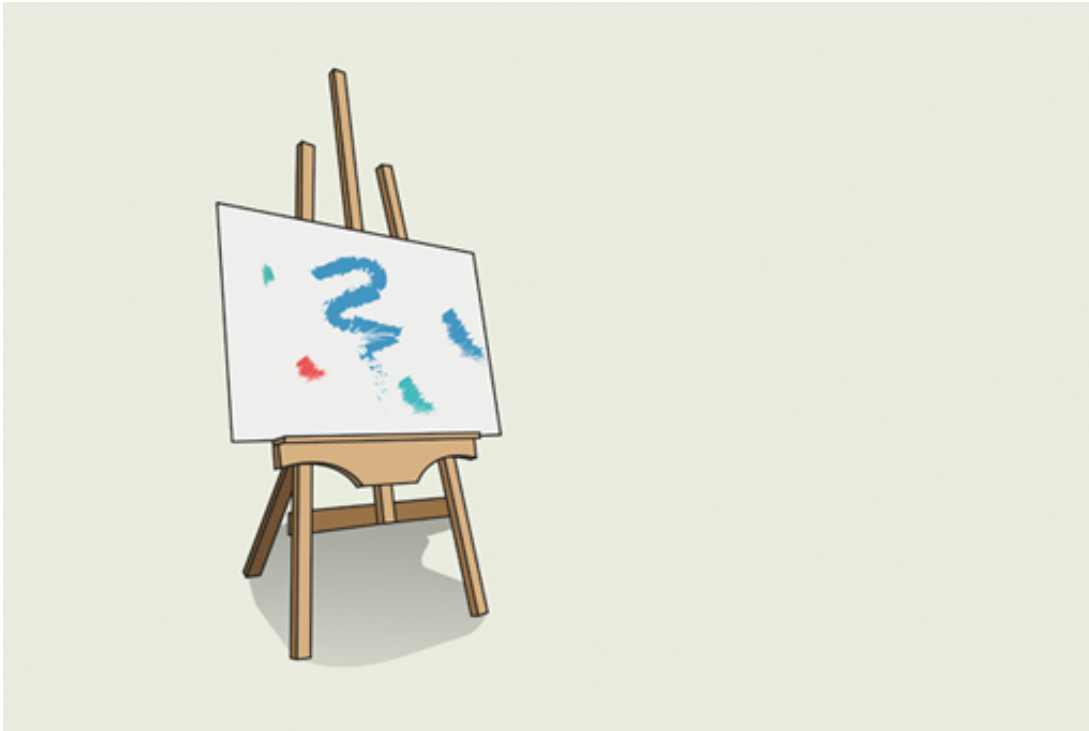


Figure 12

The returns that are received from investing fall into two categories – income and capital growth. Income can come in the form of interest on savings accounts and bonds, or dividends on shares.

Capital growth can come in the form of the increase in the value of the assets – higher share prices, increases in indices for investments contractually linked to a market index (like a stock exchange index) and higher bond prices for those bonds that are marketable. For savings accounts, though, there is normally no potential for a growth, or risk of a decline, in capital value. The money placed into an account does not change in nominal value and the only returns received are the interest paid on the account.

Three particular factors need to be borne in mind when measuring and forecasting investment returns:

1. All returns should be measured in real terms, not nominal, by accounting for the impact of price inflation on the value returned to the investor through income or capital growth.
2. Assets whose prices can move can clearly move down in price in nominal terms as well as increasing in price. Care needs to be taken when investing in those assets with price sensitivity – particularly if the investment period is short. As you examine different types of investments in Weeks 2 and 3, you'll see that there is a relationship between risk and return – this being that those assets that offer the greater returns, are associated with greater risks in terms of the volatility of the value of the investments and the prospect of default by the entity with whom the investment is placed. In Week 3 you'll look closely at the types of financial risks investments may be exposed to and at how effective risk management is central to investment management.

3. There is an inverse relationship between interest rates and the capital value of assets. A period of high interest rates may have the impact of depressing share prices due to the impact of high rates on economic activity and hence on the performance of companies and, by consequence, their share prices. For some assets, like fixed-rate bonds, there is a certain mathematical relationship between interest rates and asset prices: if interest rates rise, bond prices will fall (and vice versa). You'll learn more about this in Week 2.

## Investment returns – tax breaks and tax wrappers

A crucial element to factor into investment planning is the tax treatment of the returns. Some investments have what is referred to as a 'tax wrapper', where the returns are protected from tax of either the income they generate or any gains to capital gains. The most common example of these in the UK are New Individual Savings Accounts (NISAs) where returns are tax free (with the exception of the taxation of dividends received on Stocks & Shares NISAs). Elsewhere, even where investment returns are subject to taxation, annual tax-free allowances can be used to protect at least part of the returns from tax deductions. You'll look at the tax treatment of returns from personal investments in the UK in more detail in Week 2. At this stage, the key point to note is that for your preferred form of investment you should make sure that you take advantage of any tax exemptions on their return.

### 1.3.3 Drivers of returns: what determines the level of interest rates?

Earlier you started to look at the income and capital returns from investing. You will look more closely at these now, starting with the key issue of what determines the level of interest rates on savings and investment products.

To understand what determines the level of interest rates received when you invest money, you first need to understand how 'official' interest rates are set.

The video, which features Mark Carney, Governor of the Bank of England at the time of writing this course, sets the scene by looking at the factors taken into consideration when setting official interest rates.

Video content is not available in this format.



Before 1997, 'official' interest rates in the UK were determined by the UK government, usually after consultation with the Bank of England. Arrangements changed in May 1997 when the incoming Labour government passed responsibility for monetary policy and the setting of interest rates to the Bank of England to make the bank independent of political influence. This matches the arrangement in the USA and in the eurozone, where the official rates are set by the Federal Reserve Bank and the European Central Bank respectively.

The rate set by the Monetary Policy Committee (MPC) known as the 'Bank Rate' is the rate at which the Bank of England will lend to the financial institutions. This, in turn, determines the level of bank 'base rates' – the minimum level at which the banks will normally lend money. Consequently, Bank Rate (also known as the 'official rate') effectively sets the general level of interest rates for the economy as a whole. Bank Rate is therefore hugely influential in the determination of the rate that will be paid on savings and interest-bearing investment products.

Each month, the Bank of England's MPC meets for two days to consider policy in the light of economic conditions – particularly the prospects for inflation. The MPC's decision is announced each month at 12 noon on the Thursday after the first Monday in the month. The prime objective is for the MPC to set interest rates at a level consistent with inflation of 2% p.a. For example, if the MPC believes inflation will go above 2% p.a., it might increase interest rates in order to discourage people from taking on debt – because if people spend less, it could reduce the upward pressure on prices. Conversely, if the MPC believes inflation will be much below 2% p.a. it might lower interest rates (also known as 'easing monetary policy') – people might then borrow and spend more.

However, in 2013 and 2014 the policy on the setting of official rates was modified to take greater account of the level of unemployment in the economy. First it was announced that official rates would not be raised while the rate of unemployment was above 7% of the labour force. Subsequently, following a sharp fall in unemployment towards 7%, this stance was modified to one where the MPC would take account of the extent of spare capacity in the economy rather than just the rate of unemployment. The video explores this change of emphasis to the setting of official interest rates in the UK.

Official rates of interest tend to be cyclical, rising to peaks and then falling to troughs. Since 1989, the trend in the UK has been for nominal interest rates to peak at successively lower levels. Nominal rates fell to 3.5% in 2003. In 2009 they hit a record low of 0.5% and were still at this level at the end of 2014. This was because the Bank of England was attempting to stimulate economic activity following the period of recession at the end of the 2000s.

In November 2017 Bank Rate was raised for the first time in 10 years – from 0.25% to 0.5%. The change, although modest, was taken as a signal that future years will see higher interest rates than those experienced since the financial crisis of 2007/08.

### 1.3.4 Real interest rates

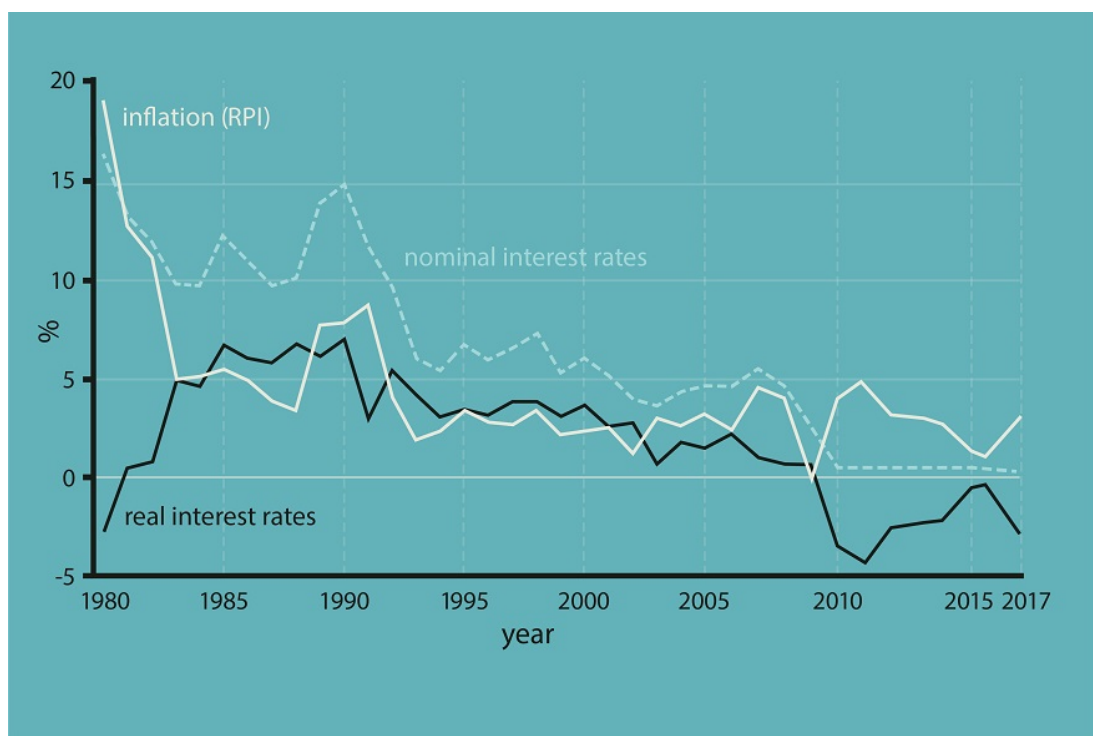


Figure 13 Nominal and real interest rates and inflation in the UK, 1980–2017 (Bank of England, 2017; ONS, 2017)

You explored earlier why it is important to take inflation into account when managing your investments. Unless there is no price inflation, the nominal return from an investment – the amount of cash paid to you – is different to its real return, in effect the value to you in terms of the goods it can buy.

Real interest rates are interest rates that have been adjusted to take inflation into account. Looking at the graph, you'll see that when inflation is higher than the nominal interest rate, real interest rates are negative (as they were in 1980/1981 and again from 2010). Real interest rates are at zero when the rate of inflation and the nominal interest rates are the same, and they are positive when the nominal interest rate exceeds inflation.

Real interest rates were low in the 1990s and 2000s, falling from 7% in 1990 to just under 2% by 2004. Subsequently they fell further. By early 2015 the fall in the (nominal) official interest rate to a historical low of 0.5%, combined with price inflation of 1.4% (as

measured by the Retail Prices Index – RPI), resulted in negative real interest rates of -0.9%.

So, if you earn a nominal rate of interest of 1.5% on your savings and price inflation is 2%, you are actually getting a real interest rate on your savings of -0.5% – a negative rate of return. Such a situation where real interest rates are negative is clearly adverse for savers. However it is good news for borrowers if the cost of borrowing is negative in real terms.

Unsurprisingly, the low interest rates offered on savings in recent years have encouraged some households to reduce their debts – particularly credit card debts which have relatively high interest rates – by reducing their savings balances.

### 1.3.5 The benefit to savers of compound interest

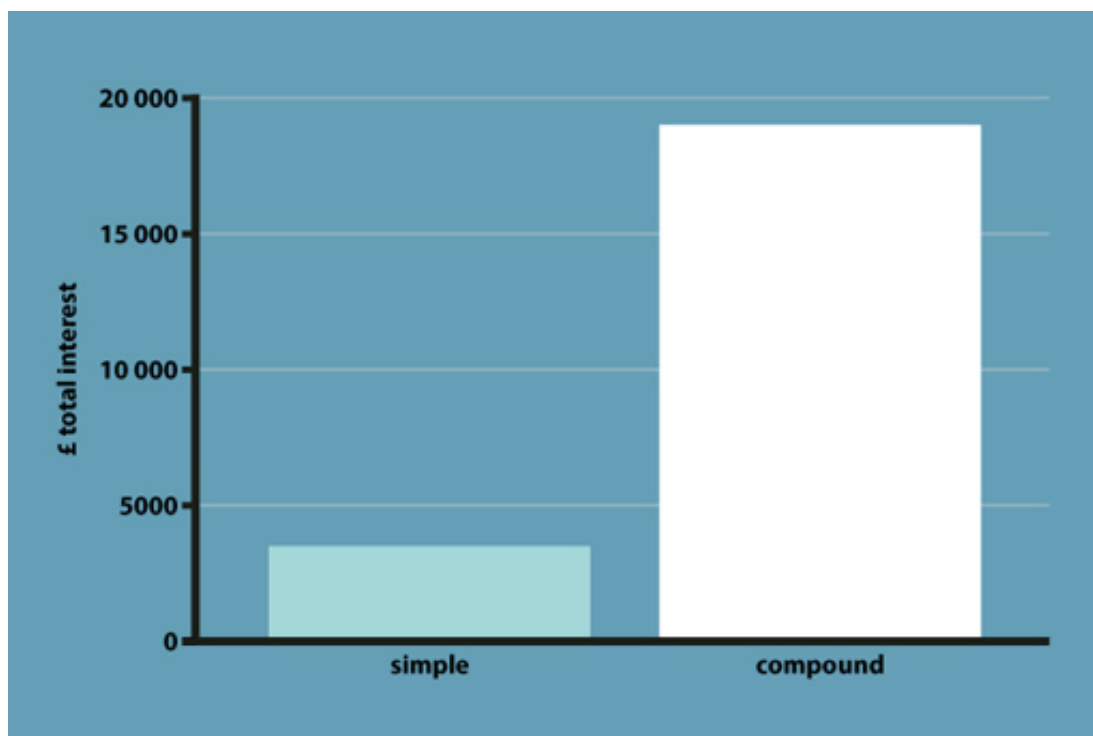


Figure 14

The calculation of interest on savings accounts is straightforward. Interest accrues at a rate based on the savings rate and the balance of money in a savings account. So if £1000 is held in an account where the rate is 5% per annum then interest paid at the end of the year is  $£1000 \times 5/100 = £50$ .

In many cases, with movements into and out of savings accounts taking place, the interest charged will be based on the average balance of the principal sum during the year. For instance, if £10,000 is invested at the start of the year and £100 is withdrawn halfway through each month, then the outstanding balance at the end of the year would be £8800. The average balance of principal outstanding during the year would be the average (mean) of the balance at the start and at the end of the year, or  $(£10,000 + £8800)/2 = £9400$ . Based on this average balance, the interest for the year at 5% p.a. would be  $£9400 \times 5/100 = £470$  – less than the £500 if no withdrawals had been made.

What happens if the lender does not withdraw the interest received and adds it to the balance of the account? This would mean that the following period's interest earnings is going to be higher since the borrower will be paying interest, not only on the original principal sum but also on the re-invested interest. This is known as compounding, and can quickly enlarge savings during periods of high interest rates.

Consider what happens if someone lends £1000 at an interest rate of 3.5% and makes no withdrawals over ten years. Over this period of time, the investment would rise from £1000 to £1411 (£411 interest on top of the £1000 invested). This is more than if interest had been charged on a simple rather than compound basis – simple interest over ten years would have been just £350.

You can test this out for yourself, using our [interest calculator](#).

The precise practice for computing the interest earnings varies among different borrowers – and interest can be calculated at different time intervals. One of the pieces of financial small print it is always vital to read is the basis on which interest is paid – that is, how often and by reference to what terms.

### 1.3.6 Case study: whatever happened to UK savings rates?

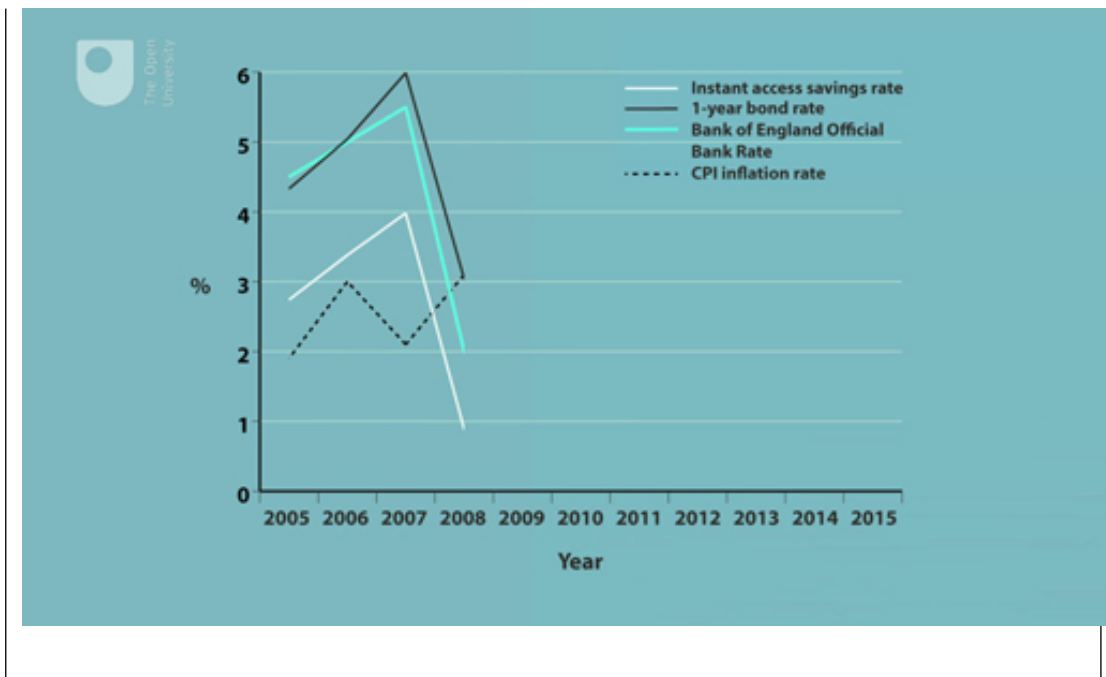
A major development that affected millions of investors in the UK after 2007 came with a fall in interest rates paid on savings accounts.

The audio and the supporting graphics set out the decline which resulted in investors earning less than the prevailing rate of price inflation with the consequence that the real value of their savings ended up being reduced. The causes of this development are explained in the audio.

The episode is both a classic case of macro-economic policy having both winners and losers and of the realities of inflation risk on investments. Faced with such meagre returns many investors turned to alternative investments to boost their income – but in so doing took on a variety of alternative investment risks.

Video content is not available in this format.





## 1.4 The drivers of equity markets



Figure 15

You have seen the factors that can dictate the prevailing level of interest rates in the economy and by inference the returns on interest-bearing investments.

So what drives the levels of share prices? While you will look at share price determination in detail in Week 2, it is important to get a grasp on the key determinants here at the start of the course.

The first important point is to distinguish between the factors that will generally affect the levels of share prices – typically measured by referring to stock market indices like the FTSE 100 (the index comprising the 100 largest companies listed on the London Stock Exchange) – and those factors that specifically affect a particular, individual, share price.

The key drivers of equity markets are:

- the prevailing and expected level of economic activity, as measured by GDP growth, employment levels and movements in the real incomes of households
- the prevailing and expected level of price inflation
- the prevailing and expected level of interest rates
- the trends in and expectations of the financial performance – particularly profitability – of the firms whose shares comprise the equity markets.

In addition to these core drivers, other factors that impact on equity markets include:

- movements in exchange rates
- changes to taxation – particularly on company profits and dividends paid to shareholders
- changes to commodity prices – particularly oil and gas

- random non-financial events like wars and disease epidemics, which are expected to impact on (global) economic activity.

These factors impact, to greater or lesser extents, on the financial performance and expected future performance of the companies whose shares comprise the equity indices that investments in shares are linked to.

A slowdown in economic activity, perhaps reflected in a weakening in price inflation, can be expected to reduce sales and profits. Under these circumstances, companies may be forced to reduce the dividends paid to shareholders or even pay no dividend at all. The attraction of holding shares, relative to other assets, is then reduced exposing the risk of a fall in share prices. The reverse generally holds as well – growing economic activity and a pickup (provided it is not excessive) in inflation are correlated to higher share prices as companies experience growing sales and profits. The relationship between inflation and the performance of stock markets is, though, complex and hotly debated by analysts.

Modest inflation may be favourable to share prices but higher inflation rates raise the prospect that action will be taken to stem inflationary pressures by raising interest rates and depressing economic activity – a scenario which would not be good for share prices. The other factors listed above also have a role in driving share markets. Higher interest rates are bad news for equities as they presage a decline in economic activity – as do higher commodity prices. If exchange rates move adversely – particularly if the domestic currency strengthens against foreign currencies – the equities can be hit since export sales may be reduced.

### 1.4.1 Oil prices and the financial markets

The collapse in oil prices in the second half of 2014 – with the price of crude oil halving between July 2014 and January 2015 – had a mixed impact on financial markets. Listen to the audio, a clip from BBC Radio 5's 'Wake Up To Money' programme, to find out more.

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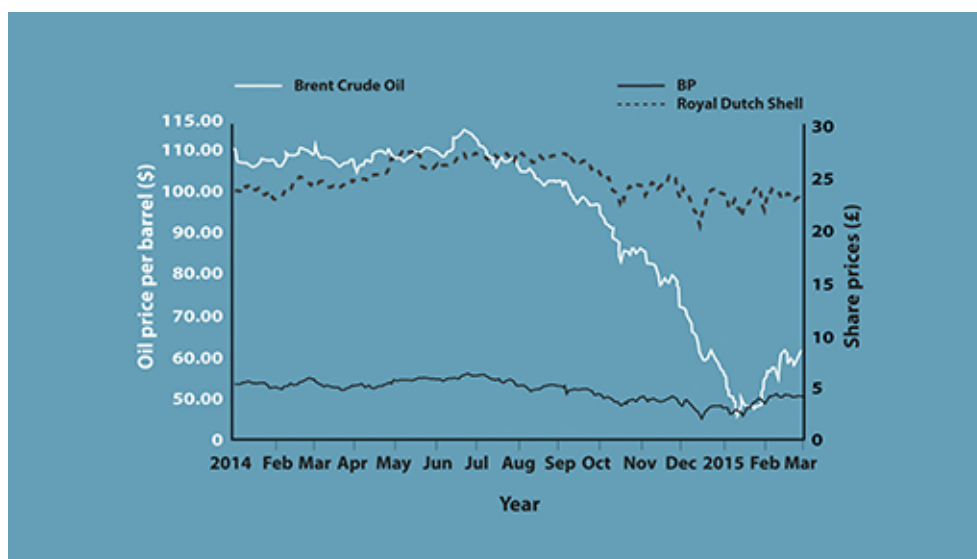


Figure 16 Price of Brent crude oil against the share price of BP and Royal Dutch Shell

By helping to reduce the overall rate of price inflation, the fall in the price of oil virtually eliminated the risk of a near-term rise in interest rates. This was 'good news' for the financial markets – although not for savers. However, the fall in oil prices was seen by some commentators as indicating a slowdown in economic activity globally – a factor that is not good news for equity markets and certainly not good news for the share prices of oil companies.

## 1.4.2 Drivers of share prices: company specific performance



Figure 17 Tesco share price 2014

While the factors mentioned in the previous section provide the general drivers of share prices, the price of an individual share will also be driven by specific factors applying to the company in question.

Commonly, this means that the performance of an individual share outperforms or underperforms the average for the market as a whole. Sometimes this divergence can be so stark that the share price rises when the market as a whole is falling and vice versa. This differential performance is normally sourced in how the direction of company profits and dividend levels contrasts – favourably or unfavourably – with investors' expectations and with averages for the market.

A classic recent episode in September 2014 came with the performance of the share price of the supermarket, Tesco. This plummeted after it was revealed that the company had been overstating its profits guidance to the markets, prompting a myriad of investigations, including one by the financial services regulator the Financial Conduct Authority (due to Tesco's banking activities).

Within days Tesco's share price was down by 30% from its 250p level at the start of the month, despite the fact that in September 2014 the overall level of the FTSE 100 was quite steady, falling by only 3%. Even the renowned investor Warren Buffet took a huge hit, given his 3.7% stake in Tesco, and within weeks he was offloading a proportion of his failed investment. Given the belief that Tesco will be forced to react by aggressive competition in the marketplace, the shares of other UK supermarket groups, like Sainsbury's, also fell in the wake of the decline in Tesco's share price – albeit not to the same degree.

Subsequent months saw Tesco announce a record annual loss for the financial year ending in February 2015 of £6.4 billion and a major overhaul of its senior management. Tesco's share price fell to a low of just under 156p in early 2015, although by 1 May 2015 it had recovered to 225p.

Tesco was a classic case of the crystallisation of specific risk relating to the investment in a specific company as opposed to the market as a whole.

### 1.4.3 Why did the FTSE 100 behave like a rollercoaster in 2016?



Figure 18 The FTSE-100 Index, May-July 2016 (LSE, 2017)

There is no equation that formally links the factors set out in the previous section with the performance of share prices – at best, there are strong correlations at work. Yet all the major swings in equity prices seen in recent decades can be explained by the economic contexts defined by these factors.

Let's try a recent episode out to test the theory!

#### Activity 1.4 FTSE 100

Have a look at the graph above. It shows the movements in the UK's leading share index, the FTSE 100, between May and July 2016.

Clearly this was a period of share price volatility with the index falling sharply in June only to stage a very strong recovery into July.

This period saw unremarkable activity in the economy with inflation and interest rates low and with economic growth steady.

So what caused the volatility and what led to investor sentiment first turning negative and then, very quickly, becoming positive?

Here's a hint: referendum.

*Provide your answer...*

### Discussion

The key driver of the volatility in the FTSE 100 was the referendum on the UK's membership of the European Union (EU). This took place on 23<sup>rd</sup> June 2016 and resulted in a vote for the UK to leave, with 52% voting for an exit versus 48% voting to stay in the EU. This was an outcome that was not expected by the opinion polls and hence it was a major 'surprise' to the public and the financial markets.

Ahead of referendum day the volatility in the FTSE 100 index reflected swings in the opinion polls but the actual result initially led to share prices, taking the index down in the process. The reason for the initial negative reaction was that the outcome was taken to be 'bad news' – at least in the medium-term – for the economy (although the actual impact of leaving the EU on the UK economy will only be known in the years after 'Brexit').

Within days, though, investor sentiment changed. This was because investors realised that many of the companies that comprise the FTSE 100 earn a significant (or, indeed, a major) proportion of their earnings in overseas (non-UK) economies. These overseas economies are not going to be directly affected by Brexit.

Additionally the vote to leave the EU led to a sharp fall in the value of the UK pound. This fall was forecast to have beneficial effects for many FTSE 100 companies since:

- the sterling value of overseas earnings (e.g. in US dollars) by FTSE 100 companies is increased
- those companies producing goods and services in the UK for export overseas would find it easier to sell them due to the fall in the value of the pound
- UK consumers, faced with a lower value for the pound, would be less likely to buy goods from overseas companies and would divert spending to UK companies.

So the initial adverse response of investors was quickly turned round as careful analysis replaced emotional sentiment in the assessment of the prospects for the FTSE 100 companies.

Since 2016 the FTSE 100 has made further gains hitting 'all-time highs' in 2017.

Brexit may be bad for many parts of the economy but this does not necessarily mean it is bad news for the FTSE 100. This index is a measure of the financial health of the top UK companies not a measure of the overall economy's wellbeing.





Figure 19

## 1.5 Week 1 quiz

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Check what you've learned this week by taking the end-of-week quiz.

[Start quiz](#)

Open the quiz in a new window or tab then come back here when you're done.

## Week 1 round-up

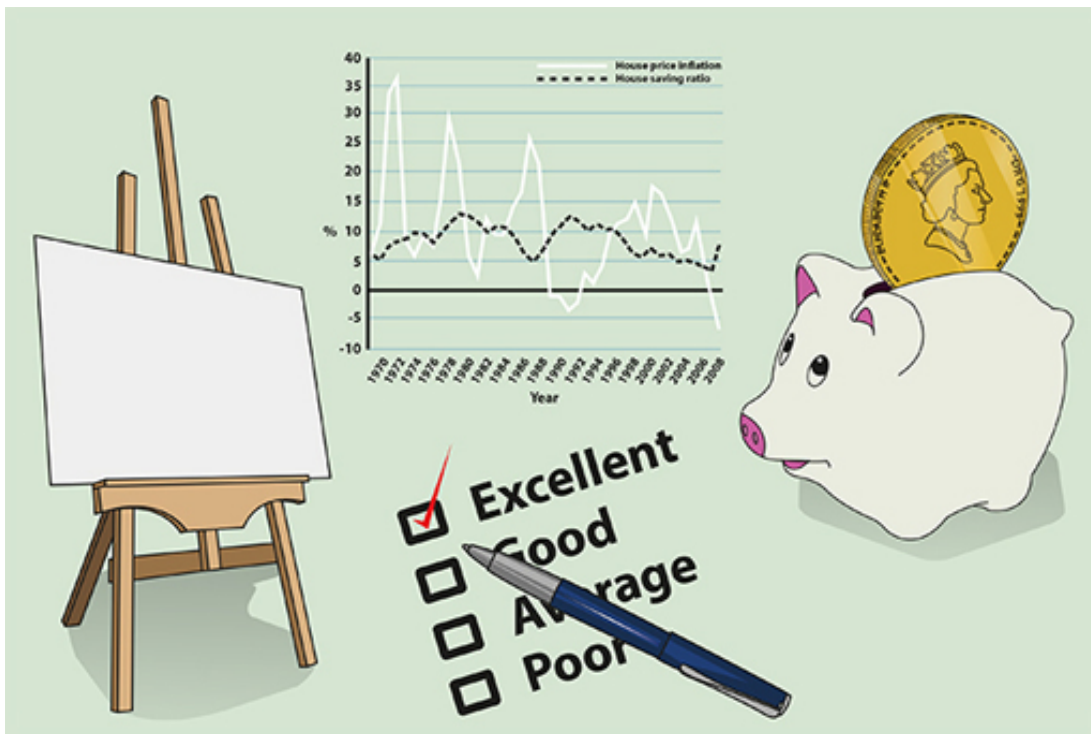


Figure 20

It has been a very full first week and you will have learned much about the need for effective investment planning and some of the initial building blocks for your strategy.

We looked at why investing for the future is essential for households – particularly in the light of the evidence that we, in the UK, aren't doing enough to save for the future.

We looked at the first things you need to consider when devising your investment plan and at the importance of the time horizon for your investments and the future spending plans that your investments will support.

We then looked at the drivers of two key determinants of investment returns – interest rates and equity markets.

Next week, we'll start to examine in detail the characteristics of the spectrum of investment products available for you to employ within your investment strategy.

You can now go to Week 2.



# Week 2: The spectrum of personal investments

## Introduction

The second week of *Managing my investments* explores the range of mainstream savings and investment products available to the personal investor. Begin by watching the video, to hear Martin Upton introduce this week's topics.

Video content is not available in this format.



The coverage of the spectrum of personal investments includes savings accounts, shares, bonds, property, commodities and investment funds. We'll also examine new types of investments, like pensioner bonds and peer-to-peer and crowd lending.

The week also includes coverage of the costs associated with investing, including the fees that may be paid to investment managers, and the taxation of investment returns.

We'll also look at the concept of the government bond yield curve and the importance of this yield curve to investment management.

By the end of the week you will understand the features and risks of the products available in the personal investment 'supermarket'.

## 2.1 Variable rate and fixed rate savings products

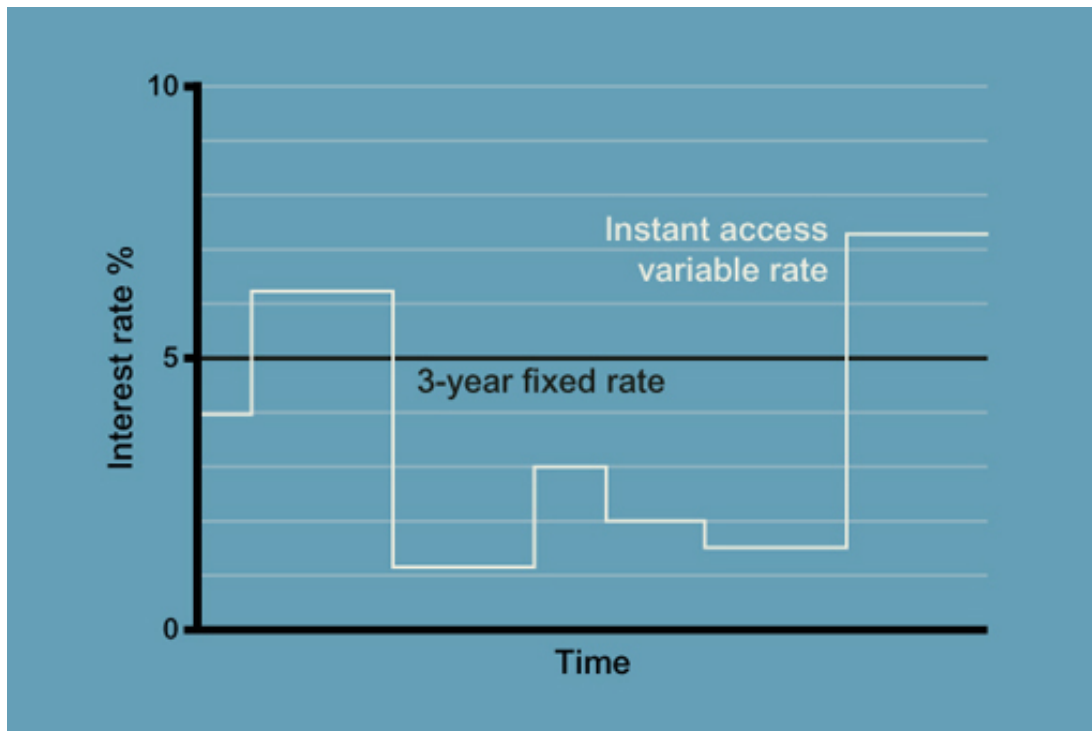


Figure 1 Example of variable rate and fixed rate savings product over time

Begin by listening to the audio, in which a young professional, Ryan, asks for help from personal finance expert Jonquil Lowe in finding his way through the many savings products on offer.

We join their conversation as Ryan asks about a savings product he's come across called a 'term bond'. The other savings options that are described are trackers, variable rate accounts and notice accounts.

Audio content is not available in this format.

In addition to the products discussed in the audio, a new product, pensioner bonds, became available in 2015. The Chancellor, George Osborne, announced this new form of savings account in his 2014 Budget Statement. These first became available from January 2015 to those aged 65 years and over, with a cap on the investment of £10,000 per person per bond. Two pensioner bonds were offered: a 1-year bond offering 2.8% per annum (before tax or 'gross') and a 3-year bond offering 4% per annum gross. These returns, even after tax is deducted, were comfortably above the then prevailing rate of price inflation.

We looked at the impact of price inflation on investment earnings in Week 1, when we examined real interest rates. Index linked accounts are attractive to investors who want to guarantee that their savings are inflation-protected.



In the UK, only National Savings and Investments periodically offers an inflation-proofed savings product in the form of index-linked certificates. For example, holders of the 48th issue five-year certificates are guaranteed to get their original investment (their 'capital') back at the end of five years with interest equal to inflation over the period plus 0.5% a year, in other words a real return of 0.5%. Someone who invested £1000 in these five-year index-linked certificates on the first date of their issue in May 2011 would, on 6 April 2016, have found that they had a valuation of £1172.80, giving a nominal return since the start of the investment of 3.3% p.a. once inflation had been added to the real return. At times of low inflation, the return on index-linked investments can seem unattractive, but they come into their own in periods when inflation is expected to be high. Most savings products do not offer inflation-proofed returns.

## 2.1.1 Spot the highest Annual Equivalent Rate (AER)

Banks and building societies have to display the Annual Equivalent Rate (AER) offered by each product, to enable investors to make comparisons between savings accounts. The AER takes into account not only how much interest is paid, but also exactly when interest payments to account holders are made.

### Activity 2.1 Annual Equivalent Rates

Suppose that a savings account advertises an annual interest rate of 5%, with interest payable either daily, weekly, monthly, quarterly or annually. Which account will have the highest AER?

- ☐ Daily
- ☐ Weekly

The more frequent the payment the more compounding of interest there will be.

- ☐ Monthly

The more frequent the payment the more compounding of interest there will be.

- ☐ Yearly

The more frequent the payment the more compounding of interest there will be.

- ☐ Quarterly

The more frequent the payment the more compounding of interest there will be.

### Discussion

Well done. Daily is the correct answer. The more frequent the payment, the more compounding of interest there will be. Therefore, annual 5% interest paid weekly will have a higher AER than 5% paid monthly, which in turn will have a higher AER than 5% paid quarterly. The table here shows AERs for each period.

**Table 2.1**

	Advertised rate	5%
	Period rate	AER
Daily	0.0137%	5.127%

Weekly	0.0962%	5.125%
Monthly	0.1467%	5.116%
Quarterly	1.2500%	5.095%
Annually	5.0000%	5.000%

## 2.1.2 Savings accounts on offer



Figure 2 Savings account advertisement in a bank window

In the mid-2000s, there were major developments in 'e-banking' or online banking. Online savings (or 'e-savings') accounts can usually only be accessed online. With many accounts, the saver transfers money when needed from their online savings account into their current account electronically, which they can then access as they usually would. Some online accounts have a cash card, so money can be withdrawn via cash machines. Interest rates are usually higher for 'e-savings' accounts because savers themselves manage the account. This reduces the costs to the bank or building society in terms of issuing a passbook or requiring branch availability to make transactions, however some institutions, although not all, require a current account to be held with them as well as the online savings account.

**Table 2.2 Different types of savings account**

Name of account	Interest tier	AER (gross p.a.) %
<b>Internet Savings</b>  An instant access online savings account	£1+	1.25%
<b>Instant Access</b>  An instant access telephone savings account	£1000+	1.35%*
<b>Notice Account</b>  A 120-day notice account	£500+	1.60%
<b>5-Year Fixed Rate Bond</b>  (interest paid annually)	£1000+	2.91%
<b>Instant Access Cash ISA</b>  A tax-free instant access account with cash card	£1+	1.41%

\*Includes bonus in first year of 0.85% gross (0.68% net of tax at basic rate of 20%)

Savings products – some choices (adapted from Moneysupermarket.com, 2015)

### Activity 2.2 Savings accounts

Every high street has multiple offers of different types of savings account from banks and building societies. Take a look at some of these in Table 2.2, and consider these two questions:

- What do you think are the key factors that explain why some accounts offer higher rates than others?
- Why would anyone want to take out an 'Instant Access' account?

Post your thoughts in the [course forum](#) and discuss with other learners. Don't forget to head your post with the number and title of this activity.

### 2.1.3 Why savings rates differ

In Table 2.2 that you just looked at, the five-year Fixed Rate Bond and the Notice Account both have higher net rates than the Instant Access account. The amount saved also influences the rates offered for both Instant Access and Notice accounts: the higher the savings deposited, the higher the rate.

The Internet Savings account can offer higher rates due to the lower costs of managing the account. Despite this, some people will still choose the most basic Instant Access account, mainly because it provides plenty of flexibility, with instant access using a cash card, so that money can be accessed night or day. The downside is the lower interest rate on offers.

The ISA (Individual Savings Account) is not subject to tax so all savers get the full (or gross) amount of interest. To encourage saving, the annual limit for investments in ISAs is £20,000 per person in 2018/19.

In the March 2016 budget statement it was announced that a new 'Lifetime ISA' would be available from April 2017 for those aged under 40 years. These new ISAs will allow tax-free savings of up to £4,000 per annum with the government topping up balances by £1 for every £4 saved. Lifetime ISAs, which can be built up until the age of 50 years, are intended to help people save for property purchase or to help provide income in retirement. To support this development the overall ISA limit (for both ordinary and lifetime ISAs combined) was raised to £20,000 from the 2017/18 tax year.

A new savings scheme for those on low incomes was also unveiled in March 2016 with those on in-work benefits who save £50 per month for up to 4 years getting a 50% (up to a maximum of £1200) top up from the government.

While this and the previous section focus on differentials between types of savings accounts, the general level of rates will be related to the Bank of England's Bank Rate. If Bank Rate rises then, perhaps with a short delay, savings rates will normally rise too. A falling Bank Rate will normally result in falling savings rates.

The difference, or 'margin', between Bank Rate and the general level of savings rates is prone to variation though. The circumstances under which the margin is low are when banks and other financial institutions are not keenly seeking funds from savers. This can be where:

- The amount of new lending being undertaken by banks and other lenders is low – so creating only a limited need for funds to support this lending.
- Alternative sources of cheaper funding are available from the **wholesale financial markets** (other banks and institutions), with the result that savings from personal investors are not needed. In Week 1 you saw how the Funding-for-Lending Scheme provided such cheap funds to lending institutions from 2012 with the consequent adverse effect on the general level of savings rates for personal investors.

By contrast the margin over Bank Rate for the general level of savings rates will be high where:

- The amount of new lending being undertaken by lending institutions is high.
- There are limited alternative sources of funding, at reasonable rates of interest, to personal investors' savings. This scenario applied during and immediately after the 2007/08 financial crisis when banks and other lenders had difficulties accessing reasonably priced funds from the wholesale markets.

## 2.1.4 Savings accounts – are there risks?

In this video, Simon Katte of the government's Money Advice Service (MAS) talks about the risks arising from savings and investments.

Video content is not available in this format.





## 2.2 Investing in shares



Figure 3

In personal finance, the terms 'savings' and 'investments' have different meanings.

Savings accounts refer to any form of deposit account that pays interest on top of the amount deposited. The amount deposited is not at risk unless the institution defaults. Investments (which can include shares, bonds or investment funds that can hold these types of asset) also allow interest or dividends to be paid but, crucially, the investment itself can fall or rise in value – these products will warn you about this in the small print. This means that it is not income alone that is relevant (as the rate of interest is on savings products) but the total return, which may be made up partly of income and partly of the change in the value of the capital. If the price of the investment goes up, a capital gain will be made, but if the price goes down, a capital loss is made.

With increased regulation of financial intermediaries and other financial firms, including the actual providers of savings and investment products and their company salespeople, and the requirement to explain fully the characteristics of the financial products they sell, mis-selling of financial products should, in theory, be unlikely, but it still happens.

Not everyone reads the small print on documents, or understands all the choices and all the products' details, but the saying 'the safest way to double your money is to fold it in half' is perhaps a reminder that promises of high returns usually carry higher risks. This can be linked to a risk–return spectrum. Products with low risks tend to have lower returns, and those with higher risks have potentially higher returns, as you see in the graph.

Later this week and next week you explore investment funds, which represent the usual way that personal investors invest in the stock markets. You may think that investments are not relevant to you, but if you have pension savings or save regularly through a life



insurance policy, then whether you know it or not, you are an investor! To understand the nature of these funds, you will first take a quick look at how shares and bonds work, since these are the fundamental building blocks of most funds and many other investments.

Before you move on, bear in mind that the definition of the difference between savings and investments being used in this course is not a universal one. In particular, some products that are advertised as being 'long-term savings products' may well involve shares or other forms of investment, and so their value can go down as well as up.

## 2.2.1 More on shares

**Table 2.3 Share prices of selected UK high-street retailers, 27 November 2017**

High	Low	Company	Price	+/-	yield	P/E
456	303	JD Sports	329	-4	0.4	17.9
395	298	Marks and Spencer	300	+2	6.2	22.3
253	207	Morrison (W)	212	Unch	2.5	14.0
5320	3617	Next	4275	-31	3.7	10.0
218	167	Tesco	193	Unch	–	34.4

Prices rounded to nearest penny

Unch = 'unchanged'

Where no dividend is paid there is no measure for yield

(The Times, 28 November 2017, p 53)

Shares are sometimes called 'equities'. They entitle the holder to a share or part ownership in a company. Depending on the type of share, this may entitle the shareholder to vote on how the company is run. Shares also usually entitle their owners to receive dividends, paid by the company out of the profit it makes. The receipt of these dividends is, for the shareholder, the income element of the return from their investment in the shares.

Look at Figure 4 showing some UK companies' share prices. Below is an explanation of the information presented in the columns of the table. Take time to familiarise yourself with the key terms that are used when analysing the performance of a company's shares.

- High: the highest price of share in a certain time period, for example over the last year.
- Low: the lowest price of share in a certain time period, for example over the last year.
- Company: the name of the company whose shares are shown in the table.
- Price: the current price of share, shown in pence.
- +/-: change in share price from the previous day.

- Yield: the dividend income per share after tax expressed as a percentage of the price of the share. High figures can suggest higher income from investments, but a high yield can also indicate that the company is not growing very fast or is quite risky.
- P/E: the 'price/earnings ratio' is the share price divided by the earnings per share. So, if the share price is 200 pence and the earnings per share are 5 pence the P/E ratio would be 40 (note that earnings are the company's profits after tax, i.e. net profits). Investors are prepared to pay more for shares whose earnings they think are going to rise strongly, so demand pushes up the share price, which in turn increases the P/E ratio. The P/E ratio is often seen as a barometer of confidence in a company's prospects.

Further analysis of the performance of a company's shares can include:

- Tobin's Q: the value the stock market puts on a company (measured as the market value of its shares and debts) divided by the estimated cost of replacing all the company's assets. A value less than 1 suggests the company is undervalued.
- Dividend cover: earnings per share divided by the net dividend per share. A high figure suggests a secure company with strong profitability. A figure less than 1 is a sign that the dividend may be cut or even cancelled in the future.
- Dividend payout ratio: this equals  $1/\text{dividend cover}$ .

The price at which a particular share can be bought or sold will vary from minute to minute depending on the balance of investors who want to buy them and existing holders who want to sell. If investors are able to sell shares at a higher price than they originally paid, they make a capital gain. If they sell for less, they make a capital loss.

Shares are bought through a stockbroker. A stockbroker can be found in high-street banks or through the internet, or through the [Wealth Management Association](#). For online stockbroking, there may be a flat-rate charge for any transaction, say £12 for one-off trades, or £10 per trade for frequent traders. It is not usually worth buying or selling shares in very small amounts of less than a few hundred pounds. Conventional stockbrokers may also charge a percentage commission on the value of the transaction subject to a minimum commission. You will find out more about transactions costs later this week.

Stamp Duty Reserve Tax (SDRT) of 0.5% is paid when shares are bought electronically (which the vast majority are these days). SDRT is not paid when shares are sold. Share prices can be seen in most newspapers that report daily on share prices as well as on other information.

## 2.2.2 When do shares offer good value?



Figure 4

An investment in shares may be expected to produce a stream of payments, but remember there are some very important differences:

- shares do not have a redemption date
- the amount the investor gets back on sale depends on the market price at that time
- dividend payments are not contractual or guaranteed
- the amount of each dividend may vary.

This means that there are many possible outcomes, depending on how well the company performs, the proportion of its profits paid out in dividends to shareholders, and how the share price performs over the holding period.

Estimating the intrinsic value of shares is the essence of **fundamental analysis**. In a classic work on the subject, Graham and Dodd's *Security Analysis*, the authors (Cottle et al., 1988) define the intrinsic value of a company as: 'its economic value as a going concern, taking account of its characteristics, the nature of its business(es), and the investment environment'.

Fundamental analysis is an important technique, widely used by people working in the financial services industry. While some personal investors carry out their own analysis, more often they rely on reports and forecasts from stockbrokers, but some understanding of the techniques, ratios and measures used by analysts is necessary to interpret these reports.

### 2.2.3 Shares – more on when they are good value



Figure 5

A key task for analysts is to estimate a company's future earnings and to give some idea of how confident they are that their forecasts will prove correct. There are various ways in which the analyst can work from the earnings forecasts to estimating the return from investing in the company's shares. One is to assume the proportion of earnings that will be paid out as dividends (called the **dividend payout ratio**). This produces a stream of future dividend payments that can be discounted to produce the present value of the company's shares.

The stream of payments must include an estimate of the price at which the shares will eventually be sold. But assuming that it matches the intrinsic value, that future sale price will itself reflect the present value of the future dividends to be paid to the new shareowner. Therefore, instead of trying to estimate the sale price directly, the present value of the shares can be assumed to equal a discounted stream of dividends that goes on being paid indefinitely. This is called the **dividend valuation model**. In its most basic form, the model assumes that dividends continue at their current level. Other forms of the model allow for dividends that increase over time either at a steady growth rate or at a reduced rate once an initial period of rapid growth has passed. These models cannot be used to value companies that have yet to start paying dividends – typically relatively new, high-growth firms.

Another commonly used bridge from the analyst's earnings forecast to a share valuation is the price–earnings (P/E) ratio. This is the share price divided by the company's yearly earnings per share. The resulting number can loosely be thought of as the number of years that it would take to recoup the price paid, but its main function is as a measure of relative value. For example, suppose that the analyst has forecast that earnings for a drug company will be 20 pence per share next year and the P/E ratio for the pharmaceuticals and biotechnology sector is 9.6. The analyst could estimate the intrinsic value of the

company's shares as  $9.6 \times 20p = 192p$  per share. The valuation can then be compared with the actual market price to assess whether the shares look cheap or overpriced. Once again, this technique cannot be used to value companies that have no earnings, since this makes it impossible to calculate a P/E ratio.

Investors more often start by looking at a company's P/E ratio, then compare it with the ratios for similar companies or the relevant sector as a whole. A high P/E ratio may indicate investors' expectations that a company's earnings are set to rise significantly, but equally it could suggest that the shares are overpriced. Investors may also use dividend cover, Tobin's Q and the dividend payout ratio (as discussed in [Section 2.2.1](#)) to analyse a company's prospects.

Any one investor is comparing the value that he or she puts on a share with the price in the market, which from the individual's point of view is a given amount determined externally and over which the investor normally has no influence. However, it is worth bearing in mind that the market price is set by the collective actions of all investors, so that the price can be seen as an average of all investors' views about the value of the share.

## 2.2.4 Share valuation

This short quiz is a chance to quickly check what you know about share valuation. There's no mark for this.

### Activity 2.3 What do you know about share valuation?

#### Q1

What would the fair price be for a share in a company

- with expected annual earnings of 30 pence per share?
- with a sector (price-earnings) P/E average ratio of 15?

☐ 2 pence

You may find [2.2.3 Shares – more on when they are good value](#) useful.

☐ 450 pence

☐ 45 pence

You may find [2.2.3 Shares – more on when they are good value](#) useful.

☐ 0.5 pence

You may find [2.2.3 Shares – more on when they are good value](#) useful.

#### Discussion

The 'fair' share price is 30 pence  $\times$  15.

#### Q2

What is a company's 'dividend cover'?

☐ pre-tax profits divided by the total cost of dividends

You may find [2.2.1 More on shares](#) useful.

☐ share price divided by earnings per share

You may find [2.2.1 More on shares](#) useful.

☐ earnings per share divided by net dividend per share



- dividend income per share as a percentage of the share price.

You may find [2.2.1 More on shares](#) useful.

#### Discussion

The ratio shows how well placed a company is financially to pay its shareholders a dividend.

## 2.2.5 Shares to follow

Armed with what you have learned about shares and the factors affecting their valuation, it is now time to start tracking the prices of the shares of selected companies.

The selected companies are:

- Anglo American – the international mining company
- BP – the oil company with a global profile
- Marks and Spencer – the UK focused retailer with overseas activities
- Tesco – the UK supermarket company with a major presence in other countries
- Rank – the media company
- Rolls Royce – the UK engineering company specialising in aerospace
- Royal Bank of Scotland – the UK bank that is currently largely owned by the UK Government after its rescue in 2008 during the financial crisis

### Activity 2.4 Tracking shares

This is an activity you should carry out in your own time, either as you work through the course or when you have completed it.

You just need to check the prices for the selected companies once a week and enter their level in the [Market shares tracking worksheet](#). Do this every week for this and the next four weeks.

In later weeks, we'll also ask you to monitor the prices of two UK government bonds – you learn more about these later this week. As you know, the Bank of England's Monetary Policy Committee (MPC) sets the official rate of interest for the UK (also known as Bank Rate) each month. The decisions are normally announced at 12 noon on the Thursday after the first Monday of each calendar month. So whilst studying Managing My Investments you should monitor and record the level of Bank Rate and look out for the monthly decisions of the MPC. At the time of writing (November 2018) the rate was 0.75%. The prevailing level of Bank Rate can be found on the Bank of England's web site or in the financial press.

The BBC maintains a tool that you can use for tracking market data, which you can use to [track the shares listed above](#). You can also track the prices and yields on UK government bonds (gilts) using the link provided later in this session in the section on 'Gilts and the risk-free yield curve'. Alternatively, you could pick up a copy of the Financial Times.

Some of these companies may be reporting their latest financial figures while you are making your observations – so it will be interesting to see how the markets and their share



prices react to their financial results. This can give us further evidence about the factors that drive share prices.

Two points to remember, though:

- At the same time that specific factors about their performance will be influencing the share prices of these companies, general factors affecting the equity markets as a whole will also be impacting. You looked at the generic drivers of equity markets, such as the pace of economic growth in the UK and other economies, in Week 1. So it is important to see how the share prices of our companies perform not just in absolute terms, but also relative to the market as a whole.
- As discussed earlier, the levels of share prices reflect the aggregate market view of the performance and prospects for companies. This is important when seeing how share prices react to the publication of financial results. Even if the results look, on the face of it, to be 'good', the share price of a company may fall if they are not as good as forecast. The reverse applies if a company posts weak results: if these are not as bad as had been forecast, then the company's share price might rise! This illustrates an important point: share prices don't just reflect what is known about a company and its performance, but additionally reflect what is expected in terms of future performance.

## 2.3 Bonds (fixed interest investments)



Figure 6

The other main kind of financial investment product is a bond, which can be issued by companies or governments. Bonds are also referred to as fixed interest investments.

A bond generally represents a promise to pay a regular rate of interest over a fixed period, from one to 50 years, plus the promise to repay the nominal value (also known as the face value) of the bond (say, £100) on the maturity date. The interest rate is normally fixed, for instance, at 5% or 10% of the nominal value each year.

The nominal value is the amount on which the interest is calculated and can be divided into small amounts for sale, usually £1000 or less. For example, an investor could buy £100 nominal of a 'five-year 5% bond'. This will pay 5% a year for five years on £100 nominal – that is, £5 a year. The interest may be paid quarterly, semi-annually or annually, depending on the type of bond bought. At the end of the five-year period, an investor would receive £100 in repayment of nominal (or 'face') value.

Bonds tend to be less risky than shares because they have a promised interest rate and because company bonds rank in front of company shares in the event of a company being liquidated. Although less risky than shares, bonds are riskier than savings accounts. This is because with savings products typically the amount of capital you receive back is fixed – if you deposit £100, you get £100 back.

With a bond, the amount paid back on maturity is also fixed (but may be more or less than the amount paid for the bond). However, if the bond is sold before maturity, then more or less than the promised nominal amount may be paid. Whether it is more or less will depend on movements in the level of interest rates after the bond has been issued. If interest rates fall, the market value of an earlier issued fixed rate bond will rise since it

offers investors an interest rate higher than that currently being offered on newly issued bonds. The reverse applies if interest rates rise.

An additional risk of bonds is if the issuer of a bond defaults. UK government bonds, known as gilts, are seen as safer than bank and building society accounts, as the government is even less likely than a bank or building society to default. Bonds can be bought through stockbrokers or, in the case of gilts, through a special Purchase and Sale Service organised by the Debt Management Office, the government department responsible for issuing government debt.

One problem with bonds is that not everyone means the same thing when they talk of a 'bond'. The kinds of bond we have described are company or government bonds with a fixed interest rate and a fixed repayment date. But the term 'bond' has sometimes been taken in vain. Financial intermediaries have sold bonds that were in effect shares by another name. Similarly, long-term savings products may not only be bank accounts promising interest, but also linked to company bonds or shares. There is no regulation in the UK on terminology, and consequently it is important to read the small print of any product.

Some National Savings & Investment products use the name 'bond', for example, Premium Bonds and Income Bonds, but are types of deposit. A range of products, some that are deposits and others more risky investments, used to be called Guaranteed Equity Bonds. Although they have since been reclassified as 'structured products', they still individually go by names such as Capital Bond, Stockmarket Linked Bond and Double Asset Bond. Therefore, in reality, the term 'bond' is applied to products that are very different, and not just company or government bonds. To get round this confusion, you will also see true bonds referred to as 'fixed interest' investments (as noted earlier in this section).

An important product that does not fit within the bonds category that we have described is the Premium Bond. Premium Bonds, owned by 22 million investors in the UK in 2013, are a lottery-based form of savings account backed by the UK government. A lottery is held every month and the equivalent of 1.3% p.a. (in 2017) on all the Premium Bonds is paid out in tax-free prizes.

## 2.3.1 Gilts: UK government bonds

An important form of bonds are those issued by the UK Government through the Debt Management Office (DMO).

These bonds are known as 'gilts' or 'gilt-edged stock', reflecting both the gold gilt that used to be set around the edge of the bonds and the fact that they are generally accepted as being an investment with no realistic risk of default by the issuer (the UK Government).

Most gilts offer a fixed-rate coupon to investors – paid semi-annually and most are issued with maturities of between 5 and 30 years. Some gilts have a zero coupon, though, which means that investors receive no income stream from them. These are issued at a discount so the return to the investor if held to maturity is the difference between the discounted price paid on purchase and the face value paid back on the maturity date.

Some gilts have no maturity date. These 'undated' gilts, sometimes also called 'consols', just pay an income stream to investors in perpetuity or until the UK Government decides to cancel them and repay investors. This has happened recently. In February 2015, £218 million of undated gilts issued in 1927 to help refinance debts arising from the First World War were redeemed. The Government is also looking closely at the case for redeeming

£2 billion of other undated gilts issued after the First World War. The reason for these developments is financial rather than emotional, despite the centennial anniversary of the war, the cost of these gilts to the Government is now higher than the cost of newly issued gilts given in the UK's current low interest rate environment.

Gilts are marketable and can be traded at any point up to their maturity. As a consequence, the capital price of gilts will move in accordance with market movements. The key relationship here is that the capital price of a gilt will move inversely to movements in interest rates.

Let's try an example. Let's say that in 2010 a 10-year gilt was issued paying an annual coupon of 6% per annum. For this example, the face value of the gilt is £100. In this case, £100 is what it cost to buy on the issue date and this is what it will return to the investor holding the bond on its maturity. Note, though, that gilts may be sold on their issue date at a discount or premium to their face value.

Five years later, in 2015, interest rates have fallen such that new 5-year gilts could be issued at an annual coupon of 2% per annum. However, that 10-year gilt issued in 2010, which has 5 years to run until maturity, still pays investors 6% per annum as the coupon is fixed for its life.

So what should have happened to its capital price that was £100 on its issue date? The answer is that it would have risen to reflect the fact that investors will receive 4% more from holding this gilt (with its residual life of 5 years) than they will get from buying a newly issued 5-year gilt.

In very crude terms investors will be happy to pay roughly 20% more than the face value of £100. This equates to the 5 years of higher interest ( $5 \text{ years} \times (6\% - 2\%) = 5 \text{ years} \times 4\% = 20\%$ ) they will receive holding the 6% coupon gilt than the 2% coupon gilt. In approximate terms, the price would rise to £120.

Now, on maturity, the investor would still only get back the £100 face value, generating a capital loss of £20. But this loss is fully compensated for by the higher coupons received during the 5 years of £20 in total ( $5 \times 4\% \times £100 = £20$ ).

The overall return or yield – or **gross redemption yield (GRY)** – to the investor ends up being £30 ( $5 \text{ years} \times 6\% \times £100 = £30$ ) less the capital loss of £20 – a net total of £10. This matches the return over the 5 years of 2% on the newly issued gilt ( $5 \text{ years} \times 2\% \times £100 = £10$ ).

So, while the coupon offers 6% per annum, the overall yield to the investor from buying the 6% coupon gilt with a residual life of 5 years matches the market rate for a new 5-year gilt of 2% per annum.

Note that the maths is a little approximate here – the exact returns would have to take into account the timings of the coupon payments. In the first example above, the exact price that the £100 6% coupon gilt would have risen to, with 5 years to maturity and a prevailing rate of return for 5 year gilts of 2% per annum, would be £118.85. This is achieved by discounting future cash flows relating to the bond by the prevailing market yield. This is a little complex. But the principle is clear: the capital price of existing fixed interest rate bonds moves inversely to movements in the prevailing rates of interest.

## 2.3.2 Gilts and the risk-free yield curve

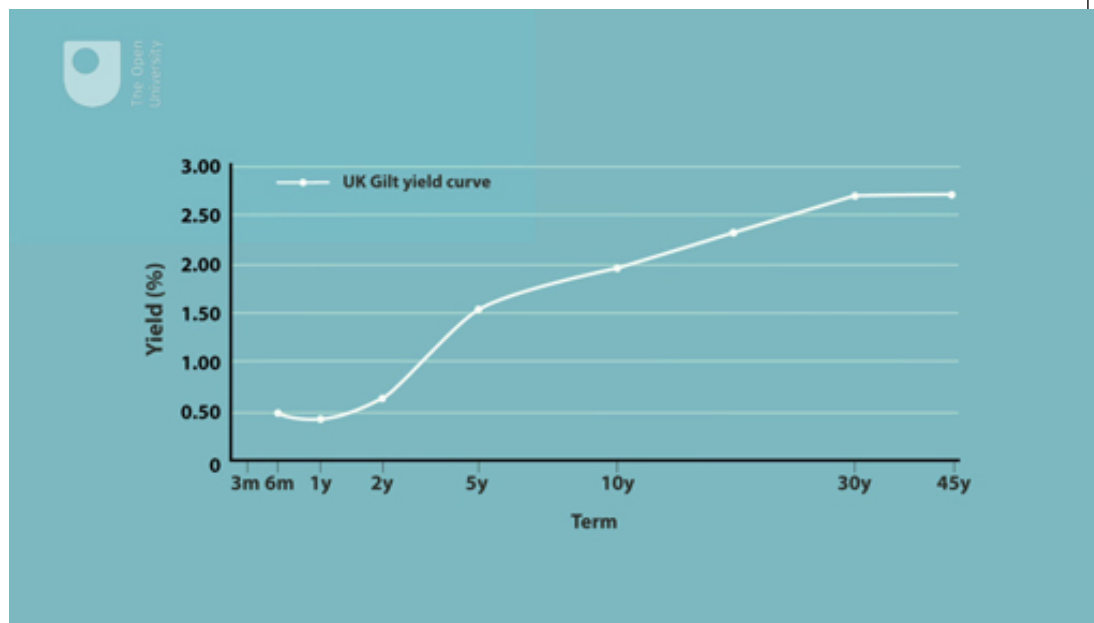
The returns on government bonds (or 'gilts') perform a key function in the arena of personal and business finance. The yields provide what is known as the 'risk-free' yield

curve – the returns you can get for investing in secure ('default-free') bonds for different terms to maturity.

Watch and listen to this audio-animation to learn about the 'risk-free' yield curve.

You can track the risk-free yield curves using this [bond prices & yields tool](#). You'll be reminded to check how the yields alter over the coming weeks of Managing My Investments.

Video content is not available in this format.



### 2.3.3 Corporate bonds and their pricing

Corporate bonds are loans to a company that work in essentially the same way as government bonds. The main difference is default risk. While investors may be confident that a government will repay its loans, a company might not. To compensate for default risk, the return on corporate bonds is normally higher than the return on government bonds with a similar maturity – this premium is called the 'corporate bond spread'.

Figure 8 shows by how many basis points the return on different types of US investment-grade corporate bond exceeds the return on government bonds. A basis point is one-hundredth of a percentage point, so a spread of 100 basis points means a premium of 1 per cent over the return on a comparable government bond. During 2008, spreads widened dramatically, especially for banks and other companies in the financial sector. For most of the preceding decade, the spread was generally between 50 and 150 basis points (Bank of England, 2008, p.11). By 2009, the spread for financial sector bonds had widened to nearly 800 basis points. This wide spread reflected the global financial crisis and fears of an ensuing recession, indicating investors' perception of an increasing risk of companies defaulting and high uncertainty about the future of the economy and investment markets.



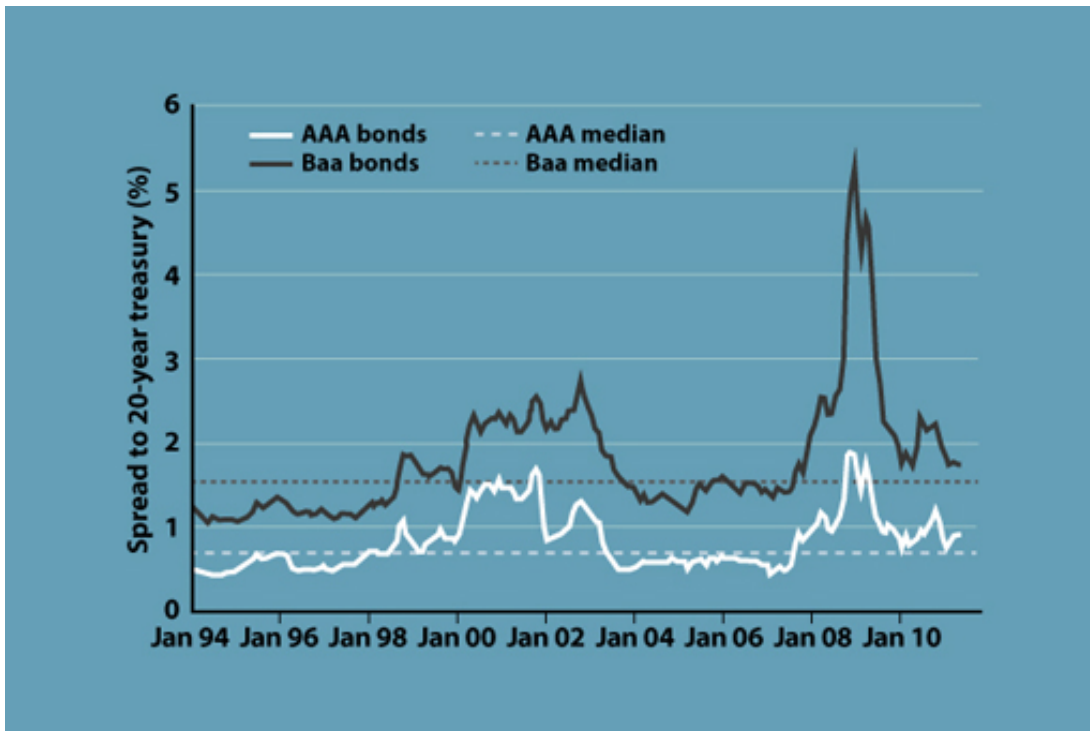


Figure 7 Comparison of returns on different types of US investment-grade corporate bond with the return on government bonds

After 2009 spreads started to narrow again as some semblance of calm returned to the financial markets. Few investors, personal or professional, have the time or means to investigate the credit worthiness of a company. One way to deal with this information gap is to refer to a credit rating agency, an organisation whose business is assessing risk and disseminating this type of information. The list below shows the rating scale used by one of the main international agencies. Personal investors will normally be looking only to invest in 'investment-grade' bonds, as defined in the figure. At the top end of the scale, a company assigned a 'AAA' rating is thought very unlikely to default on its bond payments, but this is not a guarantee or seal of approval – there is still some risk. The extent to which investors can and should be able to rely on the information from credit reference agencies is discussed later.

## General summary of the opinions reflected by Standard and Poor's credit ratings

### Investment grade

- AAA** – Extremely strong capacity to meet financial commitments. Highest rating.
- AA** – Very strong capacity to meet financial commitments.
- A** – Strong capacity to meet financial commitments, but somewhat susceptible to adverse economic conditions and changes in circumstances.
- BBB** – Adequate capacity to meet financial commitments, but more subject to adverse economic conditions.
- BBB-** – Considered lowest investment grade by market participants.



### Speculative grade

**BB+** – Considered highest speculative grade by market participants.

**BB** – Less vulnerable in the near-term but faces major ongoing uncertainties to adverse business, financial and economic conditions.

**B** – More vulnerable to adverse business, financial and economic conditions but currently has the capacity to meet financial commitments.

**CCC** – Currently vulnerable and dependent on favorable business, financial and economic conditions to meet financial commitments.

**CC** – Currently highly vulnerable.

**C** – A bankruptcy petition has been filed or similar action taken, but payments of financial commitments are continued.

**D** – Payment default on financial commitments.

Ratings from AA to CCC may be modified by the addition of a plus (+) or minus (–) sign to show relative standing within the major rating categories.

(Standard & Poor's, 2009)

## 2.3.4 Investment funds



Figure 8 Different investment funds

Buying shares in a single company or even holding shares in, say, three companies, is generally a risky form of investment. This is because the fortunes of a company, on which its dividends and share price depend, are subject to all sorts of risk. These risks can be broad economic risks, such as recession or an increase in the cost of oil, or risks specific to each company, such as the loss of a major contract or increased competition.

To spread these risks, investors typically invest in shares (and other assets, such as bonds) through investment funds. An investment fund pools the money of lots of investors and uses it to hold a wide range of shares, bonds and other assets. Even relatively small amounts of money placed into such funds can be spread across a wide variety of shares or other assets.

The investments in these investment funds may be selected by managers, based on their research, which aims to assess the prospects for shares and other bonds (called 'actively managed' funds). Investors pay fees for the services of the fund managers and are provided with periodic reports on their investments. Other funds (called 'passively managed' or 'tracker' funds) simply hold investments designed to move in-line with a specified share index, and typically have lower charges.

Investment funds come in many forms, including the following:

- **Unit trusts** – this is an arrangement whereby trustees hold shares and/or other assets on behalf of investors and a management company makes decisions about what and when to buy and sell. Investors hold units in the unit trust and the value of the units directly reflects the value of the underlying assets in the fund. The price of the unit trust is not, therefore, moved by market demand and supply for the units.
- **Open-ended investment companies (OEICs)** – this is very similar to a unit trust, but is structured as a company rather than a trust. This structure is more familiar and acceptable to investors in other countries of the European Union and so enables managers to trade more easily across borders. Investors buy shares in the OEIC and the value of the shares directly reflects the value of the assets in the underlying fund.
- **Investment trusts** – these are companies that are quoted and traded on the stock market. But, unlike trading companies, the purpose of an investment trust company is to run an investment fund. Investors buy shares in the company. The price of the shares reflects both the value of the assets in the underlying fund (called the 'net asset value' or NAV) and the balance between investors buying and selling the shares on the stock market. As a result, the shares could trade at less than the NAV (called trading at a discount) or at more than the NAV (trading at a premium). Like any other company, investment trusts can borrow money, which enables them to boost the amount they can invest. Borrowing to invest increases the inherent risk of the fund.
- **Exchange-traded funds (ETFs)** – these are also companies traded on the stock market but, in this case, the share price is directly linked to the value of the underlying investments. Traditionally, ETFs are tracker funds. This could be, for example, the FTSE 100 Index or a more unusual index tracking, say, the price of commodities or works of art. But, increasingly, new types of ETF are being developed that follow different investment strategies.
- **Life insurance funds** – some types of life insurance can be used as investments. The investor pays in regular premiums or a single lump sum premium and the policy builds up a cash value that may be drawn out either as a lump sum or as a stream of income payments, depending on the particular type of policy. Often policies are unit-linked, which means that the premiums are invested in the policyholder's choice of one or more funds, similar to unit trusts. The cash-in value of the policy depends on the performance of these funds.
- **Pension funds** – in a similar way to life insurance, contributions to a pension scheme may be invested in one or more underlying funds. The value of the pension

scheme depends on the performance of those funds. We'll spend a lot of time this week exploring different types of pension schemes.

Investment funds can be bought directly from fund managers, through stockbrokers or through websites (often called 'platforms'). You'll look at the transaction processes and costs in more detail later this week.

An additional consideration for many people is a desire to invest their money in a socially responsible way. There are different aspects to what constitutes socially responsible investment, including both positive and negative criteria.

Positive criteria include investing in companies that treat workers fairly or are engaged in environmental protection. Examples of negative criteria include avoiding funds that invest in companies involved with animal experiments, arms, violating human rights or pornography.

One difficulty for an investor is that ethical or social responsibility is a relatively subjective term so you need to examine where the fund invests your money. One way of checking whether a fund that claims to be ethical or socially responsible shares your own views, is to check the main companies the fund invests in. You'll return to ethically and socially responsible investment next week when you look at alternative investment strategies.

### 2.3.5 Investment funds: alternative risk profiles

The previous section set out the types of funds available to investors.

Figure 10 provides a classification of the different categories of investment funds.

ALL FUNDS						
CAPITAL PROTECTION	INCOME			GROWTH		SPECIALIST
	FIXED INCOME	EQUITY	MIXD ASSET	EQUITY	MIXED ASSET	
Money Market	UK Gilts	UK Equity Income	UK Equity and Bond Income	UK All Companies	Mixed Investment 0-35% Shares	Personal Pensions
Short Term Money Market	UK Index Linked Gilts	Global Equity Income		UK Smaller Companies	Mixed Investment 20-60% Shares	Property
Protected	£ Corporate Bond			Japan	Mixed Investment 40-85% Shares	Specialist
	£ Strategic Bond			Japanese Smaller Companies	Flexible Investment	Targeted Absolute Return
	£ High Yield			Asia Pacific Including Japan		Technology & Telecommunications
	Global Bonds			Asia Pacific Excluding Japan		
	Global Emerging Market Bond			China/Greater China		
				North America		
				North America Smaller Companies		
				Europe Excluding UK		
				Europe Including UK		
				European Smaller Companies		
				Global		
				Global Emerging Markets		

Figure 9 The Investment Association replaced the Investment Managing Association (IMA) in 2015 (merging the IMA and the investment affairs division of the Association of British Insurers, ABI)

Source: The Investment Association, 2015

This array of different fund sectors provides the scope to pursue alternative strategies and objectives when managing investments. These include:

- Managing the split of investments between those that are expected to provide income and those expected to provide capital growth. With income and capital growth taxed separately, this enables investors to maximise the benefits of their tax-free allowances.
- Managing the extent to which investments are diversified. Risk-averse investors will tend to see funds that include a range of exposures to different industries or countries or continents. Investors who want to take the risk of focusing on individual sectors or geographic exposures, because of a view they have about the prospects of outperformance, can seek out specialist funds.
- Selecting between funds which are actively and cautiously managed, depending upon the appetite for taking risk.
- Using funds to manage exposure to different asset classes like gilts, corporate bonds, cash investments, property, commodities etc.
- Making decisions about the size of companies invested in. Investing in small companies tends to be riskier than investing in larger companies but the potential returns tend to be commensurately higher too. Why do think this is the case?

## 2.3.6 Investment funds: how to choose between them

We have looked at the extensive range of investment funds on offer. Now Anthony Nutt, a retired investment director and fund manager, provides his thoughts on how personal investors should go about the process of deciding which funds are best for them.

Video content is not available in this format.



[In this and subsequent extracts of the discussions with Anthony Nutt investors and financial professionals are sometimes referred to as 'he'. This should not be taken to mean, though, that gender constraints apply in any way to engagement with, or employment in, financial services.]

## 2.4 Investing in commodities



Figure 10 Example comparison of gold and silver prices over time

A further category of investments is commodities. This is where the investment is made in assets like oil, gold and other metals or even agricultural products.

Generally there are two major attractions to these investments

- The prices of commodities tend to rise during periods of price inflation. They consequently offer a 'hedge' against the risk that inflation erodes the real value of your investments.
- Commodity prices also often move in the opposite direction to other asset classes like shares and property. Indeed, during periods of weakness in equity markets investors are inclined to move to gold. As a consequence, investing in commodities can be an effective way to balance the risks on a portfolio also containing assets like shares and property.

The other side of the coin, though, is that commodity prices can be volatile and are certainly at risk of periodic sharp falls. You can see this in the chart above which depicts gold and silver prices between 1965 and 2015. In some ways, such investments have the same risk as investing in an individual share as opposed to investing in a balanced portfolio of shares.

How can investments in commodities be made? A number of options exist.

First, where practicable, the investments can be made in physical form with the commodity itself being purchased and stored. This is feasible when it comes to commodities like gold – witness the trade in gold coins. There are, though, insurance issues that need to be considered when doing this given the risk of physical loss through



theft etc. Additionally, for the ordinary investor, stockpiling holdings of commodities like oil or corn will simply be impracticable.

Second, investments can be made by trading in those commodities which have an active futures market. This is investors can take positions both buying and selling future delivery of commodities in non-physical form via a financial market. If you want to add a commodity to your portfolio you can simply enter into a contract to buy it at a defined future price and, conversely, contract to sell if you are reducing your holding. Engaging in these contracts, though, does require some sophistication both in terms of understanding how futures markets operate and in being able to comply with the operational aspects of being a futures trader.

A third option is simply to buy the shares on companies whose financial performance is most related to the underlying commodity you want to invest in. So mining companies' shares could be bought if you want to invest in defined metals; oil companies' shares can be bought if you want to invest in oil. While this presents a straightforward way to get exposure to commodities this method of investment has weaknesses. In many cases, the financial performance of such companies and the movements in their share prices are only loosely correlated to the commodities associated with them. The performance of major oil companies, for example, is linked to an array of factors, like the taxation of petrol, which are unrelated to the price of oil.

The fourth option is, arguably, the most secure route to gaining exposure to commodities: invest in funds that track the price of a specific commodity or defined basket of commodities. This can be done by placing money into exchange traded funds (ETFs) – you'll look more at ETF's next week. This way of investing in commodities is reasonably simple and affords the ability to customise and risk manage your exposure to commodities.

### 2.4.1 Investing in peer-to-peer products



Figure 11

Beleaguered savers who have seen returns on their accounts fall to miserly levels in the last two years, to levels below the rate of price inflation, are being increasingly tempted by the burgeoning alternative investment product of peer-to-peer (P2P) lending. Many P2P providers have emerged in recent years including Zopa, Landbay, Funding Circle, Ratesetter and Wellesley & Co.

This growing market involves savers pooling their funds with other investors to on-lend to individuals and businesses. The P2P providers undertake the credit checks on those borrowing from the schemes. There are no banks or other financial intermediaries. The returns offered by investing in a P2P pool are attractive relative to those on ordinary savings accounts. In mid-2014, a 5-year fixed deal offered savers a pre-tax return of 5.2% p.a. – comfortably in excess of the best returns then offered by the best of the fixed-rate accounts of the same term of roughly 3.25% p.a. The attractions of investing in P2P accounts may be further enhanced if, as expected, they become allowable for inclusion from this year in New ISA (NISA) accounts, where returns are free of tax. Investors can also link their lending to their personal and ethical fads with, for example, investments in eco-friendly wind turbine projects available through P2P lenders.

The attractions of this alternative investment have seen this form of lending growing to £1.48 billion since 2010, according to the latest data provided by the Peer2Peer Finance Association.

Note that peer-to-peer lending is different from crowdfunding. Peer-to-peer lending provides loans, whereas crowdfunding provides equity finance to companies. In effect, crowdfunders are buying shares in the companies they are lending to.

Although P2P is regulated by the Financial Conduct Authority (FCA), it does have risks that savers need to be aware of. Risks certainly exist – why else would the returns markedly exceed those on no-risk investments like National Savings & Investments

(NS&I) products? The key risk is of defaults by those who have borrowed from P2P funds – although those managing the funds mitigate this by spreading the funds invested by savers across a number of borrowers. Even if the money lent is fully recovered from a defaulting borrower, there is likely to be a long wait to receive back the funds you invested. To date, defaults have been low – perhaps helped by the low-interest environment for those borrowing via P2P. Zopa's default rate has been quoted as being as low as 0.01%, while Ratesetter's has been 0.35%.

Another risk is that the taxation of P2P investments is applied on returns prior to the deduction of bad debts. So, if the return prior to defaults is 8%, while that after defaults are accounted for is 5%, then taxation of investment income applies to the 8% return, not the 5% actually received by the investor. This could change if, as noted above, P2P products can be bought as NISA investments. NISA interest earnings are exempt from taxation.

Another key factor to bear in mind is that P2P investments are not covered by the Financial Services Compensation Scheme (FSCS), exposing investors to a material risk of loss if a P2P provider defaults.

P2P offer an interesting alternative outlet for savers trying to boost their returns in this era of historic low interest rates. The product should, though, be treated with care. Attention to the small print and the historic performance of the providers is certainly warranted.

So, P2P lending can perhaps be looked at as an investment diversification option – but not as a home for your entire savings or pension fund.

## 2.4.2 Housing as an investment

Throughout much of the 2000s, property was considered a serious alternative to other kinds of investment.

Driven by the liberalised financial services sector, which made mortgages easy to obtain, and a boom in house prices, property was seen as a one-way bet. When property prices began to decline in 2008, investing in property for capital gain began to look like a more uncertain strategy. Since 2011, though, UK house prices – particularly in London and the South-East have surged upwards again.

This is not to say that you should overlook the investment in your own home. It's easier to raise finance on the 'primary residence' than on second homes; there's only one set of interest costs to worry about and there's normally no liability for Capital Gains Tax on any profit made. The objective with your home (apart from having somewhere to live) would be to increase its capital value and so the equity in it. There are several ways in which that can happen over and above any general rise in property prices.

Homes can be bought in an 'up and coming' area where property prices will rise more than the average; they could be bought at below the 'true' market value; or someone can add value to a property by finding, for instance, a run-down home suitable for refurbishment and, when completed, sell at a profit over and above the total cost of the purchase, interest and refurbishment.

The video, from October 2013, explores the way in which the purchase of property as an investment has continued to be popular and to have a significant impact on property prices, particularly in areas like London.

Video content is not available in this format.



Another way to make money from a home is to rent out a spare room, effectively using the home as an income-producing asset. Some people carry these ideas substantially further and rent out several rooms, or regularly buy, develop and then sell individual properties. Doing either would move into the realms of trading, and as a result both Income Tax 'Rent-a-Room' relief and Capital Gains Tax exemptions would be lost.

An alternative way to invest in property without directly owning specific properties is through investment funds – particularly Real Estate Investment Companies (REICs). We'll look more closely at these in Week 3.

A further way that property, including property that you live in, can be used to generate cash is through equity release schemes. This involves receiving a cash sum, representing part of a property's value, after allowing for any outstanding mortgage on the property, in exchange for which the lending institution receives an equity share of the property. This sum advanced, plus interest added over time, is then repaid when the property is eventually sold – perhaps on the death of the borrower. Equity release schemes are controversial but may be used to provide cash, particularly for those who have retired. We'll look at them again in Week 3 when we explore investments that provide pension incomes.

In 2015, two decisions were made by the UK government to take some of the heat out of the booming buy-to-let market. From April 2016, Stamp Duty Land Tax (SDLT) paid on property purchases above £40,000 has had a 3% surcharge. For a £250,000 property purchase, this adds £7,500 to the cost of the purchase. The surcharge also applies when second or further homes are bought, even where these are not let to tenants. From April 2017, landlords have only been able to claim tax relief on mortgages used to acquire buy-to-let property at the basic rate of income tax (currently 20%). It will be interesting to see if this cools the buy-to-let market or whether these higher costs are passed on to tenants in the form of higher rents.



### 2.4.3 Buy-to-let



Figure 12

Another development, particularly from the mid-1990s onwards, has been the growth of the 'buy-to-let' sector. This has become more common as a result of the development of specialist buy-to-let mortgages in the competitive mortgage marketplace and the introduction of the Assured Shorthold Tenancy contract which gives landlords greater powers to terminate tenancies.

Buy-to-let mortgages allow expected rental income to be taken into account when assessing the borrower's ability to afford a mortgage on a property intended for rental. While the financial crisis that began in 2007 impacted on house prices and led to mortgage providers demanding larger deposits, buy-to-let can still be an alternative to, or complement, other investments or pension plans. This is because, even if property prices are uncertain, buy-to-let landlords could still make a return from rent.

In fact, there were some media reports that uncertainty in the property market was good for buy-to-let investors. This was because first-time buyers were reluctant to enter the market which, combined with the large deposits required from those who wanted to buy, meant there was more demand in the rental sector (Telegraph, 2010).

Another report argued that although buy-to-let played a part in the house price boom, it also increased the size of the private rented sector and therefore helped to keep prices lower than they otherwise might have been (National Housing and Planning Advice Unit, 2008).

### 2.4.4 What are the risks?

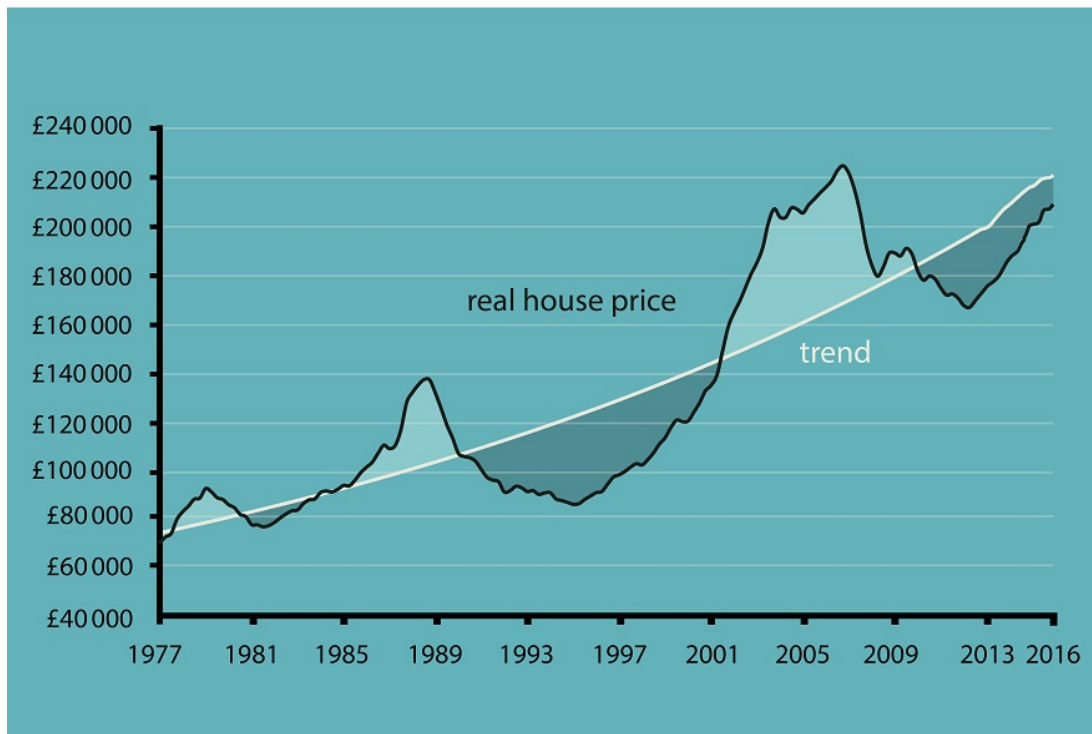


Figure 13 Although the long-term trend for UK house prices is upward, the last 35 years have seen periods where prices fell

Suppose you own a property as an investment.

#### Activity 2.5 Property risks

What are the risks of using that property as an investment rather than as a home?  
What are the risks of letting out the property?

Note your thoughts below.

*Provide your answer...*

#### Discussion

The risks of letting out an investment property include:

- property prices falling – something that can and does happen when economic activity is weak
- the landlord being unable to find tenants for the rental property for a period of time
- higher than anticipated costs on the property (for instance, on maintenance or renovation).

These risks reinforce the need for careful calculations and expert advice.



## 2.4.5 Taxation

Start by looking at the table to see the details of the allowance and tax bands for different forms of investment in 2018/19.

Allowances and tax bands 18/19	Size of tax band	Tax rate that applies to this type of income according to the tax band it falls within		
		Earnings, Pensions, rental income	Interest from savings and bonds	Dividends from shares and funds
Personal allowance	£11,850	0%	0%	0%
Starting rate band for savings	Next £5,000	20%	0% **	7.5% *
Basic rate band	Next £25,500	20%	20% ***	7.5% *
Higher rate band	Next £115,500	40%	40% ***	32.5% *
Additional rate band	Over £150,000	45%	45%	38.1% *

\* These rates apply to taxable dividends in excess of £2,000. The first £2,000 is tax-free.  
 \*\* Only applicable to savings income if taxable non-savings income does not exceed £5,000.  
 \*\*\* These rates apply to taxable savings in excess of £5,000 (basic-rate taxpayers) or £500 (higher-rate taxpayers). The first £2,000 / £500 is covered by a Personal Savings Allowance which makes them tax-free. Additional rate taxpayers do not qualify for Personal Savings Allowance.  
 Note that slightly different income tax rates apply in Scotland.

The taxation of interest from bonds, also known as fixed interest investments (and unit trusts and OEICs that invest mainly in bonds) is very straightforward because it is taxed in the same way as interest from a savings account. However, unlike savings accounts, interest from most bonds is paid out gross (without any tax already deducted).

Gains from investments are subject to Capital Gains Tax, but every person has a yearly tax-free allowance (£11,700 in 2018/19). Only gains in excess of that amount are taxable and, in 2018/19, the rate which then applies is either 10% or 20%. To work out which of these rates applies, the taxable gain is added to the investor's taxable income for the year. Any part of the gain that falls within the higher or additional rate band is taxed at 20%, otherwise the 10% rate applies.

As explained earlier, most of the tax on savings and investments can legally be avoided by investing through ISAs.

So, in summary, there are two main types of tax for UK investors: Income Tax and Capital Gains Tax. Interest from savings and bonds, and dividends from shares, are taxed as income; the profit from selling something for more than it originally cost is typically taxed as a capital gain. Income and gains from some savings and investments are tax-free and, even when they are taxable, the investor may have tax-free allowances to use so that in practice no tax is due.

Tax-efficient investment means choosing tax-free products, using allowances and taking advantage of the difference in tax rates between different types of income and between income and gains – for example, choosing an investment that pays gains rather than income when your gains are protected by being below the capital-gains tax allowance whilst additional investment income would become subject to income tax.

## 2.4.6 Transaction costs

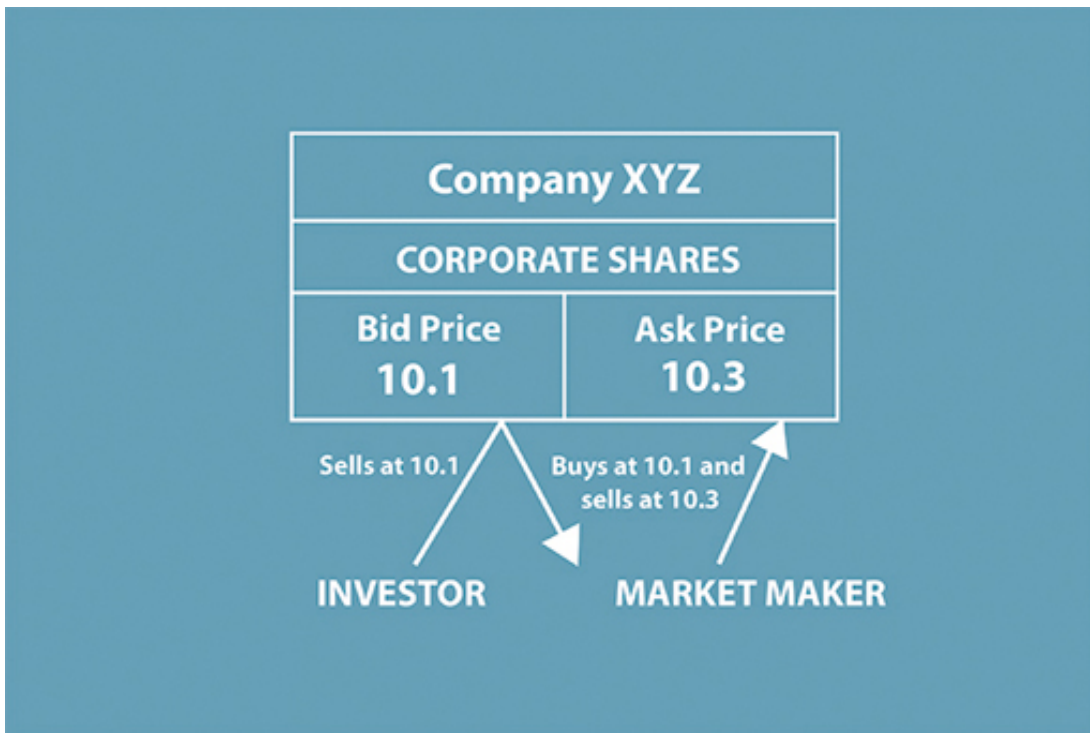


Figure 14 Example of transaction cost flows

Buying investments involves transaction costs. These can include:

- the bid-ask spread
- brokerage commission/dealing costs
- transaction costs
- management charges.

If we look first at a simple transaction of 100 Royal Dutch Shell shares, the bid–ask spread is the difference between the price at which the investor can buy the Shell shares (the ask) and the price at which the investor can sell them (the bid). Suppose that the bid–ask spread for 100 Royal Dutch Shell shares is £17.10 – £17.20. This means that the investor can sell 100 shares at £17.10 or buy 100 shares at £17.20, to allow a profit for the so-called marketmaker. The bid is the price at which the **marketmaker** bids for shares; the ask is the price at which the marketmaker asks investors to buy shares.

For the investor, the bid–ask spread represents a transaction cost. The price at which they can buy shares is always more than the price at which they can sell them, so there is an inbuilt capital loss from day one – in this case 10p per share. Also, the smaller the number of shares traded, the larger the bid–ask spread, to reflect relatively fixed handling costs. Institutional investors, trading in large amounts, say 100,000 shares, will experience a much narrower bid–ask spread than will the small investor.

Stamp Duty Reserve Tax (SDRT) of 0.5% is paid when shares are bought electronically (which the vast majority are these days). SDRT is not paid when shares are sold. Share prices can be seen in most newspapers that report daily on share prices as well as on other information.

It is normal to buy or sell shares through a stockbroker or brokerage firm, either by telephone or on the internet. Again, charges vary according to the size of the trade, with a minimum brokerage commission of, say, £12 for each transaction. This is a relatively small percentage of a £10,000 trade, but makes trading in £100 amounts uneconomic. Online brokers tend to be cheaper than traditional brokers as they provide no investment advice, usually restricting themselves to basic information on the companies in which they trade.

Finally, there are the management charges payable to institutional fund managers in return for choosing the investments on behalf of clients. These charges have to be disclosed in the documentation but are taken by the manager from the funds invested with them and so are rather hidden from view, particularly with long-term investments. Although a representative 1.5% annual management charge does not sound that large, it can mount up and reduce returns substantially over the long term, as, for example, with pensions. You should also check if there are any other costs like custody and administration charges. These all need to be set out in the documentation provided by the institution you are doing your investment business with.

The 2006 White Paper on Personal Accounts, published by the Department for Work and Pensions, examined the case of a male median earner (£23,000 a year in 2006/07 terms) who was aged 25 in 2012. By contributing 8% of his earnings each year for 43 years to a pension scheme, with a real rate of return of 3.5%, he would have a pension fund worth £87,000 at the age of 68. With a 1.5% management charge, typical of active pension fund management charges, the fund would be worth only £63,000, with £24,000 having been deducted in management charges. With charges of 0.5 per cent instead of 1.5 per cent a year, the fund would be worth approximately 25 per cent more on retirement. Stakeholder pensions are an attempt by government to force pension providers to offer pension products whose charges have been capped.

## 2.4.7 Where to transact and when to seek advice

Listen to the views of retired investment director and fund manager, Anthony Nutt, on the issue of when to take advice. Then, in the next section, we'll run through a check list to help you form your own view of this important matter.

The issue about advice is something all investors should consider carefully: am I really sufficiently knowledgeable about the attendant risks and returns to make investment choices?

Following the introduction of new rules in 2013 requiring investment providers to be fully transparent about their costs, the proportion of investors deciding to invest privately, rather than rely of advice, has increased. A poll of investors by the online investment platform, Interactive Investor, found that one in five now prefer to make their own investment decisions, having previously relied on an adviser to assist them (Sunday Times, 2014).

In the contemporary world, the internet provides the medium for fluid investment management transactions. This makes for ease in terms of the selection of investments and for transactions, although investors will need to consider whether advice is needed before keying in the instructions to an investment platform.

In terms of where to go, as noted in the previous sections, investors are currently spoilt for choice. Traditionally, investors would go directly to a financial services product provider like their bank, building society or insurance company. Alternatively, a financial adviser

could be employed – both to provide advice on the placement of investments and to carry out the practicalities of completing the acquisitions or disposals of assets.

Two key questions to ask when making investments are ‘where do I go to transact business?’ and ‘should I seek advice first?’.

Video content is not available in this format.



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## 2.4.8 Do I need financial advice or should I go it alone?



Figure 15

A key decision to take when investing is whether to seek advice from a financial adviser. What are the pros and cons of this?

The benefit of getting advice is that you should get the products that meet your needs and your risk appetite. To achieve this, advisers should carry out a fact find, where they ask details about your circumstances, goals, time horizons for these goals and your capacity to absorb losses on investments.

## Different types of advisers and different types of sales

Note that some advisers are independent, in that they are not tied to a specific set of investment products. Independent advisers can provide guidance on the full range of products you are interested in investing in. By contrast some advisers just offer a 'restricted' service linked to a defined range of products and not the full market. Advisers do have to disclose whether they're 'restricted' or not in the guidance they provide.

There is a clear difference between advised and non-advised product sales. Non-advised sales involve being talked through options with the decision about which product to invest in being left with you.

Advised sales point you to particular products. If you end up with an unsuitable product after being recommended it by an adviser then you may have a case for claiming that it has been 'mis-sold' to you.

## When should I seek advice?

- For cash savings products it's easy to make decisions using internet comparison sites. With no risk to the capital sum invested you normally don't need to receive financial advice.
- When investing in shares and bonds, either individually (i.e. a specific company's shares) or in a fund like a unit trust, then it may be prudent to seek advice.
- If your answer is no to at least one of the following questions then seeking financial advice is prudent. If the answer is no to all three questions, advice is really essential. If your answer is yes to all three questions, you can consider yourself able to make your own decisions and to transact without advice using a low cost provider (e.g. an internet platform) of the products you want.

The key questions to ask yourself are:

- Am I an experienced investor?
  - Can I afford to lose at least part of the capital sum invested?
  - Have I the time to both put in the research ahead of investing and then monitor the investment after I have acquired it?
- For pension products advice should be sought. For workplace pensions your employer will either provide advice or access to advice about the scheme(s) on offer and their costs to you. For a private pension it is sensible to seek advice even if you consider yourself to be knowledgeable about investments. The consequences of investing in an inappropriate pension product can be financially devastating. The new rules on access to pension funds, that came into effect in 2015, really make it important that advice is sought, not only in respect of entering into a pension product but also in accessing the funds it generates as you move towards and into retirement.

## What do I get charged for advice?

From 2013 advisers have been required to set out explicitly the fees charged for the advice provided. These fees vary from adviser to adviser so don't just glance at them, look at the fees carefully and check how they compare with those of other advisers.

If you are seeking general financial advice or advice in respect of specific products, advisers will normally charge a fee and be required to advise you of the fees they charge upfront. Some advisers may be prepared to provide an initial consultation free of charge – so why not ask if they do this when arranging an appointment.

Previously, advisers earned their income by receiving commission from the product providers which was then deducted from customers' initial or ongoing investment. This practice has now been stopped to ensure that there is complete transparency about fees charged.

Do note the difference between the fees charged by advisers and the ongoing management charges applied by product providers, particularly when the investments are 'managed' (looked after actively by fund managers) as opposed to being placed passively (and left unmanaged) throughout the life of the investment.



## Where do I go to find an adviser if I need one?

There are plenty of ways to locate a financial adviser. Your bank will be able to help and an internet search will too.

Two sources are particularly useful when it comes to locating advisers and obtaining financial advice.

The Money Advice Service (MAS) provides detailed guidance on the use of financial advisers in the UK. [Explore their guidance](#) .

Additionally [unbiased.co.uk](http://unbiased.co.uk) provides a list of authorised financial advisers.

## 2.5 Week 2 quiz

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Check what you've learned this week by taking the end-of-week quiz.

[Start quiz](#)

Open the quiz in a new window or tab then come back here when you're done.

## Week 2 round-up

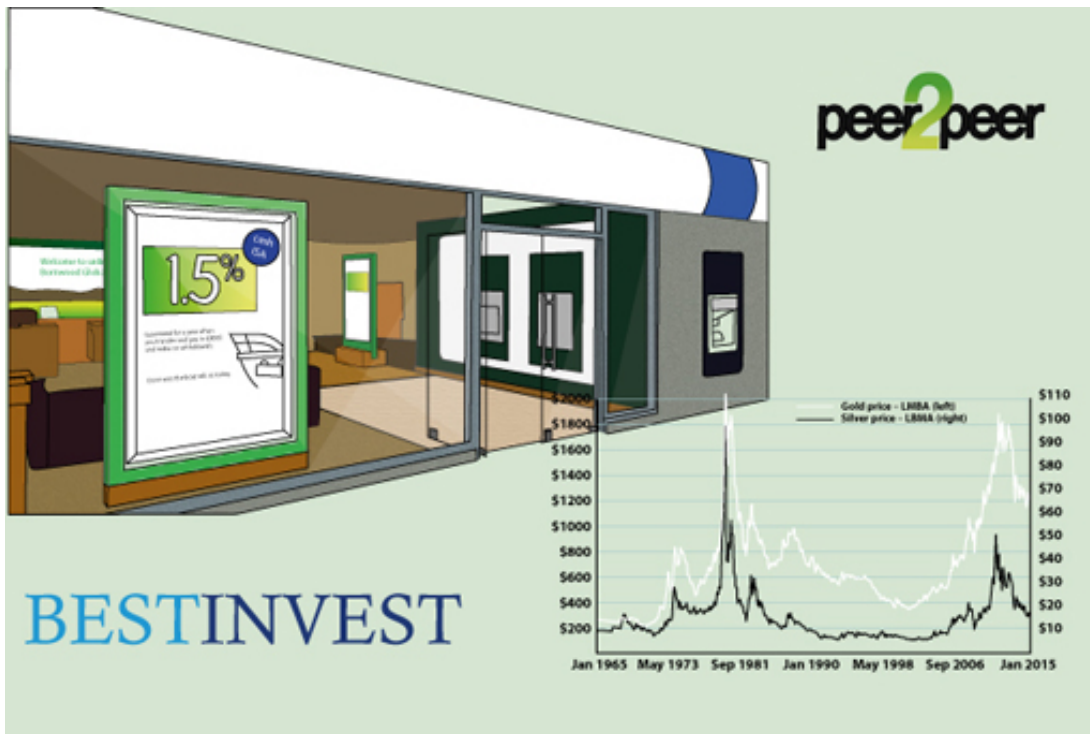


Figure 16

We've covered plenty of ground this week, examining the array of principal assets that you can invest in, including savings accounts, shares, bonds and commodities.

We've also looked at the costs of investing and the impact of taxation on investment returns.

We must now turn to the factors that you should consider when building up your investment portfolio. To avoid investing either foolishly or irrationally, you need to have a strategy and that strategy must be informed by the key principles of investment management. That is what we turn to next week.

## Further reading

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[Money Advice Service savings calculator](#) If you want to explore savings accounts further and the returns you receive on them, why not access the Money Advice Service (MAS) savings calculator.



# Week 3: Devising investment strategies – principles and practice

## Introduction

Welcome to Week 3 of *Managing my investments* – a week that explores the theories behind good investment management practices. Begin by watching the video to hear Martin Upton introduce this topic.

Video content is not available in this format.



We start by building on the work on investment management planning that we started in the later stages of Week 1. Armed with the knowledge gained in Week 2 about the range of personal investments available, we are now in a position to build and refine our approach to investment management.

To help us understand the key principles of investment management, we explore key underlying concepts like portfolio theory, the efficient markets hypothesis and the capital assets pricing model. We look at how these theories are applied in the real world of



investment management and what they tell us about how we should manage our investments and the decisions we should make.

We also discuss tactics that we can use to manage our portfolios – like pound cost averaging.

There's plenty to get through – but once we've completed the week you will have a robust understanding of the key theories about investment management and how to apply them in practice.

## 3.1 Time horizons and goals



Figure 1

Last week you spent time familiarising yourself with the assets you can invest in and the investment products (including funds) you can use to build up your portfolio.

Now you need to turn your knowledge of what you *can* invest in, to what you *want* to invest in. To do this requires a plan to be devised and more information to be gathered about the alternative strategies you may want to employ, including the mixture of assets you aim to hold in your portfolio. Devising strategies for the timing of investment activity – whether you're buying or selling – is also important.

The first stage is to re-visit the core building blocks of investment management introduced in Week 1. This involves asking the questions of what you are investing for and over what time horizon? This analysis provides information about how much you need to accumulate and by when.

One item which all of us should be investing for is a pension. So, a key part of the exercise is to determine what retirement income, other than that provided by the state, you need.

The next stage is to work out when you want to retire, since this will set the time horizon for the compilation of the fund required to provide the income in retirement needed to support your desired lifestyle. Help in doing this analysis is provided by the pension planning tools provided by [Age UK](#).

Why not access this now and work out how much you need to save to meet your pension objectives?

Once you have completed this 'what' and 'when' exercise for your pension planning then apply it to all the other things you invest money for – perhaps education costs, a new car or a wedding. In stages, you are building up a picture of how big an investment fund you need and the time horizons by which you need the funds to achieve defined volumes.

You also need to consider your risk appetite. This is crucial as, given the trade-off between risk and return, the greater risks you take the more quickly your fund might accumulate. Yet the higher risks associated with the (potentially) higher returns mean that such investments are not suited to building funds over the short-term: an adverse movement in the value of such investments during this period could leave you well short of the size of the fund you need. Rather higher-risk investments are more suited to a long-term investment horizon, over which adverse short-term moves in the value of such assets tend to be more than compensated for by the long-term trend to outperform safer investments.

Even with this maxim in mind, you do need to reflect on how comfortable you are with higher-risk investments. Ask yourself:

- are you sure that if you invest in higher risk investments, you won't need to cash them in over the short-term?
- have you the capacity to bear financial losses if you do have to cash them in earlier than anticipated?
- is holding investments which may fall in value – sometimes sharply and perhaps only in the short-term – going to upset your life (for example, by keeping you awake at night)?
- finally, and critically, are you sufficiently knowledgeable about all the risks your investments are exposed too? Have you checked your investments off against the full range of risks that could apply to them?

Answering this last question requires you to know what this full range of risks is and see which apply to the assets you could invest in. So in the next section, we look at the risk spectrum to make sure you know what to check for when investing.

### 3.1.1 Knowing the risks

We now turn to investment risks. Let's start by hearing Anthony Nutt's views on investment planning and managing the risks involved. Investment risk is the likelihood that the actual return from an investment will not turn out as expected. There are two dimensions to risk: amount and timing.

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In summary, risk is the chance that the actual return from an investment will:

- be more or less than expected. This is known as capital risk and, if part or all of the return is in the form of income, income risk.
- not be available when expected. This is an aspect of liquidity risk.

Capital risk, income risk and liquidity risk can therefore be viewed as the key ‘high-level’ risks affecting investments.

Note the assumption that risk is symmetrical: the probability of a gain is equal to the probability of a loss. Although investors typically want to avoid the downside risks of a lower return, they do want exposure to the chance (risk) of a higher return. We will follow the normal convention of describing different types of risk in terms of the bad outcomes that may result, but you should bear in mind that the risk–return trade-off means that the reward for running the risk of bad outcomes is the chance of superior returns.

Table 3.1 presents a summary of the ‘high-level’ and the ‘underlying’ investment risks that sit underneath these key risks.

**Table 3.1**

	High-level investment risks
Capital risk	The risk of loss of some or all of the original capital invested and returns made to date
Income risk	The risk that the income earned from an

### 3.1 Time horizons and goals

	investment is lower than expected by the investor when the investment was made
Currency risk	Where an investment is denominated in a foreign currency, unexpected changes in the exchange rate may cause the sterling (or other home currency) value of the holding to be less than expected. Similarly, this can be a risk when a person borrows in one currency to purchase an investment or other asset in another currency (for example, borrowing in euros to buy a home in the UK).
Liquidity risk	The risk of being unable to sell or cash in an investment or being only able to cash it in at a prohibitively low price
	<b>Underlying investment risks</b>
Counterparty risk	The risk that an entity responsible for payments to an investor

## 3.1 Time horizons and goals

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	fails to meet its contractual obligations – for example by failing to pay interest when it is due
Default risk	The risk that the entity invested in becomes insolvent and fails to return the sum invested
Inflation risk	The risk that the return from an investment is reduced in real terms due to an unexpected rise in prices
Interest-rate risk	The risk of making an investment choice on a view of future interest rate movements that turns out to be incorrect
Shortfall risk	The risk that a pre-defined target return from an investment fails to be met

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These risks are, of course, interrelated. Can you identify some of these interrelationships?

### 3.1.2 Risk interrelationships

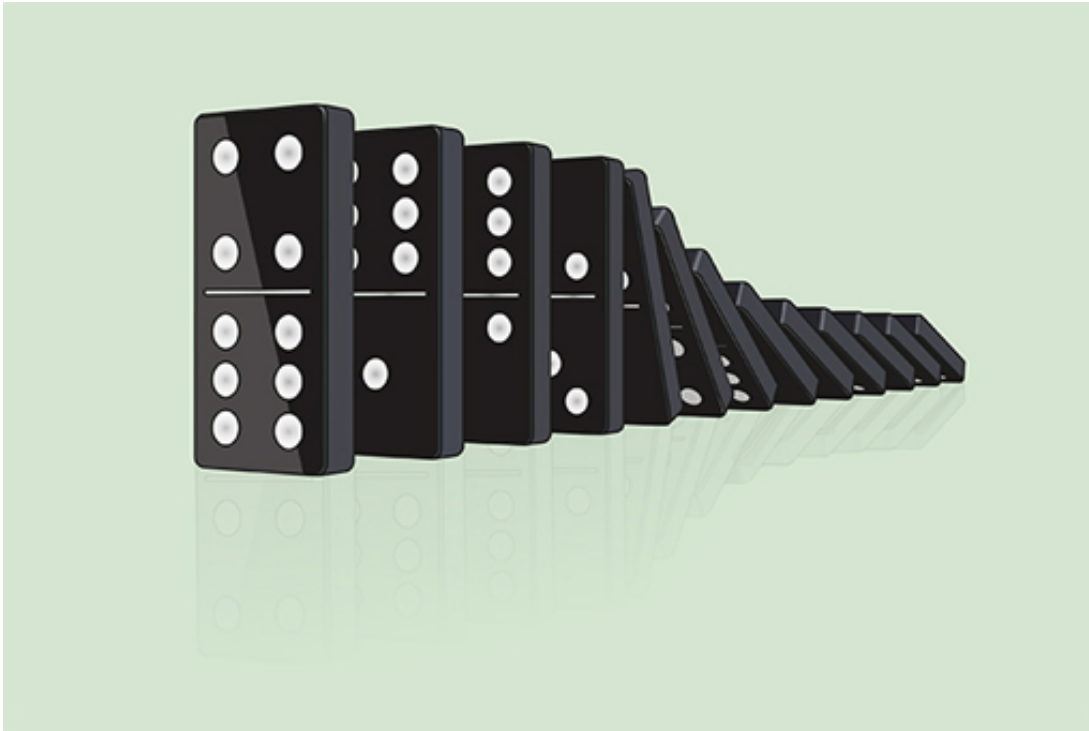


Figure 2

Arguably liquidity risk, counterparty risk, currency risk, default risk, inflation risk, interest-rate risk and shortfall risk are all examples of risks that underlie the capital risk and income risk.

Each of the underlying risks, if they materialise, can reduce the capital value of an investment, perhaps with extreme consequences in respect of default risk, and/or reduce the real value of the income stream from the investment.

Note that risks can be managed. The presence of risk is not an excuse for not investing in the future, as you then expose yourself to the biggest risk: that you have insufficient funds for later life.

Having examined your investment objectives and their time horizons; and ascertained the risks to which your investments are exposed, we now turn to the management strategies you can apply when investing.

### 3.1.3 Do we really understand our appetite for risk?

To complete our analysis of understanding risks, watch this video of Sharon Collard's presentation on the extent to which personal investors really understand the subject when making investment decisions. The worrying evidence about a lack of true perception about risk supports the need for improved consumer education on the subject.

Video content is not available in this format.



### 3.1 Time horizons and goals



Clearly, getting a sound understanding of risk and our true appetite for it is vital to ensure we have control of the second stage of the investment planning model. Only then can we move to third stage of investment decision-making.

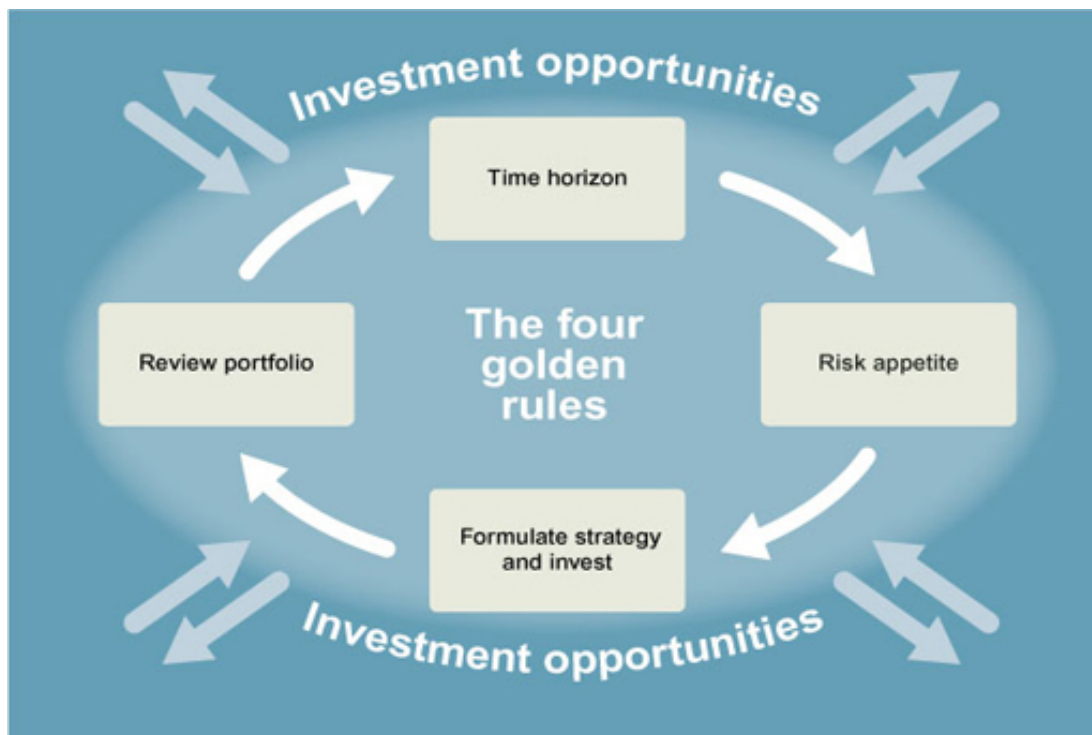


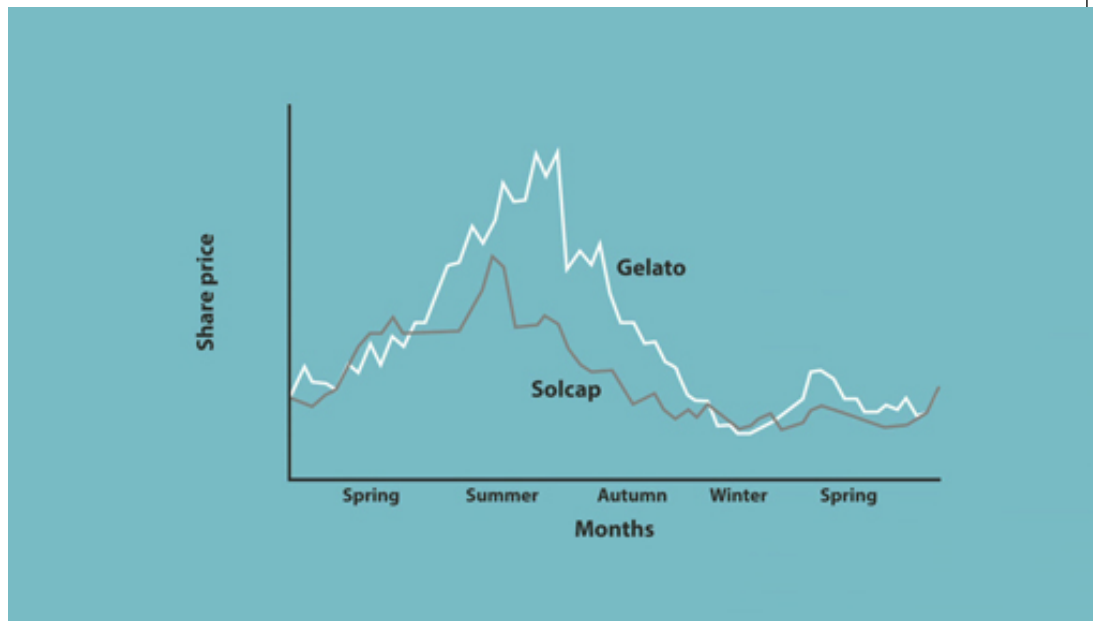
Figure 3 The four-stage investment management model

## 3.2 Diversifying investments dilutes risk

In this and the next few sections, you will explore how the trade-off between risk and return can be improved by holding a mixture of shares or other investments in a portfolio. This can be viewed as part of the third stage of the investment planning model – the process of deciding on investment strategies that fit with our time horizons and risk appetites. Let's look first at the subject of **diversification**.

The analysis we need to undertake here and in the next two sections is a little complex, so we're going to use animations to guide you.

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### 3.2.1 Understanding portfolio theory

The last section sets out the benefit of diversification when investing. We now take this analysis further forward, by looking at how a portfolio can be constructed. This is called portfolio theory.

The animation introduces a key statistical concept which is important in investment management: 'standard deviation'. This is a measure of the dispersion, or spread, of data around an average or mean number. The greater the standard deviation, the more varied or dispersed are the data around the average. The risk/return positions C & D shown at the end of this section's animation will be explored further in the next section.

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## Portfolio Theory

Standard deviation can be calculated by following the steps below:

1. Obtain the average (or mean) of all the (daily) share prices over the period in question. To do this, add up all the daily recordings of the share price and divide by the number of those daily recordings.
2. For each share price, work out its difference from this mean and then square this difference. So if the difference is 4 pence, the square would be 16 and so on.
3. Once you have done the second step for all the share prices, add up all these 'squares'.
4. Divide the total you get in the third step by the total number of share prices. So if the total of the 'squares' is 10000 and the number of share price recordings is 100, you end up with  $10000/100 = 100$ .
5. Find the square root of the outcome from the fourth step. So if the outcome from the fourth step is 100, then the square root of this is 10 pence. This is the Standard deviation and it can either be expressed as an absolute number (i.e. 10 pence) or as a % of the mean share price.

The statistical meaning of a (that is, one) standard deviation is that it captures 68% of the individual recorded prices. So if the standard deviation in the example above is 10 pence, then 68% of the share prices are within 10 pence of the average (or mean) share price (either higher or lower).

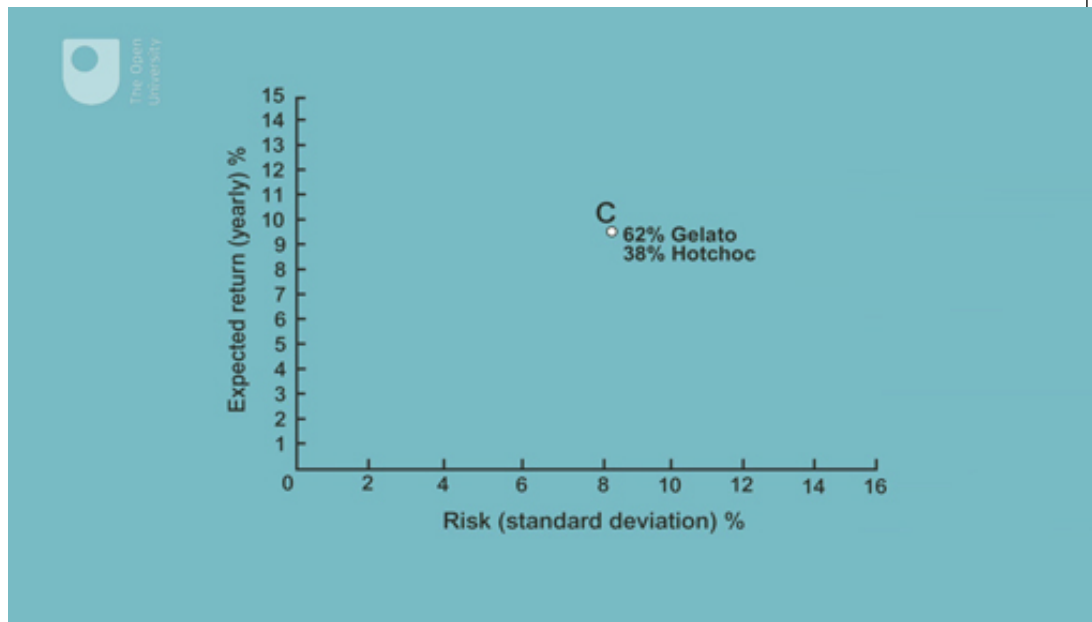
This information can also be downloaded in the supporting document

[How to calculate standard deviation and what does it mean?](#)

### 3.2.2 Applying portfolio theory

In the previous section, we looked at the risk–return trade-off between Gelato and Hotchoc. However, by combining the two shares in a portfolio, it is possible for the investor to reach a better outcome. Watch this short animation about portfolio theory:

Video content is not available in this format.



The conclusion of the animation is that by reaching the so-called 'efficient frontier', the investor is unable to improve their risk-return trade-off. The portfolios on the efficient frontier are said to be Markowitz efficient, named after Harry Markowitz (1959), who was the first person to work out the implications for the mathematics of combining shares into portfolios. By following a strategy to reach the efficient frontier, investors are said to employ Markowitz diversification.

This section concludes our analysis of portfolio theory and the rationale of investment diversification.

Further supporting information the topics below is provided in the document

[Understanding risk versus return in portfolio theory.](#)

### 3.2.3 The relevance of the size of the portfolio

The previous section looked at diversification of a portfolio through investing in three shares. In practice, many more than three shares could be chosen: let's call the number  $n$ . What should  $n$  be? The investor should diversify to improve the balance between risk and return, but to what extent?

Suppose that we adopt a simple investment strategy to find out. We invest equal amounts in randomly chosen portfolios that consist of two, three, four, five and more shares. This type of diversification is less efficient than choosing portfolios on the efficient frontier. Indeed, it is an example of **naïve diversification**: simply choosing to expand the number of shares in the portfolio without examining their risk–return characteristics. The portfolio will not necessarily be Markowitz efficient (see the previous section), but there are still benefits to naïve diversification.

The benefits of naïve diversification can be seen in Figure 4, which plots the typical risk for holding portfolios of one, two, ten, or even up to hundreds of shares, in equal proportions. For example, portfolios consisting of, say, ten shares have less risk than portfolios consisting of one share. Portfolios consisting of thirty shares have less risk than portfolios

consisting of ten shares but, beyond that, the benefits to diversification taper off. Why is that? This is because there are common factors affecting all shares that cannot be diversified away: interest rates, economic conditions, tax rates, inflation and so on. Indeed, the benefits of diversification come from diversifying away what is known as **specific risk** (risk specific to individual companies). A limit is then reached beyond which risk cannot be reduced further. This undiversifiable risk is called **systematic risk** – risk that is endemic to the stock market and cannot be diversified away, no matter how many shares are included in a portfolio.

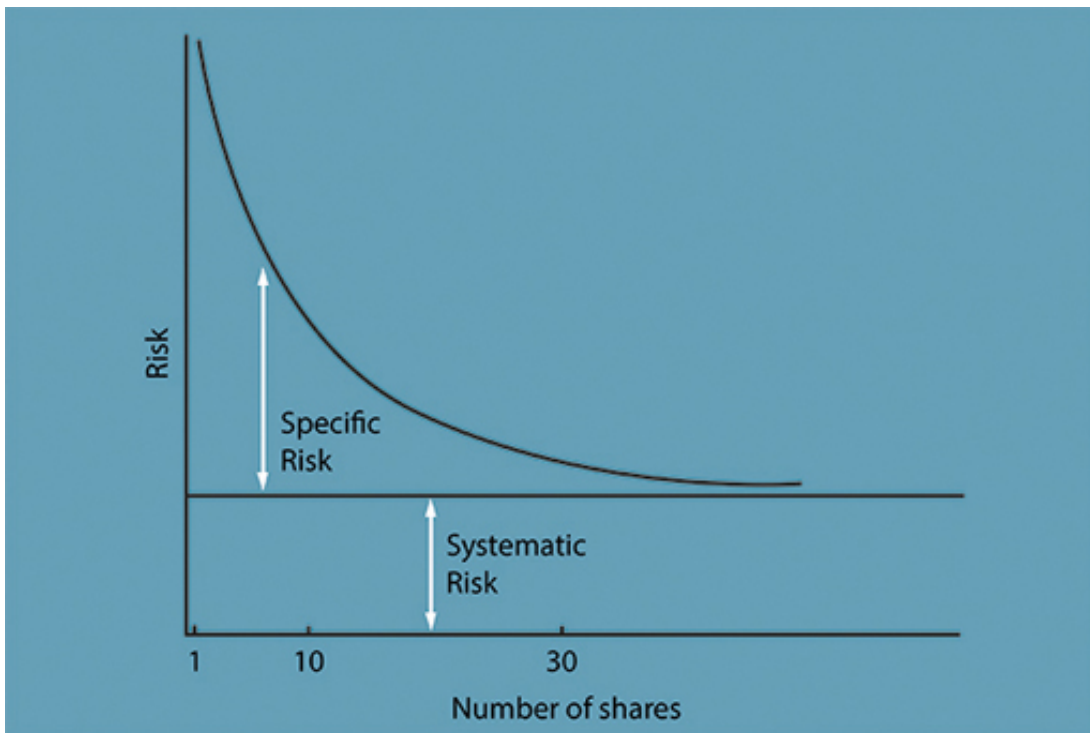


Figure 4 Example of typical risk for holding portfolios

The figure has two major implications for investors. First, small investors need only diversify by holding 10 to 15 shares to have substantially reduced the risk from holding just one share. Second, institutional investors do not need to hold vast numbers of shares to be diversified. The extra reduction in risk gained by holding 100 rather than 30 different shares is very small, and may well be more than outweighed by the additional transaction and monitoring costs involved in holding the extra 70 shares.

### 3.2.4 Share diversification in practice



Figure 5

Investment trusts and unit trusts were designed to allow small investors the benefits of diversification, when the amounts that they had to invest did not allow them to buy, for example, ten different shares in reasonable quantities.

The earliest British investment trust, the Foreign & Colonial Government Trust (F&C), was founded in 1868 with the declared investment strategy of buying 18 foreign government bonds, from Brazil to Turkey, Egypt to New South Wales, in amounts ranging from 3% to 20% of the value of the overall portfolio. The prospectus read:

The object of this Trust is to give the investor of moderate means the same advantages as the large Capitalists, in diminishing the risk of investing in Foreign and Colonial Government Stocks, by spreading the investment over a number of different Stocks.

(Foreign and Colonial Government Trust, 1868)

It was such a success that it soon had many imitators, primarily investing in fixed-interest securities. Unit trusts, first launched in the UK in the early 1930s, based on a US idea, concentrated on shares rather than bonds, and overtook investment trusts in popularity during the 1960s.

Investment trusts are companies whose shares are traded on the stock market and can be bought and sold by investors. Investment trusts invest in shares whose total market value is called the net asset value of the trust. Interestingly, the market value of an investment trust company's shares does not have to be the same as the net asset value of the underlying portfolio. The investment trust share price can be at a discount or premium to the net asset value per share.



Consider, for example, an investment trust with a market value of £100 million divided into 10 million shares priced at £10 each. It may, in fact, hold a portfolio worth £120 million, which represents £12 per share. In this case the shares would be trading at a discount of £2 to the net asset value of £12. The size of the discount or premium is what balances demand with supply. Although popular investment trusts may trade at a premium, typically investment trusts trade at a discount. This discount can vary, adding an additional risk to investment. Investment trusts, being companies, can also borrow, which also adds to investment risk.

Unit trusts are structures that hold shares in trust for the beneficiaries, the unit trust holders. Open-ended investment companies (OEICs – pronounced ‘oiks’) are similar but use a corporate rather than trust structure. The value of the underlying investment portfolio of a unit fund is also called the net asset value; but in this case the market price at which the units are bought or sold is the same as the net asset value (with a spread between the bid and the ask price). There is no discount or premium. The balance of supply and demand determines the number of units, so that popular unit trusts grow in size, and unpopular ones shrink. This is why unit trusts are sometimes called ‘open-ended’. In contrast, investment trusts are called ‘closed-end’ because they cannot create additional shares as can unit trusts – unless they make a new share issue in the stock market. Demand for investment trusts is reflected in the premium or discount to net asset value, whereas demand for unit trusts is reflected in the number of units. Unit trust managers have to keep a certain amount of the portfolio in very liquid assets to allow for possible redemptions. Unit trusts do not borrow money.

Life insurance company investment funds are run along the lines of unit trusts and are funds in which investors invest through the wrapper of a life insurance company policy.

Looking at the correlation between returns shows that there are different levels of portfolio diversification. The first is to spread the portfolio across a number of shares, say UK shares listed on the London Stock Exchange, typically spread across a number of different sectors. The next stage is to widen the portfolio to include overseas investments. The idea is that the US stock market is less correlated with the UK stock market than, for example, BP and Vodafone are in the UK. The final stage is to include emerging stock markets, which are even less likely to be highly correlated, for example, the Chinese and Indian stock markets can be argued to have ‘decoupled’ or disconnected from developed economy markets. In building portfolios of shares, fund managers work through these levels of portfolio diversification on behalf of their investors.

As of November 2014, F&C stated that it held shares in more than 500 companies across the globe. It also stated that it invested in another asset class, private equity funds – that is, funds that buy whole companies rather than just shares. International diversification will reduce risk by more than just diversifying across companies in the same country. However, 500-plus companies is a large number when it comes to management costs and monitoring, and it may be that these costs outweigh the diversification benefits of holding such a large number of shares.

## 3.3 Introducing the Capital Asset Pricing Model (CAPM)

So far we have looked at diversification across shares, and how this can be achieved by collecting shares in funds. But compared to other assets, shares can involve high levels of both risk and return. In this section, we will consider how a less risky portfolio can be put together by combining shares with a risk-free asset.

A key model in investment analysis is the Capital Asset Pricing Model (Sharpe, 1964), also called the CAPM. It makes three additional assumptions to those assumed thus far in our development of portfolio theory, and leads to some pretty startling conclusions for fund management. The additional assumptions are that:

1. All investors are looking at the same risk–return diagram.
2. There is a risk-free asset that is risk-free for us all. The closest we can get to a risk-free asset is a government bond (in the UK, gilts).
3. Investors can borrow and lend at the same risk-free rate. We know that this has to be unrealistic, but allowance for differences in borrowing and lending rates makes the model that much more complicated.

These assumptions are captured in Figure 6. As before, this is a diagram showing combinations of risk and return associated with different portfolios. The risk-free rate of return is represented by  $R_F$ . This could, for example, be a yield of 3% on a government bond. Note that there is no risk attached to this investment, hence its location on the vertical axis. An investor could choose to put their entire portfolio into the risk-free asset, yielding the return  $R_F$  at no risk. Notice also that a straight line has been drawn on the figure above that starts at  $R_F$ . This is called the capital market line. As we move along the line, risk-bearing shares (in proportions to be explained shortly) are added to the portfolio.

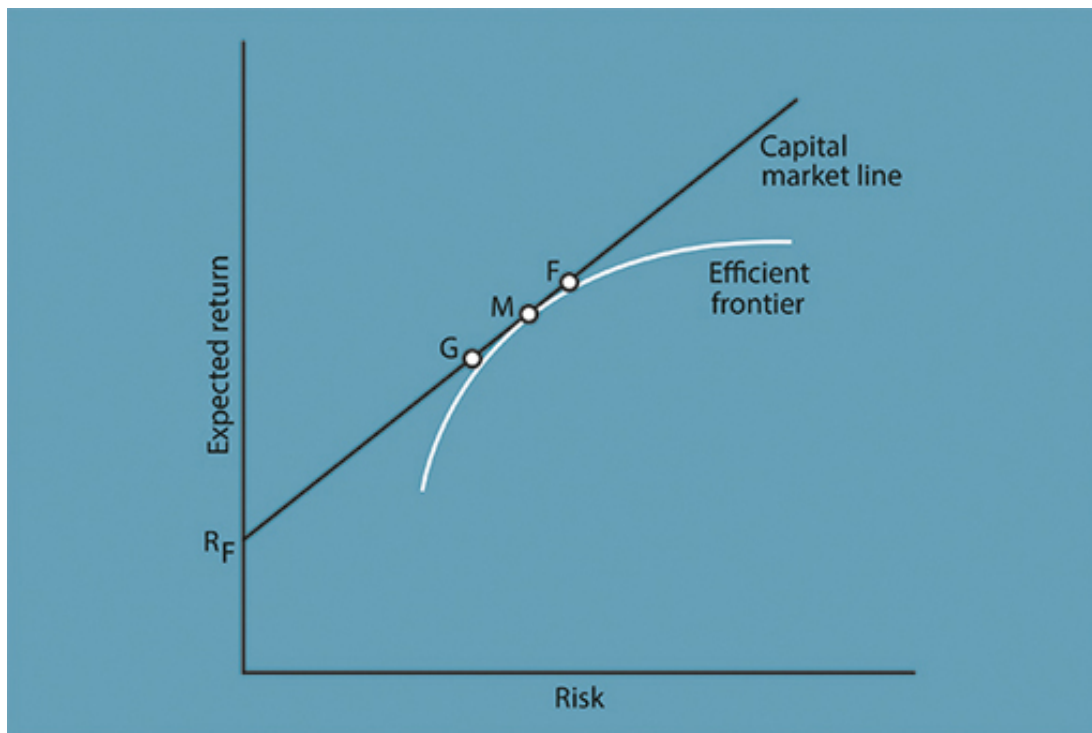


Figure 6 Example combinations of risk and return associated with different portfolio

Assume that the investor has £100 to invest at the outset. At  $R_F$ , the investor puts all of the £100 into a portfolio made up of only the risk-free asset. But at G, the investor holds only £20 in risk-free government bonds, and the other £80 in shares. This increases both the expected return and risk associated with the portfolio.

The investor could alternatively put all of the £100 into shares at M, which is a point on the efficient frontier that touches the capital market line in the figure above. Now, it has been assumed that all investors are looking at the same diagram, which leads them to reach the same conclusion: that the most efficient combination of shares is to hold M since it is a point on the efficient frontier.

Since all investors will hold M in some proportion in their portfolios and, for the economy as a whole, investors hold all shares in the stock market, the portfolio M must include all shares in the stock market in proportion to their market value. This is called the market portfolio. By choosing this efficient outcome the investor diversifies away all specific risk associated with the individual shares held in the portfolio. Only systematic (market) risk is incurred.

At M the investor does not hold any of the risk-free asset: all of the £100 is invested in a market portfolio of shares. Hence the line between  $R_F$  and M represents combinations of the risk-free asset and the market portfolio of shares. Under the CAPM, investors choose the combination between these assets that most suits their appetite for risk and return. The choice is between zero risk at  $R_F$  or full exposure to market risk at M.

It is important to emphasise that even at G, where only £80 is invested in shares, these shares will consist of the market portfolio (based on the stock market as a whole), in which there is only systematic risk. All that varies, at this stage in our analysis, is the amount of money invested in this market portfolio, and hence the amount of systematic risk.

The CAPM also allows for the investor to borrow. Assume that the investor could borrow £10 and use this to buy more shares: an expanded market portfolio of £110. Moving further along the capital market line to point F in the figure above, the investor has further

increased expected return and risk. By borrowing money to invest in shares, the investor has taken on more systematic risk.

What the CAPM essentially says, is that investors get rewarded only for taking on systematic risk. So, provided that all the assumptions underlying the model hold, investors can only expect a return for bearing systematic risk. There is no point in taking on specific risk, as there is no expectation of any additional return for this. According to the CAPM, investors should hold efficient portfolios made up of M and the risk-free asset. Unlike the Markowitz approach, which leaves it open to each investor to hold their own tailor-made portfolio, the CAPM says that we should all hold different proportions of the risk-free asset and of the same risky portfolio of shares (that is, the market portfolio, M).

### Activity 3.1 A portfolio example

Using the earlier example considered in [Applying portfolio theory](#) and in this section, assume that the market portfolio M is made up of 62% Gelato shares and 38% Hotchoc shares. Given £100 to invest, how much will be allocated to each share at point G in Figure 6.

Remember, only £80 of the £100 available for investing is invested in shares. The remaining £20 (or 0.2 of the portfolio of £100) is invested in risk-free assets.

- £62 to Gelato; £38 to Hotchoc

You may find [1.3 Introducing the Capital Asset Pricing Model \(CAPM\)](#) useful.

- £80 to Gelato; £20 to Hotchoc

You may find [1.3 Introducing the Capital Asset Pricing Model \(CAPM\)](#) useful.

- £30.40 to Gelato; £49.60 to Hotchoc

You may find [1.3 Introducing the Capital Asset Pricing Model \(CAPM\)](#) useful.

- £49.60 to Gelato; £30.40 to Hotchoc

#### Discussion

The £80 invested in shares will consist of £49.60 allocated to Gelato (62% of £80) and £30.40 allocated to Hotchoc (38% of £80). This is the most efficient (optimal) combination of shares.

## 3.3.1 How fund managers apply CAPM

For fund managers there is a shorthand way of applying the principles of the CAPM. They can compare the risk of any share or portfolio to that of a benchmark that is represented by the market portfolio. This is achieved using a measure called beta.

**Beta** measures the sensitivity of returns on a share or portfolio to those of the market (or any other benchmark).

Figure 7 shows how beta is used in a simple example. At the market portfolio M, the value of beta is set equal to 1 by definition. But consider point F, in which beta is equal to 1.1. This portfolio will be more sensitive to market fluctuations than M. It will rise by 11% if the market rises by 10%, and fall by 11% if the market falls by 10%. When its beta is more than 1, a portfolio tends to outperform the market in both directions.

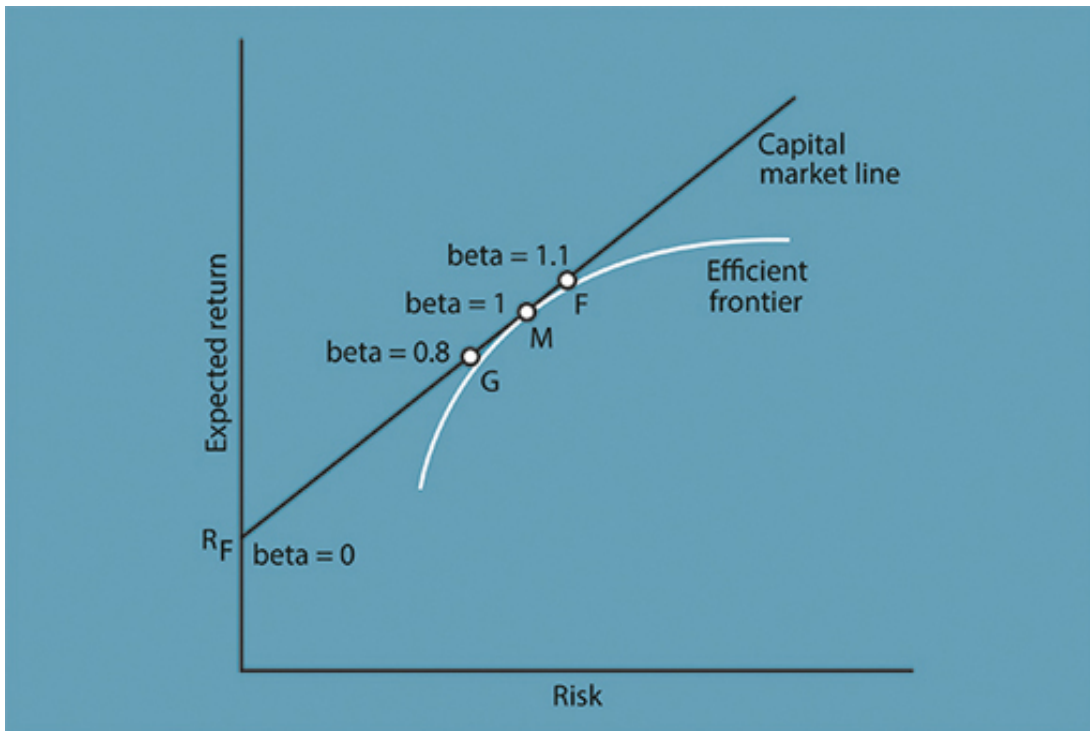


Figure 7 Example of using beta

In the risk–return diagram in Figure 7, beta can be adjusted by varying the amount invested in the market portfolio. Consider again what happens if, instead of investing £100 in M, an investor borrows £100 and invests £200: an extra £100 worth of shares added in the same proportion to the portfolio. This will make their portfolio twice as sensitive to the market and so they will have a beta of 2 – taking on twice as much market risk but with twice the expected return. So if the market does well, then they will do very well. Alternatively if, for example, the market falls by 20%, their portfolio is likely to fall by 40%. These are the extreme highs and lows that are associated with leverage (borrowing).

Let's examine in more detail how borrowing to invest can change your expected return and risk from investing, by considering four different scenarios:

Scenario A: You invest £100 of your money in the market portfolio and the market rises by 5%. You make £5 and your portfolio is now valued at £105.

Scenario B: You invest £200, but only £100 is yours and the other £100 borrowed. The market rises by 5%. You make £10. You repay the £100. So you're left with £110. A 10% return.

Scenario C: Same as scenario as B but the market falls by 10%. You lose £20 and after repaying the money you are left with £80 – a 20% hit. Without borrowing and investing that extra £100 you would only have taken a hit of £10 (10%).

In Scenario D you borrow £1900 to add to your £100. The market falls by 10% (a hit of £200 on the total portfolio of £2000). So ahead of repaying the lender £1900 you are holding assets worth £1800. Not a good idea!

So gearing-up, by investing with borrowed money, increases the exposure you have to the risk on your portfolio.

Investors who believe in the CAPM and whose portfolios consist only of the market portfolio M and the risk-free asset, are called **passive investors**. Later this week, you will also be introduced to the Efficient Markets Hypothesis (EMH) that makes the same recommendation. Such investors do not believe that it is possible to consistently



outperform the market and so do not try. Next week, we will consider how performance benchmarks can be established that may be tracked by passive investment.

### Activity 3.2 Applying CAPM in reality

Look again at Figure 7. Now consider point G at which the beta is equal to 0.8. With a beta of 0.8, what is the likely impact on a portfolio if there is a 10% fall in the market? Note your answer in the box below.

*Provide your answer...*

#### Answer

The portfolio is expected to fall back by 8%. This is calculated by multiplying 10% by 0.8. When a portfolio's beta is less than 1, the portfolio will tend to underperform the market in both directions. If at the extreme the portfolio is all held in the risk-free asset, to give a return of  $R_f$ , the beta is equal to zero. This portfolio is not at all sensitive to market fluctuations.

## 3.3.2 What do we mean by 'the market'?



Figure 8

The Capital Asset Pricing Model assumes that the market portfolio M includes all investible assets. This would include stocks, shares, works of art, commodities, property, and even our future earnings if these could be traded. This would be impossible to value in practice, so investment managers choose to represent the market by a stock-market



index. Of course, different investors of different nationalities will look at different indices: the CAC40 for France, the S&P500 for the USA, for example. But even within countries there are a number of indices to choose from.

For example, in the UK, the index most cited on the news is the FTSE 100, which tracks the change in value of the top 100 shares listed on the London Stock Exchange weighted by market value. Every quarter, those companies that have fallen out of the top 100 are thrown out of the index and new large companies are included. In the USA, the most popular indices are the S&P500, a market-value-weighted index of 500 large US shares, and the NASDAQ Composite Index, a market-value-weighted index of all shares listed on the National Association of Securities Dealers Automated Quotation system, which consists primarily of shares in technology companies.

But the object of the CAPM is to represent the market as a whole and not the top 100 shares only. So, for our purposes, a more appropriate UK index would be the FTSE All Share Index, which in 2009 included 619 shares, weighted by market value, and these shares represented in value terms around 98 per cent of the value of all the shares listed on the market.

For a more global perspective, there is the MSCI World Index, but even this is designed to measure the equity market performance of only developed and not emerging markets. As of 2009, it consisted of the following 23 developed market indices, also weighted by market value: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, The Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the UK and the USA. You can see how difficult it is to define 'the market'.

### 3.3.3 To track or not to track?



Figure 9

We now turn to the question of how to invest in the market portfolio.

In practice, investors tend to buy investment products linked to a stock market index, which represents an underlying market, through the medium of index funds. These have become widely used by investors partly due to the implications of the CAPM. Economic and financial theories do matter! These index funds are investment trusts or unit trusts designed to track an index as it moves from day to day. Index fund managers do so either by 'full replication', buying shares in proportion to their importance in an index, or by sampling, buying the larger shares and a sample of the smaller ones, to reduce transaction costs while still getting a close replication of the movements of the index.

**Exchange-traded funds (ETFs)** are index funds that are listed on the stock exchange as shares but are essentially funds (note that the word 'exchange' here has nothing to do with currency exchange). ETFs allow low-cost investment in market portfolios.

Investing in index funds is a passive investment strategy aiming to track an index rather than outperform it, but what this has meant for traditional fund managers is that they now have a benchmark strategy against which they can be judged. They have to try to outperform the index by following an active investment strategy.

Investors who do not believe the assumptions underlying the CAPM and think that they have superior investment skills can take on specific risk in the hope of achieving positive returns that beat the market. This is called an **alpha** investment strategy. It is the holy grail for investors seeking to earn superior returns. And this type of investor is called an **active investor**.

Fund managers who are active investors can try to outperform the market portfolio, or an index, by one of two strategies. One is to take on more specific risk by selecting companies in different proportions to their weighting in the index, so that the portfolio will be overweight in those companies that are expected to do well and underweight in those that have poor prospects. This strategy is called **stock selection**. We look at the second strategy in the next section.

### 3.3.4 Market timing: can you outperform the market?

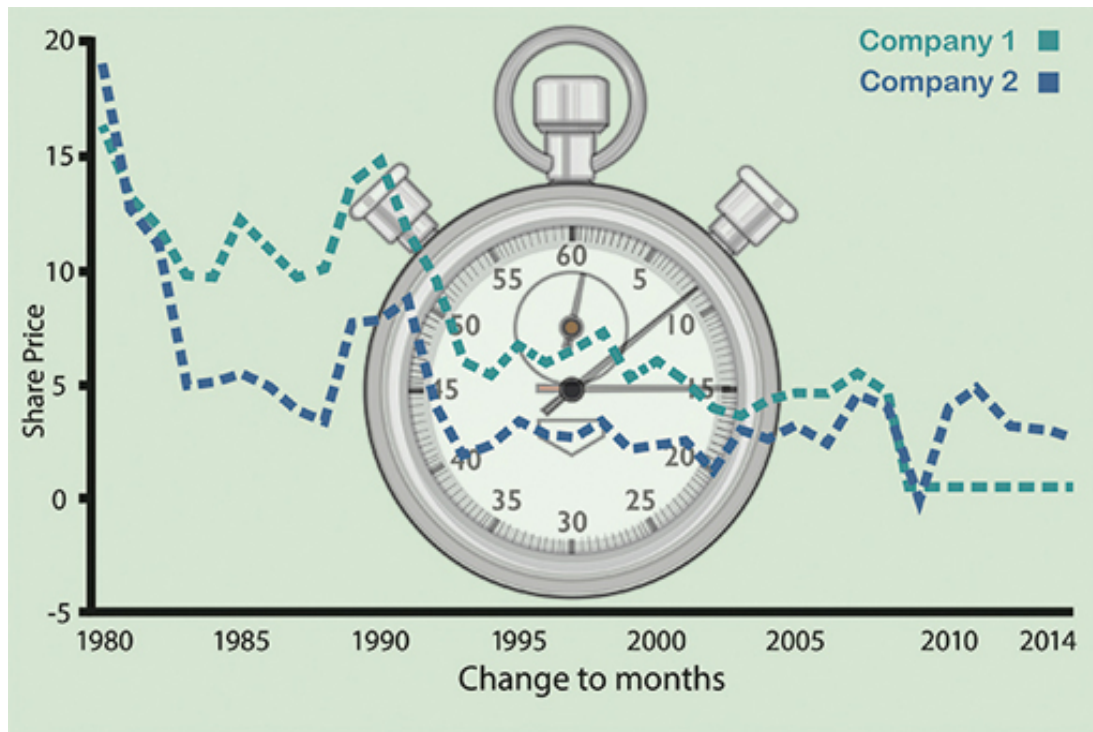


Figure 10

The other way to try to outperform an index is to try to forecast the movement of the market by adjusting the beta of the portfolio. This can involve increasing the amount of shares in the portfolio when the market is expected to rise, and reverting to cash just before the market goes down. By varying beta, fund managers are trying to time their entry into the market, and their exit out of the market. They are indulging in market timing. In fact, there are two ways in which active fund managers can attempt to time the market. The first is by varying the amount of leverage in a passive portfolio, moving up and down the capital market line and varying the beta of the portfolio according to whether they think the market will rise or fall. The second way is to alter the composition of the portfolio by increasing the proportion of shares that have high beta when the market is expected to rise, and increasing the proportion of low-beta shares when the market is expected to go down.

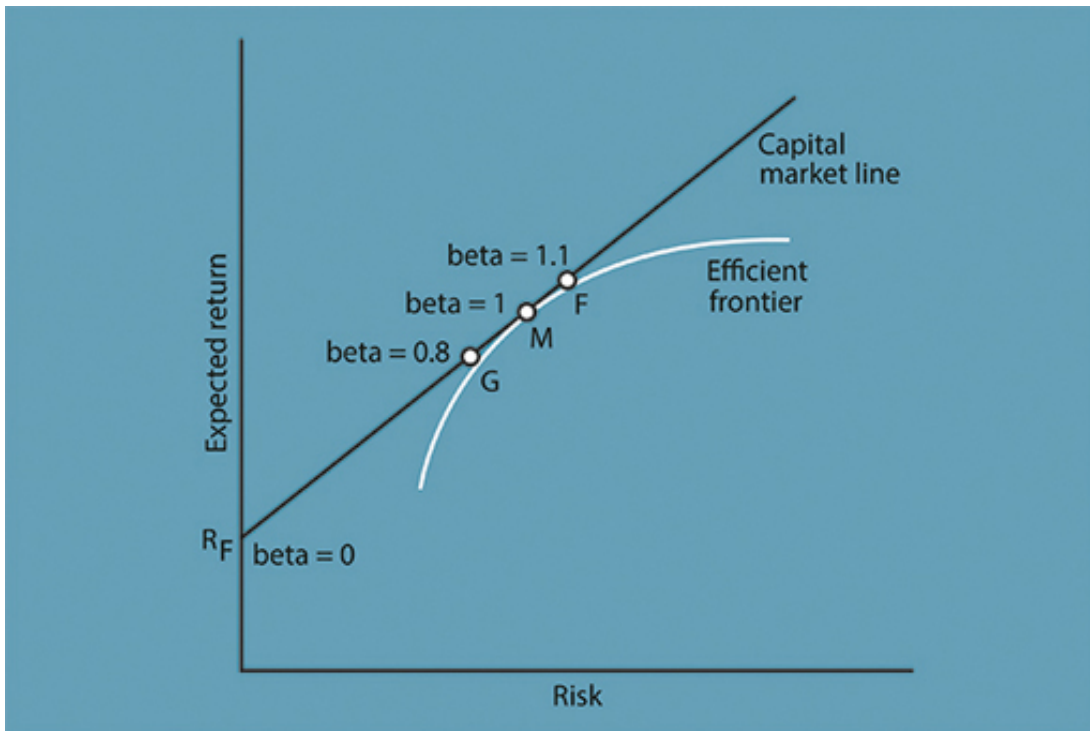


Figure 11 Choosing a market-related portfolio

The investor can choose between different types of shares. An example of a cyclical, or aggressive, share is an airline – which does particularly well in a boom and particularly badly in a recession – giving it a beta of more than 1 (high beta). An example of a non-cyclical (defensive) share is a utility or food manufacturer – people use electricity, eat food and drink water regardless of the state of the economy – and these typically have a beta of less than 1 (low beta). Typically, low-beta shares do relatively well in a recession, and high-beta shares do relatively well in boom times. So shares can have high or low betas as well as portfolios, but, if the active fund manager buys a portfolio of shares selected for their high or low betas and not the market portfolio, M, they will no longer have a fully efficient portfolio, and will bear specific as well as systematic risk.

So, whether adopting a stock selection strategy or a market timing strategy, the active fund manager is taking on more risk than the passive fund manager, by varying share beta risk (market timing) and/or through taking on specific risk (stock selection). Active fund managers also reduce the net expected return by charging higher fees than do passive fund managers; the latter run index funds in a competitive market and charge low fees for the replication of indices (essentially because less work is required to seek information about future price changes). Proponents of the CAPM, which assumes no particular investment skill, believe that the active approach is doomed to failure. Active managers argue that since some of them make a good living, some of them must be successful some of the time.

There is little evidence of market timing skills. A few people have become famous for timing the market correctly – George Soros for selling sterling before sterling left the Exchange Rate Mechanism in 1992, and Jon Moulton of Alchemy Partners for selling securities linked to sub-prime mortgages before that market collapsed, but these are individual occurrences for two particular investors and do not reflect general market timing ability. Indeed, retail investors are often sellers in a **bear market** when prices have already fallen and buyers in a **bull market**, the exact opposite of 'buying low and selling high', which is effectively what a market timing strategy attempts to do.

A way to reduce mistakes of market timing is to invest on a regular basis, such as monthly, quarterly or yearly. This is called **pound cost averaging**, and reduces the risk of buying at the high and selling at the low. It also reduces the chance of getting market timing right – buying at the low and selling at the high. If someone invested, for example, £50 a month in a unit trust that invested in shares, then if the market fell they would buy more units and if the market rose they would buy fewer units, since they would be spending an equal amount each month on units that varied in price over time. It is also worth adopting a similar approach for selling. If someone wants to sell, it makes sense to sell holdings in regular amounts, since it is difficult to tell when the market has reached a peak. Using this technique may be preferable in order to receive a reasonable average return, rather than to hold on, possibly miss the height of the boom, and have to sell when prices have already fallen.



## 3.4 Understanding the efficient markets hypothesis



Figure 12

As financial markets have grown, and as regulatory and information barriers to arbitrage and short-selling have fallen away, economists have been more confident about the efficiency of markets. This greater informational efficiency has led some theorists to go as far as supporting the efficient markets hypothesis (EMH).

The EMH states that market outcomes (the prices set and the volumes traded) are efficient in the sense of immediately and accurately incorporating all relevant information. There are different versions of the EMH, each with striking implications for the behaviour of market prices and for appropriate investment strategy.

A weak form of the EMH acknowledges that traders may not be able to obtain or process all publicly available information, and that current prices only contain all the information conveyed by prices in the past. This form denies the effectiveness of **technical analysis**, by which some investors study past patterns of price movement and look for signs of their repetition that will indicate the next price movement. If all information from past prices is already priced-in, any apparent patterns will have arisen by chance and cannot be expected to recur.

The semi-strong form of the EMH holds that prices contain all relevant publicly available information, but leaves open the possibility of some traders gaining an advantage through inside information. This form denies the effectiveness of fundamental analysis, by which some investors study published information on the issuers of shares and bonds, and on commodities, to identify those that are underpriced and can be expected to rise in price. If



the market price already reflects this publicly available information, there will not be undervalued or overvalued instruments as the fundamental analysts assume.

The strong form of the EMH holds that market prices contain all relevant information. This includes inside information held by a small number of market players, as well as information publicly available to all, such as business and economic news and published company accounts. It is assumed that people holding privileged information will, through their trading behaviour, cause it quickly to be captured in the price, which then transmits the information to everyone.

The type of information that is relevant to the EMH depends on what model of asset price determination is being used. For example, if this is the dividend valuation model, as used in fundamental analysis (see Shares – more on when they are good value ), the model will incorporate all relevant information regarding the expected earnings of a company. So prices will only move on the arrival of genuinely new information that changes the assessment of these earnings. The impact of this news and the direction of price movement will not be predictable, otherwise those who predicted it would already have carried out trades that incorporate the information into the price.

### 3.4.1 The random walk prediction



Figure 13

The EMH makes the powerful prediction that prices of shares and other financial assets will follow a random walk. The next price movement, up or down, will be unrelated to any of its previous movements. If the hypothesis is correct, there is little scope for investment experts to achieve better returns than others through stock picking and market timing.

Malkiel (2007) carried out an experiment with his students in which they were asked to toss a coin. The experiment started with a share price of \$50. If the coin came out as a head, they were told to add half a point to the share price; a tail would result in a half point

cut in the price. Figure 14 is a chart of the stock price for one of these experiments. You can see that it looks like the type of cycle in share prices that we see all the time for companies and stock market indices. Yet this pattern is derived from a purely random event, the tossing of a coin. This argues against the use of technical analysis to look for patterns in stock-market data.

The EMH suggests that there is no reason for such expert investment strategies to work any better than buying stocks in proportion to their weighting in the market index, or even buying a random selection of stocks.

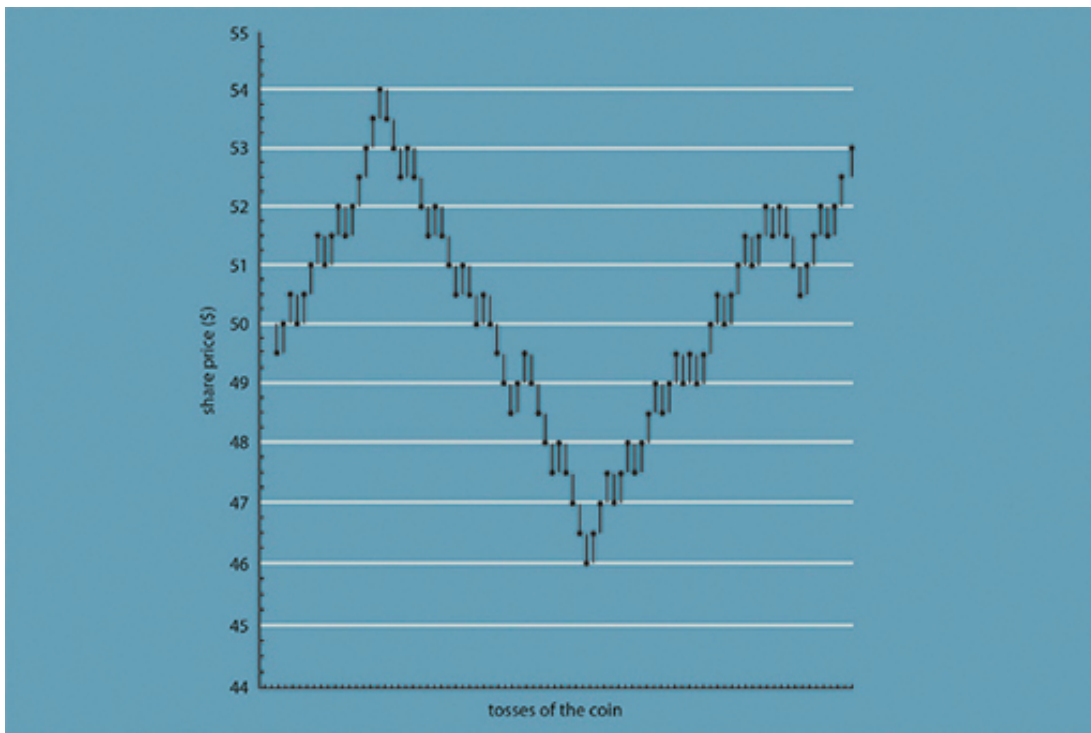


Figure 14 The 'random walk' from tossing a coin. Source: Malkiel (2007 p130)

### Activity 3.3 The random walk

Which of the following events would you expect to follow a random walk, and why?

- heads or tails when tossing a fair coin
- a football team's pattern of wins and losses
- sunny or cloudy days during summer.

*Provide your answer...*

**Answer**

Tossing a coin is an example of a random walk – whether it turns up heads or tails next time, is in no way related to the result of the previous toss, or any that went before.

In contrast, a football team's pattern of wins and losses need not be entirely random, as its chances of success in the next game may be related to its previous result. Several consecutive wins (or losses) may make another more likely, signalling the relative strength (or weakness) of the team, which could be self-sustaining because of soaring (or sagging) morale.

The summer weather is likely to be intermediate: many weather systems are durable enough for one sunny (or cloudy) day to raise the likelihood of another, but they change often enough (at least in the UK) for today's weather to be a poor predictor of tomorrow's, which is why weather forecasters remain in strong demand.

### 3.4.2 Technical analysis: reliable sat-nav or bogus science?

The EMH does not rule out the possibility of different traders working with different models, or inputting different data (especially on expected variables) into the same model. However, it does implicitly require traders to believe that assets have a value set by factors that are independent of other traders' behaviour and beliefs.

Problems arise for market efficiency if there is momentum trading, with the expectation of asset prices based on recent movements in the price. Such traders use technical analysis of stock market charts to treat previous price movements as containing relevant information, which the EMH denies.

An example of how charts are analysed in technical analysis is provided in Figure 15. A trader might look at the cycle in share prices as taking place in a price channel, as shown by the two horizontal dashed lines. If enough traders believe that there is a support level for the share price, as represented by the price level  $P_s$ , their belief in the support level price ensures that this price is supported in the market. Similarly, when the share price threatens to break through the resistance level  $P_r$ , this will also lead to a reaction that pushes the price back into the price channel. Technical traders monitor the pattern of prices using this type of charting analysis.

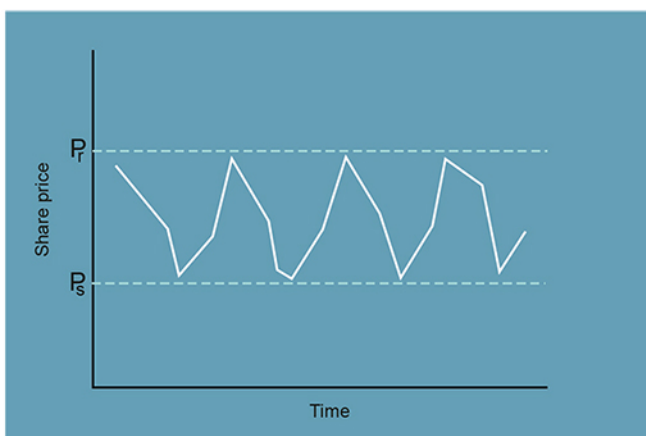


Figure 15 Example of how charts are analysed in technical analysis

Technical traders are anticipating that others will make the same trade later, and ‘because their speculation in the stock market is based on what they think other people wish to do, they are working from a slightly different set of information than those who buy or sell based on a firm’s long-term earnings prospects’ (Peters, 1999, p. 81). This potentially undermines the EMH assumption that everyone works from the same information. Although technical traders typically work on very short time-horizons, their behaviour can amplify price movements, causing these to overshoot beyond fundamental values even if they began with arbitrage correcting misalignment – sometimes contributing to ‘bubble’ episodes, which are examined in Week 4.

### 3.4.3 Technical analysis: some key features

While you can form your own views as to whether there is any substance to the predictive powers of technical analysis, this section looks at some of the key tenets of chartism.

The first involves moving averages and an example is provided in Figure 16. Here chartists impose on top of the graph of the share price movement a series of moving averages – typically 5-day, 30-day and 90-day averages. If the share price moves upwards through these moving average lines then this is taken as a ‘buy’ signal for the share – the more so if the longer term (for example, 90-day) moving average is breached. The reverse applies if the share price moves downwards through the moving average lines: such moves are taken as ‘sell’ signals.

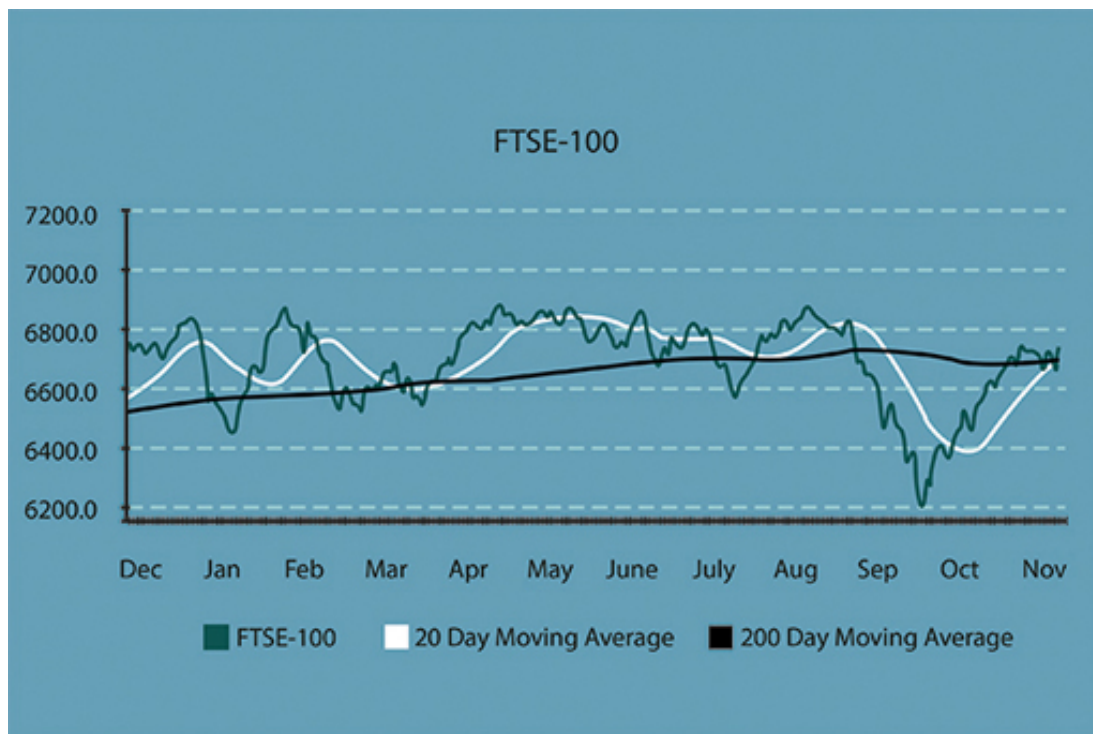


Figure 16 Moving averages

The notions of ‘support’ and ‘resistance’ lines are central to technical analysis. A support line is a straight line that links the low points of the series of movements in the share price over a period of time. A resistance line is a straight line that links the high points of the share price movements. Here, the rule is that a downward breach of the support line

presages a further downward movement in the share price. An upward breach of the resistance line points to a further upward move in the share price in the near term.

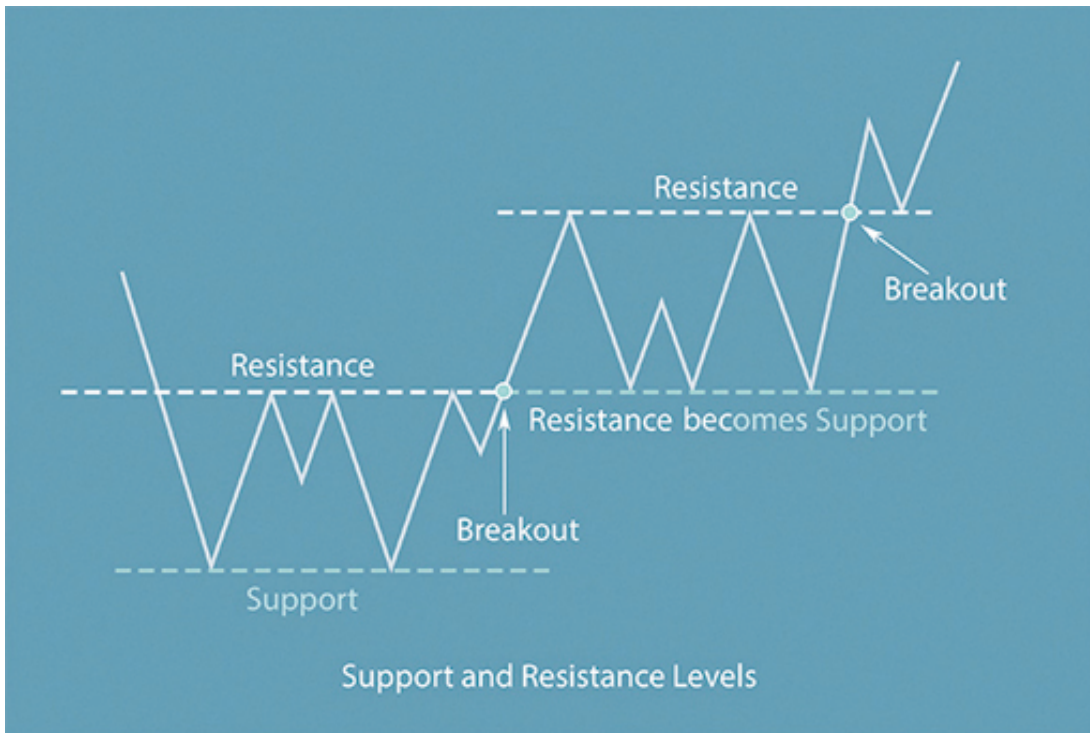


Figure 17 Support and resistance lines

Two of the many special chart features which hint at the future share price movements are 'head-and-shoulders' and 'islands'. These are identified in the image above. A 'head-and-shoulders' is where you have a series of three up and down movements in the share price over a reasonably short time frame. The first of these three forms the left shoulder, the second the head (which must be higher than the left shoulder) and the third forms the right shoulder (and it must be lower than the head). This pattern, particularly if the right shoulder is lower than the left shoulder, presages a fall in the share price in the near term.

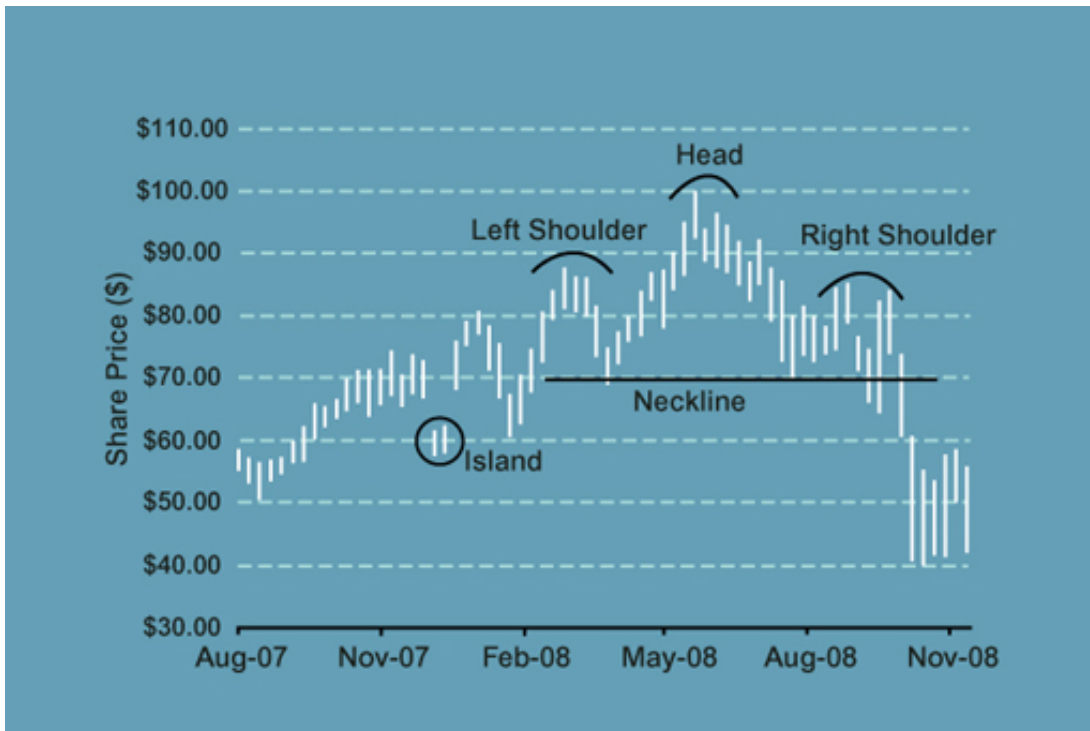


Figure 18 The head and shoulders pattern

Islands (or island reversals) are where a high or low point of a share price cycle is detached from the rest of the chart movements. A clear gap exists between the previous day's price range and the following day's price range. In such circumstances, the island points to a reversal of the recent share price trend, for example, an island below the rest of the chart line presages a period of upswing in the share price. The reverse applies when the island is detached above the chart line.

Many technical analysts swear by the predictive powers of charts. But how can they be really predictive? A number of reasons can be postulated to support their predictive powers:

- Those trading shares have predictable behaviour which leads to repeated, and hence, predictable, trading patterns and price movements (we look at behaviour and investment management in Week 6).
- The traders themselves look at the charts, or are advised by those that do, with the result that the predictions made by the charts are fulfilled by subsequent trading decisions. In short, trading behaviour follows the predictions made by the charts!
- The charts are just a summary of market sentiment as reflected in trades undertaken – and sentiment goes through cycles that are sustained for periods, sometimes long periods.

Sophisticated technical analysis uses very detailed charts that incorporate intra-day price movements (as opposed to just end of day prices) and the volumes of trading business done each day (since what happens on a high volume day is usually more telling about market sentiment than what happens on low volume days).

The debate about the predictive powers of charts will go on. There are clear examples where the charts have been 'right', but others where a major future price movement has failed to be predicted. Whatever the case, though, many analysts majoring on



fundamental analysis to assess the likely future movements in share prices also use technical analysis to provide a 'second opinion'.

### 3.4.4 Can investors really beat the market?

To conclude the debate about whether we have the capability to predict future movements in shares and other assets, hear what some financial experts have to say on the matter.

Video content is not available in this format.



## 3.5 Week 3 quiz

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Check what you've learned this week by taking the end-of-week quiz.

[Start quiz](#)

Open the quiz in a new window or tab then come back here when you're done.

### 3.5.5 Monitoring shares, gilts and Bank Rate

You will recall that last week Shares to follow we started to monitor the share prices of some selected companies listed on the London Stock Exchange and also the yields on UK Government bonds (gilts).

Let's catch up with their movements over the past week.

Remember, you can follow these shares using the [BBC Market Data tool](#), or by picking up a newspaper which focuses on financial markets.

What has happened to the prices of the shares and to the UK gilt yield curve?

Looking at the charts of the share prices, do you detect any features that a technical analyst (or 'chartist') would point to as providing a guide about the likely future direction movement of the price?

Post your findings and your thoughts about the factors that have driven these changes over the past week.

## Week 3 round-up

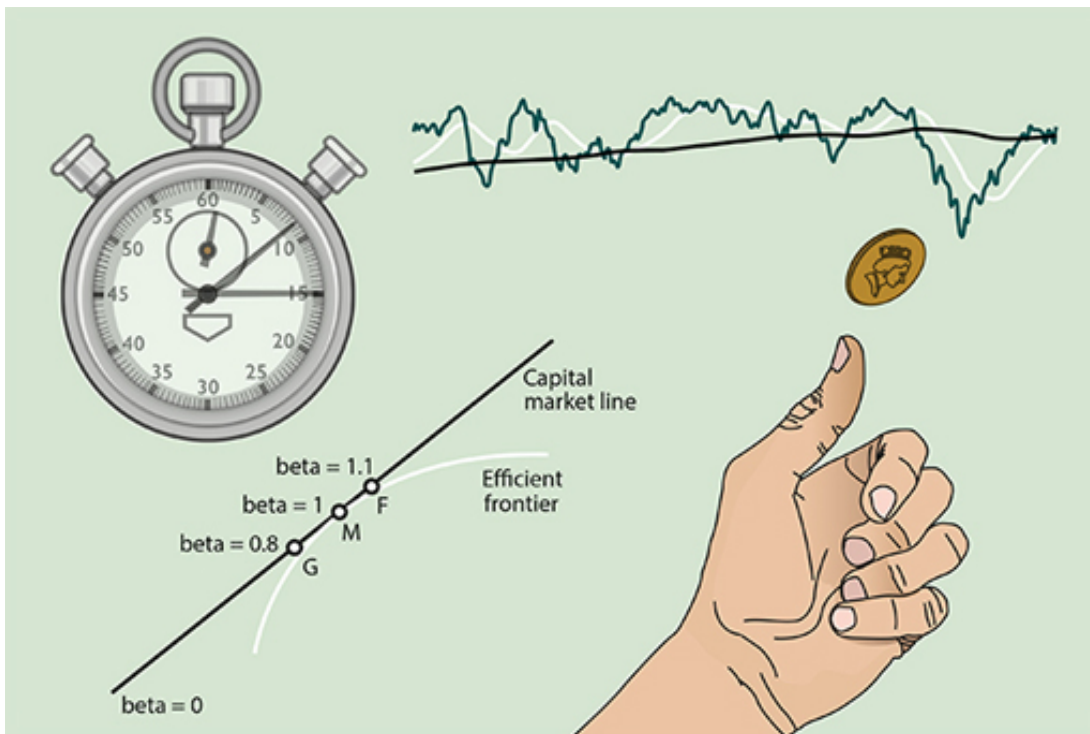


Figure 19

It has been a very full week again and we've covered some difficult concepts, but these concepts are key to effective investment management.

Understanding portfolio theory, CAPM and the Efficient Markets Hypothesis, as well as concepts like Random Walk theory, pound cost averaging and chartism are all important component parts of a rounded knowledge about how investment markets work.

You'll have seen as well how these theories apply in the practical world of investment management. All this helps to establish your own strategy for managing your investments.

Don't forget to continue with Activity 2.4 and check the prices for the selected companies once a week and enter their level in the Market shares tracking worksheet. Remember, you can follow these shares using the [BBC Market Data tool](#), or by picking up a newspaper which focuses on financial markets.

Next week, we turn to the subjects of investment strategies in practice and how to judge the performance of investments – in particular, the performance of those managing investment funds. In moving to these subjects, we arrive at the fourth stage of our investment management model – the 'review' stage.

## Further reading

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[Senanedsch, J. \(2012\) 'A General Methodology for Testing the Performance of Technical Analysis on Financial Markets' Journal of Computations & Modelling, vol.2, no.2, pp. 79-94](#) The article examines the performance of technical analysis. The introduction to this article also explains efficient market hypothesis.



# Week 4: Investment in practice – practices, styles, history and performance

## Introduction

Welcome to Week 4 of *Managing my investments* – a week that further explores investment management practices before moving on to the issue of how investment management performance can be measured. Watch the following video to hear Martin Upton introduce these topics.

Video content is not available in this format.



Assessing the performance of an investment, or a portfolio of investments, is part of the 'review' stage of the four stages model for investment management that we have been using during this course. Finding that your investments have been underperforming their target returns may be the trigger to revising your portfolio or seeking out a new investment manager.



We also look at a number of high-profile investment management episodes in recent history. These are interesting stories in themselves but many also provide guidance or warnings about the pitfalls that can be encountered when investing.

## 4.1 Investor activity – evidence from the industry

Over the last three weeks you've looked at the range of investments and funds that you can invest in. You've also looked at the factors that influence how investment portfolios should be structured. You start this week by looking at the pattern of investment activity and the trends in investment behaviour in the UK.

Watch the following video, in which Victoria Nye of the Investment Management Association (IMA) gives a presentation titled 'Investors' fund choices: what do they tell us?'

Video content is not available in this format.



### Activity 4.1 Investor activity

Having seen Victoria's presentation, what do you think are the key current trends for investment fund activity by personal investors?

What do you think are the factors driving these trends?

*Provide your answer...*

### Answer

The key trends are:

- a growth in money invested in funds following a dip in the wake of the 2007/08 financial crisis
- a shift to investing in mixed asset, or diversified, funds (such as bonds and property in addition to equities)
- a shift of investments from deposits paying interest into funds offering income (for example, from company dividends) as well as capital growth. An unsurprising development, perhaps, given the fall in interest rates after the financial crisis.

Victoria also points out the tendency for many investors to be over-cautious in their investments, with 40% opting for low-risk funds. She also stresses the benefits of starting to invest as early and as regularly as possible to benefit from the compounding of investment returns over time.

One other point – the term ‘fixed interest’ is one used in the investment industry when referring to bonds.

## 4.1.1 Age and lifestyle

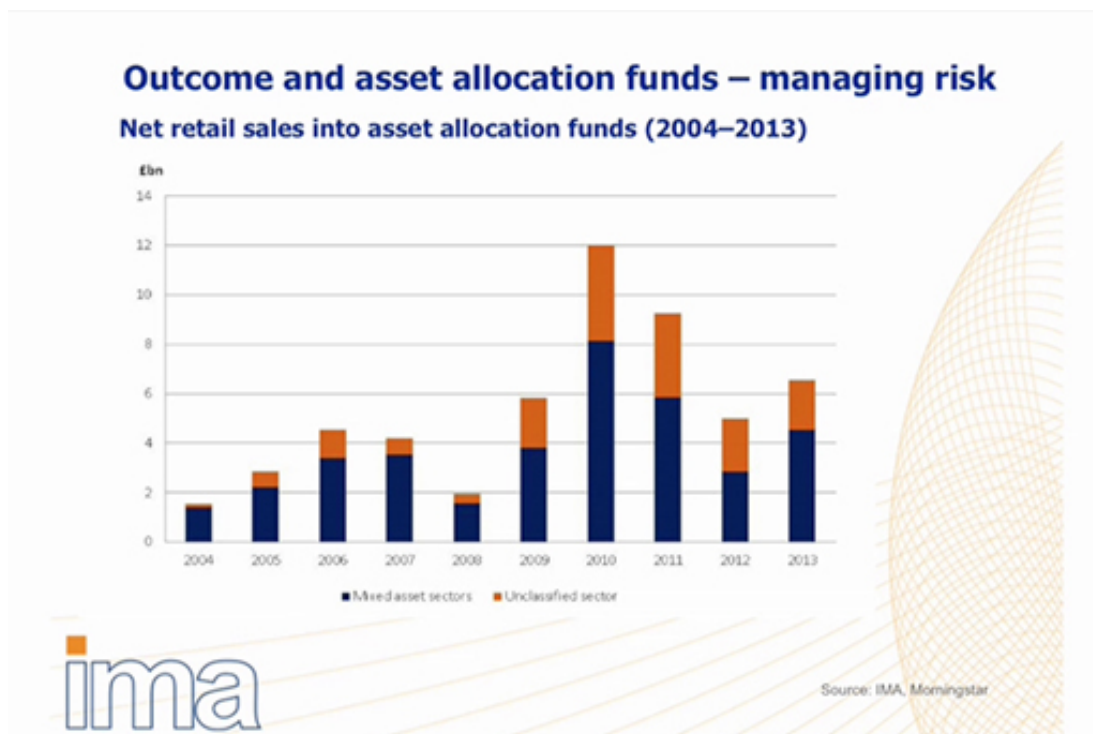


Figure 1 Outcome and asset allocation funds – managing risk

There is a relationship between the age of an investor and the rational composition (or allocation) of investments. This factor relates to the investment principle of ‘lifestyling’.

Let’s look more closely at these influences on investment behaviour.

## Age and asset allocation

An important factor when making decisions about the asset allocation is someone's age. Investing solely in equities is more suited to long-term investment. If someone is retiring in a few years' time, then investing solely in equities may be very risky. Looking at the graph in Figure 2 of the movement in the level of the FTSE 100, imagine what would have happened to the value of their investments if they were only holding shares and they retired in 2002/03 – they would have seen the value of their fund severely hit. If, on the other hand, someone is 25, with 30 years or more to save, they can afford to invest more in equities. If not saving directly, but through a company pension fund, the pension fund managers will look at the age distribution of the members of the scheme when deciding on the asset allocation.

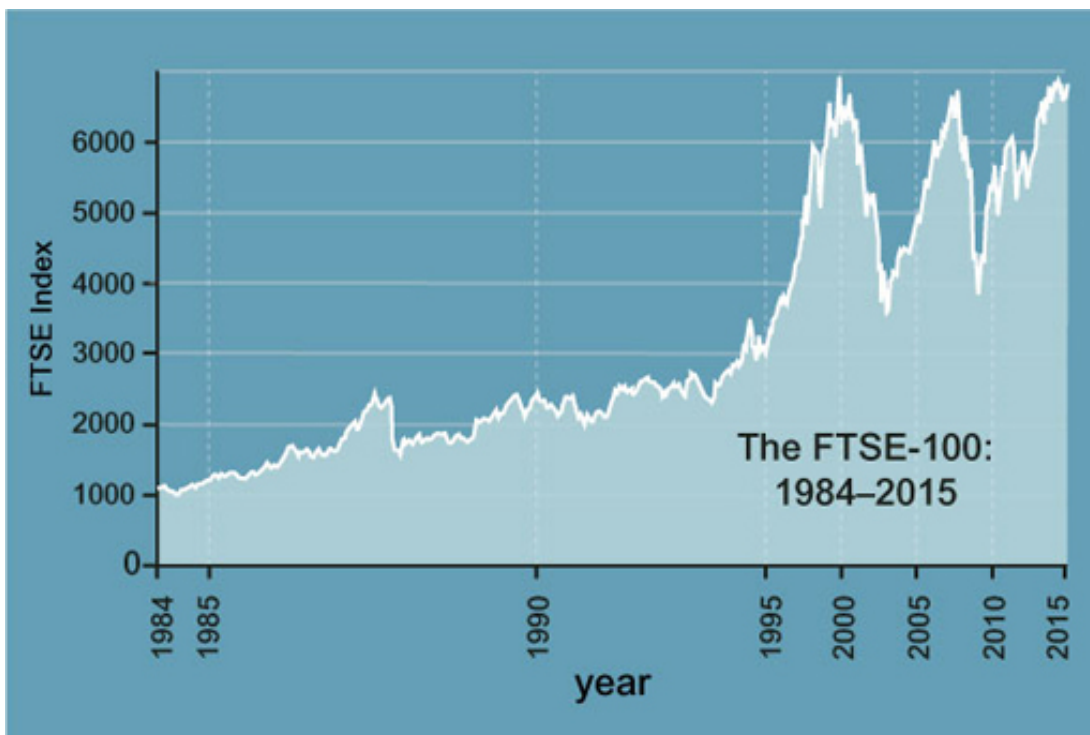


Figure 2 Movement in the level of the FTSE 100

So, the asset allocation decision that may be appropriate when someone is relatively young may not be appropriate when close to retirement. This suggests that the pre-retirement years shouldn't be entered into with too much risk. Indeed, asset allocation should be regularly revised and reviewed over the life-course.

## Lifestyling

This kind of investment strategy takes age into account. It will automatically point an investor towards equities if they are under 30, and the cash/bond/equity mix will gradually be changed as someone gets older to put them into lower risk investments as they approach retirement.

Imagine if someone had 100% equities as they approached retirement. If the market did well, they might retire in splendour; if the market did badly, they might retire with little. In order to reduce this risk, an investor gradually sells equities and buys bonds over time, so

that by the time the investor retires, their savings and investments are fully in cash and bonds and no longer bear stock market risk.

## 4.1.2 Cultural issues

Portfolio theory, which you may recall from last week, suggests that diversification is good for investors and it seems logical to suppose that investing internationally will improve the risk–return trade-off. Indeed, if we follow the Capital Asset Pricing Model (CAPM) to its logical conclusion, we should all be investing in the global equity markets in proportion to their market value.

Since the USA has by far the largest market capitalisation, investors, whatever their home country, should, in theory, be putting most of their money in the USA. However, in practice, there is home bias.

US investors tend to invest in US stocks, with very little invested overseas, and even the more internationally focused UK investor will typically invest the majority of their funds in UK equities. Part of the reason is that it is more difficult to invest overseas – some brokers will not let investors buy overseas stocks in small amounts, and information on shares is not so readily available, not to mention the fact that transaction costs are typically higher. An investor would also need a lot of money to gain exposure to all the major stock markets. As a result, small investors typically gain access to international markets through pooled funds, such as Open Ended Investment Companies (OEICs) or investment trusts.

Another difference is the span of investments that investment advisers typically cover. In the UK, investment advice is mostly on equities, pooled funds and some bonds. In France, however, the investment adviser will consider investment in property and stock-market investments as part of one portfolio – this is because tax advice is part of the investment adviser's role and property can be a tax-efficient investment. In the UK, although tax advice is also important, stock market investment and property tend to be kept separate.

Some countries also have more of an 'equity' culture than others. British investors have been happily investing in global equities since well before the First World War. Bonds also fell out of fashion after the high inflation of the 1970s and 1980s. As a result, British investors have been relatively happier to invest in shares than other nationalities.

When comparing countries, there are important differences in how assets are combined into funds. Figure 3 shows the asset mix in 2008 for pension funds surveyed in the UK, Germany and France. Whereas, on average, pension funds in the UK had 58% of assets allocated to shares, in Germany only 19% had shares, and in France only 22% had shares. A much higher proportion was invested in bonds: 76% in France and 71% in Germany, compared to only 38% in the UK.



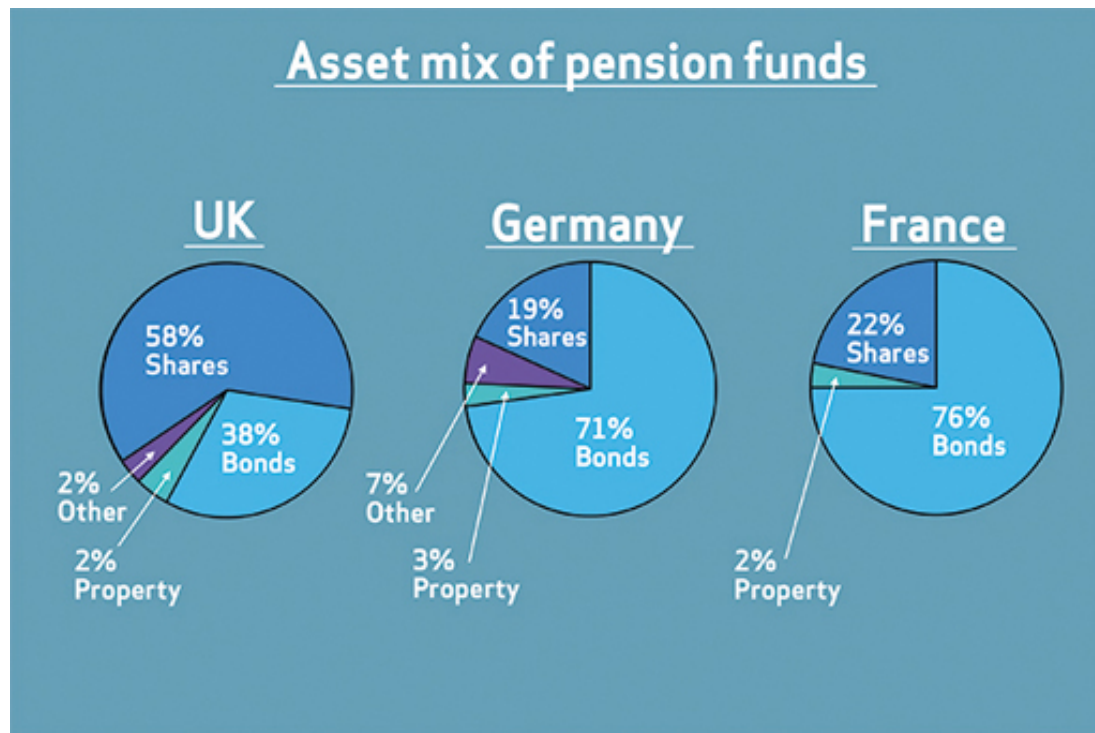


Figure 3 Asset mix of pension funds

### 4.1.3 International diversification



Figure 4

Portfolio theory offers the investor the ability to create efficient portfolios from a selection of investment alternatives, ranging from choosing a portfolio of UK equities or a set of

overseas markets in which to invest, to making an asset allocation choice between UK equities, overseas equities, cash and bonds, for example. In each case, a set of efficient portfolios can be created, provided that the investor has a database of the expected returns, risks and correlation coefficients.

In practice, investors tend to use historical data to estimate the risks and correlations, in particular. Expected returns chosen are more likely to be subjective estimates. The risks and measures of correlation might be calculated from, for example, the past 12 monthly periods, the past 20 quarters, or the past 10 annual periods.

The financial publication *Money Management*, for example, publishes the standard deviation from the most recent 36 monthly periods. Each choice of data will give a different answer and, to make matters worse, the efficient frontier portfolios that the analysis provides may be difficult to sell to investors in practice.

Suppose that an international equity market analysis suggested that US investors should place 50% in Belgian equities, 5% in the UK and the remainder in Chile. This might appear too different from a market-capitalisation-weighted global equity index to please investors. So analysts tend to play it safe and constrain their models to give answers that are not likely to change too much, and that are not that different from a popular benchmark index.

The Capital Asset Pricing Model (CAPM) is also based on assumptions that do not hold in practice. Investors based in different currencies will not all be looking at the same opportunities; investors cannot in practice both borrow and lend at the risk-free rate; and the market indices used to represent the market are not very good approximations to estimates of all marketable assets.

However, the conclusions that the CAPM reaches – that there is, for passive investors, an investment alternative based on index funds and cash, that active managers can be judged relative to that passive investment alternative, and that investors can analyse what kinds of risk investment funds are taking on – have meant that investment managers have to be very careful to implement the investment strategies that they put in their marketing literature.

These observations bring us to the next key aspect of investment management: how to judge investment performance – including the performance of fund managers who look after your investment portfolios.



## 4.2 Relative returns



Figure 5

The traditional way in which fund manager performance has tended to be judged is against the performance of other fund managers with similar investment objectives. This means that pension fund managers are judged against other pension fund managers, and unit trust managers investing in UK shares are judged against other fund managers investing in UK shares. The table set out at the top of Investment funds: alternative risk profiles shows how funds are grouped by the Investment Management Association (IMA) to allow performance measures to be applied to peer groups of funds.

The IMA maintains a system for classifying funds, as there are over 2000 investment funds. The classification system contains 30 sectors grouping similar funds together. The sectors are split into two categories, those designed to provide 'income' and those designed to provide 'growth'. The sectors are designed to help investors to find the best fund(s) to meet their investment objectives and to compare how well their fund is performing against similar funds. Each sector is made up of funds investing in similar assets, in the same stock-market sectors or in the same geographical region.

Similar frameworks have been put in place by the Association of British Insurers for life company funds and other groups of investment funds. Whatever the framework, the aim of each fund manager is to be top of the league tables, so that new investors will choose them based on past performance. For such managers, success is about relative not absolute performance, and this can affect fund managers' behaviour.

For example, suppose that you are trying to compare funds investing in cash and UK equities (shares). In a bull market, a top performer relative to the peer group is likely to be the fund most heavily invested in equities. Because of this, there will be a temptation on the part of all the fund managers in this peer group to increase their equity participation. So, over time, the typical fund's equity exposure will rise, increasing its risk. When the

bear market comes, the funds in the group will suffer more than if they had invested relative to a benchmark linked to cash and equity indices, say 50% in each. Staying close to this benchmark would have meant that their equity market risk stayed more or less the same over time.

Retail funds can also be judged against a suitable benchmark index, say an Indian stock market index for an Indian equity fund, or the MSCI global equity index for a global equities fund. This makes it easier to measure that all-elusive outperformance, as it is a specified, calculable benchmark return, and allows funds to be judged relative to an established alternative investment strategy.

The further away from the benchmark, therefore, the greater the risk taken on by the fund manager – individual funds deviate from the benchmark to try to outperform in different ways. As you have already seen, some take on more beta, others more specific risk, in order to earn what is called 'positive alpha'. The next section shows which performance measures can be used when comparing performance against a peer group or when comparing against the performance of a benchmark index.

### 4.2.1 Alternative measures



Figure 6

## Peer group performance measures

Peer group performance measures can be used when there is no benchmark index available and allow comparison of funds within an appropriate peer group. The key measures of peer group performance are:

- **Sharpe Ratio** This measures how much is earned per unit of total risk taken on by the fund (the standard deviation of its returns). The ratio consists of two elements. The first element (the numerator) is the excess return of the fund relative to the risk-free rate. So if the return is 13% and the return to the risk-free asset is 3%, this means that the excess return is 10%. The second element (the denominator) is the standard deviation of returns to the fund. If, for example, the standard deviation is 10%, then with an excess return of 10% this gives a Sharpe Ratio of 1, considered to be a good performance. If the excess return is only 2%, the Sharpe Ratio would be a less impressive 0.2. Earning less than the risk-free rate, as fund managers did in 2008, would give a negative Sharpe Ratio!
- **R<sup>2</sup> (R-squared)** This is the percentage of the total risk of a portfolio that can be explained by market risk. The remainder is the percentage represented by specific risk. A high R-squared, say 90% or more, means that the fund closely resembles an index fund and is not following an active outperformance strategy.

## Index benchmark performance measures

Where an index or other benchmark is specified, the following measures are used to judge performance relative to that benchmark:

- **Alpha** The difference between the return on the portfolio and the return on the benchmark, positive or negative, that can be derived by taking on specific risk – for example through stock selection.
- **Beta** A measure of the fund's sensitivity to market movements. Fund managers use beta to engage in market timing. In a bull market, a fund with a beta of more than 1 will be expected to do well relative to the market; in a bear market, a beta of less than 1 will be expected to do less badly than the market.
- **Tracking error** This measures the volatility or standard deviation of the alpha over time. The larger the tracking error, the more likely a high outperformance or underperformance relative to the benchmark in any one period.
- **Information ratio** This is a risk-adjusted performance measure, that is, the alpha divided by the tracking error. This measure prefers funds that earn consistent, positive alphas, rather than higher but more volatile alphas over time.

### 4.2.2 Analysing a fund's performance

'The fund is a strong long-term choice for investors seeking a balanced multi-asset fund with exposure to a variety of asset classes'

(Morningstar Research, 2014).

Using the internet, you can find performance measures based on portfolio theory and the CAPM to analyse funds such as the Newton Balanced Income Fund. This particular fund achieved a three year positive mean return and a positive Sharpe Ratio over three years, meaning that it returned more than the risk-free rate over the period. The beta is 0.93 compared to a benchmark index, which makes the fund slightly less exposed to market movements than its benchmark comparator. The negative alpha means that the fund's

return has been penalised for taking on specific risk through stock selection and not just mirroring the benchmark index (Table 4.1).

**Table 4.1**

<b>Newton Balanced Income Fund</b>	<b>Performance and features</b>
3-year standard deviation	7.19%
3-year mean return	5.64%
3-year Sharpe Ratio	0.69
3-year R- squared	76.64%
3-year beta	0.93
3-year alpha	-5.41
10 years annualised return	7.70%

Figure 7 shows the ten-year performance of £1000 invested in the Newton Balanced Income relative to the chosen peer group and the chosen benchmark index. The peer group included several hundred other income funds with the same investment objectives. This shows the fund's superior performance over the period until 2013 compared with both the index and the average performance of the peer group. Consequently the investment analyst firm Morningstar awarded it a 5-star rating for the 10-year performance – but a 'below' average 2-star rating for its 3-year and 5-year performances.

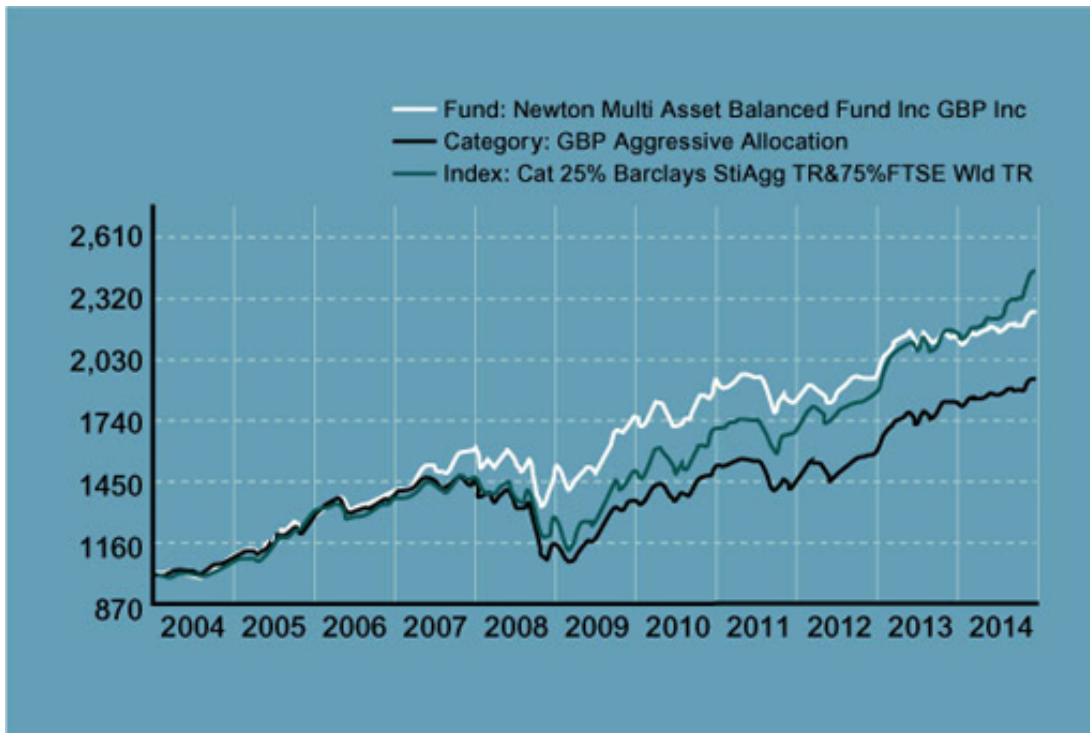


Figure 7 Ten-year performance of £1000 invested in the Newton Balanced Income

So, for the overall period from 2004 to 2014, we would have been happy to have invested in the Newton Balanced Income Fund instead of another fund in the same peer group. By contrast, over the 10-year period there was little to choose between this fund or the index fund tracking the chosen benchmark index. But the problem is how to identify the best performing funds before the event and not after. The figure above shows that the average peer group performance was worse over the 10-year period than that of the Newton Balanced Income Fund. Furthermore, some funds would have performed worse than the peer group since this is an indicator of average performance. So, only if we were very lucky, and had picked a fund manager who did well, would we have achieved our target return, as measured by the index, or more. Tracking the benchmark index therefore offers a strategy of avoiding investment in the weaker performing funds.

By far the most common indicator of performance is simply returns over the past year, three years and five years. Since markets may well experience a bull or bear phase over more than five years, aggressive funds will look good in the good years and defensive funds will look good in the bad years. An example of an aggressive fund is a **growth fund**, a fund that looks for companies with growth potential but may be expensive in earnings terms (that is, have high price–earnings ratios, P/E – a measure we looked at in Week 2), as did internet companies in the late 1990s. An example of a defensive fund is a **value fund**, which invests in companies that look relatively cheap on fundamental ratios such as P/E, dividend yield or Tobin's Q (which we also looked at in Week 2).

Indeed, some fund management groups make sure that they have a wide range of different types of fund to make sure that they always have at least one or two near the top of the league tables, whatever the state of the stock market. This is another example of how diversification informs investment strategy.

### 4.2.3 Absolute returns



Figure 8

The relative approach to peer groups or to benchmarks does not always work well.

In the dot-com crash of 2000, for example, when pension funds suffered badly as the equity market fell, pension fund managers argued that they had all lost money, so it didn't really matter. This included even those who outperformed the benchmark (which in this case means that they lost less than the benchmark), but this was a matter of concern to company directors, who found that their company pension funds had to be topped up to cover the stock market losses. They decided to turn to fund managers who promised absolute returns, that is (hopefully), positive returns whatever the economic situation.

So, for example, the fund might promise not to underperform the FTSE All Share Index by 2% – a 10% fall in the index would still mean a loss of 8% – but rather to earn, say, 4% more than the risk-free rate. Two types of investment that promise absolute returns are some types of hedge fund and **structured products**.

### Absolute return hedge funds

A hedge fund is a fund that is allowed to use aggressive investment strategies through high leverage (borrowing). This is different to the position of unit trusts and OEICs (who can only borrow to a very limited extent) and investment trusts (whose leverage is normally capped). Hedge funds are exempt from many of the rules and regulations governing unit trusts and investment trusts, which allows them to invest large amounts at any one time. Retail investors can invest in so-called 'funds of funds' that are unit trusts or OEICs investing in a number of hedge funds with varying investment strategies. As with traditional funds, investors in hedge funds pay a management fee, however, hedge funds also collect a percentage of the profits (usually 20%).



Unlike the managers of unit trusts and investment trusts, hedge fund managers can sell shares short. So, for example, managers of a 'long/short' hedge fund will buy shares that they like and sell those that they don't, in equal amounts, so netting out the market exposure and keeping specific risk relatively low. In such a case, the risk of the hedge fund will be uncorrelated with market risk and will offer pension funds, and other investors seeking to diversify away from equities and bonds, a positive expected return. However, in practice, such hedge funds use a lot of leverage to enhance expected returns and many suffered from the lack of liquidity during the credit crunch and were forced to sell shares into a falling stock market. Their returns turned out to be more positively correlated with market returns than investors had anticipated.

## Structured products

A typical capital structured product is one that will offer, as a minimum, return of the original capital invested at the end of a period of three years, for example, and any upside of, say, the FTSE 100 stock index. This would mean that if, at the end of three years, the FTSE 100 was lower than the index value at inception, customers would receive £100 per £100 invested. If, on the other hand, the FTSE 100 had risen by 20% by the end of the three-year period, the investor would receive £120 per £100 invested.

Guaranteed products are typically put together by investment banks or other investment institutions by using combinations of bonds, shares and derivatives. As a result, guaranteed products are called structured products. Structured products are exposed to the counterparty risk (see Week 3) of whichever banks or other institutions supply the underlying guarantees. Counterparty risk was not considered to be significant until 2008, when Lehman defaulted on a number of guarantees underpinning structured products, although some of these guaranteed products have since been honoured by the banks that had marketed them.

It is worth pausing to ask how the client is paying for having the best of two worlds – limited downside risk and yet upside potential. The answer in the case of capital-guaranteed products is in foregone income. For the whole of the three-year period, no interest is paid and the rise in the index excludes dividend income. Depending on the size of the dividend foregone, this can be equivalent to quite a high annual charge.

### 4.2.4 The reporting of performance

The level of performance measurement varies from cursory to detailed, depending on the size of the investment. Managers of large pension funds have to provide their clients with detailed breakdowns of the risk and-return characteristics of their portfolios, and there are a number of consultants who specialise in such analyses. They also use the key measures such as tracking error and alpha.

When it comes to funds, such as investment trusts, OEICs and life assurance funds, more complex measures tend to be combined into a star-rating or number-rating system. This allows investors to identify good recent performers and high- or low-risk funds relatively easily.

It is rare to find a fund that significantly outperforms an index benchmark over the long term. It is very difficult to spot future winners, and past performance is not a guarantee of future performance, but analysing performance can and does say something about how

the performance was earned and what kinds of risk an investor in the fund is likely to be taking on. It can also force investors to face the truth of their investment performance.

To finish this section, watch the video and hear Anthony Nutt's observations on fund management performance and on whether chartism (that we studied in Week 3) is an aid to good performance.

Video content is not available in this format.



#### Activity 4.2 Assessing a portfolio's performance

Suppose that you were asked to judge the performance of your share portfolio, which you have run with an internet broker for the past five years. How would you go about this?

Post your thoughts in the [course forum](#) and discuss with other learners.

**Don't forget to head your post with the number and title of this activity .**

### 4.2.5 Assessing a portfolio's performance

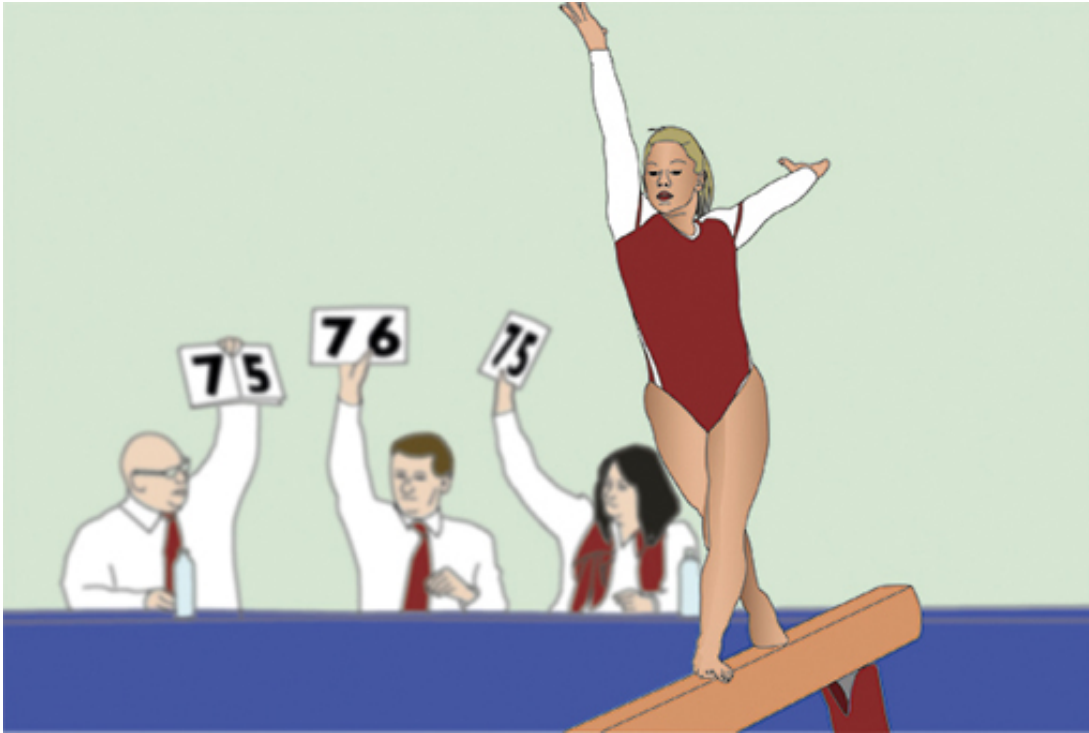


Figure 9

Most retail investors or traders judge performance against the cost of the shares that they have bought, ignoring the opportunity cost of their money – what they would have got from investing in an equivalent-risk investment, including dividends, for the whole five-year period.

You can only really judge performance relative to a benchmark. This might be buying an index fund linked to the FTSE All Share index and holding it for five years untouched, but if you included non-UK shares in the portfolio, a more international benchmark would be appropriate. It is all too tempting to set yourself an easy benchmark and to forget the bad investments that you have made, concentrating only on the successes.

## 4.3 Historic returns from different asset classes

Tables 4.2 and 4.3 summarise the historical evidence of returns from different types of investment 'asset classes'.

**Table 4.2 Average real annual returns for UK equities (shares), gilts (government bonds) and savings accounts**

	1899–2015	2005–2015
UK equities	5.0%	2.3%
Gilts	1.3%	3.0%
Savings accounts	0.8%	–1.1%

Note (1): 'Real' return is the return after adjusting for inflation

Note (2): The returns for cash deposits are computed using the historic returns on short-term (typically 3-month) investments with the UK government (known as 'Treasury Bills')

Source: Adapted from Barclays (2016).

**Table 4.3 Value at the end of 2015 of £100 invested at the end of 1899, with gross income reinvested**

	Nominal	Real
UK Equities	£2,265,437	£28,232
Gilts	£36,395	£454
Savngs accounts	£20,535	£256

Note: 'Nominal' means before adjusting for price inflation. 'Real' is the return after adjusting for price inflation.

Source: Adapted from Barclays (2016).

While evidence suggests that there is no guarantee that what has happened in the past will happen in the future, historical performance of products is still informative. Table 4.2 shows the average annual returns on UK equities, gilts and cash deposits for the periods 1899–2015 and 2005–2015. Note that when we talk about 'cash deposits', these are

investments whose returns are akin to those on bank or building society savings accounts. They are similar to cash in that they are liquid assets, and ‘cash deposits’ is the term that you will come across in this kind of product analysis in advanced personal finance literature. Note that the table is looking at a **portfolio** of equities – in this case the performance of the FTSE All Share Index, which includes around 1000 companies’ shares listed on the London Stock Exchange. Note also that the table shows real returns – in other words, the return over and above the amount needed simply to keep pace with inflation in order to maintain the buying power of the capital.

Table 4.2 shows that, over both periods, a diversified portfolio of equities outperformed gilts, which in turn outperformed cash deposits on a yearly returns basis. This outperformance is reinforced by the data in the second table on the value at the end of 2015 of £100 invested at the end of 1899.

Compounded over a number of years, the differences in annual average returns between equities, bonds and cash can make a huge difference in money terms.

If investing in shares makes higher returns, why don’t people put all of their money in UK equities rather than in gilts or cash? One point to bear in mind is that such returns are only an average on a portfolio of shares, achieved over the period shown in the table. The actual return on a portfolio of shares in any one year has ranged from a staggering –51.7% (the loss of more than half of the capital) in 1975 to a rebound the following year of a 150.9% gain!

A person’s attitude to investment risk will determine how much someone invests in equities (shares), in bonds and in cash (or savings products). If someone is highly risk averse, they are more likely to stick to savings products and bonds – although the evidence here shows that they will be likely to lose out over the medium to long term by being under-invested in shares. If someone is less risk averse, they will be happy to focus more on shares when it comes to the composition of their investment portfolio – provided their investment time horizon is not too short.

### 4.3.1 Historic returns: proof that the time horizon is crucial

We have already learned that risk also relates to the length of time of any investment. Normally, the longer someone intends to invest without needing to sell, the more risk can be afforded. Table 4.4 uses past data to show how likely it is that the shares will beat cash deposits or gilts as an investment over two different time periods or horizons – five years and ten years, without withdrawing any money, that is, allowing for compounding of interest.

**Table 4.4 Equity outperformance of gilts (government bonds) and savings accounts in defined time periods, 1899–2015**

	Time period assets held	
	5 years	10 years
Percentage of times equities outperformed gilts	72%	79%
Percentage of times equities outperformed savings accounts	75%	91%

Source: Adapted from Barclays (2016).

The probability (from 0–100%) is based on the number of periods in which equities outperformed either cash or gilts expressed as a percentage of the total number of periods between 1899 and 2015. Therefore, if we consider all possible five-year time periods between 1899 and 2015, there were 112 of them. For those 112 time periods, equities outperformed cash deposits 84 times, giving a probability of  $84/112 \times 100 = 75\%$ . For the ten-year periods, the outperformance rate was even higher – 91% against cash deposits.

So, past evidence suggests that the longer the time period, the more likely it is that equities will outperform bonds and cash – assuming that past returns are good predictors of the future. Studying the past seems to say that, with as short a time horizon as five years, there is a three-in-four chance of doing better if you held all equities rather than all bonds or all cash deposits. With a ten-year time horizon, there is more than a nine-in-ten chance of doing better with equities than with cash deposits. Put another way, the risk of underperformance with an equity portfolio over ten years is less than 10%.

History would seem to suggest that someone is unlikely to lose when investing in equities compared with buying bonds or putting their money in a savings account. Nevertheless, the past would not have been a good forecast of the future if someone had been investing £1000 for ten years in 2000. This was the start of a **bear market** with share prices falling for a sustained period. The FTSE All Share Index started 2000 just below a value of 3000. By September 2010, the index stood some 100 points lower at just under 2900. The investor's £1000 would have fallen to £967. This highlights that the probabilities in the table above are calculated over a very long time period and may not take into account more recent changes. Consequently, the past is not necessarily always a good indicator of a particular future.



## 4.3.2 Bubbles

Periodically, periods of manic buying affects financial markets – particularly share markets.

There have been many examples of share prices ballooning skywards on upbeat speculation about the prospects for certain companies, only to plummet on discovery that these prospects are more a mirage than a reality.

In these circumstances, the share price movement is like an expanding bubble that, at some point, will inevitably burst.

Watch the following video, in which a number of specialists in personal and corporate finance discuss what is meant by the term 'bubble'.

Video content is not available in this format.



The origin of the term 'bubble' is thought to emanate from the fate of the South Sea Company. The saga of the South Sea Bubble in the eighteenth century has great similarities with other more contemporary bubbles, such as the so-called dot-com bubble in the early 2000s.

The South Sea Company was formed in 1711 and was given a monopoly to trade in Spain's South American colonies. The overhyped prospects for this business in the New World built up a frenzy of speculation in the shares issued by the South Sea Company. This reached a head in 1719 and 1720. The company's share price rose from £128 in January 1720 to £1000 by August, only to collapse to £150 in the subsequent month. The extent of involvement in this share price bubble, including members of the Government, and the sharp decline in the share price resulted in widespread bankruptcies and company failures. Curiously, the South Sea Company itself survived, albeit in a restructured form, and traded for another century.

Spotting bubbles is a crucial skill in investment management. If you have invested in a share whose price is rising rapidly, you need to determine whether this is because of the

company's performance or simply hype, based on unrealistic expectations about the company's potential. If it is the latter, get out before the bubble bursts!

### 4.3.3 Google: success story or a bubble yet to burst?



Figure 10

The internet search engine company Google, established in 1998, adopted a very different approach to their IPO on the **NASDAQ** stock exchange in August 2004.

Controversy accompanied the run-up to the launch, with Google encountering problems with SEC regulations for public offerings by issuing shares to staff prematurely and by talking about the issue to Playboy magazine. The company also declined to market the issue of shares by road-showing it to potential investors – something that is commonplace when companies enter a market for the first time. The greatest interest, however, focused on Google's approach to pricing their IPO: they decided to use a Dutch auction to allocate the shares. With this method, shares are distributed to investors whose bids are at or above the price that sells all the shares available. In effect, Google was asking investors to say what they thought was the right price for the shares, rather than vice versa. In theory, this method should mean that at launch the issuer extracts the maximum proceeds possible. Did this work?

After a late decision to cut the number of shares offered from 25.7 million to 19.6 million, Google set a price range of \$85–95 (below the range previously indicated). The Dutch auction allocated the shares at \$85 – the base of the indicated range, but once the shares started trading their price rose above \$100 and after three months they were trading above \$169. This was not entirely surprising since the Dutch auction appears to have been flawed: at \$85 there was unmet demand for Google's issue of shares, with one

quarter of the bids for shares being unsuccessful. Despite the fact that equity markets were on the upturn in autumn 2004, it appears that Google underpriced its IPO. The complexity of the Dutch auction may have deterred investors from bidding for shares at the launch, thereby constraining the issue price.

The conventional process of marketing and book building would almost certainly have yielded the company more from its IPO, but Google is anything but a 'conventional' company. In addition to providing an interesting case study of an IPO, the subsequent sharp rise in Google's share price prompted – not for the first time – interesting questions about the valuation of a technology company. Indeed, valuing young technology-based companies with a short financial history that operate in a rapidly changing business environment is always a challenge.

Shortly after the issue, Allan Sloan of the Washington Post wrote:

The stock market is valuing Google at almost \$30 billion, or almost 87 times the \$1.26 per share profit it reported for the 12 months ended June 30 [2004]. Google earned \$7 million on \$86 million in revenue in 2001, its first profitable year, and \$191 million on revenue of \$2.26 billion in the 12 months ended June 30. But the company's not a small start-up anymore. To keep up this growth rate, Google will have to earn \$5 billion on revenue of \$60 billion in 2006. That's clearly not going to happen

(Source: Sloan, 2004).

Sloan's prediction was proved correct: Google made \$3.1 billion in net income on revenues of \$10.6 billion in 2006. Despite this, Google has continued to be a high profile corporate success story. In July 2011, it announced net income of \$4.3 billion on revenue of \$17.6 billion for just the first six months of 2011. The surge in its share price had resulted in Google becoming the world's largest media company.

At the time of writing (2015) Google shares are now trading at \$537 not far below its all-time high of \$608. In fact, given a restructuring in 2014, which saw each of Google's existing shares replaced by two new shares, the prevailing price effectively represents close to a 12 ½ -fold increase over the issue price.

So is Google a secure stock or a large, long term bubble?

### 4.3.4 Privatisations and demutualisations – easy money?



Figure 11

The 1980s and 1990s saw what came to be believed as sure-fire ways to make easy money from shares – privatisations and demutualisations.

Privatisations – the conversion of state-run utilities to private listed companies via a sale of shares to the public got underway in the UK in 1984 with the privatisation of British Telecom. This was followed by a succession of further privatisations in the following years including British Gas, British Airways, the regional water utilities (for example, Severn Trent) and the British Airports Authority. Additionally, the UK Government sold off its holdings in companies like BP and British Aerospace.

The rationale for the privatisations was a mixture of politics and economics. Getting more members of the public to become shareholders and to become actively engaged in a shareholding democracy fitted with the ethos of the Conservative Governments of the late 1970s and 1980s. Getting government out of business by selling off state utilities, which were simply businesses owned or part-owned by the state, also resonated with their economic philosophy.

The economics were compelling too. Privatisations raised huge amounts of money – some £50 billion between 1984 and 1996 – and hence reduced the need of the government to borrow.

For those who successfully received allocations of the new shares in the privatised utilities, the economics usually looked good too. In most cases, the share prices rose sharply immediately after flotation, with the result that instant profits could be made by a sale immediately after the launch date (a practice known as 'stagging'). The reasons for this phenomenon are much debated. Suggestions include:

- the underestimation of demand from personal investors for the shares, with this demand being whipped up by extensive advertising campaigns
- the fact that institutional investors had to buy up large amounts of shares for funds that tracked the FTSE 100 – since in most cases the size of the privatised utilities meant that they joined the list of the 100 largest companies on the London Stock Exchange

- the desire of the investment banks (who arranged the privatisations) to see successful share issues. This meant that no risks were going to be taken by pitching the offer price of the shares at a level which left even a proportion unsold on the launch date.

The privatisation period came to an end with the arrival of the new Labour Government in 1997. In truth though, there was not much left at that point for the government to sell off!

## How did shares in privatised companies perform?

The privatisation period created a new group of shareholders among the general public – although over time many sold their shares. As the figure above shows, those that held onto them over the longer term had a mixed experience relative to investing in a FTSE 100 indexed fund – demonstrating what we learned earlier in the course about the specific risks associated with holding shares in individual companies. Those who did ‘stag’ the shares of the privatised utilities by selling soon after launch did, on the whole, make good profits thus underpinning the view that privatisations offered an easy way to make quick, risk-free money in the equity market.

Another way to make easy money in the late 1980s and 1990s came with the demutualisation of the larger building societies.

Building societies are mutual organisations owned by their members – their retail savers and their mortgagors. From the late 1980s though, most of the larger societies – starting with the Abbey National in 1989 and then, in quick succession in the mid-1990s, with the Halifax, the Alliance & Leicester, the Northern Rock, the Woolwich and the Bradford & Bingley – decided to convert to plc status (in effect to become banks rather than building societies). To do this, they floated on the London Stock Exchange and offered free shares to their personal customers – the savers and mortgagors. These shares could then be sold on or, after the demutualisations were completed, generated profits to these shareholding customers. Other societies became demutualised through agreeing to be acquired by banks (Birmingham Midshires, Bristol & West, Cheltenham & Gloucester, National & Provincial).

The recognition of this risk-free way to make money resulted in millions of members of the public opening savings accounts with any building society deemed a possibility for demutualisation. In some cases, these customers actively campaigned for their societies to demutualise by standing for board directorships and putting motions proposing demutualisation up for a vote at the societies’ AGMs.

This easy way to make money from shares came to a halt within a few years. The last to demutualise was the Bradford & Bingley in 2000. The remaining large building societies – the Nationwide, the Coventry and the Yorkshire – all made it clear that they supported mutuality and did not see the business case for demutualisation and conversion to banking status.

Subsequent events reinforced this viewpoint. Every one of the demutualised societies quickly lost their independent status either by being acquired by other banks (Santander acquired Abbey National and the Alliance and Leicester; Barclays bought the Woolwich), or by running into calamitous financial difficulties during the 2007/08 financial crisis (Northern Rock, Bradford & Bingley). Indeed, shareholders of the Northern Rock and the Bradford & Bingley found that their holdings became worthless.

The whole episode was a poor advertisement for the business strategy of demutualisation. For holders of shares in the Bradford & Bingley and the Northern Rock, it was an

extreme and harsh lesson about the concept of specific risk when owning shares in individual companies.

### 4.3.5 Precipice bonds



Figure 12

Sometimes investors do experience outcomes from their investments that are both adverse and unexpected. In some cases, this arises from the mis-selling of products, in others it arises due to unrealistic expectations about the prospects for an investment's performance or, simply, lack of attention to the detail of the risks involved. We saw aspects of these issues when we looked at the performance of endowment policies in Week 2.

A further case which demonstrates issues of both mis-selling and misinterpretation of investment risks came with the 'precipice bonds' in the 1990s and early 2000s.

The low rates of interest that prevailed in the UK from 1993 adversely impacted on the returns from interest-linked investments. Experiencing a fall in investment income on which they may have been reliant, perhaps made it inevitable that some investors would be tempted by investments where a high income was guaranteed by the product provider.

Such high-income bonds – latterly known as precipice bonds – became prevalent in the 1990s. Between 1997 and 2004, a total of some £7.4 billion was invested by over 250,000 people in these products.

These bonds were usually offered for specified periods – typically of 3 or 5 years. The bonds either offered higher annual interest than that available on conventional products or a high growth rate in the value of the investment made. These advertised rates were guaranteed. Additionally, the bonds were marketed as being tax-efficient because the returns were not subject to capital gains tax (CGT) – in contrast to the profits made on ordinary share dealings. However, this CGT exemption would have been irrelevant for the



majority of investors because the capital gains, even on optimistic forecasts, would have fallen below the profits threshold at which CGT becomes payable.

But with these high returns came high risks – the amount of the original investment made by the customer that was returned to them on the maturity of the product was not guaranteed, and was dependent instead on the performance of specific shares or indices to which the product was structurally linked. Thus, although a high income might be achieved, the customer could easily end up getting back a much reduced amount of the original capital sum they had invested.

When the equity markets fell in value sharply in the early 2000s, the risk element of these precipice bonds was triggered, with thousands of investors losing significant amounts of their capital.

A number of regulatory issues arose from precipice bonds.

## Regulatory issues

First, there was the issue of mis-selling. Did the firms selling the product explain the risks in a way that could be understood by their customers? Specifically, some products were sold without the risks being explained in the prospectuses advertising them. Elsewhere, even if the risks were stated, some intermediaries did not explain them to their customers.

Second, there were issues about the process of customer classification and the risk appetite of customers. Did the firms marketing the products make credible assessments of the financial sophistication of their customers? Were there appropriate determinations of their genuine desire to invest in products which exposed them to losses on the capital they invested? Were the investments sufficiently dissimilar to the other investments held by the customers as to send out warning signals?

Third, to what extent did the designers of precipice bonds anticipate the magnitude of the fall in the equity markets in their product design? There are strong parallels here with certain of the factors that contributed to the 2007–2008 financial crisis. Risk models, used in the product design, may not have looked back far enough in history to pick up previous dramatic shifts in the market, or such falls may have been considered unlikely to reoccur. In essence, those designing precipice bonds failed in the stress-testing of the risks associated with the product.

Fourth, how quickly and visibly did the Financial Services Authority (FSA) – the regulator of financial services in the UK at the time – alert the public to the risks associated with precipice bonds?

The **Financial Ombudsman Service** (FOS) unsurprisingly had to respond to a large number of customer complaints about the products.

## The FOS response

Although the judgements made by the FOS were, as usual, on a case-by-case basis, it made two general observations about the products.

First, even if the marketing literature for a precipice bond did make it clear that the customer might not get back all the capital they invested, this warning could be undermined at the point of sale by the firm's agent playing down the nature of this risk.

Second, the FOS observed that few customers really seemed to understand the concept of 'attitude to risk' – clearly a critical concept when judging whether to invest in a risky

product. This is an issue we explored in Week 3. So even if customers committed to an appetite for ‘medium’ or ‘high’ risk during the fact-finding process ahead of sale, many did not appreciate the potential consequences of this judgement.

In assessing individual cases, the FOS therefore placed great reliance on the background and investment experience of the customers who lost money in the bonds. Those considered to be experienced were deemed to have been able to identify the risks in the products and to have been capable of properly determining their attitude to risk. Such complainants tended to have their complaints rejected, whereas compensation was awarded to those ostensibly inexperienced investors who had been lured into investments they neither understood nor really had an appetite for.

#### Activity 4.3 Precipice bonds – mis-selling or mis-buying?

The precipice bonds case study clearly highlights both issues of mis-selling and of regulatory weaknesses. Do you think any blame should be ascribed to the individuals buying the products?

Post your thoughts in the [course forum](#) and discuss with other learners. Don’t forget to head your post with the number and title of this activity.

### 4.3.6 Precipice bonds – mis-selling or mis-buying?

In an environment of lower investment returns, the high returns offered by precipice bonds were attractive to investors.

Arguably, even the most inexperienced investors should understand that there is a relationship between risk and return. High returns are usually associated with high risks. Investors should have been alive to this very simple fact of investment life when considering whether to invest in precipice bonds. The simple risk–return relationship is not rocket science!



Figure 13

## 4.4 Supermarkets – low betas but high risk?

For those seeking to invest cautiously in UK equities, the draw of buying shares in the major supermarket companies looked like a safe bet. With secure footholds in markets where consumer demand was guaranteed, the supermarkets looked like equity investments that would deliver steady dividends and few share price shocks. Their low betas pointed to their relatively low risk as equity investments.

Then came 2014 – as Table 4.5 shows, the UK supermarket groups belied their image as ‘boring’ stock – although not in the way that pleased those investing in them.

In a year which saw the FTSE 100 trading water, these ‘low risk’ stocks lost around half their value.

**Table 4.5**

	25/ 11/13	24/ 11/14	Move in Year	Beta
FTSE-100 Index	6695	6727	+0.5%	
Morrison	276	151	-45.3%	0.36
Sainsbury	414	223	-46.1%	0.79
Tesco	358	164	-54.2%	0.79

So had supermarkets suddenly become high-risk stocks? Were their betas wrong?

The probable answer is that 2014 proved to be the ‘exception that proved the rule’ for supermarket stocks. They remain stocks which normally experience less volatility than the market as whole. In 2014, though, a major shift occurred to the expected profits of Sainsbury’s, Tesco and Morrisons due, primarily, to changes to the structure of the (food) supermarket industry in the UK. The growing market share of relative new entrants like Lidl and Aldi, as well as economy stores like Poundland, impacted on the market leaders. Additionally, changes to shopping habits, which are seeing people move away from doing their entire weekly shop in one supermarket, are also hitting the market leaders.

Investors took this to be a realignment of medium to longer term profit expectations of the leading supermarkets and so priced their shares down accordingly.

So, supermarket shares are now still low volatility stocks albeit from a lower share price position. One-off quantum shifts do not make betas rise sharply. What makes a beta rise is when a share price is consistently more volatile than the market as a whole.

To understand more about what has happened to the UK supermarket industry in recent years let us look first at the financial environment within which these organisations conduct their business. To do this we will use ‘Porter’s five forces model’, a well-established model, first developed and published by Michael Porter in 1979 and developed further in 1996 and 2008 (Porter, 1979; 1996; 2008). This model, set out in Figure 14, identifies the five forces that will heavily influence an organisation’s financial strategy.

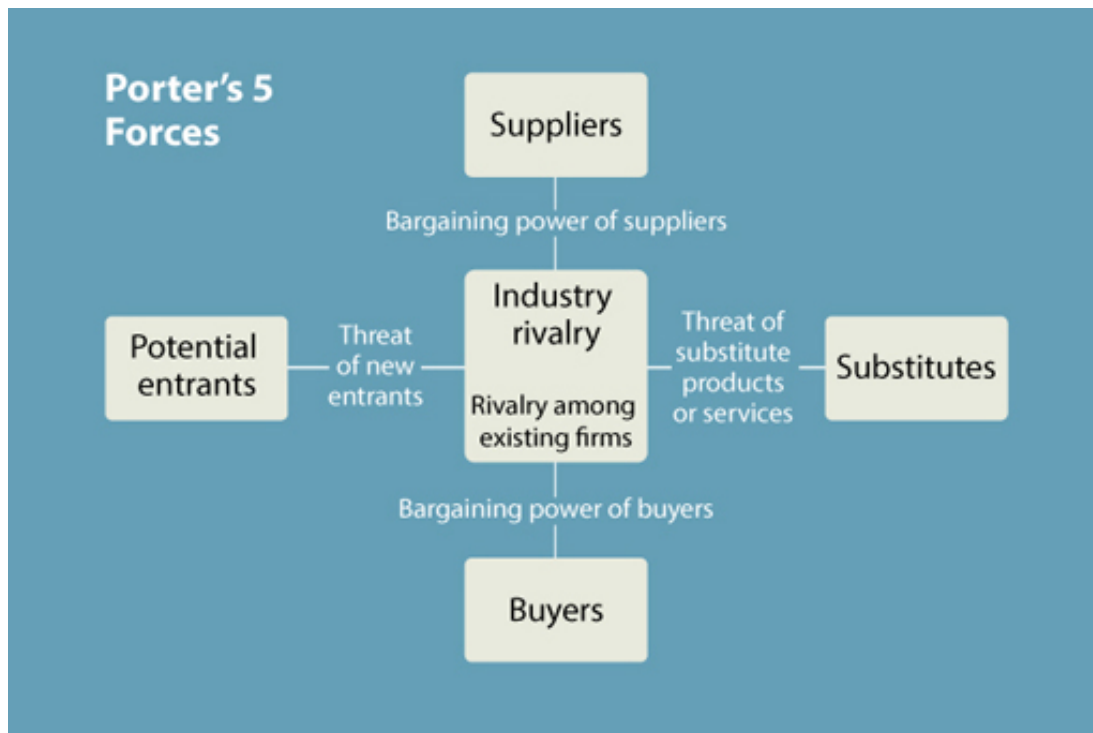


Figure 14 Porter's five forces

At the centre of the model is 'industry rivalry'. This relates to the extent of the existing competition in the markets in which the organisation conducts its business. At one extreme, markets can be very competitive – particularly when the products offered are identical ('homogeneous') in nature and when there are a large number of suppliers. In these circumstances, the organisation has little power to determine the market price of its products. The prices are set by the market as a whole and the organisation has to be a 'price taker', that is, accept the fact that it has to charge its customers the price currently prevailing in the market. Its ability to operate in this market, and to make sufficient profits to sustain it in business, will be dependent on its ability to contain business costs to a level below the income it receives from selling its products. Organisations operating in competitive markets cannot, therefore, be inefficient in managing their operations as there is no scope to pass on the cost of such inefficiencies to customers.

At the other extreme, the organisation may be a **monopolist** – the only supplier or one of only a very few suppliers (in that case: **oligopolist**) – of a particular product. Here, the organisation has considerable power in setting the market price of the product. Note, though, that in this environment the organisation's power over the market is not total since, if it sets prices too high, some customers, at least, will forego the product as they may no longer be able to afford it.

So what has happened to the major UK supermarkets in recent years? Simply put, market entrants over the past decade have created more competition in the industry, resulting in lower profit margins for Tesco, Sainsbury's and Morrisons.

### 4.4.1 Different decades, different returns

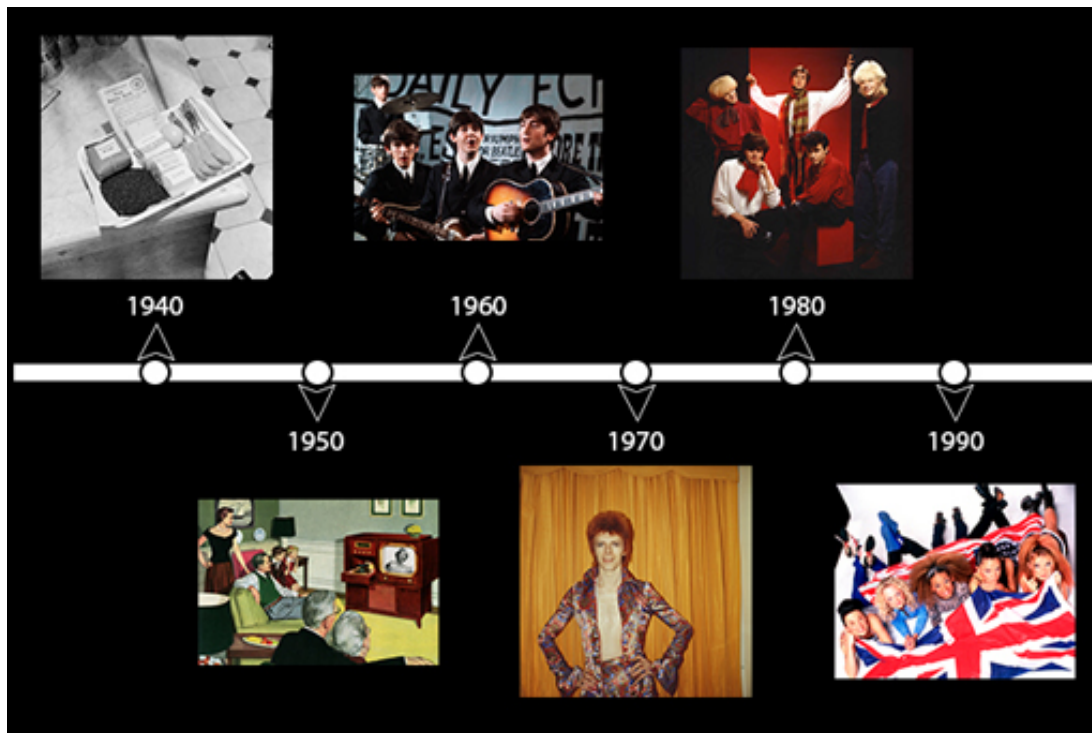


Figure 15 Icons of decades of the twentieth century

The past century has seen several dramatic changes in investment returns over medium- to long-term periods.

Set out in Table 4.6 are 11 periods going back over 100 years. For each of these, the average rate of price inflation for the period is provided and some details are given about the economic conditions prevailing together with other key developments affecting the financial markets.

**Table 4.6 Real investment returns in the UK (% per annum)**

Period	Equities (shares)	Bonds (gilts)	Savings accounts	Price inflation (% per annum)	Events and economic background (primarily UK)
1903–13				1.2	Period of economic stability.
1913–23				5.1	First World War and post-war economic recovery.
1923–33				-2.1	The 1920s boom followed by the Great Depression.



4.4 Supermarkets – low betas but high risk?

1933– 43	3.4	Gradual economic recovery. Second World War and start of active government policies designed to manage economy.
1943– 53	3.6	End of Second World War and post-war reconstruction.
1953– 63	3.0	Post-war very steady (generally) economic recovery.
1963– 73	6.1	‘Stop-go’ economic policies. Inflation starts to climb.
1973– 83	13.3	Economic chaos. High inflation, high unemployment, low economic growth. Oil prices surge. Industrial disputes.
1983– 93	5.0	Inflation falls. Deregulation of financial markets. Privatisation of public utilities. House prices rise and then fall.
1993– 2003	2.6	Dot-com bubble (and burst). Period of strong growth in economy in personal debt.
2003– 13	3.3	2000s boom ends in global financial crisis. Economies struggle to recover and government

borrowing  
soars.

### Activity 4.4 Real investment returns

Have a go at completing the table. [You can download a version.](#) Using what you have learned so far about the drivers of investment returns, estimate, for each period, whether the real (post-inflation) return for each of the three categories of (UK) investments was positive ('up') or negative ('down'). Note that in each period the direction of return was not always the same for each of the asset types.

### Answer

What did you conclude?

The answers are in Table 4.7. Positive real returns are in italic, negative real returns are bold.

**Table 4.7 Real investment returns in the UK (% per annum)**

Period	Equities (Shares)	Bonds (Gilts)	Savings Accounts	Price Inflation (% per annum)	Events and Economic Background (primarily UK)
1903-13	3.3	<b>-0.2</b>	1.5	1.2	Period of economic stability.
1913-23	<b>-1.3</b>	<b>-3.1</b>	<b>-1.5</b>	5.1	First World War and post-war economic recovery.
1923-33	9.6	9.6	5.7	<b>-2.1</b>	The 1920s boom followed by the Great Depression.
1933-43	3.2	0.5	<b>-2.4</b>	3.4	Gradual economic recovery. Second World War and start of active government policies designed to manage economy.
1943-53	2.7	<b>-2.4</b>	<b>-2.6</b>	3.6	End of Second World War and post-war reconstruction.
1953-63	12.1	<b>-1.7</b>	1.2	3.0	Post-war very steady (generally) economic recovery.
1963-73	1.5	<b>-3.7</b>	0.5	6.1	'Stop-go' economic policies. Inflation starts to climb.
1973-83	5.2	1.9	<b>-1.3</b>	13.3	Economic chaos. High inflation, high unemployment, low economic growth. Oil prices surge. Industrial disputes.
1983-93	12.9	7.6	5.7	5.0	Inflation falls. Deregulation of financial markets. Privatisation of public utilities. House prices rise and then fall.
1993-2003	3.2	4.6	3.1	2.6	Dot-com bubble (and burst). Period of strong growth in economy in personal debt.
2003-13	5.0	2.5	<b>-0.5</b>	3.3	2000s boom ends in global financial crisis. Economies

struggle to recover and  
government borrowing soars.

The answers are also in the [table to download](#) , colour coded in financial markets style.  
Positive real returns are blue, negative real returns are red.

Some of the key points that stand out from the data include:

- decades sometimes cover two major swings in economic activity – so it seems that returns are not aligned to the summaries in right hand column
- the reinforcement of the evidence on the outperformance of investments in shares over other asset classes
- the strong link between economic activity and returns on shares
- that shares look like the best bet to beat inflation.

One thing to note, though, is that some of the decades set out above covered periods when there were swings in the level of economic activity rather than one general trend. Consequently for these decades (for example, 1923–33, 2003–13), it may seem that the returns are not aligned to the summaries in the right hand column.

## 4.5 Week 4 quiz

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Check what you've learned this week by taking the end-of-week quiz.

[Start quiz](#)

Open the quiz in a new window or tab then come back here when you're done.

## Week 4 round-up

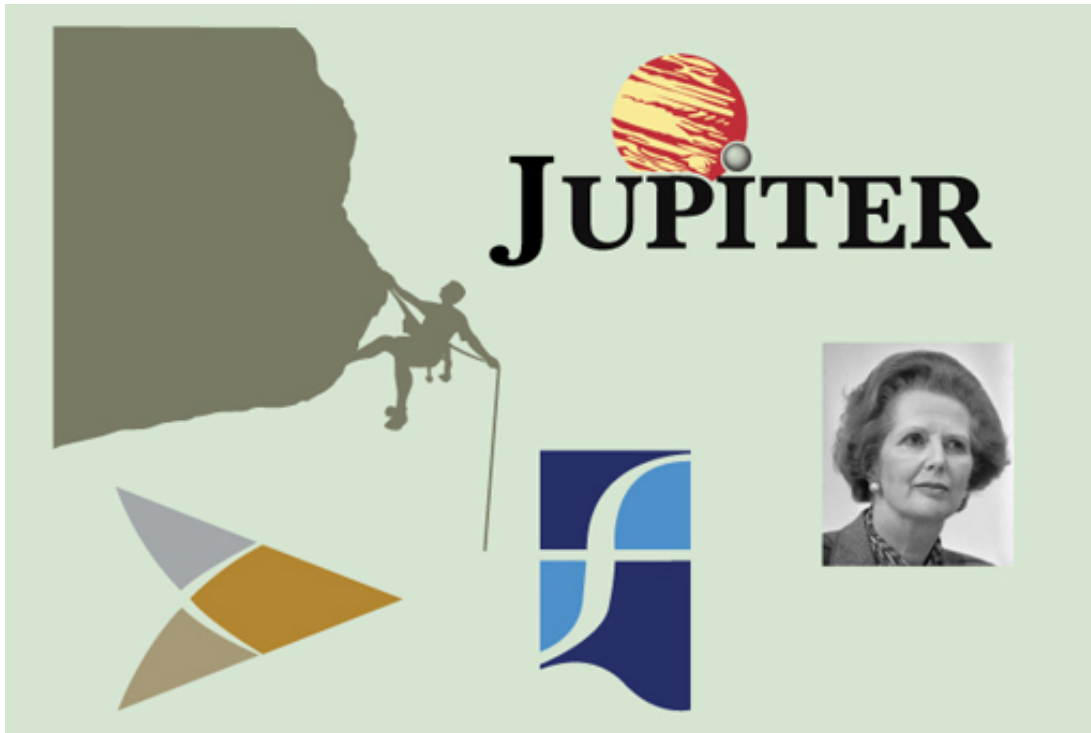


Figure 16

We have once again covered a lot of ground this week, exploring investment practices, investment performance and lessons from recent investment history.

By examining the ways that investment performance is assessed we have seen what has to be done in the fourth 'review' stage of the investment management model.

Certainly the content of this week and last week constitute the most complex in this course. If you have got to grips with the array of theories and concepts presented and how these can be applied to investment management, you are now well positioned to make informed decisions about your own investments.

Don't forget to continue with Activity 2.4 and check the prices for the selected companies once a week and enter their level in the Market shares tracking worksheet. Remember, you can follow these shares using the [BBC Market Data tool](#), or by picking up a newspaper which focuses on financial markets.

Next week, we focus on the key investment issue of pension planning. This is most important investment we make in life and understanding the pensions landscape is vital.





# Week 5: Investing for retirement – planning your pension

## Introduction

Watch the following video to hear Martin introduce Week 5 of *Managing my investments*. This week covers the crucial subject of pension planning.

Video content is not available in this format.



Making provision for your income in retirement is a critical aspect of your overall investment strategy. It requires long term forecasting of your income needs in retirement and the returns from your pension products intended meet those income needs. Given the recent liberalisation of pension rules in the UK, there are now more options for using the 'pension pots' built up ahead of retirement. While this has been generally welcomed, this liberalisation has created uncertainty about the best options to utilise the money built up for retirement.

When planning for income in retirement, it is clearly essential to take into account the state pension you may be entitled to. When you have forecast your state pension, you will have a clearer idea about how much income your own pension plans (e.g. occupational pension or personal pension) will need to generate to provide the total income you need in retirement. In the UK, state pension arrangements are going through a period of transition with the state pension age being pushed back and with the roll out, from 2016, of the new 'flat-rate' state pension.

There's a lot to examine this week, particularly given the concurrent changes to the pensions landscape. But the effort will be worthwhile, since you will gain greater clarity about what you need to do now to ensure a comfortable retirement in the future.

## 5.1 Investing for a pension

A central and vital part of investment activity relates to investing in pension schemes to produce an income stream in retirement. How does the UK fare when it comes to this vital activity?

Table 1 sets out the percentages of adults in the UK who were active members of pension schemes in 2012/13. The data, compiled by the Department of Work and Pensions (DWP), does not provide an overall picture, since the numbers will not include those who were members of schemes but have deferred receipt of pension benefits. The data also excludes those who have retired already and who are drawing pension income. Additionally the data does not reflect those that are simply investing in assets outside a formal pension scheme to provide for their retirement.

**Table 5.1 Pension scheme participation – percentages of adults in the UK**

Scheme	Males	Females	All adults
<b>Employer-sponsored schemes</b>			
Occupational scheme	14	15	15
Group personal scheme	5	5	5
Group stakeholder scheme	2	2	2
All employer sponsored schemes <sup>(1)</sup>	22	22	22
<b>Non-employer-sponsored schemes</b>			
Personal pension scheme	6	3	4
Stakeholder pension scheme	-	-	-
All pension participation	28	24	26

<sup>(1)</sup> Includes pensions where pension type is unknown

Source: DWP (2014)

Notwithstanding these limitations, the data points to a worrying conclusion – that a significant proportion of adults are not making their own provisions for retirement and may, as a consequence, become entirely reliant on their state pension when they do retire.

Also worrying is the fact that the survey by the DWP shows that the proportion of adults who are pension fund members has fallen – albeit slightly – in recent years. This may, in part, be ascribed to the impact of falling real incomes since the financial crisis of 2007/08. Many households – particularly young adult households – are struggling to meet month-to-month expenditure needs and have limited scope to invest funds in pension schemes. The closure, at least to new members, of many company schemes in recent years is also likely to have had an impact on scheme membership.

The data was collected at the same time as the roll-out of automatic enrolment onto workplace pension schemes. This requires medium and larger sized companies to make pension schemes available for their staff. All eligible employees are automatically enrolled onto these schemes unless they take action to ‘opt-out’. This development is helping to boost numbers enrolled on pension schemes and the extension of the initiative to all companies by 2017 will help boost numbers further.

### 5.1.1 How much do you need?

In Week 3, we looked at the process of forecasting the size of the pension you need in retirement, using the [Age UK pension planning tool](#). Even if you accessed the tool in Week 3, you might want to try it again here as the starting point for your pension plan. In doing so, you need to take into account how your spending needs in retirement may vary from those during your working life. These differences could include:

- lower day-to-day travelling costs as you will not be commuting to work
- savings on work-related costs such as National Insurance Contributions (NICs) and pension contributions (NICs are not deducted from pension income)
- higher holiday costs given the greater spare time you will have
- higher utility bills given the longer time you will be spending at home
- possibly, later in retirement, more spending on health-related items
- savings on a range of items due to the ability to take advantage of ‘off-peak’ pricing
- possibly lower housing costs since, by retirement, most homeowners would have completed paying off their mortgage.

To help your analysis of the pension income you need, watch the video where Martin and his Open University colleague, Jonquil Lowe, talk about how to start pension planning.

Video content is not available in this format.



Once you have completed this section, you should be building up a picture of the income needed in retirement. The next section is to determine how much of this you anticipate to receive through your state pension entitlement.

## 5.1.2 State pensions



Figure 1

We now turn to a particular and very important way that we can invest in funds: pension products. But before we look at the products we can enter into, it is important to

understand how much we will get from the state pension scheme. Clearly, the greater the financial support availed by state pensions, the less we need to ensure that we provide pension income ourselves through building up a pension fund ahead of retirement.

Limited state retirement pensions were first paid in the UK in 1908. These were improved by the 1946 National Insurance Act which brought in flat-rate universal state pensions (with effect from 1948).

While various developments in state pensions have taken place since then, the main thrust of policy between 1980 and 2016 has been to limit public expenditure on state pensions.

The UK government has planned staged rises in the age at which people can receive their state pension, to reach 68 years in the mid-2030s, with further increases likely. Many predict that the state pension age will eventually rise to 70 years. One aim of these moves is that, on average, no more than a third of adult life should be spent in retirement. So, the longer the population lives on average, the higher will be the state pension age.

There are actually two state pension schemes in place in the UK. The 'old' scheme for those who reached state pension age before April 2016 and the so-called flat-rate pension scheme for those reaching state pension age from April 2016 onwards.

The 'old' scheme has two parts. The first part, the state basic pension, is paid at a flat rate (£125.95 a week in 2018/19 for a single person), equivalent to about 20% of national average full-time earnings compared with 28% in 1980. The decline has been due to the fact that, since 1980, state pensions have generally been increased in line with prices, which historically have tended to rise more slowly than earnings.

However, from 2011 onwards, the state basic pension has increased each year with the higher of either earnings inflation, consumer price inflation or 2.5%. This is known as the 'triple-lock' – an arrangement that is proving to be politically controversial. Whilst this 'triple-lock' remains in place the basic pension should retain its value relative to earnings (or even rise a little faster).

Entitlement to the basic state pension depends on paying, or being credited with, National Insurance contributions (paid by employees and the self-employed) during working life. Credits are given for certain periods out of work, such as being ill, unemployed or caring for children.

People reaching state pension age before 6 April 2010 needed to have National Insurance covering roughly nine-tenths of their working life to get the full state basic pension. For people reaching state pension age on or after 6 April 2010, the required contribution record was reduced to 30 years and, although it will rise from April 2016, will still be just 35 years.

A shorter record means a reduced pension – although from 2016, a minimum number of years (expected to be 10) will be required to get any pension. However, people can now have substantial periods of not working without damaging their basic pension entitlement.

Wives – and, since April 2010, husbands and registered civil partners – can claim a basic pension of up to £75.50 (in 2018/19) based on their spouse's or partner's record if their own basic pension would come to less than this. From 2016 this stopped for those new to reaching state pension age.

The second part of the state pension – the additional state pension (or state second pension) – is restricted mainly to employees. It was first introduced in 1978, when it was called the State Earnings Related Pension Scheme (SERPS).

In theory, additional state pension can provide a substantial boost to the state pension (by up to circa £40 per week) but, in practice, the average amount paid is much lower. Many



people have been 'contracted out' of the state additional pension, which means that this part of their state pension has been replaced by a workplace or personal pension scheme in return for reduced or refunded National Insurance contributions.

### 5.1.3 The new flat-rate state pension

From April 2016, for those new to attaining the state pension age (SPA) the state basic and additional pensions have been replaced by a single flat-rate pension (for 2018/19 of £164.35 a week).

For 2018/19, the UK government's assessment of the minimum weekly income required by pensioners is £163.00 for a single person and £248.80 for a couple (whether married or not)..

This contrasts with the situation in the mid-1980s, when the basic state pension was about the same as the minimum level of income that was deemed enough for a single householder to live on. Therefore, anyone relying solely on the basic state pension is now also eligible to claim a means-tested top-up.

Such means-tested retirement benefits can discourage saving for retirement because building up a small private pension simply reduces the amount of benefits that can be claimed. The change to a flat-rate pension from April 2016 was intended to ensure that the state pension no longer falls short of the minimum income required. As a result, far fewer pensioners will need to claim means-tested benefits and there will be no disincentive to saving for retirement.

The rules relating to UK state pensions, the new flat-rate state pension and the impact on both of our record of National Insurance Contributions (NICs) are quite complex. To help you through the maze, watch this video, in which Martin and his Open University colleague, Jonquil Lowe, talk about UK state pensions and the 2016 changes.

Video content is not available in this format.





### 5.1.4 Understanding the new flat-rate pension

From April 2016, there'll be a single flat-rate state pension.

How much is this worth? How many years of National Insurance contributions do you need to receive it? What happens if you haven't paid enough in contributions?

Work through the sums in this video and see what's likely to be the overall effect on people's saving habits.

Video content is not available in this format.



This ends our coverage of state pensions. We now move on to how we can supplement the retirement income we get from the state, with pension products such as occupational and other workplace pensions.

## 5.2 Occupational pensions



Figure 2

Occupational pension schemes are set up by employers for their employees. They typically provide a package of benefits:

- a retirement pension for the employee payable from the scheme's normal pension age (often 65) or later
- a tax-free lump sum for the employee at retirement
- a pension payable if the employee has to retire early due to ill health
- pensions for a widow, widower, registered civil partner and dependent children if the employee dies either before or after retirement – most schemes also pay such a pension to an unmarried partner
- lump sum life insurance if the employee dies before retirement.

There are generally two types of occupational pension scheme: defined contribution schemes (also called money purchase schemes) and defined benefit schemes.

### Defined contribution schemes

Defined contribution schemes invest contributions from the employer, and normally the employee as well, to build up a pension pot for the employee. Personal pensions also work on this basis (more about this later in the week). The key features to note are that employees don't know in advance how much pension they might receive, and the pension is directly affected by factors such as the value of investments rising and falling with the stock market.

## Defined benefit schemes

By contrast, a defined benefit scheme promises to pay a specified pension at retirement (often, but not necessarily, linked to the employee's pay while working). In a defined benefit scheme, the yearly pension is commonly worked out according to a formula, for example:

Yearly pension = accrual rate × number of years in scheme × salary

The accrual rate is a fraction, typically 1/60th or 1/80th. How 'salary' is defined depends on the type of scheme and its rules. For instance, the salary that counts towards the pension might be less than the total salary the employee gets. In a 'final salary scheme', salary would mean pay just before retirement (or pay at the time of leaving if the person leaves before reaching retirement).

Increasingly, defined benefit schemes are shifting to a 'career average revalued earnings' (CARE) basis. This means the pension is based on average pay over all the years in the scheme, after adjusting each year's pay for inflation between the time it was earned and the person retiring or leaving the scheme. Note, though, that the exact impact of the move to a CARE scheme will depend on the specific rules relating to the scheme.

Whatever the definition of salary, this type of formula works in basically the same way. For example, a person earning £36,000 a year and retiring after thirty years in a 1/60th scheme would receive a pension of  $1/60\text{th} \times 30 \times £36,000 = £18,000$  a year.

The pension from a defined benefit scheme is usually increased each year in line with price inflation. Historically, this was measured by the RPI but in 2010 the government announced that pensions for retired public sector workers would rise in line with the (typically lower) CPI. The pension from an occupational defined contribution scheme was covered by similar rules but, since April 2005, the retiring employee can usually choose whether or not the pension will be increased each year.

The key point is that the level of pension promised does not directly depend on factors such as stock market performance. For example, while a slump in stock markets is likely to push up the cost to the employer of funding the promised pension, the employee's promised pension would be unchanged.

Nonetheless, indirectly, the employee could be affected if the increasing cost to employers of providing this type of pension results in the employer closing or changing the pension scheme or, worse still, going out of business, leaving the pension pot with too little in it to pay the promised pensions.

## Recent developments

In recent years, there's been a marked decline in the number of employees who belong to defined benefit schemes. This shift has affected employees in the private sector: by 2016, there were over four times as many active members of defined contribution schemes as there were of defined benefit schemes (ONS, 2017).

Where defined benefit pensions continue for existing members, in many cases the pension formula has been changed to promise less generous pensions in future. New employees are typically offered membership of defined contribution schemes instead.

For the employer, defined contribution schemes are less risky than defined benefit schemes because the employer promises only to pay specified contributions – a predictable, stable cost to the employer's business.

Defined contribution schemes are also less costly because most employers pay far less into this type of scheme than they would into a defined benefit scheme. In 2016, the average employer contribution to private defined benefit schemes was 16.9% of an employee's pay, compared with just 3.2% for a defined contribution scheme (ONS, 2017). What this means, of course, is a reduction in the money going into an individual's pension pot, which will tend to reduce the resulting pension.

### 5.2.1 Workplace pensions



Figure 3

A major development in pensions occurred in 2012, with the commencement of the government's 'automatic enrolment' scheme for pensions. From October 2012, employers started being required both to offer a workplace pension scheme to their employees and to automatically enrol them onto the scheme.

Workplace pensions can take various forms, such as the defined benefit and defined contribution occupational schemes you looked at earlier. They can also be in the form of personal pension plans, which you'll look at later this week.

Large employers were the first to undertake this new approach to pension planning in the workplace. By 2018, all employers will have to be automatically enrolling their eligible employees into a workplace pension scheme.

If employees do not want to be enrolled in the pension scheme offered by their employers they have to take action to opt out. So the prospect is that, for many, inertia will result in them becoming, and remaining, enrolled in a workplace pension scheme.

Automatic enrolment is an important initiative to get people to contribute to a pension plan, although some criticisms have been voiced about the scale of the fees levied on those enrolled onto schemes.



## 5.2.2 Workplace pensions: NEST



Figure 4

In 2014, the UK government announced plenty of policy initiatives for pensions. One came with the announcement that, from 2017, those in state-backed workplace pension schemes, like the ones examined in the previous section, would have greater scope to invest in the NEST (National Employment Savings Trust) pension scheme.

NEST is the public organisation set up by the Pensions Act 2008 to offer pension products for employers offering workplace auto-enrolment schemes.

NEST started to take on pension fund members from 2012, when auto-enrolment into workplace pensions started to be offered by the larger employers in the UK. Under this scheme employees have to take action to opt-out of a workplace pension if they wish to avoid auto-enrolment. To date, more than 1.5 million workplace pension savers are invested in NEST.

Currently, there is an annual limit of £4600 for contributions to NEST pension schemes and transfers into NEST products from other schemes are not allowed. The rationale for these restrictions was to ensure that NEST did not unduly exploit the competitive advantage of being a receiver of state funding, which cuts the costs of running its business and makes it a low cost pension provider. The announcement of the removal of restrictions came after a Brussels ruling that lifting the cap on NEST contributions would not breach EU rules on state subsidies.

The move has been welcomed in many quarters, although some question whether applying it from 2017 will be too late, since by then all employers will have to offer their employees auto-enrolment into a suitable pension scheme. Some have also questioned whether it will hit private sector pension providers at the low-cost end of the pension market (in terms of fees charged).

The current annual limit of £4600 actually means that, assuming an 8% contribution rate, only those earning over £57,500 are set to benefit from its removal. Abolishing restrictions to transfer-in money from other pension pots may be a greater attraction for NEST scheme members.

### 5.2.3 Personal pensions



Figure 5

Personal pensions and defined contribution occupational schemes are examples of defined contribution schemes, and all work in essentially the same way. The pension depends on:

- the amount paid in, which is invested in a pension pot
- how much the invested pension pot increases in value
- how much is taken out of the pension pot in charges
- how much the saver decides to draw out as a cash lump sum at retirement
- how much pension the remaining pot can buy at retirement (most commonly the pot is used to buy an annuity, but an alternative is income drawdown).

Anyone can have a personal pension and anyone can pay into a personal pension for someone else – so the main earner in a couple could pay into a plan for a partner who has a caring role.

Personal pensions (unlike occupational defined contribution schemes) do not necessarily offer a package of benefits. It's up to the individual to choose whether to buy extra benefits, such as life cover, a pension for a partner or increases to the pension once it starts to be paid.



Personal pensions and occupational defined contribution schemes expose the individual to a variety of risks. To understand these risks, put yourself into the position of someone who is currently many years from retirement, and who has to organise their own pension scheme to provide themselves with retirement income.

How much should you pay into the scheme? It's important to get this decision right because if you pay in too little, your pension will be too small. Pay in too much, and you could limit your current spending and standard of living, but you can't be certain of the correct amount. The eventual cost of the pension will depend on these factors:

- **Investment returns:** as you have seen earlier in the course, when investing for the long term – and pension savings are very long term – stock market investments, like shares and bonds, are likely to be most suitable. It's impossible to know in advance how well these investments will perform. If, in planning for retirement, you assume they will perform well, you don't need to invest too much. If your assumption is wrong and the investments turn out badly, you'll have too little in your pot to provide the pension you wanted. What counts here is the investment return after all the charges have been deducted. An investment fund that offers the chance of higher returns but has high charges might be a poor choice compared with a less ambitious investment fund with modest charges.
- **Inflation:** Rising prices reduces the buying power of money. To protect against this, you would need to invest extra money to compensate for the effect of inflation, both over the years when the savings are building up and once the pension starts. But you'll also have to estimate what rate of inflation to guard against. If your estimate is too low, in real terms you'll have a smaller pension than planned.
- **Longevity:** the aim is that the pension, when it starts, will provide a regular income, usually paid monthly, until your death. The longer you live, the more months of pension that have to be paid out, and the greater the total cost of the pension. In deciding how much to save, you need to make an assumption about how long you will live or the cost of insuring against living 'too long'. If your assumption is wrong, either the money will run out before you die or you'll have saved more than you needed to.

Therefore, defined contribution schemes, including personal pensions, lead to individuals shouldering the risks up to the time when the pension starts. This means that different people saving the same amount can receive very different pensions, and a person's pension can be markedly different depending on when they retire.

On reaching retirement, you can protect yourself from further longevity risk by buying an annuity that will provide an income for the whole of your remaining life, however long you live. In effect, this is insurance against living for longer than your pension pot would otherwise last. However, the annuity provider will take a slice of the pension pot in charges before what remains is turned into income.

A revolution to defined contribution schemes, however, was presaged in the 2014 budget statement by the Chancellor George Osborne. From April 2015, those retiring have had access to a wider range of alternatives to buying an annuity with their pension 'pots'.

Additionally, those aged 55 and over can cash in all or part of their pension savings prior to retirement, with 25% of each lump sum drawn out being tax free. After retirement, withdrawals will be taxed as income. So those approaching retirement now have greater flexibility to choose where to invest their pension savings to provide for an income in the future or other purposes.

## 5.3 Calculating pension income

Learn how to work out amounts of pension at retirement under defined benefit schemes in this video.

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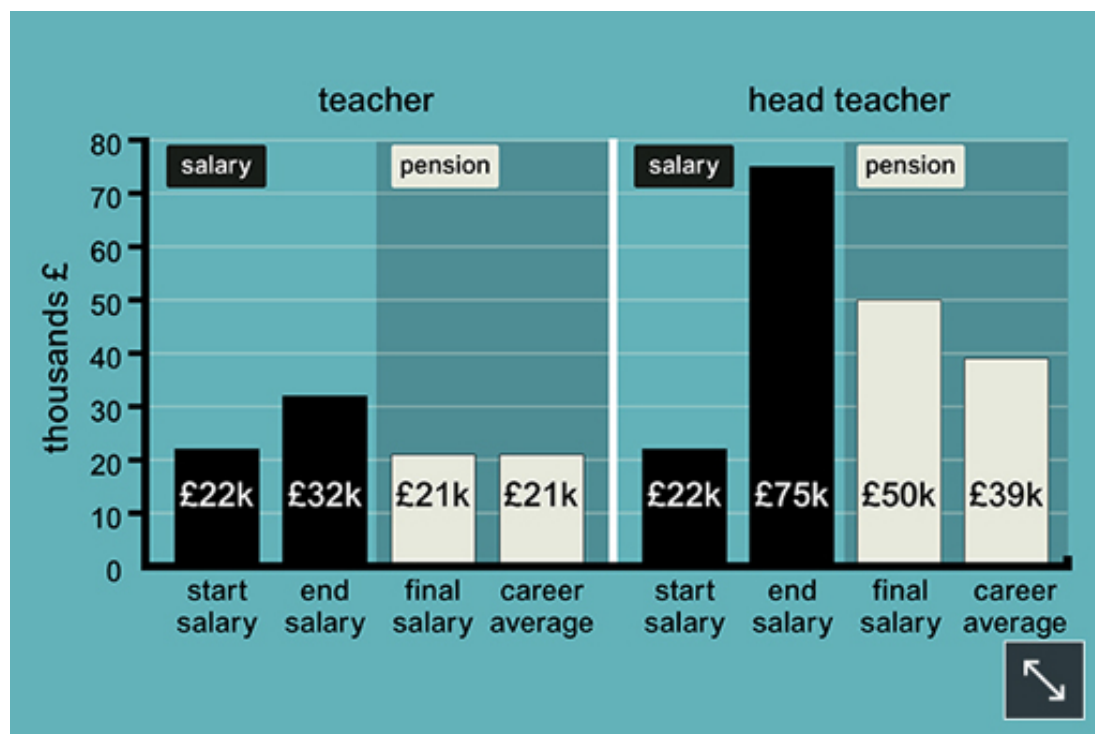
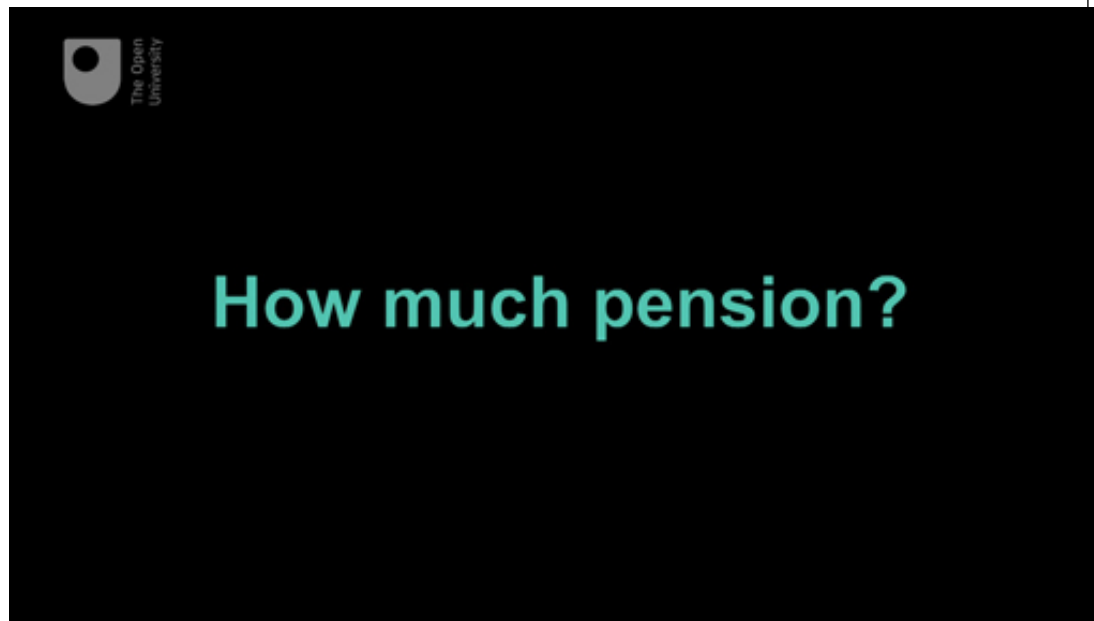


Figure 6 Salaries and pensions, based on a 40-year career

### Activity 5.1 Moving to average salary pensions

Before 2015, most employees in the public sector were still in a defined benefits pension scheme, with the promised pension based on final salary. From 2015, their future benefits will instead be based on a career-average structure (GOV.UK, 2014).

How do you think such a switch could help to reduce the cost to the government of providing pensions?

Which workers might gain and which might lose from such a switch? To help you identify winners and losers, take an establish profession, such as teaching, as an example.

Post your thoughts in the [course forum](#) and discuss with other learners. Don't forget to head your post with the number and title of this activity.

## 5.3.1 Understanding career average pension schemes

In the previous section, we looked at the move by some defined benefit pension schemes to base the pension paid on career average earnings rather than the final annual salary prior to retirement.

The following audio animation shows how these 'Career Average Revalued Earnings' or 'CARE' schemes work, using the UK's National Health Service (NHS) CARE scheme as a case study.

Video content is not available in this format.



## 5.3.2 Funded and pay-as-you-go pensions

**Figure 7 Pensions in a nutshell**

Pension scheme	Organised by	Basis on which pensions are provided	How pensions are financed	Who pays?
State scheme: basic	State	Defined benefit	Pay as you go	State provision
State scheme: additional pension	State	Defined benefit	Pay as you go	State provision
Occupational scheme: final salary	Some public sector employers	Defined benefit	Pay as you go	State provision, usually employee too <sup>1</sup>
	Private sector and some public sector schemes	Defined benefit	Funded scheme	Employer, usually employee too <sup>1</sup>
Occupational scheme and NEST <sup>2</sup> : defined contribution	Private sector employers	Defined contribution	Funded scheme	Employer, usually employee too <sup>1,3</sup>
Personal pension	Individual	Defined contribution	Funded scheme	Individual (employer occasionally) <sup>1</sup>

<sup>1</sup>Tax relief on contributions and on the return from pension fund investments means the State also pays towards the cost of occupational and private pensions. However, some of this tax relief is clawed back once pensions start to be paid because pension income is taxable.

<sup>2</sup>National Employment Savings Trust.

<sup>3</sup>Employees must contribute to NEST.

In the previous sections you might have worked out that average salary pensions would be cheaper to provide than final salary schemes if, even after adjusting for inflation, a worker's average pay over many years was lower than their pay just before retirement.

Workers whose pay tends to peak in mid-career might gain from a switch, whereas workers whose pay tends to peak towards the end of their career would lose out. So, in the example of teachers, a person who reached the position of head teacher would lose out in relative terms from this change.

## Pensions in a nutshell

With most occupational schemes and all personal pensions, money is paid into the scheme to create a pension pot – a pool of investments. These are called funded schemes. Employers pay into occupational schemes and usually require employees to contribute too. With other types of scheme, individuals often fund the whole scheme.

In most large, occupational defined benefit schemes, experts are appointed to manage the investments, and pensions are paid directly from the fund as they fall due. With

defined contribution arrangements, an insurance company often looks after the investments, and the pensions are typically paid by taking money out of the fund to buy annuities.

By contrast, state pensions are pay-as-you-go (PAYG) schemes. There is no pension pot. Instead, the pensions paid out today are financed from National Insurance and other tax revenues collected today. Sometimes this is referred to as a 'contract between the generations', with today's taxpayers paying for today's pensions on the understanding that when they retire, their pensions will be paid for by the taxpayers of the future.

Some public sector occupational schemes (covering, for example, civil servants, teachers, NHS workers and the Armed Forces) are also financed on a PAYG basis, with employees' contributions and general tax revenues used to pay the pensions of many retired public service workers. In contrast, the schemes for local authority employees and university lecturers in some universities are funded schemes.

### 5.3.3 Take control

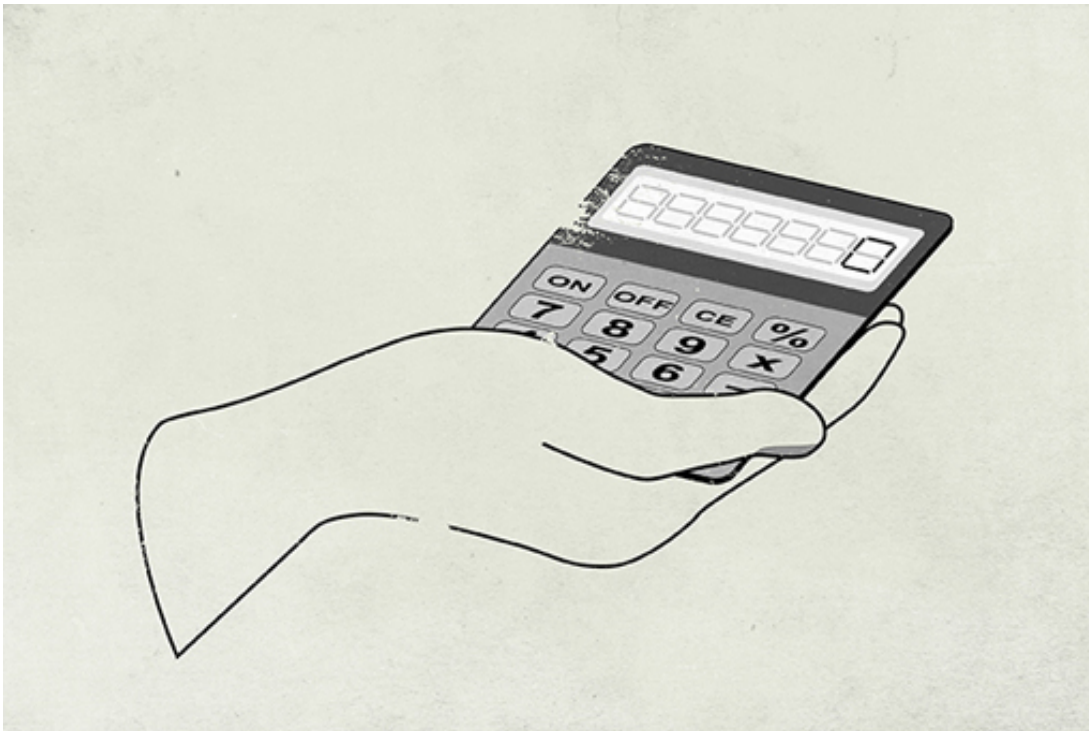


Figure 8

We have now looked at state pensions and the various forms of non-state pensions that collectively can provide your income in retirement. Take some time now to check your entitlements to pensions using the information provided in the previous sections and the most recent statements provided by your pension provider(s).

#### Activity 5.2 Assess your position

Now return to the [Age UK pension calculator](#) to assess your position and see whether or not you're on course to get the income you need to afford the lifestyle you want.

Whatever the result, discuss your thoughts with other learners in the [course forum](#) on ways to take control of your future (but please don't share personal financial information). Don't forget to head your post with the number and title of this activity.

In the coming sections, we'll explain how the pensions landscape in the UK is changing following the liberalisation of rules relating to access to 'pension pots' that took effect from April 2015.



## 5.4 The 2015 pensions revolution: freeing up access to pension pots



Figure 9 George Osborne, Chancellor of the Exchequer, 2010–

In his 2014 Budget Statement the Chancellor, George Osborne, unveiled proposals for pensions reform which are now changing the financial options for those approaching retirement. These proposals took effect from April 2015 and have led to tax restrictions on access to pension pots being eased.

These are the key features of the pensions revolution, introduced by the Coalition Government:

- The 2015 Taxation of Pensions Act provides greater freedom for those in 'defined contribution' schemes to access personal pension funds (or 'pots'). Funds can be accessed before retirement and used, say, to invest in a range of assets (like property) or to pay off a mortgage or other debts or simply to finance current consumption. For each lump sum accessed 25% is tax-free. Sums accessed in excess of 25% are taxable as income and so could attract tax of up to 45% (for taxable income above £150,000).
- Those retiring with defined contribution pensions now have increased alternatives to buying an annuity with their pension savings. At retirement, up to 25% of the remaining pot can be taken as a tax-free lump sum (as previously applied prior to 2015). But, as an alternative to buying an annuity, many are expected to leave at least 75% of their pots invested and take income from the fund when needed.

- There is a proposal for freedom, from April 2016, for 5 million existing defined contribution pensioners to sell their annuities for a lump sum which can then be accessed in the same way as for those approaching retirement, as set out above.
- The government announced that the cap on the lifetime allowance for pension schemes of £1.25m would reduce to £1m in April 2016. Amounts held in pension funds in excess of the lifetime allowance are subject to tax when accessed, with a rate of 55% applying to lump sums and 25% (on top of normal tax) for taxable income drawn from the fund.
- There is greater flexibility to pass on a pension to dependents after death. For those dying prior to the age of 75, income from pension assets can be passed on to beneficiaries tax-free. This tax treatment previously only applied to lump sums from a pension 'pot'. For those dying aged 75 or over, the tax rate applied on lump sums are now 45% instead of 55% (reducing to normal income tax rates in April 2016). Normal tax rates apply to income passed to beneficiaries.

This last reform is forecast to cost the Exchequer some £150m a year. Arguably, what it does do, though, is to remove an unfair excess tax charge on pension pots for which the deceased have spent their lives contributing to. An alternative view is that it will provide a way to avoid inheritance tax, with those in retirement drawing on savings and other investments while leaving their pension pots untouched. Doing this could leave up to £1.25 million in pension pots being exempt from inheritance tax.

While the greater flexibility that these reforms provide for pensioners should be welcomed a few concerns cannot go unobserved.

First, one motivation for these greater freedoms seems, in part, to be the belief that annuities are poor value and, by inference, that other ways of investing pension funds may be better for pensioners. Yet while there have clearly been issues about how some insurance companies have sold annuity products, it is unfair to say that all are poor value. The low annuity rates prevailing today simply reflect growing longevity and the currently prevailing low interest rates. If you want to learn more, see the related link at the bottom of this section.

Second, there are concerns that many pensioners will spend large portions of their pension pot and not invest the funds to provide the income stream needed in retirement. The upshot is that within a few years, some pensioners will find themselves short of the income needed for a comfortable retirement.

Finally, there is the concern – particularly given the pace of the reforms – that the pensions industry is currently not adequately prepared to deal with the consequent advice that will be required as a result of wider freedoms available to those pensioners and those moving towards retirement.

### 5.4.1 Learning from the Dutch: collective defined contribution schemes



Figure 10

A further reform of pensions was announced in the Queen's Speech in November 2014. This proposes the introduction from 2016 of 'collective defined contribution' (CDC) pension schemes. These have worked successfully in the Netherlands and involve workers pooling their pension contributions with thousands of others rather than just paying into their own pension fund. The rationale is that the greater collective size of a CDC fund would allow for a wider diversification of investments and a greater ability to manage investment risk, hence achieving more stable outcomes. The costs of running a fund would be proportionately less than for an individual pension pot, thereby also helping to boost the returns achieved.

Evidence from the Netherlands shows CDC schemes outperforming the average returns seen on conventional defined contribution schemes, with those retiring on a CDC scheme receiving on average 28% of their salary, as opposed to 21% on average from defined contribution schemes.

### 5.4.2 The challenges of the pension revolution

To round off our examination of pensions and the current pensions revolution in the UK, watch this video of Martin Upton and Jonquil Lowe answering questions posed by learners. The areas covered include issues about pensions schemes and the new freedoms that those retiring now have in making their pension arrangements.

Video content is not available in this format.



## 5.5 Week 5 quiz

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Check what you've learned this week by taking the end-of-week quiz.

[Start quiz](#)

Open the quiz in a new window or tab then come back here when you're done.

## Week 5 round-up



Figure 11

This week, we have explored the pensions landscape – focusing on the types of pension schemes in the UK. We've also examined the various pension products that can be used to augment the state pension.

We have also looked at how pension planning involves a careful forecast of your spending in retirement – essential expenditures but also aspirational spending – since, ideally, life in retirement should be more than just 'getting by' through spending on essentials only. Remember, with growing longevity, pensions planning is the most serious investment activity you are likely to engage with.

Don't forget to continue with Activity 2.4 and check the prices for the selected companies once a week and enter their level in the Market shares tracking worksheet. Remember, you can follow these shares using the [BBC Market Data tool](#), or by picking up a newspaper which focuses on financial markets.

Next week, we complete *Managing my investments* by focusing on how behavioural factors influence investment decision-making, sometimes with adverse consequences.





# Week 6: Investment and human behaviour

## Introduction

Welcome to the final week of *Managing my investments*. Watch the video to hear Martin Upton introduce this week's topics.

Video content is not available in this format.



In this week, we focus on how aspects of human behaviour can affect our financial decision-making including decisions about investing. These behavioural traits can threaten to undermine the rational and systematic approach to investment decision-making set out in the four stage investment planning model that we have been using during this course.

While much of the content of this week relates to professional investors, the behavioural biases explored apply equally outside the business world and can affect the way we go about investing – with potentially adverse consequences. The message is clear – understand your bad habits when it comes to finances and avoid them when managing your investments!

We then have one last look at the shares we have been following and the gilt yield curve. You can, of course, continue to follow these prices and yields after the course has finished armed with the knowledge you have gained from Managing My Investments.

The course finishes with an extended quiz covering not only this week but the earlier weeks of the course. I hope you do well and score highly!

## 6.1 Questions answered

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Before you get into the week, take a look at  
[Managing my investments: your questions answered](#).

In these videos, experts Martin Upton, Jonquil Lowe and Janette Rutterford sit down to answer a number of pressing questions learners studying *Managing my investments* have.

Please bear in mind that while these videos include guidance and some suggested approaches to financial matters, this does not constitute formal financial advice.

## 6.2 Behaviour and risk



Figure 1

In this final week of *Managing my investments* we will take a slightly different angle on the consideration of investment risk and risk management from the approach that has been adopted so far in this course.

During this week you will consider the human behavioural aspects of investment decision making and appetite for risk – aspects of investment decision-making that are often neglected. This may be due to such behavioural aspects not being considered relevant by investment managers. Additionally such factors do not fit neatly with a perception that investment management is a largely quantitative subject where decisions are made in an un-emotive manner.

So this week will examine the risks that arise from human behaviour. You will look at how changes in the environment people work within can trigger changes in their behaviour and at how these changes may impact on the processes of investment management.

You will explore some of the research into behavioural finance. This has provided a framework to enable us to understand the often unappreciated behavioural influences on decision making. In particular we will examine how environments of uncertainty and risk generate behavioural biases that affect decision making.

You will examine the risks posed by individual biases – including ‘prospect theory’, ‘overconfidence’ and ‘anchoring’. You will also explore the impact of group behavioural biases such as ‘contagion’, ‘herd behaviour’ and ‘groupthink’. You will also examine how we can attempt to overcome these challenges by building awareness of the influence and consequences of these biases.

As you have seen during this course, the approach to financial decision-making is commonly from a quantitative perspective world. The tools and strategies that are

commonly used to manage investment risk are mechanistic. It is therefore easy to have a perception that all risks are quantifiable. Similarly, it is tempting to believe that modern risk management techniques are efficient in their ability to identify and measure current and future potential risks.

There is no doubt that the ability to quantify risk in this way is an extremely valuable tool for those tasked with managing and monitoring risk. However, there is a danger that factors that affect investment decisions that cannot be measured in this way, like behavioural biases, are overlooked or dismissed.

### 6.2.1 Risk and the global financial crisis: the great eye-opener



Figure 2

The belief that all relevant risks are those that can be measured from a quantitative perspective is certainly an accurate reflection of how large organisations, such as banks and financial institutions, as well as regulators and governments, have tended to treat risk. Quantitative models provide the basis for a tangible assessment of risk and such models can be flexible in their applications. The flexibility of this approach to measuring risk helped to facilitate the boom in financial services in recent decades, in particular in the area of complex financial instruments like derivatives (for example, futures) and securities (for example, mortgage backed securities).

Financial institutions believed that their quantitative models of risk were accurate and were a genuine revolution in risk management. This allowed banks to develop and trade in ever more complex instruments. The regulators of financial institutions and the credit rating agencies also used the same types of quantitative risk models when assessing the actions of the financial institutions and the securities they were issuing.

The practice of assessing risk more or less exclusively from quantitative methods became severely challenged in the late 2000s with the onset of the financial crisis. A fall in US property values resulted in banks in the US incurring huge financial losses. The interconnectedness between US and other banks internationally subsequently triggered the most severe global financial crisis since the 1930s.

What quickly became clear was that the risk management models had failed in a number of areas – not least through the failure to take into consideration just how interconnected global markets had become. As banks revalued their investments, it became evident that the banking sectors in many developed countries were financially vulnerable. Government intervention, on a scale unimaginable prior to 2007, was required to avert a financial catastrophe, with many of the world's largest banks requiring injections of capital from public money.

In response to the financial crisis, there have been two significant changes in attitude towards risk. Firstly, there has been an increase in regulation worldwide in addition to new legislation. This has been seen in higher capital requirements for banks, the potential ringfencing of retail banking from the more risky activities of investment banking to protect depositors and the curtailment of certain trading practices. In the US, for example, the Dodd-Frank Wall Street Reform and Consumer Protection Act, passed in 2010, imposes restrictions and greater regulation on the trading of financial instruments. Additionally, the Act has required greater public transparency of trading activities.

The second significant development has been a more open-minded attitude towards indicators of risk. In essence, the events of the financial crisis and its subsequent fallout have put a major question mark over the effectiveness of existing approaches to evaluating, managing and measuring investment risk. This has naturally led to an extensive debate as to why existing risk practices failed so conclusively in predicting both the onset and extent of the financial crisis. Have these models merely miscalculated the risks financial organisations were taking? Was something missing for the inputs they used to make their predictions in the first place?

Classical finance makes the assumption that not only do people act in a rational way when it comes to financial decision-making, but that they will also act in a way that delivers the optimum outcomes. For example, the Efficient Market Hypothesis (EMH) – which we explored in Week 3 – promotes the belief that markets are efficient, with market prices reflecting the value of assets accurately and fairly. But for the quantitative models to be both effective and consistent, it must be assumed that people act in the same rational and predictable way when presented with the same set of parameters. If behaviour is not rational and predictable, risk models are not capturing factors that will affect (and potentially make more divergent) the outcomes of decision-making.

### Activity 6.1 Discounting human behaviour

Do you think that human behaviour has been omitted from conventional risk management practices because:

- it was not perceived as a risk?
- it did not easily fit a quantitative approach?

Why do you think the dominant risk models at the time failed to take into consideration a greater degree of human psychology?

*Provide your answer...*



### Answer

Several reasons may apply. Primarily, an accepted quantitative model of human behaviour simply does not exist. It may also have been driven by economic and business demands for neat solutions. The longer the financial boom of the 1990s and early 2000s went on without material problems, the more confidence the banks, regulators and governments had that the quantitative models were monitoring and assessing risk appropriately.



Figure 3

## 6.2.2 Human behaviour in the business environment

This section uses some high profile misdemeanours in the financial world to explore the impact of the business environment on human behaviour. Watch the following video, which provides more detail about the subject of behavioural finance, before we start to explore specific biases that affect financial decision-making.

Video content is not available in this format.



When we think of the financial risks associated with errant human behaviour, we may think of exceptional circumstances where somebody has acted outside of the law. This would include fraud for personal gain such as the 'Ponzi scheme' run by Bernard Madoff that cheated investors out of billions of dollars by lying about investment returns. Or fraud to cover up mistakes – rather than for personal gain – as with the case of Nick Leeson, whose actions brought down Barings Bank in 1995 (see Leeson, 1996).

A similar, and more recent example came in 2008, when the French bank Société Générale announced losses of some €4.9 billion as a result of trades undertaken by another rogue dealer Jerome Kerviel. Initially, at least, Kerviel was able to conceal these losses by making fraudulent entries into Société Générale's financial systems.

Perhaps more intriguing, though, are the instances of fraud on an organisational level that require groups of people to be complicit rather than just individuals. A classic case in this respect was Enron, the US energy trading company. The company was found to have misled investors and regulators about their profitability. It eventually went bankrupt in 2001, leaving investors with losses estimated at upwards of \$60 billion. The scale of the deception required the active involvement of many people within Enron. Others who may not have been directly complicit would at least have been aware of the deception.

With the cases of individual fraud, it is easy in retrospect to think of the individuals responsible as one-off 'rogues'. But when considering fraud on an organisational level, it is far harder to imagine how this could happen. Surely the whole organisation was not staffed entirely of 'rogues'? Certainly many, if not most, of those caught up in these situations will have found themselves involved by no design of their own.

The explanation could, therefore, be that human behaviour in the workplace is heavily influenced by the business environment. In these extreme cases of organisational fraud, it is hard to argue against the view that the environment and the actions of others are major contributory factors to how people behave. Even in the examples of individual fraud, it is highly unlikely that someone can act for the period that they have without the knowledge or assistance of other employees. So, it could be argued that people's behaviour can deviate dramatically from what would be rationally expected depending on the environment that they find themselves in.

Behavioural finance (sometimes referred to as BF) is defined as ‘... the study of how psychology affects financial decision-making and financial markets’ (Shefrin, 2001). Behavioural finance looks at why deviations from expected human behaviour occur and, in particular, at how environments of uncertainty and risk affect people’s behaviour.

We can probably all cite examples of poor decision-making that can at times exasperate us, something that however hard we try to explain we cannot find a satisfactory explanation for the course of action we find ourselves undertaking. These apparent inexplicable decisions are not constant; perhaps this is why they cause such exasperation when they occur. In everyday life, these irrational decisions may not cause much more than irritation – but what about when they occur in a business environment or in making important investment decisions?

The risks inherent in the inconsistencies of human decision making often go undetected and pose a genuine threat to identifying and managing risk. They are not as easily or reliably measured in a quantitative manner as other risks in business.

### 6.2.3 Risk and the business environment

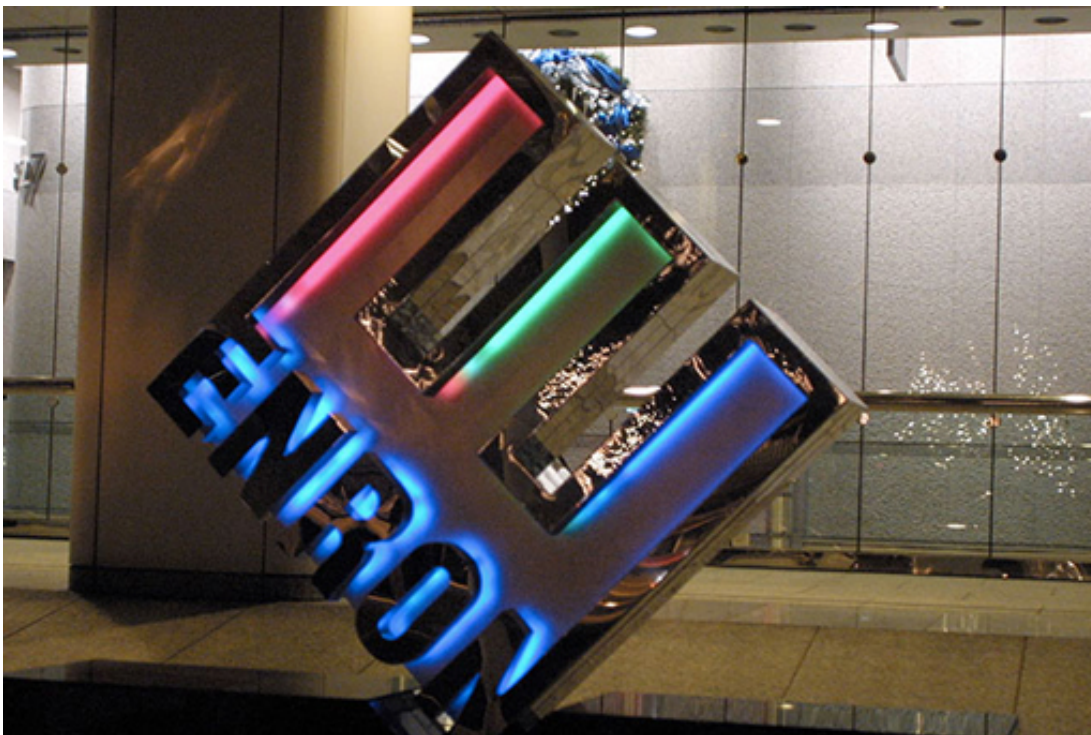


Figure 4

How can we explain situations where people appear to ignore or go along with organisational malpractices? In these situations, why do they not report their suspicions when they discover, for example, fraudulent activities or rule breaking?

A number of reasons come to mind, including:

- uncertainty about whether the activity spotted is actually fraudulent or non-permitted
- fear that reporting one’s suspicions could have adverse consequences – for example, loss of one’s job

- the view that if everyone else is ignoring the issue, then why should I take the risk by reporting it.

## 6.3 Bounded rationality

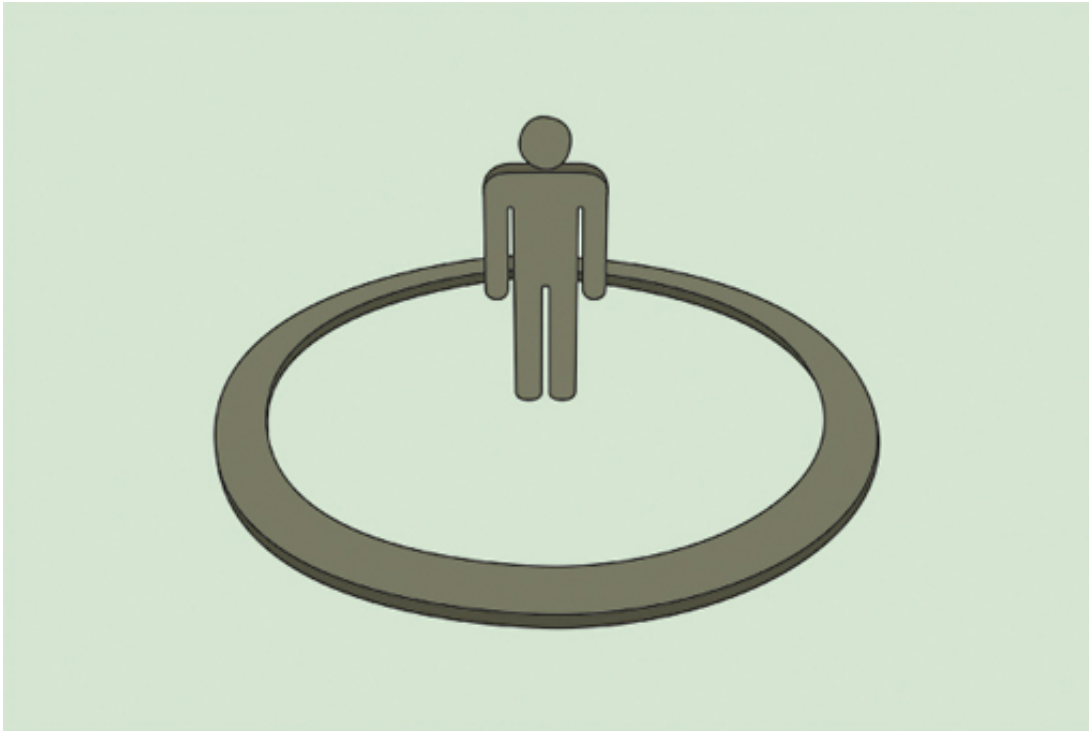


Figure 5

Behavioural finance has emerged as the primary challenger to classical finance theories, such as Efficient Market Hypothesis, and has steadily grown in popularity over the last two decades.

As with most academic subjects, behavioural finance evolved over twenty to thirty years and, as an interdisciplinary field of study, it has drawn inspiration from a wide range of areas, such as psychology, sociology, finance and social psychology. However, if a starting point were to be considered, then Simon Herbert's theory of **bounded rationality** is, arguably, the first tangible challenge to classical finance. Bounded rationality is a school of thought about decision making. It evolved in the 1950s to challenge the conventional thinking of the time that people act in a rational and common manner. Commonly accepted theories concentrated on the acceptance that preferences are defined by expected outcomes, that those outcomes are known and fixed and that decision makers maximize their net benefits by choosing the alternative that yields the highest level of benefits. So investment decision makers maximize expected value by always making the choices with the optimum outcomes.

Bounded rationality challenged this thinking by arguing that people, firstly, are never party to all of the available information relating to a decision and, secondly, make decisions based on their own values, skills, experience and habits.

So how might bounded rationality apply in the financial world?

Imagine a CEO of a large organisation, who has a mandate to grow the business through merger and acquisition (M&A) activity. The CEO's previous personal and business experience will have shaped his aspirations and satisfaction levels. If the CEO had been involved in previously successful M&A activity, they may have a personal desire to do a



bigger deal next time around to further their reputation and career targets. The CEO could also be influenced by other M&A activity in the business sector. This could cloud the CEO's judgement as to whether the deal in question was right for the organisation or even right for the CEO.

Historically, there have been numerous mergers and acquisitions that have been corporate disasters and which have destroyed shareholder value. One that particularly caught the headlines was the Time Warner AOL merger in 2001. This saw AOL buy Time Warner for \$164 billion. However, in 2002 the company reported a loss of \$99 billion – at the time, the largest loss ever reported in corporate history. In subsequent years, TimeWarner AOL had a turbulent management history. Eventually, in 2009, a de-merger occurred, with AOL becoming an independent company. The Chief Executive of Time Warner, Jeff Bewkes, subsequently commented that the merger 'was the biggest mistake in corporate history' (Daily Telegraph, 2010).

Unfortunately, very little research is normally applied to reviewing the behavioural causes of such poor decision making – although board members might subsequently consider whether there were personal motivations behind the CEO's pursuit of this type of deal.

## 6.3.1 Prospect theory

A further major development in understanding individual behavioural biases came with Daniel Kahneman and Amos Tversky's work on prospect theory. This culminated with Kahneman receiving the Nobel Prize for economics in 2002, bringing a greater awareness of behavioural finance in both the financial and academic communities.

Their collaboration on prospect theory further challenged the findings and reliance on classical finance. Prospect theory argues that, emotionally, the (adverse) intensity of a financial loss is an experience two to three times greater than the (positive) intensity for a gain of an equivalent amount. This can promote behaviour that avoids such an uncomfortable experience. This could include running loss making investments longer to avoid the adverse emotional feeling that transpires once the loss is realised by the disposal of the investment. Such behavioural forces can clearly have adverse consequences for effective investment management.

This proposition about the emotional reaction to gains and losses is depicted in Figure 6. As losses turn to gains the adverse emotional reaction ('value') turns from negative to positive, but note how the extent of the negative value is greater than the extent of the positive value for gains and losses of similar magnitude.



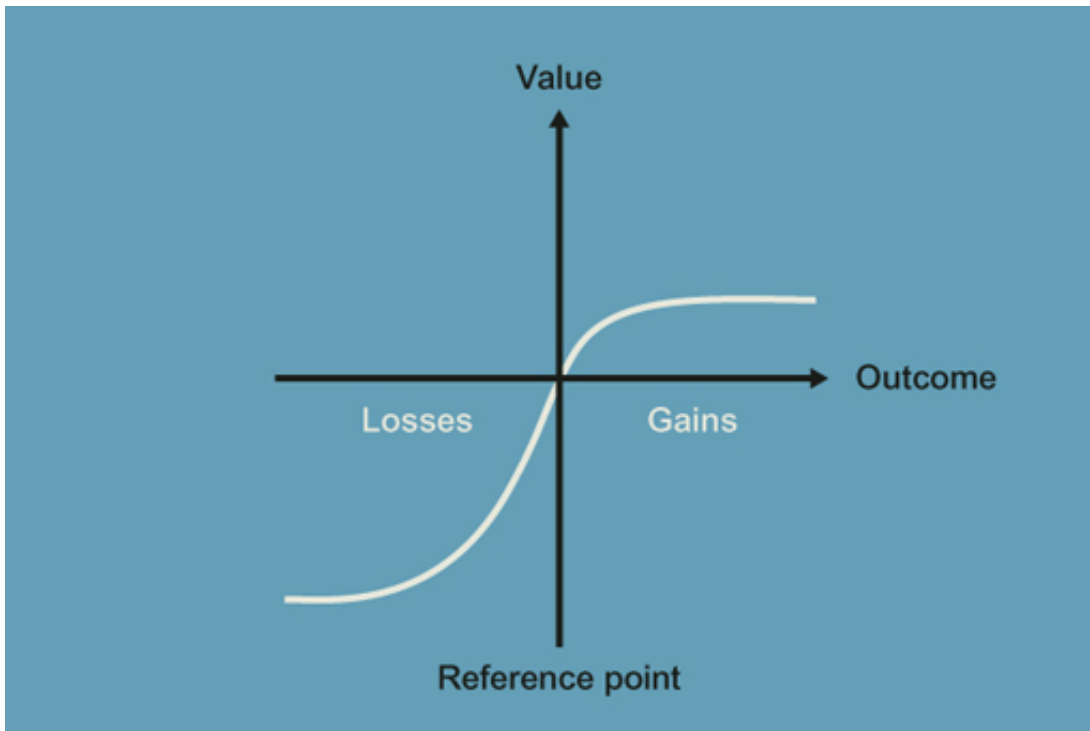


Figure 6 Emotional reaction to gains and losses

It is important for investment managers to acknowledge the presence of loss aversion in areas under their responsibility. As with all behavioural biases, it may trigger a shift in the motivations of decision makers away from rational and considered actions.

For example, an investor may, after extensive research, decide to buy a particular share. As part of their investment strategy, they will normally have good and carefully considered reasons to make the investment. They may have a target price to sell the asset for a profit. They may well also have a price point where they wish to limit their losses. One would expect the investor to reassess the investment if the economic conditions supporting the rationale for the investment changed. However, all too often, investors can stay invested in shares long after such conditions have changed and the investment is losing money. In these circumstances, loss aversion has taken over as the key influence of their decision-making. Investors may, in these circumstances, justify their behaviour in a variety of ways, but essentially their actions are being motivated by the avoidance of realising the loss.

Investors need to possess the appropriate skills to be able to identify when they could be subject to loss aversion.

#### Activity 6.2 Loss aversion and decision making

Can you think of a situation where you or a colleague have made a decision based on loss aversion?

Post your comments in the [course forum](#) and discuss with other learners. Don't forget to head your post with the number and title of this activity.



Figure 7

### 6.3.2 Anchoring

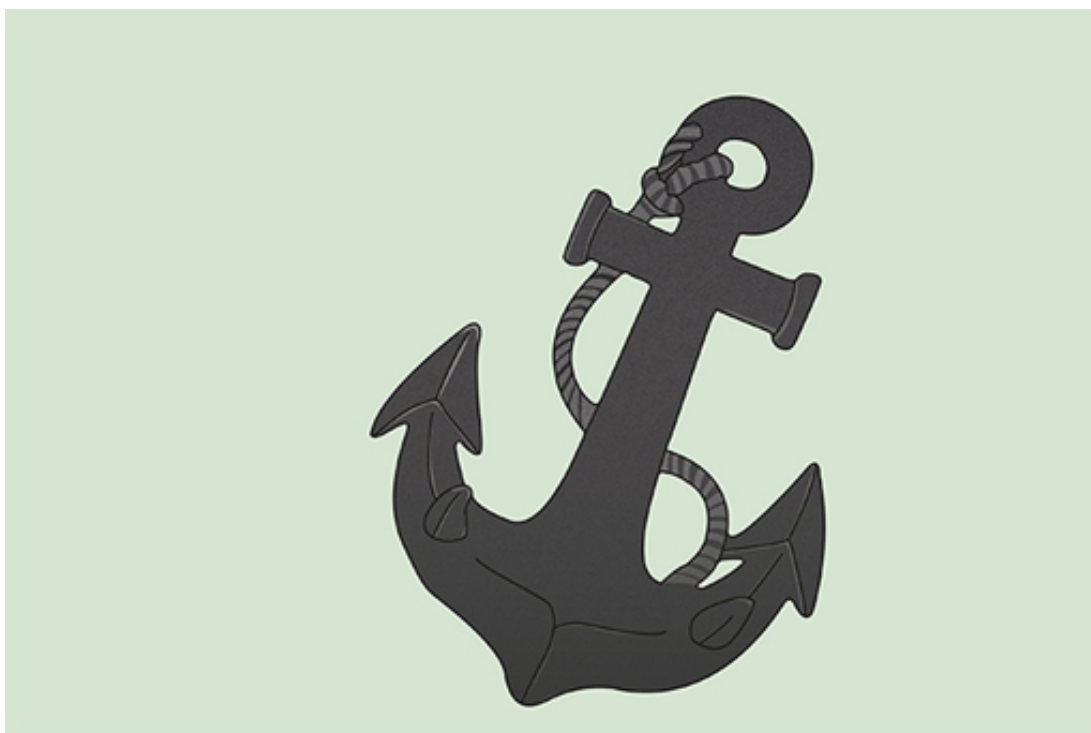


Figure 8

Anchoring is another key behavioural finance theory that affects financial decision making. Let us examine the roots of this theory.

The theory relates to the proposition that when people make decisions they utilise broadly consistent processes. These processes involve comparing the scenario in question with reference points stored in the memory or sourced from the immediate environment. These reference points can be based on personal past experiences of similar situations or on knowledge accumulated from other sources. Much of this processing happens in fractions of a second – something cognitive psychologists refer to as ‘quick and dirty’ or ‘good enough’ processing – and often without much conscious awareness.

In everyday situations, this really is a very effective, efficient and reliable process that commonly does indeed produce ‘good enough’ decision-making. The more experience people have of particular situations, the more proficient they tend to be in their decision-making. Whether this be a sport, profession or a simple task such as walking to work, the more experience gained of the task, the more reference points the memory will hold. Consequently decisions will become more consistent and less likely to be derailed by small variations in the tasks being assessed. For instance, on a regular journey to work, a person is unlikely to come to a standstill if they are faced with a road closure. Given the regularity of the journey sufficient reference points would have been built up to make a quick and ‘good enough’ decision about the best alternative route to take.

In the context of behavioural finance, anchoring refers to situations where the reference point or ‘anchor’ that is used to make a decision is not appropriate or relevant to the task in hand. This may arise through people having a tendency to anchor to things that they have recently been exposed to or to information that is readily to hand.

Kahneman and Tversky (1974) demonstrated people’s propensity to anchor to available information in several experiments. In one, they asked participants to focus on the last two digits of their social security numbers. They then asked them to bid on a variety of items such as chocolate, wine and computer equipment. Differences were recorded between the bids made by those with low numbers versus those with high numbers. Kahneman and Tversky found that participants with high numbers on their social security cards bid between 60 per cent and 120 per cent more for the items than those with low numbers.

Epley and Gilovich (2006) explain anchoring slightly differently: ‘One way to make judgments under uncertainty is to anchor on information that comes to mind and adjust until a plausible estimate is reached. This anchoring-and-adjustment heuristic is assumed to underlie many intuitive judgments, and insufficient adjustment is commonly invoked to explain judgmental biases.’

Anchoring is potentially the most common challenge affecting decision making. It is the most difficult to avoid because it is the basis of human decision making. However, it is not so much the process that is at fault, but rather the inappropriate reference points that become selected for particular decisions that can cause problems.

## Anchoring and investment management

From an investment management perspective, anchoring can potentially impact at every level from individual decision making, through to the determination of a strategy for managing a portfolio. Challenges to effective investment management can arise from things such as failing to recognise changes in a market or sector by anchoring to traditional assumptions and past performances. Decision-makers may also anchor to the latest market trend, which may form a poor basis to predict future market movements.

An excellent recent example of anchoring that has caused major repercussions is how rating agencies, such as Moody’s and S&P’s, treated and rated certain financial products

prior to the financial crisis at the end of the 2000s. For these agencies, the challenge was to apply the appropriate credit ratings to these complex products – many of which were relatively new to the financial markets. However, once a rating had been applied, this initial grading was then used as a benchmark or an ‘anchor’ for subsequent products. As the outcome from the financial crisis revealed, many of these products received a much higher rating than warranted by their intrinsic credit risks.

Anchoring is possibly the hardest behavioural bias to detect and filter out, as it is so closely related to the decision-making processes we rely on most heavily. However, it is possible for investors to allow for anchoring when measuring and monitoring the risks they are running with their portfolios. As part of strategic planning, key decision makers need to be challenged as to the quality and relevancy of the inputs they are using to make decisions.

Can you think of a piece of information that you have anchored to?

### 6.3.3 Overconfidence



Figure 9

A further factor that may influence the behaviour of individuals in financial situations is overconfidence.

Research into overconfidence in decision making tasks dates back to the 1950s and has a psychological background. Experiments have included asking participants to estimate how many general knowledge questions they will answer correctly in a quiz. Consistently the results demonstrate overconfidence by participants (Lichtenstein et al., 1982).

Researchers have also found that people often display a higher level of overconfidence when questions are more difficult.

Research has also been conducted into the estimation people have of their own ability in relation to that of their peers. Evidence of overconfidence in this area has been found here

too, with people frequently having an unrealistically positive view of themselves (Taylor and Brown, 1988).

Obernarcher and Osler (2004) looked at the overconfidence levels of over 400 professional currency traders in the US. They found that these traders were overconfident in their own abilities and believed that they were better than other traders that they worked with in the same institution.

The dangers of overconfidence in relation to managing investments seem, on the face of it, fairly obvious and not a trait commonly associated with prudent portfolio management. Theories in overconfidence seem well grounded, but how does overconfidence really play out in financial decisions?

Overconfidence could come into play when estimating the exposure to risk or when considering inputs that are used to make financial decisions. For example, people can be overconfident in the information that they are using to make an investment, not only in the reliability and accuracy of the information, but also in the relevance and impact of that information. In this scenario, investors could be overconfident in the belief that they possess the correct knowledge to make decisions and that there is no other relevant information that they are not party to that may influence prices.

Investors can become overconfident in the potential return that their investment may achieve, and they may also be overconfident in their own ability in managing that investment.

### 6.3.4 Emotions and investment decisions

To conclude our study of behavioural influences – specifically human emotions – on individuals' investment decisions, watch this video of a presentation on the subject by Professor Mark Fenton-O'Creevy of the Open University Business School.

Video content is not available in this format.



## 6.4 Contagion



Figure 10

So far we have discussed the influence of individual behavioural biases and their potential influence on decision-making, but arguably group decision-making biases are more influential and powerful. There is substantial evidence of the behaviour of entire organisations being influenced by the environment within which they operate.

Contagion is the first of these group decision-making biases we will examine.

Contagion refers to situations that often arise in financial markets where a price movement that arises for one asset quickly spreads to other assets that are similar but not the same. Contagion can have positive and negative connotations – i.e. prices can be quickly driven up or down. Consequently, the impact is not always negative for investors.

A good example is the Asian currency crisis that unfolded in 1997. This was triggered by the collapse of the Thai Baht. Thailand had heavy domestic and foreign debt and a currency that was pegged to the US Dollar. Debt grew, investors lost confidence and the Thai Baht underwent a heavy devaluation as foreign investment moved out of Thailand. Investors quickly looked at other countries that had a similar economic profiles as Thailand, including Malaysia and Indonesia, and developed the same adverse sentiment about these economies. These countries quickly followed Thailand with devaluations of their own currencies.

A key symptom of contagion is that decision makers will increasingly be satisfied with 'a best fit' comparison between assets. Conditions do not need to match perfectly but merely be similar to trigger action.

We can probably all think of an example of an event where contagion has applied. In 2011, the government budget deficits of members of the European single currency (Euro) were under great scrutiny. The debt crisis that started in Greece and Ireland had spread to



Portugal, with all three economies requiring international financial rescue packages to be arranged. Spain and Italy then came under examination and found that the contagion of fear amongst investors had spread to their debt markets.

Contagion can take hold very quickly and can present a difficult challenge for investment managers. Ensuring that the analysis surrounding decisions is kept objective, considered and of a consistent quality is key to avoiding making decisions that become driven by contagion.

## 6.4.1 Herd behaviour

What is herd behaviour? David Gross a historian of financial bubbles, offers an explanation in the following video:

Video content is not available in this format.



Herd behaviour is a further example of group decision-making biases.

Herd behaviour is probably most closely associated with financial 'bubbles' and 'busts'. These are situations where the price of an asset rises suddenly and substantially to levels beyond their apparent intrinsic value (the 'bubble') only to collapse ('burst') when investors retreat. Herd behaviour describes how individuals can quickly act as a group, sharing common beliefs and goals. Herd behaviour can often be triggered by a release of information that propels individuals towards a common – group – course of action.

Good examples of herd behaviour include the 'South Sea bubble' in the 18th century through to the 'dot com' bubble at the turn of the 21st century. In retrospect, these demonstrated collective behaviour based on very limited financial justification. In these situations, investors are really following a course of action because everybody else is.

Herd behaviour can heavily influence investment decision-making. When investors justify actions on the basis that 'if everybody else is doing it, it must be right', then herd behaviour has become the primary motivation for decisions. This can cause major

challenges to effective investment management as investors are required to challenge and question the consensus view.

Can you think of any examples where you may have seen contagion or herd behaviour as the reason for a certain event happening?

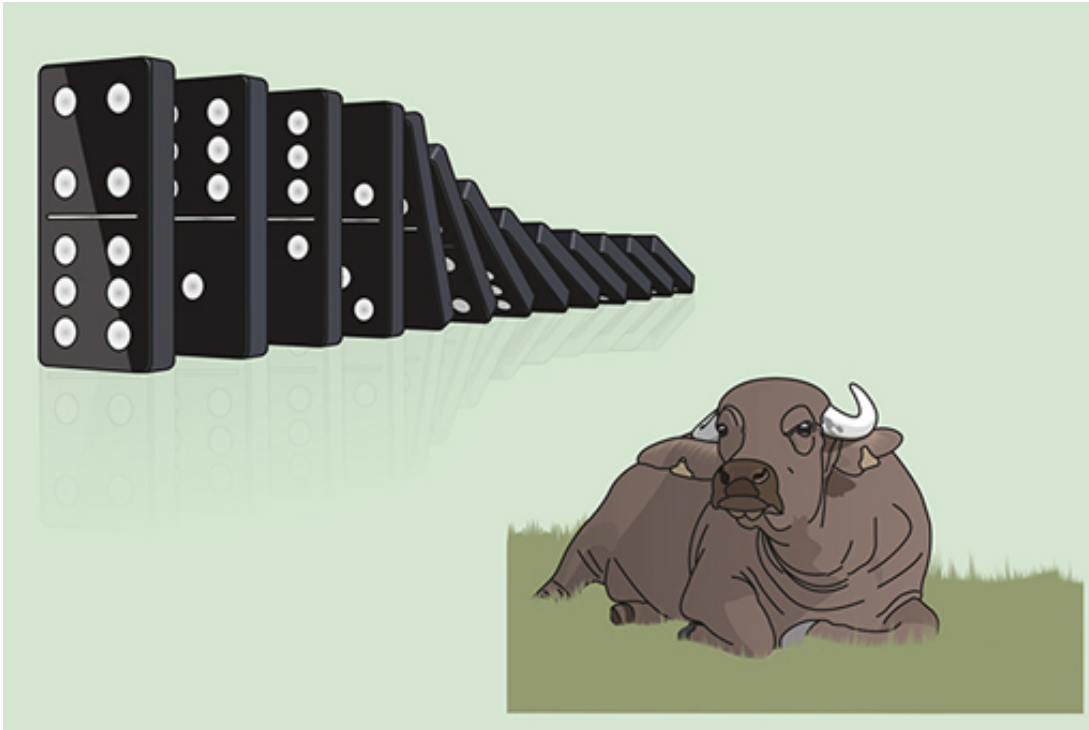


Figure 11

## 6.4.2 Groupthink

The final example of group behavioural bias to examine is groupthink, which describes the phenomenon that arises when people are asked to make decisions as part of a group. The primary motivator for decision makers becomes the avoidance of conflict within the group as opposed to voicing their true opinion or helping the group reach the optimum outcome (Janis, 1972).

Groupthink is a behavioural bias that is commonly active within organisations and is not dependent on the impact of external influences. In any meeting or group decision-making task, groupthink has the ability to cause decisions to be inconsistent with, and non-reflective of, the true beliefs of the group members. Such imperfections in decision-making may be particularly damaging when undertaking financial risk management.

Watch the video of the way an investment club, based in the UK, goes about making decisions. You can consider whether the club displays some of the features and risks associated with groupthink.

Video content is not available in this format.



### 6.4.3 Understanding behavioural finance: some practical examples



Figure 12

In this section we will examine some applications of the behavioural finance theories examined earlier this week.

## Retirement savings

Research by Bernatzi and Thaler (2007) into retirement saving and pensions has shown that people often fail to make adequate provision through their working lives for retirement, whether through savings or pension schemes.

Bernatzi and Thaler have used their findings and understanding of behavioural finance to design products and processes to help ‘nudge’ people into saving effectively. One of the psychological blockages they identified was inertia, with many people simply not going to the trouble to arrange a pension plan. Consequently, one of the innovations based on their research was to make workplace pension schemes ‘auto-enrolment’ as opposed to the traditional model of ‘opt in’. In the past, each worker within a company would be offered the opportunity to meet with an independent financial adviser paid for by the firm, would be given the choice of contributing to a pension scheme and the employer would then also contribute or match the employee’s pledge of  $x$  per cent per month. By switching this process to automatically enrolling all employees to a given scheme, participation was raised dramatically. Employees would need to make an appointment to ‘opt out’ of the scheme. With inertia prevailing, their research suggested that employees would usually not be bothered to take this course of action.

Bernatzi and Thaler thus used the behavioural factor – inertia – that had prevented many from signing up to pension schemes as the means to boost employee participation.

**Note:** Allianz, one of the world’s largest financial services companies, set up the Centre for Behavioral Finance, of which Bernatzi and Thaler are both members, to develop their research into practical applications for the retail financial market.

## The UK Government

Evidence of the UK Government’s appreciation of the importance of behavioural finance and, specifically ‘nudge’, has been reflected in the formation of the Behavioural Insight Team. Its role is primarily focused on influencing the population in areas of health and retirement savings. For a government faced with various challenges ranging from poor public finances and national debt, through to high unemployment and an ageing population, all within the backdrop of a recent global recession, the ability to influence the public’s behaviour quickly and relatively cheaply is a compelling proposition.



## 6.5 Monitoring shares, gilts and Bank Rate



Figure 13

Now is a good time to catch-up again on your shares tracking activity.

### Activity 6.3 Monitoring the market

In Week 2 in Activity 2.4 you started to monitor the share prices of some selected companies listed on the London Stock Exchange and also the yields on UK government bonds (gilts). You were asked to check the prices for the selected companies once a week for six weeks and enter their level in the Market shares tracking worksheet.

Remember, you can follow these shares using the [BBC Market Data tool](#), or by picking up a newspaper which focuses on financial markets.

When you have tracked the prices for six weeks consider the following question:

What has happened to the prices of the shares and to the UK gilt yield curve?

Note your thoughts in the [course forum](#) and discuss with other learners. Although the period you tracked may not correspond, it will be interesting to compare differences.

## 6.6 Your investment management check-list



Figure 14

As we move towards the end of *Managing my investments* let's revise the step-by-step process for effective management of your investment portfolio.

To help us, we'll be guided by the four stage investment management model that was introduced in Week 1 and which we have been employing throughout the course.



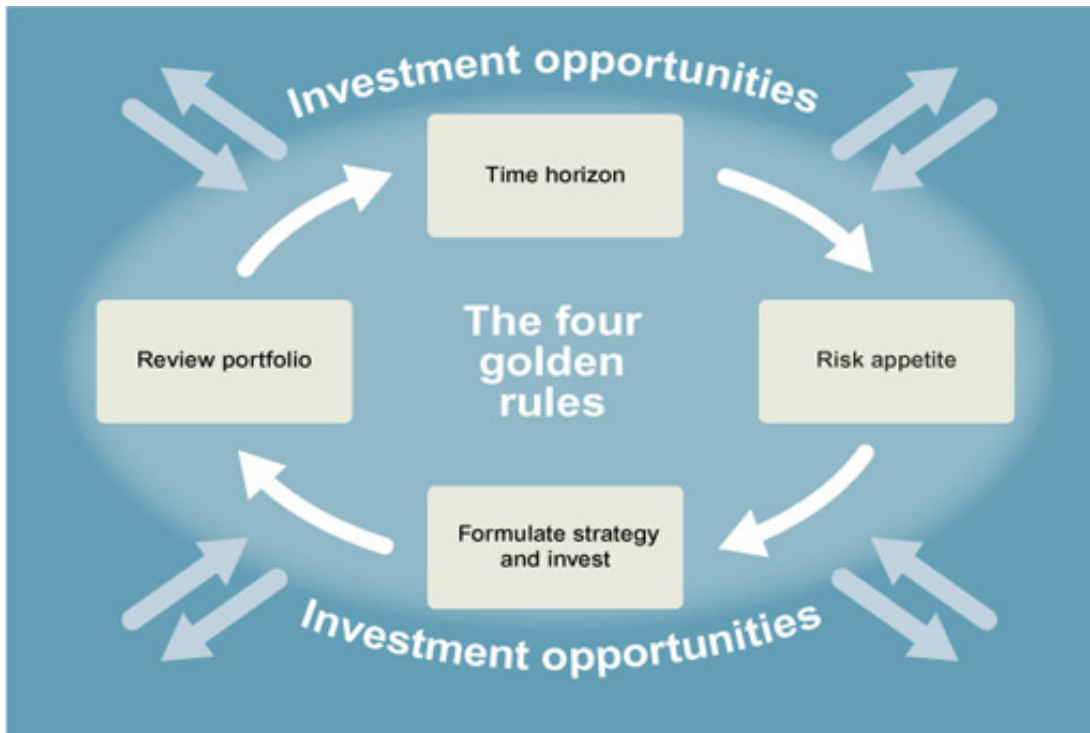


Figure 15 The four stage investment management model

First, we have to link our investments to the time horizon that applies to you. Are you a short-, medium- or long-term investor?

Ask yourself:

- What are you investing for?
- When are you likely to need the funds invested? (for example, to finance a holiday [probably short-term], a wedding [perhaps medium-term] or to provide an income in retirement [long-term])
- Have you taken inflation into account? (Since the things you are likely to want to buy with your funds will probably cost more in the future than they cost now.)

Second, check out your risk appetite. In part, this is linked to your time horizon, since the longer the period you can invest your money, the greater the potential to invest in assets which perform best over the long term but which have interim periods where they can fall in value. Your risk appetite must also reflect your personality – if higher risk investments keep you awake at night your life may be happier with lower risk (but also lower return) investments.

So check, in particular, your capacity and preparedness to take the following risks:

- income risk
- capital risk
- liquidity risk.

Third, make your decisions about where and how to invest. Do this proactively, since just leaving your investment funds in a bank account is a passive decision that won't yield you more than a miniscule return.

Check the following:

- Do you need to take advice before you invest?

- Are you aware of and have you taken into account all the fees and charges that apply to your investments (and which will impact the overall return you get from your investment)?
- Have you checked out the tax liability that arises from the returns you make on your investment? Or to put it another way, are you maximising your tax-free investments (for example, investments in ISAs)?
- How do you invest the money? Do you go to a financial firm or do-it-yourself via internet platforms?
- Will your portfolio of investments be appropriately diversified?
- To avoid poor timing, should you be applying practices like 'pound cost averaging'?
- And, in particular, do your proposed investments really match your time horizon and risk appetite?

Once you've checked these points out it's time to execute your investment plan.

Fourth, review your investments and do it regularly. Don't just wait until you get annual statements about your investments. Review the portfolio against changes in the financial markets. What's happening to interest rates? Where have share prices moved to? Are there opportunities you should be taking or should you be cashing in investments that now seem likely to perform badly going forward?

This fourth stage brings you back to the first two stages. When reviewing your investments, have your personal circumstances changed in a way which affects your time horizon and risk appetite? Perhaps you've decided that you need more income in retirement – so do you need to increase your long-term investments? Perhaps the household financial demands on you have fallen (say your children have left home), thereby opening the scope to take on more risk with my investments, since you have more capacity now to bear a loss in pursuit of higher returns.

So get in control of your investments and stay in control – then you can truly say to yourself 'I am managing my investments'.

## 6.7 End-of-course quiz

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Check what you've learned by taking the end-of-course quiz.

[Start quiz](#)

Open the quiz in a new window or tab then come back here when you're done.

## End-of-course round-up

You've now reached the end of *Managing my investments*. I hope you've enjoyed the course and learned many useful things about planning your pension and making investment decisions.

When managing your investments, remember to use the four stage model introduced to you in this course: assess your strategy, determine your risk appetite, formulate and apply your strategy and then review the performance.

Video content is not available in this format.



Now you've completed the course we would again appreciate a few minutes of your time to tell us a bit about your experience of studying it and what you plan to do next. We will use this information to provide better online experiences for all our learners and to share our findings with others. If you'd like to help, please fill in this [optional survey](#).

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## Further reading

[All in the Mind – preventing procrastination](#) In this episode of All in the Mind, Claudia Hammond talks to a psychologist who explains why describing events in terms of the number of days away they are, rather than years, could help prevent people procrastinating.

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