

Your guide to the world of  
fixed income investments

# Contents

Why Bonds?

Some Bond Basics

Why Bond Funds?

Glossary

# Why Bonds?

# Why Consider Investing in Bonds?

- Bonds are one of the largest asset classes – and probably the least explored by individual investors
- The number of bond indices has rocketed from three in 1997 to over 80 today

Higher



Lower

**Equities**

Investors buy bonds for several reasons.

These include:

- The provision of income
- As a generally more secure investment than equities, offering the potential for higher gains than cash
- To diversify their investment portfolio

**Bonds**

**Cash**

**Bonds can play an important part in helping you reach your financial goals**

# Bonds versus Equities

## Equities

- Dividend – uncertain
- Return of capital – uncertain
- Capital appreciation – unlimited

## Bonds

- Coupon – certain
- Return of principal at maturity – certain (barring default by the issuer)
- Capital appreciation – limited

# Bonds versus Equities

As an Investor in **Equities** you:

- Own a share of the company
- Participate in unlimited upside – or downside – potential
- Can, in theory, hold your investment for as long as you wish

As an Investor in **Bonds** you:

- Do not have ownership rights – you are essentially a creditor
- Receive a fixed rate of interest for the life of the bond and, if you hold the bond until maturity, the investment principal
- Hold the investment for the lifetime of the bond, which is usually specified at issue – many bonds have a maturity of between one and thirty years.
- Have a superior claim to assets than equity holders should the organisation collapse or be put into liquidation

# Some Bond Basics

# A Bond is an I.O.U.

A bond is essentially a debt – similar to an I.O.U.

- An investor who buys a bond when it is first issued is lending money – the issue price paid - to a government, government agency, corporation or any other entity, known as the bond issuer.
- In return, the issuer generally promises to\*:
  - Pay the investor a specified rate of interest for the life of the bond (this is generally paid annually or semi-annually)
  - To repay the face value of the bond (also called the ‘principal’) at the end of the bond’s life

	Red. Date	Coupon	Rating	Price	Yield
France Telecom	3/11	7.50%	A-	108.50	5.40%

Maturity (redemption) date →

Credit rating assigned by a rating agency →

Interest rate received by investor who buys the bond today →

← Name of borrower

← Interest rate paid by borrower at time of issue

← Price of bond today

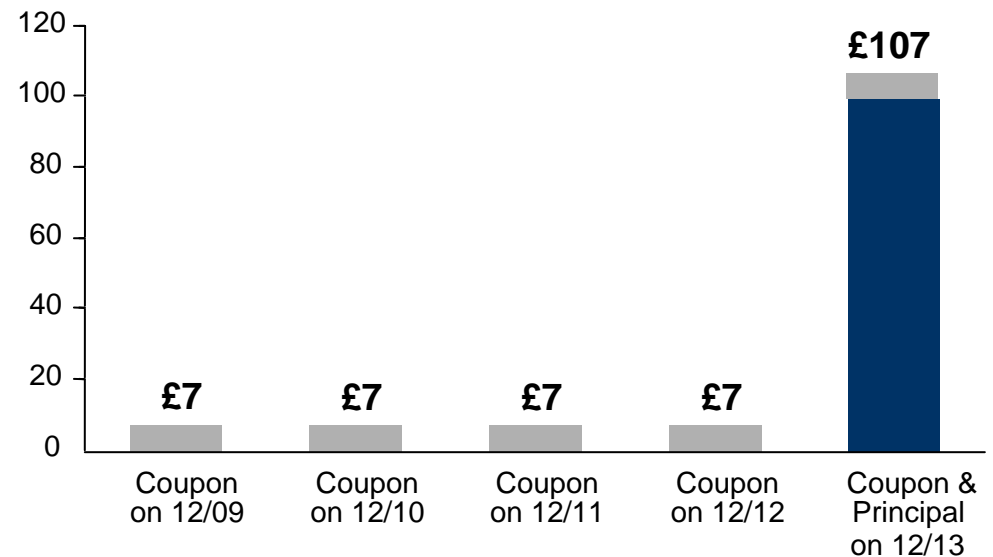
\*Bonds vary considerably and there are types of bonds which do not follow this structure. Examples of this are zero-coupon bonds and Floating Rate Notes.

# A Bond is a Series of Future Coupon Payments and Capital Repayment

- A bond can be bought at the issue price when it is first issued on the *primary* market.
- Investors can trade bonds between each other at the market price on the *secondary* market.

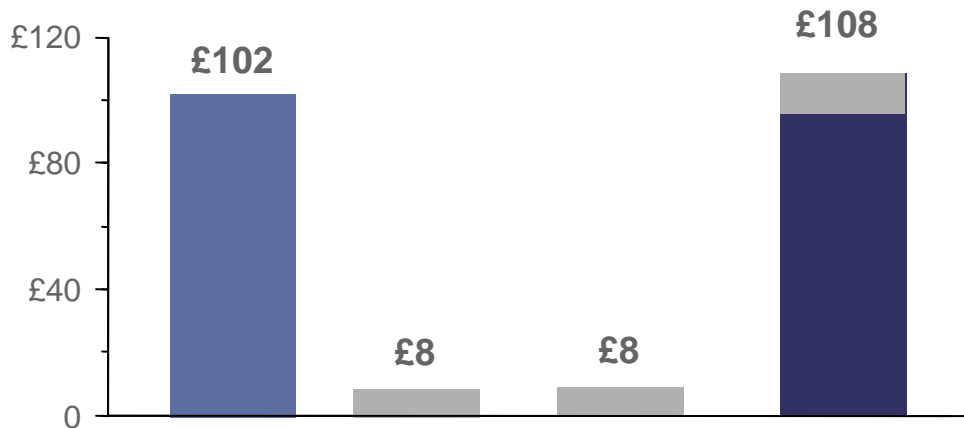
## Bond prices:

- The price of a bond is the price an investor is willing to pay for that income stream.
- A bond's price is the sum of the present values of all future cash flows – the coupons and the principal.
- A bond's yield is a measure of return and can take into account the following sources:
  - coupon payments made by issuer
  - capital gain (or loss) realised when the bond matures, is called or sold
  - income from reinvestment of coupon payments



# Yield

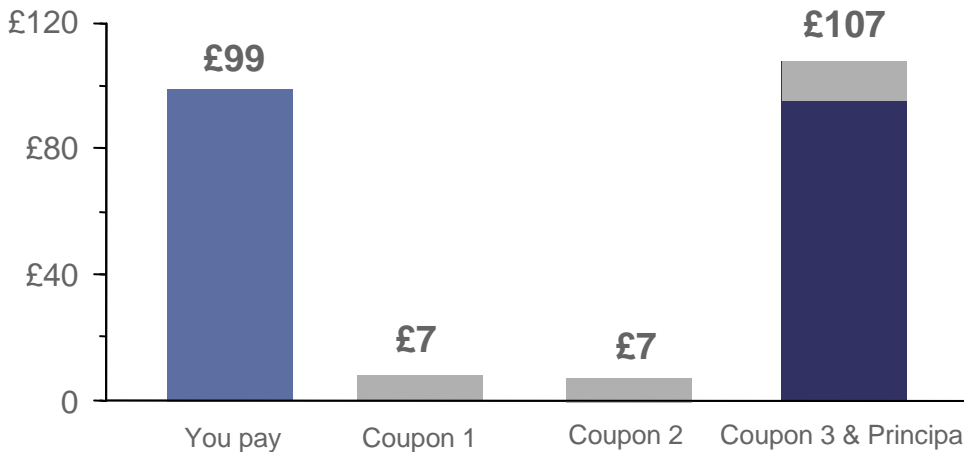
Yield is a value tool that lets you see which bond offers the greater return, when it would otherwise be unclear.



$$\text{Price} = \frac{\text{Coupon 1}}{(1+\text{YTM})} + \frac{\text{Coupon 2}}{(1+\text{YTM})^2} + \frac{(\text{Coupon 3} + \text{principal})}{(1+\text{YTM})^3}$$

$$102 = \frac{8}{(1+\text{YTM})} + \frac{8}{(1+\text{YTM})^2} + \frac{108}{(1+\text{YTM})^3}$$

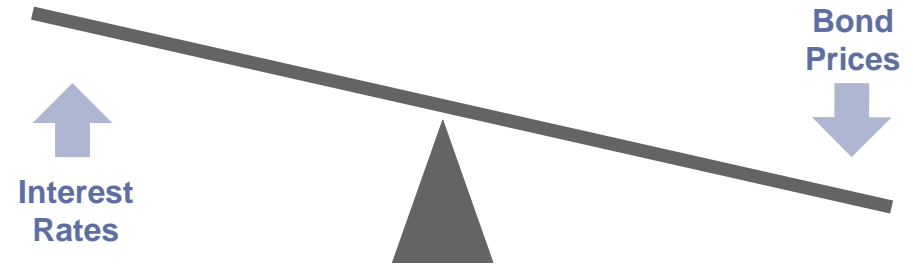
Yield to maturity = 7.23%



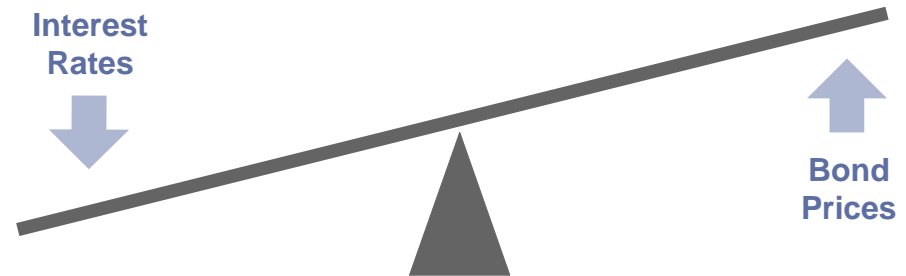
Yield to maturity = 7.38%

# The Relationship Between Yield and Price is an Inverse Relationship

- If interest rates increase (or are expected to increase), the lower coupon on an existing bond seems relatively unattractive and, therefore, bond prices will generally fall



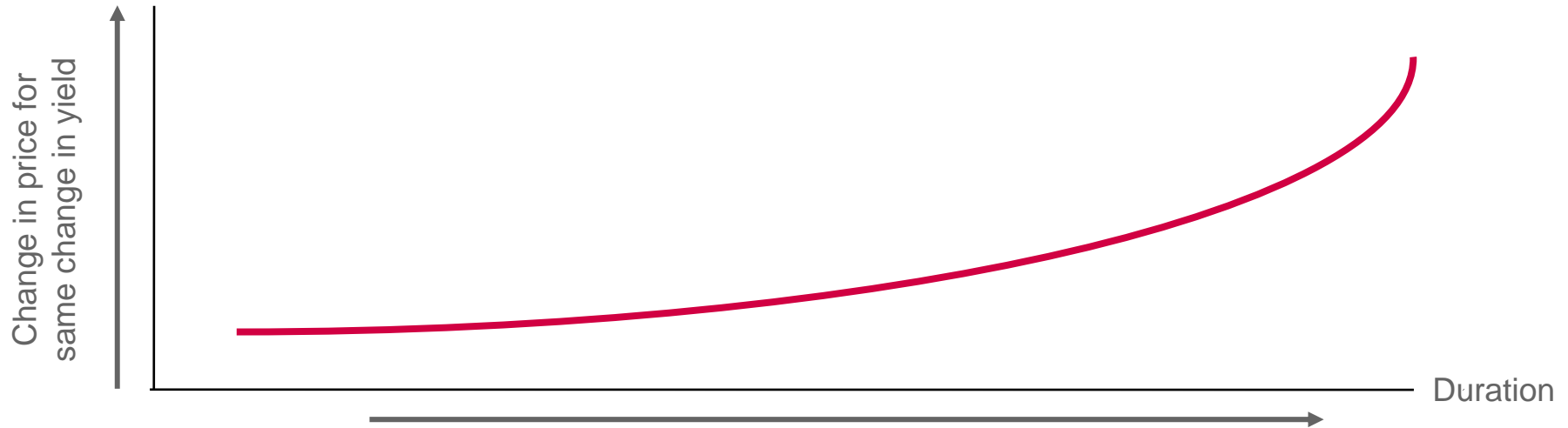
- If interest rates fall (or are expected to fall), the higher coupon on an existing bond seems more attractive and, therefore, bond prices will generally rise



- As yields go **up**, prices go **down**
- As prices go **up**, yields go **down**

# Duration: Interest Rate Risk

- Duration measures the sensitivity of a bond to a change in yield.



Duration is the measure of a percentage price change due to a 1% change in yield. If duration equals 10 this means that if yields change by 100 basis points the bond price will change by 10%.

The longer the duration of a bond, the more its price will change for a given change in yield.

# Who Issues Bonds?

## **Government Bonds**

- Many governments run a budget deficit which requires funding through the issuance of bonds. These can be nominal or inflation-linked bonds. Bonds issued by developed countries, such as US Treasuries, UK Gilts and German Bunds, are considered relatively secure, as the payment of interest and principal at maturity is made by the respective government. Bonds issued by developing or 'emerging from underdevelopment' countries are grouped under the heading emerging market debt.

## **Supra-national, Local Authority and Public Sector Bonds (Agency Bonds)**

- Bonds are also issued by supra-nationals (entities backed by two or more central governments, such as the International Bank for Reconstruction and Development (World Bank)), local authorities and other government sponsored entities.

## **Asset- and Mortgage-Backed Bonds (ABS and MBS)**

- ABS are bonds backed by a pool of assets, such as credit card payments and student loans. The assets act as a security for the bonds and generate the cash-flow needed to service the debt. Issuers include banks, finance companies and credit card lenders.
- MBS are backed by pools of mortgage loans. As the underlying mortgages are paid off by homeowners, investors receive their payments. This is different to a standard bond, as the bond holder receives monthly payments that include both the principal and the interest. These can be issued by agencies, such as Freddie Mac and Fannie Mae in the US, which were taken into conservatorship by the US government in 2008, and private financial institutions (non-agency residential MBS).

# Who Issues Bonds?

## Corporate Bonds

- Corporate bonds are issued by companies looking to raise funds for capital expenditures such as refinancing, expansion or acquisition, dividend payments or share buybacks, and leverage buy-outs. They generally have a higher risk of default than government bonds as the return of the principal and interest payments depend on the financial health of the corporation. They are generally rated by credit agencies such as Moody's Investor Services and Standard and Poor's (S&P) depending on their credit worthiness.
- The Corporate Dividing Line – Investment Grade vs. Speculative Grade Bonds (High Yield)
  - Investment Grade: Bonds rated Baa (by Moody's) or BBB (by S&P) and above. They are perceived to be higher quality and have a lower risk of default than High Yield.
  - High Yield/Non-Investment Grade (or junk): Bonds rated below Baa or BBB.

## Emerging Market Debt

- Governments and corporations of emerging market countries also raise capital through the issuance of bonds. The debt can be issued in the local market currencies or in hard currencies, such as the US dollar. Emerging market debt is usually of lower credit quality and higher risk than developed markets.

# Risks

## Interest rate risk

- Interest rates rise and bond prices fall
- Investor locked in at a lower fixed interest (the coupon) on the bond

## Credit risk

- Credit quality deteriorates (ratings downgrade) and bond prices fall
- Risk of default increases

## Default risk

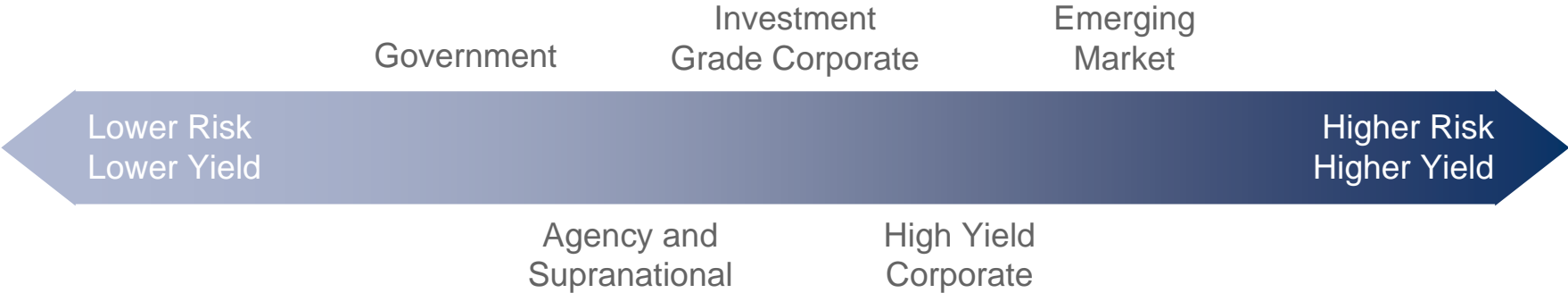
- Company goes into bankruptcy or government fails to make coupon payment
- Loss of all or some of the principal

## Pre-payment risk (particularly relevant for MBS)

- Asset-backed issuer “pre-pays” debt ahead of maturity
- Investor can only re-invest at lower yield

# The Risk Spectrum

Bonds issued by governments of developed countries are at the lower end of the fixed income risk spectrum, as these governments fund the interest payments and payment of principal.



At the other end of the scale, debt issued in emerging market countries is often seen as the most risky, as they have a higher risk of default. For example, Russia and Argentina defaulted on their debt repayments in 1998 and December 2001 respectively. To compensate investors for this higher risk, these securities typically pay a higher rate of interest.

# Key Concepts

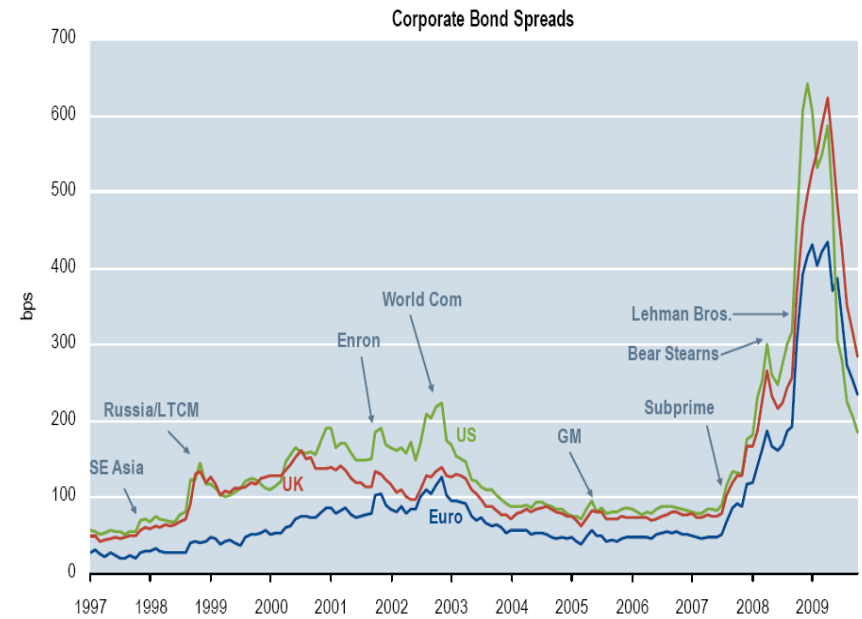
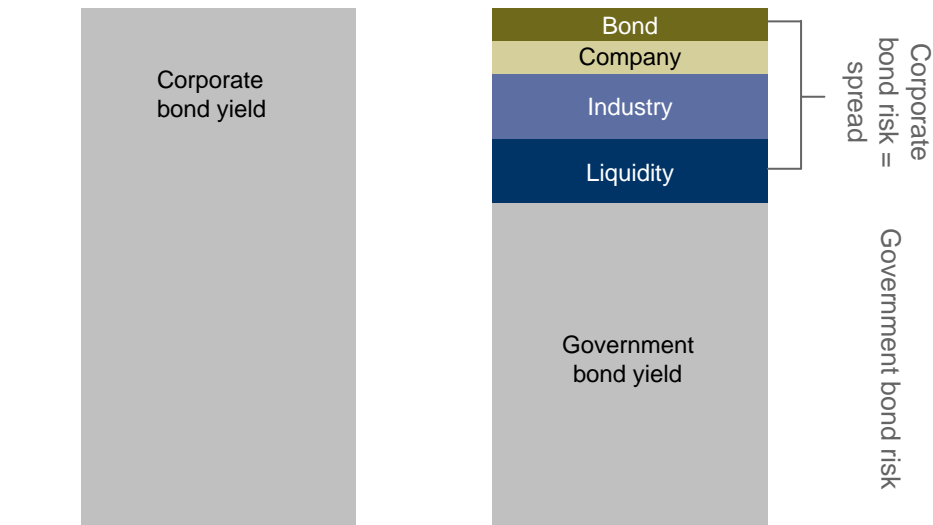
Based on rating agencies' analysis, issuers are often given a rating which is reviewed on a regular basis:

	Standard & Poor's*	Moody's*	
Investment Grade Securities	AAA	Aaa	Higher Quality (Lower Risk of Default)
	AA	Aa	
	A	A	
	BBB	Baa	
High Yield (or Junk) Securities	BB	Ba	Lower Quality (Higher Risk of Default)
	B	B	
	CCC	Caa	
	CC	Ca	
	C	C	
	D		

\* These are not the only two ratings agencies. Not all bonds are rated.

# What are Spreads?

The riskier sectors of the bond market are valued relative to developed government bonds. Their bond yields consist of the government bond yield plus the so-called spread, which reflects the risks specific to the ABS, MBS, corporate bonds or emerging market securities.



Source: Merrill Lynch. As of 30 Sep 09

# Fundamental Factors that can cause a Change in a Bond's price

## **Outlook for economic growth**

- Strong global growth leads to strong corporate earnings and rising interest rates, which in turn affects the bond market: - Government bonds + Corporate bonds

## **Change in policy rates (Fed Funds target rate, Bank of England base rate, etc)**

- In a rising interest rate environment, the fixed interest offered by bonds becomes less attractive relative to market rates

## **Outlook for inflation**

- Increasing inflation erodes the value of the fixed interest offered by bonds over time

## **Supply and demand of bonds**

- Increased new issuance and reduced demand puts pressure on the bond market

## **Change in borrower's creditworthiness**


- A downgrade by a rating agency or an increase in the risk of default puts pressure on an issuer's bonds

## **Alternative investment opportunities (equities, property, etc.)**

- The relative attractiveness of other asset classes can affect the bond market

# How have the various Fixed Income Sectors Performed?

Performance returns of different fixed income sectors vary as they are affected by different economic conditions and investors' general appetite for risk.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	EMD (USD)	Mortgages	Global Govt Inflation Linked (USD)	Global High Yield (USD)	Global Govt Inflation Linked (USD)	EMD (USD)	Global High Yield (USD)	Global Govt Inflation Linked (USD)	Global Govt Bonds (USD)	Global High Yield (USD)
	Mortgages	EMD (USD)	Global Govt Bonds (USD)	EMD (USD)	Global High Yield (USD)	EMD Local	EMD (USD)	Global Govt Bonds (USD)	Mortgages	EMD (USD)
	0-3 month US Treasury Bills	Global Corporate (USD)		Global Govt Inflation Linked (USD)	EMD (USD)	0-3mth US Treasury Bills	EMD Local	Global Corporate (USD)	0-3 month US Treasury Bills	EMD Local
	Global Govt Inflation Linked (USD)	0-3 month US Treasury Bills	EMD Local	Global Corporate (USD)	EMD Local	Mortgages	Global Corporate (USD)	Mortgages	EMD Local	Global Corporate (USD)
	Global Corporate (USD)	Global High Yield (USD)	EMD (USD)	Global Govt Bonds (USD)		Global High Yield (USD)	Global Govt Inflation Linked (USD)	EMD (USD)	Global Govt Inflation Linked (USD)	
	Global Govt Bonds (USD)	Global Govt Inflation Linked (USD)	Mortgages	EMD Local	Global Corporate (USD)	Global Govt Inflation Linked (USD)	Global Govt Bonds (USD)	EMD Local	Global Corporate (USD)	Mortgages
	Global High Yield (USD)	Global Govt Bonds (USD)	0-3mth US Treasury Bills	Mortgages		Global Corporate (USD)	Mortgages	0-3 month US Treasury Bills	EMD (USD)	Global Govt Bonds (USD)
	Not Available		Global High Yield (USD)	0-3 month US Treasury Bills		Global Govt Bonds (USD)	0-3mth US Treasury Bills	Global High Yield (USD)		0-3mth US Treasury Bills

Data to 30 September 2009. Source: Bloomberg. 0-3mth US Treasury Bills: Merrill Lynch US Treasury Bills 0-3 Months, EMD Local: JP Morgan Global Bond Index Emerging Market Local Unhedged, EMD (USD): Merrill Lynch USD Emerging Market Sovereign Plus Index, Global Corporate (USD): Merrill Lynch Global Broad Market Corporate Index, Global Govt Bonds (USD): Merrill Lynch Global Government Bond Index, Global Govt Inflation Linked (USD): Merrill Lynch Global Governments, Inflation-Linked Index, Global High Yield (USD): Merrill Lynch Global High Yield Index, Mortgages: Merrill Lynch Mortgage Master Index.

# Why Bond Funds?

# Why Invest in a Bond Fund rather than an Individual Bond?

A bond fund consists of a “pool” of different bonds from different issuers and having different maturities and interest payments.

As with equity investments, there are a number of benefits of investing in a mutual fund rather than directly in the individual securities. These can include:

- Professional investment management
- The ability to fully diversify your holdings
- Relatively inexpensive way of gaining access to the market
- Access to bonds outside your ‘home’ market
- Convenience

Unlike an investment in an individual bond, a bond fund investor may not receive either income or capital appreciation – but a bond fund is likely to display lower volatility over time, due to the diversified nature of the portfolio

# How Can Bonds Help You Achieve Your Financial Goals?

## The Provision of Income

A regular stream of income might suit an investor who has to meet regular payments or is looking to supplement their regular income

The interest that each bond pays the borrower depends on the structure of each individual security

- Bonds either pay a fixed or floating rate of interest (if the interest rate is floating it is often linked to inflation)
- The interest is paid at regular intervals during the life of the bond – usually annually or semi-annually

Bond funds invest in a “pool” of different bonds, with different interest payments and payment dates, with the aim of providing a steady income stream.

# How Can Bonds Help You Achieve Your Financial Goals?

## Diversification - Bonds as a diversification tool for investors

The principle behind diversification is to spread your investments over a wide range of assets to offset those that are performing poorly with stronger performers – potentially giving you a more stable rate of return.

Equities and bonds tend to perform well in different economic and investment climates:

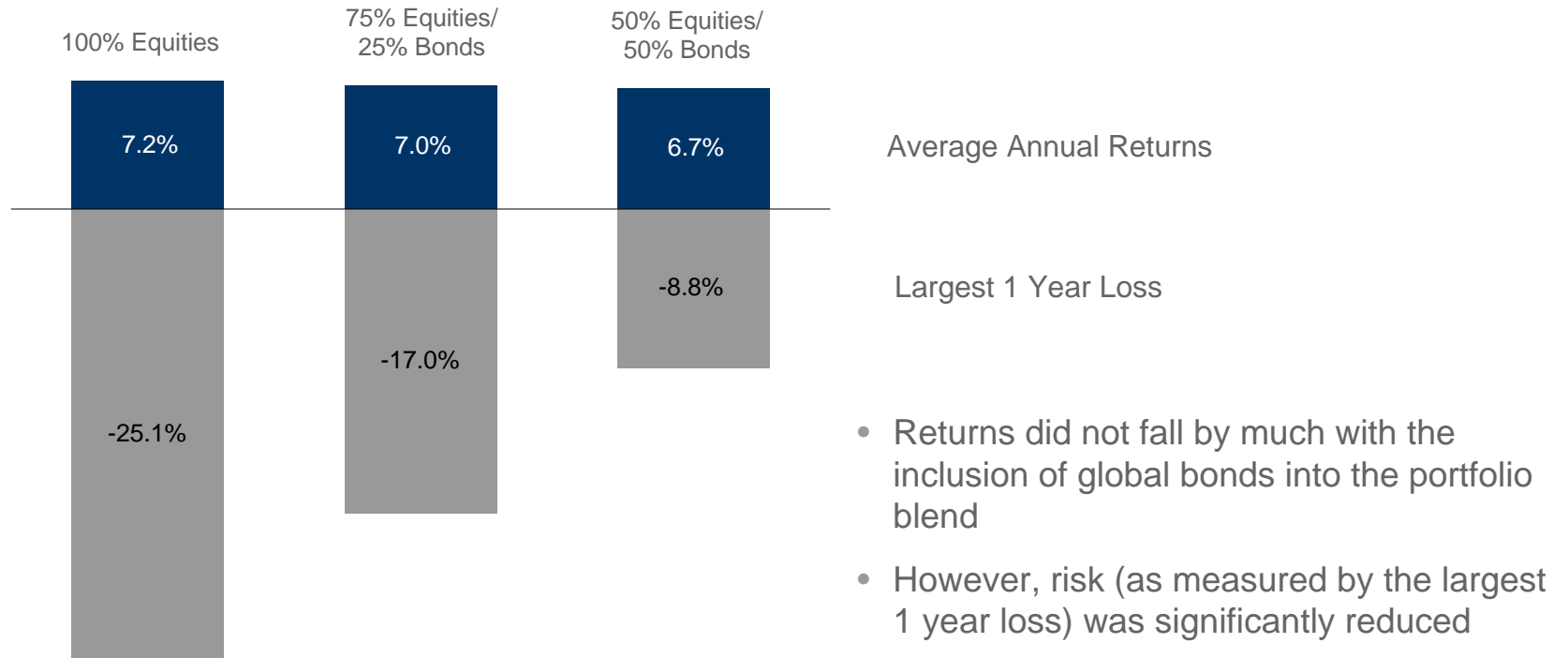
- Equities and the higher-risk sectors of the bond market tend to thrive in a strong economic growth environment, when corporate earnings are improving and default rates are declining.
- The lower-risk sectors of the bond market, tend to perform well in a weakening economic environment when investors become more risk averse and central banks cut interest rates.

As a result, bonds can add stability to an equity portfolio – especially in volatile market conditions

# How Can Bonds Help You Achieve Your Financial Goals?

## Mixing bonds and equities into your portfolio could help reduce volatility

Hypothetical Global Portfolio Blends August 1993 – August 2009



Source: Equities: MSCI World Index. Bonds: Barclays Capital Global Aggregate Index. Returns in US dollar.

Illustrative example only. The risk and return profile varies greatly between different bond and equity portfolio mixes. You cannot invest directly into the indices shown here.

# Glossary

# Glossary of useful terms

## **Asset Backed Security**

Bonds that are issued against the value of an underlying asset.

## **Coupon**

The term refers back to when bondholders tore paper coupons off their bond books to receive their interest payments. Now it generally refers to the coupon rate – i.e. the rate of interest at which the bond is issued. A bond that is issued with an 8% coupon and is priced at £1,000 will pay £80 annually for the life of the security.

## **Credit**

Another term for corporate bonds, loans, charge account obligations as well as open account balances.

## **Credit Rating**

A measure of the creditworthiness of an individual, corporation or government, i.e. how likely they are to pay the coupons and the principal.

## **Credit Rating Agencies**

Firms that investigate, analyse and maintain records on the credit responsibility of businesses (and individuals). Standard & Poor's and Moody's are two of the leading international rating agencies.

## **Debt Instrument**

Written promise to repay a debt e.g.: bonds, notes and mortgages.

## **Default**

When an issuer is not able to meet its coupon or principal payments when they fall due.

## **Duration**

A measure of the sensitivity of a bond to a change in yield.

## **Floating Rate Note**

Debt obligations with variable interest rates that are adjusted periodically (typically every one, three, or six months). The interest rate is usually fixed at a specified spread over a specified deposit rate, such as the London interbank offered rate (LIBOR).

# Glossary (continued)

## **High Yield Bond**

A bond that is rated below investment grade (below BBB) or has no rating, but is deemed to be comparable to a bond rated below investment grade. The issuers of such bonds typically have a greater likelihood of default and, therefore, offer a higher yield to compensate investors for the higher risk. For reference, see **Junk Bond**

## **Investment Grade**

A reference to the credit rating of a bond. 'Investment grade' is something of a misnomer in that it is quite possible to invest in 'non-investment grade' bonds. Investment grade refers to bonds with the highest credit ratings (BBB and above).

## **Junk Bond**

A non-investment grade or high yield bond, with a credit rating below BBB. See also **Investment Grade**.

## **Maturity**

This is the date on which the issuer repays the bond's principal.

## **Mortgage-Backed Security**

Typically, securities which are issued against the value of an underlying mortgage. Investors in the security effectively provide the capital which is lent as mortgages.

## **Price**

The price of a bond in the market continually fluctuates. Even though it may fluctuate during its life, a bond will typically mature at par value – i.e. the price at which the bond was originally issued.

## **Spread**

The difference in yield between two bonds of different quality but the same maturity (or different maturity but the same quality). Also the difference between the bid and offer price

# Glossary (continued)

## Yield

A measure of return on a bond

- Nominal or flat yield: Measures the income earned on an investment expressed as a percentage of the nominal, face or par value of the bond.
- Current or running yield: Measures the income earned on an investment expressed as a percentage of the current price of the bond.
- Yield to Maturity (YTM) or redemption yield: The rate of return anticipated on a bond if it is held until the maturity date. The calculation of YTM takes into account the current market price, par value, coupon interest rate and time to maturity. It is also assumed that all coupons are reinvested at the same rate.
- Yield to call (YTC): For callable bonds, which can be redeemed by the issuer prior to the maturity date under terms specified before the bond's issuance. This yield is calculated in the same way as the YTM, but assumes that the bond will be called at some date in the future. This would shorten the life of the bond and lead to less coupons being paid.
- Cash Flow Yield (CFY): For a non-callable bond, the CFY equals the YTM. For callable securities, the CFY will take into account the probability of an early call, based on underlying interest rates and volatility, and will generally fall between the YTM and YTC.

For UK bond funds:

- Distribution yield: This measure “reflects the amounts that may be expected to be distributed over the next 12mths as a percentage of the mid-market unit price of the fund at the date shown”. It equals the annualised gross amount available for distribution divided by the gross mid-market value of the fund, minus the last published total expense ratio.
- Underlying yield: This measure “reflects the annualised income net of expenses of the fund (calculated using the effective interest method of recognising income) as a percentage of the mid-market unit price of the fund at the date shown”. It equals the annualised gross income receivable divided by the gross mid-market value of the fund, minus the last published total expense ratio.

## Yield Curve

A graphical representation of the difference between yields of bonds with different maturities.

## Zero-Coupon Security

A security, usually a bond, paying no interest during its stated lifetime. Zero-coupon bonds are issued at a discount to face-value. The holder receives 'interest' at maturity, when the bond is redeemed at face-value. The gradual rise in the capital value of a zero-coupon bond over its lifetime is in effect the equivalent of the regular interest payments received from a traditional bond.

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