

## Is the bond broken?

### Introduction

An allocation to government bonds within a multi-asset portfolio has traditionally played a vital role in terms of risk management and diversification. However, the decade-long bull era in both government bonds and equities has led investors to ask whether this assumption is still valid. Additionally, near-zero yields across the globe bring into question the cost associated with this diversification benefit.

Bonds<sup>1</sup> are usually included within a strategic asset allocation (SAA) of a multi-asset portfolio for two main reasons:

- *Income:* They provide a stable source of income in terms of coupon payments, along with a capital cushion in a rising yield environment. For investors with explicit liabilities, this income stream gives bonds an important risk management role. In this paper our focus is on the role of bonds in the return portfolio rather than the liability-hedging portfolio.
- *Diversification:* In times of crisis, government bonds benefit from the flight-to-quality trade, partly driven by an expectation that central banks will stimulate growth by cutting rates.

The diversification benefit has been brought into question recently and we will analyse the validity of this hypothesis. Also in this paper, we analyse how government bonds interact with other asset classes in a multi-asset portfolio and discuss the investor characteristics which allow us to perform a cost-benefit analysis for including fixed income allocations within our strategic asset allocation.

### Do bonds still diversify?

Over the past decade we have seen both bond prices and risk asset prices rise in tandem. This behaviour has brought into question the traditional view of government bonds acting as a diversifier to risk assets and diluted the traditionally negative correlation between these assets. However, the main question here is what we mean



**Kavir Tolia,**  
Investment Solutions  
Senior Quantitative  
Analyst



**Lorenzo Garcia,**  
Head of Investment  
Solutions, EMEA & APAC



**Stuart Jarvis,**  
Investment Solutions  
Quantitative Research  
Director

<sup>1</sup> We will refer to government bonds as just “bonds” for the rest of the paper, unless mentioned otherwise.

by diversification. When building portfolios for our clients we are conscious of two types of diversification:

1. *Average relationship*: The extent to which assets have distinct drivers in scenarios close to the base case.
2. *Tail relationship*: The behaviour of assets in downside scenarios, ie crisis periods for the dominant portfolio drivers.

For example, the portfolios we construct for clients have exposure to an array of different asset classes which have long-term positive expected returns, and which are not perfectly correlated. As such the long-term portfolio performance will benefit from different sources of return over time and will deliver an average return which is diverse, or from a broad set of asset classes – hence the term “average relationship”.

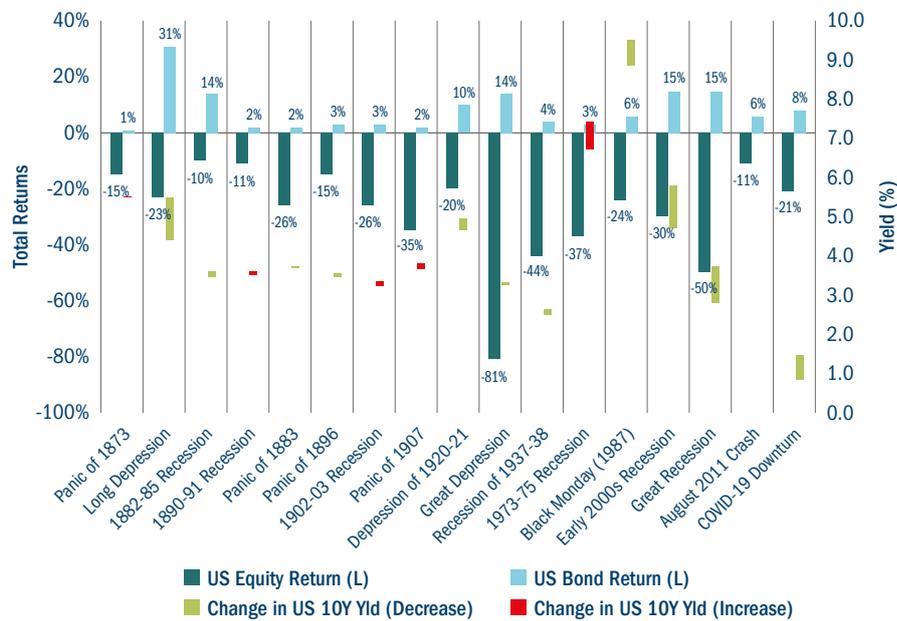
These portfolios are also designed including asset classes whose role is to minimise drawdowns when markets enter risk-off periods, behaving as diversified portfolios in downside periods – hence the term “tail relationship”.

Most joint asset class analyses focus on rolling correlations between equities and bonds, but this is not an appropriate measure to understand the tail relationships.

There is little benefit of achieving diversification only during “normal” market conditions if safe asset classes such as bonds don’t protect the portfolio when it matters. Measures such as rolling correlations amalgamate all market conditions and so are not representative of investor preferences. The best way to challenge this hypothesis is to analyse the behaviour of equities and bonds in the tail.

For example, we have used US equity and government bond returns from 1871 onwards to analyse the behaviour of these assets during market crashes and recessions, identifying 17 periods of crisis which range from a one-month crash in equities to a four-year recession. Clearly, there is an element of subjectivity with respect to choosing these periods, but they give us a decent idea of the interaction between equities and bonds during tail events. We have only used US data here for two main reasons: the length and validity of the data is significantly better in the US compared to any other economies; and global data would implicitly include multiple currency returns, making it difficult to isolate asset class behaviour.

Figure 1. Relationship in the tail: equity and bond total returns



Source: Stock market data used in "Irrational Exuberance" by Robert J. Shiller and Columbia Threadneedle Investments. Note: US equity returns are calculated by combining the S&P price and dividend data. US bond returns are estimated by using the US 10-year yields and assuming a duration of eight years. Past performance is not a guide to future returns.

As we can see in Figure 1, in every period of an equity market crash bonds provided a positive return, and this effect does not appear to have diminished over time. So, an allocation to government bonds does indeed diversify away some of the risk within equities during tail events – and even though it might seem that the negative correlation between equities and bonds has been diluted when observing their average relationship, the diversification benefit is still present in the tail. Additionally, this tail relationship has stayed consistent across different regimes as demonstrated by the 10-year yield at the beginning of each crisis period in Figure 1.

## Is the cost of downside diversification justified?

As demonstrated in the previous example, although government bonds do provide downside diversification in a multi-asset portfolio, we must ask ourselves if the cost associated with this is worth the benefit. This question is even more appropriate given the low yields across the globe, leading to bonds being priced way above their historical average and therefore having long-term expected returns which are close to the lowest in decades. Unfortunately, there is not a simple answer to this question, and as with most questions the true answer is “it depends”.

To illustrate this, let us think about the case of an umbrella on a typical English day. Assuming there is a certain probability of rain on a given day, different people will have a different outlook as to whether they need an umbrella. An individual who is very averse to getting wet (for example, if they are on their way to a date) is more likely to buy an umbrella, regardless of the price. In contrast, someone who is not too bothered about getting wet will perform some sort of cost-benefit analysis on the purchase of the umbrella. This is not to cast any doubt on the ability or effectiveness of the umbrella to protect them from getting wet, but more related to the risk aversion of the individual.

For an investor to determine their allocation to bonds, they need to think about their preferences and objectives. These can be distilled down to three main characteristics:

- *Time horizon*: how long is the investment horizon?
- *Liquidity/cashflow requirements*: is the investor looking to draw a regular income?
- *Dependency/reliance*: is the investor reliant on this pot (eg, for medical needs or education, etc)?

A combination of these three characteristics helps to situate an investor on a spectrum from “outcome-driven” to “journey-driven”, which gives an indication of the appropriate bond allocation within their SAA. For an investor who requires a smooth performance journey over time, the portfolio construction process should pay due attention to asset classes that can provide downside protection via tail relationships. In contrast, for an investor who is more relaxed about the path and is instead more focused on the long-term outcome, we should aim to provide a well-diversified positive return over time and attention should be given to the average relationship.

To bring this idea to life, let us imagine two hypothetical investors who have different characteristics, and discuss how these characteristics have an impact on their SAA (Figure 2).

**Figure 2: Hypothetical investors and their characteristics**

| Characteristic         | Jenny                | Olivia   | Comments  |
|------------------------|----------------------|--|---|
| Time horizon           | Medium               | Long   |   |
| Liquidity needs        | High                 | Low  |   |
| Reliance               | High                 | Low  |   |
| Primary objective      | Risk-adjusted return | Return   | Given the shorter time horizon (and therefore less likelihood of recuperating any losses), high liquidity needs and high reliance, Jenny is more averse to volatility, and her objective can be best expressed as risk-adjusted return rather than pure return. |
| Diversification motive | Drawdown reduction   | Maximising chances of meeting return objective | Even though both investors are risk-averse and so seek diversification, Jenny's motive is to protect on the downside. In contrast, Olivia will be attracted by exposure to return drivers to maximise the chances of meeting her return objective.              |
| Risk tolerance         | Medium               | High   |   |



Source: Columbia Threadneedle Investments, for illustrative purposes only.

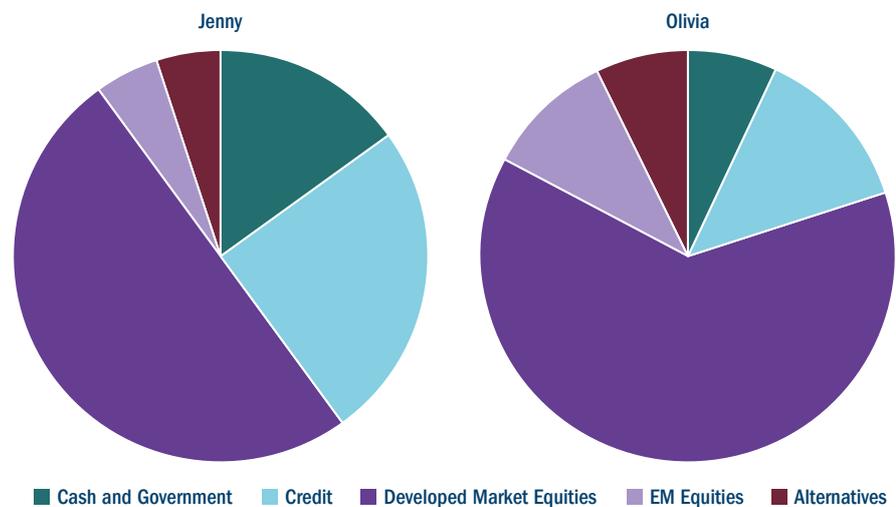
We can see from Figure 2 how the two investors differ in terms of the three main characteristics of time horizon, liquidity needs and reliance. These characteristics can then be used to infer some additional features about these investors, as highlighted in the same figure.

Based on these, we can make some educated judgements about their investment strategy:

- (1) Jenny will likely have a higher allocation to fixed income than Olivia given the tail relationship.
- (2) Jenny will likely have a much lower allocation to real assets than Olivia due to higher liquidity needs.
- (3) Within equities, Jenny will likely be more exposed than Olivia to developed equities rather than emerging market equities as the average relationship becomes more important for Olivia.

We can then make an informed decision about the broad asset allocation for the two investors. For example, Jenny is likely to have an SAA which is in the region of 60% in equities and a modest allocation in government bonds to make the portfolio more resilient. In contrast, Olivia will be happy to have an 80% allocation in equities but a lower exposure to government bonds to maximise the chances of achieving the return target. These allocations can be thought of as the long-run asset allocation for each investor (Figure 3).

**Figure 3: Long-run asset allocation for the two hypothetical investors**



Source: Columbia Threadneedle Investments, for illustrative purposes only.

As mentioned, these asset allocations are derived from our long-run capital market assumptions, which we forecast using long-term risk factors driving income and growth across asset classes. However, we also need to be aware of current asset valuations (eg, low yields) and how we expect them to evolve over the business cycle, which we then translate into asset class tilts around our long-run SAA.

At Columbia Threadneedle, along with the long-run capital market assumptions, we also forecast asset class returns which are more informed by asset valuations and where we are within a business cycle. Both sets of capital market assumptions are constructed in a way that ensures consistency across different time horizons.

We can then use these “valuation-aware” capital market assumptions to tilt our long-run SAA to ensure we are aware of current valuations. This is particularly important with respect to bonds given current yields across the globe. For instance, while our long-run capital market assumptions assume bonds are fairly valued, our valuation-aware view expects a degree of mean reversion – which here means a rise – in yields and are therefore not as

bullish. Similarly, our valuation-aware capital market assumptions are more bullish on equities. All this will lead to the following tilts to the portfolios of the two investors:

| Asset class        | Jenny | Olivia | Comments  |
|--------------------|-------|--------|---|
| Government bonds   | ↓     | ↓↓     | The reduction for Olivia will be more dramatic given the importance of the average relationship for her   |
| Credit             | ↓     | ↔      | While Jenny will reduce credit proportionally with government bonds, Olivia will likely maintain her credit exposure, again focussing on the average relationship |
| Developed equities | ↑↑    | ↑      | Within equities, Jenny will have a more positive tilt towards developed equities, focussing on risk-adjusted returns  |
| EM equities        | ↑     | ↑↑     | Within equities, Olivia will have a more positive tilt towards emerging market equities, focussing on maximising the chances of achieving her return objective    |

Source: Columbia Threadneedle Investments, for illustrative purposes only.

## Summary

There has been much discussion in recent years about the diversification benefits of bonds and if the cost of this diversification is worth it for multi-asset investors.

Having analysed two sides of this diversification – the tail relationship and average relationship – we can see that the tail relationship between equities and bonds over the past 150 years shows that, even at historically low yields, bonds have been an excellent tail diversifier in a multi-asset portfolio during times of crisis. This confirms that government bonds still play a very important role within multi-asset portfolios across many different regimes. However, this does not take away from the fact that we need to perform some level of cost benefit analysis when designing our investment strategy.

Any investment strategy needs to be informed by the investor's characteristics, which we have distilled into three main features: time horizon, liquidity requirements and reliance. These can then be used to infer the long-run asset allocation for the investor, ensuring the most optimal portfolio given their preferences on average relationship versus tail relationship. Additionally, this long-run asset allocation can be tilted to ensure we are aware of current asset valuations, such as current record low yields, while remaining consistent with the broad risk stance of the long-run asset allocation. This process of designing a valuation-aware SAA ensures that at Columbia Threadneedle we aim to deliver the most optimal journey for the end-investor without any dramatic asset allocation changes through the investment horizon.

To find out more visit  
**columbiathreadneedle.com**



**Important Information: For use by Professional and/or Qualified Investors only (not to be used with or passed on to retail clients). This is an advertising document.** This document is intended for informational purposes only and should not be considered representative of any particular investment. This should not be considered an offer or solicitation to buy or sell any securities or other financial instruments, or to provide investment advice or services. **Investing involves risk including the risk of loss of principal. Your capital is at risk.** Market risk may affect a single issuer, sector of the economy, industry or the market as a whole. The value of investments is not guaranteed, and therefore an investor may not get back the amount invested. **International investing** involves certain risks and volatility due to potential political, economic or currency fluctuations and different financial and accounting standards. **The securities included herein are for illustrative purposes only, subject to change and should not be construed as a recommendation to buy or sell. Securities discussed may or may not prove profitable.** The views expressed are as of the date given, may change as market or other conditions change and may differ from views expressed by other Columbia Threadneedle Investments (Columbia Threadneedle) associates or affiliates. Actual investments or investment decisions made by Columbia Threadneedle and its affiliates, whether for its own account or on behalf of clients, may not necessarily reflect the views expressed. This information is not intended to provide investment advice and does not take into consideration individual investor circumstances. Investment decisions should always be made based on an investor's specific financial needs, objectives, goals, time horizon and risk tolerance. Asset classes described may not be suitable for all investors. **Past performance does not guarantee future results, and no forecast should be considered a guarantee either.** Information and opinions provided by third parties have been obtained from sources believed to be reliable, but accuracy and completeness cannot be guaranteed. This document and its contents have not been reviewed by any regulatory authority.

**In Australia:** Issued by Threadneedle Investments Singapore (Pte.) Limited ["TIS"], ARBN 600 027 414. TIS is exempt from the requirement to hold an Australian financial services licence under the Corporations Act and relies on Class Order 03/1102 in marketing and providing financial services to Australian wholesale clients as defined in Section 761G of the Corporations Act 2001. TIS is regulated in Singapore (Registration number: 201101559W) by the Monetary Authority of Singapore under the Securities and Futures Act (Chapter 289), which differ from Australian laws.

**In Singapore:** Issued by Threadneedle Investments Singapore (Pte.) Limited, 3 Killiney Road, #07-07, Winsland House 1, Singapore 239519, which is regulated in Singapore by the Monetary Authority of Singapore under the Securities and Futures Act (Chapter 289). Registration number: 201101559W. This document has not been reviewed by the Monetary Authority of Singapore.

**In Hong Kong:** Issued by Threadneedle Portfolio Services Hong Kong Limited 天利投資管理香港有限公司. Unit 3004, Two Exchange Square, 8 Connaught Place, Hong Kong, which is licensed by the Securities and Futures Commission ("SFC") to conduct Type 1 regulated activities (CE: AQ779). Registered in Hong Kong under the Companies Ordinance (Chapter 622), No. 1173058.

**In the UK:** Issued by Threadneedle Asset Management Limited, registered in England and Wales, No. 573204. Registered Office: Cannon Place, 78 Cannon Street, London EC4N 6AG. Authorised and regulated in the UK by the Financial Conduct Authority.

**In the EEA:** Issued by Threadneedle Management Luxembourg S.A. Registered with the Registre de Commerce et des Sociétés (Luxembourg), Registered No. B 110242 44, rue de la Vallée, L-2661 Luxembourg, Grand Duchy of Luxembourg.

**In the Middle East:** This document is distributed by Columbia Threadneedle Investments (ME) Limited, which is regulated by the Dubai Financial Services Authority (DFSA). The information in this document is not intended as financial advice and is only intended for persons with appropriate investment knowledge and who meet the regulatory criteria to be classified as a Professional Client or Market Counterparty and no other Person should act upon it.

**In Switzerland:** Threadneedle Asset Management Limited, Registered in England and Wales, Registered No. 573204, Cannon Place, 78 Cannon Street, London EC4N 6AG, United Kingdom. Authorised and regulated in the UK by the Financial Conduct Authority. Issued by Threadneedle Portfolio Services AG, Registered address: Claridenstrasse 41, 8002 Zurich, Switzerland. **Columbia Threadneedle Investments is the global brand name of the Columbia and Threadneedle group of companies.**  
columbiathreadneedle.com

Issued 06.21 | Valid to 12.21 | J31604 | 3609485