Fixed-Income Portfolio Benchmarks: Time for Re-evaluation?

WESTERN ASSET

Executive Summary

- There are good reasons to question whether traditional bond indices are meeting their primary objectives as benchmarks in bond portfolio management.
- We believe that given the current market and regulatory environment, this is a good time for investors to re-evaluate both the indices used as benchmarks and the way in which benchmarks are used for bond portfolios.
- A number of practical alternatives now exist with the advent of fixed-income indices with alternative weighting rules and different approaches to benchmarking. Investor governance and the breadth of manager resources will determine which solutions are feasible and appropriate for each investor.
- We suggest two alternative approaches to the benchmarking of fixed-income portfolios: Dynamic benchmarking, by which benchmark composition is based on the investment views of the manager and the risk tolerance of the investor, and benchmark separation into return and risk components, which better aligns the investment objectives of an asset portfolio with the costs of servicing investors' liabilities.

Executive Summary

Bond indices have been used for benchmarking investment portfolios in the asset management industry for almost 40 years. While geographical and sector coverage has expanded immensely, the methodology for weighting securities in bond indices until recently has been exclusively based on market capitalisation. In this paper, we discuss why we believe market capitalisation-weighted indices may not have the properties of a good benchmark and therefore may be failing to deliver their primary objectives to investors and asset managers. Recent market and regulatory developments, as well as the advent of new index weighting methodologies and techniques, provide a good opportunity for investors to consider alternative fixed-income indices and to re-evaluate the way in which they benchmark their fixed-income portfolios. We examine recent developments in index construction and suggest two alternative approaches to the benchmarking of fixed-income portfolios: dynamic benchmarking, by which benchmark composition is based on the investment views of the manager and the risk tolerance of the investor, and benchmark separation into return and risk components, which better aligns the investment objectives of an asset portfolio with the costs of servicing investors' liabilities.

Background

The use of indices as benchmarks for investment portfolios has come a long way over the last 120 years since Charles Henry Dow first pioneered his index of 11 railroad stocks. The first fixed-income indices were launched in 1973 in the US by investment banks Kuhn, Loeb & Co., (later acquired by Lehman Brothers) and Salomon Brothers as a means by which to measure the performance of US corporate bonds during the dawn of active bond portfolio management in the US.

Due to the ease of construction, bond indices are predominantly market-capitalisation-weighted. More recently, as investors have questioned the validity of traditional bond indices, indices based on alternative weighting methodologies have been introduced, including GDP-weighted and fiscal strength indices.

Uses of Investment Benchmarks

The range of indices available to asset management industry practitioners today is global and very comprehensive. However, the way in which indices have been employed to benchmark investment portfolios has been stretched to the point at which the indices have become arguably flawed or, at best, inefficient. A review of the definitions of investment benchmarks is therefore helpful.[1]

General definition of an investment benchmark: *a collection of securities or risk factors and associated weights that is representative of an asset class.*

Definition of an investment benchmark for investors: *an allocation to an asset class proxied by a passive portfolio of an asset class universe. By selecting a benchmark, the investor is implicitly accepting the return and risk characteristics of the passive portfolio.*

Definition of an investment benchmark for asset managers: *a passive representation of the manager's investment process or style.*

[1] Maginn, John L., ed. Managing Investment Portfolios: A Dynamic Process, 3rd ed. Wiley, 2007.

Benchmarks are predominantly used by both investors and managers for two purposes: performance evaluation and risk evaluation.

Over time, as active portfolio management became more established, the industry came to focus predominantly on excess return versus a benchmark (alpha) as the metric for evaluating the performance of actively managed portfolios. Volatility relative to the benchmark (tracking error) became the primary metric for risk evaluation.

Under this traditional approach to portfolio benchmarking, the focus on alpha has meant that investors' choice of benchmark can dominate portfolio returns which, in turn, may deviate significantly from the change in the value of the liabilities investors are seeking to match or exceed. Moreover, by selecting a benchmark, the passive benchmark portfolio becomes the default starting point for active management irrespective of valuations—not always an optimal starting portfolio for the investor.

The focus on tracking error and investors' implicit tolerance for benchmark risk has overshadowed shifts in overall volatility and riskiness of the underlying benchmark and the portfolio.

While these issues do not invalidate the traditional approach to benchmark-relative investing, they highlight to investors the potential for unintended consequences of benchmark selection and the importance of the approach they adopt in selecting benchmarks for actively managed portfolios. A natural starting point to help in the process of benchmark selection, therefore, is to consider the properties of a good benchmark.

Properties of a Good Benchmark

The Association of Investment Management and Research[2] defines the properties of a good benchmark as follows.

- **Unambiguous and transparent:** The benchmark must have clear inclusion criteria and methodology for security-weighting.
- **Investable:** Investors must be able to replicate the benchmark portfolio; its constituent securities must therefore be liquid, suffer a low level of turnover, and benefit from low transaction costs.
- **Appropriate and representative:** A benchmark must reflect an investor's asset allocation and risk tolerance, and match the portfolio manager's investment skill set and style.
- **Measurable:** Daily pricing and the ready availability of historical risk and return data are required.

Advantages and Disadvantages of Market Capitalisation-Weighted Bond Indices

To date, the benchmarks used for most fixed-income portfolios have utilised market capitalisation-weighted indices such as the Citigroup World Government Bond Index or the Barclays Capital Global Aggregate Index. These indices have been used as benchmarks for so long partly because they have a number of advantages.

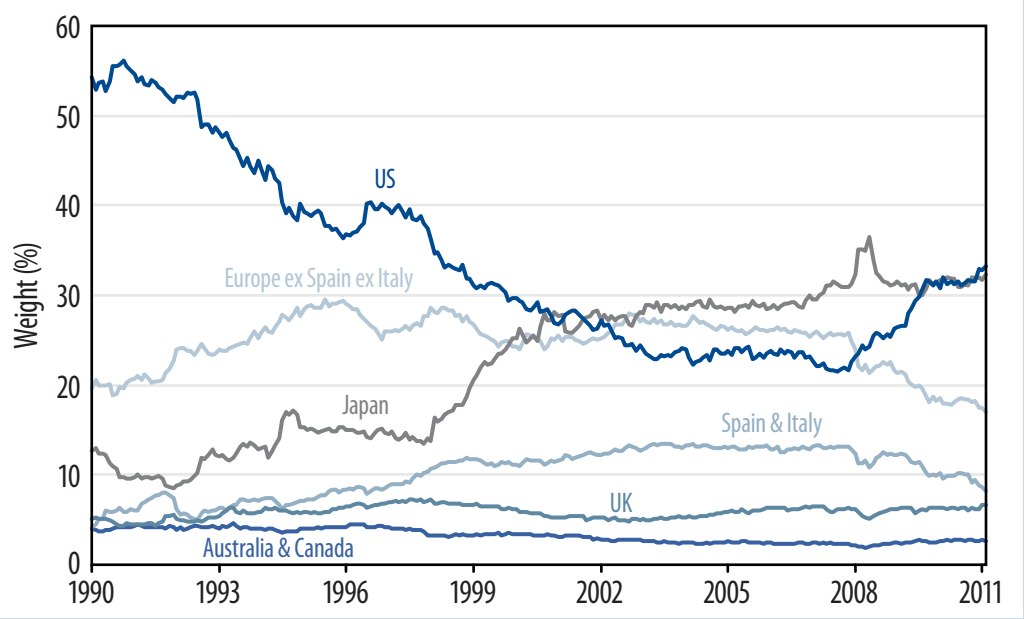
- They are **well established** as benchmarks in the asset management industry. (This means that a decision to retain existing benchmarks implies lower costs for investors when compared with the need for portfolio restructuring if alternative-weighting-methodology benchmarks are adopted.)
- Their weighting methodology means they are **easily constructed** and maintained.
- They are **comprehensive** and currently cover almost every sector and geographical region of the fixed-income market, making them generally accepted as asset class proxies.
- They are backed by **readily accessible and statistically significant historical data**.

[2] Siegel, Laurence B. "Benchmarks and Investment Management." Research Foundation Publications, Vol. 2003, No. 1, Aug 2003.

However, such benchmarks also have disadvantages.

- **Bias to highly indebted issuers:** This aspect of capitalisation-weighted index construction can significantly impact the performance and volatility of portfolios managed against a benchmark. It also arguably leads to an inefficient portfolio from a Capital Asset Pricing Model (CAPM) perspective, since a capitalisation-weighted portfolio of government bonds does not represent net wealth.[3] This has been manifested in the debt of both sovereign and corporate issuers.
  - *Sovereigns* (Exhibit 1)—Japan, whose debt-to-GDP ratio exceeds 200%, has seen its weight in global government bond indices triple since 1990 to over 30%. The weight of Italy and Spain in these indices—countries whose sovereign debt is at the core of the current eurozone crisis—exceeds 8%.
  - *Financials* (Exhibit 2)—Financial issuers' weighting in the global corporate bond indices soared to over 50% by 2008 and remains around 40% today. Financials' volatile performance during and since the global financial crisis has therefore significantly impacted the total returns of portfolios benchmarked against corporate bond indices.

Exhibit 1
Historical Country Allocation in the JPMorgan GBI Index

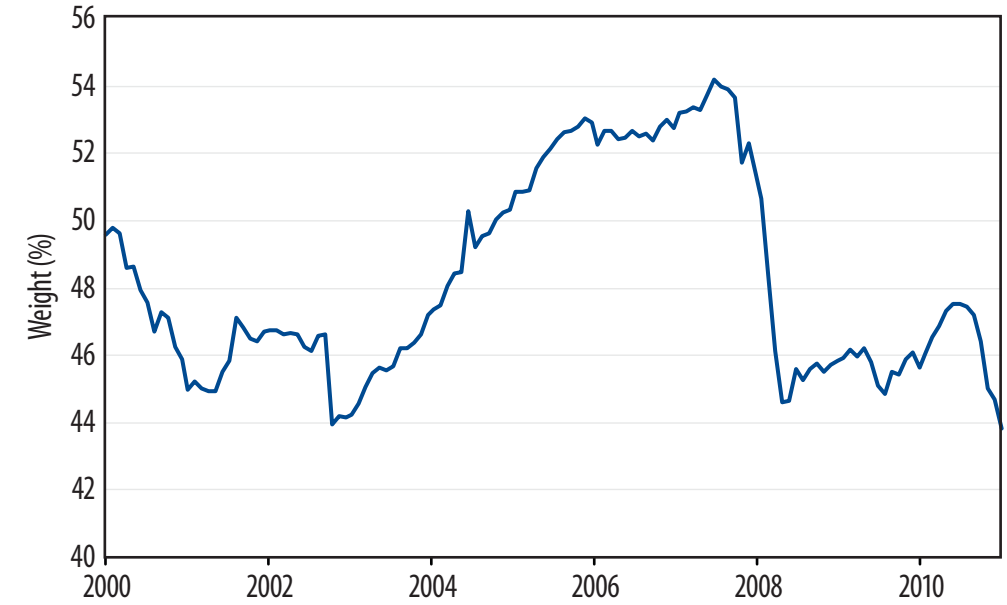


Source: JPMorgan. As of 30 Nov 11

- **Pro-cyclical pricing bias:** Since securities' weightings in indices increase with price, portfolio managers may be biased to add to holdings of securities with poor valuations to limit portfolios' tracking-error risk to the benchmark. From a business cycle perspective, this could mean adding interest rate risk to markets that are pricing in excessive declines in official rates or inflation.
- **Dependence on credit ratings:** Index providers have strict credit ratings criteria. Rating agencies often lag fundamental credit trends, leading to distortions in index compositions, especially when issuers' ratings fall below investment-grade.
- **Backward-looking bias:** Index compositions reflect historical, as opposed to prospective, trends in bond markets. For instance, issuers from developing economies whose debt capital markets are rapidly evolving and deepening are underrepresented in indices due to those issuers' low debt market-capitalisation and their credit ratings' lagging improved creditworthiness.

[3] Barro, Robert. "Are Government Bonds Net Wealth?". Journal of Political Economy 82 (6): 1095–1117. He argued that an increase in outstanding government debt is not perceived as an increase in household wealth, as it is expected to be offset by future tax liabilities.

Exhibit 2
Financials Sector Exposure in Barclays Capital Global Corporate Bond Index



Source: Barclays Capital. As of 30 Nov 11

- **Pricing:** There are a number of issues related to this aspect of bond indices.
  - *Transaction-costs distortions*—Bond indices' pricing is based on mid-market prices, which are not representative of the widening gap between bid and offer prices prevailing in bond markets.
  - *Liquidity and float distortions*—Index pricing does not discriminate for transaction size or the outstanding float of different bonds. In reality, prices vary widely from index prices for very small or very large orders, especially for smaller issues.
  - *Index providers' pricing 'hegemony'*—Since bonds trade over the counter, investment-bank index providers use their own bond traders' prices and internal pricing systems to price securities in their indices, giving the providers complete autonomy in determining index valuations.

Traditional Bond Indices May Not Be Meeting Their Primary Objectives

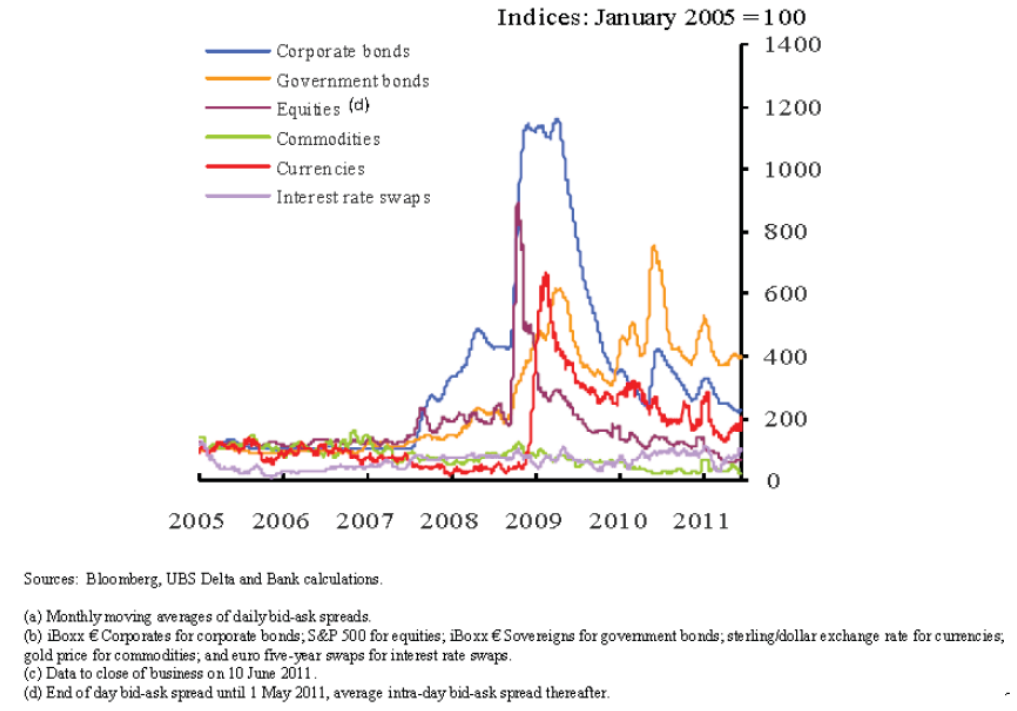
It is no longer clear that traditional bond indices are meeting their primary objectives as good portfolio benchmarks, and it may be time to re-evaluate them. Traditional bond indices arguably fall short of the standards outlined by the Association of Investment Management and Research.

- **Unambiguous and transparent:** The evidence of clear inclusion criteria is slim, as index providers have dithered over the inclusion/exclusion of contingent convertible bonds, Tier-1 bonds, Brazilian bonds, inflation-linked bonds, etc. The decision-making process has appeared opaque, and the results of lobbying by investment managers and issuers for and against index changes are not always transparent. Decisions have lagged changes in liquidity and creditworthiness. Credit rating criteria have been inconsistent among the rating agencies (and even within them—Barclays Capital ejected Greece from its European government index in April 2010 and from its global aggregate index two months later).
- **Investable:** The ability to replicate indices has been challenged by a number of factors.
  - Turnover has risen sharply, particularly in credit indices, due to rating downgrades and to heavy issuance in 2010.
  - Bid-offer spreads have risen meaningfully relative to pre-crisis levels and have fluctuated broadly in line with spreads (Exhibits 3 and 4). The increased regulatory burden on banks makes a narrowing in spreads unlikely anytime soon. Actively managed portfolios, which buy securities at the offer price, are disadvantaged relative to indices that price securities at either bid- or mid-prices from the day of inclusion.

- Global aggregate indices contain about 6,500 bonds from about 3,000 issuers, not all of which trade weekly, let alone daily.

▪ **Appropriate and representative:** It becomes hard to argue that a benchmark reflects an investor's asset allocation and risk tolerance when most bond indices that included credit exceeded investors' absolute risk tolerance levels in the 2008 crisis (Exhibit 5) and when the duration mismatch between

Exhibit 3
Bid/Offer Spreads on Selected Assets (rebased to 100 in 2005)

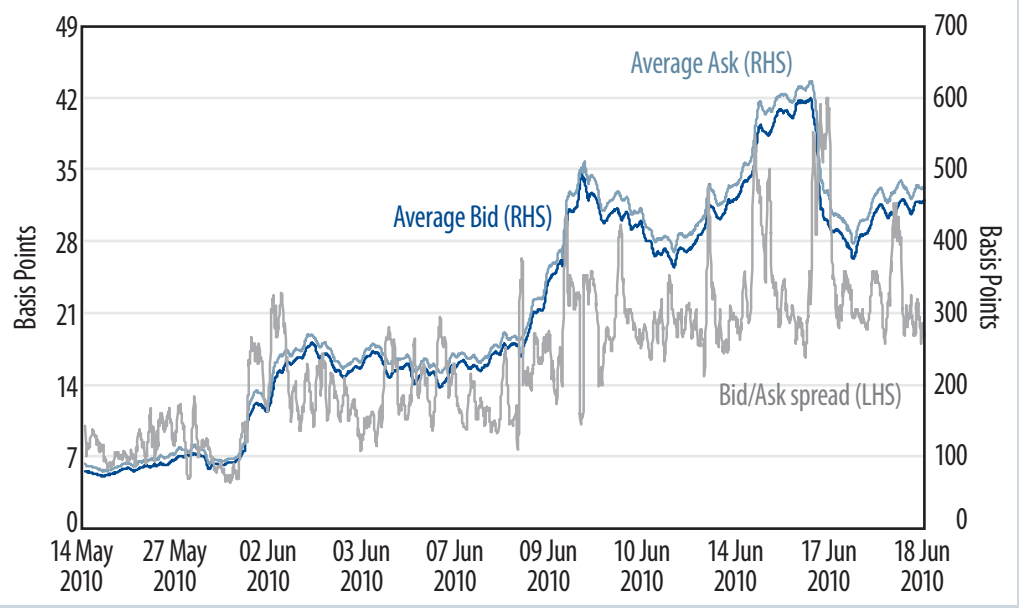


Sources: Bloomberg, UBS Delta and Bank calculations.

(a) Monthly moving averages of daily bid-ask spreads.
(b) iBoxx € Corporates for corporate bonds; S&P 500 for equities; iBoxx € Sovereigns for government bonds; sterling/dollar exchange rate for currencies; gold price for commodities; and euro five-year swaps for interest rate swaps.
(c) Data to close of business on 10 June 2011.
(d) End of day bid-ask spread until 1 May 2011, average intra-day bid-ask spread thereafter.

Source: Financial Stability Report, Bank of England. June 2011

Exhibit 4
BP 5-Year Senior CDS Bid/Offer Spread

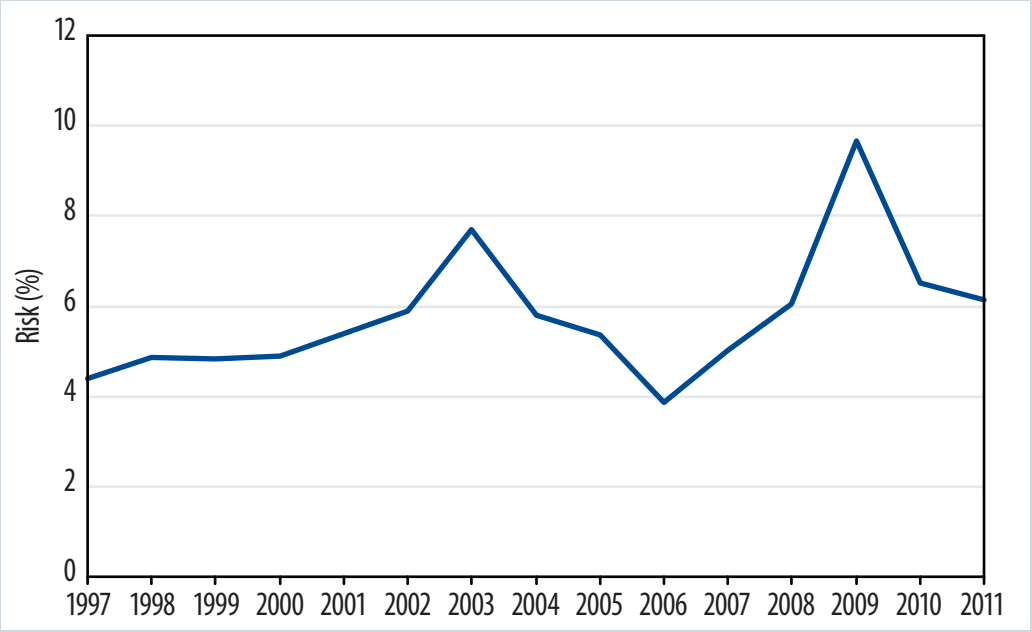


Source: Bloomberg, Western Asset. As of 18 Jun 10

the benchmark and, in the case of the pension fund investor, the liabilities can be of a magnitude of 10 or more years (Exhibit 6). Additionally, it is difficult to believe that a benchmark matches the portfolio manager's investment skill set and style if tracking-error constraints could result in the manager owning benchmark securities they do not favour. 'Style drift' can also occur when managers introduce structural exposure to non-benchmark securities, which can distort performance evaluation.

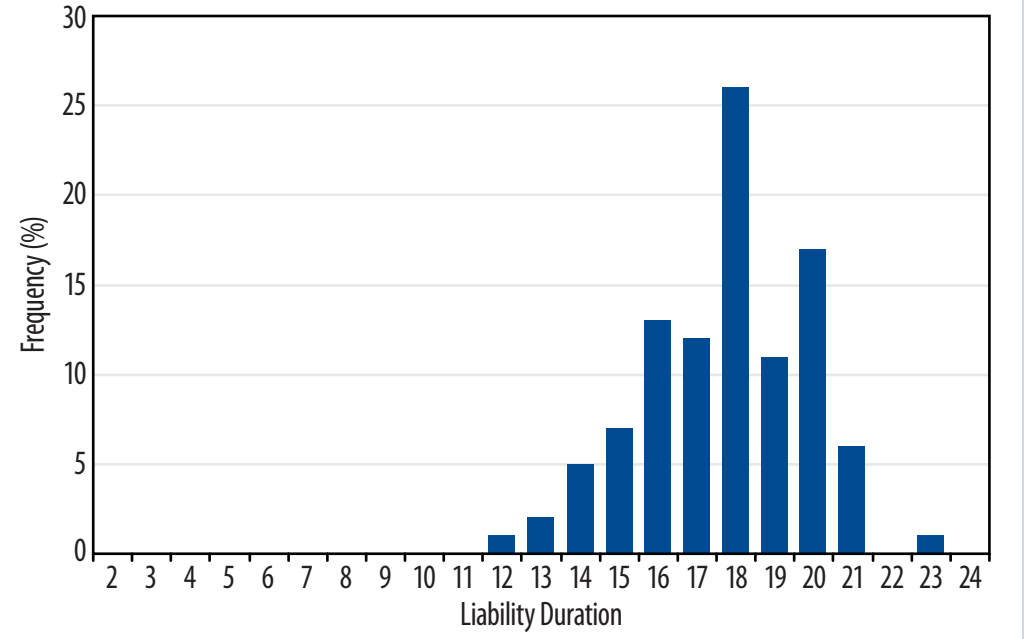
- **Measurable:** Not all securities are trader-priced daily, and 'matrix pricing' (a method of analysing historical prices to produce an estimated price) is employed for those that are not.

Exhibit 5
Barclays Capital Global Aggregate 1-Year Standard Deviations



Source: Barclays Capital. As of 30 Sep 11

Exhibit 6
Duration of UK-Defined Benefit Plans (FTSE 350 Companies)



Source: Barnie & Hibbert, AXA IM, February 2004; WM Research, September 2003

Alternatives to Traditional Bond Portfolio Indices

Synthetic credit indices: These indices (dominated by Itraxx and CDX) evolved in the wake of the rise in the use of credit default swaps (CDS) for hedging credit risk. They are comprised of equal weights in the most liquid and actively traded CDS, and they have broad coverage of the key sectors of the global credit universe. As a standardised credit security, synthetic credit indices may offer greater liquidity and lower bid-offer spreads than individual cash bonds or single-name CDS. However, since their use has increased beyond the hedging of issuer credit risk to include speculation, their return and volatility may deviate substantially from those of the cash bonds they seek to replicate.

'Liquid' fixed-income indices: Indices offered by Credit Suisse utilise trader-based security pricing and a high minimum issue size for inclusion, which avoids the disadvantage of matrix pricing but retains the disadvantages of still being market capitalisation-weighted and relying on the one index provider for pricing. Other index providers such as Markit offer rules-based liquid equal-weighted corporate bond indices, the pricing for which is provided by multiple contributors. Equal weighting is conceptually attractive but may result in excessive concentrations in thinly traded or illiquid securities.

Liability-driven indices: These indices typically are a customised blend of interest rate swaps and long-dated nominal and inflation-linked bonds. They have the advantages of being broadly transparent and of providing a closer, tailored match to the long-dated liabilities of pension funds and other institutional investors. (Long-dated liability risk is reduced but not eliminated, of course—swaps-based strategies replace the risk of fixed-rate long-dated liabilities for floating-rate liabilities.) Adoption of these indices can be complex and costly to implement; the universe of ultra-long-dated bonds is limited and swaps incur increased counterparty, credit and concentration risk.

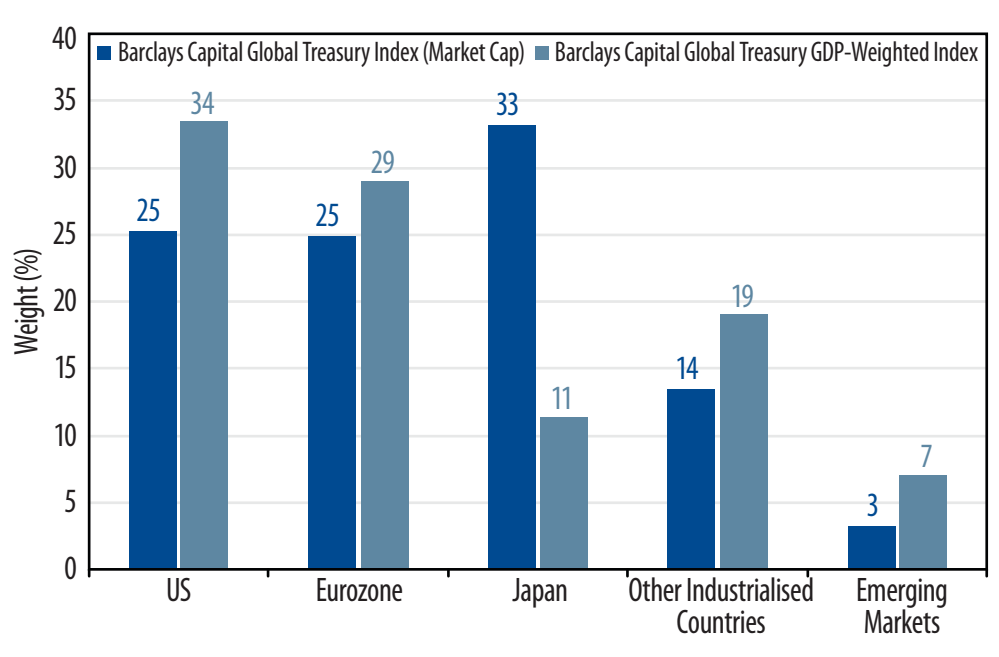
Fundamental (valuation-indifferent) indices: This class of indices either ignores or complements capitalisation-weighting methodologies with valuation-indifferent weighting rules that focus on economic or solvency-related factors.

GDP-weighted indices: Launched by Barclays Capital in 2009, these indices weight country exposure by the country's share of the total GDP of the countries in the index universe. Weighting a country's debt by its income level rather than by the value of its outstanding debt reduces the risk of bias to the most indebted borrowers (Exhibit 7). It can also help mitigate capitalisation-weighted indices' 'pro-cyclical' pricing bias, as a country with a rising GDP will see its share of the index rise during periods when increases in official interest rates and inflation are likely to be increasingly discounted in bond prices.

Faster-growing developing economies—from which investors have demanded higher risk premiums than developed markets—are afforded a higher weighting in these indices. Portfolios benchmarked against GDP-weighted indices could therefore see higher returns but, on the downside, would be subject to increased transaction costs and volatility associated with the higher weighting of developing-economy debt (Exhibit 9). Inclusion and weighting rules remain complex, partly because some developing countries restrict access to their domestic debt and because the weighting of issuers within each country bloc is on a capitalisation basis.

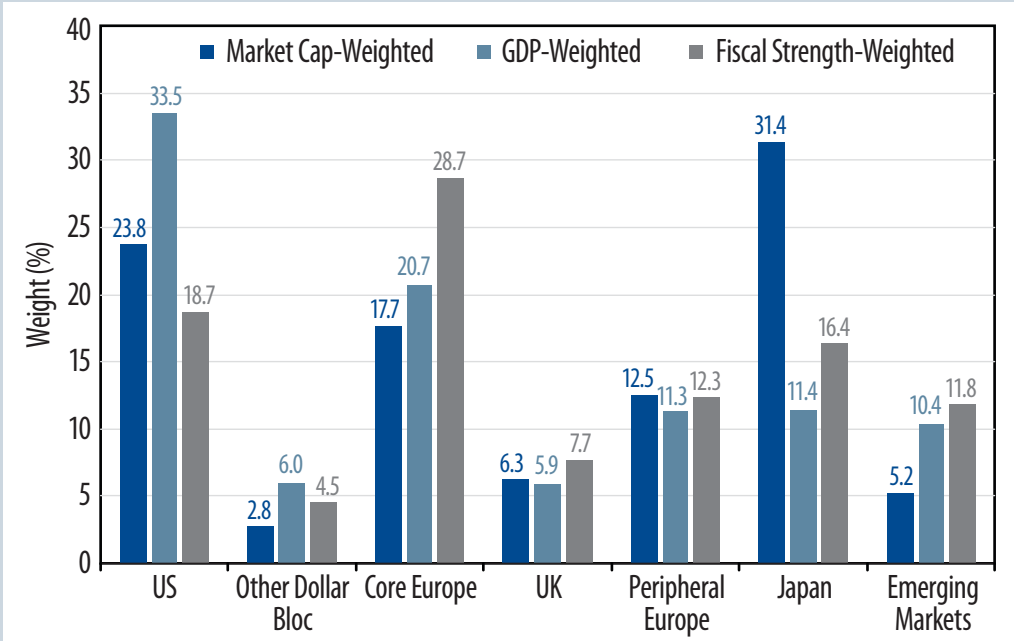
Fiscal strength indices: In August 2011, Barclays Capital issued a new series of 'fiscal strength' indices for sovereigns, weighting countries using market capitalisation but with additional rules based on metrics related to sovereign solvency, such as fiscal sustainability, dependence on external financing and governance/institutional strength (Exhibit 8). These indices share many of the benefits of GDP-weighted indices and benefit from higher creditworthiness; as such, they can be expected to outperform during periods of market stress and risk aversion (Exhibit 9). However, the data set is very limited, fundamental factors are backward-looking, and the rebalancing costs can be higher than for capitalsation-weighted indices if fundamentals change.

Exhibit 7
GDP-Weighted Versus Market Capitalisation-Weighted Bond Indices



Source: Barclays Capital. As of 30 Nov 11

Exhibit 8
Fiscal Strength-Weighted Versus Market Capitalisation-Weighted and GDP-Weighted Indices



Source: Barclays Capital. As of 30 Jun 11

Corporate fundamental indices: These evolved from work predominantly done by Research Affiliates on 'fundamental' equity indices, which aim to address the inefficiencies and concentrations of capitalisation-weighted equity indices. To date, this work has focused mostly on US corporate bonds. The weighting methodology relies on metrics that impact issuers' ability to repay debt, such as sales, cash flow, book value of assets, and dividends.

Exhibit 9
Bond Index Characteristics Comparison

	Duration	Yield	Average Credit Quality	Annualised Return			Volatility		
				3-Year	5-Year	10-Year	3-Year	5-Year	10-Year
Barclays Capital Global Treasury (USD-hedged)	6.80	1.91%	AA+/AA	3.62%	4.53%	4.57%	3.00%	3.09%	2.92%
Barclays Capital Global GDP-Weighted Treasury (USD-hedged)	6.36	2.28%	AA+/AA	4.05%	5.04%	4.83%	3.67%	3.70%	3.52%
Barclays Capital Global Treasury Fiscal Strength-Weighted (USD-hedged)	6.66	2.17%	AA+/AA	4.05%	4.77%	n/a	3.35%	3.41%	n/a
Barclays Capital Global Aggregate (USD-hedged)	5.84	2.56%	AA/AA-	5.38%	4.81%	4.85%	2.66%	2.84%	2.82%

Source: Barclays Capital. As of 30 Nov 11

Different Approaches to Bond Portfolio Benchmarking

Fixed-income indices using alternative weighting methodologies address a number of the inefficiencies and flaws of traditional market capitalisation-weighted indices. However, as we have discussed, no one alternative has addressed all the issues related to bond benchmarks and their appropriateness for investors and portfolio managers. Investors invariably have clear investment objectives to meet their liability obligations: a target rate of return within a risk tolerance. All investment managers have explicit investment philosophies and processes, as well as risk management policies and resources. Rather than thinking simply about alternative indices for use as benchmarks, it may also be useful to consider alternative ways of deploying benchmarks that align the investment objectives of investors with the specific capabilities of investment managers.

We propose two such examples (with which we have experience) that offer an altogether different approach to bond portfolio benchmarking.

Dynamic Benchmarking

Dynamic benchmarking involves the collaboration between the end investor and the portfolio manager to construct a *customised benchmark with fixed weights that reflect the investment views of the manager and the risk tolerance of the investor.* Benchmark weights are revisited periodically, and the manager is given relatively restricted guidelines and a low excess-return target. The manager is measured on the excess return versus the benchmark, as well as on the total return of the benchmark.

Effectively executed, this process benefits from a number of advantages:

- The benchmark is transparent, liquid and measurable.
- The benchmark's ability to adjust to market environments reduces the manager's potential for 'style drift.'
- Tracking-error-driven portfolio construction distortions are reduced.
- Manager oversight is easy, reducing the need for significant pension fund governance.

However, coming to an agreement on the benchmark is not easy. It takes a large degree of trust between manager and investor, and regular, high-quality communication is needed.

Separating Benchmarks Into Return and Risk Components

This approach places the investment objectives for asset portfolios in the context of the assets' role in defeasing liabilities. By separating the benchmark into two components—return and risk—this approach addresses the challenge of using a single benchmark, the return and risk characteristics of which are often not aligned to investors' objectives.

The **return benchmark** reflects the investor's return objective for its 'risk-free rate.' The investor also specifies an excess-return (alpha) target over this risk-free rate to be expected from active portfolio management.

- The **risk-free rate** should map closely to the funding cost of the investor's liabilities. Examples include LIBOR, an inflation rate, and a long-dated nominal or inflation-linked government bond.
- The **alpha** target should be consistent with:
  - The investor's desired premium over the cost of funding of their liabilities and their tolerance for overall risk, and
  - The portfolio manager's ability to add value from active management within the permitted universe of securities.

- The **risk benchmark** is the investor's risk tolerance for the asset portfolio (defined in terms of annualised volatility of indices such as the Barclays Capital Global Treasury GDP-Weighted Index or the Barclays Capital World Government Inflation-Linked Bonds Over 5 Years Index) which is consistent with:
  - The investor's tolerance for volatility of returns relative to the returns of the investor's risk-free rate or the cost of funding of its liabilities, and
  - The style of active portfolio management selected by the investor.

This approach better aligns the investment objectives of the investor's assets with the costs of servicing liabilities. In so doing, the investor, to an extent, passes the risk of underperformance of its return targets to its portfolio managers. Moreover, unlike traditional approaches, by setting managers a volatility or risk budget, the investor reduces the distortions created by portfolio managers' adherence to tracking-error limits relative to indices of securities that are inefficiently weighted.

Separating the benchmark into return and risk components facilitates both total- and absolute-return investment styles, and is transparent and measurable. This methodology also has 'appropriate' or relevant risk metrics insofar as they are representative of the investor's risk tolerance and of the manager's investment style. Admittedly, it has the potential for a deviation of style from the risk benchmark (especially if short positions are permitted) and makes it harder to evaluate manager skill (especially in positive market environments); this makes the setting of an appropriate alpha target critical to the approach's success. Accordingly, a high degree of governance is needed.

Conclusion

Benchmarks are important for both investors and portfolio managers in order to facilitate effective performance and risk evaluation. There are good reasons to question whether traditional bond indices are meeting their primary objectives as benchmarks in bond portfolio management. We believe that given the current market and regulatory environment, this is a good time for investors to re-evaluate both the indices used as benchmarks and the way in which benchmarks are used for bond portfolios. A number of practical alternatives now exist with the advent of fixed-income indices with alternative weighting rules and different approaches to benchmarking. Investor governance and the breadth of manager resources will determine which solutions are feasible and appropriate for each investor.