

ELLEN S. CAMMER
Product Specialist



In Bonds, Active Beats Passive

Executive Summary

- The median active manager has outperformed both the median passive manager and the Bloomberg Barclays U.S. Aggregate Index on a one-, three-, five-, seven- and 10-year basis as of September 30, 2016.
- Active managers have also exhibited higher levels of risk efficiency than have passive managers.
- The composition of the fixed-income market has changed and we believe the Aggregate Index is more limiting than many investors realize. Most passive bond strategies do not provide the multi-sector exposures that most active managers invest in.
- We believe value investing is particularly powerful in capitalizing on persistent market inefficiencies.

Introduction

We believe your bond allocation is the place for active management. Since the financial crisis, passive flows into equities have accelerated and as of late they seem to have accelerated on the bond side of the equation as well. Buying inexpensive index performance may, on the surface, look like a good solution for your fixed-income allocation, but fixed-income is different from equities. Bowing to the Bloomberg Barclays U.S. Aggregate benchmark construction criteria may dramatically inhibit your return potential. There are structural reasons why fixed-income managers, and value investors in particular, can outperform the index and provide better risk-adjusted returns to investors. In fact, the median active manager has consistently outperformed the index.

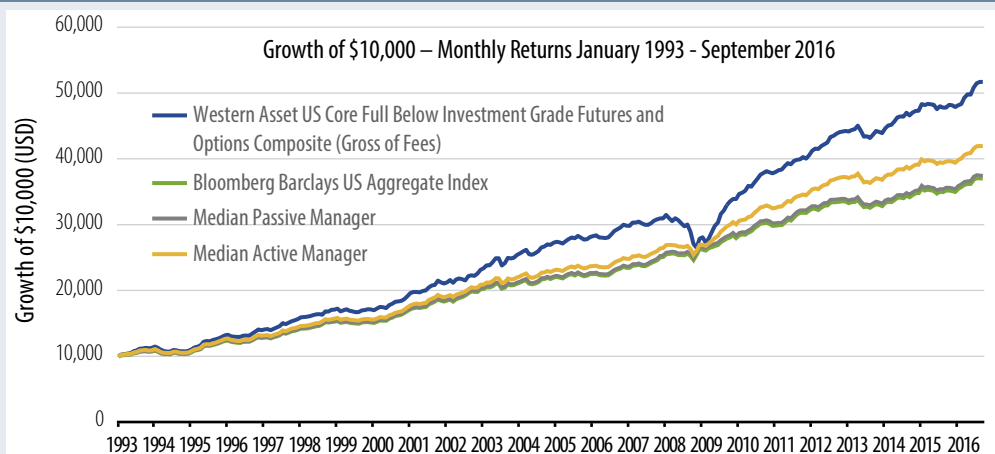
In this paper we compare active and passive investment choices in fixed-income. First we look at the data, then we elaborate on why they are occurring and outline why we believe that in bonds, active beats passive.

Over Time Active Management Has Outperformed

Median passive fixed-income has generally performed as expected. With tight tracking error around the benchmark, passive managers lock in underperformance roughly in line with their fee levels. Meanwhile, the median active manager has outperformed the median passive manager over time (Exhibit 1).

This picture holds across all time periods we analyzed. The median passive manager locks in underperformance, while the median active manager has outperformed the median passive manager and the Aggregate Index (Exhibit 2). This holds across one, three, five, seven and 10 years. This indicates that fixed-income managers with broad capabilities have outperformed the passive alternative on a consistent basis.

Exhibit 1
The Median Active Manager Has Outperformed the Median Passive Manager Over Time



Source: eVestment. As of 30 Sep 16
Past performance is no guarantee of future returns.

Exhibit 2

The Median Active Manager Has Consistently Outperformed the Median Passive Manager and the Aggregate Index

	Total Return Gross of Fees (%) through 09/30/2016				
	1 Year	3 Year	5 Year	7 Year	10 Year
Bloomberg Barclays U.S. Aggregate Index	5.19	4.03	3.08	4.10	4.79
Median Passive Manager ¹	5.19	4.05	3.09	4.10	4.85
Median Active Manager²	5.97	4.52	4.07	4.99	5.47
Top Quartile Active Manager ³	7.23	5.16	5.23	6.34	6.14

Source: eVestment. As of 30 Sep 16

Past performance is no guarantee of future returns. There is no assurance active strategies will outperform passive strategies.

Looking at overall performance, however, is only a part of the picture. We also need to look at the risk level and risk efficiency of these strategies. Exhibit 3 compares Sharpe ratios for the Bloomberg Barclays U.S. Aggregate Index, the median active and median passive managers as well as the top-quartile active manager. The Sharpe ratio is a measure of the returns achieved per unit of risk, thus a measure of how well the risk budget is used. We note that over time, active management has resulted in a higher Sharpe ratio than either the Aggregate or the median passive alternative.

Exhibit 3

Active Managers Have Exhibited Higher Levels of Risk Efficiency

	Sharpe Ratios through 09/30/2016				
	1 Year	3 Year	5 Year	7 Year	10 Year
Bloomberg Barclays U.S. Aggregate Index	2.13	1.51	1.13	1.45	1.23
Median Passive Manager	2.08	1.51	1.12	1.44	1.23
Median Active Manager	2.40	1.71	1.45	1.76	1.33
Top Quartile Active Manager	2.68	1.90	1.76	2.09	1.42

Source: eVestment. As of 30 Sep 16

We Expect Bond Markets to Remain Inefficient

We believe the reason that there are managers, including Western Asset, that have been able to consistently outperform the market is that there are structural aspects of the fixed-income market that make it very inefficient. Managers that have a broad set of capabilities have generally been able to capitalize on these inefficiencies.

The negotiated nature of fixed-income trading provides opportunities for active fixed-income managers not paralleled in the exchange-traded equity market. Today, inefficiencies also arise from the current regulatory

1 Median Passive Manager consists of passive US institutional fixed-income strategies that are benchmarked against the Bloomberg Barclays Aggregate Bond Index and included in the eVestment database (limit of two strategies per manager).

2 Median Active Manager consists of active US institutional fixed-income strategies that are benchmarked against the Bloomberg Barclays Aggregate Bond Index and included in the eVestment database (limit of two strategies per manager).

3 Top Quartile Active Manager indicates the lowest return in each period required to be in the top quartile amongst active US institutional fixed-income strategies that are benchmarked against the Bloomberg Barclays Aggregate Bond Index and included in the eVestment database (limit of two strategies per manager).

The Bloomberg Barclays Aggregate Index is a market-cap-weighted index including bonds with more than one year left until maturity, is fixed-rate only (which is why TIPS are not included), investment-grade and must meet a minimum issue size. If you're a big issuer of debt, then you're a bigger piece of the index than a company that issues less debt. Also, the major components tend to be pretty tightly correlated with each other. Roughly 95% of the index is Treasuries (36%), pass-through mortgage-backed securities (28%) and investment-grade credit (32%). Adhering to these weightings makes it nearly impossible to embed a variety of different themes, leaving you with less of the benefits you'd hope to see from a diversified portfolio.

As of 10 Aug 16

environment creating a liquidity-constrained backdrop that results not only in potential peril but also in potential opportunities for active managers to add value. Additionally, rating-agency moves have the effect of forcing issues in and out of benchmarks, as well as forcing ratings-constrained investors to buy and sell securities based on these changes. Last, the growth of fixed-income opportunities and the increasing complexity of available options may provide active managers with many more options than do passive strategies that mirror the benchmark.

We believe these inefficiencies will persist.

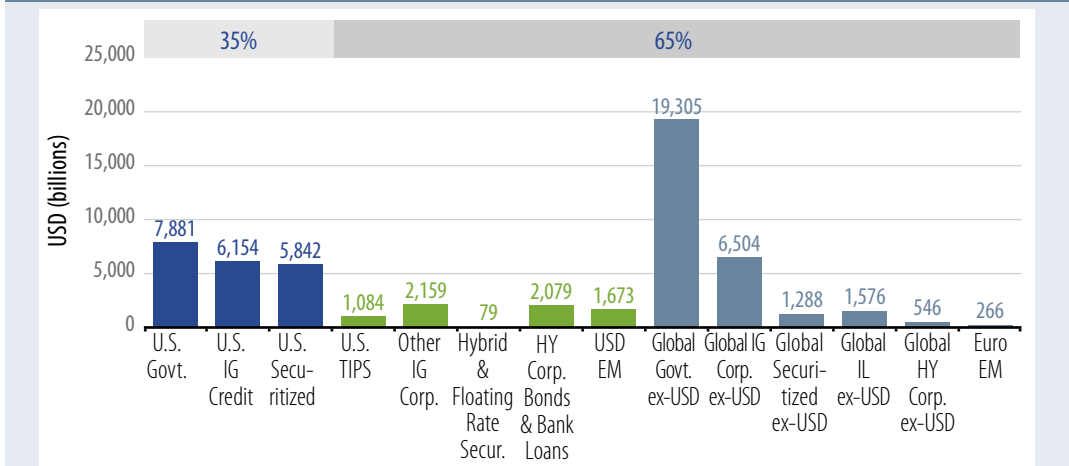
What's in the Aggregate Benchmark?

A particular area of inefficiency is the composition of the Aggregate benchmark. It's not that the Aggregate benchmark serves no purpose—it's widely used for providing an apples-to-apples comparison of traditional active managers. In our view, however, it's making a leap to move from seeing it as a useful measurement tool to always using it as the best investment. By going active you don't have to throw out the benchmark, but you don't have to mimic it either. For a full and detailed exploration of the Aggregate benchmark, see the related white paper, "Trends and Opportunities in the Bloomberg Barclays Aggregate Index," by Western Asset Portfolio Manager Bonnie Wongtrakool.

Investment opportunities have grown dramatically over the last few decades, providing a large opportunity set both in the US and around the globe (Exhibit 4). The composition of the market has changed but the index has remained the same. Allowing prudent allocations to "plus" sectors from today's global opportunity set go a long way to fix what's limiting with the Aggregate benchmark—*something index-based passive investing can't do*.

As a point of reference, the Aggregate Index has a correlation of 0.91 to the performance of US Treasuries over the past 20 years. When you take a peek under the hood of the Aggregate Index, it is easy to see why this strong correlation persists.

Exhibit 4
Fixed-Income Opportunities – The Aggregate Index Represents Only 35% of the Global Debt Market



Source: Bloomberg Barclays. Investible universe represented by various Bloomberg Barclays indices. As of 30 Sep 16
 Past performance is no guarantee of future returns. An investor cannot invest directly in an index. Unmanaged index returns do not reflect any fees, expenses or sales charges.

Most traditional bond managers in the core space are benchmarked to the Aggregate and while risk and return measures are benchmark-relative, within some defined boundaries, most utilize non-benchmarked or plus-sector exposure as part of a core allocation to a fixed-income portfolio. Active management may opportunistically provide access to:

- Opportunities for higher income
- Better diversification with inclusion of sectors not tightly correlated with US interest rates
- Diversification away from the US business cycle
- Securities with adjustable-rate features

The Power of Value Investing

The core belief driving Western Asset's decision-making process is that markets often misprice securities. While prices can deviate from fundamental fair market value, over time prices will typically readjust to reflect credit quality, liquidity conditions and inflation. The magnitude of the mispricing, coupled with our confidence in our view of fundamentals, determines the emphasis in our clients' portfolios. Additionally, we look to diversify and add value through interest rate duration, positioning along the yield curve, sector allocation decisions, currency and country allocations as applicable, and the specific issues that make up those allocations. Deploying multiple diversified strategies that benefit in differing market environments so that no one strategy dominates performance has enabled us to provide value to our clients over multiple time periods.

The power both of value investing and of focus on risk-adjusted returns is evidenced by Western Asset Core Full Composite's outperformance of the Aggregate Index, the median active manager and the median passive manager over all time periods.

Exhibit 5 The Western Asset Core Full Composite Has Outperformed Both Active and Passive Managers

	Total Return Gross of Fees (%) through 09/30/2016				
	1 Year	3 Year	5 Year	7 Year	10 Year
Western Asset Core Full Composite	8.17	5.78	5.32	6.62	5.84
Median Active Manager ²	5.97	4.52	4.07	4.99	5.47
Median Passive Manager¹	5.19	4.05	3.09	4.10	4.85
Bloomberg Barclays U.S. Aggregate Index	5.19	4.03	3.08	4.10	4.79
Top Quartile Active Manager ³	7.23	5.16	5.23	6.34	6.14

Source: eVestment. As of 30 Sep 16

Past performance is no guarantee of future returns. There is no assurance active strategies will outperform passive strategies.

Past results are not indicative of future investment results. Investments are not guaranteed and you may lose money. This publication is for informational purposes only and reflects the current opinions of Western Asset Management. Information contained herein is believed to be accurate, but cannot be guaranteed. Opinions represented are not intended as an offer or solicitation with respect to the purchase or sale of any security and are subject to change without notice. Statements in this material should not be considered investment advice. Employees and/or clients of Western Asset Management may have a position in the securities mentioned. This publication has been prepared without taking into account your objectives, financial situation or needs. Before acting on this information, you should consider its appropriateness having regard to your objectives, financial situation or needs. It is your responsibility to be aware of and observe the applicable laws and regulations of your country of residence. Potential investors in emerging markets should be aware that investment in these markets can involve a higher degree of risk. Any forecast, projection or target is there to provide you with an indication only and is not guaranteed in any way.

Western Asset Management Company Distribuidora de Títulos e Valores Limitada is authorised and regulated by Comissão de Valores Mobiliários and Banco Central do Brasil. Western Asset Management Company Pty Ltd ABN 41 117 767 923 is the holder of the Australian Financial Services Licence 303160. Western Asset Management Company Pte. Ltd. Co. Reg. No. 200007692R is a holder of a Capital Markets Services Licence for fund management and regulated by the Monetary Authority of Singapore. Western Asset Management Company Ltd is a registered financial instruments dealer whose business is investment advisory or agency business, investment management, and Type II Financial Instruments Dealing business with the registration number KLF (FID) No. 427, and members of JIAA (membership number 011-01319) and JITA. Western Asset Management Company Limited ("WAMCL") is authorised and regulated by the Financial Conduct Authority ("FCA"). In the UK this communication is a financial promotion solely intended for professional clients as defined in the FCA Handbook and has been approved by WAMCL.

US Core Full Below Investment Grade Futures & Options Composite

Composite Inception Date: 02/01/1993 | Composite Creation Date: 01/01/2000

	No. of Accts	Gross Total Return	Net Total Return	Benchmark Total Return	Gross Total 3-Yr St Dev	Benchmark Total 3-Yr St Dev	Internal Dispersion	Mkt. Value (US\$mil)	Percentage of Firm Assets	Firm Assets (US\$mil)
2006	176	6.22%	5.91%	4.33%	3.39%	3.21%	0.69%	\$73,608	14.43%	\$510,172
2007	180	3.65%	3.35%	6.97%	2.85%	2.77%	1.10%	\$83,506	13.44%	\$621,493
2008	161	-9.95%	-10.22%	5.24%	6.39%	3.97%	3.14%	\$56,788	11.23%	\$505,660
2009	137	21.61%	21.25%	5.93%	7.69%	4.11%	4.92%	\$56,165	11.65%	\$482,218
2010	114	11.51%	11.18%	6.54%	7.83%	4.17%	1.58%	\$53,259	11.73%	\$453,909
2011	104	7.32%	7.00%	7.84%	4.55%	2.78%	0.44%	\$47,860	10.80%	\$443,140
2012	103	9.12%	8.80%	4.21%	2.62%	2.38%	0.92%	\$49,588	10.74%	\$461,891
2013	90	-0.76%	-1.05%	-2.02%	2.94%	2.71%	0.27%	\$43,239	9.57%	\$451,632
2014	80	7.70%	7.38%	5.97%	2.99%	2.63%	0.58%	\$46,723	10.03%	\$466,036
2015	79	1.19%	0.89%	0.55%	3.19%	2.88%	0.60%	\$47,284	10.90%	\$433,747

Description: Western Asset's US Core Full Below Investment Grade Futures & Options Composite includes portfolios that employ an active, team-managed investment approach around a long-term, value-oriented investment philosophy. These portfolios use diversified strategies and all sectors of the fixed-income market in seeking to add value while minimizing risk. The approach is to construct a portfolio using all major fixed-income sectors with a bias toward non-Treasuries. This strategy allows for opportunistic investments in high yield, emerging markets and non-dollar securities.

Objective: Exceed the benchmark return by 150 basis points annually over the course of a market cycle while approximating benchmark risk.

Benchmark Description: The current benchmark is the Bloomberg Barclays U.S. Aggregate Bond Index. The index represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.

Base Currency: USD | **Composite Minimum:** \$25 million

Current Fee Schedule: .30 of 1% on the first \$100 million, .20 of 1% on amounts over \$100 million. This strategy is also available versus the Bloomberg Barclays U.S. Universal Bond Index. Fee schedule is available upon request.

Examination Period: The Composite has been examined for the period from February 1, 1993 to December 31, 2015.

Western Asset claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Western Asset has been independently verified for the periods from January 1, 1993 to December 31, 2015.

Verification assesses whether (1) the Firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the Firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The verification and performance examination reports are available upon request.

For GIPS® purposes, the Firm is defined as Western Asset, a primarily fixed-income investment manager comprised of Western Asset Management Company, Western Asset Management Company Limited, Western Asset Management Company Pte. Ltd., Western Asset Management Company Ltd, Western Asset Management Company Pty Ltd, and Western Asset Management Company Distribuidora de Títulos e Valores Mobiliários (DTVM) Limitada, with offices in Pasadena, New York, London, Singapore, Tokyo, Melbourne, São Paulo, Hong Kong, and Dubai. Each Western Asset company is a wholly owned subsidiary of Legg Mason, Inc. ("Legg Mason") but operates autonomously, and Western Asset, as a Firm, is held out to the public as a separate entity. Western Asset Management Company was founded in 1971.

The Firm is comprised of several entities as a result of various historical acquisitions made by Western Asset, and their respective performance has been integrated into the Firm in line with the portability requirements set forth by GIPS.

The Composite is valued monthly. The Composite returns are the asset-weighted average of the performance results of all the accounts in the Composite. Gross-of-fees returns are presented before management fees, but after all trading expenses. Net of fees results are calculated using a model approach whereby the current highest tier of the appropriate strategy's fee schedule is used. This model fee does not reflect the deduction of performance-based fees. The portfolios in the Composite are all actual, fee-paying and performance fee-paying, fully discretionary accounts managed by the Firm for at least one full month. Investment results shown are for taxable and tax-exempt accounts and include the reinvestment of all earnings. Any possible tax liabilities incurred by the taxable accounts have not been reflected in the net performance. Composite performance results are time-weighted net of trading commissions and other transaction costs including non-recoverable withholding taxes. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

The returns for the accounts in the Composite are calculated using a time-weighted rate of return adjusted for weighted cash flows. The returns for the commingled funds in the Composite are calculated daily using net asset values (NAV), adding back the funds' total expense ratio or equivalent. Trade date accounting is used since inception and market values include interest income accrued on securities held within the accounts. Performance is calculated using asset values denominated in a base currency. Composite market value at year-end presented in the schedule are translated to U.S. dollars using end of year exchange rates.

Composite returns are measured against a benchmark. The benchmark is unmanaged and provided to represent the investment environment in existence during the time periods shown. For comparison purposes, its performance has been linked in the same manner as the Composite. The benchmark presented was obtained from third party sources deemed reliable but not guaranteed for accuracy or completeness. Benchmark returns and benchmark three-year annualized ex-post standard deviation are not covered by the report of independent accountants.

Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were included in the Composite for the entire year. For each annual period, accounts with less than 12 months of returns are not represented in the dispersion calculation. Periods with five or fewer accounts are not statistically representative and are not presented. The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The three-year annualized ex-post standard deviation is not presented for periods where 36 monthly returns are not available for the composite or the benchmark. Any gross total three-year annualized ex-post standard deviation measures prior to 2011, included within the "Examination Period" identified above, are not covered by the report of independent accountants.

Past investment results are not indicative of future investment results.

Western Asset's list of composite descriptions is available upon request. Please contact Jan Pieterse at 626-844-9977 or jan.pieterse@westernasset.com. All returns for strategies with inception prior to January 1, 2006 are available upon request.