

May 2017

D. William Kohli
Chief Investment Officer,
Fixed Income

Michael P. Wands, CFA
Senior Investment
Director

Revisiting “Thinking Outside the Index”

After a long-term downward trend, we believe that the upward turn taken by interest rates in the second half of 2016 may continue.

Many investors are over-exposed to interest-rate risk in the form of duration, the central risk dominating the Bloomberg Barclays Aggregate indexes.

Since 2009, out-of-benchmark (non-Aggregate) sectors have displayed better risk/return potential than more duration-sensitive bonds.

Investors considering non-traditional bond strategies should focus on risk-diversified return streams that do not rely on interest-rate risk.

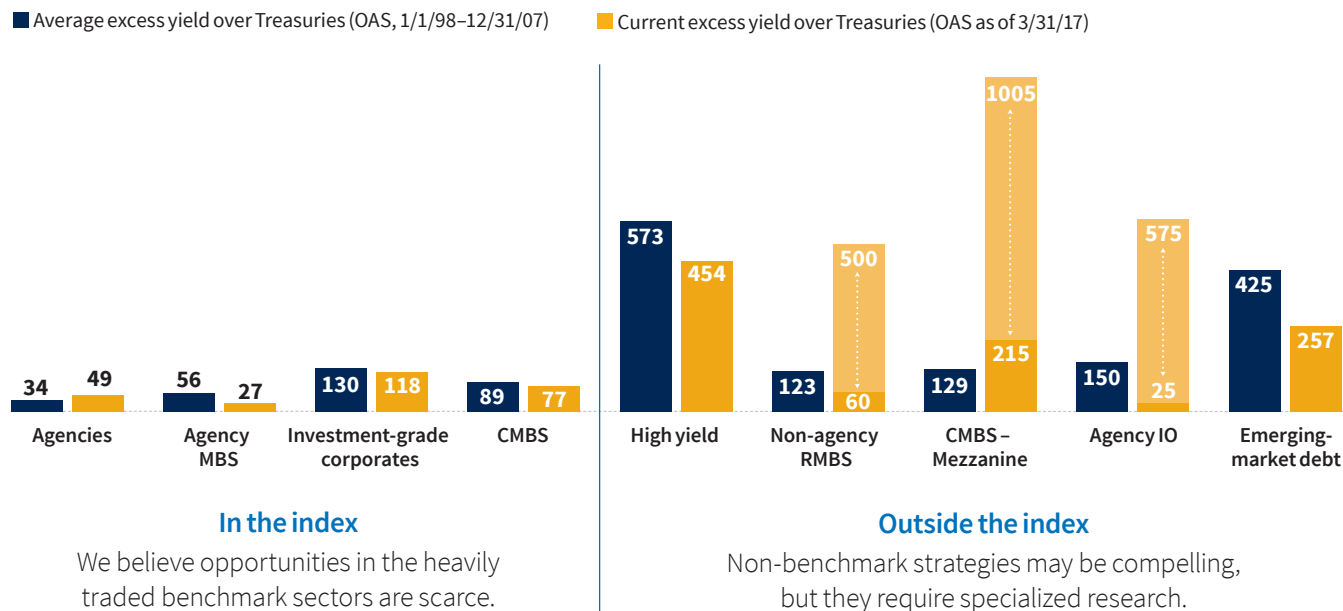
The primary bond-fund benchmark — the Bloomberg Barclays U.S. Aggregate Index — is overexposed to interest-rate risk. As rates go up, portfolios pegged to this benchmark will likely suffer.

Today, we are more than eight years out from the global financial crisis and have experienced a tremendous equity bull market run. Economic growth is positive, once seriously impaired housing markets have regained much strength, and employment data — which seemed intractably disappointing in the years after the crisis — are much improved. Nevertheless, some market participants remain cautious about the factors that contributed to the crisis. In this context, and perhaps partly because of their backward-looking view, investors may be slow to see the next potential big risk confronting them: a secular rise in interest rates, which could have important consequences for bond returns in the years ahead. We believe that because of this looming and potentially significant risk in the fixed-income markets, investors need to consider a different approach to investing in the bond markets over the next several years.

FIGURE 1

Spreads appear attractive in certain sectors outside the Agg

Current spreads relative to historical norms



Sources: Bloomberg, Putnam, as of 3/31/17. Data is provided for informational use only. Past performance is no guarantee of future results. All spreads are in basis points and measure option-adjusted yield spread relative to comparable maturity U.S. Treasuries with the exception of non-agency RMBS and mezzanine CMBS, which are loss-adjusted spreads to swaps calculated using Putnam’s projected assumptions on defaults and severities, and agency IO, which is calculated using assumptions derived from Putnam’s proprietary prepayment model. Agencies are represented by Bloomberg Barclays U.S. Agency Index. Agency MBS are represented by Bloomberg Barclays U.S. Mortgage Backed Securities Index. Investment grade corporates are represented by Bloomberg Barclays U.S. Corporate Index. High yield is represented by JPMorgan Developed High Yield Index. CMBS is represented by both agency and non-agency CMBS that are eligible for inclusion in the Bloomberg Barclays U.S. Aggregate Bond Index; CMBS-Mezzanine pre-2007 spreads are represented by the same index using the AA, A, and BBB components. Average OAS for Mezzanine CMBS is only available from 2000–2007 and is therefore only displayed for that time period. Emerging-market debt is represented by the Bloomberg Barclays EM Hard Currency Aggregate Index. Non-agency RMBS is estimated using average market level of a sample of below investment grade securities backed by various types of non-agency mortgage collateral (excluding prime securities). Current OAS for mezzanine CMBS is estimated from an average spread among baskets of Putnam-monitored new issue and seasoned mezzanine securities, as well as a synthetic (CMBX) index. Agency IO is estimated from a basket of Putnam-monitored interest-only (IO) and inverse IO securities. Option-adjusted spread (OAS) measures the yield over duration equivalent Treasuries for securities with different embedded options.

Thinking outside the index is a more urgent exercise than ever

In the post-crisis era, we have held the view that the Bloomberg Barclays Aggregate (“Agg”) indexes (U.S. and Global), the benchmarks for trillions of dollars of investors’ money, represent a diminished set of opportunities for fixed-income investors. Our expectation continues to be — and performance histories have typically supported — that more attractive forms of risk can be found outside these indexes. While investors in Agg-benchmarked products and generally longer-duration portfolios did not achieve poor results in the first four

years after the financial crisis, the true risk of the Agg’s composition began to emerge in the spring of 2013. With interest rates turning up from their historic lows, our thesis on the Agg — particularly its vulnerability to interest-rate risk — began to prove itself out, particularly after the U.S. Federal Reserve began to discuss “tapering” its bond-purchase program. Our concern is that investors could face similar performance challenges going forward as the Fed continues with the process of “normalizing” interest rates and the European Central Bank considers the tapering of their quantitative easing program.

For use with institutional investors and investment professionals.

FIGURE 2

Historical returns reveal “out of index” opportunities

	Annual total return								8-year annualized
	2009	2010	2011	2012	2013	2014	2015	2016	2009–2016
AGGREGATE INDEX	5.93%	6.54%	7.84%	4.21%	-2.02%	5.97%	0.55%	2.65%	3.91%
SECTORS WITHIN THE AGGREGATE INDEX									
Agencies	1.95%	4.56%	4.86%	3.02%	-1.58%	3.65%	-0.36%	2.27%	2.27%
Investment-grade corporates	18.68%	9.00%	8.15%	9.82%	-1.53%	7.46%	-0.68%	6.11%	6.96%
Agency MBS	5.75%	5.37%	6.23%	2.59%	-1.41%	6.08%	1.51%	1.67%	3.44%
CMBS	28.45%	20.40%	6.02%	9.66%	0.23%	3.86%	0.97%	3.32%	8.72%
“OUT OF INDEX” OPPORTUNITIES									
High-yield corporates	58.21%	15.12%	4.98%	15.81%	7.44%	2.45%	-4.47%	17.13%	13.36%
Bank loans*	51.61%	10.17%	1.52%	9.66%	5.29%	1.60%	-0.69%	10.14%	10.20%
Emerging-market debt	35.61%	10.93%	5.77%	18.14%	-2.66%	3.13%	-0.18%	9.00%	9.41%
Non-agency RMBS	34.25%	25.90%	-6.92%	26.93%	10.19%	8.09%	3.24%	6.32%	12.74%

Sources: Bloomberg, Amherst Securities. Indexes are unmanaged and do not incur expenses. You cannot invest directly in an index. Past performance is not a guarantee of future results.

* Bank loans are represented by S&P/LSTA Leveraged Loan Index.

In the years since the financial crisis, spreads in various fixed-income sectors have tightened dramatically from their historically wide levels, retracing much of the widening that occurred in the 2008 period. Figure 1 shows long-term average spreads versus spreads at the end of December 2016. Of course, spread compression during this period led to historically large returns for virtually all fixed-income asset types (Figure 2).

As Figure 2 shows, 2013 marked a watershed moment for index versus non-index sectors in fixed income. With the exception of emerging-market bonds — which, during the second half of 2013, experienced a strong downdraft due to foreign investor outflows amplified by currency weakening — out-of-index sectors soared while the Agg suffered. In 2013, the Agg delivered a return of -2.02%, marking the first calendar year that the index was in negative territory since 1999. More recently, interest rates began rising in the summer of 2016 and accelerated in the aftermath of Donald Trump’s election victory, as investors pondered upside growth outcomes and a rise in inflation due to potential expansionary U.S. fiscal policy. Although the Agg posted a modest positive return, the out-of-index sectors posted healthy returns for the year.

The significance of the Agg

Before we say more about the opportunities outside of the index, it is worth exploring the Agg itself, to describe its basic components and to identify the roots of its current vulnerabilities.

The Bloomberg Barclays U.S. Aggregate Bond Index continues to be a central reference point for bond investors — a benchmark with widespread acceptance, comparable with the S&P 500 or the Russell 2000 in the equity world. The Agg comprises approximately \$19 trillion worth of bonds, based on current market value, and is designed to include a broad landscape of domestic, investment-grade fixed-income sectors, from U.S. Treasuries and agency issues to mortgage-backed and asset-backed securities (MBS and ABS).

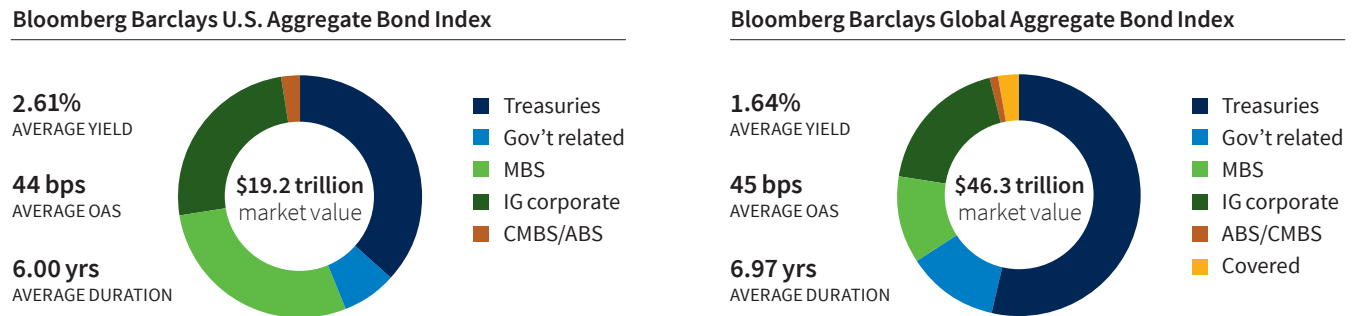
Replicating this basic structure in a global context, the Bloomberg Barclays Global Agg is an even more vast index of government, corporate, and securitized debt, with a market value of approximately \$45 trillion. Moreover, both indexes still have low average yields in today’s environment, a narrow average spread, and a good deal of duration, primarily as a result of central

For use with institutional investors and investment professionals.

FIGURE 3

Key benchmark characteristics

Approximately 70%–80% of the Agg indexes are composed of government securities (Treasuries, agencies, and MBS)



Sources: Bloomberg, Putnam, as of 3/31/17.

How the U.S. government came to support the largest sectors in the Agg

We have recently lived through a period of substantial government intervention in bond markets. This intervention began as an emergency response by the U.S. Federal Reserve to the financial crisis, starting with massive asset purchases aimed at adding liquidity and stabilization to the market. Consider these actions:

Nov '08–Mar '10	The Fed purchased \$1.25 trillion of agency MBS, representing about 25% of the outstanding market.
Oct '10–Jun '11	The Fed implemented a second round of quantitative easing (QE), purchasing \$600 billion in U.S. Treasuries.
Oct '11–Dec '12	The Fed's “Operation Twist” used proceeds from maturing holdings and the sales of short-term debt to purchase intermediate- and long-term Treasuries in an effort to drive down longer-term rates.
Sept '12	The Fed announced a third round of QE, this time targeting the MBS market, with monthly purchases of up to \$40 billion.
Dec '12	The Fed replaced its expiring Operation Twist program with an additional round of easing that was authorized to purchase up to \$45 billion a month in longer-term Treasury debt.
Jan '14	The Fed began scaling back its bond-buying stimulus at a pace of \$10 billion per month (composed of a \$5 billion cut in its monthly purchase of MBS and a \$5 billion reduction in its monthly purchase of longer-term Treasuries).
Oct '14	The Fed's monthly bond purchase program concluded.

This dramatic, one-sided market activity has produced massive distortion, which we detect in the relative overvaluations of Agg sectors that were targets of Fed purchases. Because the prices of many security types in the Agg have been propped up by artificial demand, they offer little upside potential, in our view, but great downside potential. We see this as a substantial risk as the Fed pursues a rate tightening cycle and a potential reduction of its balance sheet.

bank intervention in government bond markets around the world with various quantitative easing programs (Figure 3 and sidebar on page 4).

The U.S. Agg is the benchmark for multi-billion dollar institutional accounts as well as scores of mutual funds that seek to gain exposure to the U.S. fixed-income universe. Many active bond strategies and funds are designed to substantially track the performance of the Agg, with fund managers seeking to add alpha — or outperformance of the index by virtue of skill — by overweighting or underweighting its sectors. In addition, passive index managers seek to replicate the Agg's performance as precisely as possible and essentially provide the investor with beta exposure.

While the Agg is likely to remain a key benchmark of the bond market, we believe that following the financial crisis, an approach to fixed-income investing that allocates by risk factors and seeks exposure outside the index can be of particular value to investors and can be a complement to traditional benchmark-oriented bond investing.

An outmoded view of risk

For many fixed-income investors, risk is often viewed as a portfolio's deviation from the index. Subscribing to this view, a portfolio manager's benchmark-relative decisions about which sectors, credit qualities, maturities, or industries to overweight and underweight drive all meaningful metrics of risk and return, including tracking error, alpha, and information ratio.

The Bloomberg Barclays Aggregate Bond indexes are generally thought to be proxies for the broad fixed-income market, and conventional wisdom is that outperforming the benchmark can only be achieved by assuming a greater degree of risk, i.e., by looking moderately unlike the benchmark. While we think there are good reasons for a portfolio to look less like a benchmark such as the Agg — which currently offers a relatively paltry yield for a substantial amount of duration risk (Figure 4) — we don't think this difference alone makes a portfolio riskier. In fact, we believe that a portfolio's risk-adjusted return potential improves by investing outside of traditional indexes.

Four types of fixed-income risk

1 CREDIT RISK

Will I get my dollar back?

Credit risk is perhaps best exemplified by corporate bonds, bank loans, and emerging-market debt, as well as mortgage credit, such as CMBS or non-agency RMBS. To analyze credit risk, one must focus intensely on the borrowers and their ability to meet their obligations under a wide variety of economic conditions, as well as the relative attractiveness of the yield on their debt.

2 INTEREST-RATE RISK (also called term structure risk)

What will the value of my dollar be?

Interest-rate risk refers to the yield curves that exist in different rate markets around the world, and typically involves the relationship between short- and long-term rates, monetary policy, and the value of one's currency. Anticipating the changing shape of yield curves or the relative value of currencies can be an important source of alpha.

3 PREPAYMENT RISK

When will I get my dollar back?

This risk reflects the ability of a bond issuer or homeowner to pay off principal before the stated maturity date, typically done in a falling-rate environment. When principal is prepaid, bondholders have to find new investments — often at lower interest rates. Understanding prepayment dynamics is an important facet of active fixed-income investing, particularly with respect to different types of MBS.

4 LIQUIDITY RISK

Will there be enough dollars in the system for me to recoup my dollar?

Liquidity refers to the risk associated with the ability to trade a security in a reasonable amount of time. This risk can stem from either the security type (e.g., U.S. Treasury notes are highly liquid versus emerging-market bonds issued in local currencies) or market volatility.

Of course, this view assumes a different understanding of risk in fixed income — a broader view that goes beyond the traditional risk categories such as duration and sector-based positioning.

Our view of fixed-income risk

We have a substantially different view of fixed-income risk than the traditional sector-based approach. First, we believe fixed-income investing should be divided into four categories: credit risk, interest-rate risk (commonly called duration or term structure risk), prepayment risk, and liquidity risk (see sidebar). Different asset types may display different combinations of these risks, or be mostly aligned with just one of them, but our view also suggests that having exposure to different assets or asset types in a portfolio does not necessarily diversify the portfolio.

Our investment process breaks down each of the four major risks at the security level and uses that analysis as the basis for portfolio construction. When we filter the Agg through this understanding of risk, we find that currently almost 90% of the risk in the index is interest-rate risk, while the remaining is credit and prepayment risk. Liquidity risk, although difficult to quantify, is embedded in the Agg

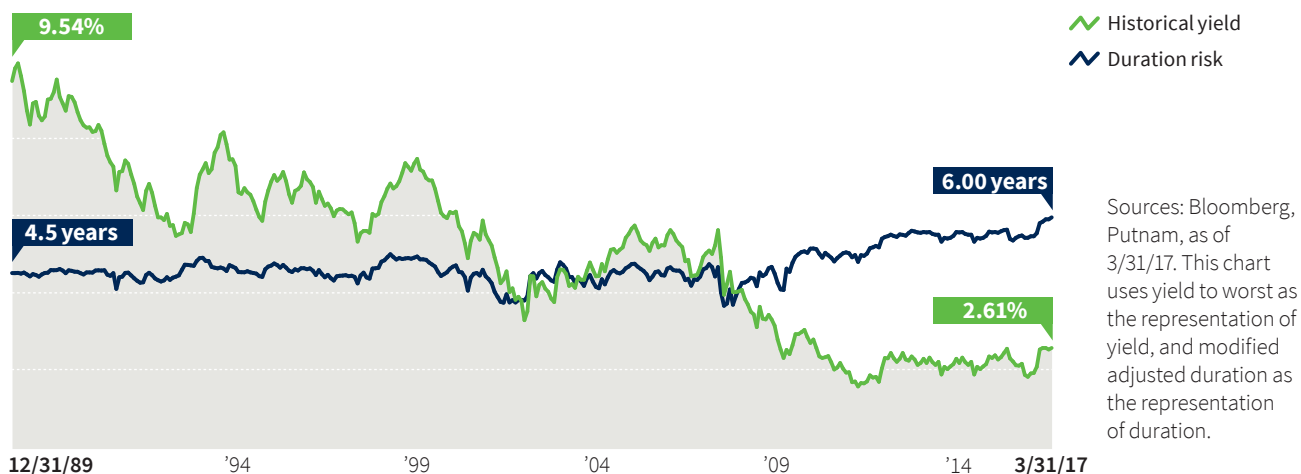
sectors to various degrees. The reason why we believe the Agg is unattractive today is because the index is composed of almost entirely of one form of risk — interest-rate risk — which we believe is a particularly difficult place to make money in an environment in which interest rates continue to move higher.

Underrepresented risks

There are a number of areas that we believe offer the potential for diversifying away from interest-rate risk. Importantly, these sectors all share a common characteristic: They tend to be relatively smaller sectors yet still provide the size and liquidity necessary for most investors to add value to portfolios. What’s more, they offer significant opportunities to active fixed-income managers in the form of higher yields and potentially higher expected returns (see Figure 1). These include sectors of the market such as high-yield corporates, emerging-market debt, mezzanine CMBS, non-agency RMBS, and collateralized mortgage obligations (CMOs). By focusing on these sectors, we believe that investors are being appropriately compensated for taking credit, prepayment, and liquidity risk, versus just being primarily exposed to interest-rate risk.

FIGURE 4

Bloomberg Barclays U.S. Aggregate Index: Historical yield vs. duration



In general, we see more value in the \$5+ trillion worth of fixed-income securities that lie outside the Agg, along with some of those sectors in the Agg that have not been targets of government intervention (namely, CMBS and investment-grade corporates). While those sectors of the Agg that have been the focus of the Federal Reserve's quantitative easing program (i.e., agency debt and agency MBS) are now trading at spreads that are near their long-term pre-crisis averages, other sectors of the market that fall outside the traditional benchmarks (e.g., non-agency RMBS and some sectors of the CMO market such as agency IOs) still trade at significantly wider spreads. In many cases, these spreads are wider than they were prior to 2008. The key here is that the sources of risk inherent in these sectors are far more diverse and much less contingent on declining interest rates to fuel returns.

Non-agency RMBS/Agency CRTs

U.S. non-agency residential mortgage-backed securities (RMBS) represent an example of one of the opportunities available to active managers willing to look beyond the traditional benchmarks. As securities that lack government support through quantitative easing, U.S. non-agency RMBS returns are driven primarily by credit risk rather than interest-rate risk, making them significantly less sensitive to changing interest rates than the vast majority of the securities in the Agg.

The so-called "legacy" non-agency RMBS market (including prime, pay option ARM, Alt-A, and subprime loans) is less than half the size of the U.S. high-yield corporate bond market and shrinking at a pace of about 10%–15% per year. Despite a strong rally in the sector and the fact that housing market fundamentals have continued to improve in many formerly depressed parts of the country, many of the bonds in the non-agency RMBS space remain attractive.

While we believe that the non-agency RMBS market will continue to shrink, we believe the agency credit risk transfer (CRT) market that Fannie Mae and Freddie Mac launched in 2013 will continue to grow in size. CRTs are backed by a reference pool of agency mortgages, but unlike regular agency pass-throughs, the principal invested in CRTs is not backed by Fannie Mae or Freddie Mac. To compensate investors for

this risk, CRTs offer higher yields than conventional pass-through securities. Similar to CMBS, CRTs are structured into various tranches offering different levels of risk and yield based on the underlying reference pool. The growth and success of this market should encourage further steps by policymakers to reduce taxpayer exposure while maintaining broad access to mortgage credit.

Mezzanine CMBS

The commercial mortgage-backed securities (CMBS) market may be more familiar to fixed-income investors. It has been part of the Agg since the late 1990s, although it is a relatively small component representing less than 2% of the index. Given the structure and subordination of the CMBS market, the CMBS portion of the index is dominated by securities rated AAA. However, when we consider the most recent spreads available in the market place, we believe better opportunities exist further down the capital structure in CMBS mezzanine tranches, bonds that are primarily rated BBB- by the ratings agencies. Like the RMBS market, returns in mezzanine CMBS are more driven by credit risk, as the ultimate performance of the bonds is dependent on the underlying pool of commercial real estate loans. It is worth noting that the vast majority of these bonds are not included in the index since they are classified as Rule 144A securities. Unlike RMBS, there is an active new-issue market for CMBS, with securities offering different risk/reward characteristics depending on the seniority of the tranche.

CMO interest-only (IO) securities

We also find value in areas of the interest-only agency collateralized mortgage obligations (CMO IOs) market. Like an agency MBS pass-through, agency CMOs have the backing of a federal agency — either Fannie Mae, Freddie Mac, or Ginnie Mae. CMOs are created from a portion of the cash flow of an agency MBS pass-through. Two of the most common CMO structures are interest-only (IO) and principal-only (PO). As their names suggest, CMO IOs receive the interest payments on an underlying mortgage pass-through, while the CMO POs receive the principal payments. The value of an IO or a PO is directly influenced by the timing of mortgage payments and prepayments. In the case of an IO, slower prepayments are a benefit

to the bondholder and faster prepayment activity has a negative impact. The opposite is true for investors who purchase POs.

CMO IOs can be attractive for two reasons. First, they currently offer yields at relatively attractive spreads over Treasuries. But they also offer the chance to add alpha by understanding the dynamics of prepayments (i.e., the refinancing activity of the underlying homeowners). When a CMO IO is bought or sold, its price is calculated by taking into consideration an assumed rate of prepayments, based on model estimates. As with any type of mortgage-backed security, the yield of the security (at any given price) is sensitive to changes in prepayment speeds; however, for an IO (or PO) this sensitivity is magnified due to the nature of the cash flows of the security. If prepayments proceed more slowly than the assumed rate, then the CMO IO becomes more valuable because the interest payments will be based on higher principal amounts than originally assumed. (Slower prepayments correspondingly lower the value of the CMO POs.)

Prepayment rates can vary for a number of reasons. The most common factor is interest rates: As mortgage rates fall, more homeowners typically are induced to refinance. However, today, interest rates are projected by many to rise, making refinancing less attractive for many borrowers. Perhaps even more importantly, the residential

mortgage lending channel remains constrained, which is a positive for IO holders as the constraints in lending make it more difficult for borrowers to obtain a new loan.

Analyzing excess returns

Diversification outside the Aggregate Index is desirable, but it is not the only portfolio objective, as investors generally want to focus on maximizing returns in the context of managing risk. For many of the out-of-index opportunities that we focus on, particularly non-agency RMBS, CMBS, and agency IOs, the risk-adjusted return story is particularly compelling as we look back at excess returns over the current recovery period through March 31, 2017 (Figure 5).

As the data in Figure 5 show, the prepayment subsector of securitized debt were among the top-performing areas, though they did present investors with correspondingly high levels of volatility. On the other hand, the non-agency RMBS and CMBS credit subsectors displayed some of the best risk-adjusted returns — with substantially higher information ratios than those of investment-grade bonds or equities. It is worth noting that bank loans (as mentioned before, a very popular “out-of-index” asset class, as evidenced by the significant inflows into this area from both retail and institutional investors) also had an information ratio of 1.73 during this period, which compares favorably with securitized subsectors.

FIGURE 5

Returns in the post-crisis period

Strongest risk-adjusted results have been in CMBS credit and non-agency RMBS

Since 2009	INV GR	HI YLD	Loans	AAA	AA	A	BBB	BB	B	CCC	EM HFX	S&P	NA RMBS	Agency IO	CMBS	Agency MBS
Annual excess	3.54	10.77	10.03	0.54	2.10	3.46	5.08	9.48	9.22	14.50	6.86	14.81	11.29	16.25	11.33	0.59
Annual vol	4.27	9.21	5.80	1.05	3.10	4.45	5.71	7.69	8.60	13.56	7.56	13.94	5.60	13.80	6.94	1.42
Info ratio	0.83	1.17	1.73	0.51	0.68	0.78	0.89	1.23	1.07	1.07	0.91	1.06	2.02	1.18	1.63	0.42

Information ratio is a risk-adjusted measure of portfolio performance relative to benchmark performance. It is calculated as the average relative return divided by the tracking error over a given period. Higher information ratio means better portfolio performance relative to benchmark performance on a risk-adjusted basis.

Sources: Bloomberg, Putnam, as of 3/31/17. For illustrative purposes only. BBG indices include: BBG U.S. Corporate Index, BBG U.S. High Yield Index, BBG U.S. Aggregate: AAA, BBG U.S. Aggregate: AA, BBG U.S. Aggregate: A, BBG U.S. Aggregate: BBB, BBG U.S. Aggregate: BB, BBG U.S. Aggregate: B, BBG U.S. Aggregate: CCC, and the BBG EM USD Sovereign Indices. Loans are represented by S&P/LSTA Leveraged Loan Index. Where there is no available representative index, data is based on a universe of securities selected by Putnam that are representative of various fixed-income sectors and subsectors within the mortgage market.

For use with institutional investors and investment professionals.

FIGURE 6

Securitized debt returns without the first leg of the market recovery

Prepayment risk securities may do increasingly better should rates rise

Past 3 years	INV GR	HI YLD	Loans	AAA	AA	A	BBB	BB	B	CCC	EM HFX	S&P	NA RMBS	Agency IO	CMBS	Agency MBS
Annual excess	0.68	2.51	3.57	0.17	0.70	0.78	0.66	2.90	1.82	3.25	2.82	10.38	6.98	3.57	1.67	0.09
Annual vol	2.52	6.64	2.93	0.47	1.46	2.05	3.78	5.52	6.64	10.74	5.09	10.41	4.04	6.41	4.13	1.29
Info ratio	0.27	0.38	1.22	0.36	0.48	0.38	0.17	0.52	0.27	0.30	0.55	1.00	1.73	0.56	0.40	0.07

Sources: Bloomberg, Putnam, as of 3/31/17. For illustrative purposes only. Calculations are based on index data and a broad universe of securities selected by Putnam that are representative of various fixed-income sectors and subsectors within the mortgage market.

Adjusting the lens to the three-year period ended March 31, 2017, which covers a time frame where volatility was quite elevated, the securitized sectors continued to display competitive risk-adjusted returns (Figure 6).

Unconstrained bond funds: Assessing the options

Against the backdrop of the Fed's expectations for potentially multiple rate hikes in 2017, investors are increasingly searching for suitable bond-fund alternatives — specifically, alternatives that do not rely on falling rates to drive returns. Indeed, when rates began to move higher in 2013, triggered by the Fed's announcement of its intention to taper its economic stimulus, bond funds broadly seized up and went into redemption mode (Figure 7). While taxable bond flows were more stable during the rising-rate period during the second half of 2016, the total return experience was weak for interest-rate-sensitive portfolios, as evidenced by the Agg losing approximately 2.5%.

Investors will need to do the appropriate research in the “non-traditional” space, as their defining characteristic of being able to “go anywhere” can complicate the process of making informed investment decisions. On

close examination, we found that while many of these strategies give their managers the latitude to invest in an “unconstrained” fashion (including from the standpoint of their duration positioning), many continue to rely heavily on managing strategies with a duration that is not unlike that of the traditional bond benchmarks themselves. The consequences of this became quite apparent in 2013 as well as when rates backed up during the summer and fall of 2016.

In our opinion, the critical feature that investors should assess is how comprehensive a view an unconstrained bond fund manager takes of the fixed-income markets. As non-traditional, unconstrained managers hold out the promise of diversification, we contend that they must have the ability, as well as the proven track record, to take advantage of the full array of fixed-income risks. In an unconstrained bond fund, one doesn't want to just “go anywhere.” Rather, the goal is to find what an investor needs to in order to source the desired level of income and capital preservation potential — which can be a challenging exercise in a world of low yields and potentially rising rates.

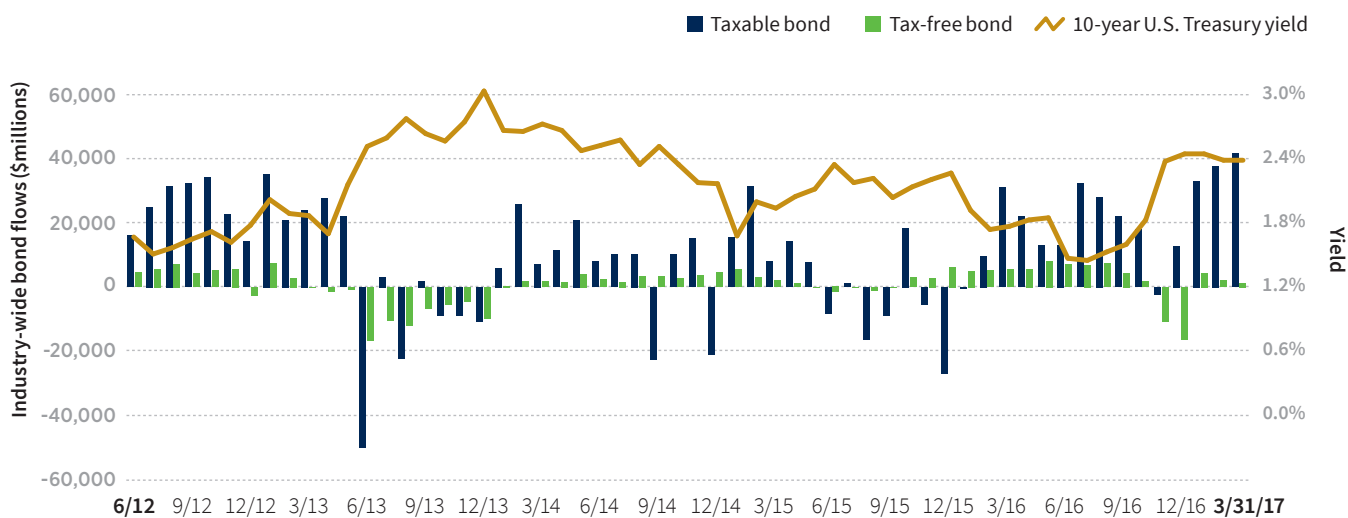
Risk-based approach to fixed-income investing

We believe the most favorable approach to fixed-income investing is one that targets opportunities across the global bond markets, both inside and outside broad indexes like the Agg, while allocating exposure toward those investments we view as attractive in terms of risk and relative value. In today’s investment environment, interest rates are still being maintained at an artificially low level in a number of developed markets. Consequently, we believe the risks associated with those market sectors, consisting primarily of interest-rate risk, are not commensurate with those sectors’ return prospects. In our view, this is particularly the case for investors whose allocations are constrained in accordance with the government-heavy Agg.

The variety and complexity of global markets provide a broad range of opportunities for those with the skills and resources to discern them. It requires a multi-dimensional approach going beyond the traditional notion of “diversification by sector” that is embodied in the Agg. A team-based, specialist-driven approach allows investment managers to seek out the best risk/reward characteristics across the four fixed-income risks that we have discussed (interest rate, credit, prepayment, and liquidity risk). We believe that this approach is superior to a more traditional fixed-income approach that is largely built on macro and broad sector calls.

FIGURE 7

As rates rose on expectations of Fed tapering, bond funds began to hemorrhage assets



Sources: BofA U.S. Treasury Bill Index; Strategic Insight Simfund, March 2017. Fund flows include bond ETF assets.

This material is provided for limited purposes. It is not intended as an offer or solicitation for the purchase or sale of any financial instrument, or any Putnam product or strategy. References to specific securities, asset classes, and financial markets are for illustrative purposes only and are not intended to be, and should not be interpreted as, recommendations or investment advice. The opinions expressed in this article represent the current, good-faith views of the author(s) at the time of publication. The views are provided for informational purposes only and are subject to change. This material does not take into account any investor's particular investment objectives, strategies, tax status, or investment horizon. Investors should consult a financial advisor for advice suited to their individual financial needs. Putnam Investments cannot guarantee the accuracy or completeness of any statements or data contained in the article. Predictions, opinions, and other information contained in this article are subject to change. Any forward-looking statements speak only as of the date they are made, and Putnam assumes no duty to update them. Forward-looking statements are subject to numerous assumptions, risks, and uncertainties. Actual results could differ materially from those anticipated. Past performance is not a guarantee of future results. As with any investment, there is a potential for profit as well as the possibility of loss. This material is not directed at, or intended for distribution to or use by, any person or entity that is a citizen or resident of or located in any jurisdiction where such distribution, publication, availability, or use would be contrary to applicable law or regulation or would subject any Putnam company to any registration or licensing requirement within such jurisdiction. The information is descriptive of Putnam Investments as a whole and certain services, securities, and financial instruments described may not be suitable for you or available in the jurisdiction in which you are located.

This material or any portion hereof may not be reprinted, sold, or redistributed in whole or in part without the express written consent of Putnam Investments. The information provided relates to Putnam Investments and its affiliates, which include The Putnam Advisory Company, LLC and Putnam Investments Limited®.

Issued in the United Kingdom by Putnam Investments Limited®. Putnam Investments Limited is authorized and regulated by the Financial Conduct Authority (FCA). For the activities carried out in Germany, the German branch of Putnam Investments Limited is also subject to the limited regulatory supervision of the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht - BaFin). Putnam Investments Limited is also permitted to provide cross-border investment services to certain EEA member states. In Europe, this material is directed exclusively at professional clients and eligible counterparties (as defined under the FCA Rules, or the German Securities Trading Act (Wertpapierhandelsgesetz) or other applicable law) who are knowledgeable and experienced in investment matters. Any investments to which this material relates are available only to, or will be engaged in only with, such persons, and any other persons (including retail clients) should not act or rely on this material.

Prepared for use with wholesale investors in Australia by Putnam Investments Australia Pty Limited, ABN, 50 105 178 916, AFSL No. 247032. This material has been prepared without taking account of an investor's objectives, financial situation and needs. Before deciding to invest, investors should consider whether the investment is appropriate for them.

Prepared for use in Canada by Putnam Investments Canada ULC (o/a Putnam Management in Manitoba). Where permitted, advisory services are provided in Canada by Putnam Investments Canada ULC (o/a Putnam Management in Manitoba) and its affiliate, The Putnam Advisory Company, LLC.

This material is prepared by Putnam Investments for use in Japan by Putnam Investments Securities Co., Ltd. ("PISCO"). PISCO is registered with Kanto Local Finance Bureau in Japan as a financial instruments business operator conducting the type 1 financial instruments business, and is a member of Japan Securities Dealers Association. This material is prepared for informational purposes only, and is not meant as investment advice and does not constitute any offer or solicitation in Japan for the execution of an investment advisory contract or a discretionary investment management contract.

Consider these risks before investing: International investing involves certain risks, such as currency fluctuations, economic instability, and political developments. Additional risks may be associated with emerging-market securities, including illiquidity and volatility. Lower-rated bonds may offer higher yields in return for more risk. Portfolios that invest in government securities are not guaranteed. Mortgage-backed securities are subject to prepayment risk. Derivatives also involve the risk, in the case of many over-the-counter instruments, of the potential inability to terminate or sell derivatives

positions and the potential failure of the other party to the instrument to meet its obligations. Bond investments are subject to interest-rate risk, which means the prices of the portfolios' bond investments are likely to fall if interest rates rise. Bond investments also are subject to credit risk, which is the risk that the issuer of the bond may default on payment of interest or principal. Interest-rate risk is generally greater for longer-term bonds, and credit risk is generally greater for below-investment-grade bonds, which may be considered speculative.

A world of investing.®



For use with institutional investors and investment professionals.

Putnam Investments | One Post Office Square | Boston, MA 02109 | putnam.com

IN013 305693 5/17