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Recognizing a new reality in the securitized sector

For investors seeking different and unique return sources in fixed income, securitized mortgage sectors offer exposure to risk premiums and structures that can complement a government or corporate credit focused portfolio.

Additionally, the securitized sectors can provide diversification benefits to a broader portfolio given the different type of fundamental risk premiums that can be targeted.

The potential hurdles to investing in securitized sectors include misperceptions of the landscape, lack of a representative benchmark, and limited and varied track records of investment managers. These hurdles can be overcome with education and consultation with managers who offer experience analyzing the sectors.

Investors seeking return sources within fixed income may be comfortable with allocations to high yield and emerging-market debt, but have shown reluctance to investing across the broad securitized landscape. This is understandable given the experience some investors had with certain types of mortgage-backed securities (MBS) during the 2008 financial crisis. At the same time it's important to note that as securitized sectors continue to evolve, they offer many of the attributes that institutions seek in other non-traditional, or alternative, fixed income sectors, and exhibit attractive return and diversification potential that other alternatives may lack.

We believe that a clear understanding of the securitized sectors and the opportunities they offer in the post-crisis era eludes some investors. As active investors, we see this as a signal of an inefficient market opportunity, and we seek to educate investors to help them overcome the hurdles they encounter when considering these asset types.

Diversification does not assure a profit or protect against loss. It is possible to lose money in a diversified portfolio.

Part 1: Attractive relative value

In recent years, many investors have been comfortable allocating portions of their investment portfolios to high-yielding fixed income sectors. These opportunities sit outside of traditional investment-grade benchmarks, and typically include high-yield corporate credit, bank loans, and emerging-market debt. Individual investors typically access these sectors by investing in fixed income mutual fund strategies that include core plus, multi-asset credit, or unconstrained (outside benchmark) bonds. These sectors have attracted attention since well before the 2008 crisis, but allocations have grown in more recent years as yields for government securities around the world continued to fall to historically low levels.

In contrast, investors generally lack familiarity with securitized sectors beyond agency MBS, which is currently the second-largest component of the Bloomberg Barclays U.S. Aggregate Bond Index, behind only U.S. Treasury securities. There are a number of opportunities in securitized sectors, and each has its own nuances. We see the best opportunities in three of these sectors:

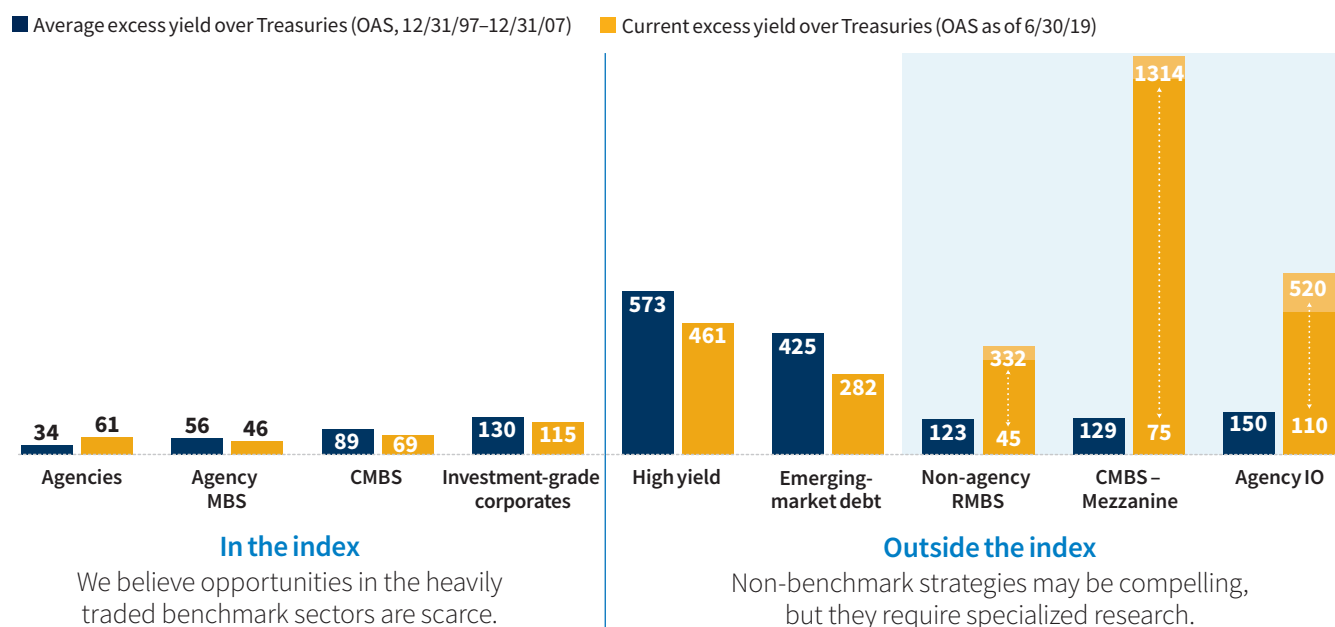
- **Non-agency residential mortgage-backed securities (RMBS).** In previous years, much of the focus in the RMBS market was on the legacy sub-sectors: prime, Alt-A, pay option ARM (POA), and subprime, all issued before the 2008 financial crisis. After experiencing a severe negative impact during the crisis, investors subsequently generated substantial returns due to attractive liquidity premiums, a shrinking supply of bonds, and a recovery in U.S. house prices that led to lower loan-to-value ratios and declining delinquencies. The non-agency market now represents less than \$400 billion in market value and continues to shrink by 10%–15% annually, driven by little material new issuance in the space. Helping to compensate for the lack of a new-issue market are credit risk transfer deals, also known as CRTs. Fannie Mae and Freddie Mac have been bringing CRTs to market since 2013, as the two government sponsored enterprises (GSEs) look to distribute housing risk through private markets. Overall, the CRT market has grown to approximately \$64 billion in size, with steadily increasing investor interest as well as market-making activity from Wall Street broker-dealers. Spread levels vary between CRT securities, with subordinated tranches absorbing

the most credit risk but typically trading at wider spreads. Mezzanine tranches sit above the subordinate tranches, trade at comparatively tighter spreads, and have a risk profile driven less by credit loss risk and more by prepayment uncertainty.

- **Commercial mortgage-backed securities (CMBS).** The CMBS market is likely more familiar to fixed income investors as it has been a part of the Aggregate Index since the late 1990s, although it is a relatively small component representing approximately 2%. Given the structure and subordination in the CMBS market, as well as index rules, the CMBS Index is mostly composed of AAA-rated securities; they represent over 75% of the benchmark. The vast majority of BBB-rated bonds sit outside the index, although there is an active market for these securities, which include both legacy pre-crisis deals as well as issuance from 2010 through the present. While the overall size of the CMBS universe (including single asset deals) has modestly fallen to approximately \$500 billion, new issue deals continue to come to market. In our view, the most attractive opportunities in the CMBS market sit in the BBB-rated space. We believe investors have priced in overly bleak scenarios for retail, and more specifically, shopping mall properties, which serve as collateral for CMBS. It is our view that there is sufficient protection, through both credit subordination and underlying equity, to withstand stress scenarios for commercial real estate, even should shopping mall properties continue to lose tenants and cash flows. Nonetheless, our current environment is still characterized by a positive GDP growth trajectory, job growth, and low interest rates.
- **Agency collateralized mortgage obligations (CMOs).** Finally, we believe the agency CMO market offers specific types of bonds that allow investors to better isolate the prepayment risk premium, such as interest-only and principal-only bonds (IOs and POs), inverse floaters, and inverse IOs. Each of these structures comes with its specific return profile and risks, which in many cases can be unfamiliar to investors (and even to some investment managers, depending on their area of expertise). Investors in IOs are isolating mortgage borrowers' ability to prepay, therefore benefiting countercyclically from an environment where the cost of capital is rising. This market, estimated to be roughly \$150–\$200 billion in

Securitized mortgage sectors offer yield spreads above pre-crisis levels

Comparison of yield spreads by sector, most recent data available (6/30/19) vs. average (12/31/97 to 12/31/07)



A note about this data: For the three securitized mortgage sectors of the market, we represent their current spread levels as a range, rather than as a single data point. We do this in part because there is no market-established index (or indexes) that represents the overall market. Also, in the securitized market, structures can be created that are less (or more) credit- or prepayment-sensitive. Generally speaking, bonds that are less credit- or prepayment-sensitive trade at tighter spreads and bonds that are more volatile trade at wider spreads. Consequently, for each of these sectors we choose to show a range of spreads that reflect the types of bonds that are available in the market.

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 prepayment model. Agencies are represented by BBG Barclays U.S. Agency Index. Agency MBS are represented by BBG Barclays U.S. Mortgage Backed Securities Index. Investment-grade corporates are represented by BBG 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 BBG 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 for the 2000-2007 and is therefore only displayed for that time period. Emerging-market debt is represented by the BBG 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) and Agency credit risk transfer 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 synthetic (CMBX) indices. 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.

Sources: Bloomberg, Putnam, as of 6/30/19.

size, is even smaller than either the non-agency RMBS or CMBS market, but is significant enough to include in portfolios. Agency IOs can be created from different types of underlying mortgage collateral, including reverse mortgages, also known as Home Equity Conversion Mortgages (HECM). A reverse mortgage is a special type of home loan that lets homeowners who are 62 and older borrow money against the existing equity in their home. Currently, the bulk of reverse mortgage origination (and

therefore HECM issuance) is administered by Ginnie Mae. Overall, we see this market as compelling given its low interest-rate sensitivity, relatively predictable prepayment speed profile, and attractive liquidity premium. Our expectation is that the HECM IO market will continue to grow in supply, and therefore in market depth and liquidity (similar to how the CRT market evolved), as baby boomers retire and look to access reverse mortgages as a source of retirement funding.

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Glossary of mortgage-backed securities terms and risks

The **securitized sector** includes bonds created by pooling contractual debt to provide cash flows; mortgages are the largest category.

A **mortgage-backed security (MBS)** is a type of asset-backed security that is secured by a mortgage or collection of mortgages and the property that is mortgaged. Also known as a mortgage “pass-through.”

Agency pass-throughs are securities with principal and interest backed by a U.S. government agency, such as the Federal National Mortgage Association (Fannie Mae), Government National Mortgage Association (Ginnie Mae), and Federal Home Loan Mortgage Corporation (Freddie Mac).

A non-agency **residential mortgage backed security (RMBS)** is an MBS not backed by Fannie Mae, Ginnie Mae, or Freddie Mac. RMBS subsectors include prime, Alt-A, pay-option ARM (POA), and subprime.

Collateralized mortgage obligations (CMOs) represent claims to specific cash flows from pools of home mortgages. The streams of principal and interest payments on the mortgages are distributed to the different classes of CMO interests in “tranches.” Each tranche may have different principal balances, coupon rates, prepayment risks, and maturity dates. A CMO may be highly sensitive to changes in interest rates and any resulting change in the frequency at which homeowners sell their properties, refinance, or otherwise prepay loans.

An **interest-only (IO)** security is a type of CMO in which the underlying asset is the interest portion of the mortgage.

A **principal-only (PO)** security is a type of CMO in which the underlying asset is the principal portion of the mortgage.

An **inverse floater** security adjusts its coupon payment as interest rates change; e.g., as rates fall, the coupon rate rises.

Commercial mortgage-backed securities (CMBS) are secured by the loan on a commercial property and the property that is mortgaged.

A **collateralized loan obligation (CLO)** is a security typically backed by lower-rated corporate loans.

Compelling yield spread opportunities

We feel that for investors who have historically considered investing in riskier fixed income sectors such as high-yield corporates, bank loans, and emerging-market debt, the securitized sectors can be a compelling complement in an overall portfolio context. Investors can gain exposure in the RMBS, CMBS, and prepayment (IO and PO) markets that compete with higher-yielding corporate and sovereign credit markets from a yield/spread or expected return basis.

Comparing sectors inside and outside the index by yield spreads highlights this contrast. For most sectors within the Aggregate Index, current spreads over Treasuries are below their long-term pre-crisis averages. Outside the index, yields are generally higher, but we believe the securitized sectors (RMBS, CMBS, and agency IOs) offer the most attractive yield spreads relative to their pre-crisis levels.

The spread comparison indicates that current opportunities in RMBS, CMBS, and agency IOs can compete with high-yield credit and emerging-market debt on a yield/spread or potential return basis. This forms the relative value argument for considering these sectors as a complement to a corporate or sovereign credit strategy.

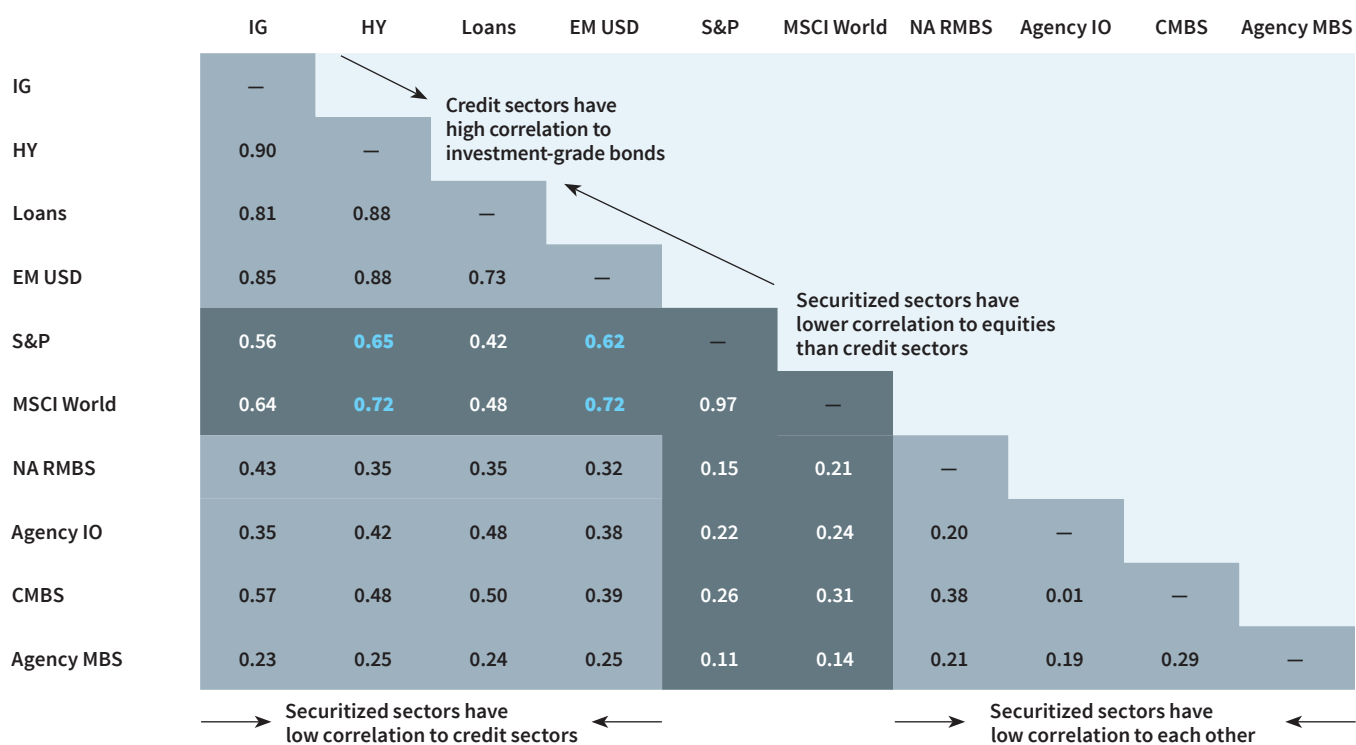
Part 2: Diversification potential

In addition to offering attractive relative value, securitized sectors can also offer relatively low correlation to other assets in a comparison of excess return data across various asset classes since the financial crisis.

Per our research, the correlations demonstrate that investing across the spectrum of corporate credit (investment grade, high yield, and bank loans) and sovereign credit (emerging markets) provided little diversification as all of these assets have a relatively high correlation, ranging from 0.73 to 0.90. Additionally, various sub-sectors of the corporate- and sovereign-credit markets had a fairly high correlation to both U.S. and global equities.

Historically, securitized mortgage sectors have had lower correlations to equities and corporate credit than high yield or emerging-market debt

Correlations of monthly hedged excess returns since 2009



A note about this data: We favor analyzing the correlation of excess returns (i.e., returns net of the impact of interest-rate movements) instead of total returns based on the assumption that when investors allocate to these sectors, they are looking to exploit the risk premiums available in them rather than the interest-rate risk embedded in them. Past performance is not a guarantee of future results.

Sources: Barclays, Putnam, as of 6/30/19. For illustrative purposes only. Indices used in the above calculation include the BBG Barclays U.S. Corporate Index, BBG Barclays U.S. High Yield Index, S&P/LSTA Leveraged Loan Index, and the BBG Barclays EM USD Sovereign Indices. 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.

The correlations of RMBS, CMBS, agency IOs, and agency MBS to the various corporate credit sectors, on the other hand, were much lower, in a range from 0.23 to 0.57. The correlations of the securitized sectors with U.S. and global equities were even lower.

It is also interesting to note that, in the lower right portion of the table, the correlations of returns among the securitized sectors themselves are quite low, ranging from 0.01 to 0.38. These low correlation levels indicate that including all three sectors of the market (RMBS, CMBS, and IOs) could offer diversification benefits even within a securitized-only strategy.

The reasons for these low correlations lie in different types of risk premium exposure. Market trends that may benefit one sector or subsector of the securitized market may have an entirely different (or opposite) impact to another. For example, consider a scenario where housing market fundamentals are strong, making it easier for homeowners to both qualify for or refinance their existing mortgage. All things being equal, we believe this would lead to lower default rates (a benefit to the RMBS market) and increased refinancing activity (a negative for agency IOs). This assumes that the scenario plays out in an environment where mortgage rates do not move dramatically higher or lower.

We believe that adding securitized debt to a broader portfolio can potentially produce more return without increasing risk for investors. Our research has shown that, over time, many of the more familiar out-of-index sectors of the fixed income markets were not only highly correlated to each other, but they were also highly correlated to the equity market. Investors may be disappointed by the diversification benefit achieved by adding strategies that focus solely on the corporate balance sheet (high yield and bank loans) or the sovereign balance sheet (EM debt). In contrast, we believe that a strategy focused on the homeowner's balance sheet (like RMBS and IOs, for example) can add true diversification benefits.

Types of fixed income risk

Interest-rate risk (also called term structure risk) is the sensitivity to changes in interest rates and the shape of yield curve.

Credit risk is the possibility a borrower may fail to make payments to investors.

Prepayment risk involves borrowers paying debt off early, typically in a falling-rate environment, reducing the number of payments and interest received.

Liquidity risk refers to the relative difficulty there is in trading a security in a reasonable amount of time.

Part 3: Overcoming hurdles with education and benchmarking

In spite of the potential attractiveness of the securitized mortgage sectors, many investors may face a number of hurdles to investing in the market. The initial hurdle can be the lack of understanding of the broad securitized sector itself. Some investors may equate securitized sectors with the more familiar agency MBS sector. However, in recent years the agency MBS market has been influenced by the actions of the U.S. Federal Reserve, which has been the largest investor in this market over the past decade by undertaking quantitative easing programs. The result is that agency MBS spreads are tighter than their average prior to the crisis. As demonstrated by the sector yield comparison

chart, spreads for RMBS, CMBS mezzanine tranches, and prepayment-sensitive securities such as agency IOs are both significantly wider than those of agency MBS and wider to where these sectors traded before the crisis.

All three securitized sectors suffered from difficult performance during the crisis as nearly all risky assets did. This was primarily due to liquidity issues (in the case of senior CMBS tranches and IOs) or to real concerns about credit-related issues (in the case of the non-agency RMBS market). However, the situation today is much different as both collateral and structure have evolved. We strongly believe that educating investors about the current landscape is well worth the effort.

A second hurdle is the fact that there is no single broadly diversified mortgage benchmark that includes non-agency RMBS, CMBS, and IOs. The best that investors can expect is to create a customized blended benchmark that includes all three sectors.

For CMBS, a Bloomberg Barclays Index dates back to 1999 and includes investment-grade bonds that are ERISA eligible, have an expected average life of greater than one year, and meet certain deal and tranche size requirements. However, the vast majority of BBB-rated mezzanine bonds are not included in the index since they are Rule 144A securities. Overall, the index has a market value of \$447 billion as of June 30, 2019, and includes both non-agency and agency deals, as well as deals that were issued pre-crisis ("legacy" deals) and post-crisis (CMBS 2.0/3.0).

Regarding RMBS, the marketplace has changed so dramatically since 2008 that comparing the pre-crisis to the post-crisis market is an "apples to oranges" comparison. Nevertheless, following the crisis, Amherst Pierpont Securities, LLC created a legacy non-agency RMBS index that tracks the performance of the underlying collateral and the total return of the individual bonds across the four broad subsectors of the legacy RMBS market: prime, Alt-A, pay-option ARM (POA), and subprime. The aggregate remaining market value of the bonds tracked is approximately \$320 billion as of August 2019.

For the IO and PO market — which dates back to 1987 — there really is, unfortunately, no well-established index. Merrill Lynch maintains the ICE BofA Merrill Lynch U.S. Agency CMO Trust IO Index as a subset of their U.S. Agency CMO Index, which has an inception date of 1996. However, the index only includes 20 issues with an approximate market value of \$1.6 billion as of June 30, 2019, so it appears that it may not be the ideal representation of the broad market for agency IOs.

Keeping in mind that differences in duration among these indexes could have an effect on relative performance during time periods when interest rates fluctuate dramatically, the yield, expected return, and volatility profiles of a mortgage strategy would potentially be quite similar to those of a high-yield corporate strategy.

A third hurdle faced by investors considering an allocation to the securitized sectors is the difficulty in identifying managers with expertise. Unlike high yield and emerging-market debt, where dozens of managers can point to long-term track records that span over 20 years in some cases, very few managers of securitized strategies can point to relevant long-term track records, given the changing nature of the mortgage marketplace in the post-crisis world.

Also, there is far less similarity between individual manager's strategies, their chosen benchmarks, and their risk, tracking-error, and even duration targets. Some managers have chosen to use a cash benchmark, others use the Aggregate Index or the MBS Index, and others target an absolute rate of return. Investors may find a lack of consistency among managers with regard to the subsectors of the market in which they specialize. For example, investment managers may use some combination of RMBS, CMBS, and prepayment strategies, and could also include collateralized loan obligations (CLOs) as well as traditional and/or esoteric asset-backed securities (ABS).

To address this concern, we also believe the right approach involves considering investment managers who have broad expertise and a lengthy track record. In particular, consider asking the following questions when you evaluate managers on their expertise in mortgage sectors:

- Does the manager invest across all securitized mortgage sectors, that is, non-agency RMBS, CMBS, and agency CMOs, including instruments such as IOs, POs, inverse floaters, and inverse IOs?
- What is the length and the quality of the manager's track record in securitized sectors?
- Does the manager have research analysts dedicated to covering each sector as it continues to evolve?
- Does the manager have a portfolio construction process in order to maximize the potential for diversification and risk-adjusted returns over time?
- Does the manager have an investment philosophy that focuses on incorporating diverse sources of risk to build more resilient portfolios?
- Does the manager take a broader view of capital markets to be aware of the changing relative attractiveness of liquid alternative sectors over time?

Attractive value and diversification potential

We believe that including allocations to securitized sectors can potentially be a diversifier and source of alpha in a broader fixed income portfolio. First, securitized sectors represent a large and broad enough market to offer exposure to different risk premiums and potential structures to complement a government or credit-focused portfolio. Second, securitized debt has valuations that, in some cases, give it return potential competitive with high yield and emerging-market debt, while offering exposure to various types of collateral and security structures. Last, securitized sectors that represent homeowner or commercial mortgages offer a fundamental form of diversification that provides exposure to a different type of risk premium than a corporate or government balance sheet.

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Consider these risks before investing: The value of bonds in the fund's portfolio may fall or fail to rise over extended periods of time for a variety of reasons, including general financial market conditions, changing market perceptions of the risk of default, changes in government intervention in the financial and housing markets, and factors related to a specific issuer, industry, geography (such as a region of the United States) or sector (such as the housing or real estate markets). These factors may also lead to periods of high volatility and reduced liquidity in the relevant markets. Bond investments are subject to interest-rate risk (the risk of bond prices falling if interest rates rise) and credit risk (the risk of an issuer defaulting on interest or principal payments). Default risk is generally higher for non-qualified mortgages. Interest-rate risk is greater for longer-term bonds, and credit risk is greater for below-investment-grade bonds. Mortgage-backed securities are subject to prepayment risk and the risk that they may increase in value less when interest rates decline and decline in value more when interest rates rise. The fund's investments in mortgage-backed securities and asset-backed securities, and in certain other securities and derivatives, may be or become illiquid.

The fund's concentration in an industry group composed of privately issued mortgage-backed securities and mortgage-backed securities issued or guaranteed by the U.S. government or its agencies or instrumentalities may make the fund's net asset value more susceptible to economic, market, political and other developments affecting the housing or real estate markets. Risks associated with derivatives include increased investment exposure (which may be considered leverage) and, in the case of over-the-counter instruments, the potential inability to terminate or sell derivatives positions and the potential failure of the other party to the instrument to meet its obligations. Our use of short selling may result in losses if the securities appreciate in value. You can lose money by investing in the fund.

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