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Dodge & Cox®
Investment Focus

Investment Perspectives

Investing Outside the Credit Box: Hedging and Diversifying via Securitized Assets

Key Takeaways[1]

- When pension plans become heavily invested in corporate bonds, plan sponsors often seek to diversify credit exposure while still maintaining an effective credit-spread hedge.
- On their own, securitized assets (also known as structured products) are typically a less compelling liability hedge because their duration[2], convexity, and spread beta do not align well with those of typical pension liabilities.
- However, viewed within a broader portfolio context, modest tactical allocations to select securitized segments and issuers may provide valuable diversification, liquidity, and/or relative value benefits, especially in Intermediate Credit portfolios.
- At Dodge & Cox, our integrated investment team uses our extensive experience in structured products to complement credit exposure within liability-hedging portfolios.

Diversifying the Credit-Spread Hedge

At the latter stages of the pension journey, plan sponsors typically seek to achieve low funded-status volatility and high interest-rate and credit-spread hedge ratios. Consequently, late-stage liability-hedging (LH) portfolios often include high allocations to investment-grade (IG) corporate bonds, which, in combination with U.S. Treasuries, provide an effective hedge to the liability discount rate. In this context, it is natural to ask whether exposures to "corporate-adjacent" sectors—such as non-corporate (i.e., government-related) credit, private placements, and securitized assets—can improve diversification and alpha potential, while still maintaining an effective credit-spread hedge.

Securitized assets, also known as structured products, include securities backed by residential and commercial mortgages as well as other contractual obligations, such as auto loans, student loans, and credit card debt. These assets tend to be less optimal for longer-duration portfolios due to their shorter duration, lower credit beta, and, for some sectors, mismatched convexity relative to typical pension liabilities. However, at times, they can serve as attractive defensive positions, relative value opportunities, or unique alpha drivers depending on market conditions.

Structured Products: Characteristics and Fit within Liability-Hedging Portfolios

While Agency pass-through mortgage-backed securities (MBS) are the largest component of the structured products universe, a broad range of other structured securities offers diverse credit-risk, maturity, and cash-flow profiles applicable to LH portfolios (see Figure 1). We focus primarily on the credit-spread properties of structured products because plan sponsors can typically address duration mismatches between structured products and liabilities via a completion portfolio, a futures overlay, or physical Treasuries and/or STRIPS.

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Figure 1. Types of Structured Products

	Sector	Description	Typical Terms	Cash Flow Structure and Prepayment Risk
Mortgage-Backed Securities (MBS)	Agency MBS Pass-throughs	Government-sponsored enterprise (GSE) pools of fixed-rate, single family mortgages	10-30 years Fixed-rate	Amortizing Significant prepayment risk
	Agency Collateralized Mortgage Obligations (CMO)	Cash flows derived from single-family mortgages and packaged into classes (e.g., based on timing of cash flows)	Varies Fixed-rate	Structured Significant prepayment risk
	Non-Agency MBS	Pools of private, single family mortgages typically not meeting Agency criteria	Varies Fixed-rate	Amortizing Significant prepayment risk
Commercial Mortgage-Backed Securities (CMBS)	Agency CMBS	GSE pools of multi-family (apartment) housing loans	5-15 years Fixed-rate	Amortizing with balloon Minimal prepayment risk
	Non-Agency CMBS	Private commercial real estate loans (e.g., multi-family housing, office, hotel)	5-15 years Fixed-rate	Varies Low prepayment risk
Asset-Backed Securities (ABS)	Auto Loans	Cash flows derived from auto loans	2-7 years Fixed or floating	Amortizing or non-amortizing Variable prepayment risk
	Credit Card	Cash flows derived from consumer credit card debt	3-5 years Fixed-rate	Not amortizing Minimal prepayment risk
	Student Loans	Cash flows derived from student loans; government-guaranteed or private	Varies Fixed or floating	Amortizing Low prepayment risk
Other	Examples include government-backed reverse mortgages, Small Business Administration loans, aircraft and equipment leases, and whole business (i.e., revenue) securitizations		Varies	Varies

Source: Dodge & Cox.

We believe structured products are an *effective diversifier* to traditional corporate credit. The fundamental issuer risks driving structured products' spread compensation—such as mortgage prepayment risk, credit card default risk, or student loan cash flow timing and borrower default risk—are differentiated from corporate credit risk and, therefore, the liability discount rate (though admittedly to varying degrees). Further, while subject to many of the same macro risks, structured products, corporate bonds, and liability discount rates often exhibit different sensitivities to those risks.

On the other hand, we also believe structured products are generally *not an effective credit-spread hedge*. As Figure 2 and the Appendix show, the spread durations of most structured products are usually shorter than those of typical pension liabilities. The exceptions are long-maturity collateralized mortgage obligations (CMOs) and Agency CMBS. Using long AA corporates as a proxy for the liabilities, these sectors exhibit low beta of excess (i.e., spread) returns relative to long AA corporates. This is due to several factors:

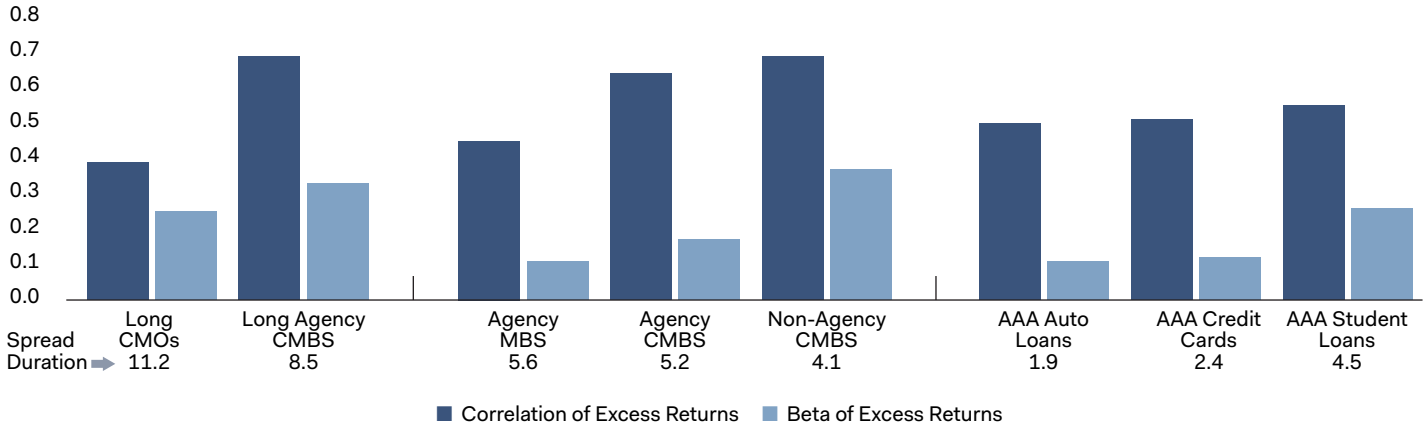
- **Low relative spread duration and spread beta**, which could make it difficult to maintain a high credit-spread ratio;
- **Low relative spread to Treasuries**, which could make it difficult to maintain a total portfolio yield in line with or above the yield of the liabilities, especially if the allocation to structured products is sourced from Long Credit; and
- **Low relative convexity**, which means sharp interest-rate movements would diminish the hedge's effectiveness.

For long CMOs, prepayment risk and the resulting low relative convexity further depress the correlation of excess returns. However, certain environments and security characteristics—such as low-coupon CMOs in a high interest rate environment—can mitigate this drawback.

For mature plans, the balance between structured products' diversification and hedging properties can be more attractive. First, the spread duration and spread beta characteristics of long CMOs and long Agency CMBS may align more closely with the liabilities (although the relative convexity risk remains). Second, the opportunity set within structured products is particularly wide and more attractive relative to front-end liabilities. For example, Agency CMBS, AAA credit-card debt, and AAA auto loans offer spread compensation and convexity that are more closely aligned with those of comparable-duration, high-quality corporates (see Figure 3). Higher-yielding structured products sectors (such as student loans and non-Agency CMBS) can also offer attractive risk-reward opportunities, while retaining high correlation of excess returns to high-quality corporates. As with Long CMOs, it's important to consider the convexity mismatch of Agency MBS pass-throughs. For more details, please reference the Appendix.

Based on these investment and liability-hedging considerations, we believe a *strategic* allocation to structured products may not be compelling, especially for longer-duration liabilities. Even if plan sponsors deem some strategic exposure to structured products is appropriate, they could

Figure 2. Correlation and Beta of Spread Returns to the Bloomberg U.S. Long Corporate AA Index



Source: Bloomberg Index Services, ICE BofA, Dodge & Cox. Correlations and betas are for the period June 30, 2014 to March 31, 2023. Spread duration is as of March 31, 2023.[3]

face meaningful implementation challenges. These include increased portfolio complexity, potentially cumbersome benchmark construction, and ongoing rebalancing needs. Instead, allowing investment managers to include structured products as a *tactical* allocation within credit portfolios may be more additive and practical.

Once tasked with outperforming a credit-oriented market index or a custom liability benchmark, investment managers can include structured products—or any other out-of-benchmark exposure—to generate alpha, manage tracking error, and mitigate other risks. Depending on the choice of sector within structured products and market environment, investment managers can use these securities to enhance yield, improve liquidity, express a view on credit spreads, or exploit relative value opportunities versus benchmark securities.

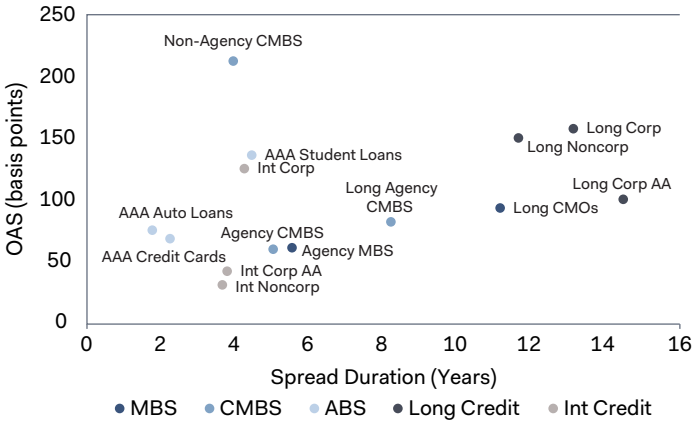
Moreover, security selection, from both credit risk and structure perspectives, can be additive as well. Credit risk is particularly relevant to non-Agency CMBS, which include a range of real estate collateral, geographies, and borrower types. As for structure, for example, focusing on Long Agency CMBS or CMOs with lower prepayment risk can reduce the aforementioned relative convexity mismatch and improve hedge effectiveness.

Dodge & Cox's Approach to Structured Products in Liability-Hedging Portfolios

At Dodge & Cox, our investment team applies decades of experience analyzing and investing in structured products across our fixed income strategies. In our Core Fixed Income strategy, structured products typically account for 30-50% of the portfolio. Our Structured Products Sector Committee collaborates with the Liability Hedging Implementation Team and the U.S. Fixed Income Investment Committee to evaluate relative value between structured products and credit. They also work together to determine appropriate opportunities to incorporate structured products within each LH strategy. This collaborative, multi-committee process helps ensure we consider both the advantages and disadvantages of each investment opportunity.

Our approach to structured products is grounded in rigorous bottom-up security analysis that incorporates macro considerations, interest-rate and credit-spread scenarios, and portfolio-level risk management. We evaluate collateral quality, quantity, and ownership structure as well as macro and other potential influences on prepayment behavior. For example, in our core fixed income strategy, our analysis led us to shift from higher-coupon Agency MBS pass-throughs in early 2020 to lower-coupon, lower-loan balance Agency MBS pass-throughs later in the year. We believed the market was not adequately pricing in the negative effects of low interest rates and elevated refinancing activity. Similarly, in late 2022, we added AAA credit-card debt in our Intermediate Credit strategy after assessing a specific issue's excess spread and credit-enhancement properties relative to deteriorating consumer balance sheets and our macro outlook. Our collaborative, team-oriented approach enables us to integrate structured products into portfolios cohesively, taking into account duration, quality, yield, and other risk targets, while avoiding siloed or one-off allocations.

Figure 3. Option-Adjusted Spread (OAS)[4] vs. Spread Duration



Source: Bloomberg Index Services.

Structured Products within Dodge & Cox's Liability-Hedging Strategies

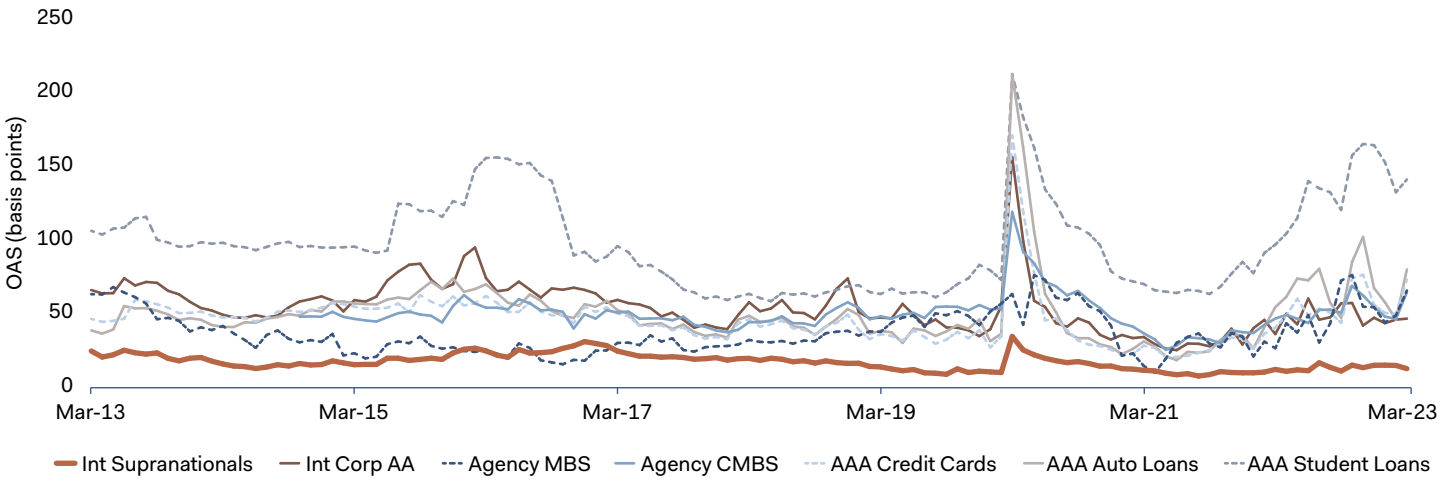
We prefer to incorporate structured products' exposure into LH mandates via Agency MBS, Agency CMBS, AAA credit-card debt, and AAA auto loans. Given their low spreads, low credit betas, and good liquidity, these asset classes often serve a defensive or diversifying role akin to Treasuries, but with a higher yield. Occasionally, we also include student loans (primarily government guaranteed), which, like non-Agency CMBS, offer yields and liquidity levels competitive with many comparable-duration corporates in certain market environments.

We usually incorporate structured products based on relative value, expected overall credit-spread changes, or unique sector- or issuer-specific factors, as demonstrated below.

- In our Long Credit strategy, we have used structured products sparingly—primarily as a diversifier to higher-beta credit—and have adjusted the weight based on our assessment of overall credit spreads. We typically increase our allocation in periods of low or widening credit spreads, such as in 2014-2015 and 2018. We generally prefer Agency CMBS to long CMOs due to their more attractive convexity, although certain environments and security characteristics could mitigate some of the prepayment risk and make CMOs more interesting. Since strategy inception in September 2009, the representative account's average long weight in structured products has been 2%, ranging from 0% to 6%.[5]
- We capitalized on a unique opportunity to incorporate a modest allocation to To-Be-Announced Agency MBS (TBAs) across our credit strategies from late 2020 to mid-2022. The Fed's extensive Agency MBS purchases and high refinancing activity resulted in material "specialness," or yield advantage, of TBAs relative to specified pools. Although TBAs' convexity was a significant detractor, the yield advantage and low credit beta contributed to relative return in a period of tight and, eventually, widening credit spreads. To ensure total portfolio duration remained at target, we offset TBAs' relatively low duration with Treasury futures and/or STRIPS.
- Our Intermediate Credit strategy has maintained a high exposure to structured products given the broad opportunity set and the short duration and high quality nature of the Index. The Bloomberg U.S. Intermediate Credit Index currently has a 17% allocation to AAs and AAAs and a 7% allocation to supranationals, a sector whose spreads have historically lagged those of high quality structured products (see Figure 4). Thus, despite their negative convexity, we have included Agency MBS over supranationals for relative value and liquidity reasons. Since strategy inception in December 2012, the representative account's average Agency MBS weight has been 10%, ranging from 3% to 14%.[6]
- We have tactically managed our ABS weight and composition in our Intermediate Credit strategy, generally increasing our exposure during periods of low and widening credit spreads (2014-2016, 2018, and late 2022 onward). In particular, from September 2022 through May 2023, we established modest positions in AAA credit cards, AAA auto loans, and government-guaranteed student loans, all of which outyield AA corporates (see Figure 4). Since strategy inception in December 2012, the representative account's average ABS weight has been 4%, ranging from 0% to 9%.[7]

We also use high-quality structured products as a tool for managing portfolio-level risk as they offer high liquidity and can help manage overall duration and key rate duration on the front end of the curve. Most importantly, structured products serve as a diversifier and a high-quality counterbalance to below-investment grade corporates. In summary, we see actively managed allocations to various sectors within structured products as a tool in our toolkit to help generate alpha while also mitigating portfolio risk.

Figure 4. Option-Adjusted Spread (OAS) of Intermediate Supranationals and Structured Products

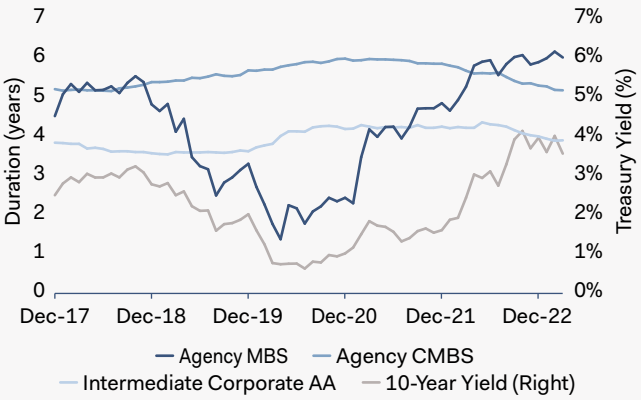


Source: Bloomberg Index Services.

Agency MBS: Implications of Duration Extension

The negative convexity of Agency MBS implies that the security's and sector's duration increases (decreases) when interest rates rise (fall), sometimes significantly. The opposite typically happens with corporate bonds, a credit index, or Agency CMBS, which exhibit positive convexity (see Figure 5). Between mid-2020 and late 2022, Agency MBS' duration roughly tripled as interest rates rose and prepayments slowed tremendously due to the lack of refinancing activity. This affected how we thought about the overall portfolio fit and sizing of our Agency MBS allocations, total portfolio duration and key rate duration management, and relative value analysis. For example, if in 2020 we were comparing Agency MBS to two-year duration, high-quality corporates, by 2022, we shifted our comparison to six-year duration, high-quality corporates. Further, we expanded the Treasury futures toolkit in our Intermediate Credit strategy to include longer-duration contracts to hedge out excess MBS key rate durations at longer tenors.

Figure 5. Index Durations and 10-Year Treasury Yield



Source: Bloomberg Index Services. Data is as of March 31, 2023.

Conclusion

We believe structured products can be used effectively as a tactical allocation within credit portfolios, more so than as a strategic allocation designed to hedge credit-spread risk. Many sectors within structured products are defensive, which makes them particularly attractive when credit spreads widen or riskier portfolio exposures need to be counterbalanced. We utilize our extensive expertise across the broad structured products' space to enhance portfolio liquidity, capitalize on relative value opportunities, and manage overall portfolio risk within our credit strategies to help plan sponsors achieve their liability-hedging objectives.

Appendix

Key Characteristics of Structured Products, Corporate Bond, Non-Corporate Bond, and Below-Investment Grade Market Indices

	Longer Duration MBS/CMBS		MBS and CMBS			Asset-Backed-Securities		
	Long CMOs	Long Agency CMBS	Agency MBS	Agency CMBS	Non-Agency CMBS	AAA Auto Loans	AAA Credit Cards	AAA Student Loans
Index Market Value ($ billion)	3	27	6,931	209	235	43	38	4
Duration (years)	11.2	8.3	5.9	5.1	4.0	1.8	2.3	0.0
Spread Duration (years)	11.2	8.5	5.6	5.2	4.1	1.9	2.4	4.5
Convexity	0.1	0.8	-0.2	0.4	0.2	0.1	0.1	0.0
Option-Adjusted Spread (bps)	95	84	63	62	215	77	70	138
Relative to Long Corp AA:								
Excess Return Correlation	0.39	0.69	0.45	0.64	0.69	0.50	0.51	0.55
Excess Return Beta	0.25	0.33	0.11	0.17	0.37	0.11	0.12	0.26
Relative to Intermediate Corp AA:								
Excess Return Correlation	0.46	0.76	0.41	0.74	0.73	0.67	0.69	0.66
Excess Return Beta	0.99	1.22	0.35	0.67	1.31	0.48	0.53	1.06

	Long Corporate and Non-Corporate				Intermediate Corporate and Non-Corporate			
	Long Corp AA	Long Corp	Long Noncorp	Long High Yield	Int. Corp AA	Int. Corp	Int. Noncorp	High Yield
Index Market Value ($ billion)	189	2,145	292	43	236	4,112	705	1,260
Duration (years)	14.6	13.2	11.7	9.5	3.8	4.1	3.7	3.7
Spread Duration (years)	14.6	13.2	11.7	9.5	3.8	4.3	3.7	3.8
Convexity	3.1	2.6	2.1	1.3	0.2	0.2	0.2	0.0
Option-Adjusted Spread (bps)	102	160	152	419	44	127	33	455
Relative to Long Corp AA:								
Excess Return Correlation		0.97	0.86	0.86				
Excess Return Beta		1.35	1.09	1.80				
Relative to Intermediate Corp AA:								
Excess Return Correlation						0.96	0.85	0.85
Excess Return Beta						1.89	0.62	3.86

Source: Bloomberg Index Services, ICE BofA, Dodge & Cox. Data is as of March 31, 2023. Correlations and beta are for the period June 30, 2014 to March 31, 2023.[3]

The above information is not a complete analysis of every material fact concerning any market, industry, or investment. Data has been obtained from sources considered reliable, but Dodge & Cox makes no representations as to the completeness or accuracy of such information. Opinions expressed are subject to change without notice. Information regarding yield, quality, maturity, and/ or duration does not pertain to accounts managed by Dodge & Cox. The above returns represent past performance and do not guarantee future results. Dodge & Cox does not seek to replicate the returns of any index. The actual returns of a Dodge & Cox managed portfolio may differ materially from the returns shown above. This is not a recommendation to buy, sell, or hold any security and is not indicative of Dodge & Cox's current or future trading activity. The securities identified are subject to change without notice and may not represent an account's entire holdings.

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2. Duration is a measure of a bond's (or a bond portfolio's) price sensitivity to changes in interest rates.
3. Indices used in the analysis: **Long CMO**: ICE BofA 10+ Year US Agency CMO Z-Tranche Index (CM9Z); **Long Agency CMBS**: Bloomberg U.S. Agency CMBS 8.5+ Year Index; **Agency MBS**: Bloomberg U.S. MBS Agency Fixed Rate MBS Index; **Agency CMBS**: Bloomberg U.S. Agency CMBS Agg Eligible Index; **Non-Agency CMBS**: Bloomberg Non-Agency CMBS Agg Eligible Index; **AAA Auto Loans**: Bloomberg ABS Auto AAA Index; **AAA Credit Cards**: Bloomberg ABS Credit Card AAA Index; **AAA Student Loans**: Bloomberg U.S. ABS Floating Rate Student Loan Aaa-rated Index; **Long Corporate, Long Corporate AA, and Long Non-corporate**: Bloomberg U.S. Long Corporate, Non-Corporate, Corporate Long Aa Index; **Long High Yield**: Bloomberg Long U.S. High Yield Index; **Intermediate Corporate, Intermediate Non-corporate, and Intermediate Corporate AA**: Bloomberg U.S. Intermediate Corporate, Intermediate Non-Corporate, Intermediate Corporate AA Index, respectively; **High Yield**: Bloomberg U.S. Corporate High Yield Index. Correlations and beta are show for the period June 30, 2014 to March 31, 2023; June 30, 2014 is the common earliest inception date of all indices used.
4. Option-adjusted spread (OAS) is the option-adjusted yield differential between stated index and comparable U.S. Treasuries. OAS does not translate into a return. One basis point is equal to 1/100th of 1%.
5. Includes Agency CMOs and Agency CMBS. Statistics are for the period September 30, 2009 to March 31, 2023. The representative account reflects our current strategy for the referenced mandate. The account is at or above our separate account minimum size, has not experienced recent material cash flows, and has maintained guidelines that are reflective of the referenced strategy throughout the relevant period. The representative account and its holdings are subject to change; characteristics and holdings may differ for new accounts.
6. Includes Agency CMOs, Agency pass-throughs, and Agency CMBS. Statistics are for the period December 31, 2012 to March 31, 2023.
7. Includes credit card, auto loans, student loans, and small business administration (SBA) loans. Statistics are for the period December 31, 2012 to March 31, 2023.