

Putnam Investments Investment Grade Corporate Credit Composite

Year	Gross of Fees Return (%)	Net of Fees Return (%)	Annual Benchmark Return (%)	Three year Standard Deviation of Composite (%) ¹	Three year Standard Deviation of Benchmark (%) ¹	Standard Deviation of Account Returns (%) ²	Composite Assets (millions)	Total Firm Assets (millions) ³	Number of Accounts
2018	-3.12	-3.46	-2.51	3.97	3.65	N/A	45	117,149	≤5
2017	8.35	7.97	6.42	4.06	3.88	N/A	46	117,916	≤5
2016	7.44	7.06	6.11	4.38	4.15	N/A	42	109,728	≤5
2015	-0.58	-0.93	-0.68	4.23	4.13	N/A	40	110,621	≤5
2014	9.59	9.20	7.46	4.18	4.01	N/A	40	120,093	≤5
2013	0.93	0.57	-1.53	5.21	4.43	N/A	36	110,816	≤5
2012	14.82	14.42	9.82	4.96	3.92	N/A	36	98,926	≤5
2011	4.25	3.88	8.15	N/A	N/A	N/A	31	95,033	≤5
2010	12.26	11.86	9.00	N/A	N/A	N/A	30	102,320	≤5
2009	3.29*	3.20*	1.35*	N/A	N/A	N/A	27	96,570	≤5

* The period from inception, September 30, 2009, to December 31, 2009, is not annualized.

1 The three-year, annualized ex-post standard deviation of monthly composite and benchmark returns represents a measure of total investment risk (volatility) and calculates the variance of a distribution of returns. Data is not presented for periods with less than 36 months of composite returns.

2 The standard deviation of comparable performance over time is a measure of volatility. Composite dispersion is measured by the standard deviation across equal weighted portfolios represented within the composite for the full year. Standard deviation is N/A for composites with five or fewer accounts for the full year.

3 Total Firm Assets prior to 2011 do not include Guaranteed Investment Contract ("GIC") assets.

Firm overview: Putnam Investments claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Putnam Investments has been independently verified from January 1, 2000, through December 31, 2018. The verification report(s) is/are available upon request. 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. Verification does not ensure the accuracy of any specific composite presentation. Putnam Investments (the "Firm") is defined as a broad-based investment management organization that provides financial services to institutions and individuals through separately managed accounts, pooled funds, and mutual funds. Except for a minority stake owned by employees, the Firm is a wholly owned subsidiary of Great-West Lifeco Inc. Investment management is provided by four wholly owned subsidiaries of the Firm: The Putnam Advisory Company, LLC; Putnam Investment Management, LLC; Putnam Fiduciary Trust Company; and Putnam Investments Limited. A list of the Firm's composite descriptions is available upon request.

Composition of composite: The Putnam Investments Grade Corporate Credit Composite (the "Composite") seeks above-average total returns relative to its agreed benchmark. The strategy invests primarily in U.S. investment grade corporate bonds and may use derivatives, including the use of "short" derivatives, such as futures, options, warrants, and swap contracts, for hedging or non-hedging purposes. The Composite's benchmark is the Bloomberg Barclays U.S. Corporate Bond Index. The Composite includes all fully discretionary accounts managed by Putnam in this style, including carve-out assets. The Composite creation date was October 5, 2009.

The Composite was formerly called the Putnam Investment Grade Composite. The Composite does not use leverage. Carve-out assets included in the Composite are managed separately with their own cash. A "carve-out" is a portion of a portfolio that is by itself representative of a distinct investment strategy. It is used to create a track record for a narrower mandate from a multiple-strategy portfolio managed to a broader mandate.

Risk considerations: The prices of bonds in your portfolio may fall or fail to rise over extended periods of time for a variety of reasons, including both general financial market conditions and factors related to a specific issuer or industry. The risks associated with bond investments include interest-rate risk, which means the prices of your investments are likely to fall if interest rates rise. Bond investments are also subject to credit risk, which is the risk that the issuer of an investment 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. Our use of derivatives may increase these risks by, for example, increasing investment exposure or, in the case of many over-the-counter instruments, by being illiquid because of the potential inability to terminate or sell derivatives positions. This strategy may not be suitable for all investors. It is important to understand that you can lose money by investing in this strategy.

Calculation of composite: Returns are presented in U.S. dollars ("USD"). Benchmark, Putnam account and Putnam mutual fund valuation sources and timing may sometimes differ, causing dispersion within the composite and between the composite and the benchmark. The results of the Composite for all periods shown include the reinvestment of dividends and other earnings. The Firm values securities using market quotations, fair value prices from pricing services and/or broker quotations. In limited circumstances, the Firm will value securities based solely on its own analysis, this may include using model prices based on third-party data or, for private equity securities, a fair valuation process whereby a special Valuation committee will review the nature of each deal, the model currently used to value each deal, and any critical underlying assumptions in order to determine fair value. Fair valuations based on internal resources are made in accordance with the Putnam Funds Pricing Procedures and are subject to the oversight of the Firm's Valuation Committee. Please note that, in limited cases, the inputs used to value the security are unobservable and reflect the source's own assumptions. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Benchmark disclosure: The Bloomberg Barclays U.S. Corporate Bond Index measures the investment grade, fixed-rate, taxable corporate

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bond market. It includes USD denominated securities publicly issued by US and non-US industrial, utility and financial issuers. Benchmarks are generally taken from published sources and may have different calculation methodologies, pricing times, and foreign exchange sources from the Composite. The effect of those differences is deemed to be immaterial. The securities holdings of the Composite may differ materially from those of the index used for comparative purposes. Indexes are unmanaged and do not incur expenses. You cannot invest directly in an index.

Gross and Net of fees disclosure: Gross of Fee Returns are net of transactions costs but do not include the deduction of management fees and other expenses that may be incurred in managing an investment account. A portfolio's return will be reduced by management and other fees. The impact of management fees can be material. For instance, assume that \$1 million is invested in a Putnam Investments account, and this account achieves a 10% compounded annual return, gross of fees, for 10 years. If a management fee of 0.50% was charged each year for the 10-year period, the annual return would be 9.5% and the ending dollar value would be \$2,478,200, net of fees, as opposed to \$2,593,700, gross of fees. The actual fee rates are stated in advisory contracts with clients. For composites that contain U.S. mutual funds and UCITS funds, gross-of-fee performance is calculated by applying the prorated monthly percentage of the total net annual expense ratio (as published in the fund's annual report) to the monthly return on net asset value per share. Annual expense ratios for the current year may be based on the prior year's financial statements. Returns may be adjusted based upon each year's audited annual report.

Net of fee returns are calculated using a model fee ("Model Net Fee"). For the applicable time periods, net of fees returns reflect either the deduction of the highest management fee that is paid by a portfolio in the Composite during the performance period, applied on a monthly basis or the deduction of the highest applicable management fee in effect during the performance period that would be charged based on the fee schedule appropriate to this mandate, without the benefit of breakpoints, applied on a monthly basis, whichever is higher. Net of fee calculation methodology may change over time. For composites that include commingled funds that pay a performance fee and that calculate performance using the highest fee paid by an account in the composite, performance based fee adjustments are included in net of fee returns. For commingled funds, the fee is typically updated for the most recent fiscal year end after the portfolio has been audited. Returns may be adjusted based upon each year's audited annual report. Please be advised that the Composite may include other investment products or share classes of funds that are subject to management fees, including performance fees, that are inapplicable to you but that could have been in excess of the Model Net Fee. Therefore, the actual performance of all the portfolios in the composite on a net-of-fees basis will be different, and may be higher or lower, than the Model Net Fee performance. Composites that include certain commingled portfolios may also assess a performance fee to underlying investors which could result in the underlying investors paying a higher total management fee than the highest stated management fee below. However, Model Net Fee performance is intended to provide the most appropriate example of the impact management fees would have by applying management fees relevant to you to the gross performance of the Composite. Actual investment advisory fees incurred by clients are typically negotiated on an individual basis and may vary depending upon, among other things, the applicable fee schedule and portfolio size.

Fee schedule: The standard fee schedule is based on the market value of an account's assets under management and is stated on an annual basis. Separate account management fees are subject to change and are for investment management services only. Standard management fee is: 0.30% of assets on the first \$100 million, 0.25% of assets on the next \$150 million, and 0.20% for assets over \$250 million.

Past performance is not a guarantee of future performance. No assurance can be given as to future performance.