

MassMutual SAGIC Core II¹

Asset Category: Stable Value
Total Portfolio Assets: \$2,954 million

Inception: December 2009
As of June 30, 2020



Objective

To provide a stated rate of return, generated from performance of a core bond portfolio, that insulates the account from daily fluctuations in the bond market

SAGIC Structure Benefits

- Stable value guarantees with performance pass-through of an intermediate-term bond portfolio
- Provides guarantee of principal and book value participant transactions
- Separate account assets segregated from general obligations of MassMutual²
- Guarantees provided by MassMutual, which is among highest rated insurance companies³
- Transparent structure and expense ratio of 0.42%⁴

Expected Benefits of Stable Value Product

- Principal Preservation
- Seeks steady, positive returns in excess of money market rates
- Insulation of participant account values from market fluctuation
- Book value liquidity for bona-fide benefit payments and participant-directed transfers to non-competing investments⁵
- Fixed crediting rate with investment experience realized through periodic rate reset that can be quarterly or semi-annual

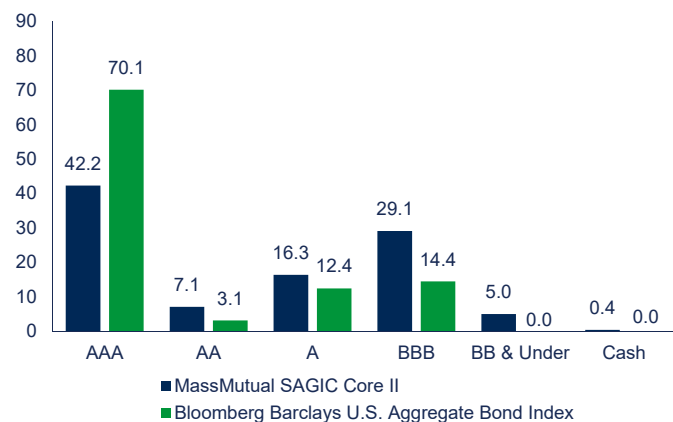
BOOK VALUE PERFORMANCE (%)⁶



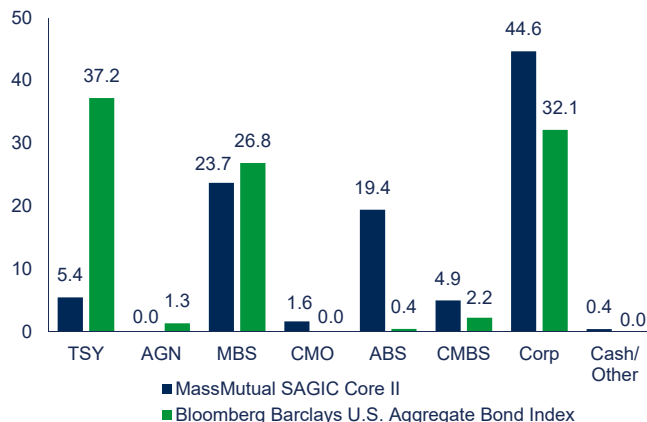
CHARACTERISTICS OF THE SEPARATE ACCOUNT (yield data is gross of product expense)

	MassMutual SAGIC Core II	Bloomberg Barclays U.S. Aggregate Bond Index
No. of Holdings	960	11684
Average Quality	A1 / A+	Aa2 / AA
Average Coupon	3.59	3.11
Duration (Years)	5.75	5.95
Weighted Yield to Maturity (%)	3.00	1.21
Weighted Current Yield (%)	3.34	2.74
Weighted Average Life (Years)	10.31	7.94
Market-to-book ratio (%) ⁷	104.1	

CREDIT QUALITY DIVERSIFICATION OF THE SEPARATE ACCOUNT % of Market Value



SECTOR DIVERSIFICATION OF THE SEPARATE ACCOUNT* % of Market Value



Please see page 2 for important disclosures.

* Sector diversification is broken out among common fixed income sectors including U.S. Treasury (TSY) and TSY futures, U.S. Government Agency (AGN), mortgage-backed (MBS), collateralized mortgage obligation (CMO), asset-backed securities (ABS), commercial mortgage-backed (CMBS), corporate bonds (Corp), which includes structured securities such as collateralized loan obligations, convertibles (Conv) and, Cash (Cash/Other).

Please note unless otherwise indicated, all data is based on Barings' internal values and calculations.

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MassMutual

BARINGS

PORTFOLIO MANAGER

- Barings is an investment management firm with over \$327.1 billion⁸ in assets under management focusing on fixed income securities
- Involved with stable value portfolios since 1999 and currently managing \$19.8 billion in Stable Value assets
- Team Approach to Portfolio Management

PORTFOLIO MANAGEMENT STRATEGY

- Emphasis on maximizing total return potential
- Relative value oriented approach
- Intensive fundamental credit research and valuation
- Focus on spread product, such as corporates and mortgages
- Duration neutral

INVESTMENT SUMMARY

Insight

Seasoned Core Fixed Income team with more than 110 years aggregate experience

Opportunity

Ability to look across market sectors and up and down capital structure

Access

Deep and tenured sector specialist teams to generate value added investment ideas

Execution

Disciplined fundamental research driven process

Deep Investment Resources

Investment Grade Fixed Income Team

Charles Sanford (26)
Stephen Ehrenberg, CFA (18)
Credit – Investment Grade/Crossovers

Dave Nagle, CFA (34)
Multi-Strategy Portfolios

Douglas Trevallion, CFA (33)
Yulia Alekseeva (15)
Securitized / Government

(xx) = years of investment experience

Investors should consider an investment's objectives, risks, charges and expenses carefully before investing. Stable value investment risks include interest rate risk, credit/default risk, liquidity risk, termination risk, event risk, market risk, manager risk, principal risk, regulatory risk and cash flow risk. For more information on stable value investment risks, visit www.massmutual.com/FF/svrisks.pdf.

1. MassMutual Core Bond Separate Account Guaranteed Interest Contract II.

2. Assets allocated to the SAGIC Core II separate account under MassMutual group annuity contracts (the "contract") issued in Minnesota are not segregated from the general obligations of MassMutual in the event of insolvency.

3. For more information on MassMutual's financial strength ratings, visit <https://www.massmutual.com/about-us/corporate-governance>.

4. Some client contracts may have higher or lower fees than the standard expense ratio.

5. Plan sponsor withdrawals at market value or at book value over time in installments. **Competing investments (which include certain fixed-income investments and annual self-directed brokerage accounts) are subject to asset transfer restrictions with regard to the SAGIC.**

6. This investment is only available through an unregistered MassMutual group annuity contract (a "Contract"). Actual historical crediting rates under a specific Contract will vary from those shown due to cash flow and other fees and expenses associated with such Contract. Performance illustrated prior to the SAGIC Core II inception date of December 17, 2009 is based on the performance of the similarly managed SAGIC Core I product, and reflects the SAGIC Core I expense ratio of 0.76%. For later periods, all historical performance reflects an annual expense ratio of 0.42%, which is the current SAGIC Core II expense ratio effective since March 1, 2019. Trailing period returns are based on an initial lump-sum deposit at the beginning of each period with quarterly book value account crediting rate resets applied. Past performance does not guarantee future results. Performance shown is for a book value account under a hypothetical Contract; a higher or lower return might have been realized had the Contract been discontinued by the plan sponsor, with the market value account balance distributed at termination. Additionally, for the period from approximately September 2016 through June 2019 underlying portfolio yields and Contract crediting rates based on those yields were overstated. The historical performance shown reflects restated (lower) portfolio yields and crediting rates than were initially reported and applied to in-force Contracts for that time period. Future crediting rates on Contracts in force during that time period may be slightly lower due to the previous overstatement of crediting rates.

7. Represents client assets on an aggregate basis, however, each client contract experiences its own ratio that differs from the aggregate.

8. Assets include Barings LLC and are referenced for the prior calendar quarter to the date of this fact sheet.

Massachusetts Mutual Life Insurance Company (MassMutual) and its affiliated companies and representatives.