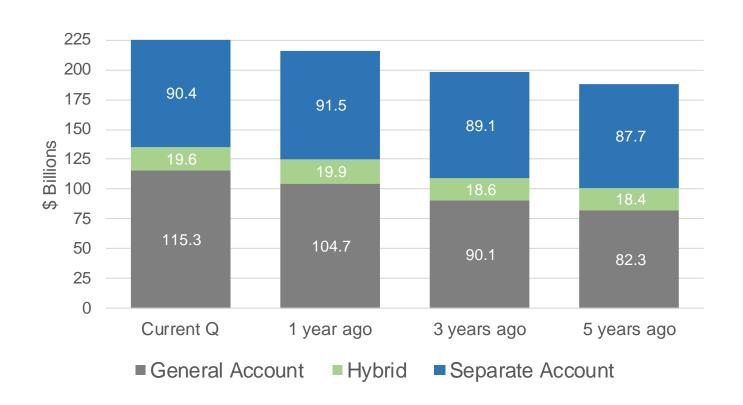


BOLI INDUSTRY ANALYTICS & ALLOCATIONS

BANK CALL REPORT BOLI BREAKDOWN

Banks reported \$225.4 billion of BOLI in 2022-Q3, of which \$90.4 billion was SA



STUDY PURPOSE AND BACKGROUND

Our study attempts to track how SA BOLI is allocated over time

- Gathered SA BOLI AUM data is categorized into portfolio types
 - Capital Efficient / Multi-Sector / Target RW
 - High Yield
 - Credit
 - Core Fixed Income

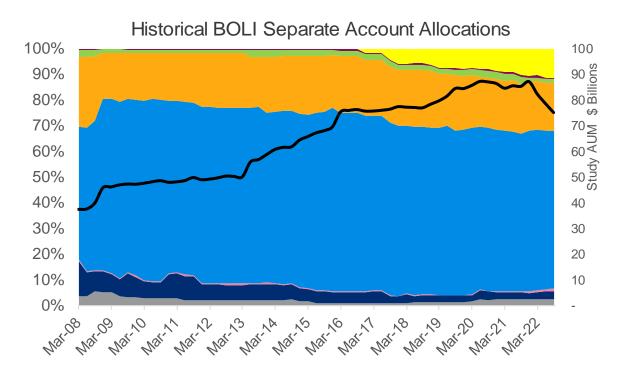
- MBS / Securitized (ABS / CMBS)
- CLO / Bank Loan
- Short Duration
- Government
- Portfolio types represent full portfolio MVs and do not look through to the holdings sector weights

Currently comprises \$75 billion – a massive share of the industry¹

HISTORICAL BOLI/COLI SEPARATE ACCOUNT ALLOCATIONS

Historically, allocations have been dominated by MBS / Securitized portfolios. More recently, capital efficient / multi-sector type portfolios have gained a solid share.

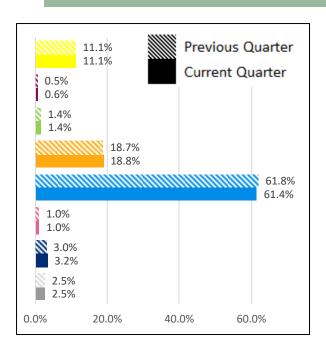
The chart below shows the study's total AUM (black line), and portfolio type breakdown (colored areas) over time.

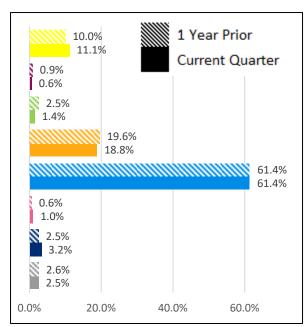


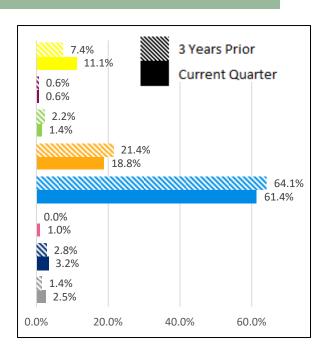
| 2022-Q3 Weights | |
|------------------------------|-------|
| Cap Efficient / Multi Sector | 11.1% |
| High Yield | 0.6% |
| Credit | 1.4% |
| Core Fixed Income | 18.8% |
| MBS / Securitized | 61.4% |
| CLO / Bank Loan | 1.0% |
| Short Duration | 3.2% |
| Government | 2.5% |

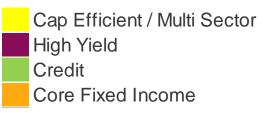
SEPARATE ACCOUNT ALLOCATION CHANGES

While some changes can be attributed to asset growth, periodic comparisons can indicate potential reallocations²





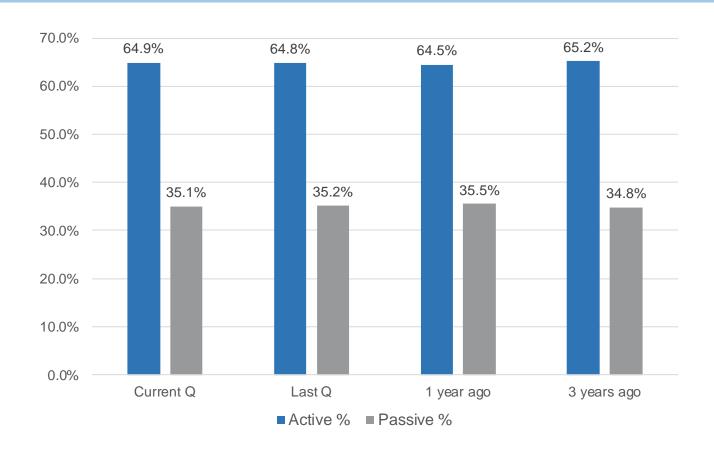






BREAKDOWN OF PORTFOLIOS (ACTIVE VS PASSIVE)

Of the \$75 billion in the study, 65% of the allocations are actively managed



ALLOCATION COMMON BENCHMARK PERFORMANCE

Using common benchmarks for the categories, a proxy for the industry's SA Q3 MV performance is estimated at -4.50% while the stable value proxy was 0.39%

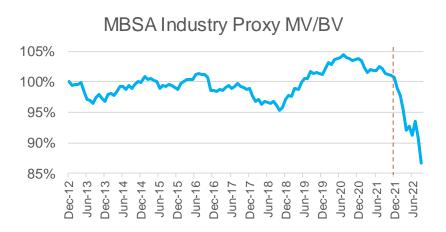
| | Benchmark | | 1-Year | 3-Year | 5-Year | Weights |
|--|-----------------------------|--------|---------|--------|--------|---------|
| Cap Efficient / Multi Sector | [Proxied By Blend of Below] | -2.75% | -9.90% | -1.39% | 0.78% | 11.09% |
| High Yield | Bloomberg High Yield | -0.76% | -13.50% | -0.88% | 1.46% | 0.57% |
| Credit | Bloomberg US Credit | -4.95% | -17.89% | -3.61% | -0.05% | 1.44% |
| Core Fixed Income | Bloomberg US Agg | -4.75% | -14.60% | -3.26% | -0.27% | 18.78% |
| MBS / Securitized | Bloomberg US Securitized | -5.20% | -13.79% | -3.52% | -0.80% | 61.38% |
| CLO / Bank Loan | Palmer CLOSE Index | 0.42% | -1.20% | 1.14% | 1.96% | 0.99% |
| Short Duration | ICE BofA USD 3M DOR | 0.40% | 0.41% | 0.72% | 1.31% | 3.25% |
| Government | BofA / ML 1-3Y Treasury | -1.56% | -4.86% | -0.48% | 0.57% | 2.51% |
| Industry Proxy MV Performance using rolling weights: | | -4.50% | -12.88% | -2.95% | -0.36% | |
| Industry Proxy Stable Value Performance: | | 0.39% | 1.88% | 2.22% | 2.36% | |

INDUSTRY MV/BV RATIO DEVELOPMENTS

With continued yield *increases*, MV/BV ratios continued to *decline* – resulting in some breeches of SVP contractual thresholds (e.g., write-downs or forced reallocations)

- MBSA requested and compiled market value and book value data from carriers (each provided in the aggregate) to begin monitoring the overall MV/BV ratios of BOLI allocations
- Additionally, using our proxy MV and BV performance monitoring from the prior page, we calculate a proxy overall MV/BV ratio for the industry

| _ | Carrier Aggregate MV/BV | MBSA Industry Proxy MV/BV | | | | |
|------------|-------------------------------|---------------------------------|--|--|--|--|
| 12/31/2021 | 100.9% | 100.9% | | | | |
| 3/31/2022 | 95.1% | 95.5% | | | | |
| 6/30/2022 | 91.1% | 91.2% | | | | |
| 9/30/2022 | 86.7% | 86.7% | | | | |



- As of 2022-Q3, the total MV in the carrier aggregate values above was ~52 billion
- The aggregate carrier ratios compare closely to our industry proxy MV and stable value performance values

CALL REPORT BOLI ANALYTICS

The overall effective RW for SA BOLI was ~38%; however, many banks default to 100%

 Using the Q3 category weights and proxy portfolios, MBSA estimates the industry could achieve a ~27% effective risk-weight using the Basel III Standardized Approach

All Banks

| | # of Donks | GA BOLI | Hybrid BOLI | | SA Exposure | | Total RWA / Total Exposure | Average |
|-------------|------------|---------|-------------|-------|-------------|-------|-------------------------------|---------|
| | # of Banks | (\$B) | (\$B) | (\$B) | (\$B) | (\$B) | | |
| Current Q | 3,220 | 115.3 | 19.6 | 90.4 | 98.6 | 37.7 | 38.2% | 86.8% |
| Last Q | 3,223 | 113.2 | 19.7 | 91.2 | 103.4 | 42.0 | 40.6% | 90.9% |
| 1 year ago | 3,260 | 104.7 | 19.9 | 91.5 | 100.8 | 39.4 | 39.1% | 85.6% |
| 3 years ago | 3,386 | 90.1 | 18.6 | 89.1 | 99.4 | 37.5 | 37.7% | 86.2% |

Bank RW% median and mode were 100% for all periods

\$25B+ Banks

| | # of Banks | GA BOLI (\$B) | Hybrid BOLI (\$B) | SA BOLI (\$B) | SA Exposure (\$B) | SA RWA (\$B) | Total RWA / Total Exposure | Average Bank RW% |
|-------------|------------|------------------|----------------------|------------------|----------------------|-----------------|-------------------------------|---------------------|
| Current Q | 89 | 70.9 | 13.7 | 86.9 | 93.3 | 33.6 | 36.0% | 59.1% |
| Last Q | 89 | 69.4 | 13.8 | 87.7 | 95.5 | 35.5 | 37.2% | 58.0% |
| 1 year ago | 92 | 62.8 | 13.8 | 87.7 | 95.8 | 35.6 | 37.1% | 60.1% |
| 3 years ago | 78 | 53.4 | 11.9 | 84.6 | 91.4 | 31.5 | 34.5% | 53.7% |

For larger banks, the mode Bank RW% is still 100%, but median drops to ~53%

FOOTNOTES / DISCLAIMERS

- 1. Regarding industry coverage;
 - Some of the data included in the study may include portfolios that are comingled with corporations or non-banking entities
 - Some of the missing assets may include equity portfolios, which are excluded from this study
 - Data included in the study is Market Value. In bank call reports, wrapped BOLI is reported at Book value.
- 2. "Reallocations" assumed by significant changes in categorical weights without a parallel change in total assets. May or may not reflect any actual reallocation activity.

*Call Report Data may include BHC data from Y-9C Reports

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