

Insurance Insights

August 2020

INSURANCE RESEARCH | WHITE PAPER

Pandemic Furthering Decline in Life-Annuity Book Yields – and Offering Lessons in Managing Risk

2020 Events May Beg Questions of Insurers' Risk Tolerance; Scenario Planning May Help Identify Potential Outcomes

By Mary Pat Campbell, FSA, MAAA, Vice President, Insurance Research
and Daniel Finn, FCAS, ASA, Managing Director, Risk Solutions

The fallout from the COVID-19 pandemic is expected to further the life-annuity insurance industry's two-decade decline in portfolio book yields, likely driving asset projections even lower through 2021 before they begin to rise.

While the decline in yields is often tracked through a long-term benchmark, mainly the 10-year Treasury yield, the relatively small change in this interest rate may not accurately reflect the greater risk to many life-annuity insurance investment portfolios.

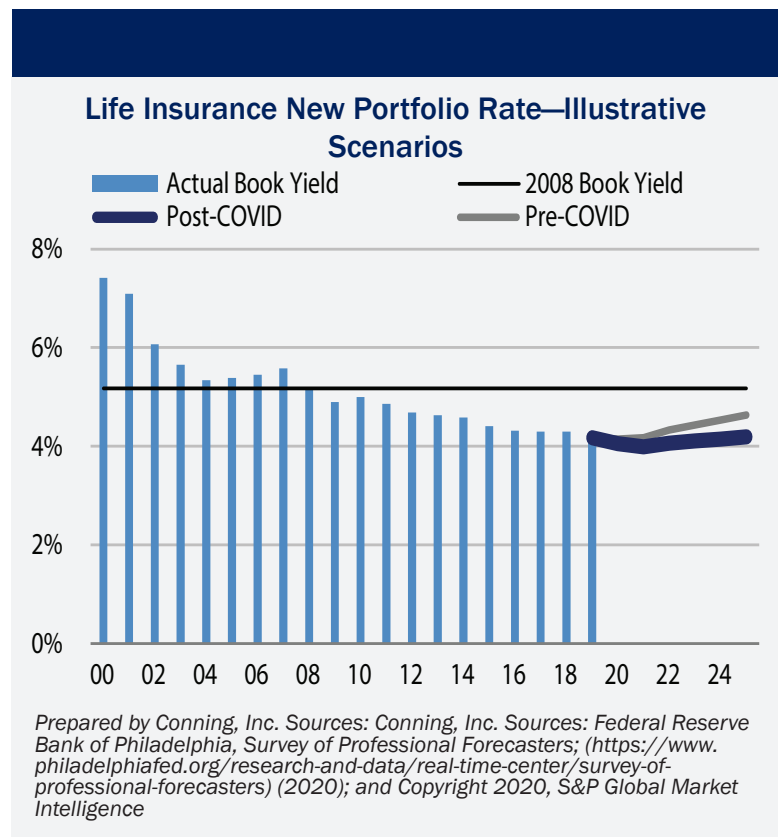
A Conning analysis of model portfolios illustrates the full range of potential outcomes and their relative likelihood. While the odds of the more drastic outcomes are low they nonetheless fall within the realm of possibilities.

For insurers, who have just experienced an event that was also considered a low probability, two questions arise:

- How prepared are you for other unanticipated events?
- Where is your comfort level amid potential portfolio declines and their likelihood?

The answers are unique to each insurer, and Conning expects many may now wish to revisit these questions. In our view, scenario analysis, a form of portfolio stress-testing based on the conditions of previous market dislocations, can help provide valuable insight to help insurers think about other possible dislocations.

Figure 1



Projecting Even Lower Book Yields Through 2021

Early this year, in response to the pandemic, 10-year Treasury rates dropped below 1% and were hovering near 0.70% in June. (The last time 10-year rates were more than 3% for prolonged periods was before the 2008-2009 financial crisis.)

To examine the impact on portfolio yields, Conning modeled the moving average of 10-year Treasury rates and the industry's portfolio yield (see Figure 1). We used two scenarios for the projection, both from the Philadelphia Federal Reserve's Survey of Professional Forecasters, one from the first quarter and one from the second quarter. Across the board, the forecast 10-year rates dropped about 90 basis points from the first to the second quarter.

In both scenarios, we would expect insurers to adjust portfolios to attempt to maintain yield, but the 10-year rates decrease during 2020 and 2021. Even the pre-COVID scenario included a forecast of lower interest rates in 2020 based on previous moves by the U.S. Federal Reserve (the Fed). The qualitative moves in both pre- and post-COVID scenarios are about the same: the 10-year rate starts to increase in 2022, but the post-COVID scenario shows a bigger decrease, with portfolio rates dipping below 4% in 2021.

Negative 2020 Projections, Using Price as Proxy

However, the before/after projection of book yields offers a fairly tame view of the impact on the asset portfolio, as it does not incorporate measurements of risk as one sees with market values or fair values. The change in fair value captures both the interest rate movements as well as credit spreads, among many drivers to asset valuation.

To incorporate this view, we completed a different set of projections using Conning's proprietary GEMS® economic scenario software. Its economic model uses historical market prices and other market values to calibrate and generates Monte Carlo economic scenarios (see "*Monte Carlo Analysis: Capturing All Possibilities*") to look at potential outcomes given current market conditions. For each portfolio, we ran three different sets of projections:

- A starting point of January 1, 2020, generating the full year's worth of returns (ignoring the pandemic)
- Historical prices up to March 25, at about the bottom of the market, generating Monte Carlo scenarios for the rest of the year
- Historical prices up to May 31, after the market had recovered some, with Monte Carlo scenarios through year-end.

Monte Carlo Analysis: Capturing All Possibilities

Monte Carlo modeling, which runs simulations within a model and generates a range and likelihood of probable outcomes, can help generate an understanding not only for the volatility and risk embedded in a specific asset class, but also for how the whole portfolio is affected. The asset class valuations do not move independently but are tied along various dimensions of risk: interest rate, credit, market price, and more.

While only one specific scenario from the Monte Carlo model will occur, considering the range of possibilities can be helpful preparation and help calibrate an organization's risk appetite.

Especially in an age of uncertainty, it helps to understand all the possible outcomes — and the chances of each happening.

Three representative insurance company portfolios were tested: small (assets \$100 million to \$1 billion), midsized (\$1 billion to \$10 billion) and large (\$10+ billion). These do not match any specific company's allocation but are intended to be typical for their size. For each projection set, 1,000 Monte Carlo scenarios were generated.

As illustrated in Figure 2, the median results show that price returns are likely negative for the year, given overall economic parameters even at the beginning of the year. The differences in price return among the three scenarios were fairly narrow — less than 20 basis points.

With the recovery from March 25 to May 31, the three portfolio results are again very close, with only 15 basis points difference. These movements were primarily driven by the recovery in the corporate bond portfolios, some of which have been boosted by actions of the Fed in buying corporate bonds to provide liquidity for the bond market.

Know the Potential Downside of the Tail

One way to measure the risk embedded in an asset portfolio is to look at the width of results by percentile. As we primarily care about downside risk, we look at the 5th percentile results, the level at which only 5% of the 1,000 scenarios fell. The median result can give us the overall tendency of the portfolios but looking at tail cases can give a feel for how much risk is embedded in the portfolio.

At these more extreme points the results are more spread out. For all three scenarios, the mid-sized portfolio had the lowest price return, whether looking at the median (50th percentile) or 5th percentile. This was driven by its larger allocation to BBB-rated corporate bonds (30.6%) than the large (26.9%) and small (26.2%) firms. Both small and mid-sized insurers are very bond-dependent, but small insurers are more biased toward cash, Treasuries, and higher-rated bonds; large insurers have much more of their portfolio in mortgages.

Do not be misled by the May 31 projections—these better results, as with the median, reflect that the random scenarios projected to the end of the year are shorter than from January 1 and that the three representative portfolios showed price appreciation from January 1 to May 31, using historical information.

Scenario Planning: Using History to Prepare

The lesson from this activity should be apparent: insurers may benefit from understanding the full range of potential outcomes in their portfolios based on a range of possible market dislocations. Then they must weigh their tolerance for risk, i.e., their comfort level with the likelihood of various portfolio declines, and consider the types of steps they would need to make to help prevent them should those conditions occur.

Conning believes that the “unprecedented” events of 2020 may have some precedent after all. Many of the conditions of the current financial crisis are also hallmarks of the 2008 financial crisis (drop in Treasury yields, widening in corporate spreads, drop in equity prices, decline in GDP).

Figure 2

Projected 2020 Median Price Returns for Representative Life-Annuity Portfolio			
	Pre-COVID Parameterization	March 25 Parameterization	May 31 Parameterization
Large	-3.79%	-4.87%	-1.24%
Midsized	-3.96%	-5.28%	-1.28%
Small	-3.77%	-5.07%	-1.13%

Projected 2020 5th Percentile Price Returns for Representative Life-Annuity Portfolio			
	Pre-COVID Parameterization	March 25 Parameterization	May 31 Parameterization
Large	-11.96%	-16.45%	-9.62%
Midsized	-12.44%	-17.09%	-9.90%
Small	-12.04%	-16.67%	-9.57%

Large = \$10+ billion, Midsized = \$1B to \$10B, Small = \$100M to \$1B

Prepared by Conning, Inc. Source: GEMS® Economic Scenario Generator scenario.

We can use historical data as a real-world case study in how the markets have behaved under similar conditions; the use of historical scenarios for stress testing can give us a window into how an investment portfolio might perform during a time of crisis and recovery.

Such information is critical to a robust and effective risk management program, providing a glimpse into the impact a crisis may have on solvency and financial stability.



Mary Pat Campbell, FSA, MAAA, is a Vice President at Conning, responsible for research and consulting for individual and group life insurance, life reinsurance, investments by life insurers, and regulatory issues. Prior to joining Conning in 2011, she managed regulatory financial reporting for Scor Re and previously was with The Infinite Actuary. Ms. Campbell earned a BS in physics and math from North Carolina State University and an MS in applied math from New York University.



Daniel Finn, FCAS, ASA, is a Managing Director at Conning responsible for providing asset-liability and integrated risk management advisory services, and also oversees the support and development of Conning's proprietary financial software models. Prior to joining Conning in 2001, he was with Swiss Re Investors' asset-liability management unit. Mr. Finn earned an MA in mathematics from the University of Rochester and an MBA from Loyola College.

ABOUT CONNING

Conning (www.conning.com) is a leading investment management firm with a long history of serving the insurance industry. Conning supports institutional investors, including pension plans, with investment solutions and asset management offerings, risk modeling software, and industry research. Founded in 1912, Conning has investment centers in Asia, Europe and North America.

© 2020 Conning, Inc. All rights reserved. The information herein is proprietary to Conning, and represents the opinion of Conning. No part of the information above may be distributed, reproduced, transcribed, transmitted, stored in an electronic retrieval system or translated into any language in any form by any means without the prior written permission of Conning. This publication is intended only to inform readers about general developments of interest and does not constitute investment advice. The information contained herein is not guaranteed to be complete or accurate and Conning cannot be held liable for any errors in or any reliance upon this information. Any opinions contained herein are subject to change without notice. Conning, Inc., Goodwin Capital Advisers, Inc., Conning Investment Products, Inc., a FINRA-registered broker-dealer, Conning Asset Management Limited, Conning Asia Pacific Limited, Octagon Credit Investors, LLC and Global Evolution Holding ApS and its group of companies ("Global Evolution") are all direct or indirect subsidiaries of Conning Holdings Limited (collectively, "Conning") which is one of the family of companies owned by Cathay Financial Holding Co., Ltd., a Taiwan-based company. Conning has investment centers in Asia, Europe and North America

ADVISE®, FIRM®, and GEMS® are registered trademarks in the U.S. of Conning, Inc. Copyright 1990-2020 Conning, Inc. All rights reserved. ADVISE®, FIRM®, and GEMS® are proprietary software published and owned by Conning, Inc.

Additional Source Information: Copyright 2020, S&P Global Market Intelligence. Reproduction of any information, data or material, including ratings ("Content") in any form is prohibited except with the prior written permission of the relevant party. Such party, its affiliates and suppliers ("Content Providers") do not guarantee the accuracy, adequacy, completeness, timeliness or availability of any Content and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such Content. In no event shall Content Providers be liable for any damages, costs, expenses, legal fees, or losses (including lost income or lost profit and opportunity costs) in connection with any use of the Content. A reference to a particular investment or security, a rating or any observation concerning an investment that is part of the Content is not a recommendation to buy, sell or hold such investment or security, does not address the suitability of an investment or security and should not be relied on as investment advice. Credit ratings are statements of opinions and are not statements of fact.

C#: 10701377