COVID-19 and annuity policyholder behavior: Looking back, looking ahead

by Eric Halpern, FSA, FCA, MAAA
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Executive Summary

We review 2020 annuity policyholder behavior, comparing actual experience to our March 2020 forecasts. The effects of COVID-19 – both expected and unexpected – suggest important lessons for future modeling and assumption-setting.

Variable annuity lessons include:

- *Activity was depressed in 2020 as a result of COVID-19 and related effects – but not uniformly*
- *Surrenders were depressed among the most seasoned contracts; annuity writers may need to model a new behavior regime*
- *Income commencement was depressed among qualified policyholders ordinarily subject to RMDs*

Fixed indexed annuity lessons include:

- *Similar to VA, FIA surrenders were dampened in 2020 relative to forecasts, particularly among the most seasoned contracts*
- *Surrenders spiked on contracts with positive MVA, and there were more of these because of low interest rates*
- *FIA income commencement and withdrawal patterns in 2020 appear consistent with historical patterns – so far*

COVID-19 impact on mortality:

- *We anticipate 10-15% excess mortality for living benefit contracts and 20-30% for those without LBs*
- *Ruark's 2021 VA Mortality Study later this year will quantify the effects*

Ruark remains ready to help our clients manage their policyholder behavior risk with greater information and insight:

- *We have data from a variety of behavioral regimes – monthly policyholder behavior and mortality data going back to 2007 covering about 70% of the market with over $1 trillion of current account values*
- *Our rigorous, transparent predictive modeling approach uses company- and industry-level data to tailor models to each company and facilitate quick implementation for pricing, valuation, and risk management. We can quantify the improvement in predictive power and financial risk profile over what a company can do if limited to their own data*

It's been more than 18 months since news broke in the US of COVID-19. The pandemic and related events have subsequently shaped day-to-day life in ways large and small. Economic uncertainty and capital market volatility have been compounded by uncertainty regarding government responses. Even following vaccine development and distribution, the virus looks likely to be an issue through 2021 and beyond.

Naturally, the US annuity market has also been affected, as has the behavior of annuity policyholders. This poses challenges for annuity writers, their actuaries, and risk managers; small changes in behavior can have significant repercussions for the valuation and market sensitivity of annuity guarantees.

In March 2020, we attempted to forecast what financial market turmoil would mean for annuity policyholder behavior[1]. With the benefit of hindsight, we can now ask: What did we get right? What did we miss? And what does it mean for annuity policyholder behavior going forward?

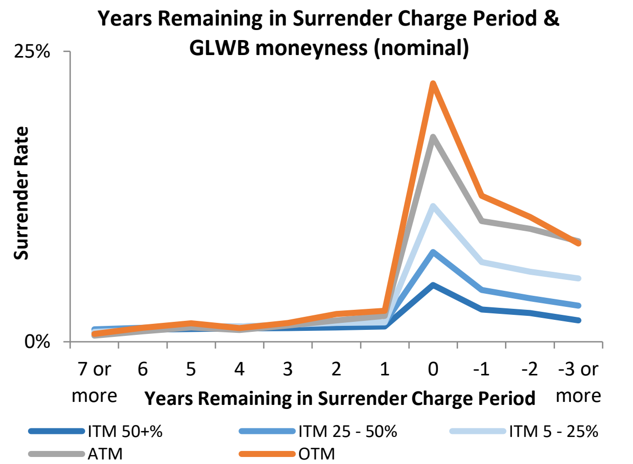
Variable annuities

VAs with embedded guarantees such as GLWB and GMIB are subject to three main behaviors: Surrender, income utilization, and annuitization. In March 2020, we highlighted the sensitivity of each of these behaviors to moneyness, that is, the relationship between account values and the value of the guarantee.

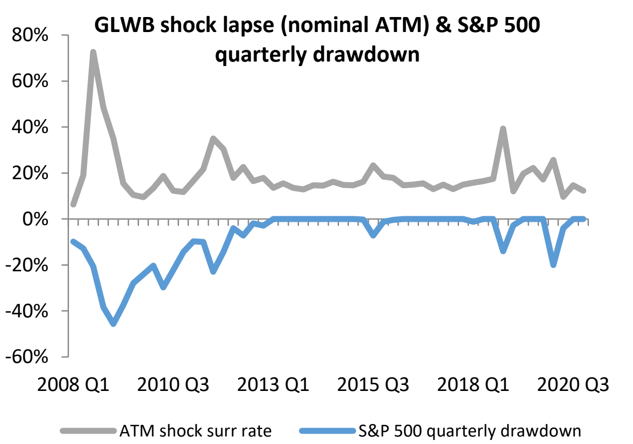
With regard to surrenders, we predicted that the 2020-Q1 decline in account values would result in lower overall surrender rates. As account values fall, guarantees become relatively more valuable, so policyholders retain the product at higher rates. Whether moneyness is measured on a nominal basis (account value vs. benefit base) or an actuarial/economic basis (account

[1] "Market turmoil: What does it mean for annuity policyholder behavior?", March 18, 2020, https://ruark.co/wp-content/uploads/2016/12/Market-turmoil-and-annuity-policyholder-behavior.pdf

value vs. present value of guaranteed income), lower account values lead to lower surrenders and vice versa.

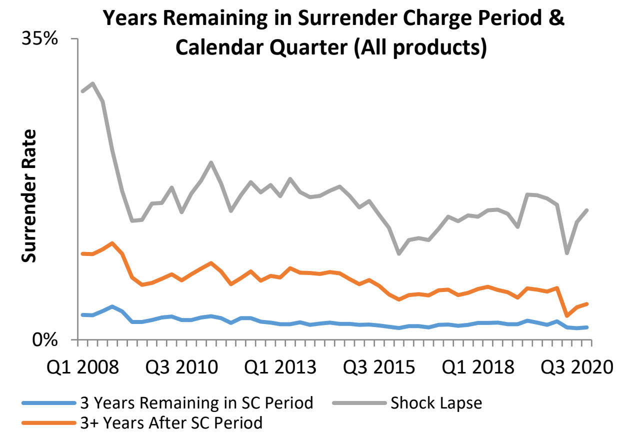


We further predicted that an exception to this behavior would manifest at the shock duration, that is, the contract duration immediately following the expiration of surrender charges. The moneyness relationship has been stable historically for in-the-money contracts at this duration; however, contracts that are at the money at the shock duration have historically moved in inversely to the S&P 500 drawdown.

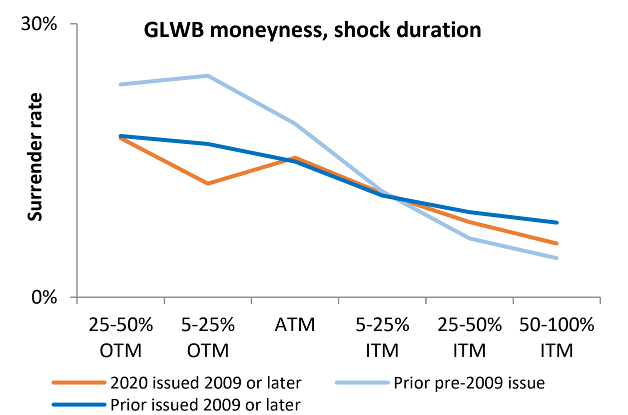


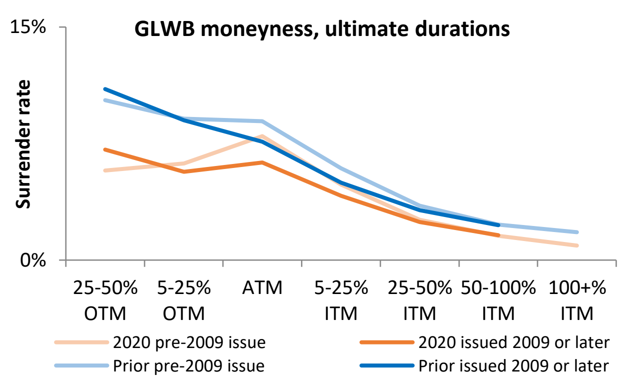
Both of these predictions were substantially correct. Surrender rates fell across the board in 2020-Q1, and rebounded thereafter as equity markets rebounded. At-the-money shock surrender rates, as predicted, constituted an exception as they moved inversely to the S&P 500 drawdown.

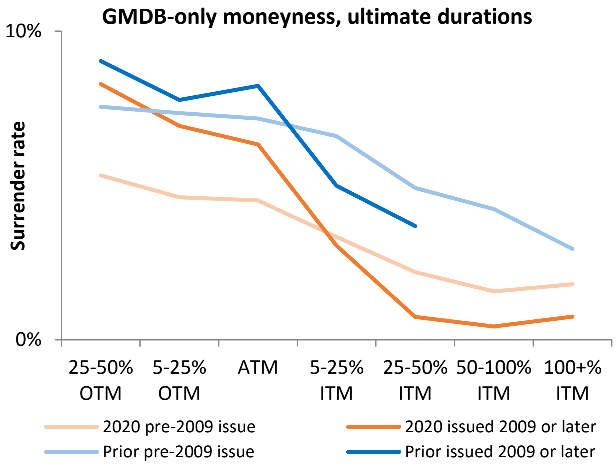
Nonetheless, relative to historical magnitudes, surrender rates were depressed. When at-the-money shock surrender rates spiked in 2020, they increased to 26%, somewhat short of the forecasted 40%. Also, as equity markets (and account values) recovered in 2020, only shock surrenders rebounded to historical levels. Surrenders both before and after the shock duration – particularly on the most seasoned contracts – remained low.



Comparing like-to-like moneyness sensitivity both before and after 2020, we find that GLWB shock surrenders basically followed their historical pattern. But surrenders at later durations, and on legacy products, fell uniformly. At every level of moneyness, surrenders on contracts with guaranteed withdrawal benefits were about 1 percentage point below historical levels. Surrenders on other benefit types exhibited a uniform decline of approximately 2 percentage points.







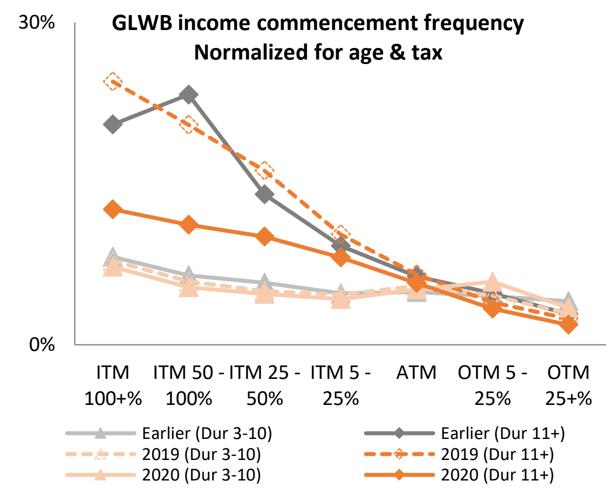
Consequently, the decline is consistent with an overall decline in industry gross sales in 2020[2]. The proceeds of VA surrenders are typically rolled into a new product; surrender rates are in part a reflection of sales attention. Therefore, we should expect that as COVID-related social distancing restrictions in 2020 affected the sales landscape, they also depressed surrender rates. Moreover, with headwinds on sales efforts, producers must choose where to focus their limited time and resources. It makes sense that they would devote priority attention to contracts experiencing their first opportunity to surrender without penalty, a milestone that occurs only once in a contract's lifecycle. And that consequently less time and attention would be available to pursue rollovers among other contracts, leading to lower surrender rates among them.

It is standard practice among VA writers to reflect moneyness in surrender assumptions. The fact that relationships changed in unforeseen (indeed unforeseeable) ways in 2020 raises the question of what VA writers should assume in future modeling. The COVID-era experience suggests a new surrender regime. Will this regime persist?

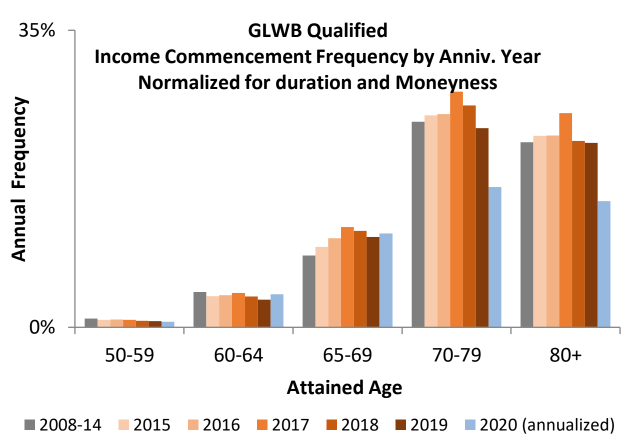
We note that producers have already made some adjustments to the new reality; GLWB shock surrenders were depressed in 2020-H1, but by the end of the year rates rebounded to earlier levels. Our best guess is that the COVID-era regime will persist only as long as restrictions pose obstacles to pre-COVID sales practices. If vaccination activity keeps variants in check, and restrictions continue to loosen, we expect surrenders to revert to the pre-COVID regime. Until such time, however, the COVID behavior regime is likely to persist.

Another prediction we made regarding moneyness and behavior relates to income commencement rates on GLWB products. Historically, commencement rates exhibited weak sensitivity to moneyness levels during the early contract years, and then very strong sensitivity after the expiration of deferral incentives. We predicted increased rates of income utilization, particularly among older contracts.

In the event, higher commencement rates did not materialize. Rather, post-bonus contracts deferred income commencement even further. Whereas pre-bonus commencement rates were unchanged, contracts past the 10-year deferral mark exhibited much lower sensitivity to moneyness levels. Income commencement rates declined even among the deepest in-the-money policies.



One contributing factor appears to be the CARES Act. The law waived required minimum distributions (RMDs) in 2020 for tax-qualified contracts. Consequently income commencement rates fell by approximately 1/3 in 2020 among qualified contract owners age 70 and above. Commencement rates among nonqualified contracts appeared unchanged.



[2] "Secure Retirement Institute: Total Annuity Sales Fall 9% in 2020", March 9, 2021, https://www.limra.com/en/newsroom/news-releases/2021/secure-retirement-institute-total-annuity-sales-fall-9-in-2020

GMIB annuitization rates are another behavior influenced by moneyness. As the account value falls, the guarantee becomes more valuable. It also becomes more valuable as interest rates fall. In March 2020, we forecast that these effects would cause annuitization rates to rise for traditional “pro rata” benefit forms. In the case “hybrid” GMIB forms, which allow dollar-for-dollar withdrawals up to an annual limit, we forecast that increases in the value of the withdrawal benefit would exceed increases in the value of the annuitization benefit.

Both of these forecasts were realized in 2020. Annuitization rates rose on pro-rata benefit forms, from 2.9% in 2019 to 4.0% in 2020-Q3. Interestingly, after controlling for the change in moneyness, annuitization rates were comparable to those observed since 2017. In contrast to surrender and income commencement behavior, social distancing requirements and other sales process disruptions did not appear to suppress annuitization behavior for these contracts. Among hybrid benefit forms, overall annuitization rates were stable, as the effects of the change in moneyness were offset by the effects of the change in withdrawal value.

In summary:

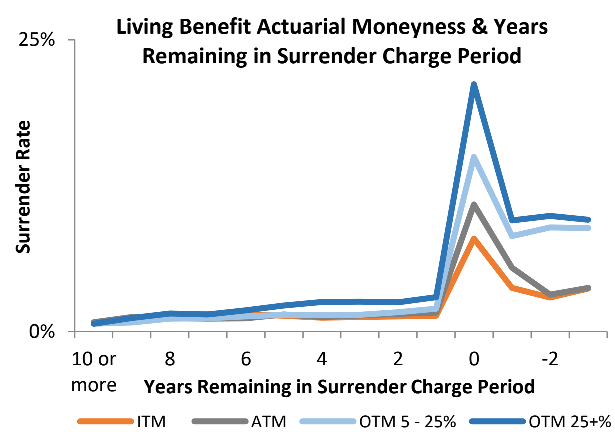
- VA surrender and income commencement activity was depressed in 2020 as a result of COVID-19 and related effects – but not uniformly.
- Surrender activity was depressed among the most seasoned contracts, and it is unclear whether the activity will rebound once social distancing is lifted; annuity writers may need to model a new behavior regime.
- Income commencement activity was depressed among tax-qualified contracts who were not required to take distributions in 2020; behavior in 2021 and thereafter is likely to revert to earlier patterns.
- GMIB annuitization was consistent with forecasts. Annuity writers should make sure they consider relevant variables in their modeling (including the relative value of hybrid withdrawal benefits) to ensure models predict behavior effectively.

Fixed indexed annuities

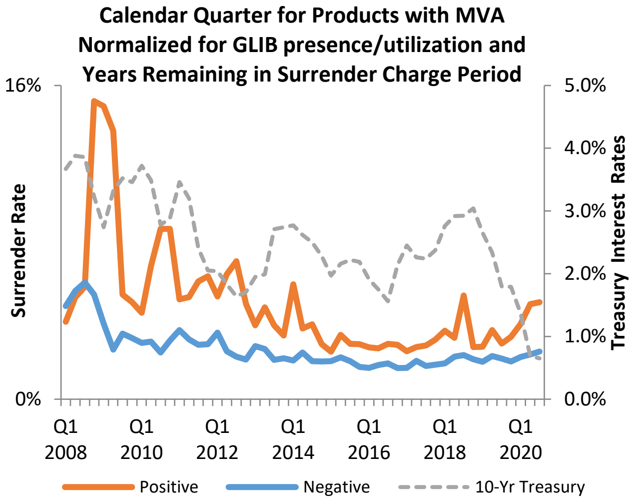
As we noted in March 2020, fixed indexed annuities differ from VAs in that they are less sensitive to equity market fluctuations and much more sensitive to interest rates. While equity markets have rebounded and tested new highs, US interest rates remain at unprecedentedly low levels.

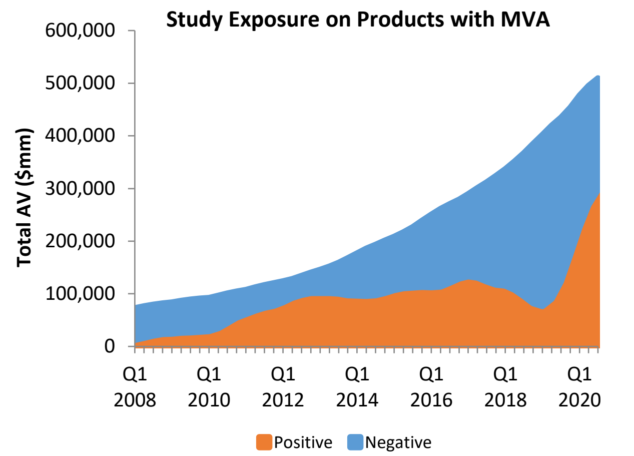
This combination was a positive factor for FIA persistency in 2020, as credited interest rates were augmented by index crediting while competitive market rates remained low. In March 2020, we observed that poor equity performance can lead to higher surrender rates on policies without lifetime income benefits; however, the strong equity performance in the remainder of 2020 helped prevent a general spike in surrender rates.

Among contracts with guaranteed lifetime income benefits (GLIB), the low interest rate environment in 2020 helped keep surrender rates low as well. As we noted in March 2020, GLIB persistency is sensitive to *actuarial moneyness*, that is, the relationship of account value to the present value of guaranteed income. As interest rates fall, the present value of future GLIB payment increases, driving FIA contracts deeper in the money on an actuarial basis. And a more valuable guarantee presents a stronger incentive for policyholders to persist.

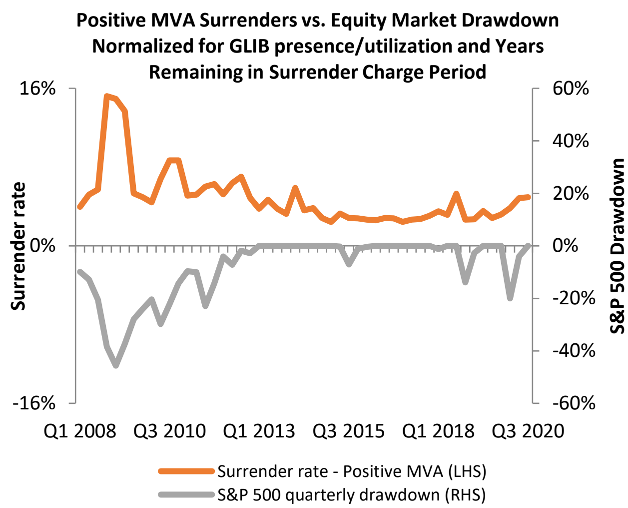


The one subset of experience where a spike in surrender rates was observed was on contracts with a market value adjustment (MVA). An MVA is designed to adjust for differences between current market interest rates and rates at the time the policyholder’s funds were invested. As we noted in March 2020, a properly designed MVA should make the policyholder indifferent to market interest rates, but we observe that surrender rates for policies with a positive adjustment exceed those for policies with a negative adjustment or no adjustment. In the aggregate, policyholders act as though a positive MVA is a bonus rather than a mechanism to make both parties whole.





We further observed that positive-MVA surrenders tend to spike when the S&P 500 falls.



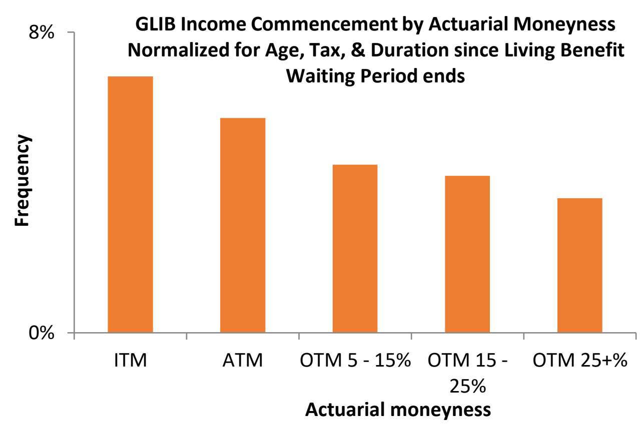
In light of these effects, and the fact that a positive MVA is generated when interest rates fall (relative to the interest rate at the time of the initial investment), we forecast an increase in surrenders in 2020 among policies with an MVA. More policies were expected to have a positive MVA, and past experience suggested the 2020-Q1 drawdowns in equity markets could drive surrender rates for these contracts to 10% or more.

The declines in interest rates did in fact lead to a jump in positive-MVA exposure, as forecast. The proportion of MVA experience with positive market value increased from 20% in 2019 to 60% in 2020, a level last seen in 2011-2012. And also as forecast, surrender rates on these contracts increased in tandem with equity declines, rising from 3% in 2019 to 5% in 2020.

It is notable that in historical quarters with drawdowns of similar size, surrender rates on positive-MVA contracts increased to approximately 6% on a normalized basis. Viewed in this context, the observed increase to 5% appears somewhat dampened. Moreover, considering FIA experience in aggregate, surrender rates beyond the shock duration declined in 2020, from approximately 10% to 7%. This decline in surrenders is broadly consistent with the industry-wide decline in annuity sales as noted above. Additionally, the persistence of continued low interest rates through the course of 2020 made competing fixed income alternatives less attractive, and contributed to reduced gross sales volume.

In our March 2020 analysis, we also made some forecasts regarding GLIB income commencement and withdrawal behavior. Specifically, we expected income utilization to increase as contracts went deeper ITM on an actuarial basis.

The behavior observed in our 2021 study of FIA income utilization was consistent with the forecasts. That is, we did not observe any meaningful changes to historical behavior patterns, notwithstanding the disruptions to sales channels and capital markets caused by COVID-19. Rather, the factors identified appear to largely explain behavior patterns during 2020.



That said, our 2021 study contained experience only through September, 2020. We look forward to examining 2020 results in further detail in future studies when full-year experience is available.

To sum up for FIA:

- Low interest rates and strong index performance helped keep FIA surrenders low in 2020, for contracts with and without GLIB.
- The exception is contracts with a positive MVA. Low interest rates increased positive-MVA exposures, and these contracts have exhibited a spike in surrender rates, as we forecast in March 2020.
- Similar to VA, FIA surrender activity was somewhat depressed 2020 as a result of COVID-19 and related effects, particularly among the most seasoned contracts.
- In contrast to VA, FIA income commencement and withdrawal patterns appeared not to deviate from historical patterns in 2020 – but evidence so far is limited.

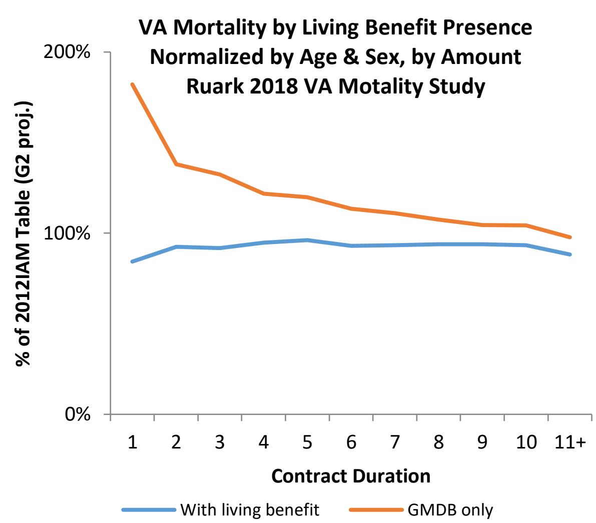
Mortality

Finally, we consider deferred annuity mortality. Although mortality is technically not a behavior, it is another way for an annuity contract to terminate. As we observed in March 2020, the virus is more deadly among older individuals, and annuity policyholders are older, on average, than the general population.

Numerous mortality studies have been conducted on the general population, and the Society of Actuaries has conducted some early studies on mortality among insured lives, for both individual[3] and group insurance[4].

The progress of disease varied by geography, with high excess mortality in the northeastern US in 2020-Q2, in the South and Southwest in 2020-Q3, and the remainder of the US in 2020-Q4. Interestingly, individual life insurance results exhibit fairly consistent excess mortality across age, sex, geography, and risk classification, averaging to 10-15% year-over-year. This is a ratio similar to that found in general population studies.

The exception is guaranteed issue business, which had excess mortality of approximately 20% in 2020-Q2. This value is similar to excess claims reported for group life insurance, which fall in a slightly higher range of approximately 15-30%. Group insurance claims appear similarly to vary little by risk category, notwithstanding higher excess claims for white collar occupations.



[3] "U.S. Individual Life COVID-19 Mortality Experience Study", July 2021, https://www.soa.org/resources/experience-studies/2021/covid-19-life-mortality-study/

[4] "Group Life COVID-19 Mortality Survey", July 2021, https://www.soa.org/resources/experience-studies/2021/group-life-covid-19-mortality/

In the case of VA and FIA products, which are not subject to individual underwriting, mortality has exhibited strong anti-selection effects. Historically, mortality has been lower among policyholders with a living benefit than among those without, for example. This would suggest potentially higher susceptibility to a health shock among policyholders with only a GMDB than among living benefit contracts.

One last question annuity writers need to consider is mortality improvement in 2021 and beyond. Was COVID-19 a once-in-a-century pandemic, or will ongoing variants and pandemic-related mortality spikes become a feature of the landscape? Were 2020 mortality increases on top of the long-term trend, or did they merely accelerate deaths among vulnerable populations? Answers these questions will continue to be speculative, but 2020 experience will surely inform them. We look forward to seeing the evidence upon completion of Ruark's 2021 VA mortality study this fall.

Looking forward

When we assessed the effects of the capital market environment on annuity policyholder behavior toward the end of 2020-Q1, markets had just suffered a major blow. The S&P 500 had fallen over 35%, as had commodity prices. The VIX, a measure of implied volatility on short-dated options, had spiked, and US interest rates had fallen to record lows. Today, equity markets have rebounded and volatility has fallen. But a hangover effect of COVID-19 remains, as supply and labor shortages drive and inflation concerns, while interest rates have not materially recovered.

Notwithstanding a rebound in 2021-Q2 annuity sales, these hangover effects continue to pose challenges for annuity writers, as does continued uncertainty regarding government policy and the management of variant virus strains. Annuity writers may wish to defer decisions regarding how to best reflect 2020 experience in assumption-setting – but as the effects of the virus push into 2021, such decisions cannot be put off indefinitely.

We remain ready to help our clients manage their policyholder behavior risk with greater information and insight:

- Our dataset is unparalleled, containing seriatim monthly policyholder behavior and mortality data going back to 2007, covering about 70% of the market, with over $1 trillion of current account values. It includes emerging data in key areas (e.g. long-term income commencement and moneyness sensitivities) and historical experience through a variety of behavioral regimes.
- Our predictive analytics techniques use company- and industry-level data to help clients improve their annuity pricing, valuation, and risk management models.
- Our rigorous, transparent modeling approach is tailored to each company using credibility theory and allows for quick implementation. We can quantify the improvement in predictive power and financial risk profile over what a company can do if limited to their own data.

We look forward to continued examination and analysis of the emerging experience.

Eric Halpern is the Chief Operating Officer of Ruark Consulting, LLC.

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For further information

Timothy Paris, FSA, MAAA
CEO, Ruark Consulting, LLC
timothyparis@ruark.co
860.866.7786