

Welcome	Introduction	1. Buyer Profiles	2. Summary of Withdrawal Activity	3. Withdrawal Activity by Contract Year	4. Withdrawal Activity by Age of Owner	5. First Withdrawals Based on Proximity to Max Withdrawal Rate Increase	6. Average Withdrawal Amount by Owners' Current Age	7. Withdrawals as a Percentage of Annual Benefit Maximum	8. Withdrawals as a Percentage of Annual Benefit Maximum by Age
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Variable Annuity Guaranteed Living Benefits Utilization

2017 Experience

Guaranteed Minimum Withdrawal Benefits (GMWB)

A Joint Study Sponsored by the Society of Actuaries and LIMRA



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Variable Annuity Guaranteed Living Benefits Utilization

2017 EXPERIENCE

About the Study

LIMRA Secure Retirement Institute and Society of Actuaries Variable Annuity Guaranteed Living Benefit Utilization Study (VAGLBUS) — 2017 Experience is an update of earlier investigations, conducted since 2006.

The study examines the GLB utilization of over 4.3 million contracts that were either issued during or in force as of 2017. Eighteen insurance companies participated in this study. These 18 companies made up 65 percent of all GLB sales in 2017 and 68 percent of GLB assets at year-end, and thus provide a substantial representation of this business.

Few product innovations have transfigured the variable annuity (VA) industry as much as guaranteed living benefits (GLBs). Evolving from simple income benefits, they are now offered in a variety of forms on the vast majority of VA products sold today.

Knowing more about benefit utilization — as well as the connection with behaviors such as persistency — can assist insurers with assessing and managing the long-term risks of these GLBs.

Companies should use the data provided in this tool as a basis for monitoring the following:

- Customer mix versus the industry
- Risks associated with providing a guarantee to younger buyers —both short- and long-term — including growth in benefit base relative to cash value, customer withdrawal deferral periods, sources of funds used to purchase the annuity, percentage of customers begin to take withdrawals due to the required minimum distribution (RMD) rule, and the persistency of their contracts.
- Competitiveness of the maximum payout rates that are typically set by age bands
- Customer behavior in general and how it changes the dynamics of a company's in-force book of business

CONFIDENTIALITY: For industry results, confidentiality is protected with limits on filtered data. Each data point must have a minimum number of companies reporting. None of the individual companies can represent a majority of market share. Some results may not follow the trend because there is a relatively small number of contracts being reported. Hover over a data point to see how many contracts are being reported.

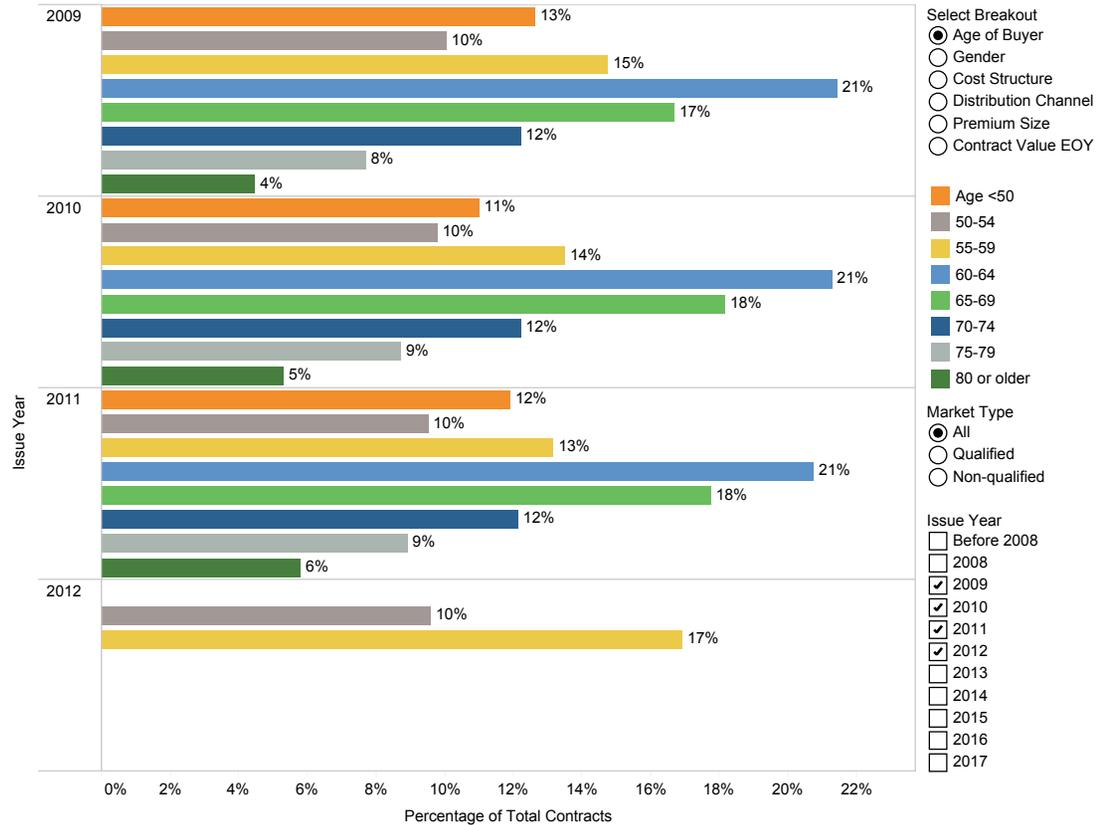
Click on the tabs at the top of the screen to move between pages. The buttons and menus on the right side of each screen allow you to filter results.

Access to this information is a benefit of LIMRA and SOA membership.

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Buyer Profiles



Some data are suppressed for confidentiality reasons.

Guaranteed minimum withdrawal benefits (GMWBs) were introduced in the early 2000s. Early GMWBs permitted annual withdrawals of a certain percentage of the benefit base balance until the guaranteed payments were exhausted, even if the contract value itself had already fallen to zero. The benefit base was usually the sum of premium payments and there was no lifetime guarantee. Later versions enhanced the benefit base balance to include step-ups or bonuses prior to withdrawals, or optional step-ups to reflect investment growth after withdrawals had commenced.

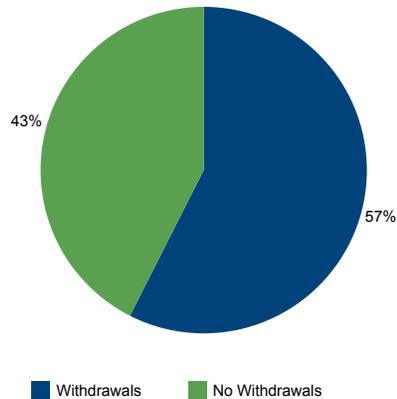
Although GMWBs do not guarantee income for life, investors can use GMWBs effectively to provide period-certain payments while keeping control of their assets and remaining invested in the market. Also, the maximum annual withdrawal amount (as a percentage of the benefit base balance) for a GMWB is generally higher than that of a GLWB.

During the last few years, there has been little innovation with GMWB riders. New sales for GMWB riders remain low and GMWB election rates, when any GLB was available, remained low, around 1 percent. In 2007, GMWBs enjoyed an election rate around 8 percent.

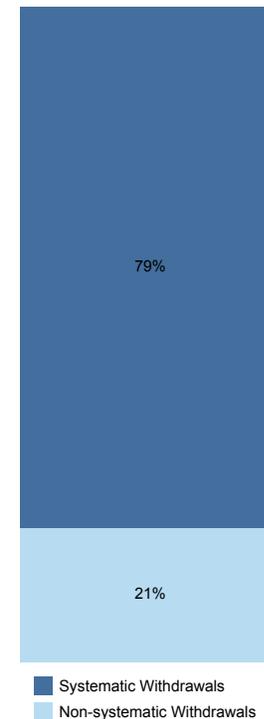
Welcome	Introduction	1. Buyer Profiles	2. Summary of Withdrawal Activity	3. Withdrawal Activity by Contract Year	4. Withdrawal Activity by Age of Owner	5. First Withdrawals Based on Proximity to Max Withdrawal Rate Increase	6. Average Withdrawal Amount by Owners' Current Age	7. Withdrawals as a Percentage of Annual Benefit Maximum	8. Withdrawals as a Percentage of Annual Benefit Maximum by Age
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Summary of Withdrawal Activity

Percentage of owners who have taken withdrawals in 2017:



Of those taking withdrawals in 2017:



Market Type
 All
 Qualified
 Non-qualified

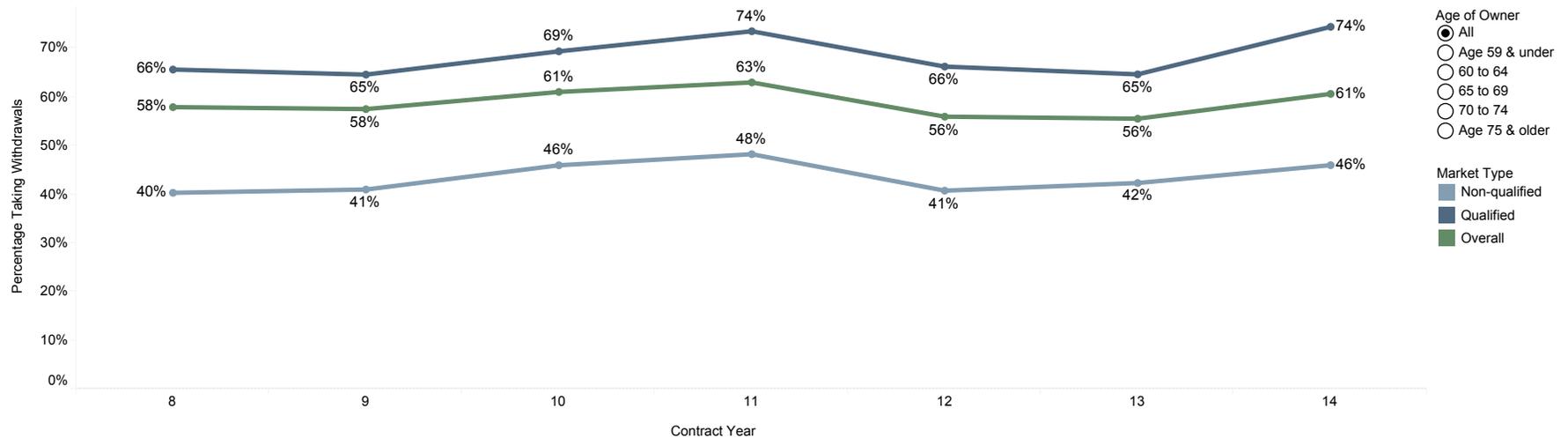
Nearly 60 percent of contracts with GMWB riders issued before 2017 and still in force at EOY had at least some withdrawal activity during 2017. Eight in ten of these contracts had systematic withdrawals. Non-qualified contracts had only 43 percent of owners taking withdrawals in 2017 but a large percentage of withdrawals were taken on a systematic basis (84%).

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Withdrawal Activity by Contract Year

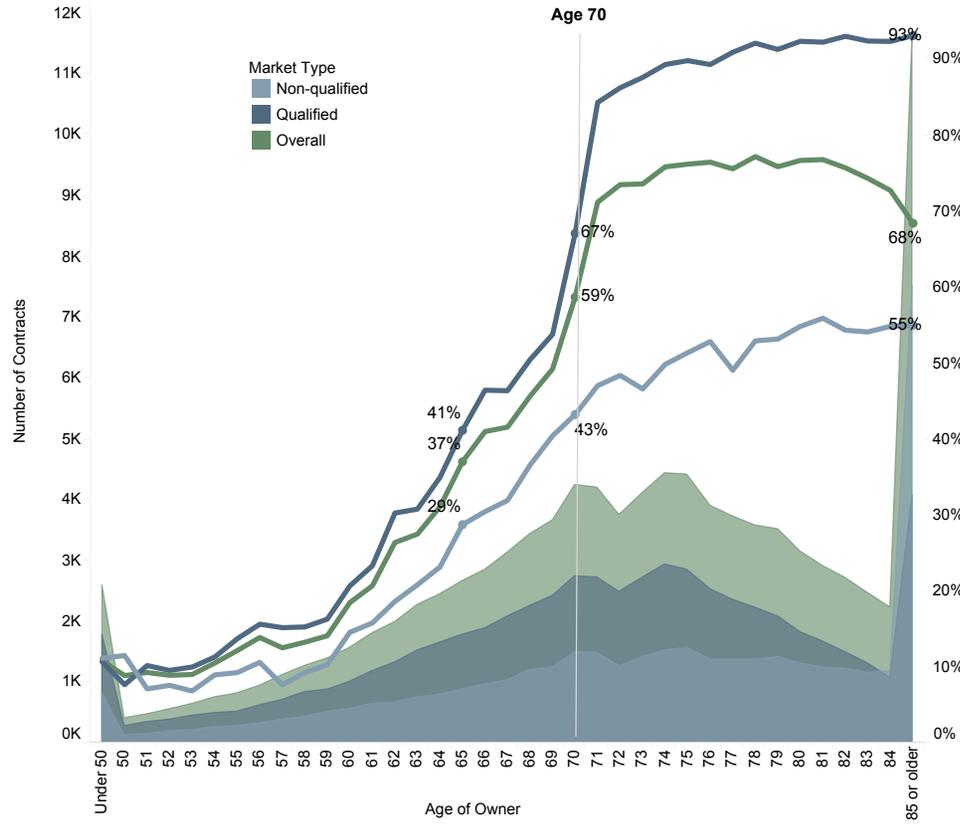
Contract duration (i.e., how long ago the contract was purchased) is important for determining what proportion of new GMWB buyers or existing GMWB owners take withdrawals from their annuities. Companies can also use contract duration to gauge their company's marketing effectiveness, and value in setting expectations with customers. Immediate utilization of the GMWB is appropriate for certain customers, but there are also circumstances in which delayed withdrawals make sense. By comparing their own withdrawal activity by contract duration to that of the industry, companies can assess the extent to which their customers' usage patterns match both their own expectations and the experience of other VA companies. The comparison could also facilitate internal forecasts by estimating when and how GMWB customers might take withdrawals and the resulting cash flow needed to manage the existing book of business. This chart examines withdrawal activity for contracts issued between 2002 and 2009. As the contract duration increases, withdrawal activity remains within a tight range.

The growth pattern in withdrawal rates for GMWBs differs from GLWBs (where we see a steady increase in the percent of owners taking withdrawals for longer duration contracts). It appears that a significant portion of GMWB owners who take withdrawals are likely to utilize their withdrawal benefits within one to two years of purchase. After that, the incremental growth over the duration is very slow, caused by owners reaching RMD age. However, this generalization assumes that most customers maintain their withdrawal behavior, at least in the short term.



Some data are suppressed for confidentiality reasons.

Withdrawal Activity by Age of Owner



Withdrawals Type

- All Withdrawals
- Systematic
- Non-Systematic

Contract Size

- Under \$50,000
- \$50,000 to \$99,999
- \$100,000 to \$249,999
- \$250,000 or more

Distribution Channel

- Bank/S&L
- Career Agent
- Direct Response
- Full Service National B-D
- Independent Agent
- Independent B-D

In-the-Moneyiness

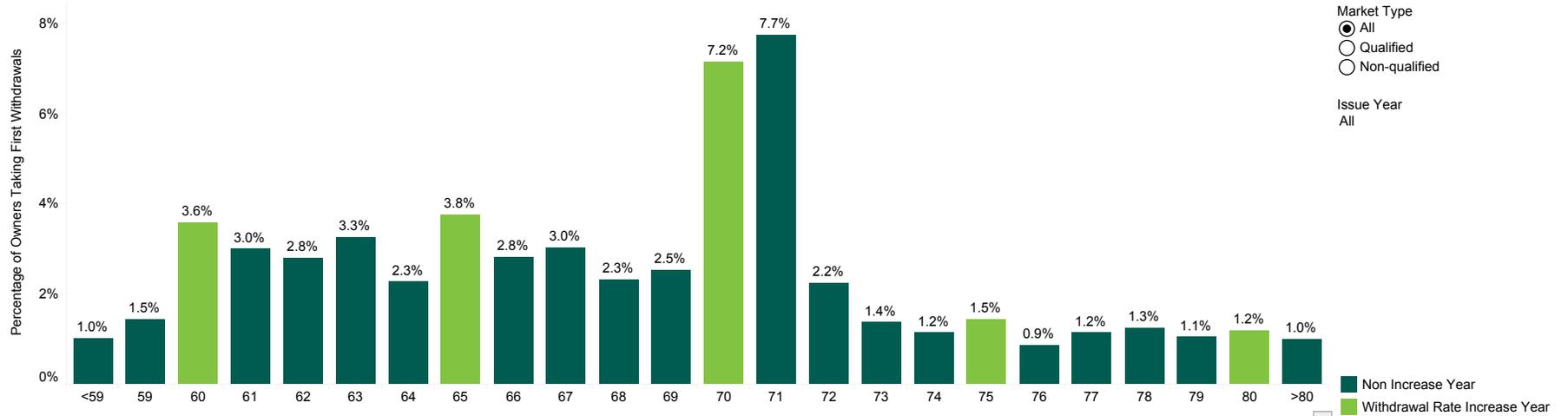
- ITM <= 75%
- ITM >75% TO 90%
- ITM >90% TO 110%
- ITM >110% TO 125%
- ITM >125%

ITM definition= Benefit Base/Contract Value so larger ratios indicate a greater degree of in-the-moneyiness

SWPs are a reliable measure of owners' intentions to continue withdrawals once they have taken their first withdrawals. It is important to compare the owners who took withdrawals through SWPs to those who took random or occasional withdrawals. Insurance companies allow GMWB owners to use SWPs to make withdrawals of the guaranteed withdrawal amount.

Introduction	1. Buyer Profiles	2. Summary of Withdrawal Activity	3. Withdrawal Activity by Contract Year	4. Withdrawal Activity by Age of Owner	5. First Withdrawals Based on Proximity to Max Withdrawal Rate Increase	6. Average Withdrawal Amount by Owners' Current Age	7. Withdrawals as a Percentage of Annual Benefit Maximum	8. Withdrawals as a Percentage of Annual Benefit Maximum by Age	9. Ratio of Withdrawals to Average Contract Value and Benefit Base	10. Ratio of Total Withdrawals
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First Withdrawals Based on Proximity to Max Withdrawal Rate Increase



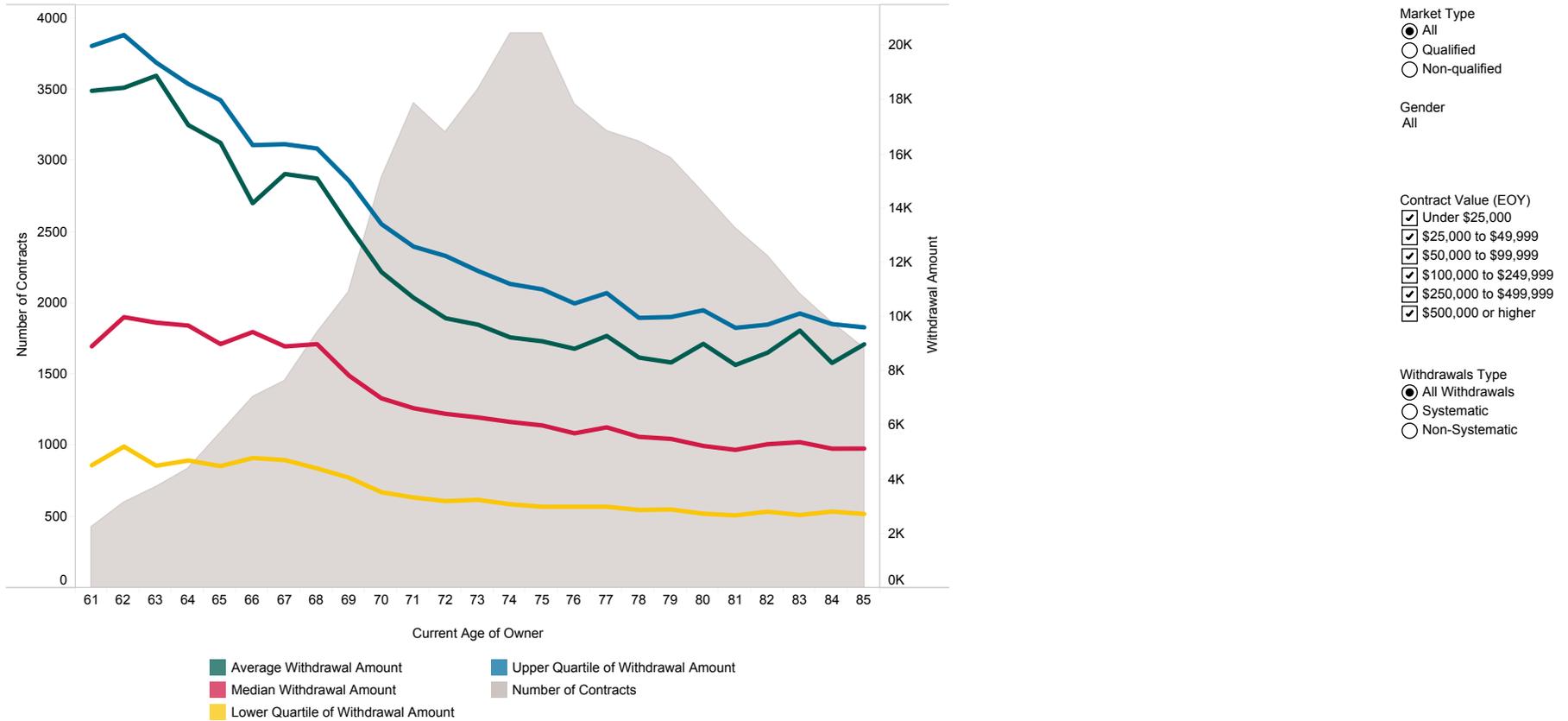
To better understand owners' inclinations to take withdrawals, we analyzed owner withdrawal behavior by considering at what age or in what year of the annuity ownership the owner is likely to initiate their first withdrawal. Also, once they start taking withdrawals, how many will continue taking withdrawals? Based on that analysis, we might expect to find corollary relationships among other variables like when owners decide to take their first withdrawals, whether their withdrawal amounts remain within or around the prescribed withdrawal maximum amount allowed in the contract, or whether the persistency of these contracts is different from contracts that have not experienced withdrawals or excess withdrawals.

Analysis of when owners are likely to take first withdrawals provides important information about withdrawal risk. These findings can help insurance companies to assess risks more precisely by identifying clusters of owners who are likely to start withdrawals in their first year, second year, etc., after purchase. There are two ways to analyze withdrawal activity: First, we can determine the percentage of owners who have initiated their first withdrawals in the current year (2017 for this report), by their age and source of money, to provide various trends and relationships. Second, we can analyze the first withdrawal history for owners from a particular issue year, and track how age and source of money influence their first withdrawal activities.

For qualified business the need to take RMDs leads to the highest percent of owners taking first withdrawals occurring at ages 70 and 71. Many insurance companies encourage annuity buyers to take withdrawals, particularly to satisfy RMDs as they turn age 70½. Most companies do not treat RMDs as excess withdrawals, even if they exceed the annual guaranteed income amount.

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Average Withdrawal Amount by Owners' Current Age

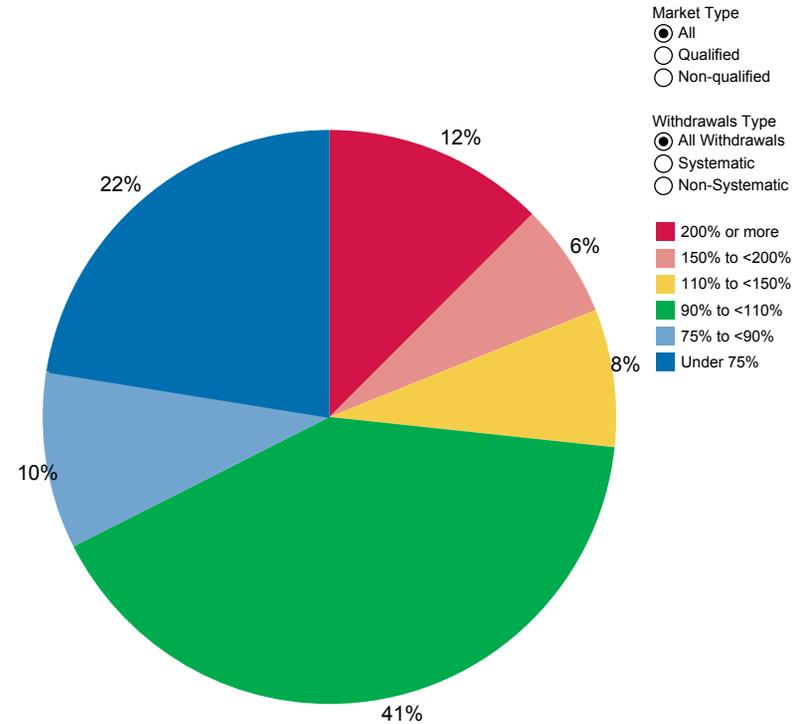


2. Summary of Withdrawal Act..	3. Withdrawal Activity by Contract Year	4. Withdrawal Activity by Age of Owner	5. First Withdrawals Based on Proximity to Max Withdrawal Rate Increase	6. Average Withdrawal Amount by Owners' Current Age	7. Withdrawals as a Percentage of Annual Benefit Maximum	8. Withdrawals as a Percentage of Annual Benefit Maximum by Age	9. Ratio of Withdrawals to Average Contract Value and Benefit Base	10. Ratio of Total Withdrawals to Total Contract Value	11. Additional Premium	12. Net Flows
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Withdrawals as Percentage of Annual Benefit Maximum

Here we look at the relationship between customers' actual withdrawal amounts in calendar year 2017 and the maximum withdrawal amount allowed in the contract. Participating companies were asked to provide this maximum amount as of BOY 2017. If companies did not provide the maximum withdrawal amount but provided the benefit base balance, as well as the maximum percentage of this base that could be withdrawn each year, then we estimated the maximum amount. We calculated the maximum withdrawal amount based on the reported maximum annual withdrawal percentage multiplied by the average benefit base balance.

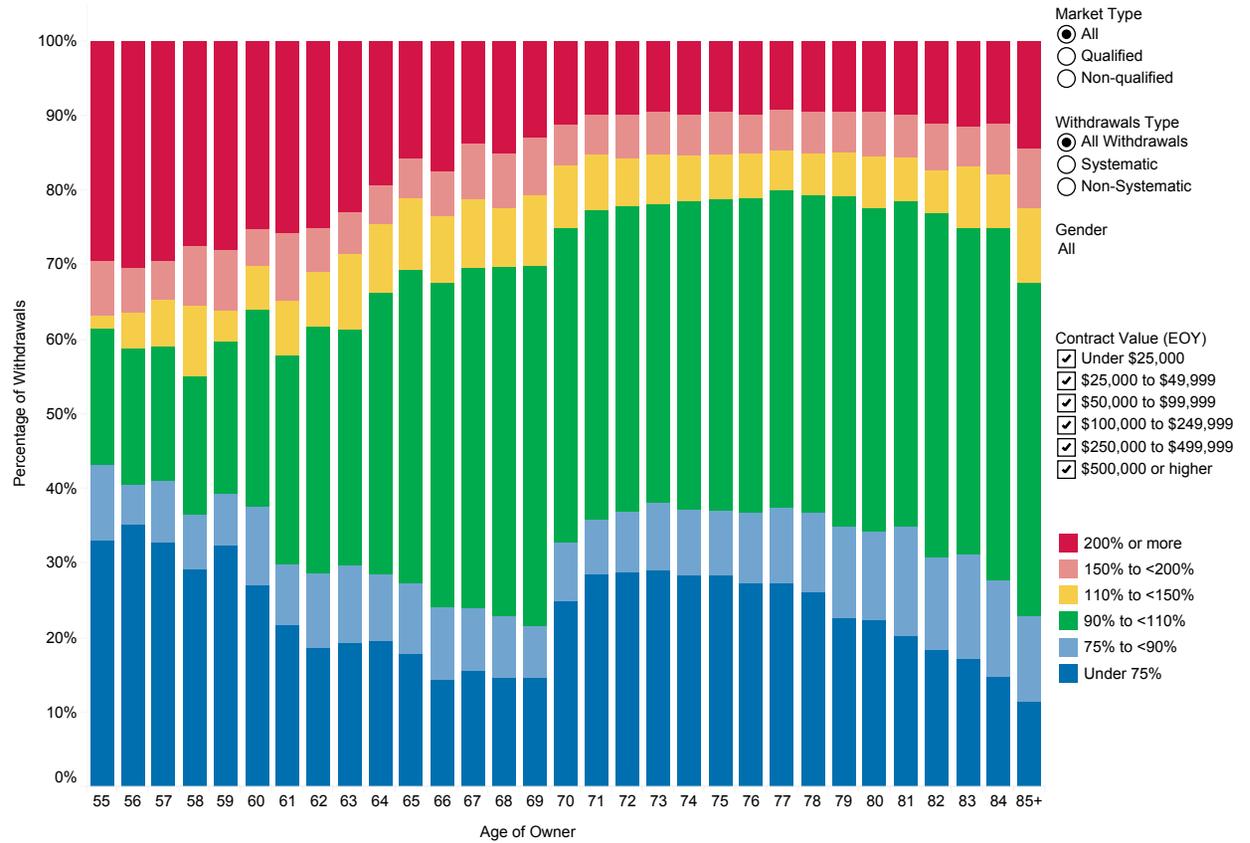
The chart shows the percent of owners taking withdrawals — and their withdrawal amounts — in relation to maximum withdrawal amount allowed in the contracts.



3. Withdrawal Activity by Co..	4. Withdrawal Activity by Age of Owner	5. First Withdrawals Based on Proximity to Max Withdrawal Rate Increase	6. Average Withdrawal Amount by Owners' Current Age	7. Withdrawals as a Percentage of Annual Benefit Maximum	8. Withdrawals as a Percentage of Annual Benefit Maximum by Age	9. Ratio of Withdrawals to Average Contract Value and Benefit Base	10. Ratio of Total Withdrawals to Total Contract Value	11. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product C..
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Withdrawals as a Percentage of Annual Benefit Maximum by Age

Looking at the age of owners and their withdrawal amounts in relation to the maximum withdrawal amount allowed, we see that most GMWB owners' withdrawal amounts are likely to remain within 110 percent or lower of the amount allowed. Some older owners may have taken withdrawals that exceeded 100 percent of the maximum limit in order to meet RMD requirements.



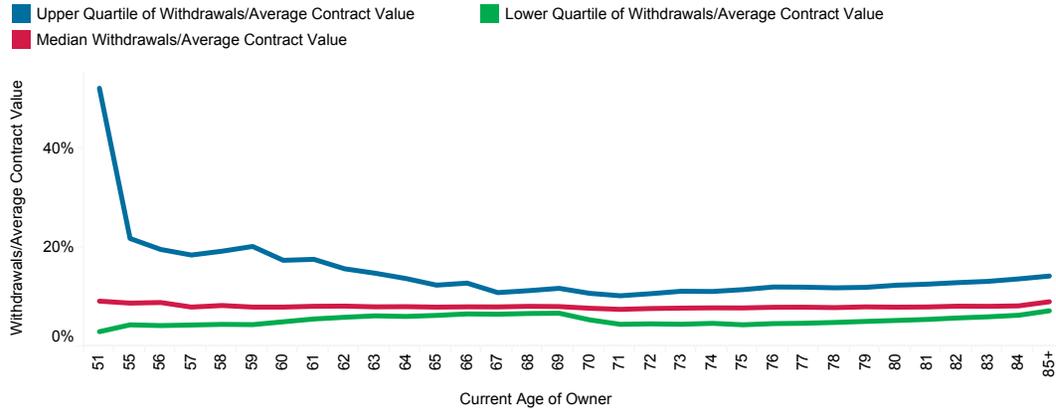
4. Withdrawal Activity by Age..	5. First Withdrawals Based on Proximity to Max Withdrawal Rate Increase	6. Average Withdrawal Amount by Owners' Current Age	7. Withdrawals as a Percentage of Annual Benefit Maximum	8. Withdrawals as a Percentage of Annual Benefit Maximum by Age	9. Ratio of Withdrawals to Average Contract Value and Benefit Base	10. Ratio of Total Withdrawals to Total Contract Value	11. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year
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Ratio of Withdrawals to Average Contract Value and Benefit Base

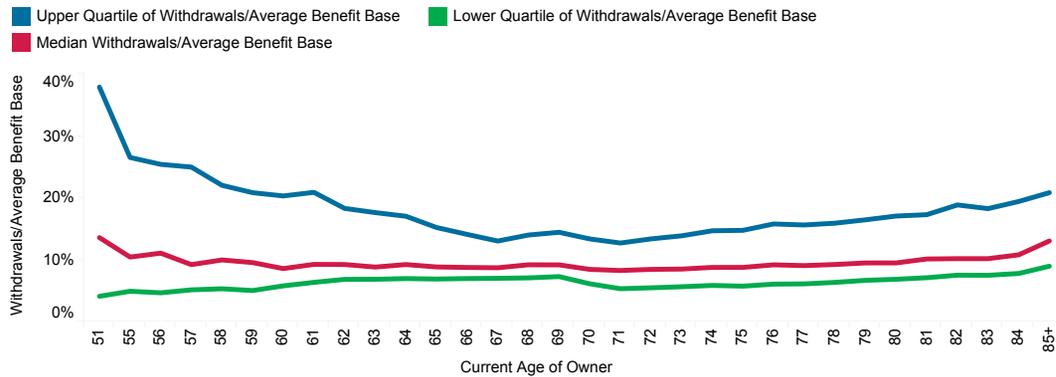
Market Type
 All
 Qualified
 Non-qualified

In-the-Moneyiness
 All
 ITM <= 75%
 ITM >75% to 90%
 ITM >90% to 110%
 ITM >110% to 125%
 ITM >125%

ITM definition= Benefit Base/Contract Value so larger ratios indicate a greater degree of in-the-moneyiness



In order to provide some context, we assessed withdrawal amounts in relation to both contract values and benefit base balances. This chart shows the median withdrawal amount for all ages and the quartile distribution of the withdrawal amounts in 2017.

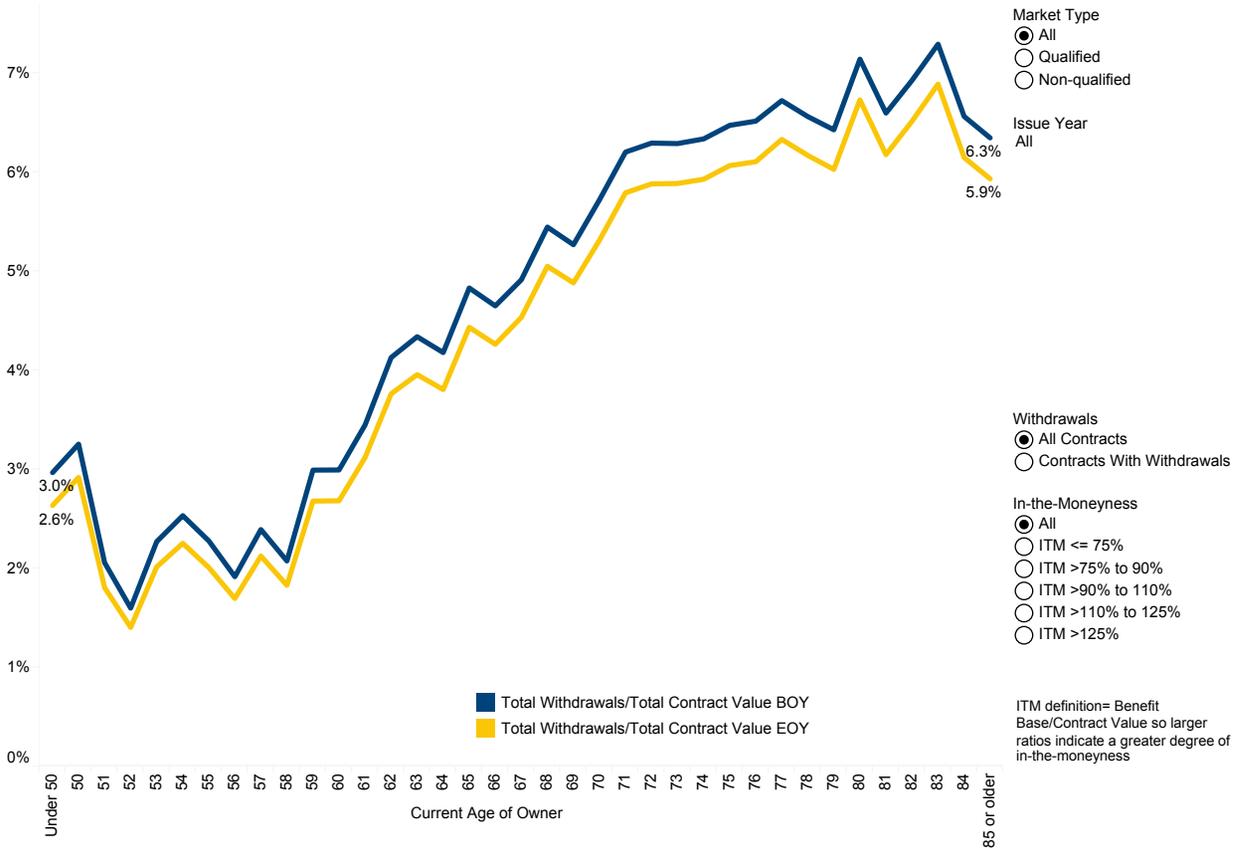


Note: The ratio of withdrawals to average contract values is calculated as the average of withdrawal amounts divided by the average of beginning and ending contract values. The ratio of withdrawals to average benefit base balances is calculated as the average of withdrawal amounts divided by the average of beginning and ending benefit base balances. In both cases, only GMWB contracts that were sold before 2017, were still in force at EOY 2017, had withdrawals in 2017, and with benefit base balance information were considered.

5. First Withdrawals Based on...	6. Average Withdrawal Amount by Owners' Current Age	7. Withdrawals as a Percentage of Annual Benefit Maximum	8. Withdrawals as a Percentage of Annual Benefit Maximum by Age	9. Ratio of Withdrawals to Average Contract Value and Benefit Base	10. Ratio of Total Withdrawals to Total Contract Value	11. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class
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Ratio of Total Withdrawals to Total Contract Value

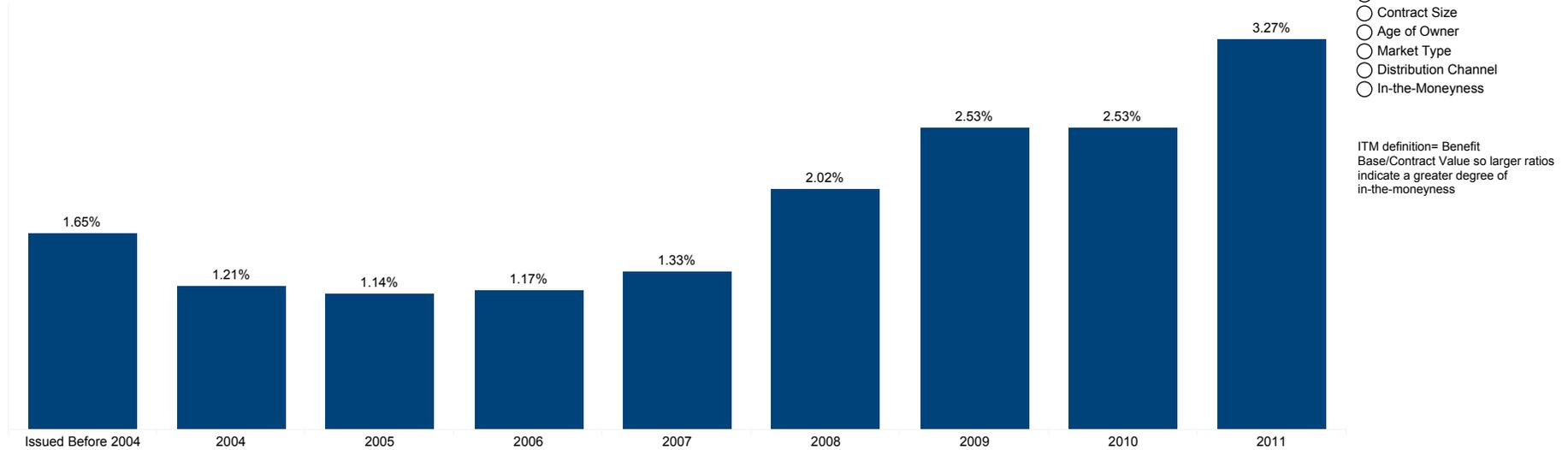
Comparing the ratio of withdrawal amounts to BOY contract values and the ratio of withdrawal amounts to EOY contract values is another measure of GMWB risk originating in customer behavior. This measure can be calculated at two levels. First, the risk associated with all contracts in the book can be ascertained by analyzing the ratio of total withdrawals in 2017 to total contract values at BOY and EOY, for all contracts in force. Second, the same ratios can be computed for only the subset of contracts that experienced withdrawals in 2017. The first measure provides a view of risk from total withdrawals in terms of the total book of business and how total withdrawals (cash outflow) impact the overall risk.



6. Average Withdrawal Amount.	7. Withdrawals as a Percentage of Annual Benefit Maximum	8. Withdrawals as a Percentage of Annual Benefit Maximum by Age	9. Ratio of Withdrawals to Average Contract Value and Benefit Base	10. Ratio of Total Withdrawals to Total Contract Value	11. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level
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Additional Premium

Percentage of Contracts Receiving Additional Premium in 2017



- Select Breakout
- Year of Issue
 - Contract Size
 - Age of Owner
 - Market Type
 - Distribution Channel
 - In-the-Moneyness

ITM definition= Benefit Base/Contract Value so larger ratios indicate a greater degree of in-the-moneyness

Some data are suppressed for confidentiality reasons.

Many retail VAs allow owners to add premium after issue, though in practice most contracts do not receive ongoing deposits. For some GMWBs, the calculation of the benefit base balance will incorporate premium that is received within a certain time period after the issue of contract. Among contracts sold in 2017 or earlier:

- Only 2 percent received additional premium during 2017.

7. Withdrawals as a Percentage of Annual Benefit Maximum by Age	8. Ratio of Total Withdrawals to Average Contract Value and Benefit Base	9. Ratio of Total Withdrawals to Total Contract Value	10. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals
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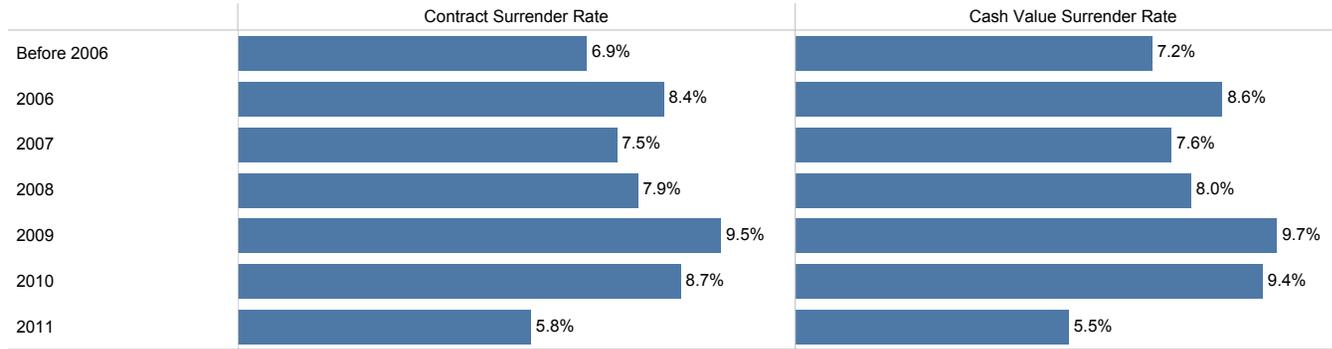
Net Flows

	In-Force BOY	Total Contract Value	Number of Contracts	Average Contract Size
		\$12.3B	114,698	\$107,134
Premium Received	Existing Contracts	\$0.0B		
	Newly Issued Contracts	\$0.1B	433	\$161,071
Benefits Paid	Annuitizations	\$0.0B	135	\$111,351
	Death/Disability	\$0.2B	1,998	\$102,587
	Full Surrenders	\$1.1B	9,785	\$110,001
	Partial Withdrawals	\$0.8B		
	Investment Growth	\$1.0B		
	In-Force EOY	\$14.1B	121,283	\$116,127

8. Withdrawals as a Percentage of...	9. Ratio of Withdrawals to Average Contract Value and Benefit Base	10. Ratio of Total Withdrawals to Total Contract Value	11. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit M..
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Surrender Rates by Selected Owner and Product Characteristics

- Select Breakout
- Year of Issue
 - Age of Owner
 - Contract Value BOY
 - Gender
 - Market Type
 - Distribution Channel
 - Cost Structure



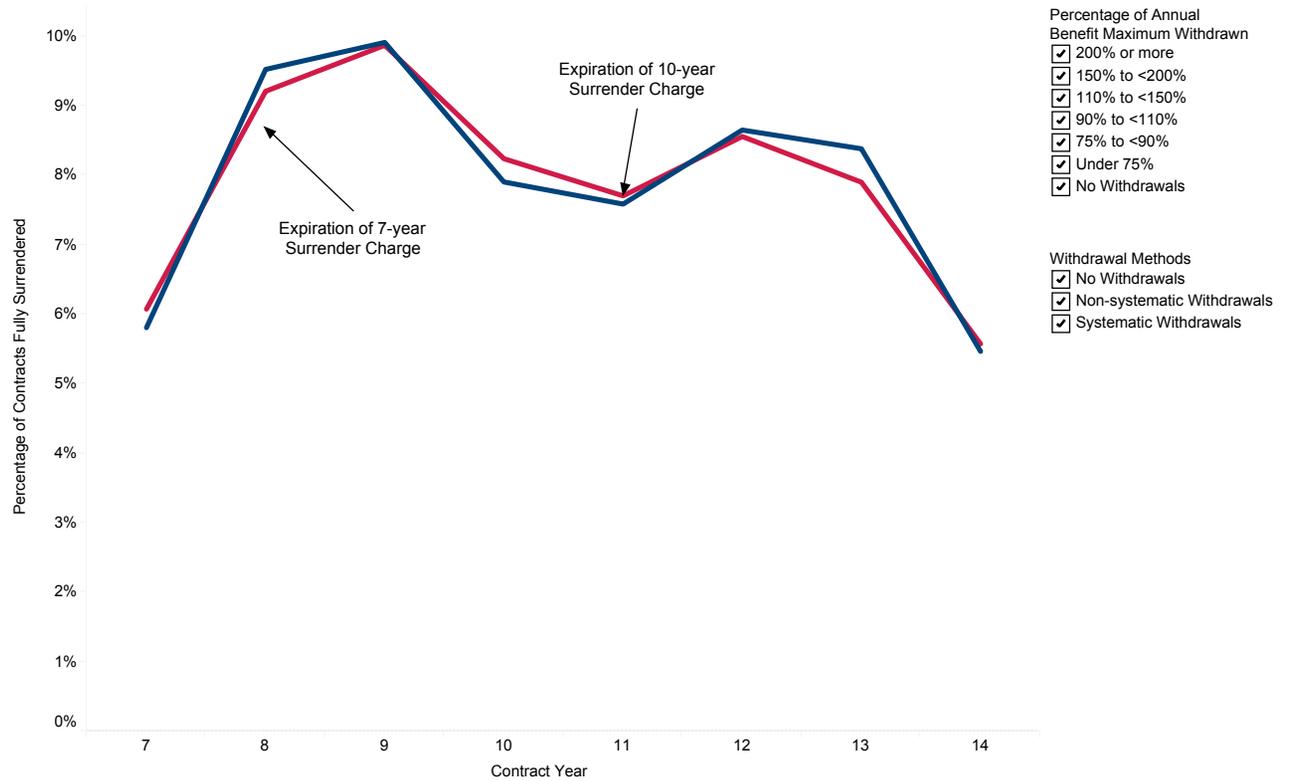
Some data are suppressed for confidentiality reasons.

This tab provides a summary of surrender rates by various product and owner characteristics.

9. Ratio of Withdrawals to A..	10. Ratio of Total Withdrawals to Total Contract Value	11. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method
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Contract Surrender Rates by Contract Year

Surrender activity for VAs with GMWBs is a critical factor in measuring liability. If persistency is very high among contracts with benefit base balance amounts that are larger than the contract value, then insurers may have payouts that are larger or for longer durations than anticipated. The presence of living benefits on VAs may lead owners to keep their contracts beyond the surrender penalty period, thereby keeping more of an insurer's fee-generating assets under management. Surrender rates in 2017 among GMWB contracts issued before 2016 peaked around the end of the 7-year surrender charge period and at the 10th anniversary as one would expect given the operation of the product's features.

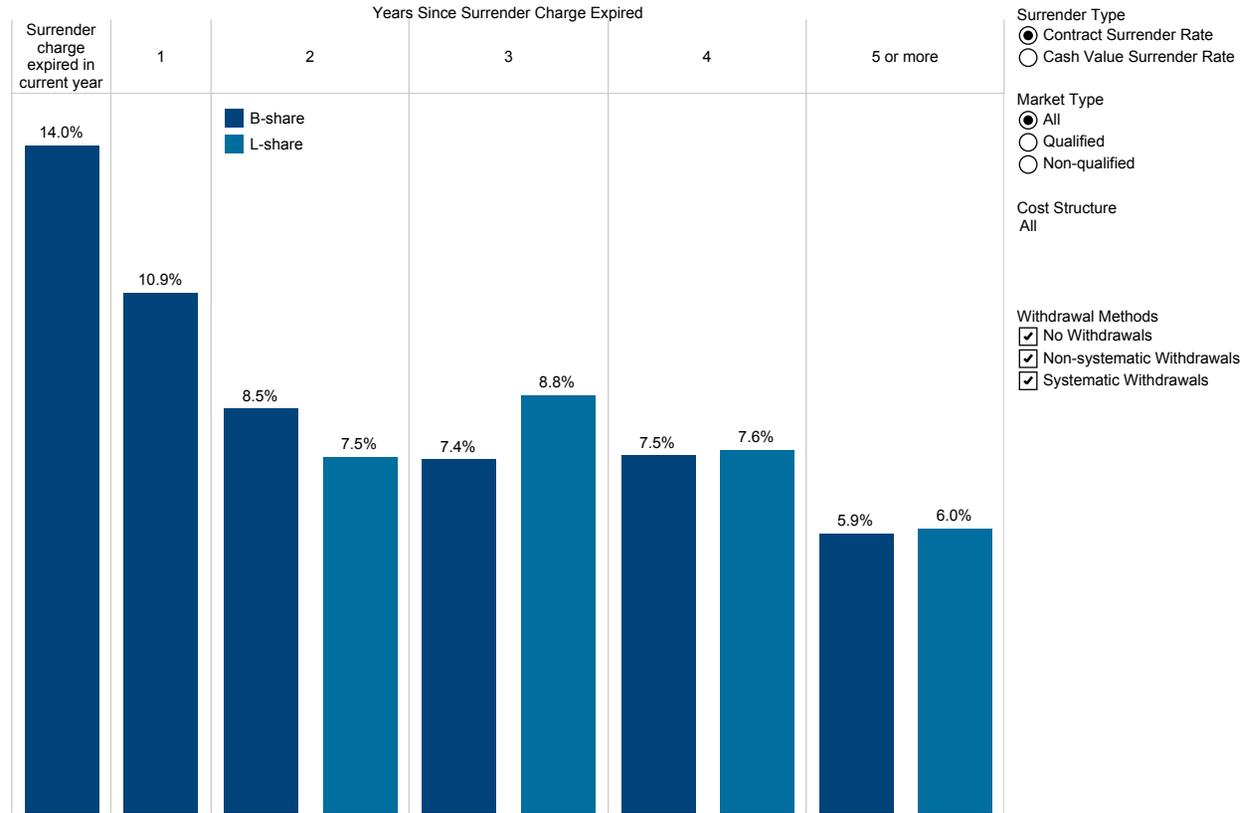


Some data are suppressed for confidentiality reasons.

10. Ratio of Total Withdrawals	11. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Excess
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Surrender Rates by Share Class

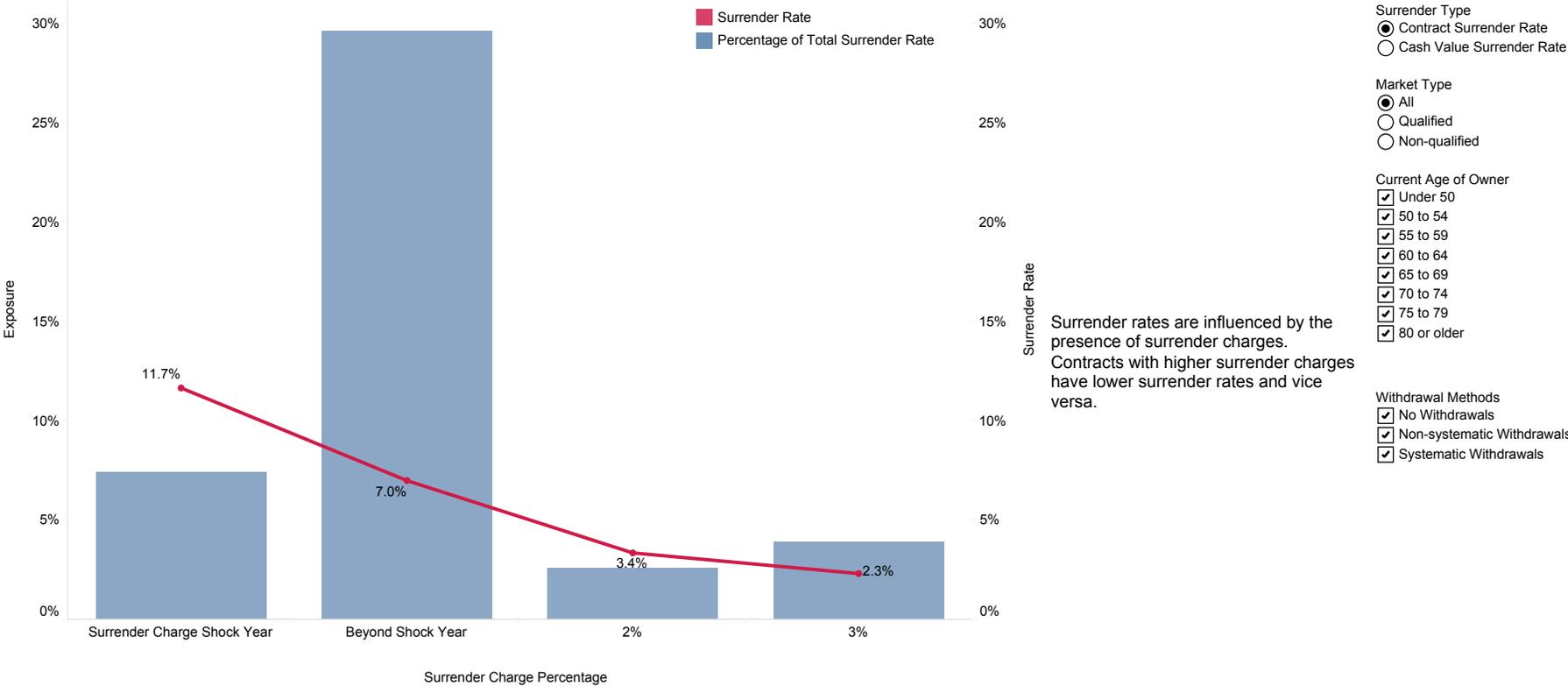
Persistency for contracts with surrender charges is higher than for contracts without surrender charges.



Some data are suppressed for confidentiality reasons.

11. Additional Premium	12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary
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Surrender Rates by Surrender Charge Level



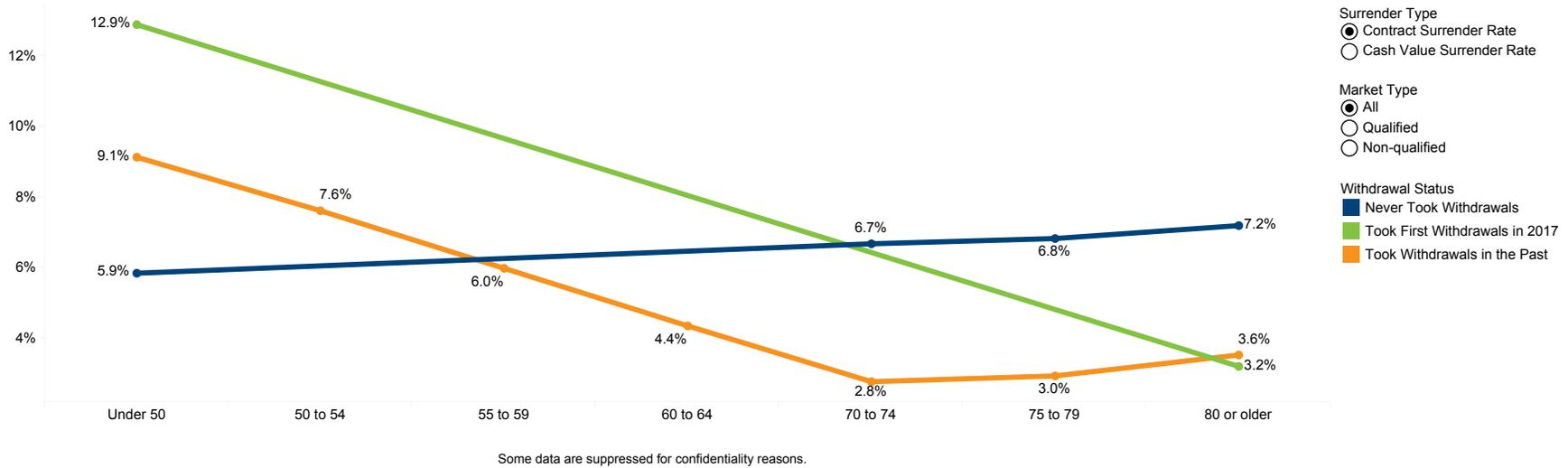
Some data are suppressed for confidentiality reasons.

Surrender rates are influenced by the presence of surrender charges. Contracts with higher surrender charges have lower surrender rates and vice versa.

- Surrender Type
 - Contract Surrender Rate
 - Cash Value Surrender Rate
- Market Type
 - All
 - Qualified
 - Non-qualified
- Current Age of Owner
 - Under 50
 - 50 to 54
 - 55 to 59
 - 60 to 64
 - 65 to 69
 - 70 to 74
 - 75 to 79
 - 80 or older
- Withdrawal Methods
 - No Withdrawals
 - Non-systematic Withdrawals
 - Systematic Withdrawals

12. Net Flows	13. Surrender Rates by Selected Owner and Product Characteristics	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Qua..
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Surrender Rates by Timing of Withdrawals

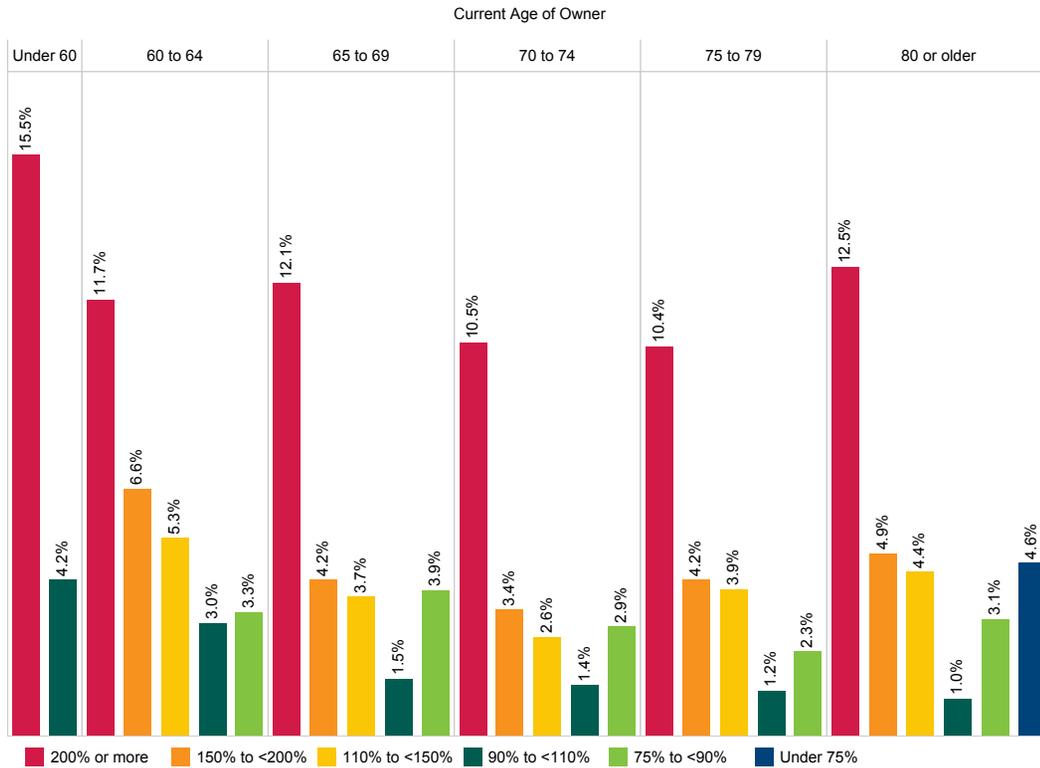


Owners who did not take withdrawals in 2017 had higher surrender rates than those who took withdrawals. When GMWB owners — particularly those aged 70 and older — took withdrawals, the surrender rates were relatively low. Younger owners who take withdrawals, particularly those under age 65, have higher surrender rates than older owners who take withdrawals. We have already shown that even though younger owners own a significant portion of GMWB contracts, they are not likely to take withdrawals. When these younger owners take withdrawals, they typically do so with occasional withdrawals. Moreover, their average withdrawal amount is much higher, and not likely supported by the guaranteed benefit base in their contracts.

Past withdrawals (taken before the analysis year) can also indicate increased likelihood that owners will surrender earlier than expected.

13. Surrender Rates by Selection	14. Surrender Rates by Contract Year	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Quarter	23. Ratio of Benefit Base to Contract Value by Age
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Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn



Surrender Type
 Contract Surrender Rate
 Cash Value Surrender Rate

Market Type
 All
 Qualified
 Non-qualified

Contract Size
 Under \$100,000
 \$100,000 to \$249,999
 \$250,000 or more

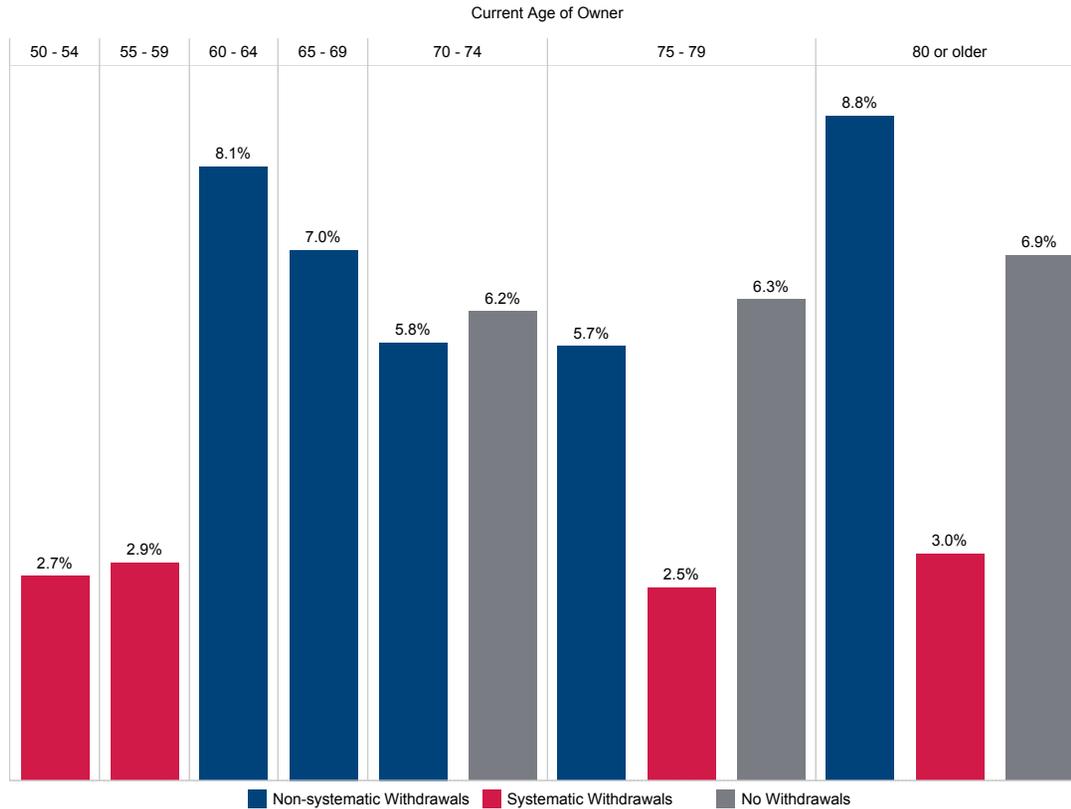
This tab shows the contract surrender rates among owners who took withdrawals in 2017 by the percentage of annual benefit maximum withdrawn. Contract surrender rates were higher for owners who took withdrawals below 75 percent of the maximum allowed in the contracts, and for owners who took 200 percent or more of the maximum allowed in the contracts.

Similar to GLWBs, the GMWB surrender rates show a U-shaped relationship to the percentage of annual benefit maximum withdrawn — those with very low and very high ratios of withdrawals to the maximum allowed— have higher surrender rates than those in the middle categories. This relationship holds true across all age groups.

Some data are suppressed for confidentiality reasons.

14. Surrender Rates by Contr..	15. Surrender Rates by Share Class	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Quarter	23. Ratio of Benefit Base to Contract Value by Age	24. Product & Benefit Characteri.
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Surrender Rates by Withdrawal Method



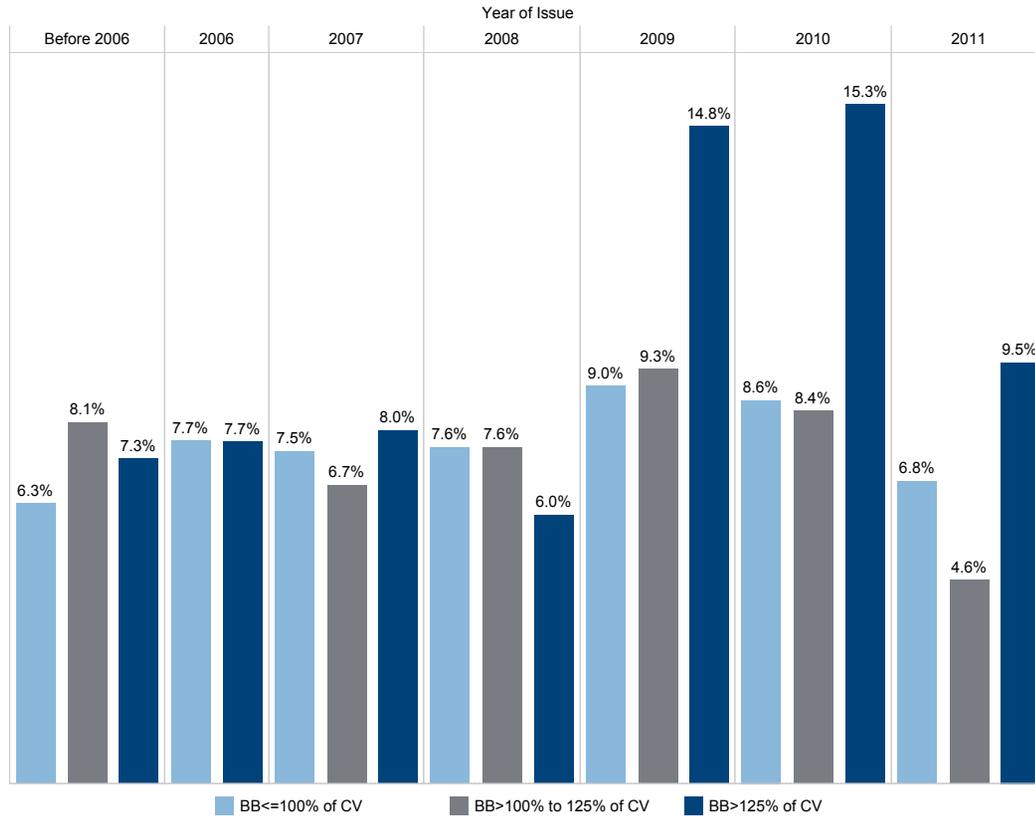
Some data are suppressed for confidentiality reasons.

Another strong indicator of whether owners are likely to surrender their contracts is the method they use to take withdrawals — systematic or non-systematic. As we have seen, owners who use systematic withdrawals are less likely to take more than the benefit maximum. And younger owners are taking more excess withdrawals.

- Surrender Type
 - Contract Surrender Rate
 - Cash Value Surrender Rate
- Market Type
 - All
 - Qualified
 - Non-qualified
- Contract Size
 - Under \$25,000
 - \$25,000 to \$49,999
 - \$50,000 to \$99,999
 - \$100,000 to \$249,999
 - \$250,000 to \$499,999
 - \$500,000 or higher
- Presence of Surrender Charge
 - All

15. Surrender Rates by Share..	16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Quarter	23. Ratio of Benefit Base to Contract Value by Age	24. Product & Benefit Characteristics	25. Participant List
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Surrender Rates by Amount Benefit Base Exceeds Contract Value



Some data are suppressed for confidentiality reasons.

Another factor that influenced surrender rates involves whether contracts had benefit base balances that exceeded the contract values. In general, surrender rates are lower for contracts where the benefit base balance exceeds the contract value. GMWB owners appear to be sensitive to the amount that the benefit base balance exceeds the contract value when deciding whether to surrender their contracts. Actuaries need to account for this sensitivity when setting assumptions for lapse behavior.

Surrender Type

- Contract Surrender Rate
- Cash Value Surrender Rate

Market Type

- All
- Qualified
- Non-qualified

Age of Owner

- Age 59 & under
- 60 to 64
- 65 to 69
- 70 to 74
- 75 to 79
- 80 or older

ITM definition= Benefit Base/Contract Value
so larger ratios indicate a greater degree of in-the-moneyness

16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Quarter	23. Ratio of Benefit Base to Contract Value by Age	24. Product & Benefit Characteristics	25. Participant List
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Benefit Base and Contract Value Summary

	Benefit Base (BB) BOY	BB EOY	Contract Value (CV) BOY	CV EOY	CV/BB BOY	CV/BB EOY	Market Type
Total	\$11,575,152,876	\$11,331,943,067	\$12,835,555,699	\$13,862,130,802	110.9%	122.3%	<input checked="" type="radio"/> All <input type="radio"/> Qualified <input type="radio"/> Non-qualified
Average	\$97,040	\$95,001	\$107,607	\$116,213	110.9%	122.3%	Age of Owner <input checked="" type="radio"/> All <input type="radio"/> Age 59 & under <input type="radio"/> 60 to 64 <input type="radio"/> 65 to 69 <input type="radio"/> 70 to 74 <input type="radio"/> Age 75 & older
Median	\$60,000	\$57,376	\$68,843	\$73,528	114.7%	128.2%	Issue Year <input checked="" type="checkbox"/> Before 2008 <input checked="" type="checkbox"/> 2008 <input checked="" type="checkbox"/> 2009 <input checked="" type="checkbox"/> 2010 <input checked="" type="checkbox"/> 2011 <input checked="" type="checkbox"/> 2012 <input checked="" type="checkbox"/> 2013 <input checked="" type="checkbox"/> 2014 <input checked="" type="checkbox"/> 2015

Percentage of contracts where benefit base was greater than contract value:

Beginning of Year **30.2%**

End of Year **7.4%**

At beginning-of-year (BOY) 2017, 30 percent of contracts with GMWBs issued before 2017 had benefit base balances that exceeded contract values.

In 2017, the S&P 500 index was up nearly 19 percent, excluding dividends. .As a result, the percent of GMWB contracts that had a benefit base balance amount greater than the contract value at EOY 2017 was 7.4%.

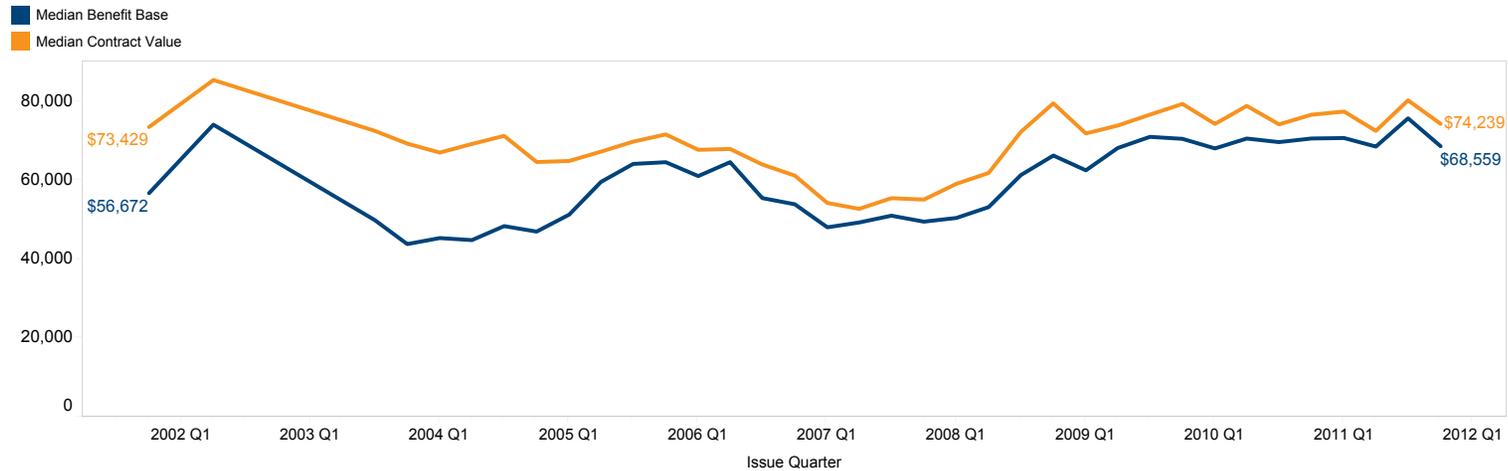
- Withdrawal Activity
- All
 - No Withdrawals
 - Withdrawals

16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Quarter	23. Ratio of Benefit Base to Contract Value by Age	24. Product & Benefit Characteristics	25. Participant List
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Contract Value and Benefit Base by Issue Quarter

For GMWB contracts that incurred withdrawals in 2017, the average benefit base balance decreased during the year. The improved investment performance over 2016 also led to an increase in the contract value for this group.

The average contract value remained slightly below the average benefit base for contracts issued between 2005 and 2007 and was slightly above the average benefit base for contracts issued in 2008 and later.



Some data are suppressed for confidentiality reasons.

Source: Oxford Economics

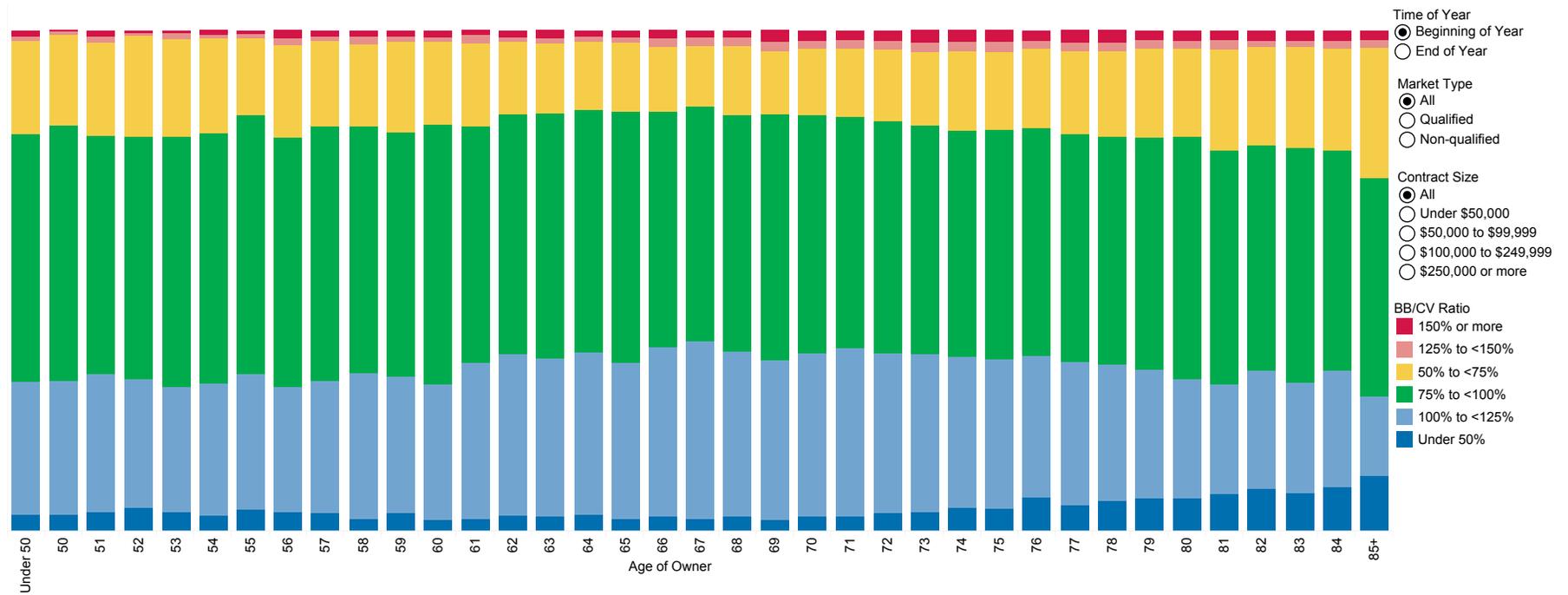
- Time of Year
 - Beginning of Year
 - End of Year
- Benefit Base and Contract Value
 - Dollar Amounts
 - Ratios
- Median or Quartiles
 - Median
 - Quartiles
- Economic Data
 - None
 - 10-year Treasury Yield
 - S&P 500
- Market Type
 - All
 - Qualified
 - Non-qualified
- Withdrawal Activity
 - All
 - No Withdrawals
 - Withdrawals

16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Quarter	23. Ratio of Benefit Base to Contract Value by Age	24. Product & Benefit Characteristics	25. Participant List
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Ratio of Benefit Base to Contract Value by Age

This tab shows the BB/CV ratios by age at BOY and EOY 2017.

As expected the percentage of contracts with ratios over 110 percent generally decreased during the year.



16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Quarter	23. Ratio of Benefit Base to Contract Value by Age	24. Product & Benefit Characteristics	25. Participant List
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Product & Benefit Characteristics

Average Charges and Number of Subaccounts by Issue Year

	2006	2007	2008	2009	2010	2011
Average Mortality and Expense Charge	1.21%	1.41%	1.39%	1.38%	1.36%	1.30%
Average Benefit Fee	0.47%	0.45%	0.44%	0.56%	0.63%	0.62%
Average Number of Subaccounts	67.98	61.90	64.13	73.31	71.51	64.91
Average Maximum Age of Election	81.88	82.75	83.31	84.80	85.00	85.00

Some data are suppressed for confidentiality reasons.

Product Features – Distribution by Issue Year

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
No	32%	36%	31%	24%	10%	5%	4%	3%	3%	99%
Yes	68%	64%	69%	76%	90%	95%	96%	97%	97%	1%

- Product has fixed account
- Product still available as of EOY
- Rider still available as of EOY
- Cap on benefits
- Benefit fee basis
- Asset allocation restrictions
- Step-up availability
- Benefit base automatically increases if withdrawals are deferred
- Maximum annual withdrawal percent
- Impact on benefit base if excess withdrawals are taken

16. Surrender Rates by Surrender Charge Level	17. Surrender Rates by Timing of Withdrawals	18. Surrender Rates by Percentage of Annual Benefit Maximum Withdrawn	19. Surrender Rates by Withdrawal Method	20. Surrender Rates by Amount Benefit Base Exceeds Contract Value	21. Benefit Base and Contract Value Summary	22. Contract Value and Benefit Base by Issue Quarter	23. Ratio of Benefit Base to Contract Value by Age	24. Product & Benefit Characteristics	25. Participant List
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Participants

AIG
 Ameritas
 Brighthouse
 CUNA Mutual
 Equitable Financial
 Lincoln National
 MetLife
 Nassau Re
 Nationwide
 New York Life
 Pacific Life
 Principal Financial
 Protective
 Prudential
 RiverSource Annuities
 Securian/Minnesota Life
 Security Benefit
 Transamerica