



Variable Annuity Guaranteed Living Benefits Utilization

2015 EXPERIENCE

A Joint Study Sponsored by the
Society of Actuaries and LIMRA



Variable Annuity Guaranteed Living Benefits Utilization

2015 EXPERIENCE

Participants' Report

A Joint Study Sponsored by The Society of Actuaries and LIMRA



Project Team:

Matthew Drinkwater, Ph.D., FSRI, FLMI, AFSI, PCS
Assistant Vice President

LIMRA Secure Retirement Institute
860-285-7743
mdrinkwater@limra.com

Jafor Iqbal
Assistant Vice President

LIMRA Secure Retirement Institute
860-285-7747
jiqbal@limra.com

Todd Giesing
Director, Annuity Research

LIMRA Secure Retirement Institute
860-285-7899
tgiesing@limra.com

Eugene Noble
Research Analyst

LIMRA Secure Retirement Institute
860-285-7862
enoble@limra.com

©2018, Society of Actuaries and LL Global, Inc.™ All rights reserved.

This publication is a benefit of Society of Actuaries and LIMRA membership. No part may be shared with other organizations or reproduced in any form without the SOA or LL Global's written permission.

Contents

About the Study	17
Executive Summary	19
Chapter One: Guaranteed Lifetime Withdrawal Benefits	35
Buyer and Owner Profiles	36
Buyers by Age.....	40
Source of Funds.....	41
Ownership of IRA and Nonqualified Annuities.....	44
GLWB Owner and Contract Characteristics.....	45
Benefit Base	48
Benefit Base by Quarter and Year of Issue.....	50
Benefit Base to Contract Value Ratios by Age.....	55
Benefit Base for Contracts with Withdrawals versus without Withdrawals.....	58
Withdrawal Benefit Utilization	60
Utilization.....	60
Overall Utilization for Contracts Issued Before 2015.....	61
Withdrawal Activity by Source of Funds.....	64
Taking First Withdrawals.....	68
Taking First Withdrawal from IRA Annuity in 2015.....	68
Taking First Withdrawal from Nonqualified Annuity in 2015.....	71
Impact of Step-Ups in Maximum Annual Withdrawal Percentages on First Withdrawal Activity.....	73
First Withdrawal Activity for IRA Contracts Issued in 2007.....	74
First Withdrawal Activity for Nonqualified Contracts Issued in 2007.....	78
Systematic Withdrawal Activity.....	82
First Withdrawals Through SWPs for IRA Contracts Issued in 2007.....	84
First Withdrawal Through SWPs for Nonqualified Contracts Issued in 2007.....	86
Percentage of Benefit Maximum Withdrawn.....	88
Withdrawal Activity by Duration.....	95
Withdrawal Activity by Duration and Age.....	97
Withdrawals in Contracts With Non-Withdrawal Incentives.....	99
Average Withdrawal Amounts.....	100
Withdrawals as a Percentage of Contract Value and Benefit Base.....	101
Total Withdrawal Amount versus Total Contract Value.....	103
Withdrawal Activity in Single- and Joint-Lives Contracts.....	104
Withdrawal Activity by Channel.....	106
In-the-Money Analyses.....	107
Withdrawal Activity for Contracts In-the-Money or Not-in-the-Money.....	108
Withdrawal Activity for Contracts Issued in 2015.....	111
Utilization by Selected Characteristics.....	112
GLWB Actuarial Present Value of Future Payments	114
Additional Premium and Net Flows	116
Persistency	119
Surrender Activity by Share Class and Presence of Surrender Charge.....	121
Surrender Activity of Owners Taking Withdrawals.....	124
Surrender Activity by Percentage of Annual Benefit Maximum Withdrawn.....	127
Surrender Activity by Owners Taking Systematic Withdrawals.....	129
Surrender Activity Based on the Amount the Benefit Base Exceeds Contract Value.....	130
Product and Benefit Characteristics	135

Chapter Two: Guaranteed Minimum Withdrawal Benefits	141
GMWB Owner and Contract Characteristics	142
Benefit Base Balance	144
Benefit Base Balance for Contracts with Withdrawals versus Without Withdrawals.....	145
Benefit Base Balance to Contract Value Ratios by Age.....	146
Withdrawal Activity	148
Overall Utilization for Contracts Issued Before 2015.....	148
Withdrawal Activity by Source of Funds.....	149
Taking First Withdrawals.....	152
Taking First Withdrawal from IRA Annuity in 2015.....	153
Taking First Withdrawal from Nonqualified Annuity in 2015.....	154
First Withdrawal Activity for Contracts Issued in 2007.....	154
Systematic Withdrawal Activity.....	156
Percentage of Benefit Maximum Withdrawn.....	158
Withdrawal Activity by Duration.....	165
Average Withdrawal Amounts.....	166
Withdrawals as a Percentage of Contract Value and Benefit Base Balance.....	168
Ratio of Withdrawal to Contract Value and Benefit Base Balance.....	170
Ratio of Total Withdrawal Amount to Total Contract Value.....	171
Withdrawal Activity in Contracts Where the Benefit Base Balance Exceeded the Contract Value.....	172
Utilization by Select Characteristics.....	176
Additional Premium and Net Flows	178
Persistency	179
Surrender Activity of Owners Taking Withdrawals.....	180
Surrender Activity by Share Class and Presence of Surrender Charge.....	182
Surrender Activity by Percentage of Benefit Maximum Withdrawn.....	184
Surrender Activity by Owners Taking Withdrawals by Withdrawal Method.....	186
Product and Benefit Characteristics	190
Chapter Three: Guaranteed Minimum Income Benefits	195
Owner Profiles	196
Source of Funds and Ownership of GMIBs.....	196
GMIB Owner and Contract Characteristics	197
Benefit Base	199
Benefit Bases by Quarter and Year of Issue.....	200
Benefit Base to Contract Value Ratios by Age.....	204
Benefit Base for Contracts With Withdrawals versus Without Withdrawals.....	206
In-the-Money	206
GMIB Benefit Calculation Methods	211
Annuitization	212
Contracts With Benefit Maturities in 2014 or 2015.....	213
Withdrawal Activity	217
Withdrawals.....	217
Overall Withdrawals From Contracts Issued Before 2015.....	217
Withdrawal Activity by Benefit Reduction Methods.....	218
Withdrawal Activity by Source of Funds.....	218
First Withdrawals.....	221
First Withdrawals From IRA Annuity in 2015.....	222
First Withdrawal From Nonqualified Annuity in 2015.....	224

First Withdrawal Activity for IRA Contracts Issued in 2008	226
First Withdrawal Activity for Nonqualified Contracts Issued in 2008.....	228
Systematic Withdrawal Activity.....	229
Percentage of Maximum Annual Benefit Withdrawn.....	232
Withdrawal Activity by Duration.....	238
Withdrawal Activity by Duration and Age	240
Withdrawal Amount as a Percentage of Contract Value	240
Ratio of Withdrawal to Contract Value and to Benefit Base (for Contracts With Withdrawals Only).....	242
Ratio of Withdrawal Amount to Contract Value	243
Withdrawal Activity for GMIB Contracts In-the-Money or Not-In-the-Money.....	245
Withdrawals by Selected Characteristics	248
Additional Premium and Net Flows.....	249
Persistency	250
Surrender Activity by Share Class	252
Surrender Activity of Owners Who Take Withdrawals.....	254
Surrender Activity by Percentage of Annual Benefit Maximum Withdrawn	257
Surrender Activity of Owners Taking Systematic Withdrawals	258
Surrender Activity by Amount the Benefit Base Exceeded the Contract Value	260
Surrender Activity by GMIB Benefit Maturity Year	262
Chapter Four: Guaranteed Minimum Accumulation Benefits.....	267
Owner Profiles	268
Ownership of IRA and Nonqualified GMAB Annuities.....	268
GMAB Owner and Contract Characteristics	270
Benefit Base.....	272
Benefit Base by Quarter and Year of Issue	273
Benefit Base for Contracts with Withdrawals versus Without Withdrawals.....	277
Benefit Base to Contract Value Ratios by Age.....	279
GMAB Benefit Calculation Method.....	280
Benefit Maturity.....	281
Benefit Maturity of GMAB Contracts	281
Year of Benefit Maturity	282
Withdrawal Activity	284
Withdrawal Activity by Source of Funds	285
Average Amount of Withdrawals	287
Systematic Withdrawal Activity.....	288
Additional Premium and Net Flows.....	289
Persistency	290
Surrender Activity by Share Class and Surrender Charge.....	291
Surrender Activity by Owners Who Took Withdrawals.....	294
Surrender Activity when Benefit Base Exceeded the Contract Value	298
Product and Benefit Characteristics	302
Participating Companies.....	305
Appendix A: About the Survey.....	306
Appendix B	308
Appendix C.....	335
Related Links.....	338

Figures

Figure 1-1: GLWB Buyers by Age at Time of Purchase, 2011–2015.....	37
Figure 1-2: Percentage of GLWB Buyers Over and Under Age 60 at Time of Purchase.....	38
Figure 1-3: New GLWB Buyers in 2015 by Age.....	40
Figure 1-4: GLWB Contracts by Source of Funds.....	41
Figure 1-5: GLWB Ownership by Sources of Funds and Age Groups.....	44
Figure 1-6: S&P 500 Index, January – December 2015.....	48
Figure 1-7: GLWB Median Contract Value vs. Benefit Base, BOY 2015.....	51
Figure 1-8: GLWB Benefit Base to Contract Value, BOY 2015.....	52
Figure 1-9: GLWB Median Contract Value vs. Benefit Base, EOY 2015.....	53
Figure 1-10: GLWB Benefit Base to Contract Value, EOY 2015.....	54
Figure 1-11: GLWB Average Contract Values and Benefit Bases at BOY, on Anniversary Date, and at EOY 2015.....	55
Figure 1-12: GLWB Benefit Base to Contract Value Ratios by Age — at BOY 2015.....	56
Figure 1-13: GLWB Benefit Base to Contract Value Ratios by Age — at EOY 2015.....	57
Figure 1-14: GLWB Average Contract Values and Benefit Bases for Contracts Without Withdrawals in 2015.....	58
Figure 1-15: GLWB Average Contract Value and Average Benefit Base for Contracts With Withdrawals in 2015.....	59
Figure 1-16: GLWB Overall Utilization of Withdrawals.....	61
Figure 1-17: Overall GLWB Utilization Rates.....	62
Figure 1-18: GLWB Utilization by Source of Funds and Age of Owners.....	64
Figure 1-19: GLWB Utilization by IRA Owners.....	65
Figure 1-20: GLWB Utilization by Owners With Nonqualified Funds.....	67
Figure 1-21: GLWB First Withdrawals in 2015 (IRA Contracts Only).....	69
Figure 1-22: GLWB First Withdrawals in 2015 (Nonqualified Contracts Only).....	71
Figure 1-23: Percentage of Nonqualified Owners Taking First Withdrawal in 2015.....	72
Figure 1-24: Percentage of Owners Taking First Withdrawals in 2015 Based on Proximity to Potential Annual Withdrawal Rate Increase.....	74
Figure 1-25: GLWB Withdrawals With SWPs.....	82
Figure 1-26: GLWB Actual Withdrawals as a Percentage of Benefit Maximum.....	89
Figure 1-27: GLWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age.....	90
Figure 1-28: GLWB Withdrawals to Annual Benefit Maximum Amount by Age.....	92
Figure 1-29: GLWB Withdrawals to Benefit Maximum Amount by Age, Contract Sizes Under \$100,000.....	93
Figure 1-30: GLWB Withdrawals to Benefit Maximum Amount by Age, Contract Sizes \$100,000 to \$249,999.....	94
Figure 1-31: GLWB Withdrawals to Benefit Maximum Amount by Age, Contract Sizes \$250,000 or More.....	94
Figure 1-32: GLWB Overall Utilization Rates by Contract Duration.....	95
Figure 1-33: GLWB Overall Utilization Rates by Contract Duration and Source of Funds.....	96
Figure 1-34: GLWB Withdrawal Activity in Contracts With/Without Non-Withdrawal Incentives.....	99
Figure 1-35: GLWB Amount of Withdrawals by Owners' Current Age.....	100
Figure 1-36: GLWB Withdrawals to Average Contract Value Ratio (For Contracts With Withdrawals Only).....	101
Figure 1-37: GLWB Withdrawals to Average Benefit Base Ratio (For Contracts With Withdrawals Only).....	102
Figure 1-38: GLWB Total Withdrawals to Total Contract Value (All Contracts).....	103
Figure 1-39: GLWB Total Withdrawals to Total Contract Value (For Contracts With Withdrawals Only).....	104
Figure 1-40: GLWB Withdrawal Rates for Single- and Joint-Lives IRA Contracts.....	105
Figure 1-41: GLWB Withdrawal Rates for Single- and Joint-Lives Nonqualified Contracts.....	105

Figure 1-42: GLWB Withdrawal Rates by Distribution Channels.....	106
Figure 1-43: GLWB Withdrawal Rates for Contracts In-the-Money vs. Not In-the-Money.....	109
Figure 1-44: GLWB Withdrawal Rates for Contracts by Degree of In-the-Money vs. Not In-the-Money.....	110
Figure 1-45: GLWB Average Actuarial Present Value (APV) vs. Average Contract Value by Age at EOY 2015	114
Figure 1-46: GLWB Ratio of APV at 3.75% to Contract Value Distribution by Age	115
Figure 1-47: GLWB Percentage of Contracts Receiving Additional Premium	116
Figure 1-48: GLWB Percentage of Contracts Receiving Additional Premium by Size of Contract.....	117
Figure 1-49: Additional Premium for Contracts Issued in 2007	118
Figure 1-50: GLWB Surrender Rate by Quarter of Contract Issue	120
Figure 1-51: GLWB Contract Surrender Rates in 2015 by Share Classes.....	121
Figure 1-52: GLWB Cash Value Surrender Rates in 2015 by Share Classes	122
Figure 1-53: GLWB Contract Surrender Rate by Surrender Charge Percentage	123
Figure 1-54: GLWB Cash Value Surrender Rate by Surrender Charge Percentage.....	123
Figure 1-55: GLWB Contract Surrender Rate by Owners Taking Withdrawals in 2015	124
Figure 1-56: GLWB Contract Surrender Rate by Owners Taking Withdrawals Before 2015	125
Figure 1-57: GLWB Cash Value Surrender Rate by Owners Taking Withdrawals in 2015.....	126
Figure 1-58: GLWB Cash Value Surrender Rate by Owners Taking Withdrawals Before 2015	126
Figure 1-59: GLWB Contract Surrender Rates by Owners Taking 2015 Withdrawals in Relation to Benefit Maximum Allowed	127
Figure 1-60: GLWB Cash Value Surrender Rates by Owners Taking 2015 Withdrawals in Relation to Benefit Maximum Allowed	129
Figure 1-61: GLWB Contract Surrender Rates by Withdrawal Methods	129
Figure 1-62: GLWB Cash Value Surrender Rates by Withdrawal Methods	130
Figure 1-63: GLWB Contract Surrender Rate by Amount Benefit Base Exceeds Contract Value...131	
Figure 1-64: GLWB Cash Value Surrender Rate by Amount Benefit Base Exceeds Contract Value	131
Figure 2-1: GMWB Average Contract Value and Benefit Base Balance for Contracts Without Withdrawals	145
Figure 2-2: GMWB Average Contract Value and Benefit Base Balances for Contracts With Withdrawals.....	146
Figure 2-3: GMWB Benefit Base Balance to Contract Value Ratios by Age — at BOY 2015	147
Figure 2-4: GMWB Benefit Base Balance to Contract Value Ratios by Age — at EOY 2015.....	147
Figure 2-5: GMWB Overall Utilization of Withdrawals.....	148
Figure 2-6: GMWB Utilization by Source of Funds and Age of Owners.....	149
Figure 2-7: GMWB Contracts in IRAs	150
Figure 2-8: GMWB Withdrawals by IRA Owners.....	151
Figure 2-9: GMWB Withdrawals by Nonqualified Owners	152
Figure 2-10: GMWB First Withdrawals in 2015 From Contract Issued in 2006 (IRA Contracts Only).....	153
Figure 2-11: GMWB First Withdrawals in 2015 From Contract Issued in 2006 (NQ Contracts Only)	154
Figure 2-12: GMWB Owners Taking Withdrawals With SWPs	157
Figure 2-13: GMWB Actual Withdrawals as a Percentage of Maximum Annual Benefit Amount	159
Figure 2-14: GMWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age	160
Figure 2-15: GMWB Withdrawals to Maximum Annual Benefit Amount by Age	162
Figure 2-16: GMWB Withdrawals to Maximum Annual Benefit Amount by Age, Contracts Less Than \$100,000.....	163
Figure 2-17: GMWB Withdrawals to Maximum Annual Benefit Amount by Age, Contracts \$100,000 or More.....	163

Figure 2-18: GMWB Overall Utilization Rates by Contract Duration	165
Figure 2-19: GMWB Amount of Withdrawals by Owner's Current Age.....	167
Figure 2-20: GMWB Withdrawals to Average Contract Value Ratio (For Contracts With Withdrawals Only)	168
Figure 2-21: GMWB Withdrawals to Average Benefit Base Balance Ratio (For Contracts With Withdrawals Only)	169
Figure 2-22: GMWB Withdrawal Amount to Average Contract Value and Benefit Base Balance.....	170
Figure 2-23: GMWB Total Withdrawals to Total Contract Value (All Contracts)	171
Figure 2-24: GMWB Total Withdrawals to Total Contract Value (for Contracts With Withdrawals Only)	172
Figure 2-25: GMWB Withdrawal Rates for Contracts Where the Benefit Base Balance Exceeded the Contract Value.....	174
Figure 2-26: GMWB Percentage of Contracts Receiving Additional Premium by Size of Contract.....	178
Figure 2-27: GMWB Contract Surrender Rates by Owners Taking Withdrawals in 2015.....	180
Figure 2-28: GMWB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015	181
Figure 2-29: GMWB Contract Surrender Rates by Owners Who Took Withdrawals Before 2015	181
Figure 2-30: GMWB Cash Value Surrender Rates by Owners Who Took Withdrawals Before 2015	182
Figure 2-31: GMWB Contract Surrender Rates in 2015 by Share Classes.....	183
Figure 2-32: GMWB Cash Value Surrender Rates in 2015 by Share Classes	183
Figure 2-33: GMWB Contract Surrender Rates by Owners Who Took 2015 Withdrawals, in Relation to Annual Benefit Maximum Allowed.....	184
Figure 2-34: GMWB Cash Value Surrender Rates by Owners Who Took 2015 Withdrawals, in Relation to Annual Benefit Maximum Allowed.....	185
Figure 2-35: GMWB Contract Surrender Rates by Withdrawal Method	186
Figure 2-36: GMWB Cash Value Surrender Rates by Withdrawal Method.....	187
Figure 3-1: GMIB Ownership of Annuity by Sources of Funds and Age Groups	196
Figure 3-2: GMIB Median Contract Value vs. Median Benefit Base, BOY 2015	200
Figure 3-3: GMIB Benefit Base to Contract Value Inter-Quartile Range, BOY 2015.....	201
Figure 3-4: GMIB Contract Value and Benefit Base, EOY 2015	202
Figure 3-5: GMIB Benefit Base to Contract Value Inter-Quartile Range, EOY 2015.....	203
Figure 3-6: GMIB Average Contract Value and Average Benefit Base Values	203
Figure 3-7: GMIB Benefit Base to Contract Value Ratios by Age — BOY 2015.....	204
Figure 3-8: GMIB Benefit Bases to Contract Value Ratios by Age — EOY 2015.....	205
Figure 3-9: GMIB Average Contract Value, Average Benefit Base for Contracts Without Withdrawals	206
Figure 3-10: Ratio of GMIB Payout to SPIA Payout, for Life-Only Payouts by All Benefit Maturity Years.....	208
Figure 3-11: Ratio of GMIB Payout to SPIA Payout, for Life With 10-Year Period-Certain Payouts by all Benefit Maturity Years.....	209
Figure 3-12: Ratio of GMIB Payout to SPIA Payout, for Life-Only Payouts by Benefit Maturity Years 2015 or Earlier	210
Figure 3-13: Ratio of GMIB Payout to SPIA Payout, for Life With 10-Year Period-Certain Payouts by Benefit Maturity Years 2015 or Earlier	210
Figure 3-14: GMIB Calculation Methods.....	211
Figure 3-15: GMIB Percentage of Contracts by Roll-Up Rates.....	211
Figure 3-16: GMIB Contracts Annuitized in 2015, by Benefit Maturity	213
Figure 3-17: GMIB Contracts Annuitized in 2015, by Age and Contract Size	214
Figure 3-18: GMIB Contracts Annuitized in 2015 With Benefit Maturity Date in 2014 or 2015, by Age and BOY 2015 BB/CV Ratio.....	215
Figure 3-19: GMIB Percentage of Contracts With Withdrawals.....	217

Figure 3-20: GMIB Percentage of Contracts With Withdrawals, by Source of Funds and Age of Owners.....	219
Figure 3-21: GMIB Withdrawals by IRA Owners	220
Figure 3-22: GMIB Withdrawals by Nonqualified Owners.....	221
Figure 3-23: GMIB First Withdrawals in 2015 (IRA Contracts Only).....	223
Figure 3-24: GMIB First Withdrawals in 2015 (Nonqualified Contracts Only)	224
Figure 3-25: GMIB Withdrawals With Systematic Withdrawal Plans	230
Figure 3-26: GMIB Actual Withdrawals as a Percentage of Annual Benefit Maximum	233
Figure 3-27: GMIB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age	233
Figure 3-28: GMIB Withdrawals to Benefit Maximum Amount by Withdrawal Method and Age.....	235
Figure 3-29: GMIB Withdrawals to Annual Benefit Maximum Amount by Age, Contract Sizes Under \$100,000.....	237
Figure 3-30: GMIB Withdrawals to Annual Benefit Maximum Amount by Age, Contract Sizes \$100,000 to \$249,999.....	237
Figure 3-31: GMIB Overall Utilization Rates of Withdrawal by Contract Duration.....	238
Figure 3-32: GMIB Overall Utilization Rates by Contract Duration and Source of Funds	239
Figure 3-33: GMIB Overall Utilization Rates by Contract Duration and Current Owner Age.....	240
Figure 3-34: GMIB Withdrawals to Average Contract Value Ratio (For Contracts With Withdrawals Only)	241
Figure 3-35: GMIB Ratio of Withdrawal Amount to Average Contract Value and to Benefit Base.....	242
Figure 3-36: GMIB Total Withdrawals to Total Contract Value (All Contracts).....	243
Figure 3-37: GMIB Total Withdrawals to Total Contract Values (For Contracts With Withdrawals).....	244
Figure 3-38: GMIB Surrender Rates in 2015 by Quarter and Year of Contract Issue	251
Figure 3-39: GMIB Contract Surrender Rates by Share Classes	252
Figure 3-40: GMIB Cash Value Surrender Rate by Share Classes.....	253
Figure 3-41: GMIB Contract Surrender Rate by Owners Who Took Withdrawals in 2015	254
Figure 3-42: GMIB Contract Surrender Rate by Owners Taking Withdrawals Before 2015	255
Figure 3-43: GMIB Cash Value Surrender Rate by Owners Who Took Withdrawals in 2015.....	256
Figure 3-44: GMIB Cash Value Surrender Rate by Owners Who Took Withdrawals Before 2015	256
Figure 3-45: GMIB Contract Surrender Rates by Owners With Contracts Issued Between 2006-2008 Who Took Withdrawals, in Relation to Annual Benefit Maximum Allowed.....	257
Figure 3-46: GMIB Cash Value Surrender Rates by Owners With Contracts Issued Between 2006-2008 Who Took Withdrawals, in Relation to Annual Benefit Maximum Allowed.....	258
Figure 3-47: GMIB Contract Surrender Rates by Withdrawal Methods	259
Figure 3-48: GMIB Cash Value Surrender Rates by Withdrawal Methods.....	260
Figure 3-49: GMIB Contract Surrender Rate by Amount the Benefit Base Exceeded the Contract Value When No Withdrawals Taken Before 2015.....	261
Figure 3-50: GMIB Cash Value Surrender Rate by Amount the Benefit Base Exceeded the Contract Value When No Withdrawals Taken in or Before 2015.....	261
Figure 3-51: GMIB Contract and Cash Value Surrender Rates in 2015 by Benefit Maturity Year	262
Figure 4-1: GMAB Ownership by Source of Funds and Age Group.....	268
Figure 4-2: GMAB Median Contract Value vs. Median Benefit Base, BOY 2015.....	273
Figure 4-3: GMAB Ratio of Benefit Base to Contract Value, BOY 2015.....	274
Figure 4-4: GMAB Median Contract Value vs. Median Benefit Base, EOY 2015	275
Figure 4-5: GMAB Ratio of Benefit Base to Contract Value Distribution at EOY 2015.....	276
Figure 4-6: GMAB Average Contract Values and Benefit Base Values	277

Figure 4-7:	GMAB Average Contract Value and Benefit Base for Contracts Without Withdrawals	278
Figure 4-8:	GMAB Average Contract Value and Benefit Base for Contracts With Withdrawals	278
Figure 4-9:	GMAB Benefit Base to Contract Value Ratios by Age — at BOY 2015	279
Figure 4-10:	GMAB Benefit Base to Contract Value Ratios by Age — at EOY 2015.....	280
Figure 4-11:	GMAB Benefit Calculation Method	280
Figure 4-12:	GMAB Percentage of Contracts by Benefit Maturity Year	281
Figure 4-13:	GMAB Median Benefit Bases and Contract Values by Benefit Maturity Year	282
Figure 4-14:	GMAB Median Benefit Base to Median Contract Value Ratio at EOY 2015, by Benefit Maturity Year.....	283
Figure 4-15:	GMAB Overall Withdrawals	284
Figure 4-16:	GMAB Withdrawals by Fund Source and Owner Age	285
Figure 4-17:	GMAB Withdrawals by IRA Owners.....	286
Figure 4-18:	GMAB Withdrawals by Nonqualified Owners.....	286
Figure 4-19:	GMAB Amount of Withdrawals by Owner’s Current Age	287
Figure 4-20:	GMAB Withdrawals With Systematic Withdrawal Plans	288
Figure 4-21:	GMAB Surrender Rate by Quarter of Contract Issue.....	290
Figure 4-22:	GMAB Contract Surrender Rates in 2015 by Share Classes.....	291
Figure 4-23:	GMAB Cash Value Surrender Rates in 2015 by Share Classes.....	292
Figure 4-24:	GMAB Contract Surrender Rates in 2015 by Surrender Charge Percentage.....	292
Figure 4-25:	GMAB Cash Value Surrender Rates in 2015 by Surrender Charge Percentage.....	293
Figure 4-26:	GMAB Contract Surrender Rates in 2015, by Owners Who Took Withdrawals in 2015	294
Figure 4-27:	GMAB Contract Surrender Rates by Owners Who Took Withdrawals Before 2015	295
Figure 4-28:	GMAB Cash Value Surrender Rates in 2015, by Owners Who Took Withdrawals in 2015	296
Figure 4-29:	GMAB Cash Value Surrender Rates by Owners Who Took Withdrawals Before 2015	296
Figure 4-30:	GMAB Surrender Activity by Benefit Maturity Year.....	297
Figure 4-31:	GMAB Contract Surrender Activity by Benefit Maturity Year and Presence of Surrender Charge	298
Figure 4-32:	GMAB Contract Surrender Activity by Amount The Benefit Base Exceeded the Contract Value	299
Figure 4-33:	GMAB Cash Value Surrender Activity by Amount The Benefit Base Exceeded the Contract Value	299
Figure C1-1:	GLWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Traditional IRA Only	335
Figure C1-2:	GLWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Nonqualified Only	335
Figure C2-1:	GMWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Traditional IRA Only	336
Figure C2-2:	GMWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Nonqualified Only	336
Figure C3-1:	GMIB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Traditional IRA Only	337
Figure C3-2:	GMIB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Nonqualified Only	337

Tables

Table 1-1:	GLWB Average Age of Buyers	36
Table 1-2:	2015 GLWB Buyers Average Age Analysis by Characteristics.....	43
Table 1-3:	GLWB Owner and Contract Characteristics.....	45
Table 1-4:	GLWB Benefit Bases and Contract Values, at BOY 2015.....	49
Table 1-5:	GLWB Benefit Bases and Contract Values, at EOY 2015.....	50
Table 1-6:	GLWB Percentage of IRA Owners Taking First Withdrawal in 2015.....	70
Table 1-7:	GLWB Percentage of Owners Taking First Withdrawal in 2015 (Nonqualified)	73
Table 1-8:	GLWB First Withdrawals for 2007 Buyers (IRA).....	75
Table 1-9:	GLWB First Withdrawals for 2007 Buyers (Nonqualified).....	78
Table 1-10:	GLWB First Withdrawals for 2008 Buyers (IRA).....	80
Table 1-11:	GLWB First Withdrawals for 2008 Buyers (Nonqualified).....	81
Table 1-12:	GLWB Average Withdrawal Amount by SWP and by Source of Funds.....	83
Table 1-13:	GLWB Occasional Withdrawal Amount by Source of Funds.....	83
Table 1-14:	GLWB First SWP Withdrawals (and Continued Thereafter) for 2007 IRA Buyers	85
Table 1-15:	GLWB First Withdrawals (and Continued Thereafter) for 2007 Nonqualified Buyers	87
Table 1-16:	Percentage of GLWB Owners Taking Withdrawals as Percent of Benefit Maximum...91	
Table 1-17:	GLWB Overall Percentage of Contracts Taking Withdrawals by Year of Issue.....	96
Table 1-18:	GLWB Overall Utilization Rates by Contract Duration and Current Owner Age.....	97
Table 1-19:	GLWB Historical Trends of Benefit Base vs. Contract Value at BOY.....	108
Table 1-20:	GLWB Utilization by Month of Issue, Contracts Issued in 2015	111
Table 1-21:	GLWB Utilization by Selected Characteristics	112
Table 1-22:	GLWB Net Flows.....	119
Table 1-23:	GLWB Surrender Rates.....	133
Table 1-24:	GLWB Product and Benefit Characteristics	135
Table 2-1:	GMWB Owner and Contract Characteristics.....	142
Table 2-2:	GMWB Benefit Base Balances and Contract Values, at BOY 2015	144
Table 2-3:	GMWB Benefit Base Balances and Contract Values, at EOY 2015	144
Table 2-4:	GMWB First Withdrawals for 2007 Buyers.....	155
Table 2-5:	GMWB Withdrawal Types and Median Amount by Source of Funds	157
Table 2-6:	GMWB Withdrawal Amounts as Percentage of Total Withdrawal Amount	158
Table 2-7:	GMWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age Groups.....	161
Table 2-8:	GMWB Utilization by Selected Characteristics	176
Table 2-9:	GMWB Net Flows.....	179
Table 2-10:	GMWB Surrender Rates.....	188
Table 2-11:	GMWB Product and Benefit Characteristics	190
Table 3-1:	GMIB Owner and Contract Characteristics.....	197
Table 3-2:	GMIB Benefit Bases and Contract Values, at BOY 2015.....	199
Table 3-3:	GMIB Benefit Bases and Contract Values, at EOY 2015.....	199
Table 3-4:	GMIB Owner of Annuitized Contract Characteristics Issued 2015 or Earlier.....	215
Table 3-5:	GMIB First Withdrawals for 2008 Buyers (IRA).....	227
Table 3-6:	GMIB First Withdrawals for 2008 Buyers (Nonqualified)	228
Table 3-7:	GMIB Systematic Withdrawal Amounts by Age and Source of Funds.....	231
Table 3-8:	GMIB Occasional Withdrawal Amounts by Age and Source of Funds	231
Table 3-9:	GMIB Withdrawal Amounts as Percentage of Total Withdrawal Amount.....	232

Table 3-10:	Percentage of GMIB Owners Taking Withdrawals as Percentage of Benefit Maximum.....	234
Table 3-11:	GMIB Withdrawals by Select Characteristics.....	248
Table 3-12:	GMIB Net Flows	250
Table 3-13:	GMIB Surrender Rates	263
Table 4-1:	GMAB Owner and Contract Characteristics	270
Table 4-2:	GMAB Benefit Base and Contract Value, at BOY 2015	272
Table 4-3:	GMAB Benefit Base and Contract Value, at EOY 2015	272
Table 4-4:	GMAB Net Flows.....	289
Table 4-5:	GMAB Surrender Rates.....	300
Table 4-6:	GMAB Product and Benefit Characteristics	302
Table B1-1:	GLWB Contract Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge.....	308
Table B1-2:	GLWB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge.....	309
Table B1-3:	GLWB Contract Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge.....	310
Table B1-4:	GLWB Cash Value Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge.....	311
Table B1-5:	GLWB Contract Surrender Rates by Owners Taking Withdrawals in Relation to Annual Benefit Maximum Allowed and by Presence of Surrender Charge.....	312
Table B1-6:	GLWB Cash Value Surrender Rates by Owners Taking Withdrawals in Relation to Annual Benefit Maximum Allowed and by Presence of Surrender Charge	313
Table B1-7:	GLWB Contract Surrender Rates by Withdrawal Method and by Presence of Surrender Charge.....	314
Table B1-8:	GLWB Cash Value Surrender Rates by Withdrawal Method and by Presence of Surrender Charge	315
Table B2-1:	GMWB Contract Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge.....	316
Table B2-2:	GMWB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge.....	317
Table B2-3:	GMWB Contract Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge.....	318
Table B2-4:	GMWB Cash Value Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge.....	319
Table B2-5:	GMWB Contract Surrender Rates by Owners Taking Withdrawals in Relation to Annual Benefit Maximum Allowed and by Presence of Surrender Charge	320
Table B2-6:	GMWB Cash Value Surrender Rates by Owners Taking Withdrawals in Relation to Annual Benefit Maximum Allowed and by Presence of Surrender Charge	321
Table B2-7:	GMWB Contract Surrender Rates by Withdrawal Method and by Presence of Surrender Charge	322
Table B2-8:	GMWB Cash Value Surrender Rates by Withdrawal Method and by Presence of Surrender Charge	323
Table B3-1:	GMIB Contract Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge.....	324
Table B3-2:	GMIB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge.....	325

Table B3-3:	GMIB Contract Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge.....	326
Table B3-4:	GMIB Cash Value Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge.....	327
Table B3-5:	GMIB Contract Surrender Rates by Withdrawal Method and by Presence of Surrender Charge.....	328
Table B3-6:	GMIB Cash Value Surrender Rates by Withdrawal Method and by Presence of Surrender Charge.....	329
Table B4-1:	GMAB Contract Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge.....	330
Table B4-2:	GMAB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge.....	331
Table B4-3:	GMAB Contract Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge.....	332
Table B4-4:	GMAB Cash Value Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge.....	333
Table B4-5:	GMAB Contract Surrender Rates by Benefit Maturity Year and by Presence of Surrender Charge	334
Table B4-6:	GMAB Cash Value Surrender Rates by Benefit Maturity Year and by Presence of Surrender Charge	334

Acknowledgements

- Joel Sklar (Chair), Prudential Financial
- Cynthia McDonald, Society of Actuaries
- Patrick Nolan, Society of Actuaries
- Erika Schulty, Society of Actuaries
- Mervin Kopinsky, Society of Actuaries
- Brian Campbell, Allianz Life
- Jenny Jin, Milliman, Inc
- Lisa Louk, Prudential Financial
- Yvonne McCullough, Nationwide
- Xiaohong Mo, Milliman, Inc
- Tommy Steed, Pacific Life
- Stephen Turer, Lincoln Financial Group
- Ken Westman, RiverSource Life Insurance
- Liang Yin Price Waterhouse Coopers

About the Study

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

LIMRA Secure Retirement Institute Variable Annuity Guaranteed Living Benefit Utilization Study (VAGLBUS) — 2015 Experience

is an update of earlier investigations, conducted since 2006.

The study examines the GLB utilization of over 4.9 million contracts that were either issued during or in force as of 2015.

Twenty insurance companies participated in this study. These 20 companies made up 66 percent of all GLB sales in 2015 and 70 percent of assets at year-end, and thus provide a substantial representation of this business.

Products with guaranteed lifetime withdrawal benefits (GLWBs), guaranteed minimum withdrawal benefits (GMWBs), guaranteed minimum income benefits (GMIBs), guaranteed minimum accumulation benefits (GMABs), and combinations of these benefits comprised 61 percent of new VA sales in 2015, according to LIMRA's Election Tracking Survey.¹ The LIMRA Secure Retirement Institute estimates that GLB assets were \$838 billion, constituting 44 percent of total VA assets as of year-end 2015.

LIMRA Secure Retirement Institute Variable Annuity Guaranteed Living Benefit Utilization Study (VAGLBUS) — 2015 Experience is an update of earlier investigations, conducted since 2006.

The study examines the GLB utilization of over 4.9 million contracts that were either issued during or in force as of 2015.

Twenty insurance companies participated in this study. These 20 companies made up

66 percent of all GLB sales in 2015 and 70 percent of GLB assets at year-end, and thus provide a substantial representation of this business.

Research on GLBs generally focuses on sales and elections rather than on how annuity owners actually use their benefits. However, 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.

¹ *Variable Annuity Guaranteed Living Benefits Election Tracking, 4th Quarter 2015*, LIMRA Secure Retirement Institute, 2016.

Executive Summary

Based on 10 years of studying VA GLBs, we have identified some trends and key determinants that describe how VA owners with lifetime payout riders (GLWBs and GMIBs) utilize their GLB riders, which provide important insights into how these owners may behave in the future. We have found relationships among characteristics like age, source of funding (qualified or nonqualified), and withdrawal methods (systematic withdrawal programs [SWPs] or non-SWPs). Certain owner withdrawal characteristics influence surrender rates. An analysis of these elements enables us to understand withdrawal risk for different segments of GLB owners — how many will start their withdrawals by age and source of funding, how many are likely to utilize withdrawal riders or provisions for life, what methods of withdrawals they will use, how many are likely to stay on the book of business for long time, and how many are likely to surrender and when. These GLWB and GMIB contracts account for 90 percent of all in-force GLBs in our study. Withdrawal and surrender behaviors of GLWB and GMIB owners can be reviewed in four inter-connected relationships:

Starting Withdrawals

- Source of funding (i.e., qualified or nonqualified) and age are the two most important influences on when owners start withdrawals.
- Before age 70, there is not a significant difference between percentages of owners who take withdrawals either from their qualified or nonqualified annuities.²
- However, a large percentage of owners with qualified annuities start taking their withdrawals at age 71 and 72 to meet their required minimum distributions (RMDs); and the percentage of qualified owners taking withdrawals rises with age. Currently, around two-thirds of VA contracts with lifetime payout riders are funded with qualified money.
- In contrast, the number of owners who take withdrawals from nonqualified contracts shows an incremental and steady increase. For nonqualified contracts, age and contract duration are the principal drivers for withdrawals.
- The size of the contracts, deferral incentives, duration of contracts, and the channels through which customers buy the annuities also have an impact on how customers take withdrawals, but these factors are not as significant as age and source of money.
- Contracts where the benefit bases exceeded the contract values did not have a major impact on withdrawal behavior for GLWB owners who started withdrawals in 2015.

² Unless otherwise specified, throughout this report, owner age is defined as the age of the owner/annuitant as of year-end 2015.

Method of Withdrawals

- A majority of owners take withdrawals through SWPs. Use of SWPs can be interpreted as confirmation that these owners plan to utilize the lifetime withdrawal provisions in their riders.
- Once owners start to take withdrawals, they are likely to continue withdrawals, irrespective of their funding sources.
- As a result, these owners are less likely to surrender their contracts any time soon.
- Older owners are more likely to take withdrawals through SWPs.

Percentage of Benefit Maximum Withdrawn

- When owners use SWPs, they are likely to make withdrawals within the maximum amount allowed in their contracts.
- In general, younger owners — particularly those under age 60 — are more likely to take withdrawals greater than the maximum amount allowed. For IRA owners over age 70½, some excess withdrawals are due to RMDs. Most withdrawals in excess of 125 percent of the annual benefit maximum amount come from occasional or non-systematic withdrawals.
- Owners of VAs with higher contract values are less likely than those with lower contract values to take withdrawals that significantly exceed the benefit maximum.

Surrender Rates

- The surrender rates among GLWB and GMIB owners, particularly among owners aged 65 and over who take withdrawals, are relatively low.
- The surrender rates among owners using SWPs as methods of withdrawals are lower compared with owners who take occasional or non-systematic withdrawals.
- The surrender rate among owners under age 65 who have not started taking withdrawals is very low, and it appears that they will likely use rider benefits.
- Surrender rates are also low for GLWB owners aged 65 and older not taking withdrawals; GMIB owners aged 65 and older not taking withdrawals experience increasing surrender rates with age.
- Though duration and surrender charge rates present in the contracts influence persistency, customers under age 60 who take withdrawals are more likely to surrender their contracts.

- The surrender rates show a U-shaped relationship to the percent of annual benefit maximum withdrawn — those with very low and very high ratios of withdrawals relative to the maximum allowed have higher surrender rates than those in the middle categories. The percentage of annual benefit maximum withdrawn is impacted by the owner's age and method of withdrawal (SWPs vs. non-SWPs).
- Any withdrawal behavior significantly out of line with maximum annual withdrawal benefit amounts can indicate increased surrender behavior of GLWB owners.
- In general, surrender rates are lower when the benefit base exceeds the contract value.

Action Steps and Issues to Consider

- **There is a strong indication that most annuity owners plan to take advantage of the lifetime guaranteed income benefit allowed in their contracts, and many are sticking to that plan.** Two-thirds of buyers use qualified money to purchase their GLWBs. Most of these qualified annuity buyers use a portion of their 401(k) or IRA savings to purchase a GLB rider that provides the ability to create a guaranteed income stream, safe from market risk. Many will activate the guaranteed withdrawal provisions at RMD age 70½.
- **Infusion of qualified money presents special challenges to insurers.** The increasing mix of qualified money into the insurer's book of business poses a challenge in terms of managing this risk accordingly. As more and more qualified contract owners approach age 70½, an increasing percentage of them will begin withdrawals. It is important for companies to look at their business and evaluate how their customer mix can impact risk and cash flow. There is more risk from customer withdrawal behavior on assets funded with qualified money than from a nonqualified block of business.
- **Insurance companies can assess surrender rates and their strong relationship to owner withdrawal behavior when managing the risk associated with their book of business.** Understanding the withdrawal behavior of GLB owners is important since withdrawal activity — particularly withdrawals that exceed the benefit maximum — can be an early indicator of increased surrender activity for a book of business. In addition, when younger owners take withdrawals, they are more likely to take occasional withdrawals. These younger owners may be taking partial surrenders. Younger owners who take withdrawals are more likely to fully surrender their contracts.

- **Companies can evaluate how their own customers behave compared with the industry, and reassess their assumptions as needed.** Measuring, modeling, and predicting policy and contract owner behavior emerges as a central challenge for insurers seeking to optimize their product development and management efforts. Understanding these issues will allow anyone participating in or following this market to better assess the underlying dynamics of withdrawal and surrender behavior, which will assist them in measuring and projecting the long-term risks associated with withdrawals and surrenders. Most critical is that these analyses can help to gauge how many owners are using their rider to create guaranteed lifetime income in retirement. All VAs with GLBs are experiencing higher persistency compared with ordinary VAs; this will have an impact on the company's assets and reserves, reflecting the fact that a larger number of contract owners may ultimately receive benefits over the life of their contracts.

Guaranteed Lifetime Withdrawal Benefits (GLWBs)

Results based on 2,893,112 contracts issued by 18 companies

Owner Profiles

- The average age of GLWB buyers in 2015 was 63 years. Three-quarters of new GLWB buyers in 2015 were Baby Boomers, aged 51 to 69.
- Rollover dollars are a major source for GLWB funding. Seven out of 10 2015 buyers under age 70 used IRA money to buy a GLWB annuity. This is slightly higher than broader industry developments the LIMRA Secure Retirement Institute has tracked, where roughly 6 in 10 retail VAs are funded with IRA money, the bulk of which is from rollovers.
- The average premium received in GLWB contracts issued in 2015 was \$143,700 — 4 percent higher than received in 2014. The average contract value of GLWB contracts was \$132,200 at the end of 2015 for all in-force contracts.
- Though the number of GLWBs are purchased equally by males and females, the average premium from contracts bought by males was 19 percent higher than the average premium from contracts purchased by females.

Benefit Base

- At the beginning of 2015, 74 percent of contracts with GLWBs issued before 2015 had benefit bases that exceeded contract values. The average difference between the benefit base and contract value was approximately \$8,400.
- At year-end, 98 percent of contracts had benefit bases exceeding the contract values. The gap between the average contract value and the average benefit base increased to \$21,000. The average contract value stood at \$131,500 while the average benefit base was \$152,500 at year-end 2015.

Withdrawal Activity

- Overall utilization rates have gradually increased for contracts that were in force for an entire year. Twenty-seven percent of the contracts had at least some withdrawal activity during 2015, with 8 in 10 using systematic withdrawals.
- Once owners start to take withdrawals, they are likely to continue withdrawals. Almost all GLWB customers who purchased their contracts in 2014 and took withdrawals that year also took withdrawals in 2015.

- Contract benefits being in-the-money was not a major driver of withdrawal behavior for GLWB owners in 2015.
- Driven by RMDs, just over 7 in 10 VA GLWB owners over age 70 took withdrawals from annuities purchased with qualified (e.g., IRA) money, while only 4 in 10 owners over age 70 took withdrawals from their nonqualified annuities.
- Very few owners age 65 and older take withdrawals that significantly exceed 150% or more of the maximum withdrawal amount allowed. In general, younger owners are more likely to take withdrawals more than the maximum amount allowed. Some IRA owners over age 70 1/2 took excess withdrawals to satisfy RMDs.
- Most withdrawals that significantly exceed 125 percent of the annual benefit maximum amount come from non-systematic withdrawals.
- A third of GLWB contracts had payouts based on joint lives. Overall, the percent of owners taking withdrawals from joint lives contracts was slightly lower than the percent of owners taking withdrawals from single life contracts.

Additional Premium and Net Flows

- Four percent of contracts issued in 2014 or earlier received additional premium in 2015. Contracts issued in 2014 were more likely than contracts issued in earlier years to have additional premium. Owners rarely add premium after the second year of owning a GLWB.
- Younger owners were more likely to add premium than older owners.
- At the beginning of 2015, assets in GLWB contracts amounted to \$366.9 billion. Premium from newly issued and existing contracts was \$35.8 billion while investment performance declined GLWB assets by \$14.9 billion. Outflows from partial withdrawals, full surrenders, deaths, and annuitizations amounted to \$19.7 billion. By the end of 2015, GLWB assets reached \$368.0 billion.

Persistency

- Surrender rates were extremely low for VAs with GLWBs. Across all contracts, only 3.4 percent surrendered during 2015.
- The contract surrender rate was 10 percent for owners under age 60 who took withdrawals in 2015. The contract surrender rate was only 3 percent among owners under age 60 who did not take any withdrawals in 2015.

- The contract surrender rate among owners aged 60 or older who took withdrawals in 2015 (2.9 percent) was a bit lower than the surrender rate for owners aged 60 or older who did not take withdrawals in 2014 (3.7 percent).
- A U shaped surrender pattern can be seen based on the efficiency of withdrawals taken. Surrender rates were quite high among the owners who either took withdrawals significantly below the maximum allowed in the contracts or whose withdrawal amounts were significantly higher than the maximum allowed. Surrender rates among owners who took withdrawals of between 75 percent to less than 200 percent of the maximum withdrawal amount allowed in the contracts are relatively low.
- GLWB contract surrender rates were three times higher among owners who took non-systematic withdrawals compared owners who took systematic withdrawals in 2015.
- Surrender rates were lower for contracts where the benefit base amount exceeded that contract value at BOY.

Product and Benefit Characteristics

- The average buyer in 2015 paid 237 basis points for a VA with a GLWB as a percentage of contract value, VA subaccounts, or benefit base values, a minimal increase from last year.³
- On average, owners who purchased contracts in 2015 can take lifetime benefits as early as age 53 and can elect the GLWB until they reach their early 80s. However, some contracts allow lifetime withdrawal benefits to begin as early as age 50 or as late as age 99.
- For most contracts issued in 2015, benefit bases were reduced in proportion to the amount of the excess withdrawal (i.e., the ratio of the excess withdrawal to the contract value before the excess is withdrawn). Only a small subset reduced the benefit bases on a dollar-for-dollar basis (usually up to the annual growth of the benefit base).
- In 2015, half of the GLWB contracts issued had maximum payouts of 4 percent or lower.

³ Note that average costs do not include fund management fees or costs associated with other benefits such as guaranteed minimum death benefits.

Guaranteed Minimum Withdrawal Benefits (GMWBs)

Results based on 193,639 contracts issued by 13 companies

Owner Profiles

- Over half (55 percent) of the in-force GMWB owners were aged 70 or older.

Benefit Base Balance

- At the beginning of the year, 29 percent of contracts with GMWBs issued before 2015 had benefit base balances that exceeded contract values. At the end of the year, due to limited investment performance, 56 percent of contracts had contract values that were below the benefit base balance values principally due to limited investment gains in 2015.
- For GMWBs, the overall ratio of average contract value to average benefit base balance declined from BOY to EOY — 106 percent at the beginning of 2015 and 101 percent at year-end.
- At EOY 2015, the average contract value stood at \$110,800, down 7 percent from BOY and roughly \$1,000 higher than the average benefit base.

Withdrawal Activity

- Just over half of GMWB contracts had at least some withdrawal activity during 2015 — the highest overall withdrawal activity for any of the GLBs, with 8 in 10 withdrawals being taken through systematic withdrawals.
- The median withdrawal amount in GMWB contracts in 2015 was \$6,100.
- Similar to GLWBs, source of money and age are a key factor in withdrawal behavior. Nearly 90 percent of owners aged 75 and older took withdrawals out of IRA contracts, compared to only half of nonqualified owners age 70 and older who took withdrawals from their non-qualified annuities.
- GMWB owners aged 60 or older are more likely to take their withdrawals through SWPs; and younger owners, particularly under age 60, are more likely to take withdrawals on a lump-sum or occasional basis.
- Most owners taking withdrawals are doing so within the parameters of the GMWB riders, with three-quarters withdrawing less than 110 percent of the maximum withdrawal amount allowed.
- Once owners start to take withdrawals, they are likely to continue withdrawals.
- A contract where the benefit base balance exceeded the contract value appeared to have no major influence on withdrawal behavior of GMWB owners in 2015.

Additional Premium and Net Flows

- Among contracts issued in 2015 or earlier, only 2 percent received additional premium in 2015, with younger owners more likely to add additional deposits.
- At the beginning of 2015, assets in GMWB contracts amounted to \$22.8 billion. Gains due to premium received did not offset negative investment performance and outflows from partial withdrawals, full surrenders, deaths, and annuitizations. EOY 2015 GMWB assets declined by 14 percent to \$19.6 billion.

Persistence

- Surrender rates in 2015 for GMWB contracts issued before 2015 were 7.8 percent for contract surrender rate and 8.1 for cash value surrender rate.
- High surrender rates were associated with owners aged 60 and older not taking withdrawals in 2015 and owners under age 60 who took withdrawals before 2015.
- The contract surrender rate in 2015 was 4.5 percent for contracts with surrender charges — almost four times that for contracts that exited the surrender penalty period in 2015. For contracts that exited the surrender penalty period in 2014 or earlier, the contract surrender rate was 8.2 percent.
- Efficiency of withdrawals is a strong indicator of surrender activity. Owners who withdrew either less than 75 percent or 200 percent or more of the maximum withdrawal amount allowed accounted for 71 percent of all contracts surrendered in 2015.
- Use of systematic withdrawal programs increases persistency, with only 4.3 percent of GMWB contracts surrendering that took systematic withdrawals versus 8.5 percent of owners surrendering who took non-systematic withdrawals.
- 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.

Product and Benefit Characteristics

- Seven percent was by far the most common annual withdrawal maximum, followed by 5 percent.
- Unlike GLWB contracts, most GMWB contracts do not offer an automatic increase in benefit base balance in case the withdrawals are not taken immediately. However, all GMWB contracts offer step up provisions to lock in investment gains on an annually basis.

Guaranteed Minimum Income Benefits (GMIBs)

Results based on 1,562,610 contracts issued by 15 companies

Owner Profiles

- The average age of GMIB owners was 65, as of year-end 2015. A third of owners were aged 70 or older.
- Two-thirds of the GMIB contracts were funded with IRA money.
- The average contract value for contracts inforce at the end of 2015 was \$120,000.
- B-share contracts were the most common cost structure (70 percent).

Benefit Base

- At the beginning of the year, 82 percent of the GMIB contracts issued before 2015 had benefit bases that exceeded contract values. At the end of 2015, almost all contracts issued before 2015 had benefit bases that exceeded contract values — 96 percent.
- The average contract value decreased 6 percent during 2015. At year-end, the average contract value stood at \$120,000, \$33,000 lower than the average benefit base.
- At year-end, nearly 40 percent of the contracts had benefit bases that exceeded the contract values by 125 percent or more.

In-the-Moneyness

- A measure of in-the-moneyness was developed, based on a comparison of a) the hypothetical payout from GMIBs, applying rider-specific actuarial present value factors to the year-end benefit bases, with b) immediate annuity payouts available in the market at year-end (applying contract values). On average, GMIB life-only payouts exceeded immediate annuity payouts by 22 percent.
- Average GMIB-payouts were higher than average SPIA payments across gender, age, and payout type (life-only or life with 10-year period certain). Ratios were highest for contracts owned by older individuals.

Annuitization

- Only a third of contracts had reached the end of the waiting period to exercise the GMIB benefit by EOY 2015. Most GMIB contracts did not have the ability to activate the GMIB feature.

- Of those contracts that were issued before 2015 and reached their benefit maturities in 2015, only 2.5 percent annuitized their contracts in 2015. The overall 2015 annuitization rate for all in-force contracts was only 0.6 percent.
- Contract owners aged 60 and older, larger contract sizes, and higher benefit base to contract value ratios were associated with higher rates of annuitization.

Withdrawal Activity

- Thirty-one percent of GMIB contracts had at least some withdrawal activity during 2015.
- Nearly 80 percent of all GMIB withdrawal activity was in the form of systematic withdrawals.
- As observed with other GLB types, the need to take RMDs was a key factor in having three-quarters of IRA contracts owned by customers aged 70 or older taking withdrawals. Withdrawal activity among nonqualified contracts was very low, reaching just over a third for owners over age 80.
- The median withdrawal amount in 2015 was \$6,400.
- Around 8 in 10 owners who took withdrawals took less than 110 percent of the maximum allowed.
- Once owners start to take withdrawals, they are likely to continue withdrawals.
- A contract benefit being in-the-money appeared to have little influence on withdrawal behavior of GMIB owners in 2015.

Additional Premium and Net Flows

- Only 2 percent of contracts issued before 2015 received additional premium in 2015, with younger owners more likely to add premium than older owners.
- Premiums received for newly issued and existing GMIB contracts were well below the outflows associated with withdrawals, surrenders, deaths, and annuitizations — \$6.3 billion and \$11.8 billion, respectively. The total number of GMIB in-force contracts declined slightly during 2015. At EOY 2015, GMIB assets were \$177.0 billion, 8 percent lower than the \$191.7 billion at BOY 2015.

Persistency

- Among all GMIB contracts issued before 2015, 4 percent were surrendered in 2015.
- For B-share contracts that still had a surrender charge in 2015, the surrender rates were very low at 2.4 percent. For B-share contracts where the surrender charges expired in 2015, the contract surrender rate increased to 6.5 percent. The surrender rate was 5.9 percent for B-share contracts where surrender charges expired in previous years.
- Withdrawals are an indicator of potential surrender activity with owners under the age of 60. The contract surrender rate among owners under age 60 who took withdrawals in 2015 was 7.3 percent, compared with only 3.9 percent who did not take any withdrawals. An inverse relationship exists for owners over 60. The surrender rate for owners aged 60 or older who took withdrawals was only 2.6 percent, lower than the 4.9 percent who did not take withdrawals.
- Owners taking less than 90 percent or 150 percent or more of the annual maximum withdrawal amount allowed in their contracts were responsible for 86 percent of the surrendered contracts.
- Surrender rates were only 2 percent in 2015 for owners using systematic withdrawals, versus 5.6 percent surrender rates for owners taking occasional withdrawals.
- Surrender rates were lower for contracts that did not have any withdrawals before 2015 and the benefit base amount exceeded the contract value.

Guaranteed Minimum Accumulation Benefits (GMABs)

Results based on 280,310 contracts issued by 15 companies

Owner Profiles

- Due to the focus on accumulation, GMAB buyers are typically younger than any other GLB buyers, with an average age of 56 years in 2015; half of GMAB owners were under age 60.
- Seven out of 10 of the in-force GMAB contracts were funded using IRA money.
- The average contract value for GMAB contracts at EOY 2015 was \$96,300.

Benefit Base

- At the beginning of the year, 10 percent of GMAB contracts issued before 2015 had benefit bases that exceeded contract values. At the end of 2015, this increased significantly to 40 percent.
- For GMABs, the ratio of average contract value to benefit base changed from 108 percent at the beginning of 2015 to 104 percent by year-end.
- The average contract value declined 5 percent during 2015. At the end of 2015, the average account value stood at \$94,200, about \$4,000 higher than the average benefit base.
- Three-quarters of the GMABs had benefit bases that were determined based on total premiums received, without any roll-up or ratcheting mechanisms.

Benefit Maturity

- Most GMAB contracts have maturity dates in 2016 or later (86 percent). Half of the in-force GMAB contracts will mature between 2016 and 2021.

Withdrawal Activity

- Eighteen percent of GMAB contracts had at least some withdrawal activity during 2015.
- The median withdrawal amount in 2015 was \$7,700.

Additional Premium and Net Flows

- At the beginning of 2015, assets in GMAB contracts amounted to \$25.7 billion. Despite inflows almost offsetting outflows, investment declines dropped GMAB assets by 4 percent at EOY to \$24.6 billion.

Persistence

- With an overall surrender rate of 8.7 percent, GMABs had the highest surrender rate of all GLBs.
- Surrender rates were quite high for GMAB contracts issued from 2002 to 2008 (13.2 percent), as these contracts came out of surrender charges.
- For contracts still under surrender charges, the surrender rate was 4.4 percent while the surrender rate for contracts where surrender charges expired in the current year was 25.0 percent.
- Generally, surrender rates were lower for contracts where the benefit base amount exceeded the contract value.

Product and Benefit Characteristics

- Among GMAB contracts issued in 2015, the average total charge (M&E and rider fee) was 2.19 percent.
- Three quarters of GMAB contracts issued in 2015 guaranteed 100 percent of premium at benefit maturity.
- All contracts issued in 2015 had a waiting period of 10 years or longer.



*Guaranteed Lifetime
Withdrawal Benefits*

CHAPTER ONE

Chapter One: Guaranteed Lifetime Withdrawal Benefits

Since their introduction in 2004, guaranteed lifetime withdrawal benefits (GLWBs) continue to be the most popular type of guaranteed living benefit (GLB) in the variable annuity (VA) market. With the purchase of a GLWB, owners can take lifetime withdrawals, guaranteed up to a maximum percent of the benefit base every year, regardless of the investment performance of funds in their annuity. Typically, GLWB owners have flexibility in deciding when to start their withdrawals, can retain control over their assets, and are not obligated to annuitize their contracts to receive guaranteed lifetime income payments. In many contracts the buyers may also select — at the time of purchase — whether the lifetime withdrawals are based on a single life or should cover joint lives of the owner/annuitant and his or her spouse.

The benefit base for older GLWBs was typically the sum of premium payments. Many later versions enhanced the growth of the benefit base to include investment growth or guaranteed growth. Many of the GLWB riders currently offered have a “roll-up” feature that typically applies a set growth percentage to the benefit base for a predetermined number of years or until lifetime withdrawals start. More recent GLWB riders also include “step-up benefits,” where an owner can lock in investment gains, typically on a contract anniversary. Owners can usually take withdrawals immediately after purchasing their contracts, but may wait for several years to benefit from guaranteed growth in the benefit base that determines a higher amount of guaranteed withdrawals. Such flexibility and varying withdrawal options can make VAs more attractive than other equity-based investment options that do not offer lifetime guarantees on future withdrawal values.

In 2015, new GLWB sales reached \$51.2 billion, accounting for a significant majority of all GLB new premiums. In 2015, sales of GLWBs has declined, as competitive alternative options have entered the market. GLWBs posted the highest election rates of any GLB type, when any GLB was available. GLWB election rates (when available) were 72 percent in 2015.⁴ Assets in VAs with GLWBs grew 1 percent from \$553 billion at end-of-year (EOY) 2014 to \$561 billion at EOY 2015.

⁴ *Variable Annuity Guaranteed Living Benefits Election Tracking, 4th Quarter 2015*, LIMRA Secure Retirement Institute, 2016.

This chapter provides important insights about GLWB buyers in 2015 and the behavior of existing owners who bought their GLWBs before 2015. LIMRA’s GLWB database contains a comprehensive and representative sample of GLWB contracts. The 2015 study is based on 2,893,112 GLWB contracts issued by 18 companies. Of these contracts, 2,555,746 were issued before 2015 and remained in force at EOY 2015, while 228,221 contracts were issued in 2015 and remained in force at EOY 2015. The assets of in-force contracts in the study totaled \$368 billion at EOY 2015, representing two-thirds of total industry GLWB assets from 221 GLWB riders.

Buyer and Owner Profiles

The average age of GLWB buyers in 2015 was **63** years.

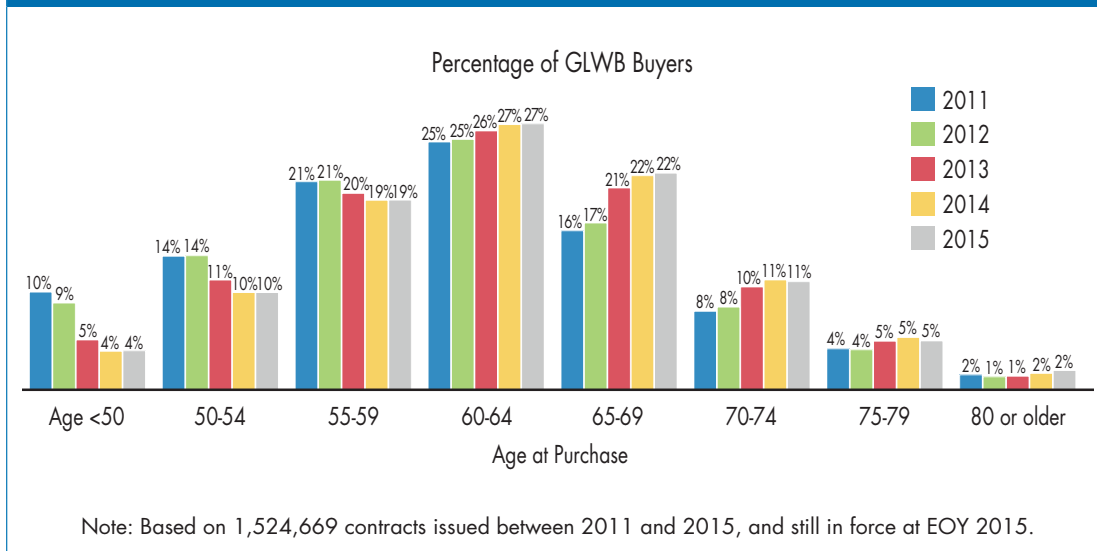
In 2015, the average age of GLWB buyers was 63 years (Table 1-1). Since 2011, the average and median age has been slowly increasing. This increase has been driven by the continued popularity of this rider with leading edge Baby Boomers (age 60 to 69) — who purchased nearly half of the contracts in 2015 (Figure 1-1) — combined with some manufacturers that have raised the minimum age requirements over the years.

Table 1-1: GLWB Average Age of Buyers

Contract Year Issued	Mean Age	Average Age in Lower Quartile	Median Age	Average Age in Upper Quartile
2008	60	55	60	66
2009	59	54	59	65
2010	60	54	60	65
2011	60	55	60	66
2012	61	55	61	66
2013	62	57	62	67
2014	63	58	63	67
2015	63	58	63	67

Note: Based on 2,416,601 contracts issued between 2008 and 2015 and still in force at EOY 2015.

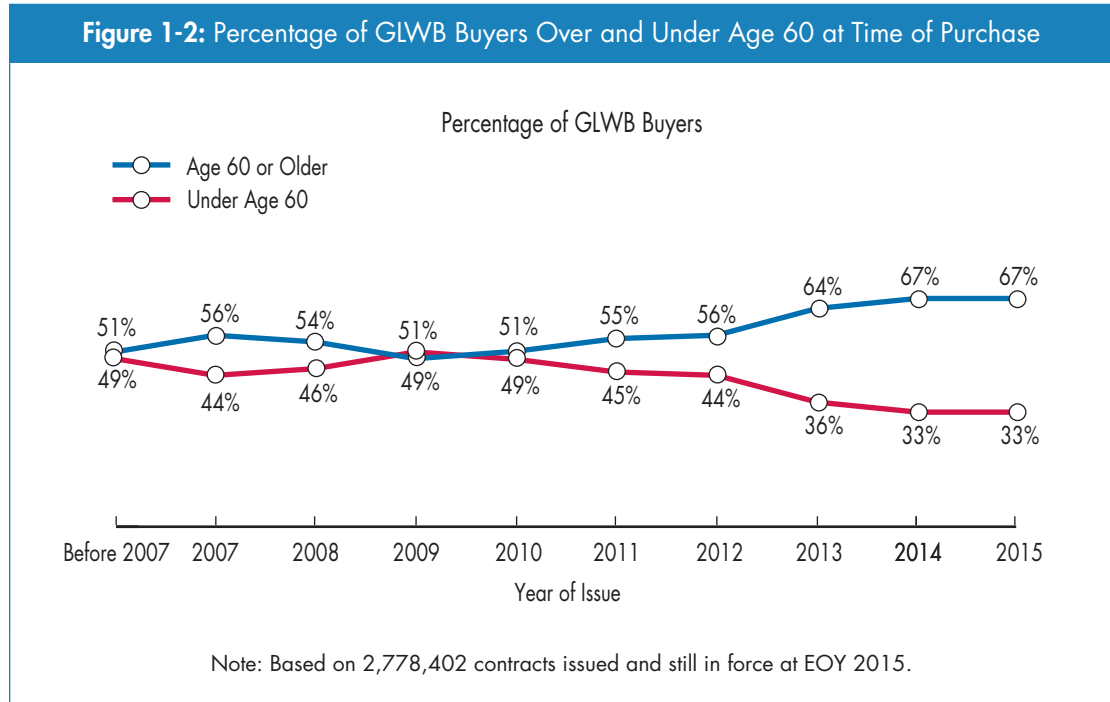
Figure 1-1: GLWB Buyers by Age at Time of Purchase, 2011–2015



GLWBs are popular with pre-retirees for a couple of reasons. First, pre-retirees can take advantage of the deferral bonus of the non-withdrawal provision in GLWBs if they do not need immediate income, and can grow the benefit base to maximize their retirement income. Insurance companies have focused on marketing messages that highlight these benefits, and how GLWBs address the need for securing guaranteed lifetime income in the future. Second, pre-retiree investors exposed to turbulent markets can get the upside market potential of the VA contract while benefiting from protection of the lifetime income guarantee as a floor.

Since 2009, the percentage of buyers aged 60 and older has been increasing (Figure 1-2). One reason for this is companies focusing their marketing efforts toward individuals nearing retirement. Some companies have also changed their products to carefully manage risk, and this includes increasing their minimum purchase ages and reducing withdrawal percentages for younger consumers.

Figure 1-2: Percentage of GLWB Buyers Over and Under Age 60 at Time of Purchase



Some Baby Boomers have become interested in annuities that can guarantee a part of their retirement income. This demand will continue to increase as more Baby Boomers enter retirement without employer-sponsored pension plans. In addition, pre-retirees are increasingly

Insurance companies carefully manage their mix of new and existing VA GLWB business to control their overall risk exposure.

concerned about the uncertainty of Social Security and health care benefits like Medicare. Insurance companies have succeeded in marketing guaranteed lifetime withdrawal or income benefit features, as more retirees and pre-retirees are forced to take personal responsibility for ensuring stable retirement income from their savings/investments.

Increasingly, advisors consider protecting against longevity risk to be one of the most valuable services they offer. More advisors recognize that annuities are one of the few retirement products that provide a guaranteed lifetime income stream to mitigate part or all of this risk for their clients. In addition, the vast majority of GLWBs provide built-in flexibility so that clients can begin receiving income at any point — now or in the future. Despite changes and the shifting focus on these riders, GLWBs continue to play an important role in clients' retirement portfolios.

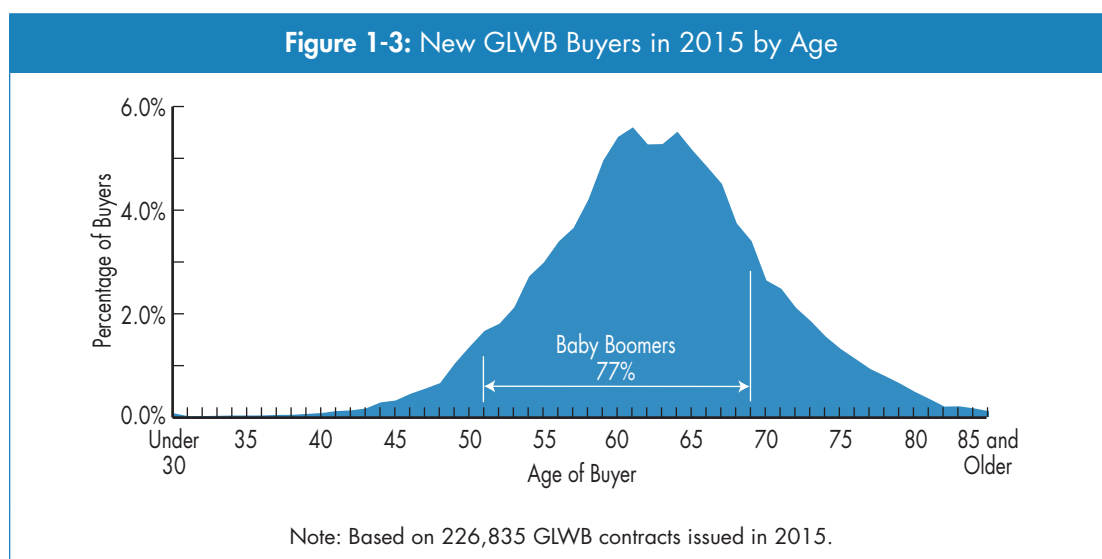
Companies should use the data provided throughout this chapter as a basis for examining:

- Whether their customer mix deviates from that of the industry.
- How they manage the risks associated with providing a guarantee to younger buyers — both short- and long-term. A particular company's risk in providing guarantees may stem from issues such as potential growth in benefit bases, depending on customers' actual deferral periods before taking withdrawals; the source of funds used to purchase the annuity; what percentage of customers begin to take withdrawals due to the required minimum distribution (RMD) rule; and the persistency of their contracts.
- If the benefit base is greater than the contract value — where market volatility and the asset allocation models offered have had an impact on the contract value in the contract.
- The competitiveness of the payout rates that are typically set by age bands.

Each year, customer behavior adds another layer of uncertainty that may change the dynamics of a company's in-force book of business. They may have different withdrawal patterns based on their age, sources of funding, and enhanced longevity risk. These factors have an impact on the pricing of the riders, long-term profitability, and asset management, as well as the overall risk management.

Buyers by Age

New GLWB buyers in 2015 followed a similar age profile as in years past. GLWB riders have appealed primarily to Baby Boomers (ages 51-69) preparing for retirement, and this group accounted for over three fourths of GLWB sales in 2015 (Figure 1-3). Two distinct peaks are seen at age 61 and age 64, showing GLWB buying decisions are triggered as consumers near important life-stage retirement inflection points.

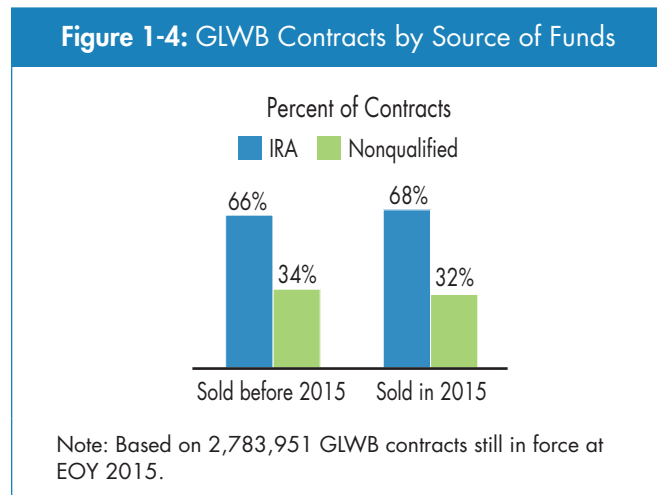


77% of GLWB buyers in 2015 were Baby Boomers.

If a company has a different mix of buyers than the industry, it can assess if this is what it planned for, and examine a number of issues. First, is the company attracting buyers from its target market segments? The company may consider changing its features, pricing, and marketing messages to attract prospects from segments where there is growth and opportunity. Second, companies could study their own customer mix to assess potential customer behavior with issues like withdrawals and surrenders. They can also assess the longevity of customer portfolios (if they are in withdrawal mode, or potentially could be in withdrawal mode), the impact of market volatility, the efficiency of asset allocation models, the payout rates, and the influence of rider features like step-ups — in order to evaluate risk and pricing impact on their books of business, including capital reserve requirements. It is encouraging that younger customers are buying GLWBs, but these demographics drive behavior, and companies will need to manage their evolving risks.

Source of Funds

In 2015, 68 percent of contracts were funded from qualified sources of money, a slight increase from 2014 buyers (Figure 1-4). This is slightly higher than broader industry developments the LIMRA Secure Retirement Institute has tracked, where roughly 6 in 10 retail VAs are funded with IRA money, the bulk of which is from rollovers.



More rollover dollars are significant to insurance companies for two reasons. First, LIMRA studies show that rollover dollars are a significant source of VA funding.⁵ As Boomers start to retire or plan for retirement income, their use of qualified savings will play an increasingly important role.

Boomers are using a portion of their savings from employer-

sponsored plans or individual retirement accounts (IRAs) to purchase products that can provide a guarantee on a portion of income in retirement, if needed. The use of qualified savings for annuity purchases may be influenced by the recognition that these savings must be withdrawn as the buyers reach the RMD age of 70½. The distinction is important for multiple reasons:

- The use of qualified funds for GLWB purchase by younger buyers fits with similar behaviors of younger buyers of immediate income annuities. A 2016 LIMRA study of immediate income annuity buyers demonstrates that buyers under age 70 are more likely to use qualified money to purchase an income annuity.⁶ There are other similarities. One third of immediate annuity buyers who funded their income annuity with qualified savings were at ages 62, 65–67, and 70–71 — important age-based retirement decision points. We see a similar trend among GLWB buyers, with peaks around ages 60 and 65.

68% of GLWB sales in 2015 were from IRAs. GLWBs attract rollover dollars, allowing companies to organically grow their business.

⁵ *Retirement Income Reference Book, 2015*, LIMRA, 2015

⁶ *Creating Guaranteed Lifetime Income: Income Annuity Buyer Study*, LIMRA, 2016.

- It appears that some consumers intend to use their nonqualified savings for other investment or planning needs. Advisors and sales representatives can build relationships with prospective buyers before they reach these key retirement decision ages to assess their income needs.
- The inclination of buyers to use qualified savings provides an incentive for advisors to ask about rollover assets as well as to offer comprehensive retirement income planning that may result in the purchase of a variety of retirement income products, thereby garnering greater wallet share. LIMRA research suggests that a recommendation from a financial planner or advisor influences rollover decisions.

A second reason rollover dollars hold such significance for companies — according to LIMRA research — is that as companies attract more rollover dollars, they will experience higher withdrawal rates from qualified funds by owners aged 70½ and over, since they are required to withdraw funds subject to IRS RMDs.

Table 1-2 shows the mean, median, and quartile age of 2015 GLWB buyers by demographic and contract characteristics. The data show variations in average purchase age such as non-qualified buyers who were two years older than IRA buyers. The average buyer age increases with larger premium contracts. Compared with other distribution channels, buyers at full-service national broker-dealers are a bit older.

Table 1-2: 2015 GLWB Buyers Average Age Analysis by Characteristics

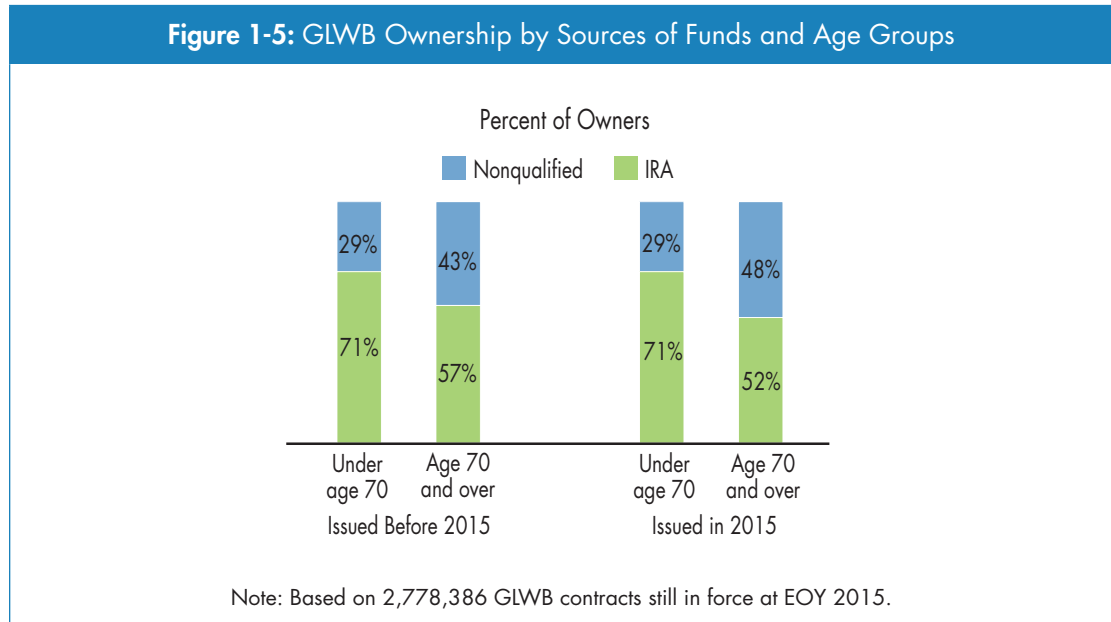
	Average Age			
	Mean	For Lower Quartile	Median	For Upper Quartile
Gender				
Male	63	58	62	67
Female	63	58	63	67
Market type				
IRA	62	57	62	66
Nonqualified	64	58	64	70
Share class*				
B-share	62	57	62	67
L-share	63	58	63	68
O-share	64	60	63	67
C-share	64	59	64	68
Single-joint				
Single	62	57	62	67
Joint	62	58	62	67
Asset allocation restrictions*				
Forced assets allocations	62	57	62	67
Managed volatility/dynamic asset allocations	62	58	62	67
Average premium size				
Under \$25,000	59	54	59	65
\$25,000 to \$49,999	62	57	62	68
\$50,000 to \$99,999	63	58	63	68
\$100,000 to \$249,999	63	58	63	67
\$250,000 to \$499,999	63	59	63	67
500,000 or higher	63	58	63	67
Distribution channel				
Career agent	61	57	61	66
Independent agent/independent B-D	62	57	62	67
Full Service National B-D	64	59	63	68
Bank	63	58	63	68

Note: Based on 228,221 GLWB contracts issued in 2015 and still in force at EOY 2015. Sample size analyzed for each variable may fluctuate slightly as not all fields may have been provided for each contract.

* We have not shown some measures to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.

Ownership of IRA and Nonqualified Annuities

Individuals under age 70 who use qualified savings to make their purchase emerge as the primary market segment for GLWBs. For contracts issued in 2015, a majority of buyers utilized qualified sources of funds, identical to contracts issued prior to 2015 (Figure 1-5). Buyers age 70 and over utilized both IRA and nonqualified sources almost equally for contracts issued in 2015, an indication that a portion of these buyers are interested in the deferred growth and income features.



As we will see later, the source of funds used to purchase the VA and the age of the VA owner are perhaps the most important factors in determining what percent of owners will take withdrawals from their GLWB contracts. The mix of business that is qualified will have an impact on how many customers will withdraw from their VAs in the future, and when they will start their withdrawals.

GLWB Owner and Contract Characteristics

Table 1-3 provides a summary of GLWB owner and contract characteristics at EOY 2015.

Table 1-3: GLWB Owner and Contract Characteristics				
	Issued before 2015	Issued in 2015	All Contracts in Force	Average Premium (for Contracts Issued in 2015)
Age of Owner				
Age 59 & under	23%	31%	24%	\$132,026
60 to 64	21%	27%	22%	\$151,014
65 to 69	25%	23%	24%	\$149,345
70 to 74	16%	12%	16%	\$144,806
75 to 79	9%	5%	9%	\$143,654
80 or older	6%	2%	6%	\$150,283
Average age	66 years	63 years	65 years	
Gender				
Male	50%	49%	50%	\$156,479
Female	50%	51%	50%	\$131,332
Market type				
IRA	66%	68%	67%	\$143,205
Nonqualified	34%	32%	33%	\$144,645
IRA by age				
Age 59 & under	24%	32%	25%	\$127,334
60 to 64	23%	29%	23%	\$153,272
65 to 69	26%	24%	26%	\$151,815
70 to 74	16%	10%	16%	\$145,449
75 to 79	7%	4%	7%	\$142,851
80 or older	4%	1%	3%	\$134,682
Nonqualified by age				
Age 59 & under	20%	28%	20%	\$143,500
60 to 64	18%	22%	19%	\$144,620
65 to 69	22%	23%	22%	\$143,919
70 to 74	17%	15%	17%	\$143,956
75 to 79	12%	9%	12%	\$144,368
80 or older	11%	3%	10%	\$160,161

Table 1-3: GLWB Owner and Contract Characteristics (continued)

	Issued Before 2015	Issued in 2015	All Contracts in Force	Average Premium (for Contracts Issued in 2015)
Distribution channel				
Career agent	21%	25%	21%	\$137,703
Independent agent/independent B-D	46%	43%	46%	\$142,959
Full Service National B-D	17%	14%	17%	\$161,991
Bank	16%	18%	16%	\$145,574
Cost structure				
B-share	59%	74%	61%	\$143,655
L-share	26%	14%	25%	\$165,184
O-share	4%	10%	5%	\$112,833
C-share	2%	1%	2%	\$141,803
Contract value, EOY 2015 as percent of contracts issued				
Under \$25,000	11%	8%	11%	N/A
\$25,000 to \$49,999	16%	16%	16%	N/A
\$50,000 to \$99,999	27%	30%	27%	N/A
\$100,000 to \$249,999	33%	33%	33%	N/A
\$250,000 to \$499,999	10%	11%	10%	N/A
\$500,000 or higher	3%	2%	3%	N/A
Contract value, EOY 2015 as percent of contract value				
Under \$25,000	1%	1%	1%	N/A
\$25,000 to \$49,999	5%	5%	5%	N/A
\$50,000 to \$99,999	15%	17%	15%	N/A
\$100,000 to \$249,999	39%	38%	39%	N/A
\$250,000 to \$499,999	25%	26%	25%	N/A
\$500,000 or higher	15%	13%	15%	N/A
Average contract value, EOY 2015	\$131,646	\$138,373	\$132,198	N/A
Median contract value, EOY 2015	\$91,167	\$97,318	\$92,308	N/A
Average premium received in 2015	N/A	\$143,667	N/A	\$143,667
Note: Percentages are based on number of contracts unless stated otherwise. Based on contracts still in force at EOY 2015. "Issued before 2015" based on 2,551,850 GLWB contracts; "Issued in 2015" based on 227,094 GLWB contracts; and "All contracts in force" based on 2,778,944 GLWB contracts.				
We have not shown some measures related to channels and share classes to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.				

Key Findings

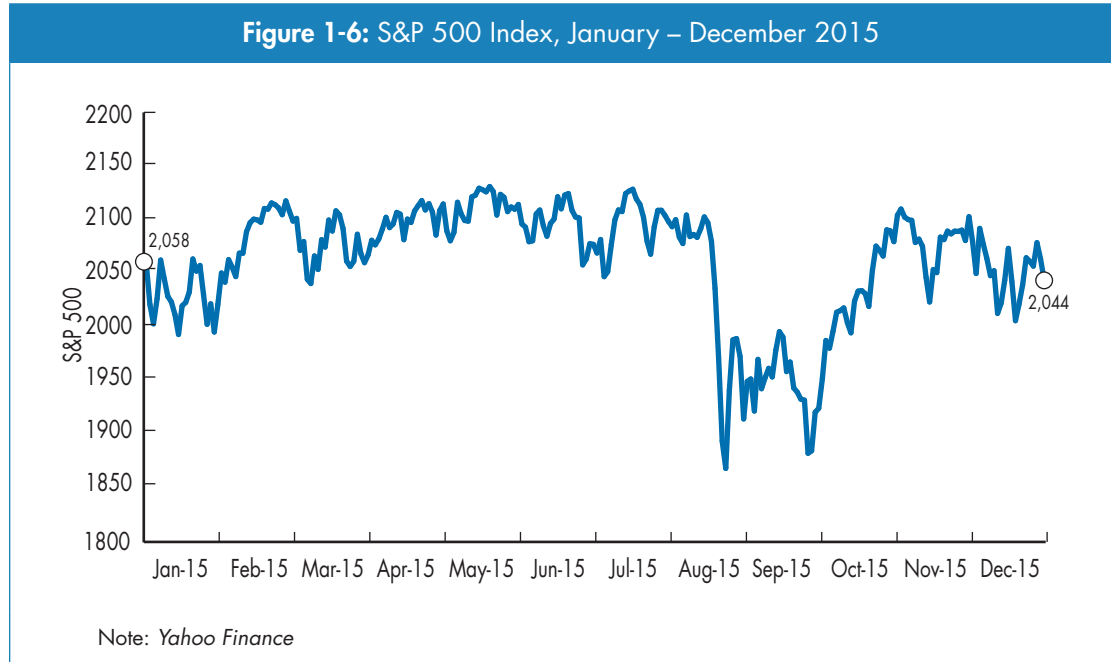
- B-share contracts are the most common cost structures. Sales of L-share contracts have dropped off significantly in the past few years as regulatory pressure has caused many companies to stop offering this share class.
- A majority of 2015 buyers had contracts values at the end of the year between \$100,000 and \$499,999. Although almost half of the contracts issued in 2015 had contract values of \$100,000 or more, these contracts constituted 79 percent of GLWB account values at EOY.
- The average premium received in 2015 for all GLWB contracts remained very attractive at \$143,700. The median premium was \$100,000.
- The average premium from contracts bought by males was 19 percent higher than from contracts purchased by females.
- The average nonqualified GLWB premium was \$144,600 slightly higher than the average IRA GLWB premium.

Average premium for
GLWB contracts issued
in 2015 = **\$143,700.**
Median premium =
\$100,000.

Benefit Base

Calendar year 2015 started with equity markets experiencing volatility as weakness in crude oil and a strengthening dollar caused equities to fluctuate. As the year progressed, equity markets slowly grew by mid-year driven by favorable corporate earnings and employment reports. In the second half of 2015, equity markets were upended by market and economic conditions in China, coupled with weakness in commodity prices. This was the first correction of more than 10 percent since the second half of 2011 (Figure 1-6). Equity markets were able to rebound in the fourth quarter as fears of China’s economic conditions combined with continued strong employment reports drove the S&P return (excluding dividends) up in the fourth quarter of 2015 but down 1 percent for 2015.

Figure 1-6: S&P 500 Index, January – December 2015



GLWBs are complex products and insurers are exposed to the risk that the underlying investments may underperform before or during the withdrawal period, and that the account balances in the contracts may be insufficient to cover the lifetime withdrawal guarantee. With a guarantee of lifetime benefit option — particularly on joint lives — insurers also are exposed to longevity risk. The performance of underlying investments may remain vulnerable to the complex mixture of risk arising from equity, interest rates, and the correlation thereof.

Over the last few years, insurance companies have worked to better manage the volatility of the subaccounts by restricting the funds into which GLWB owners can invest. This has evolved from asset allocation funds to automatic asset transfer programs, to most recently, managed volatility funds.

When analyzing the benefit bases of GLWBs, it is important to understand the details behind the equity market growth and volatility of 2015 as well as the withdrawal behavior of GLWB owners in that economic environment. The benefit bases in many GLWB riders are guaranteed to roll up for owners that delay taking their first withdrawal.

At beginning-of-year (BOY) 2015, 74 percent of contracts with GLWBs issued before 2015 had benefit base amounts that were greater than the contract value. At BOY, the average difference between the benefit base and the contract value was approximately \$8,400 for these contracts. On average, contract values were around 94 percent of the benefit bases across all contracts (Table 1-4).

Table 1-4: GLWB Benefit Bases and Contract Values, at BOY 2015

	Benefit Base Amount	Contract Value	
		Amount	Percent of Benefit Base
Sum	\$369,546,338,359	\$348,470,451,903	94.3%
Average	\$146,586	\$138,226	94.3%
Median	\$100,703	\$96,385	95.7%
Percent of contracts where benefit base was greater than contract value		74%	
Note: Based on 2,521,024 GLWB contracts issued before 2015 with GLWB benefit bases as of BOY and EOY 2015. Excludes contracts for which the GLWB benefit bases could not be determined.			

With the investment returns after expenses negative, nearly all (98 percent) of the GLWB contracts had benefit base amounts greater than contract values by EOY (Table 1-5).

Table 1-5: GLWB Benefit Bases and Contract Values, at EOY 2015

	Benefit Base Amount	Contract Value	
		Amount	Percent of Benefit Base
Sum	\$384,361,468,679	331,581,780,678	86.3%
Average	\$152,462	\$131,527	86.3%
Median	\$105,116	\$91,104	86.7%
Percent of contracts where benefit base was greater than contract value		98%	
Note: Based on 2,521,024 GLWB contracts issued before 2015 with GLWB benefit bases as of BOY and EOY 2015. Excludes contracts for which the GLWB benefit bases could not be determined.			

Average contract value to average benefit base at EOY 2015 = **86%** — down from **94%** at BOY.

Overall contract values dipped 8 percentage points to 86 percent of the benefit bases at EOY 2015. Despite this declining ratio of contract value to benefit base, the ratio is up from EOY 2008 (after the market plunge) when contract values were 73 percent of the benefit base amounts.⁷

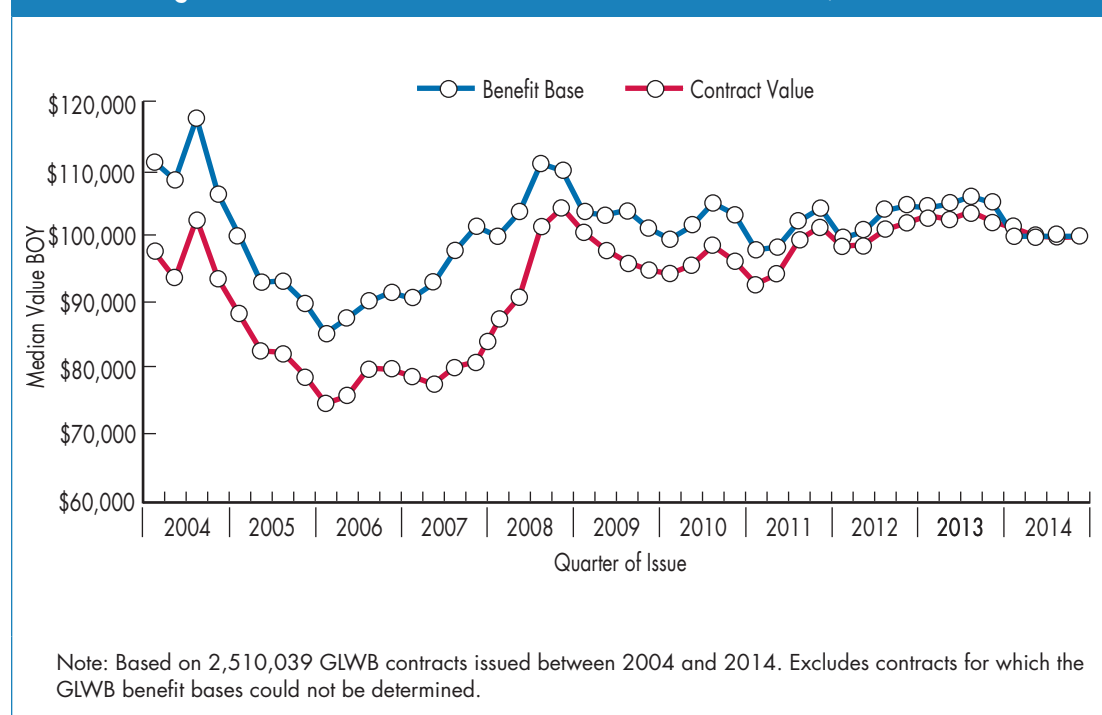
Benefit Base by Quarter and Year of Issue

When a contract was issued has an impact on if — and how much — the benefit base might exceed the contract value. Some contracts have experienced considerable market volatility — involving both gains in the early periods of 2005–2007, deep losses during the market crisis in 2008–2009, moderate gains in 2010, a flat return in 2011, and then improvements in 2012–2014.

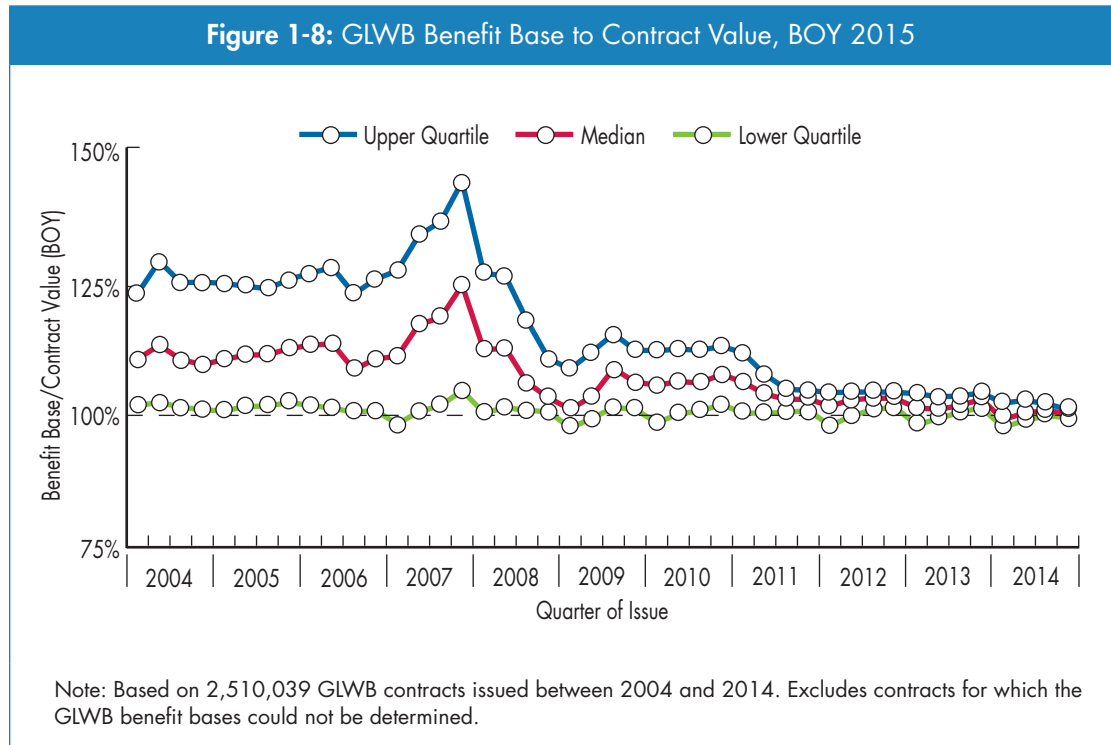
⁷ *Guaranteed Living Benefits Utilization — 2008 Data*, LIMRA Secure Retirement Institute, 2009.

For example, the contracts issued in 2004 experienced robust market gains in 2006–2007 and as a result had less of a setback during the market plunge in 2008 and subsequent market changes (Figure 1-7). Conversely, contracts issued between 2006 and early 2008 had less time to realize gains or suffered significant losses, making the gap between the benefit base and contract value wider as of BOY 2015. Market losses and automatic benefit base roll-ups had the greatest impact on contracts issued in the second half of 2007, resulting in a larger gap between the contract value and benefit base. However, contracts issued in the last quarters of 2008 through early 2011 had a very similar gap between contract values and benefit bases — as gains in contract values were similar to the increase due to benefit-based roll-ups.

Figure 1-7: GLWB Median Contract Value vs. Benefit Base, BOY 2015



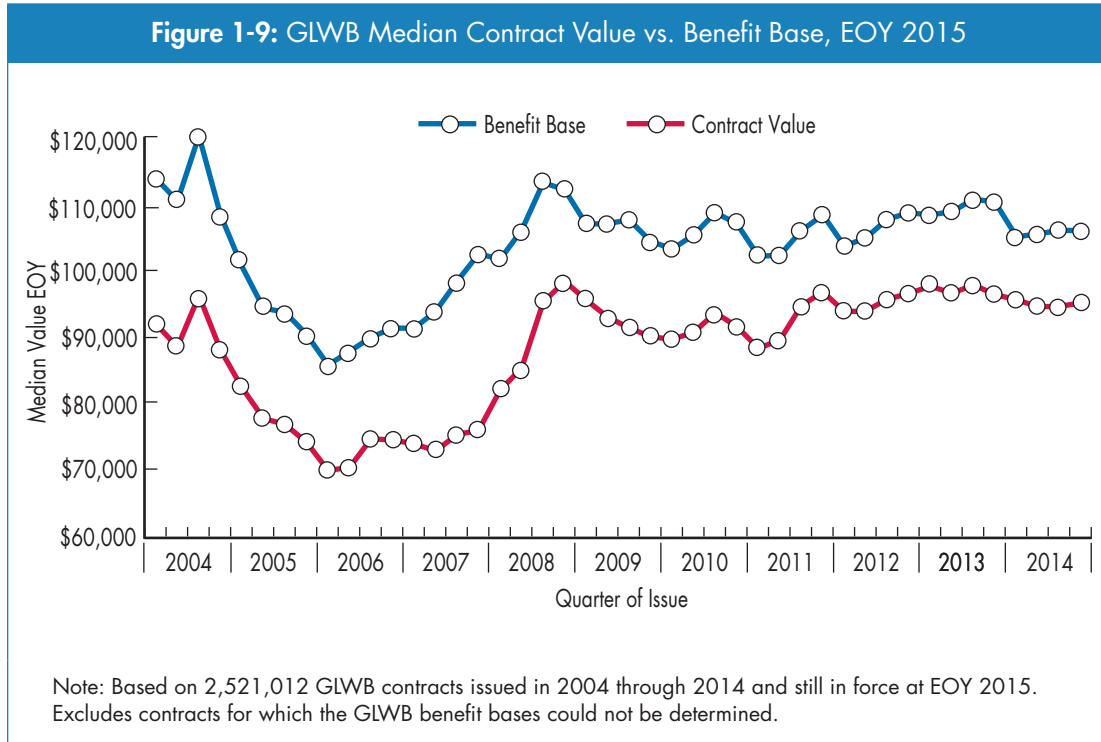
Looking at the quartile ranges of the benefit base to contract value (BB/CV) ratios, contracts issued before 2008 had the greatest deviations in BB/CV ratios (Figure 1-8).



The upper and lower quartiles refer to the distribution of BB/CV ratios at BOY 2015, not the distribution of contract values. The inter-quartile range gives a sense of how widely (or narrowly) the ratios are distributed. At BOY 2015, the median of contract value to benefit base ratios issued from Q1 2004 through Q4 2007 ranged from 108 to 124 percent.

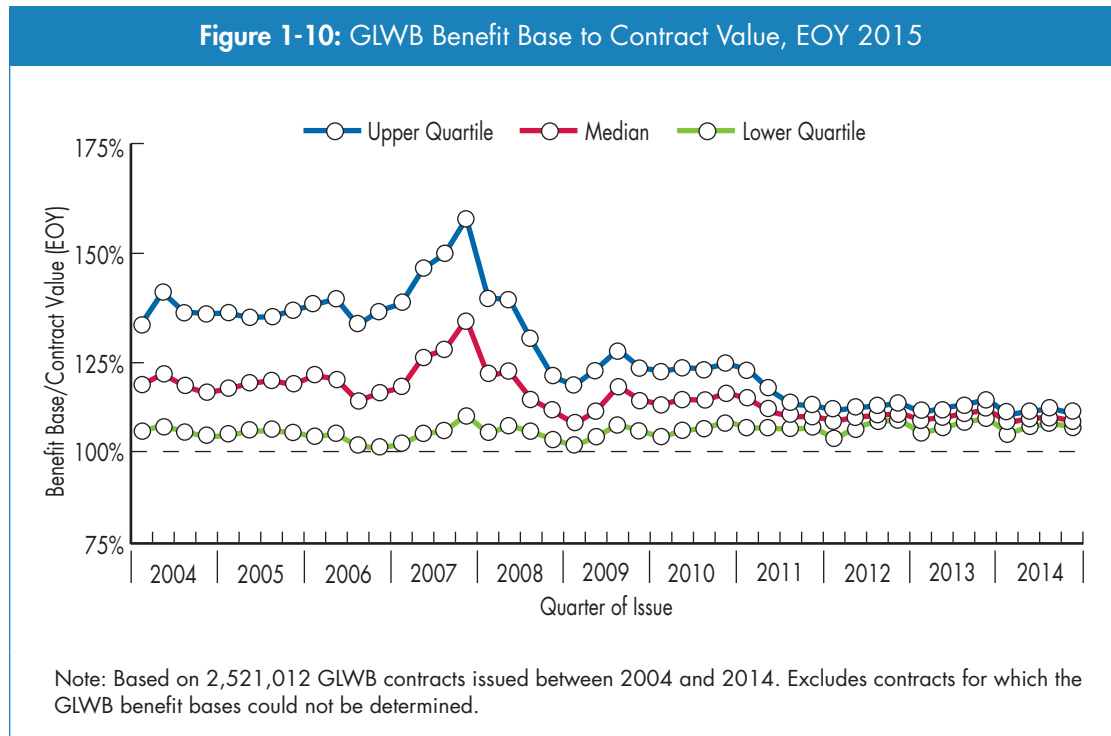
As one would expect, the inter-quartile range narrows with decreasing duration (more recently issued contracts tend to have a tighter distribution) because there has been less time for any group of contracts to pull far ahead (or fall far behind) the rest of the pack in terms of performance.

Due to the relatively flat equity markets and negative investment returns after expenses, the EOY relative relationship between benefit base and contract value expanded when compared to BOY (Figure 1-9). The median contract value decreased from \$96,400 at BOY 2015 to \$91,100 at EOY. At the same time, the median benefit bases increased from \$100,700 at BOY to \$105,100 at EOY.



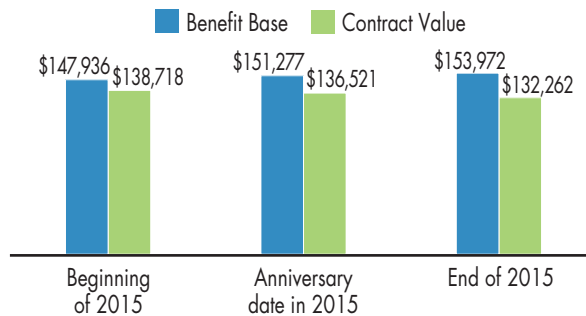
As investment performance turned negative in 2015, the spread between the contract value and benefit base widened. For contracts issued prior to Q4 2008, the gap remained substantial. One main reason is that contracts issued before Q4 2008 had richer benefit and roll-up features compared with contracts issued after the market crisis, when most benefits and roll-up rates were adjusted down considerably.

The inter-quartile analysis at EOY 2015 shows an increase in BB/CV ratios compared to BOY (Figure 1-10). The median ratios of benefit bases in contracts issued from Q1 2004 through Q4 2007 ranged from 116 percent to 134 percent at EOY.



Comparing average contract values and benefit base amounts at BOY, on the anniversary date, and at EOY, we find that the average contract value declined 4.7 percent from BOY to EOY (Figure 1-11). During this time, the average benefit base grew 4.1 percent. On the contract anniversary date, the benefit base registered an increase of 2.3 percent mainly driven by deferral bonuses for non-withdrawals.

Figure 1-11: GLWB Average Contract Values and Benefit Bases at BOY, on Anniversary Date, and at EOY 2015



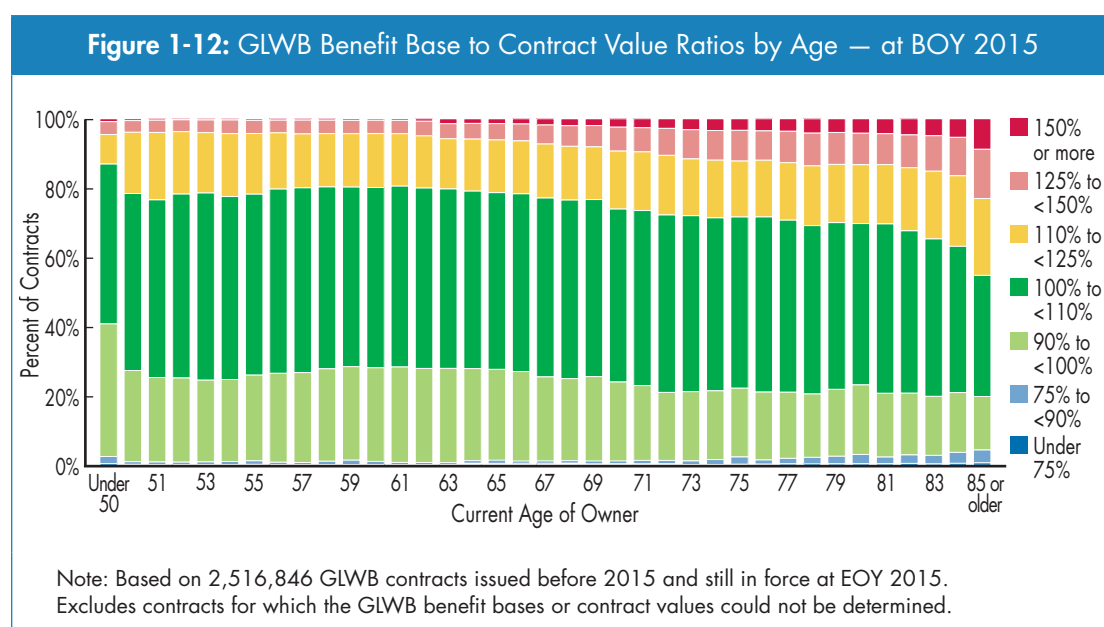
Note: Based on 2,211,320 GLWB contracts issued before 2015 and still in force at EOY 2015. Excludes contracts for which the GLWB benefit bases (as of BOY, the contract's anniversary date, or EOY) could not be determined.

Benefit Base to Contract Value Ratios by Age

The analysis of BB/CV ratios can be expanded to include age or age cohorts to see how the withdrawal risks from a particular age or age cohort can be linked to benefit base to contract value ratios. The BB/CV ratios are impacted by forces like the duration of contracts and the impact of market returns on the contract values, infusion of new contracts in the book by age groups, richness of in-force contract features like automatic roll-up percentages, and impact of withdrawals on the contract values and benefit base. This analysis can offer insurance companies helpful indications of withdrawal risks associated with each age or age cohort, and comparisons with the industry. Our analysis shows that BB/CV ratios differ by age.

Three quarters of contracts had a BB/CV ratio between 90% and less than 110% at BOY.

Figure 1-12 shows the BB/CV ratios by age at BOY 2015. At BOY, for in-force contracts issued before 2015, a quarter of contracts had BB/CV ratios of 90 percent to less than 100 percent, and very few contracts had a ratio below 90 percent. Three quarters had a BB/CV ratio of 90 percent to less than 110 percent.



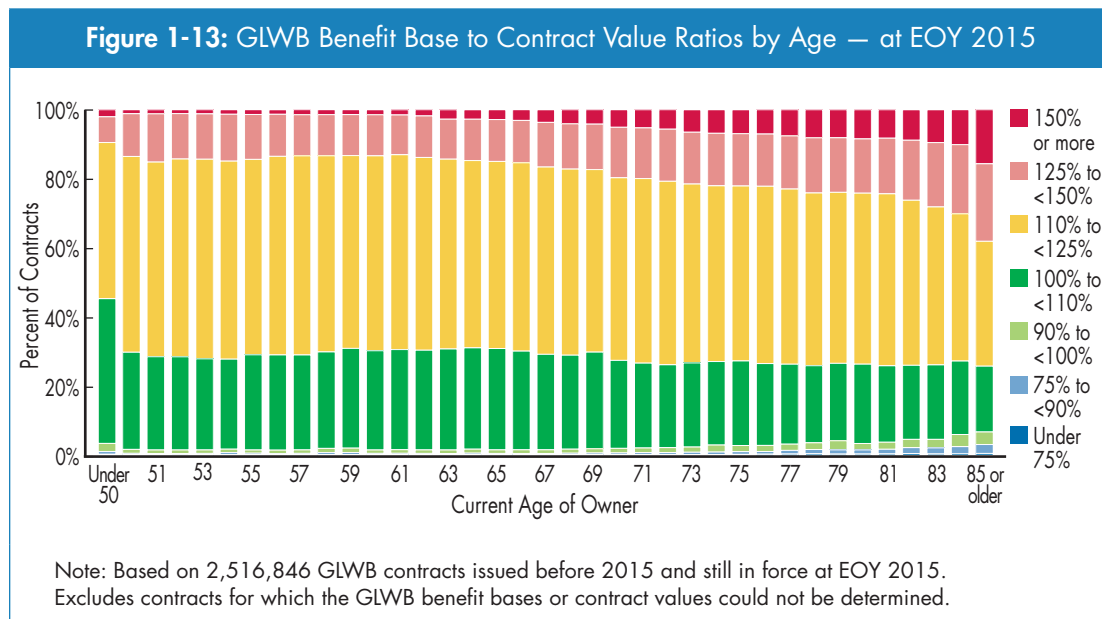
This clustering around 100 percent was due to increased market performance in the prior year and the tendency of the benefit base to move in unison with the contract value due to step-ups for contracts that had no withdrawals. In addition, 16 percent of the contracts had benefit bases exceeding contract values by 110 percent to less than 125 percent. Only 8 percent of the contracts had BB/CV ratios of 125 percent or more.

However, owners aged 70 or older had comparatively more contracts with BB/CV ratios of 125 percent or more (similar to what we have seen in past years). One in eight contracts with owners aged 70 and older — had BB/CV ratios of 125 percent or more. Though owners aged 70 or older constituted only a third of all contract owners, half of all contracts with BB/CV ratios of 125 percent or more were within this age cohort. Older owners hold comparatively more contracts with higher BB/CV ratios because:

- They are more likely to own contracts for a longer duration of time. So these contracts are likely to have suffered from increased market volatility.

- Older owners — particularly those aged 70 or older — are more likely to take withdrawals over a longer period of time. Also, those funded with qualified money are required to begin taking withdrawals at age 70½. If their withdrawal amounts remain within the maximum amount offered in the contract, their contract values may diminish due to the withdrawals while the benefit bases are likely to remain level and relatively high.
- They may also have had their contracts for more years in deferred withdrawal mode prior to withdrawals, while annual roll-up features pushed up their benefit base amounts automatically.

Figure 1-13 shows the distribution of BB/CV ratios by age at EOY 2015. The contracts with BB/CV ratios (less than 100 percent) have decreased from 26 percent at BOY to only 2 percent by EOY.



At the end of 2015, only 30 percent of the contracts had a BB/CV ratio under 110 percent. This was a significant shift from the over three quarters of contracts the have a BB/CV ratio under 110 percent at the BOY, driven by the lack of investment performance and fee-loads reducing cash values.

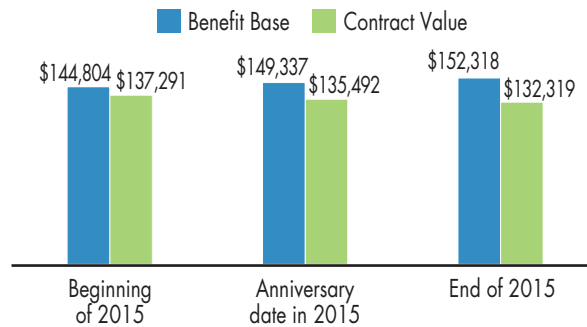
Only **3 in 10** contracts had a BB/CV ratio under **110%** at EOY.

Benefit Base for Contracts with Withdrawals versus without Withdrawals

We can further expand our benefit base analysis to look at those contracts that had withdrawals compared with those that did not have withdrawals in 2015. When withdrawals are made from GLWB riders, in most cases the benefit base remains unaffected while contract values are reduced by the withdrawal amounts. One risk that exists with the contracts that utilize guaranteed withdrawal riders is that the contract values in these contracts will decline — absent any market growth. In these cases, the contract may eventually run out of money. This could be expedited if negative returns happen early in the withdrawal phase, due to the impact of the sequence of returns.

For in-force contracts issued before 2015 that did not have withdrawals in 2015, the benefit base rose steadily up 3.1 percent on the contract anniversary date and registering a 5.2 percent increase at the EOY (Figure 1-14). This increase can be attributed mainly to auto-increases and step-ups of benefit bases for contracts with non-withdrawals. Despite no withdrawals being taken, the average contract value moved in the opposite direction, declining 3.6 percent for the year.

Figure 1-14: GLWB Average Contract Values and Benefit Bases for Contracts Without Withdrawals in 2015



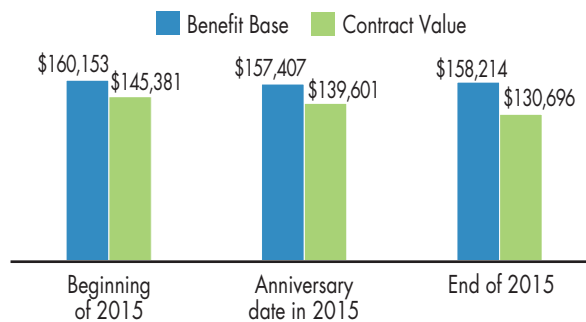
Note: Based on 1,556,992 GLWB contracts issued before 2015 and still in force at EOY 2015 where there were no withdrawals made or current-year premium received. Excludes contracts for which the GLWB benefit bases or contract values could not be determined.

The difference between the benefit base and contract values was more prominent among contracts that incurred withdrawals in 2015 (Figure 1-15). The average benefit base declined 1.2 percent, driven in part by younger owners taking excess withdrawals. Absent of any investment gains after expenses, contract values dropped 10 percent by EOY.

The difference between the average benefit base and average contract value for contracts without withdrawals was **15%** of EOY contract value.

The difference between the average benefit base and average contract value for contracts with withdrawals was **21%** of EOY contract value.

Figure 1-15: GLWB Average Contract Value and Average Benefit Base for Contracts With Withdrawals in 2015



Note: Based on 574,025 GLWB contracts issued before 2015 and still in force at EOY 2015 where there were withdrawals made, but no current-year premium received. Excludes contracts for which the GLWB benefit bases or contract values could not be determined.

Withdrawal Benefit Utilization

Utilization

Determining whether a contract owner has actively “used” a GLWB during the year is straightforward. If partial withdrawals have occurred, then benefit utilization has occurred. However, determining whether contract owners will continue to take withdrawals up to the maximum allowed under the terms of the benefit, or whether they will take benefits for life, is more difficult to determine. However, owners’ inclinations to take lifetime withdrawals are more obvious when they take withdrawals from a systematic withdrawal plan (SWP).

Owners are effectively utilizing the GLWB benefits if they take withdrawals on a continuous basis through SWPs, and withdrawal amounts remain within the maximum allowed.

Much of the present study is based on a single calendar year. However, in some sections we analyzed withdrawal activity over time. To try and assess overall withdrawal behavior, we asked companies to provide cumulative total withdrawals prior to 2015 (not all companies could provide this information). In addition, some companies found it difficult to distinguish systematic withdrawals — which are more likely to be associated with utilization of GLWBs — from non-systematic withdrawals. So,

LIMRA defined “utilization” of GLWBs as the presence of partial withdrawals during the year, with the caveat that benefit “use” may occur in other ways.

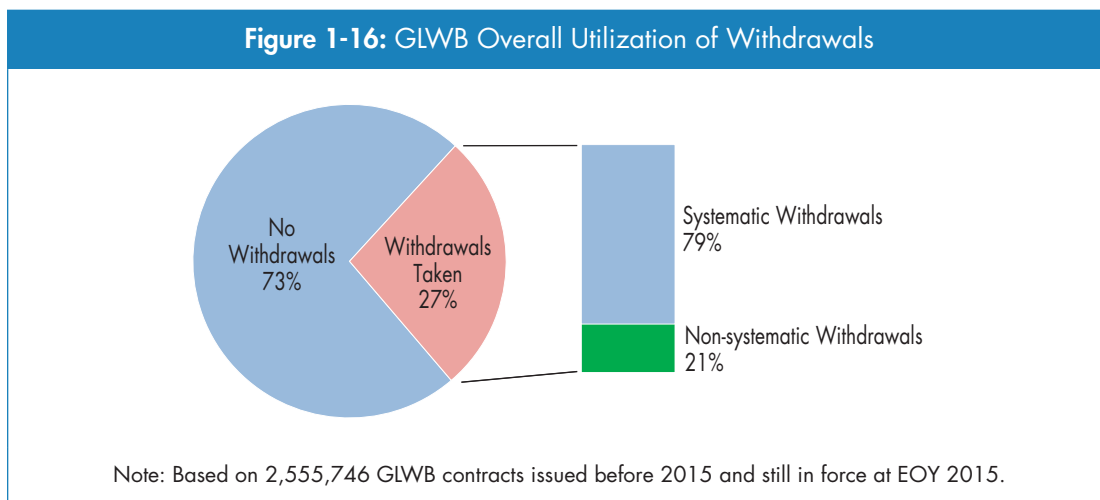
In this report, we emphasize five key determinants that will guide companies in understanding the intention of owners to use withdrawals as a lifetime income stream:

- Age of customers taking withdrawals — At what ages are owners likely to take withdrawals and how many are likely to take withdrawals?
- Source of funding for their annuities and how this impacts withdrawal behavior
- When they take their first withdrawal — Are they likely to continue withdrawals once they start?
- Method for withdrawals — Are the customers taking withdrawals through an SWP or through occasional withdrawals?
- Amount of withdrawals — Are withdrawal amounts within the maximum annual income amount allowed in their contracts?

If customers take withdrawals on a continuous basis through SWPs, and withdrawal amounts remain within the maximum allowed, it is very likely they are utilizing the GLWB in their contracts. Our findings suggest that this is the case for most of these owners.

Overall Utilization for Contracts Issued Before 2015

For VA contracts with GLWBs issued before 2015 and still in force at EOY 2015, only 27 percent had some withdrawal activity during 2015 (Figure 1-16). Nearly 8 in 10 of those were systematic withdrawals.



For contracts issued before 2015 and with withdrawals in 2015:

- The total withdrawal amount from GLWBs was \$7.1 billion, or 2.0 percent of assets in force at BOY.
- Among contracts with partial withdrawals, the median amount withdrawn was \$6,000, representing 6.0 percent of the median BOY contract value of \$101,100 in contracts that had withdrawals.
- The average withdrawal amount for contracts issued before 2015 that incurred withdrawals in 2015 was \$10,390. The average withdrawal rate was 7.1 percent based on the average BOY contract value of \$146,300. This average is impacted by younger owners that withdraw amounts that significantly exceed their withdrawal benefit maximum. A larger than normal percentage of these owners who take partial surrenders may eventually surrender their contracts.

27% of all contracts had some withdrawal activity during 2015; **8 in 10** used systematic withdrawals.

Median GLWB withdrawal amount in 2015 = **\$6,000.**

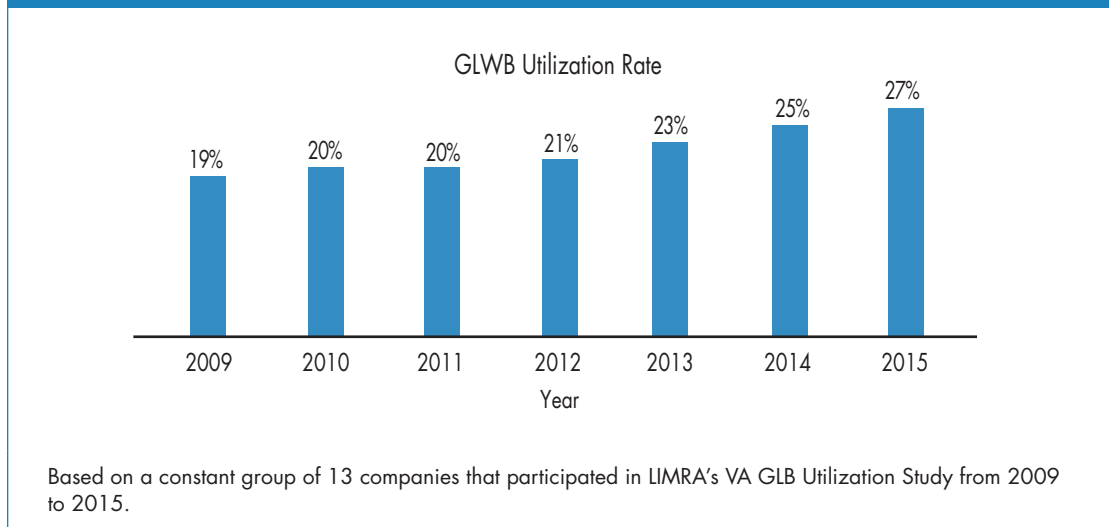
Overall utilization rates have gradually increased for contracts in force for an entire year.

96% of GLWB customers who purchased their contracts in 2014 and took withdrawals in 2014 also made withdrawals in 2015. Owners who commence withdrawals are likely to continue withdrawing for their lifetime.

- Withdrawal activity in two consecutive years is a more reliable indicator of a contract owner’s intention to make ongoing withdrawals. For contracts issued in 2014 with withdrawal activity in that year, 96 percent continued withdrawals in 2015. Our previous annual studies also found that a high percent of owners who start withdrawals continue those withdrawals in the following year — a strong indication that owners who commence withdrawals are likely to continue withdrawing for their lifetimes.
- The median systematic withdrawal amount was \$5,700, which amounts to 5.5 percent based on a BOY contract value of \$103,800.

Based on a constant group of 13 companies that participated in LIMRA’s VAGLB Utilization Study from 2009 to 2015, overall utilization rates have gradually increased for contracts in force for an entire year (Figure 1-17).

Figure 1-17: Overall GLWB Utilization Rates



Some of the increase in withdrawal activity over the past several years can be attributed to the aging of the GLWB block of business, as new issues to younger buyers has slowed. Using the same constant group of companies, the average age of GLWB owners increased from 65 in 2009 to 66 in 2015; the proportion of owners aged 70 or older increased from 19 percent in 2009 to 27 percent in 2015.

However, we found that the source of funds and age of owners are the two main influences on withdrawal activity in GLWB riders. The size of the contracts, deferral incentives, duration of contracts, and the channels through which the customer bought the annuity also have an impact on how customers take withdrawals, but these factors are not as significant as age and source of money. Understanding how these factors influence withdrawals will help companies to measure their own risk compared with the industry.

We also need to emphasize that GLWBs are the most popular annuity products for younger individuals who want to guarantee a portion of their future income. Identifying who is making the withdrawals and when is important in understanding the withdrawal behavior of GLWB owners.

To address the need for guaranteed lifetime income, insurance companies have focused on two areas — products that provide income in the future when the client may need it, depending upon the buyer preferences; and guaranteed income for immediate use. In other words, is the individual looking for ‘income later’ or ‘income now’? Both product types help the customer to achieve the same goal — securing a guaranteed lifetime income in retirement.

A GLWB or a GMIB rider addresses the need for income later. In addition to offering a guaranteed lifetime income, these riders also provide built-in flexibilities that owners can trigger to receive income at any point in the future. As we showed earlier, a majority of GLWB buyers are under age 65, and at or near retirement. The traditional immediate income annuity typically attracts older investors (with an average age of 72 years) who are focused on maximizing guaranteed income that starts immediately.⁸

The overall utilization rate for GLWB contracts over the past few years has slowly increased. However, this is only one of several measures and this statement alone without the context of the other factors we have mentioned could be misleading. The next few pages will address some of the other factors that have an impact on GLWB owner withdrawal behavior.

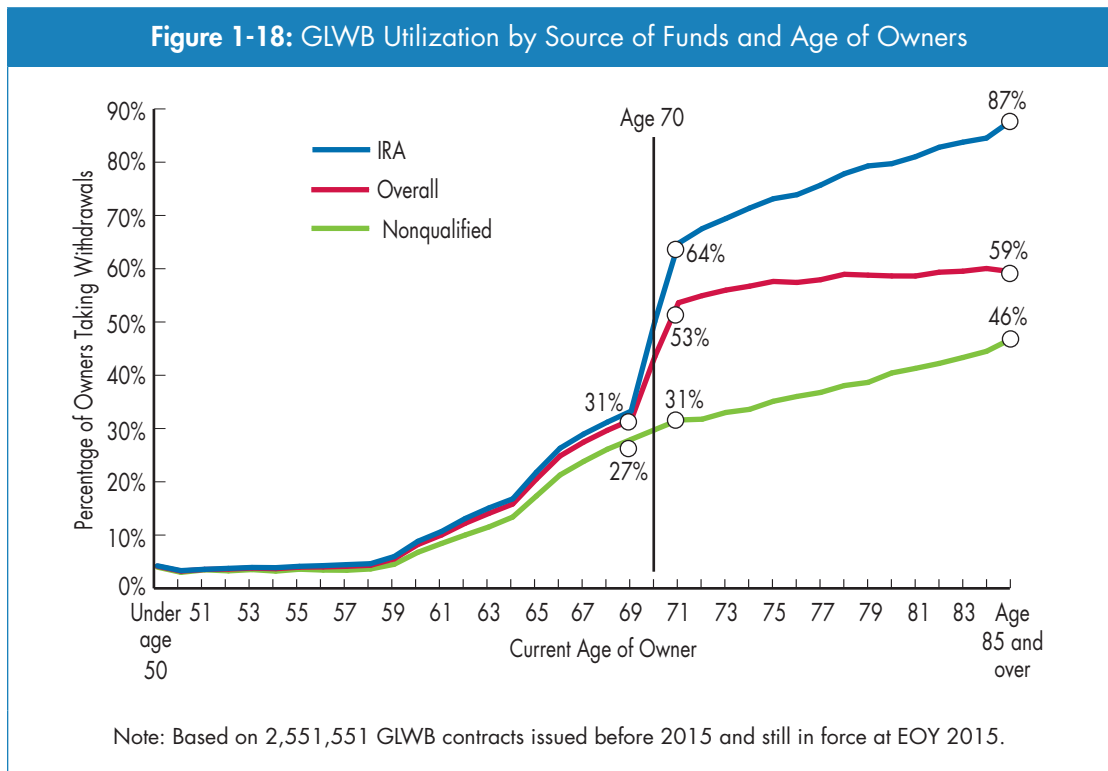
⁸ *Creating Guaranteed Lifetime Income: Income Annuity Buyer Study*, LIMRA Secure Retirement Institute, 2016.

Withdrawal Activity by Source of Funds

Just over **7 in 10** VA GLWB owners over age 70 are taking withdrawals from their qualified annuities.

The source of funds is one of the most important factors in understanding customer withdrawal behavior.

Examining withdrawal activity by source of funds and customer age shows that the GLWB utilization rate is quite high for older customer segments (Figure 1-18).



The withdrawal behavior of GLWB owners can be categorized into three life stages: pre-retirement, entering retirement, and RMD. Up to age 60, when most owners are not retired, withdrawal rates for customers who use either qualified or nonqualified money to buy their contracts remains low — 6 percent or lower. Withdrawals for both types of owners do not start to rise until they reach age 60 or later, when some of the owners enter the retirement phase. In this phase, the percent of customers taking withdrawals rises steadily in parallel for both qualified and nonqualified owners. In many GLWBs, owners become eligible to withdraw starting at age 60. However, between ages 60 and 70 — sometimes termed as the transition ages in retirement — few customers are fully utilizing the withdrawal benefits.

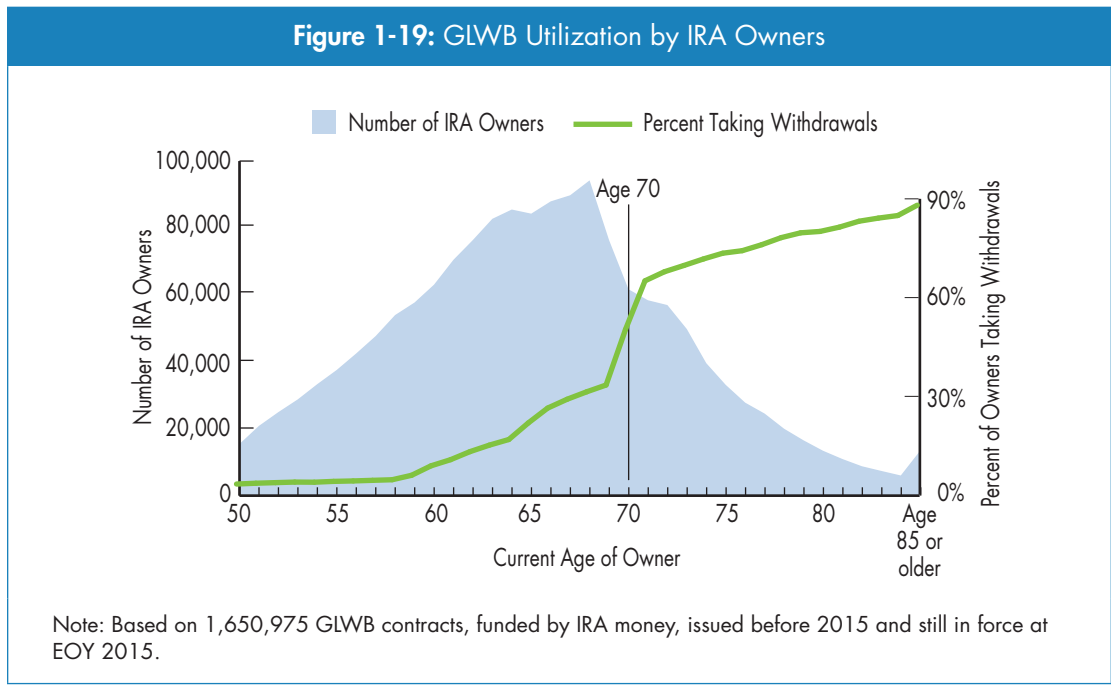
After age 70½, qualified annuities force owners to take RMD withdrawals. As a result, the percent of customers with withdrawals quickly jumps to 64 percent by age 71 and slowly rises to 87 percent for ages 85 and older. Seventy-two percent of VA GLWB owners over age 70 take withdrawals from their IRA annuities.

Owners are more likely to refrain from using lifetime withdrawal benefits if they bought the annuity with nonqualified money. Nonetheless, there is a steady increase in the proportion of owners who make withdrawals as they advance in age. Over 45 percent of these customers take withdrawals after age 85.

While 71 percent of contracts issued before 2015 that are owned by individuals under age 70 were funded with qualified money, almost half (43 percent) of the contracts owned by customers age 70 or above are nonqualified.

A shift will take place as **nearly half** of owners of IRA annuities (aged 60–69 today) will have to take withdrawals over the next decade due to RMDs.

Figure 1-19: GLWB Utilization by IRA Owners



The distinction between qualified and nonqualified sources of funds is important for several reasons.

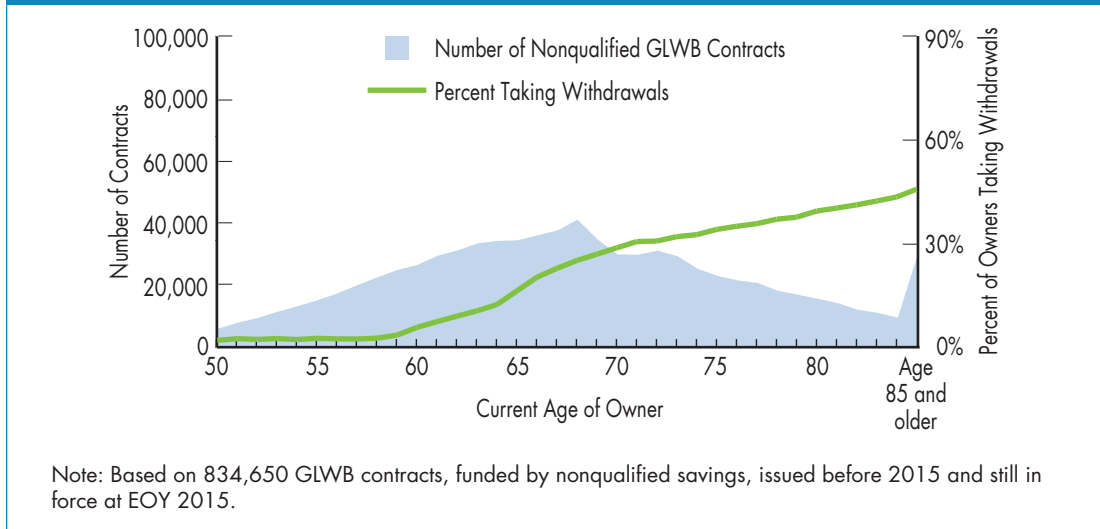
- Overall withdrawal activity — even the composite withdrawal activity by age cohort — is not a reliable measure of actual risk. The measure is particularly skewed downward because the majority of current GLWB owners are under age 70, and most of them have not yet started withdrawals.
- Only 456,500 GLWB owners aged 70 or over funded their contracts with qualified money. They represent only a quarter of all GLWB owners who funded their annuities with qualified savings. In the next decade, another half of owners (more than 825,000) currently between ages 60 and 69 will reach age 70 and a majority of them will take withdrawals from their contracts to meet RMDs.

In 2015, only **a quarter** of current qualified owners were aged 70 or above and **7 in 10** of these owners took withdrawals. In the next 5 years, another **quarter** will reach RMD age.

- In 2015, 69 percent of owners aged 70 or older, who funded their GLWB contracts with qualified savings, took withdrawals. In comparison, only 21 percent of IRA owners aged 60–69 took withdrawals. The need to take RMDs will essentially drive withdrawal behavior for contract owners, and the more a company’s customer mix is weighted with qualified contract owners, the more carefully it needs to manage its book of business.

In comparison, 40 percent of nonqualified annuity owners were aged 70 or above. The percent of nonqualified owners taking withdrawals in this age group was 36 percent in 2015, roughly half of the percentage of owners withdrawing from their qualified annuity (Figure 1-20).

Figure 1-20: GLWB Utilization by Owners With Nonqualified Funds



Today, sizeable proportions of retirees also have access to defined benefit pension plans and may not need to use the guaranteed withdrawal benefits from their annuities. However, in the future, withdrawal activity will likely increase considerably — particularly among the Baby Boomers — since fewer will have defined benefit pensions as a source of guaranteed income.

Taking First Withdrawals

One of the important value propositions for GLWB annuities is the ability to create guaranteed lifetime income. To better understand owners' inclinations to take lifetime withdrawals, we have analyzed owner withdrawal behavior by considering at what age or in what year of annuity ownership owners are likely to initiate their first withdrawal. We also look at how many will continue taking withdrawals once they start doing so. Extending that logic, 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 differs from contracts that have not had withdrawals or excess withdrawals.

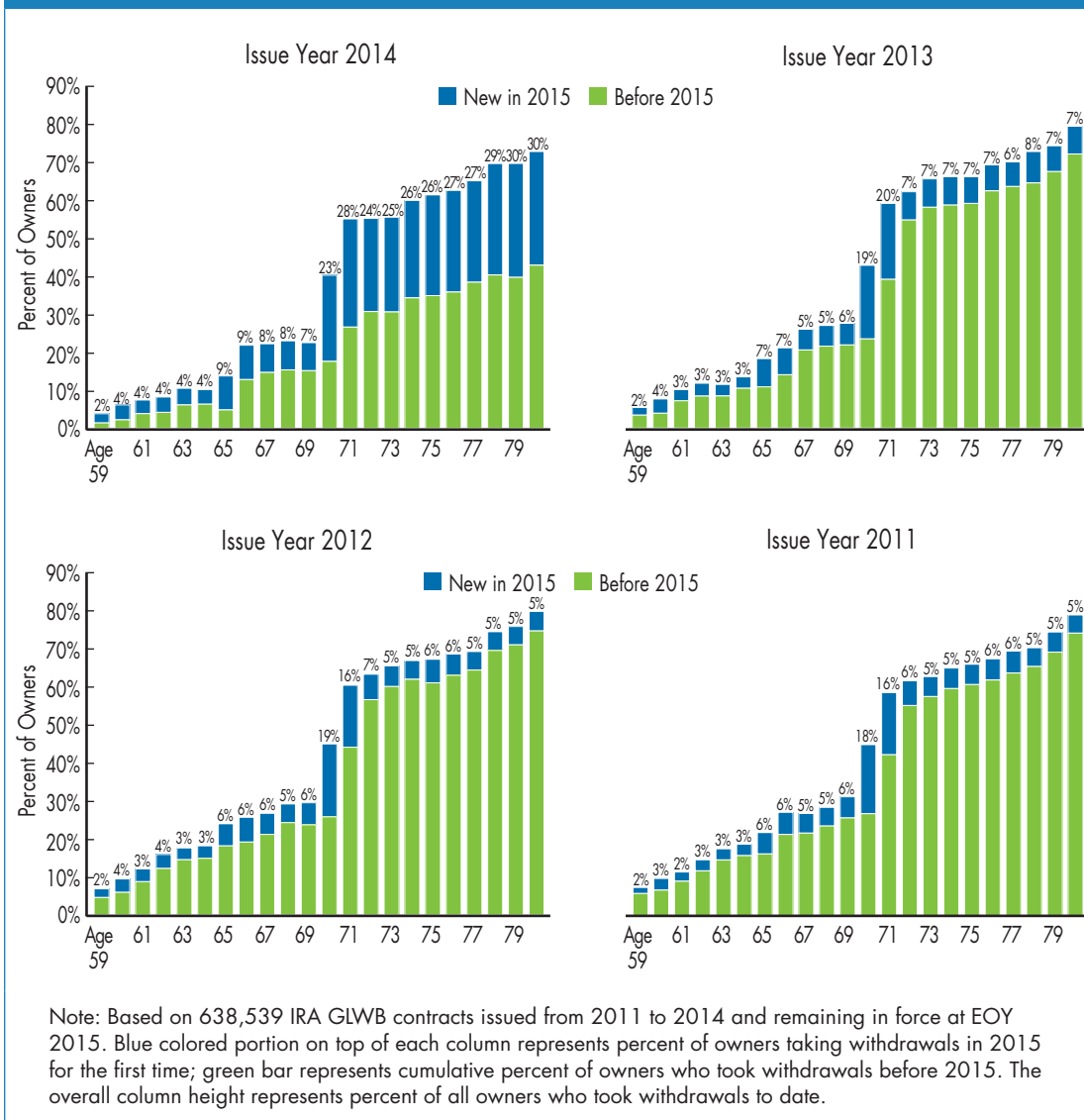
Analysis of when owners are likely to take first withdrawals provides important information on withdrawal risks of these contracts. These findings can help insurance companies to assess risk more precisely by identifying clusters of owners who are likely to start withdrawals in their first year, second year, etc. after the purchase. The first withdrawal activity analysis can be done in a few different ways: First, we determine the percentage of owners who initiated their first withdrawals in 2015, by age, source of money and issue year, to provide various trends and relationships. Second, we explore how sensitive the first withdrawal activities are to the potential increases in guaranteed annual withdrawal percentages, typically determined by age bands prescribed in the GLWB contracts. In other words, do owners take advantage of the maximum guaranteed withdrawal rates occurring in the current year or wait if the withdrawal percentage amount is set to increase in the next year? Third, we analyze the first withdrawal history for owners from a particular issue year, and track how age and sources of money influence their first withdrawals. Finally, we will extend this analysis for owners who take withdrawals through SWPs.

Taking First Withdrawal from IRA Annuity in 2015

For IRA contracts issued in 2014, just over **1 in 4 owners** aged 70 and older took their first withdrawals in 2015.

There is a distinct pattern of withdrawal behavior from IRA-funded GLWB annuities, principally driven by age and the need to take RMDs. Figure 1-21 shows the percent of owners taking their first withdrawals in 2015 by each of the last four issue years.

Figure 1-21: GLWB First Withdrawals in 2015 (IRA Contracts Only)



For most of the 2014 buyers, 2015 was the first complete year they owned their annuities and also the first year of their withdrawals. Only a small percent of the 2014 buyers under age 70 took their first withdrawals in 2015. However, the percentage of owners taking their first withdrawal jumps at ages 70 and older. The reason more owners over age 70 took withdrawals in 2015 is that many IRA annuity owners deferred their RMD withdrawals in 2014, because they may have already taken RMD withdrawals before purchasing the contracts or funded RMDs from other qualified investments. We have also provided data showing first withdrawals for contracts issued in 2011–2013. They follow a similar pattern as contracts issued in 2014 except they do not have the large increase in contracts taking their first withdrawals for owners over age 71.

Many insurance companies provide tools to assist GLWB buyers who take withdrawals, particularly to satisfy RMDs on or before a particular date when they turn age 70½, so that RMDs are not treated as excess withdrawals. If the annual RMD amount exceeds the annual guaranteed income amount, most companies will not treat it as an excess withdrawal. Also, nearly all companies administer programs to calculate RMD amounts and offer SWPs to receive RMDs.

For IRA contracts, age and the need to take RMDs are the principal drivers for withdrawals. In Table 1-6, we assessed the percentage of IRA owners taking their first withdrawal in 2015 around age 70½ (when RMD withdrawals must begin for qualified contracts).

Table 1-6: GLWB Percentage of IRA Owners Taking First Withdrawal in 2015

	Contracts Issued in 2010	Contracts Issued in 2011	Contracts Issued in 2012	Contracts Issued in 2013	Contracts Issued in 2014
Attained Age during 2015	5 – 5.9 years	4 – 4.9 years	3 – 3.9 years	2 – 2.9 year	1 – 1.9 year
Age 67.5	5%	5%	5%	6%	8%
Age 68.5	4%	5%	5%	6%	8%
Age 69.5	10%	10%	11%	10%	12%
Age 70.5	24%	25%	25%	28%	32%
Age 71.5	7%	8%	8%	9%	25%
Age 72.5	5%	5%	6%	6	26%
Age 73.5	5%	6%	5%	8%	25%

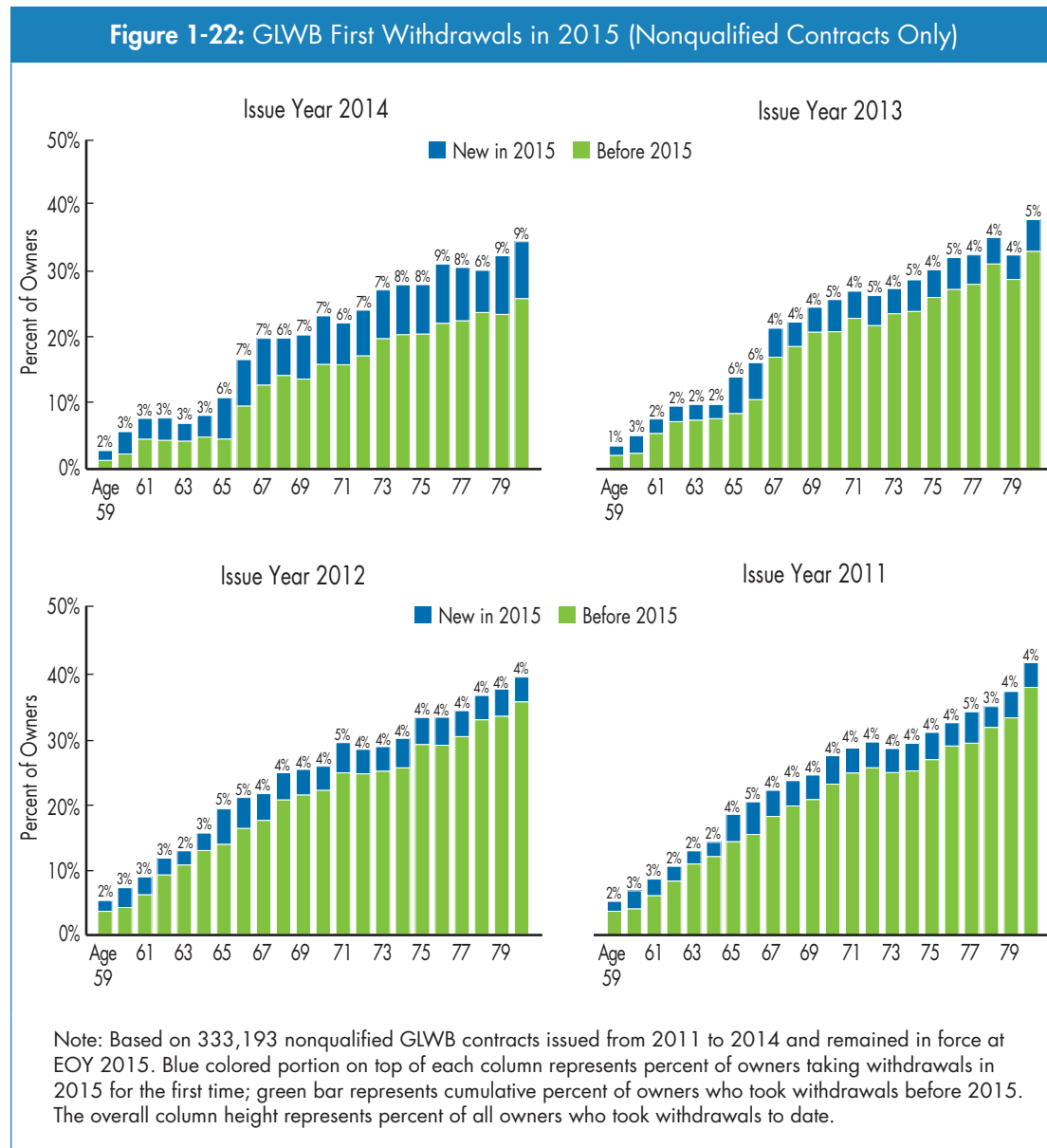
Note: Based on 129,391 IRA GLWB contracts issued from 2010 to 2014 and remaining in force at EOY 2015.

A few highlights from Table 1-6 include:

- The percentage of owners under age 69 taking their first withdrawals in 2015 for contracts issued in each of the last four years was nearly identical: a range of 5 to 8 percent.
- Around 1 in 10 qualified owners turning age 69½ took withdrawals.
- Due to RMDs, the percent of owners taking their first withdrawals around age 70½ jumps to a range of 25 to 32 percent.
- For owners aged 71½ and older, just over 1 in 4 took their first withdrawal for contracts issued in 2014. For all other issue years, the percentage taking their first withdrawals drops to around 8 to 9 percent.

Taking First Withdrawal from Nonqualified Annuity in 2015

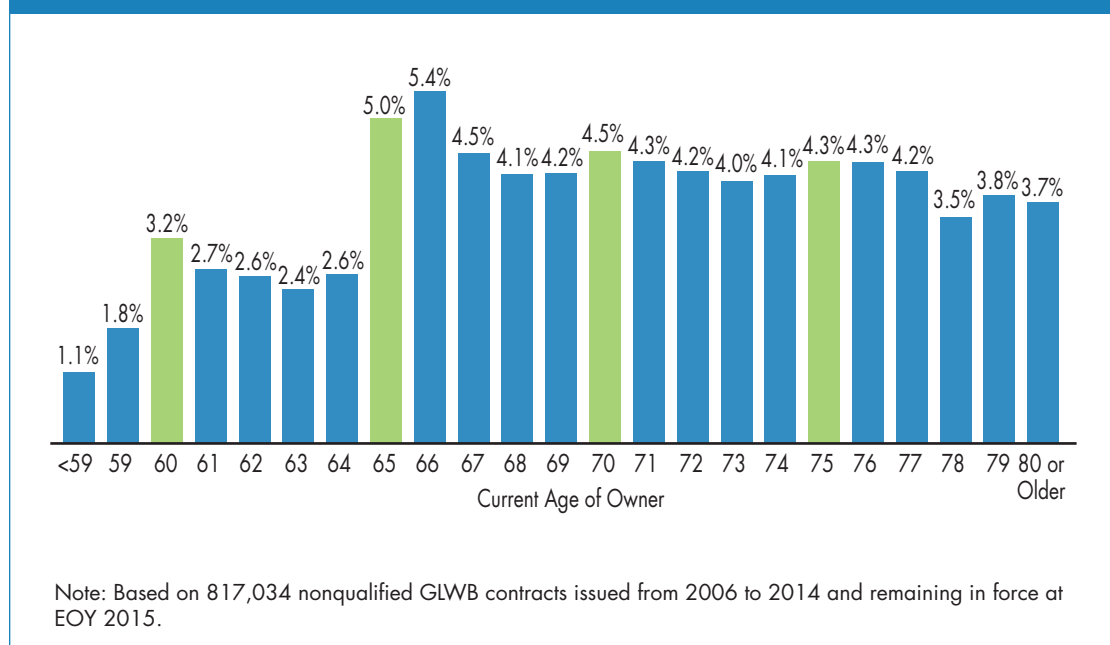
The percent of nonqualified annuity owners taking their first withdrawals in 2015 reflects a more streamlined withdrawal behavior. Figure 1-22 shows the percent of nonqualified owners taking withdrawals in 2015 by individual issue years from the prior four years.



Because there is no need to take RMDs, the percent of nonqualified owners taking first withdrawals increases in a slow, linear way based on age. Only a small percent of owners aged 70 or under took their first withdrawals in 2015. The percent of owners taking withdrawals rises slightly with each increment in age; however, it remains roughly within a range of 1 to 9 percent, similar to the behavior we saw with IRA owners under age 70.

More GLWB contracts offer age-banded withdrawal rates that increase based on the age of the client at first lifetime withdrawal. Typically, these age bands are in five-year increments. The pattern in Figure 1-23 suggests some nonqualified owners wait until the next step-up in the annual withdrawal percentage before taking withdrawals, usually at ages 60, 65, 70, and 75. There are increases at each step-up when owners begin taking their first withdrawals. The percentage of owners taking their first withdrawals tends to remain relatively stable within the age bands.

Figure 1-23: Percentage of Nonqualified Owners Taking First Withdrawal in 2015



The rate of increase of the percent of customers taking their first withdrawals from nonqualified annuities is somewhat lower for contracts issued before 2014. The percent of 2014 buyers who had completed at least one full year of annuity ownership took their first withdrawals in a range of 2 to 9 percent, rising slowly from age 59 to age 80 (Table 1-7). Many of these owners may already have decided to take withdrawals when they purchased the contracts. The percent of 2011-2013 buyers who took their first withdrawals ranged from 1 to 6 percent.

Table 1-7: GLWB Percentage of Owners Taking First Withdrawal in 2015 (Nonqualified)

Turning to Age	Contracts Issued in 2011	Contracts Issued in 2012	Contracts Issued in 2013	Contracts Issued in 2014
Duration	4 – 4.9 years	3 – 3.9 years	2 – 2.9 years	1 – 1.9 year
Age 59–69	2%–5%	2%–5%	1%–6%	2%–7%
Age 70 and over	3%–5%	4%–5%	4%–5%	6%–9%

Note: Based on 333,193 nonqualified GLWB contracts issued from 2011 to 2014 and remained in force at EOY 2015.

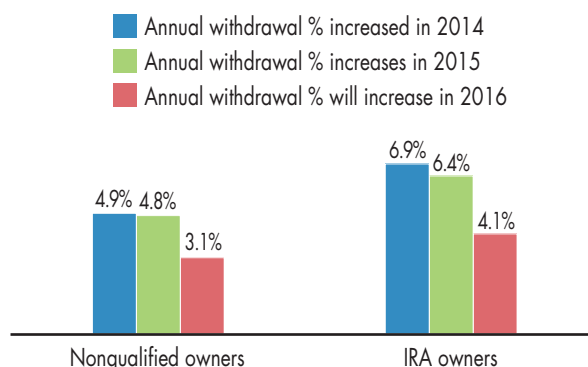
To summarize: for nonqualified contracts, age and contract duration are the principal drivers for withdrawals. A small percent of customers, in the single digits, take their first withdrawals every year.

Impact of Step-Ups in Maximum Annual Withdrawal Percentages on First Withdrawal Activity

Most GLWB contracts provide owners with a step-up in guaranteed annual withdrawal rates based on certain age bands or owners reaching a certain age, e.g. age 60, 65, 70 or 75 — if they wait to initiate their first withdrawals until obtaining these ages. If owners are sensitive to the potential increase in maximum annual withdrawal percentage, then they will wait until after they have reached one of the ages where the maximum percentage increases. For example, if the owner reached age 65 in 2015, they might be expected to initiate their first withdrawal activity in 2015 after obtaining age 65 to take advantage of the higher annual income. On the other hand, if an owner is currently aged 64, the owner may wait until they obtain age 65 if a step-up in annual withdrawal percentage is to occur at age 65.

Our analysis of a subset of owners who are in close proximity to reach an age threshold (one year before, current year, and one year after) when a step-up in annual guaranteed withdrawal rates can occur shows that some owners do wait to initiate their first withdrawals and take advantage of higher annual guaranteed withdrawal rates offered on certain age thresholds in the GLWB contracts (Figure 1-24).

Figure 1-24: Percentage of Owners Taking First Withdrawals in 2015 Based on Proximity to Potential Annual Withdrawal Rate Increase



Note: Based on 122,328 nonqualified and 158,843 IRA-GLWB contracts issued before 2015, still in force at year-end 2015 and with no withdrawal activity before 2015. The IRA owners were between age 60 and 69 to exclude the influence of RMD rules.

For both qualified and non-qualified owners, the percentage of owners initiating their first withdrawals in 2015 are noticeably higher for owners who reached their age-thresholds in 2014 or in 2015 than for owners who are expected to reach their age thresholds to higher annual withdrawals in 2016. The tendency to wait for higher annual withdrawal percentages is similar for both owners who selected an SWP and those who took withdrawals on an ad-hoc basis in 2015.

First Withdrawal Activity for IRA Contracts Issued in 2007

In order to get a clear and consistent picture of when owners first start to take withdrawals, and how many start to take their first withdrawals in the following years, we followed 2007 VA GLWB buyers and tracked their withdrawal behavior. Table 1-8 shows the withdrawal behavior of 2007 IRA buyers aged 57 to 75 from 2007 to 2015 (nine years of withdrawal history), and what percent of those buyers began taking their first withdrawals from 2007 to 2015.

Table 1-8 shows an analysis of nine years of first withdrawal history of 2007 owners, and reveals some important insights:

- Overall, just over 1 in 10 owners initiated their withdrawals in the same year they purchased their annuity.
- The percentages of owners taking their first withdrawals in subsequent years are typically lower than in the first year, as the number of owners who have not taken withdrawals diminishes.
- Once owners initiate withdrawals, nearly 80 percent continue to take withdrawals in all subsequent years.
- More than 90 percent of owners aged 70 or above have taken withdrawals from their annuities in the last nine years. Across all ages, over half have taken withdrawals. This is particularly noteworthy because just under half were aged 60 or below in 2015 and a majority of them are not yet in or near retirement.
- Whether or not the benefit base exceeded the contract value for the contract had very little impact on first withdrawal behavior (addressed later in this chapter). From 2009 to the beginning of 2012, most GLWB contracts had benefit base amounts that exceeded the contract value. However, the percentage of owners taking withdrawals from their contracts does not show any deviation from the general trend, by any particular age or age groups. Even in 2009 — when most of the contracts had benefit base amounts that exceeded the contract values and the IRS restriction on RMDs was eased — relatively few owners took their first withdrawals.

The first withdrawal pattern is somewhat unique in the first and second years, but then follows a relatively similar pattern for years 3-9. In the first year, withdrawals are in the low single digits below age 60, climb to almost 1 in 5 by age 69, jump to 1 in 4 at age 70 and 1 in 3 at age 71, and then remain around 1 in 3 for ages 72 and over. In the second year, withdrawals remain in the single digits through age 69, then they jump to 1 in 4 at age 70 and 1 in 3 at age 71, and then remain around 1 in 4 for ages 72 and over. For years 3-9, withdrawals remain in the single digits until age 69, then they jump to around 1 in 5 for ages 70 and 71, and then return to the single digits for ages 72 and over.

If we avoid the anomaly in 2009, there is a consistent owner withdrawal behavior defined by age and the need to take RMDs. We have already established that withdrawals from IRA annuities are significantly driven by the need to take RMDs.

The last row of Table 1-8 provides the percent of owners taking withdrawals in all subsequent years based on contracts where the first withdrawal occurred between 2007 and 2014, with withdrawals continuing every year through 2015. Once the owners begin to take withdrawals, they are more likely to utilize the lifetime withdrawal benefit, provided they do not surrender their contracts.

First Withdrawal Activity for Nonqualified Contracts Issued in 2007

We see a similar first-year withdrawal pattern for nonqualified annuity owners, aged 57 to 69 (Table 1-9). However we do not see a spike in withdrawals for ages 70 or 71.

		Age at Purchase																			
Withdrawals started at	Age	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	All Ages*
Age 57		1%																			
Age 58		1%	1%																		
Age 59		3%	2%	3%																	
Age 60		5%	5%	5%	6%																
Age 61		3%	4%	4%	4%	7%															
Age 62		4%	4%	4%	5%	5%	8%														
Age 63		4%	5%	4%	4%	4%	5%	9%													
Age 64		4%	4%	4%	4%	4%	4%	5%	8%												
Age 65		6%	5%	6%	6%	6%	7%	6%	7%	11%											
Age 66			6%	5%	6%	7%	7%	7%	6%	7%	13%										
Age 67				4%	4%	6%	6%	6%	6%	5%	7%	13%									
Age 68					4%	4%	5%	5%	5%	5%	6%	8%	13%								
Age 69						4%	4%	4%	5%	5%	6%	6%	7%	15%							
Age 70							3%	5%	5%	5%	5%	6%	6%	6%	16%						
Age 71								4%	4%	5%	5%	5%	6%	6%	8%	16%					
Age 72									4%	4%	5%	5%	6%	6%	7%	18%					
Age 73										3%	4%	4%	4%	5%	6%	8%	18%				
Age 74											3%	4%	4%	5%	5%	6%	8%	19%			
Age 75												3%	4%	4%	4%	5%	5%	7%	18%	9%	
Age 76													4%	3%	4%	5%	6%	7%	9%	5%	
Age 77														4%	4%	4%	5%	6%	7%	4%	
Age 78															3%	3%	4%	4%	5%	4%	
Age 79																3%	2%	4%	4%	4%	
Age 80																	3%	3%	4%	3%	
Age 81																		3%	3%	5%	
Age 82																			2%	3%	
Age 83																				3%	
Cumulative		31%	36%	40%	43%	47%	49%	51%	50%	52%	53%	53%	53%	55%	55%	53%	57%	56%	57%	57%	42%
Percent of owners taking withdrawals in all subsequent years		75%	75%	76%	80%	81%	81%	80%	82%	81%	79%	79%	78%	82%	83%	81%	79%	79%	76%	77%	77%

Note: Based on a constant group of 69,538 nonqualified contracts issued in 2007 and still in force at EOY 2015. The percent of owners taking withdrawals in all subsequent years is based on contracts where the first withdrawal occurred between 2007 and 2014, and withdrawals continued every year through 2015.

*All ages analysis includes all ages reported, including ages not shown in the chart.

Overall, similar to IRA annuities, nearly 10 percent of owners initiate withdrawals from their non-qualified annuities in their first year of ownership.

- Also like IRA annuities, once nonqualified owners start taking withdrawals nearly 80 percent are very likely to continue withdrawals in all subsequent years.
- We also see no or little impact on withdrawal behavior for contracts where the benefit base exceeded the contract value during the last four years after the market crisis, when a majority of contracts had benefit base amounts that were greater than the contract values (discussed later in this chapter).

After the first year, approximately 2 to 9 percent of owners aged 60 and older take their first withdrawals in each year. The percent of owners taking first withdrawals does not vary significantly, and 2009 was not an anomaly for nonqualified owners. As a result, we see virtually the same withdrawal pattern of 2008 repeated in years 2009 through 2015. In 2015 the percent of owners across all ages who took withdrawals, remained within a band of 2 to 6 percent, as the pool of owners who have not taken withdrawals so far shrinks. Note that most of these owners use SWPs to receive their regular withdrawals.

Table 1-11: GLWB First Withdrawals for 2008 Buyers (Nonqualified)

Withdrawals started at	Age at Purchase																			All Ages*		
	Age 57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75			
Age 57	1%																					
Age 58	1%	1%																				
Age 59	2%	2%	2%																			
Age 60	3%	3%	4%	4%																		
Age 61	3%	3%	3%	4%	5%																	
Age 62	3%	4%	3%	3%	4%	6%																
Age 63	3%	4%	3%	3%	3%	4%	7%															
Age 64	3%	3%	2%	3%	3%	3%	4%	7%														
Age 65		4%	5%	5%	5%	4%	4%	5%	8%													
Age 66			5%	5%	5%	6%	6%	4%	5%	9%												
Age 67				5%	4%	4%	5%	5%	4%	5%	10%											
Age 68					4%	4%	5%	6%	5%	4%	5%	12%										
Age 69						4%	4%	4%	5%	5%	4%	6%	12%									
Age 70							5%	5%	5%	5%	5%	4%	7%	13%								
Age 71								4%	4%	5%	6%	6%	5%	7%	13%							
Age 72									4%	4%	5%	5%	6%	4%	7%	18%						
Age 73										4%	4%	5%	5%	5%	4%	7%	17%					
Age 74											3%	4%	5%	5%	5%	4%	6%	16%				
Age 75												4%	4%	4%	5%	5%	4%	8%	16%			
Age 76													3%	5%	4%	5%	6%	5%	7%			
Age 77														4%	5%	4%	5%	5%	4%			
Age 78															3%	3%	4%	4%	5%			
Age 79																3%	4%	5%	5%			
Age 80																	3%	4%	4%			
Age 81																		3%	4%			
Age 82																				3%		
Cumulative	20%	24%	28%	32%	34%	36%	40%	40%	40%	42%	44%	46%	47%	47%	46%	49%	50%	51%	48%			
Percent of owners taking withdrawals in all subsequent years	69%	70%	73%	74%	78%	77%	78%	78%	80%	78%	78%	78%	79%	79%	80%	80%	81%	81%	78%			
																					8%	
																						4%
																						3%
																						4%
																						4%
																						4%
																						4%
																						3%
																						33%
																						75%

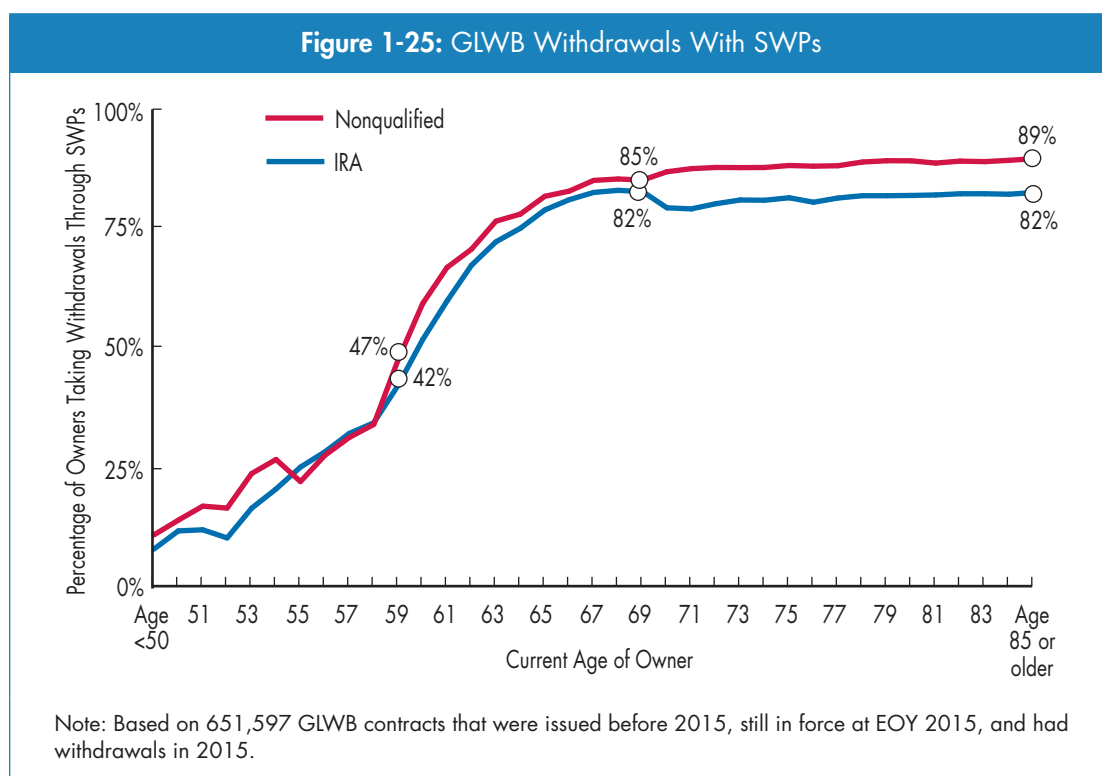
Note: Based on a constant group of 75,643 nonqualified contracts issued in 2008 and still in force at EOY 2015. The percent of owners taking withdrawals in all subsequent years is based on contracts where the first withdrawal occurred between 2008 and 2014, and withdrawals continued every year through 2015.

*All ages analysis includes all ages reported, including ages not shown in the chart.

Systematic Withdrawal Activity

One predictor that can help determine if GLWB owners are likely to take withdrawals to generate a lifetime income stream is how regularly they take withdrawals — either through SWPs or occasional withdrawals. Most insurance companies allow GLWB owners to use SWPs, and typically categorize those withdrawals as lifetime withdrawals under the benefit. In general, withdrawals through SWPs are a customer’s affirmation to take withdrawals on a continuous basis, and strongly indicate that customers are utilizing the GLWB in their contracts.

Overall, 79 percent of owners took withdrawals using an SWP (Figure 1-25).⁹ Seventy-eight percent of IRA owners and 84 percent of nonqualified owners who took withdrawals in 2015 used an SWP. The rest of the owners took occasional withdrawals. Older owners are more likely to take withdrawals through SWPs, and younger owners — particularly those under age 60 — are more likely to take occasional withdrawals.



⁹ The main reason for the slight drop in the percentage of IRA owners taking withdrawals through SWPs involves the classification of RMDs. Some companies did not consider RMD withdrawal activity to be a type of systematic withdrawal.

The median withdrawal amount for those taking just an SWP in 2015 was \$5,661 and the average was \$8,346. Table 1-12 shows the average and median withdrawal amount for owners who took only SWP withdrawals in 2015 for both qualified and nonqualified contracts. The median withdrawal amounts for both IRA and nonqualified owners aged 60 and older are within expectations, while those under age 60 were influenced by owners who were likely taking partial surrenders. This is a very small percentage of the overall contracts that had withdrawals.

The median withdrawal amount in a SWP was **\$5,661** vs. **\$7,353** when taken on a non-systematic basis.

Table 1-12: GLWB Average Withdrawal Amount by SWP and by Source of Funds

Age	Systematic Withdrawals Average Withdrawal Amount		Systematic Withdrawals Median Withdrawal Amount	
	IRA	Nonqualified	IRA	Nonqualified
Under age 60	\$11,331	\$11,537	\$7,779	\$6,276
Age 60–69	\$9,649	\$9,020	\$6,863	\$5,791
Age 70 or older	\$7,468	\$8,392	\$5,080	\$5,602
Total	\$8,240	\$8,616	\$5,658	\$5,667

Note: Based on 516,540 contracts issued before 2015 and still in force at EOY 2015, taking only systematic withdrawals in 2015.

For those contracts with only occasional or non-systematic withdrawals, the median amount in 2015 was \$7,353 and the average was \$15,808. For owners under age 60 who took only occasional withdrawals, the withdrawal amounts were unusually high, and they are more likely to intend to partially surrender the contracts (Table 1-13).

Table 1-13: GLWB Occasional Withdrawal Amount by Source of Funds

Age	Occasional Withdrawals Average Withdrawal Amount		Occasional Withdrawals Median Withdrawal Amount	
	IRA	Nonqualified	IRA	Nonqualified
Under age 60	\$24,360	\$32,437	\$12,614	\$13,201
Age 60–69	\$19,149	\$21,168	\$9,948	\$9,222
Age 70 or older	\$9,769	\$17,696	\$5,500	\$7,579
Total	\$14,472	\$20,898	\$7,049	\$8,831

Note: Based on 135,057 contracts issued before 2015 and still in force at EOY 2015, taking only non-systematic withdrawals in 2015.

A small percentage of owners took both SWPs and occasional withdrawals. For these owners, the median withdrawal amount was \$8,461 for IRAs and \$7,717 for nonqualified contracts.

When looking at the distribution of withdrawal amount as a percentage of the total withdrawal amount, we found that 29 percent were from owners taking only occasional withdrawals (1 in 5 were IRA and 1 in 12 were nonqualified), 58 percent were from owners taking only systematic withdrawals (4 in 10 were IRA and 1 in 6 were nonqualified), 13 percent were from owners who took both occasional and systematic (1 in 10 were IRA and 1 in 20 were nonqualified).

First Withdrawals Through SWPs for IRA Contracts Issued in 2007

Initiating an SWP may indicate an owner's desire to utilize the lifetime guaranteed withdrawal rider in the contract. It will benefit companies active in this market to examine when owners initiate SWPs for their first withdrawal, and how many continue to use SWPs. Reviewing trends in SWP behavior will allow companies to better frame and focus on the withdrawal risk and gauge owner inclination to utilize the rider at different age bands depending upon the qualified or nonqualified sources of funding.

We have constructed a step-chart based on historical SWP withdrawal behaviors in order to get a clear picture of three important considerations regarding SWP behaviors: first, at what age are owners likely to first initiate an SWP withdrawal; second, how many rely on their SWP withdrawals in all following years once they have initiated SWPs; and third, how many owners initiate their first withdrawals through an SWP during the contract duration or holding period. As we saw in previous analyses, we need to examine the SWP withdrawal behaviors by source of funds — qualified and nonqualified dollars separately. Table 1-14 provides SWP behavior for 2007 IRA buyers aged 57 to 75 during 2007 to 2015 (9 years of SWP withdrawal history). The percentage of owners in this table represents only owners who initiated their withdrawals through an SWP and continued to take SWP withdrawals in all the following years once they started their withdrawals through SWPs.

Table 1-14: GLWB First SWP Withdrawals (and Continued Thereafter) for 2007 IRA Buyers

		Age at Purchase — IRA Annuity																			
Withdrawals started at	Age	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	All Ages*
Age 57		2%																			
Age 58		1%	1%																		
Age 59		2%	2%	4%																	
Age 60		3%	4%	3%	5%																
Age 61		3%	3%	3%	3%	5%															
Age 62		4%	4%	4%	4%	3%	8%														
Age 63		3%	4%	3%	4%	3%	5%	7%													
Age 64		3%	3%	3%	3%	4%	3%	4%	7%												
Age 65		5%	6%	7%	7%	6%	7%	5%	5%	9%											
Age 66			5%	5%	6%	7%	5%	7%	6%	6%	11%										
Age 67			4%	4%	5%	6%	5%	6%	4%	5%	10%										
Age 68				3%	4%	4%	5%	4%	6%	4%	4%	11%									
Age 69					4%	4%	4%	5%	5%	6%	5%	5%	12%								
Age 70						11%	13%	14%	13%	13%	15%	6%	14%	14%							
Age 71							11%	11%	13%	13%	14%	20%	6%	19%	16%						
Age 72								4%	5%	5%	6%	7%	13%	4%	15%	17%					
Age 73									3%	3%	3%	5%	5%	8%	3%	15%	17%				
Age 74										3%	3%	4%	4%	4%	9%	3%	16%	19%			
Age 75											3%	3%	3%	3%	4%	9%	4%	13%	16%		6%
Age 76												2%	3%	3%	4%	4%	9%	4%	17%		5%
Age 77													2%	2%	3%	3%	4%	9%	4%		3%
Age 78															2%	3%	3%	4%	4%	8%	5%
Age 79																3%	2%	3%	3%	3%	4%
Age 80																	3%	2%	3%	3%	4%
Age 81																		2%	3%	4%	4%
Age 82																			2%	3%	4%
Age 83																					2%
Cumulative		26%	32%	35%	39%	40%	53%	62%	64%	65%	64%	63%	63%	63%	61%	58%	58%	60%	59%	60%	39%

Note: Based on a constant group of 103,325 IRA contracts issued in 2007 and still in force at EOY 2015.
 *All ages analysis includes all ages reported, including ages not shown in the chart.

The above table expands on the overall withdrawal activity illustrated in Table 1-8. Some issues worth noting:

- Older owners, particularly owners aged 65 or over, are more likely to take advantage of SWPs for their first withdrawals from their annuities when they initiate the withdrawals and to continue their withdrawals through SWPs. The percentage of owners taking SWPs goes up with each age increment.
- On average, 6 percent of all owners initiated withdrawals in their first year of ownership (2007) through SWPs, and continued in all the following years. In all of the following years, the percent of owners initiating withdrawals through SWPs remains stable (4 to 5 percent) except in 2009 when RMDs were waived.
- Overall, 39 percent of 2007 owners have initiated withdrawals in the last nine years through an SWP program and continued to take withdrawals in all the following years. This trend allows the company to estimate withdrawal activities of SWP users who are considered core users of GLWB riders.

First Withdrawal Through SWPs for Nonqualified Contracts Issued in 2007

For nonqualified annuity owners aged 57 to 69, a similar first-year withdrawal pattern exists for SWPs (Table 1-15). However, there is no spike in withdrawals for ages 70 or 71.

Table 1-15: GLWB First Withdrawals (and Continued Thereafter) for 2007 Nonqualified Buyers

		Age at Purchase — Nonqualified Annuity																				
Withdrawals started at	Age	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	All Ages*	
Age 57		1%																				
Age 58		1%	1%																			
Age 59		1%	1%	2%																		
Age 60		3%	3%	2%	3%																	
Age 61		2%	2%	2%	2%	4%																
Age 62		4%	2%	3%	3%	3%	5%															
Age 63		3%	4%	3%	3%	3%	3%	5%														
Age 64		3%	2%	3%	3%	3%	2%	3%	5%													
Age 65		5%	5%	5%	6%	5%	6%	4%	4%	7%												
Age 66			6%	5%	5%	6%	6%	5%	4%	4%	8%											
Age 67				3%	4%	5%	5%	5%	5%	3%	4%	8%										
Age 68					3%	3%	4%	4%	5%	4%	3%	5%	8%									
Age 69						3%	3%	3%	4%	5%	4%	3%	4%	11%								
Age 70							3%	4%	4%	4%	5%	4%	4%	4%	11%							
Age 71								4%	3%	4%	4%	4%	4%	4%	5%	10%						
Age 72									3%	3%	4%	4%	4%	5%	4%	5%	10%					
Age 73										3%	2%	3%	3%	5%	5%	4%	4%	10%				
Age 74											3%	3%	3%	4%	4%	4%	3%	5%	11%			
Age 75												3%	3%	3%	4%	3%	6%	3%	4%	10%		5%
Age 76													3%	2%	3%	4%	5%	7%	3%	5%		3%
Age 77														3%	3%	4%	3%	4%	7%	4%		2%
Age 78															2%	3%	3%	3%	3%	4%		4%
Age 79																2%	2%	3%	4%	4%		3%
Age 80																	3%	2%	4%	2%		3%
Age 81																		3%	3%	4%		3%
Age 82																			2%	3%		3%
Age 83																					3%	3%
Cumulative		23%	26%	29%	32%	35%	37%	38%	37%	37%	38%	37%	38%	41%	41%	39%	40%	40%	40%	39%	30%	

Note: Based on a constant group of 61,852 nonqualified contracts issued in 2007 and still in force at EOY 2015.
 *All ages analysis includes all ages reported, including ages not shown in the chart.

The percent of nonqualified owners taking first withdrawals through SWPS are not influenced at age 70 or 71 by RMD-related issues. The percent of owners taking withdrawals in the very first year of ownership is higher than in subsequent years for owners aged 65 or above and 2009 was not an anomaly for nonqualified owners.

We also analyzed first withdrawals through SWPs for IRA and nonqualified contracts issued in 2008 and found that data followed a very similar pattern as that observed with the 2007 data.

Percentage of Benefit Maximum Withdrawn

For percentage of benefit maximum withdrawn, we looked at the relationship of customers' actual withdrawal amounts in calendar year 2015 to the maximum withdrawal amounts allowed in the contracts. Given that our study is done on a calendar-year basis, there is some imprecision in measuring the maximum annual withdrawal amounts because benefit bases can vary under certain circumstances during the year (e.g., if additional premium is received) and most benefit base increases occur on a contract anniversary. Accordingly, we used a conservative measure of excess withdrawals — if partial withdrawals exceeded the maximum annual withdrawal as of BOY by at least 10 percent, then we considered the contract to have exceeded the benefit maximum.

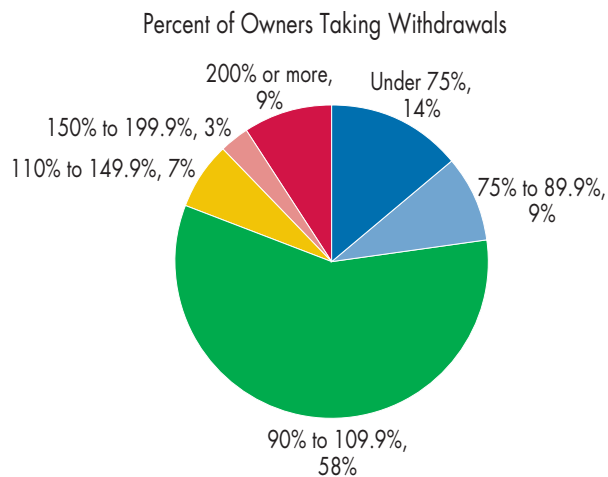
GLWBs provide a specified maximum withdrawal amount annually for life, through periodic withdrawals from annuity contracts, thus ensuring protection against adverse market performance. However, if the owner withdraws more than the maximum allowed in a contract year, they have taken an excess withdrawal. Excess withdrawals trigger an adjustment of the benefit's guaranteed amount, which reduces the benefit base.

We asked participating companies to provide this allowed maximum amount as of BOY 2015. If companies did not provide the maximum withdrawal amount but provided the benefit base as well as the maximum percentage of this base that could be withdrawn each year, then we calculated an estimate of the percent of maximum annual benefit withdrawn in the following manner:

- If company provided BOY maximum withdrawal amount, then it equals partial withdrawals divided by this amount.
- If company did not provide BOY maximum withdrawal amount, then the percent of maximum annual benefit = partial withdrawals divided by (BOY maximum withdrawal percentage) x (BOY benefit base).
- If company did not provide BOY maximum withdrawal amount or BOY maximum withdrawal percentage, the percent of maximum annual benefit = partial withdrawals divided by (maximum withdrawal percentage from rider specs) x (BOY benefit base).

Figure 1-26 shows the degree to which withdrawals were higher or lower than maximum withdrawal amounts allowed in the contract.

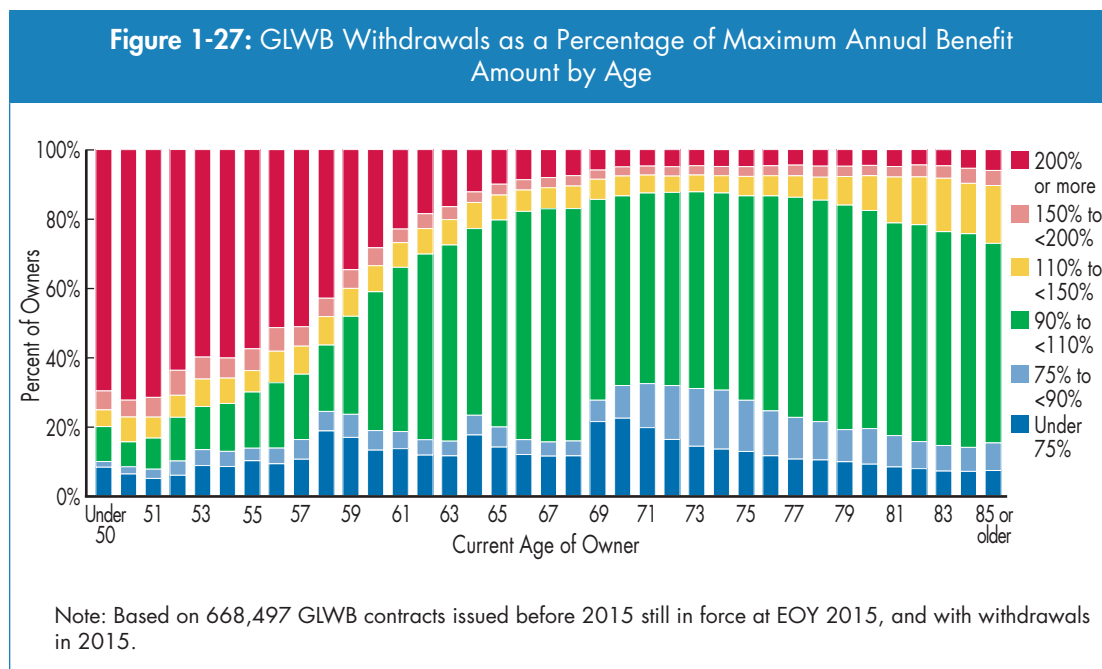
Figure 1-26: GLWB Actual Withdrawals as a Percentage of Benefit Maximum



Note: Based on 670,675 GLWB contracts issued before 2015 and remaining in force at EOY 2015 with withdrawals in 2015.

Overall, 81 percent of owners who took withdrawals in 2015 withdrew income that was below or close to the maximum amount calculated — under 110 percent of annual benefit maximum. Seven percent of owners withdrew 110 to less than 150 percent of the maximum amount allowed. Some of these customers, if older, may have remained within the withdrawal limit allowed because of higher RMDs from their IRA annuities.

When we look at the age of owners and their withdrawal amount in relation to maximum amounts allowed, we see that younger owners are more likely to take 150 percent or more of the maximum amount allowed (top two bars of Figure 1-27).



There are some salient insights from the above chart:

- The majority of owners taking withdrawals, as we have seen in previous sections, are typically aged 65 or older. There are very few instances where these older owners take more than the annual benefit maximum.
- Younger owners, particularly under age 60, are more likely to take 200 percent or more of the benefit maximum allowed in the contract.
- There is a noticeable increase at ages 70 and 71 in the percentage of owners taking withdrawals of less than 90 percent of the benefit maximum. This can be explained by the need for IRA owners to take RMDs, which are typically at a lower withdrawal rate. In Appendix C — Figure C1-1, you can see that some owners at age 70 and 71 are taking RMD withdrawals, as a necessity and expediency — at a lower rate based on life expectancy — rather than as a measure of maximizing their withdrawal benefits.

- On the other hand, some IRA owners aged 75 or older are taking withdrawals in the range of 110 to 149 percent of the maximum benefit rate allowed in the contracts (see Appendix C — Figure C1-1). They are apparently using higher RMD withdrawal rates applicable in these older ages, often without jeopardizing their benefit bases in the contract, as most insurance companies allow IRA owners to adhere to the RMD rules.

Only **1 in 9** owners aged 60 or over took withdrawals of 150 percent or more of the maximum amount allowed; some possibly due to RMDs.

The majority of GLWB owners are taking withdrawals within the rider limits. Eighty-one percent of owners who took withdrawals in 2015 took less than 110 percent of the benefit maximum allowed in their contracts (Table 1-16).

Table 1-16: Percentage of GLWB Owners Taking Withdrawals as Percent of Benefit Maximum

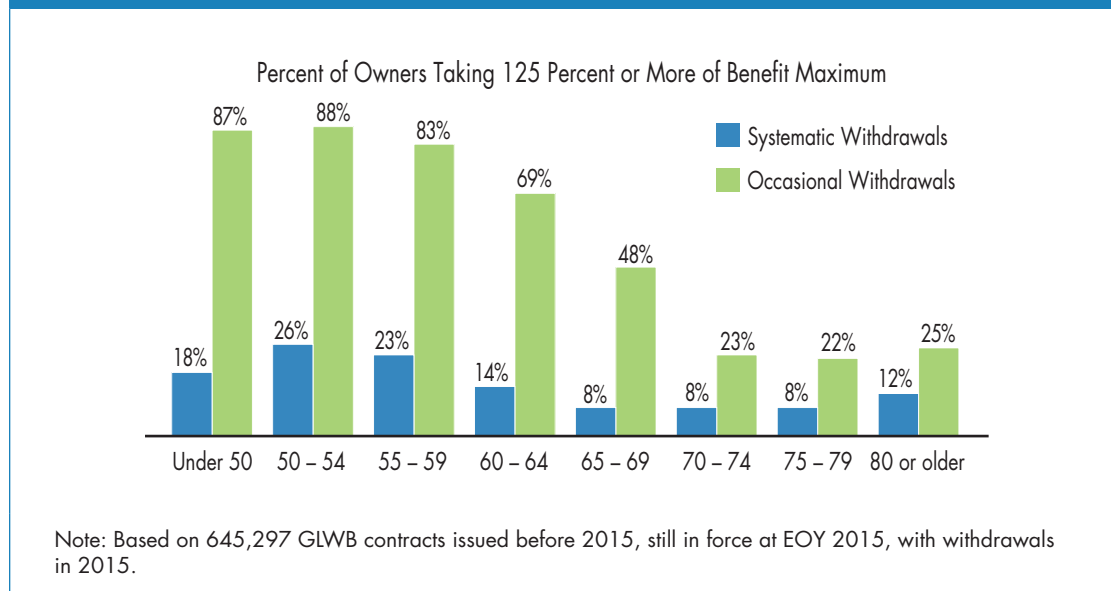
Age	Withdrawal Amount as Percent of Benefit Maximum Allowed in the Contract					
	Under 75%	75% to <90%	90% to <110%	110% to <150%	150% to <200%	200% or more
Under 50	8%	2%	10%	5%	5%	70%
50 to 54	7%	4%	11%	6%	6%	66%
55 to 59	12%	5%	18%	8%	6%	51%
60 to 64	13%	5%	49%	7%	4%	22%
65 to 69	13%	5%	64%	6%	3%	9%
70 to 74	19%	12%	56%	5%	3%	5%
75 to 79	12%	14%	60%	6%	3%	5%
80 to 84	8%	9%	63%	12%	3%	5%
85 or older	7%	7%	62%	15%	4%	5%
All ages	14%	9%	58%	7%	3%	9%

Note: Based on 668,497 GLWB contracts issued before 2015 with withdrawals in 2015.

Nearly 6 in 10 owners under age 60 and taking withdrawals exceeded 200 percent or more of the benefit maximum. It’s likely that many of these individuals are partially surrendering their contracts as opposed to taking regular withdrawals under the terms of the GLWB. On the other hand, only 8 percent of owners aged 60 or over and taking withdrawals exceeded 200 percent or more of the benefit maximum.

The method used for withdrawal — systematic or occasional — is a strong indicator of whether owners are likely to exceed the benefit maximum. Most withdrawals that exceed 125 percent of the annual benefit maximum amount are occasional (Figure 1-28).

Figure 1-28: GLWB Withdrawals to Annual Benefit Maximum Amount by Age



Fifty-three percent of excess withdrawals (125 percent or more of the benefit maximum) came from occasional withdrawals. Forty-one percent of all occasional withdrawals exceeded 125 percent or more of the annual benefit maximum allowed in the contract. On the other hand, only 9 percent of contracts using SWPs exceed 125 percent or more of the maximum annual income allowed in the contract. Owners using SWPs remaining at or below the benefit maximum are quite consistent across all age groups. Even withdrawals between 110 percent to less than 125 percent of benefit maximum account for only another 4 percent of SWP users. Over 3 in 4 owners take withdrawals through an SWP; and, when most of them withdraw amounts within the benefit maximum, they no doubt are utilizing the GLWB rider.

In terms of taking excess withdrawals, there is no difference between male and female contract owners, or between IRA and nonqualified owners.

We also examined how the proportion of the benefit maximum withdrawn varies by contract size. We might expect larger contract sizes to be linked to wealthier and more sophisticated owners who are more likely to work with financial advisors and less inclined to exceed the GLWB benefit maximum, which could result in a reduction of the annual benefit maximum in future years. They might also be less likely to take out an amount well below the maximum,

thereby passing up a potential opportunity to maximize the value of the benefit. Taking out more or less than the benefit maximum could represent an “inefficient” (or sub-optimal) utilization of the guarantee.

Figures 1-29, 1-30, and 1-31 illustrate the proportion of owners taking withdrawals by age and contract size.

Owners under age 60 with contract sizes under \$100,000 were not as likely to take withdrawals that were less than 90 percent of the maximum annual amount. However, we see the opposite for those taking withdrawals of 200 percent or more.

As noted earlier, the relationship between efficiency and contract size is limited to owners under age 60; and even among this group, the greatest difference across contract sizes is not the increasing proportion taking amounts close to the benefit maximum, but rather the proportion of owners with contract sizes below \$100,000 taking amounts well above the benefit maximum. In short, owners of VAs with higher contract values, especially younger owners, are less likely than those with lower contract values to significantly exceed the benefit maximum.

Owners of VAs with higher contract values — especially younger owners — are less likely than those with lower contract values to significantly exceed the benefit maximum.

Figure 1-29: GLWB Withdrawals to Benefit Maximum Amount by Age, Contract Sizes Under \$100,000

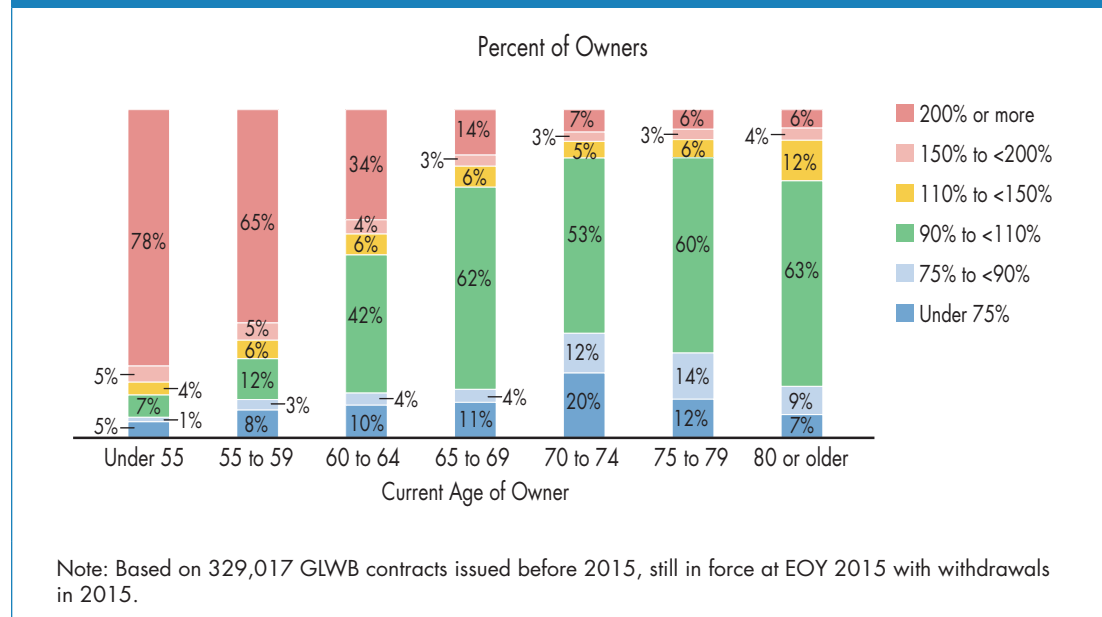
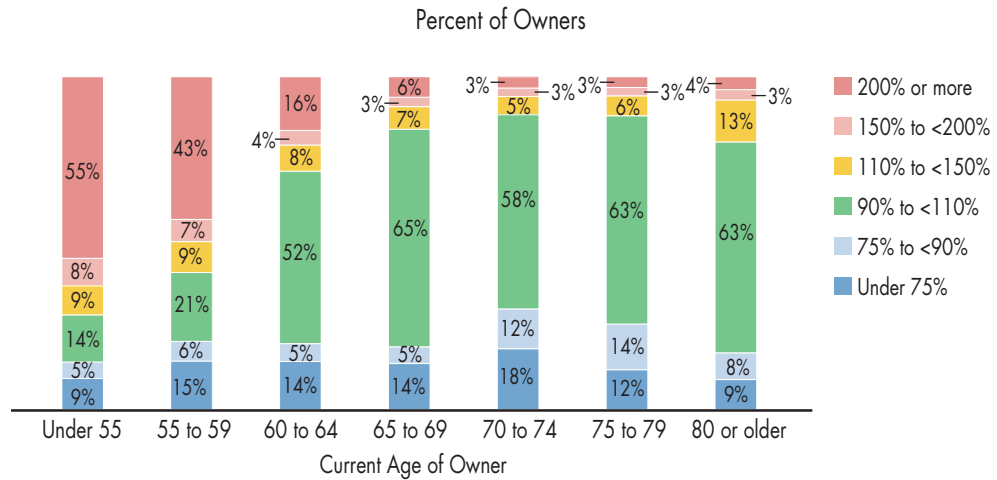
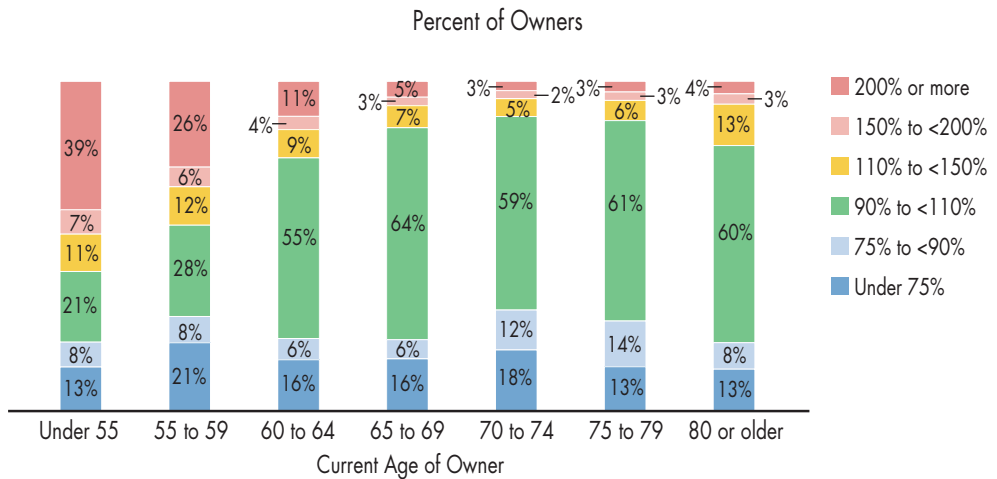


Figure 1-30: GLWB Withdrawals to Benefit Maximum Amount by Age, Contract Sizes \$100,000 to \$249,999



Note: Based on 238,683 GLWB contracts issued before 2015, still in force at EOY 2015 with withdrawals in 2015.

Figure 1-31: GLWB Withdrawals to Benefit Maximum Amount by Age, Contract Sizes \$250,000 or More



Note: Based on 100,797 GLWB contracts issued before 2015, still in force at EOY 2015, with withdrawals in 2015.

Withdrawal Activity by Duration

Contract duration (i.e., the number of years since contract purchase) is an important measure in determining what proportion of new buyers or existing owners take withdrawals from their annuities. In some cases, immediate utilization of the GLWB is appropriate for certain customers' retirement income needs, but there are also circumstances in which delaying withdrawals makes 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 will also facilitate internal forecasts by estimating when and how many of the GLWB customers will likely take withdrawals, and the resulting cash flow needed for the book of business.

Owners who bought their GLWB annuity in Q4 2015 had only three months, maximum, to set up withdrawals and receive payments, thus only a small portion of these owners took withdrawals from their annuities (Figure 1-32). As the contract duration increases, withdrawal activity increases. The overall utilization rate on a full-year basis exceeded 25 percent for contracts that are older than five years (Table 1-17).

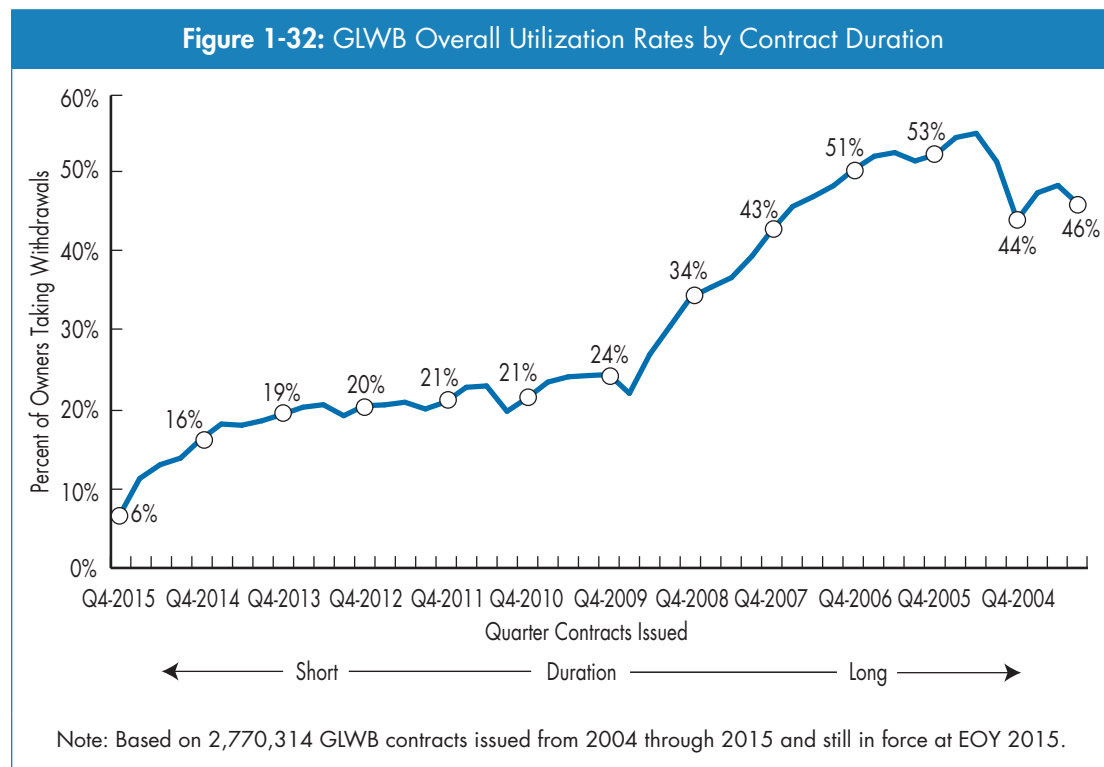


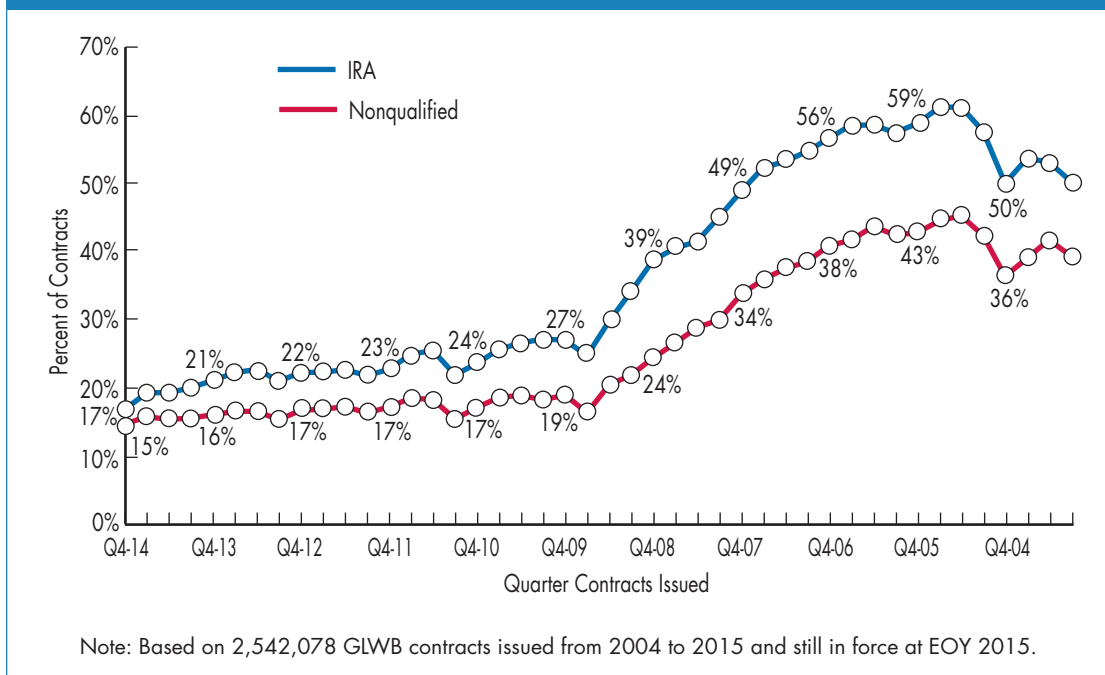
Table 1-17: GLWB Overall Percentage of Contracts Taking Withdrawals by Year of Issue

Year of Issue	Overall Percent of Contracts With Withdrawals in 2015
2004	46.7%
2005	53.6%
2006	51.8%
2007	45.9%
2008	36.5%
2009	25.6%
2010	23.3%
2011	21.5%
2012	20.5%
2013	19.9%
2014	17.7%
2015	11.1%

Note: Based on 2,770,315 GLWB contracts issued in 2004 through 2015 and remaining in force at EOY 2015.

How do the overall utilization rates by contract duration periods differ between qualified and nonqualified contracts? A consistent pattern of withdrawal activity emerges: As contracts age, more owners decide to withdraw, regardless of whether the annuity was funded with qualified or nonqualified sources, though the percent of owners taking withdrawals from IRA annuities is higher than that from nonqualified annuities (Figure 1-33).

Figure 1-33: GLWB Overall Utilization Rates by Contract Duration and Source of Funds



In the long run, the changing customer mix, as well as the need to satisfy RMDs, will influence the slope of the withdrawal rates by duration.

Withdrawal Activity by Duration and Age

We also analyzed withdrawal activity by contract duration and owner age (Table 1-18). For contracts purchased by individuals under age 60, the overall utilization rate is fairly stable across different issue years. Withdrawals among these younger age groups are uncommon.

Table 1-18: GLWB Overall Utilization Rates by Contract Duration and Current Owner Age

Current Owner Age	Percent of contracts with withdrawals in 2015						
	2008	2009	2010	2011	2012	2013	2014
Under 60	5%	3%	3%	3%	3%	3%	3%
60 to 64	16%	11%	11%	11%	12%	9%	8%
65 to 69	32%	25%	24%	23%	23%	21%	20%
70 to 74	59%	50%	47%	45%	45%	44%	41%
75 to 79	65%	54%	50%	48%	49%	48%	46%
80 or older	63%	57%	52%	51%	51%	51%	50%

Note: Based on 2,185,955 GLWB contracts issued between 2008 and 2014, and still in force at EOY 2015.

From age 60 withdrawal activity increases as owners begin to retire or need to make withdrawals to satisfy RMDs. For older age groups (70–74 and 75–79), the marginal increase in withdrawal utilization by contract duration is smaller. However, the source of funds used to purchase the annuity remains the underlying force for these incremental increases. Therefore, mapping the duration of contracts by age groups can improve understanding of a company’s GLWB customer withdrawal behavior.

Mapping the duration of contracts with age group can improve understanding of GLWB customer withdrawal behavior.

As seen in Table 1-18, controlling for age, utilization among contracts issued in 2008 is significantly higher than contracts issued after 2008. In order to understand why there was such a clear difference, we examined several factors:

- **Mix of qualified and nonqualified contracts:** If 2008 had a higher proportion of IRA contracts than other issue years, then higher withdrawal rates for owners age 70 or older would be expected due to RMDs. However, there was no significant difference in the proportion of IRA contracts across issue year; moreover, even if there were a difference, it would not explain the higher withdrawal rates among owners under age 70.
- **Maximum annual withdrawal percentages:** After the market crash of 2008, many companies attempted to de-risk their GLWBs by changing the terms of the riders, which could have included reductions to the maximum annual withdrawal percentages. With less generous benefits, owners of more recently-issued contracts may have been less inclined to take withdrawals. But an examination of average and median maximum annual withdrawal percentages showed no difference across issue year.
- **Benefit base roll-up rates:** Another de-risking method that could have been employed by companies after 2008 was reducing the benefit base roll-up rates among GLWBs with pre-withdrawal roll-up features. High roll-up rates can influence withdrawal behavior in two ways: First, they serve as a disincentive to initiate withdrawals because longer delays produce higher benefit bases and, in turn, higher maximum annual withdrawal amounts. Second, they serve as an incentive to initiate withdrawals because, all else being equal, there would be greater opportunity cost if an owner did not eventually activate a GLWB with a high benefit base versus a GLWB with a lower benefit base. Comparing the roll-up rates among the contracts issued in 2008 to the roll-up rates of contracts issued after 2008 revealed that the roll-up rates were more generous in 2008 than in subsequent years.
- **In-the-Money (Benefit Base-to-Contract Value Ratio).** Contracts issued in 2008, especially those issued in the first half of the year, were likely to have GLWBs that were in-the-money in 2014. In theory, benefits that are in-the-money should be utilized at higher rates than benefits not in-the-money. But as discussed elsewhere in this report, our analyses have shown repeatedly that when controlling for other factors, there appears to be little or no owner sensitivity to in-the-moneyness in terms of their withdrawal activity.
- **Survival bias.** Perhaps the best explanation for the duration effect may simply be that older contracts have provided owners with a longer time period in which to initiate withdrawals. As discussed earlier in this section, once owners have begun withdrawals, most owners (especially those ages 60 or older) do not stop. There may also be a related survival effect,

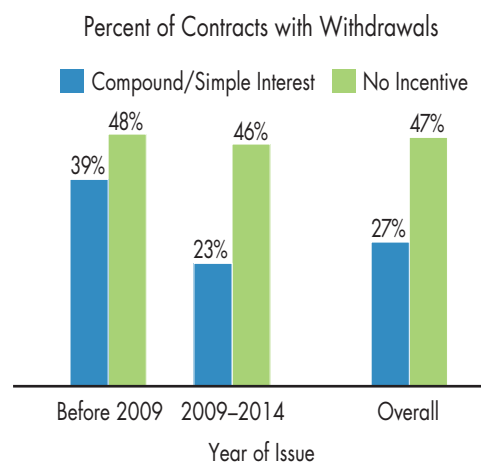
where the pool of contracts becomes increasingly biased toward owners who want to use their contracts for income — those who do not want to use their GLWBs may surrender their VA contracts while those who are using them will generally not want to surrender their contracts. This survival effect should be especially pronounced among contracts that exited the surrender penalty period in a prior year, as is the case for 40 percent of the 2008 issues but only 9 percent of contracts issue in 2009 or later.

Withdrawals in Contracts With Non-Withdrawal Incentives

Withdrawal activity can vary depending on whether a contract offers incentives for owners to defer withdrawals. Many GLWB offerings include “roll-ups,” or deferral bonuses, that increase the benefit base by a certain percent — typically 5 percent or more a year for a certain period — for typically 10 years or until the first withdrawal, whichever comes first.

When we examined contracts that offer both a deferral bonus and no increase to the benefit base when an owner defers withdrawals, we found that withdrawal activity is lower when a contract has incentives for non-withdrawals (Figure 1-34). Even among longer-duration contracts, a larger percent of owners take withdrawals when no incentive is present.

Figure 1-34: GLWB Withdrawal Activity in Contracts With/Without Non-Withdrawal Incentives



Note: Based on 1,557,886 GLWB contracts issued by 11 insurance companies which offer both types — bonus for non-withdrawals or no bonus. All contracts were issued before 2015 and still in force at EOY 2015.

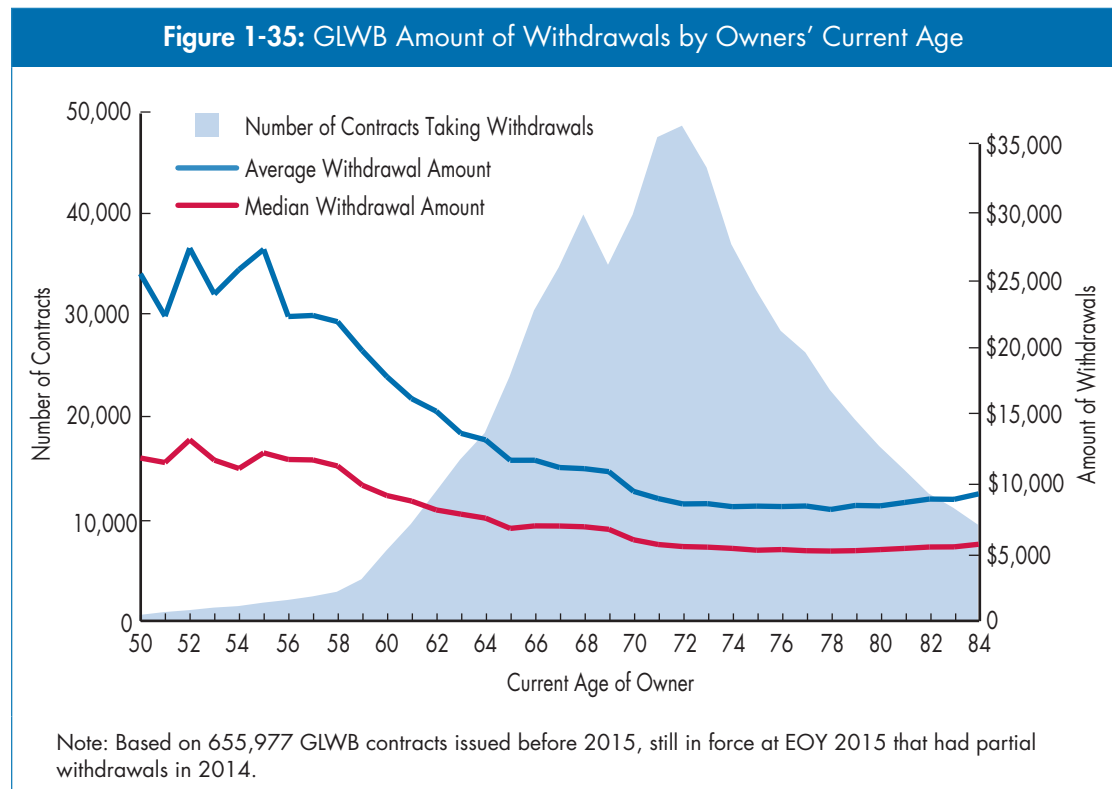
27% of owners took withdrawals when deferral incentives were available — much lower than the **47%** of owners who took withdrawals when no incentives were available.

These findings suggest that pre-withdrawal benefit base growth does provide incentives for owners to postpone withdrawals. It is likely that owner expectations of when to take withdrawals are set during the purchase process.

Average Withdrawal Amounts

The median withdrawal amount was \$6,000 in 2015 for contracts issued before 2015 that were in force at EOY 2015.

Owners aged 60 and under took median withdrawals ranging from \$9,200 to \$13,300 while the average withdrawals ranged from \$18,000 to \$27,400 (Figure 1-35). However, these owners constituted only 4 percent of all contracts with withdrawals in 2015. Given the high average withdrawal amounts, it is likely that these contracts were partially surrendered.

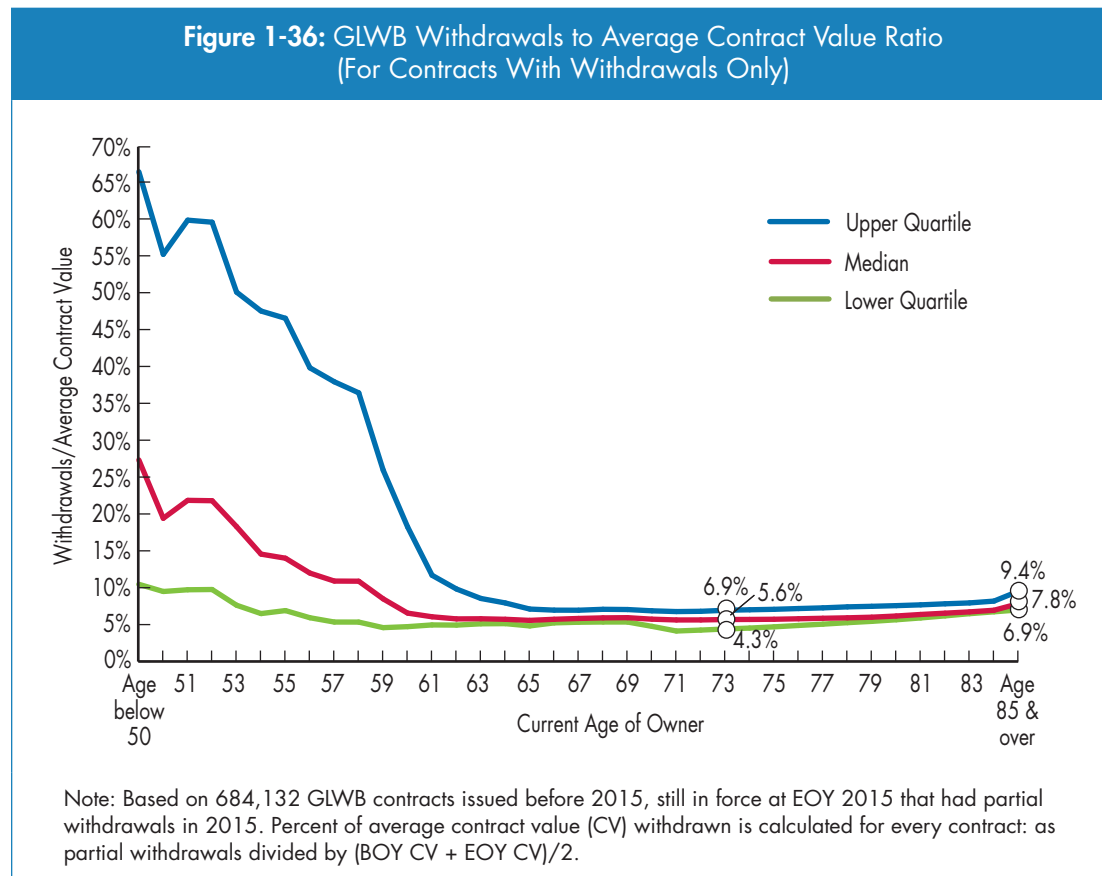


However, an increasing number of owners over age 60 took withdrawals in more sustainable withdrawal patterns and amounts. The median withdrawal amount at various ages ranges from \$5,200 to \$8,800 and the average withdrawal amount ranges from \$8,200 to \$16,400 per contract. As owners start to retire, the volume of withdrawals rises considerably. Average withdrawal amounts for owners over age 70 are commensurate with the maximum withdrawal amount typically supported by the GLWB benefit base and guaranteed withdrawal rates offered to respective age bands.

Median withdrawal amount for contracts with withdrawals in 2015 = \$6,000.

Withdrawals as a Percentage of Contract Value and Benefit Base

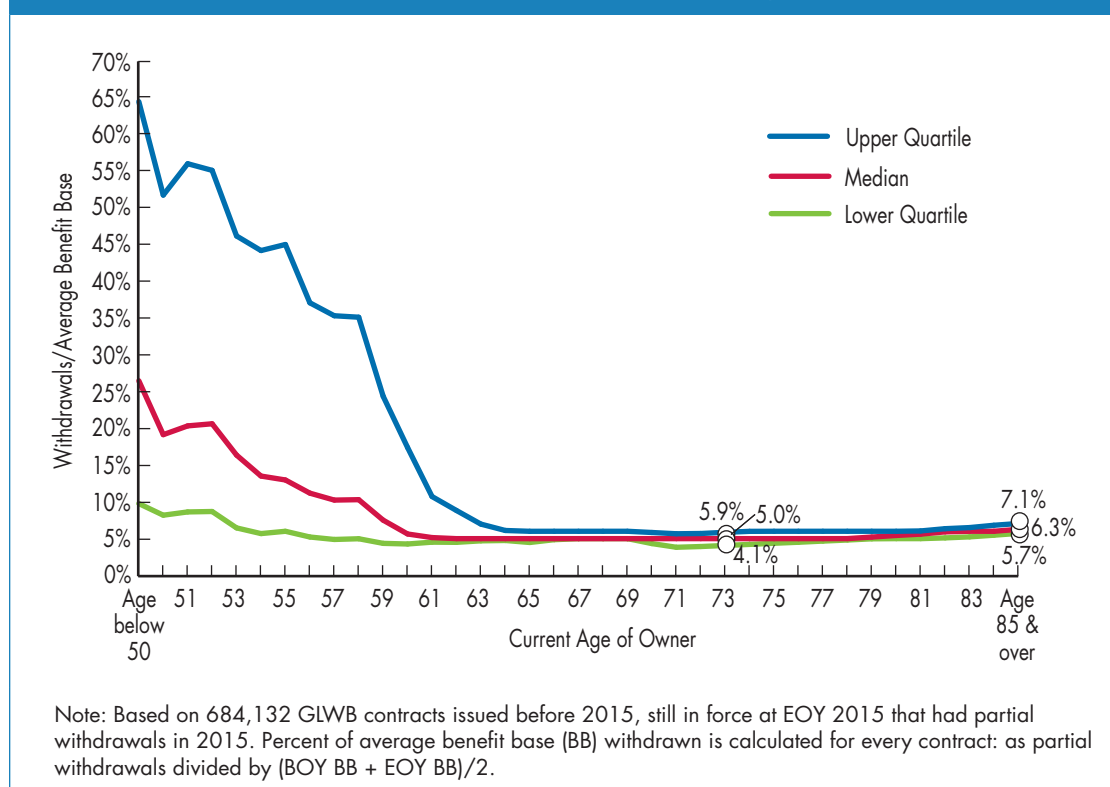
In order to provide some context, we assessed the withdrawal amount in relation to both contract value and the benefit base. Figure 1-36 shows the median withdrawal amount for all ages and also the quartile distribution of the withdrawal amounts in 2015.



The distribution of the withdrawals as a percent of average contract value withdrawn shows that, for owners aged 65 or over, the median, the upper quartile, and the lower quartile values are almost identical. The pattern also indicates that the majority of older owners taking withdrawals do so at similar ratios from their contract values. Also there is a wide difference between the median and the upper quartile values, indicating that the majority of these owners are taking more than the maximum allowed in the contracts. Only a small number of owners under age 60 — mostly below the lower quartile line — are withdrawing a sustainable rate without impairing the benefit base. The median of the contract value ratios begins to increase for owners over age 75 due to age banded benefits.

The distribution of withdrawal amount to the average benefit base ratio supports the same conclusion that we reached earlier: that the withdrawal amount is unduly weighted by very large withdrawals taken by a few younger owners (Figure 1-37). The distribution of ratios of withdrawal amount to benefit base shows that the median, the upper quartile, and the lower quartile values are almost identical for owners aged 65 or over. The ratios also indicate that the majority of owners ages 65–75 taking withdrawals do so at a rate of around 5 percent of their benefit base values — a typical GLWB maximum payout rate for this age. The median of the benefit base ratios begins to increase for owners over age 75 due to age banded benefits.

Figure 1-37: GLWB Withdrawals to Average Benefit Base Ratio (For Contracts With Withdrawals Only)

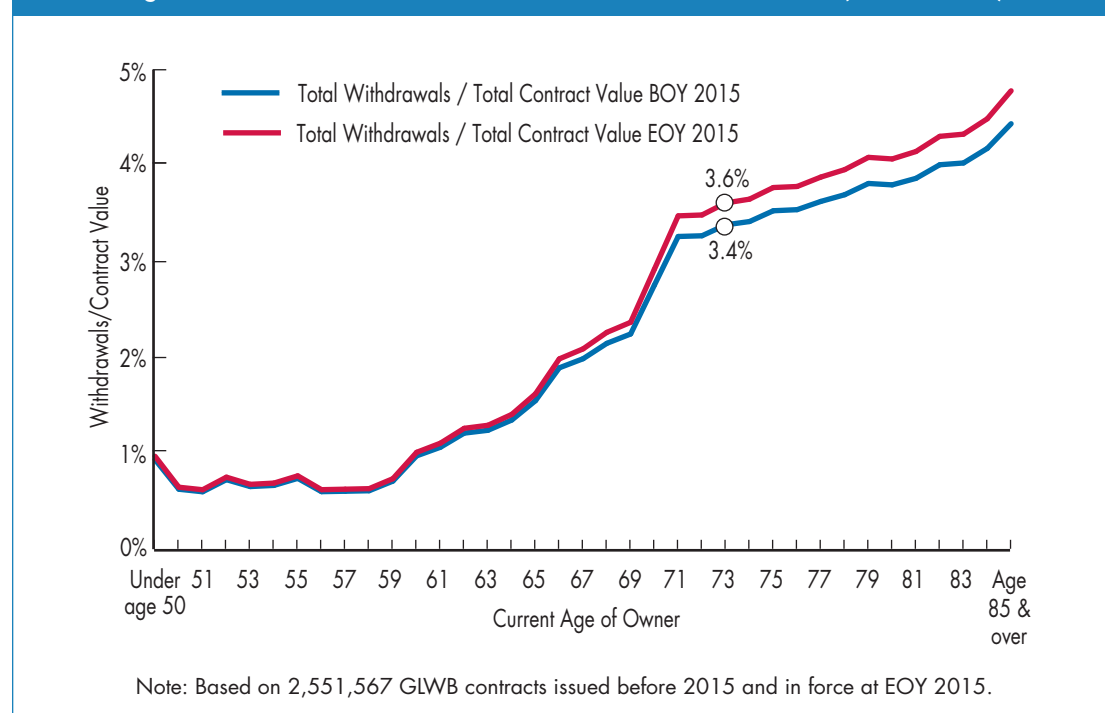


Total Withdrawal Amount versus Total Contract Value

By comparing the ratio of total withdrawal amount to contract values at BOY and the ratio of total withdrawal amount to EOY contract values, we can ascertain another measure of GLWB risk originating in customer behavior. We calculate this measure at two levels. First, total withdrawals during 2015 can be divided by total contract values at BOY and EOY, for all contracts in force. Second, the same ratio can be computed for only the subset of contracts that experienced withdrawals in 2015. The first measure provides a view of risk from withdrawals in terms of the total book of business, while the second provides an estimation of risk from withdrawals among the contracts that are in withdrawal mode.

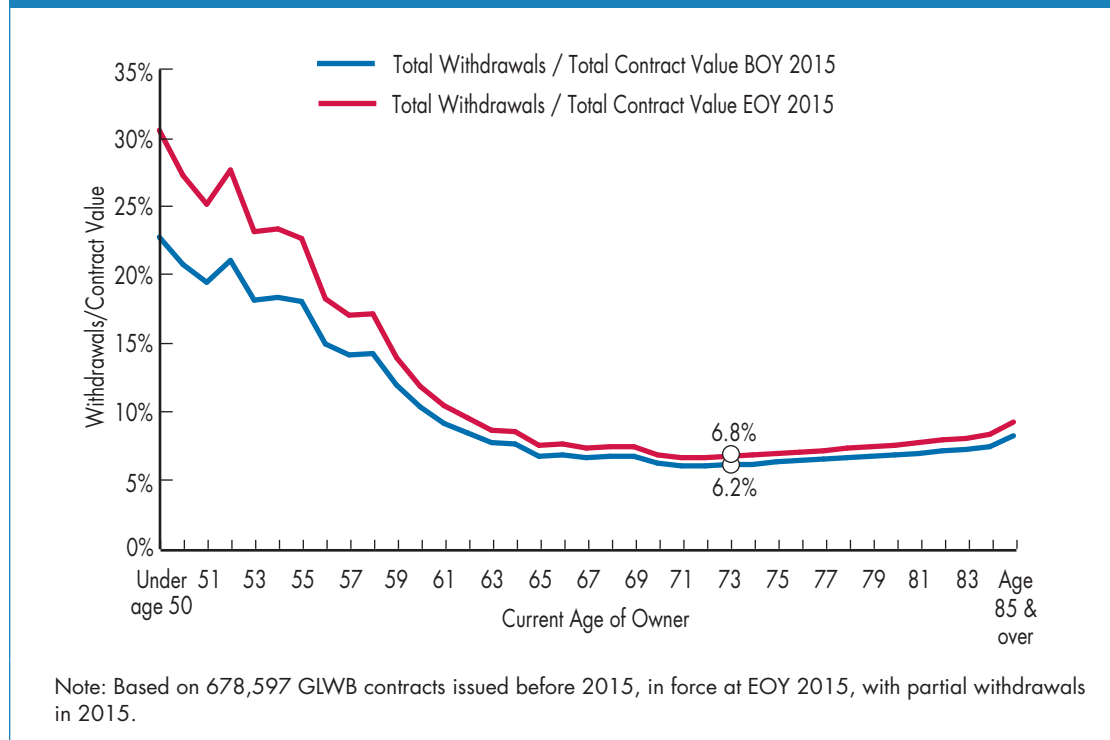
For all contracts in force in 2015, the ratio of total withdrawals to BOY contract values was 2.0 percent (in other words, the outflow from beginning assets was at a rate of 2.0 percent). However, the ratio increased slightly to 2.1 percent when we compare total withdrawals to total assets at EOY (Figure 1-38). When the ratio of total withdrawal amounts to contract values at EOY is higher than the ratio calculated at BOY, it means that the total contract values have decreased due to investment losses and/or reductions due to withdrawals. The higher ratio during the year increases some of the risk exposure for the companies, in terms of withdrawal provisions in the GLWB rider.

Figure 1-38: GLWB Total Withdrawals to Total Contract Value (All Contracts)



Insurance companies can also examine the risks associated with the subset of contracts with withdrawals in 2015. The negative investment performance seen in 2015 increased the ratio of withdrawals to contract values for all ages (Figure 1-39). For all the contracts that had withdrawals in 2015, there was a decrease of 10 percent in the aggregate contract values after withdrawals.

Figure 1-39: GLWB Total Withdrawals to Total Contract Value (For Contracts With Withdrawals Only)



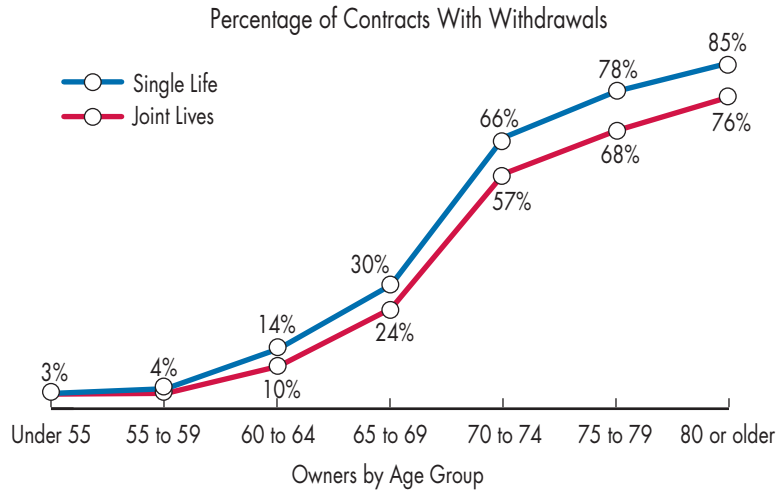
Withdrawal Activity in Single- and Joint-Lives Contracts

One third of GLWB contracts had payouts based on joint lives.

Some GLWB contracts offer guaranteed lifetime withdrawals on joint lives, allowing the withdrawals to continue as long as one of the annuitants is alive. Typically, the payout or guaranteed withdrawal rates for joint-lives contracts are lower than single-life contracts. One third of GLWB contracts had payouts based on joint lives.

Overall, a quarter of IRA owners take withdrawals from joint-lives contracts, slightly lower than the 30 percent of owners who take withdrawals from single-life contracts. The percent of owners taking withdrawals was higher for single-life contracts even among owners aged 70 or older. (Figure 1-40). This could be due to the fact that most joint-lives payouts are newer contract features, and that joint-lives payout rates are typically lower.

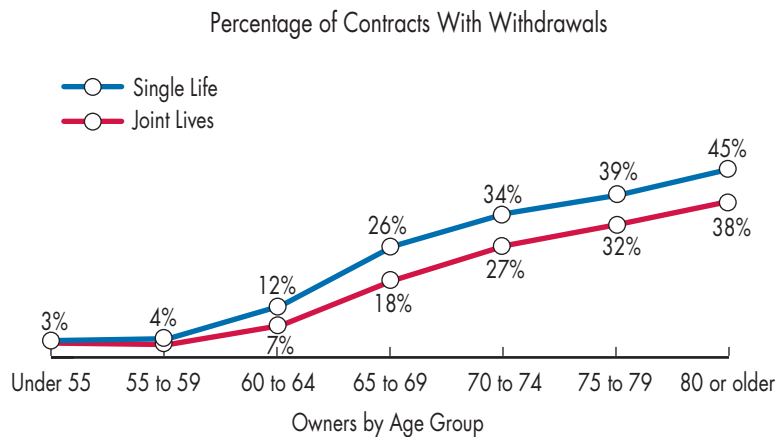
Figure 1-40: GLWB Withdrawal Rates for Single- and Joint-Lives IRA Contracts



Note: Based on 1,617,223 GLWB qualified contracts issued in or before 2015 and still in force at EOY 2015. Percentages refer to the number of contracts in each category that had partial withdrawals during 2015.

For all age groups, the percent of owners of nonqualified GLWBs taking withdrawals is lower in joint-lives contracts than in single-life contracts (Figure 1-41).

Figure 1-41: GLWB Withdrawal Rates for Single- and Joint-Lives Nonqualified Contracts



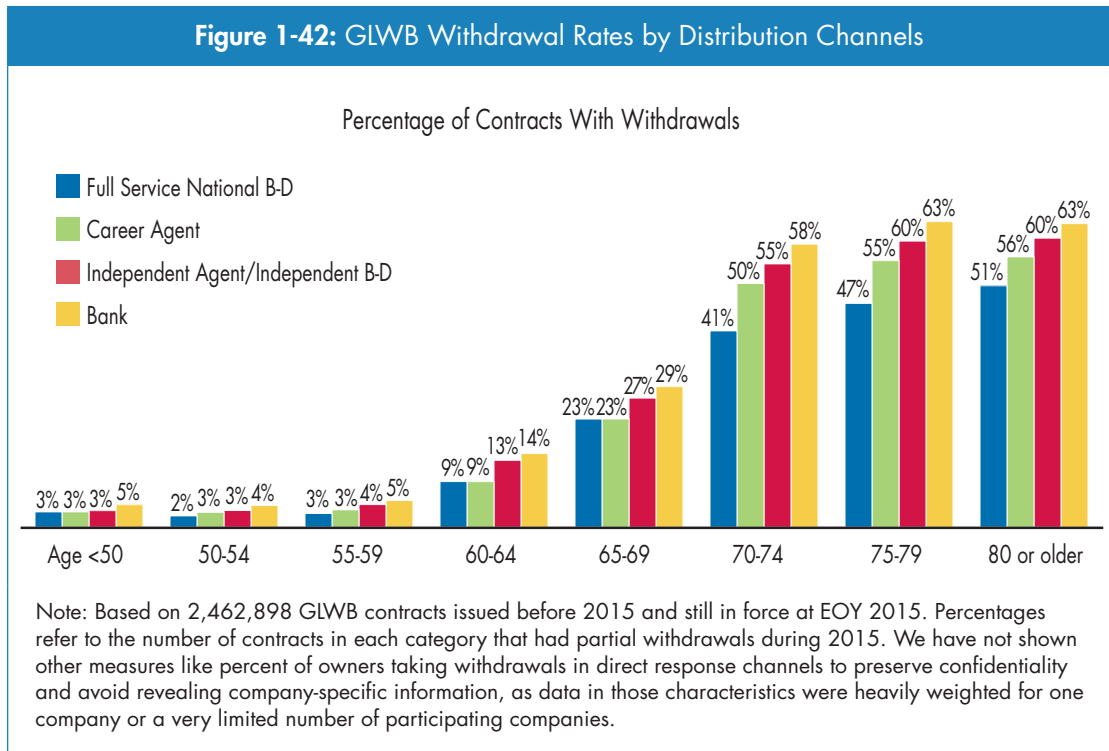
Note: Based on 782,236 GLWB nonqualified contracts issued in or before 2015 and still in force at EOY 2015. Percentages refer to the number of contracts in each category that had partial withdrawals during 2015.

Withdrawal Activity by Channel

The percent of GLWB owners who took withdrawals in 2015 was highest in the bank channel.

If we look at distribution channels, we find that more bank GLWB owners took withdrawals in 2015 than in any other channel (Figure 1-42). Overall, 31 percent of bank channel owners took withdrawals, four percentage points higher than the independent B-D channel. Twenty-four percent of owners in full-service national B-D channel and 23 percent in the career agent channel took withdrawals.

Figure 1-42: GLWB Withdrawal Rates by Distribution Channels



Withdrawal behavior by individual age and distribution channel shows the same pattern that we have already seen — the percent of owners taking withdrawals remains modest up to age 69; increasing at age 70 and over due to RMDs. Differences in withdrawal activity across channel can be partly explained by the different mix of qualified and non-qualified business — 19 percent of bank channel business were IRA contracts owned by individuals aged 70 or older (and therefore are likely to be taking RMDs) while 17 percent of contracts in the other distribution channels were IRA contracts owned by individuals age 70 or older.

In-the-Money Analyses

The equity market meltdown from 2008–2009 and the financial uncertainties of a weak economy that followed could have encouraged more GLWB owners to start lifetime withdrawals from their contracts. This incentive to exercise their option to receive guaranteed lifetime withdrawals from their contracts could have been compelling when a majority of GLWB contracts were in-the-money (benefit base greater than contract value at BOY).

From the perspective of in-the-money analysis the GLWBs are, in essence, owners' options to receive lifetime income. Naturally as the value of the contract declines with market losses, the value of the guarantee increases.

In order to understand the impact of contract in-the-moneyness on withdrawal activities, we need to give proper consideration to the severity and spread of in-the-moneyness among owners by age and by duration of contracts. We must also consider many other factors like market performance, investor confidence in the market, market volatility, the state of the economy, and confidence in the financial strength of financial service providers. In order to conclude that contracts being in-the-money influence owner withdrawal activity, we would expect to see increased withdrawal activities irrespective of age.¹⁰

There are multiple ways to measure in-the-moneyness. One method is to compare the benefit base to the contract value. Another method is to calculate the actuarial present value of withdrawals of the in-force block of business. In this chapter, the latter method can be found in the "GLWB Actuarial Present Value of Future Payments" section.

Being in-the-money has not been a major driver of withdrawal behavior for GLWB contract owners.

¹⁰ Additional analysis found no significant difference in the withdrawal pattern for contracts that were in-the-money compared to those not in-the-money when looking at withdrawal amounts that were above, at, or below the benefit maximum.

Withdrawal Activity for Contracts In-the-Money or Not-in-the-Money

After the market crisis of 2008–2009, a majority of GLWB contracts were in-the-money for a number of years. Previous LIMRA studies¹¹ are helpful in understanding the context of the association between benefits being in-the-money and owner withdrawal activity (Table 1-19).

Calendar Year:	2009	2010	2011	2012	2013	2014	2015
Percent of Contracts where Benefit Bases > Contract Values at BOY	93%	73%	62%	92%	79%	48%	74%
Number of Contracts Issued before Calendar Year	.89 million	1.25 million	1.45 million	1.89 million	2.04 million	2.39 million	2.52 million

Examining the GLWB contracts issued before 2015, it is also evident that:

- Older duration contracts are more likely to be in-the-money (Figure 1-7). The older duration contracts are also more likely to have older owners than newer duration contracts.
- At the beginning of 2015, benefit bases in-the-money were not widely spread across all age groups due to improvement in contract values from positive market returns in 2012 through 2014 (Figure 1-12). In fact, contracts owned by investors aged 70 or older were more likely to be deeper in-the-money than younger owners. This is because a large number of older owners with older duration contracts initiated withdrawals in previous years and continued taking withdrawals from their contracts in all following years.
- Older owners — particularly those aged 70 or older — are more likely to take and continue withdrawals over a longer period of time. Since their withdrawal amounts typically remain within the maximum amount offered in the GLWB contracts, their contract values are likely to decline over a period (unless they experience large investment growth) while their benefit bases are likely to remain level causing the in-the-money amount to grow as the withdrawals continue.

As a result, we expect that the percentages of owners taking withdrawals by the degree of in-the-moneyness will be skewed by current age and duration of contracts. We can also expect that the gap between the percentage of owners taking withdrawals in a particular year for contracts in-the-money versus not-in-the money may grow in the future.

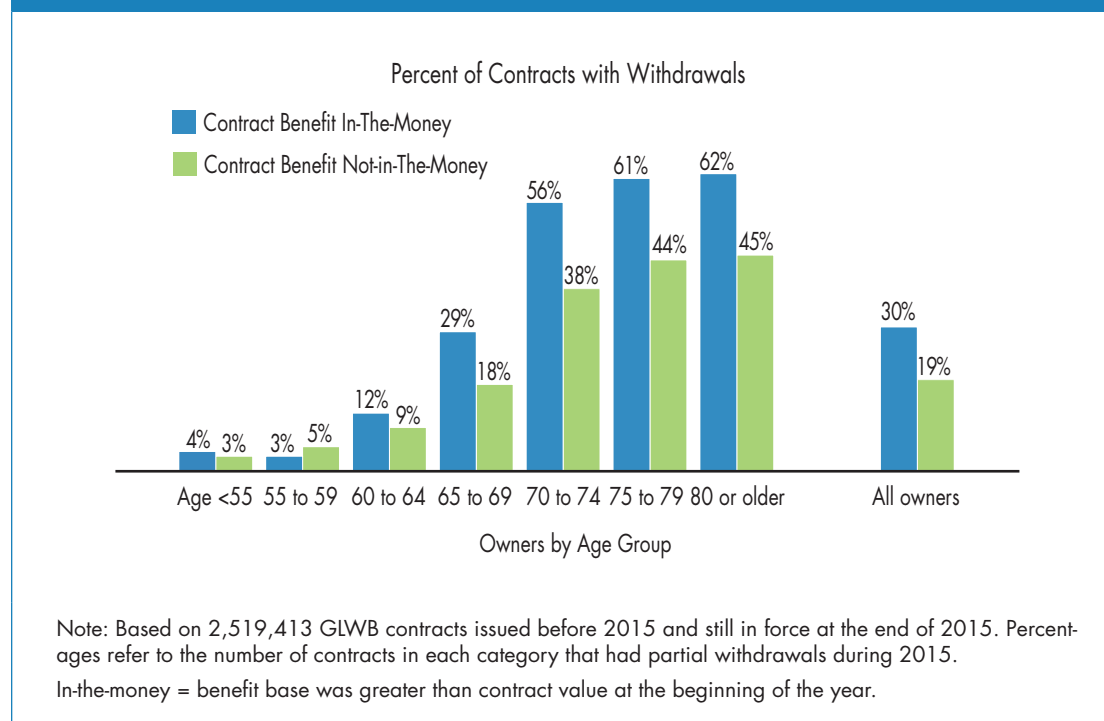
¹¹ *Guaranteed Living Benefits Utilization – 2009-2014 Data*, LIMRA Secure Retirement Institute

Our findings indicate that given the ups and downs in equity-market returns over the last few years, and increased market instability, three-quarters of contracts were in-the-money at the beginning of 2015 with 30 percent having withdrawals, compared with 19 percent of contracts that were not-in-the-money.

The overall utilization rate for contracts in-the-money at BOY was **30%**, compared with **19%** for contracts not-in-the-money.

The percent of owners aged 65 or older who took withdrawals in 2015 was higher among contracts in-the-money than for those not-in-the-money (Figure 1-43). This gap increases with age.

Figure 1-43: GLWB Withdrawal Rates for Contracts In-the-Money vs. Not In-the-Money

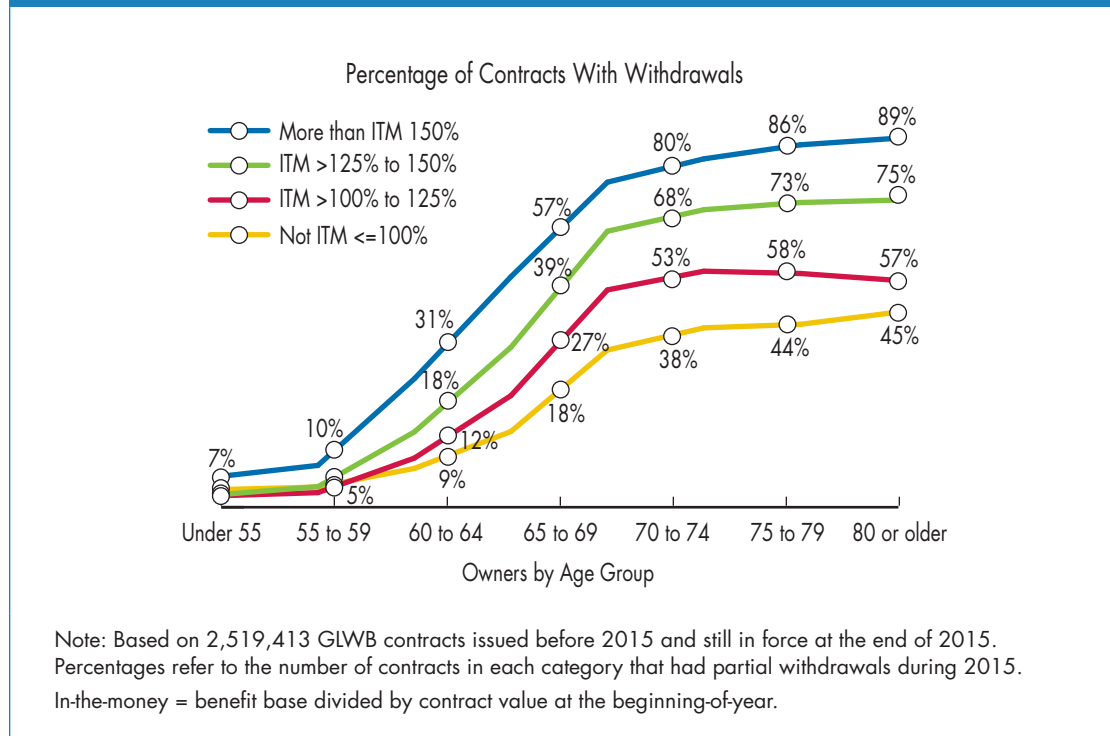


As shown earlier in this chapter, the percentage of owners taking withdrawals is linked closely with owners reaching age 70½ and the need to meet RMDs. So the overall increased withdrawal activity among owners aged 70 or older is mostly due to their taking withdrawals from contracts with longer durations — those most likely to be in-the-money. If in-the-moneyness

were a forceful reason for taking withdrawals, owners aged 65 to 69 would have been more active in taking withdrawals and we would have seen a wider gap between the percentage of owners taking withdrawals from in-the-money contracts versus those not-in-the-money, or a sudden jump in withdrawal activity compared with previous years.

Although looking at contracts being in-the-money by their magnitude and age, in isolation, may not provide a complete picture, Figure 1-44 does show the increased levels of withdrawal activity with increasing levels of in-the-moneyness. We have already discuss that primarily age, not benefits being in-the-money, is what drives owner withdrawal behavior, though there may be a small in-the-moneyness effect mainly driven by withdrawals among younger owners. In-the-moneyness, particularly where benefit base exceeds contract values by more than 150 percent, appears to impact withdrawals among owners aged 60 to 69, the effect is not substantial where in-the-moneyness ranges between >100 percent to 125 percent. The effect is less significant among contract owners under age 60.

Figure 1-44: GLWB Withdrawal Rates for Contracts by Degree of In-the-Money vs. Not In-the-Money



However, as we have mentioned before, if in-the-moneyness were a compelling reason to take withdrawals, we would have seen a bump in the percentages of owners taking their *first* withdrawals based on the degree of in-the-moneyness, but this did not occur. Also, the proportion of owners taking withdrawals with higher levels of in-the-moneyness are lower among owners under aged 65 and higher among owners aged 65 or older, compared to owners with contracts where benefits are equal or less than 100 percent of their contract values. Such differences are likely caused by younger owners starting their withdrawals in recent years, and older owners taking withdrawals for longer periods of time, thus increasing the probability of contracts remaining in-the-money. Our conclusion remains that, even among owners who started withdrawals earlier, owners kept taking withdrawals whether or not the contracts were in-the-money. We have seen little support or evidence that contract benefits being in-the-money is a major driver for withdrawal activities.

Withdrawal Activity for Contracts Issued in 2015

Withdrawal activity for contracts issued in 2015 (and still in force at EOY) was less common than for contracts issued before 2015 (Table 1-20). Overall, 11.1 percent of contracts issued in 2015 had some withdrawal activity; 9.4 percent had systematic withdrawals.

Table 1-20: GLWB Utilization by Month of Issue, Contracts Issued in 2015

Month Issued	Percent With Partial Withdrawal	Percent of Premium Withdrawn	Median Amount Withdrawn	Median Amount Withdrawn, Annualized*
January	14%	5.6%	5,784	5,784
February	14%	5.0%	5,141	5,608
March	14%	4.8%	4,800	5,760
April	13%	4.2%	4,381	5,841
May	13%	3.7%	3,962	5,943
June	13%	3.4%	3,569	6,118
July	12%	2.8%	2,921	5,842
August	11%	2.5%	2,333	5,599
September	10%	2.0%	1,874	5,622
October	9%	1.5%	1,313	5,252
November	8%	1.1%	918	5,505
December	2%	1.0%	760	9,114
Total	11.1%	3.5%	3,333	5,714

Note: Based on 25,441 contracts out of 228,221 contracts issued in 2015 that had partial withdrawals.

*Withdrawal amounts were annualized by multiplying them by 12 / (13 – months since BOY).

The lag between the issuance of the contract and the onset of withdrawals can be approximated by examining the proportion of contracts with withdrawal activity by year end.

Utilization by Selected Characteristics

Utilization of GLWBs varies substantially across a variety of owner, contract, and benefit characteristics for contracts issued before 2015 (Table 1-21). These patterns are relatively consistent across utilization measurements, such as the percent of contracts with systematic withdrawals or the withdrawal rate weighted by contract value.¹²

Table 1-21: GLWB Utilization by Selected Characteristics

	Unweighted		Weighted by BOY 2015 Contract Value	
	Partial Withdrawals	Systematic Withdrawals	Partial Withdrawals	Systematic Withdrawals
Age of owner				
Under 50	3%	0%	4%	1%
50 to 54	3%	0%	3%	1%
55 to 59	4%	1%	5%	2%
60 to 64	12%	8%	14%	11%
65 to 69	26%	21%	29%	24%
70 to 74	52%	42%	52%	42%
75 to 79	57%	47%	55%	45%
80 or older	59%	50%	55%	46%
Market type				
IRA	29%	23%	32%	25%
Nonqualified	22%	18%	22%	19%
Gender				
Male	26%	21%	28%	23%
Female	27%	22%	29%	23%
Distribution channel				
Career agent	23%	15%	26%	17%
Independent agent/ independent B-D	27%	23%	29%	25%
Full Service National B-D	24%	20%	24%	20%
Bank	31%	25%	32%	27%

¹² This measure of utilization should not be equated with the percentage of contract value withdrawn.

Table 1-21: GLWB Utilization by Selected Characteristics (continued)

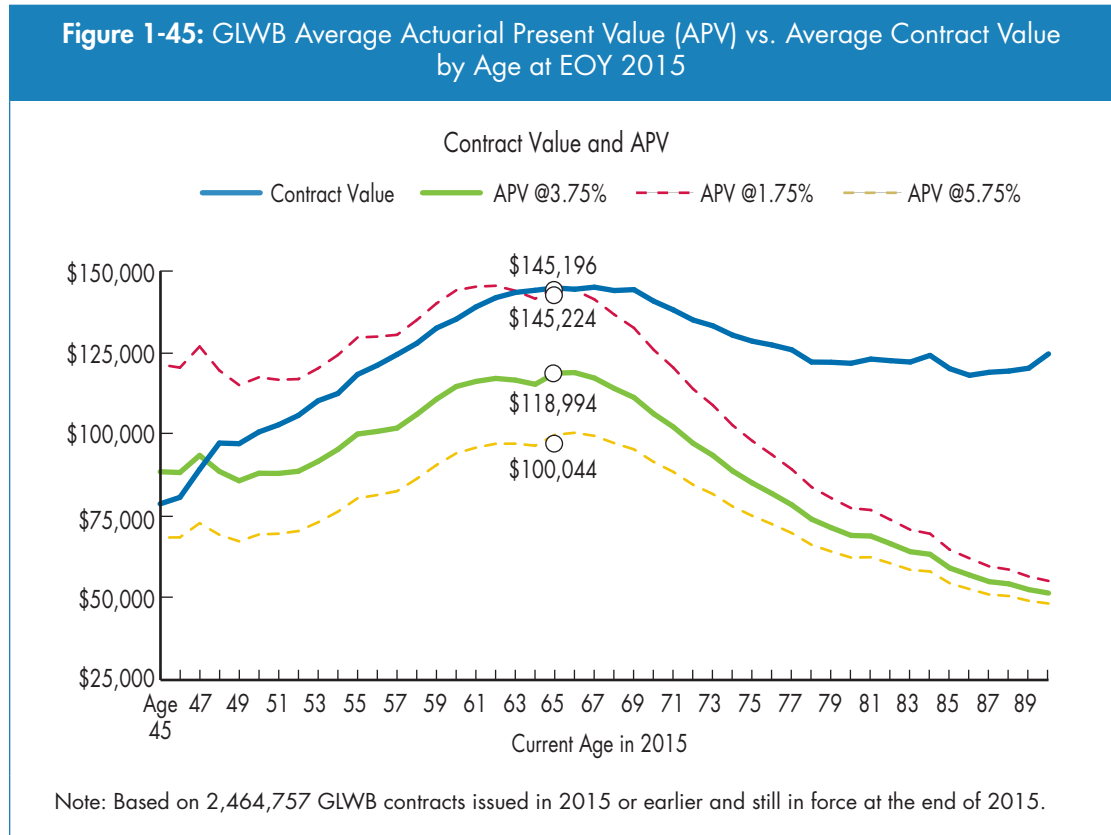
	Unweighted		Weighted by BOY 2015 Contract Value	
	Partial Withdrawals	Systematic Withdrawals	Partial Withdrawals	Systematic Withdrawals
Contract value, EOY 2015				
Under \$25,000	24%	16%	31%	19%
\$25,000 to \$49,999	27%	21%	30%	23%
\$50,000 to \$99,999	28%	22%	30%	24%
\$100,000 to \$249,999	27%	22%	28%	23%
\$250,000 to \$499,999	27%	23%	29%	24%
\$500,000 or higher	25%	21%	26%	21%

Note: Based on 2,551,850 GLWB contracts issued before 2015 and still in force at EOY 2015. Percentages refer to the number of contracts in each category that had partial (or systematic) withdrawals during the year. Systematic withdrawals represent a subset of all partial withdrawals. We have not shown measures related to asset allocation to preserve confidentiality and avoid revealing company-specific information as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.

- Older owners are much more likely to take withdrawals, especially systematic withdrawals, than are younger owners. In part, this activity reflects RMDs from IRAs after age 70½.
- Overall utilization is higher among VA owners in IRAs than nonqualified VA owners.
- Differences across channels in part reflect the age profiles of their customer bases. For example, a larger proportion of bank-issued contracts (with an older client base) take withdrawals compared to independent B-D issued contracts.
- Owners with larger VA contract values are slightly more apt to take withdrawals than are owners with smaller contract values.

GLWB Actuarial Present Value of Future Payments

Figure 1-45 presents an actuarial present value (APV) analysis of benefit-maximum guaranteed withdrawals for the in-force block of business by age, and compares the average APV to average contract values at the end of 2015.



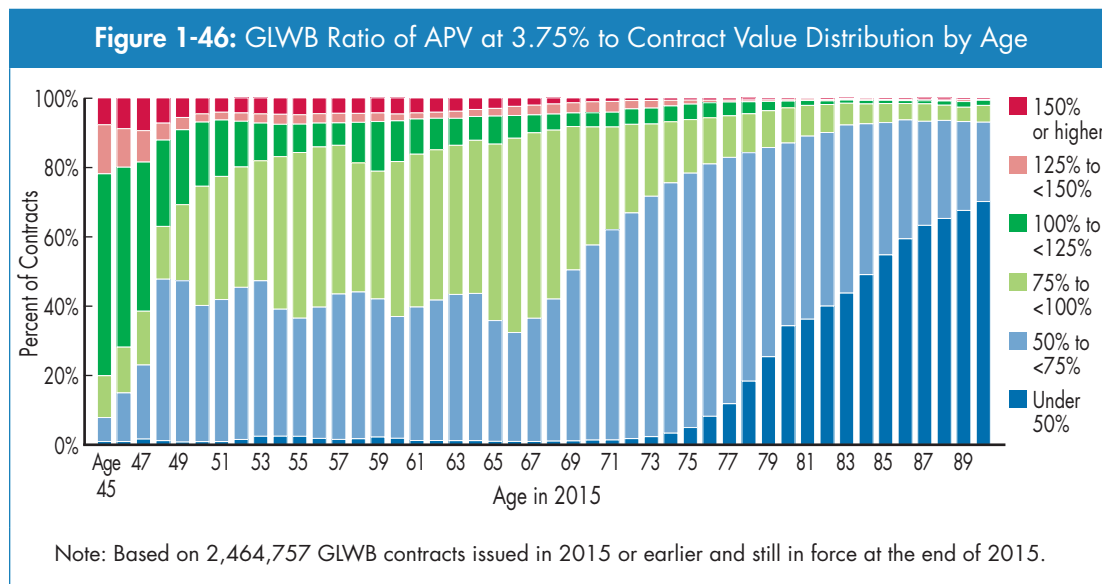
The analysis is based on the following assumptions:

- All contract owners eligible to take withdrawals as of year-end 2015 do so under the current terms of the riders. Withdrawals are taken at the beginning of each year of analysis, and contract owners are assumed to take the maximum guaranteed annual withdrawal amount, which equals the higher of a) the BOY 2015 maximum guaranteed annual withdrawal amount as specified by companies, or b) the BOY 2015 maximum annual withdrawal percentage multiplied by each contract's benefit base on its anniversary date or, if not available, as of the end of 2015. If companies did not specify the BOY annual withdrawal percentage at the contract level, we determined it based on the rider specifications, with appropriate adjustment to the contract owner's age.
- Annual withdrawals or payments continue until the owner's gender- and age-specific life expectancy, using the U.S. Annuity 2000 Basic Mortality Table with projection scale G.

- We did not consider contract surrender activity or payment of guaranteed death benefits.
- APV analysis is based on an interest rate of 3.75 percent.¹³ We used two other interest rates at ± 200 basis points from this valuation rate (i.e., 1.75 and 5.75 percent) to assess the sensitivity of interest rate changes.
- We do not intend the industry to use this analysis as a measure of risk or efficiency of risk management in the industry, as we do not consider factors such as fees, lapse rates, effectiveness of hedging programs, asset allocation restrictions, and other related factors in the calculation.
- The results indicate that the average GLWB contract value exceeded the average APV at 3.75 percent for most ages at EOY 2015. The total APV of benefit maximum withdrawals for 2.5 million GLWB contracts stood at \$255 billion, 23 percent lower than total contract values at \$331 billion at the end of 2015.

In aggregate, the APVs were close to contract values among contracts owned by individuals in their early 50s or younger. In general, for customers aged 70 or over, the EOY contract values were larger than EOY discounted cash outflows of guaranteed withdrawals.

Figure 1-46 shows that not all of the GLWB contract values exceed their APV. Ten percent of all GLWB contracts had APVs above their contract values.



¹³ 2015 Prescribed U.S. Statutory and Tax Interest Rates for the Valuation of Life Insurance and Annuity Products, Tower Watson, August 2016. The rate is for annuities issued in 2015, without cash settlements, issue year valuations, with or without interest guarantees on considerations, received more than one year after issue with guarantee duration of more than 10 years but not more than 20 years.

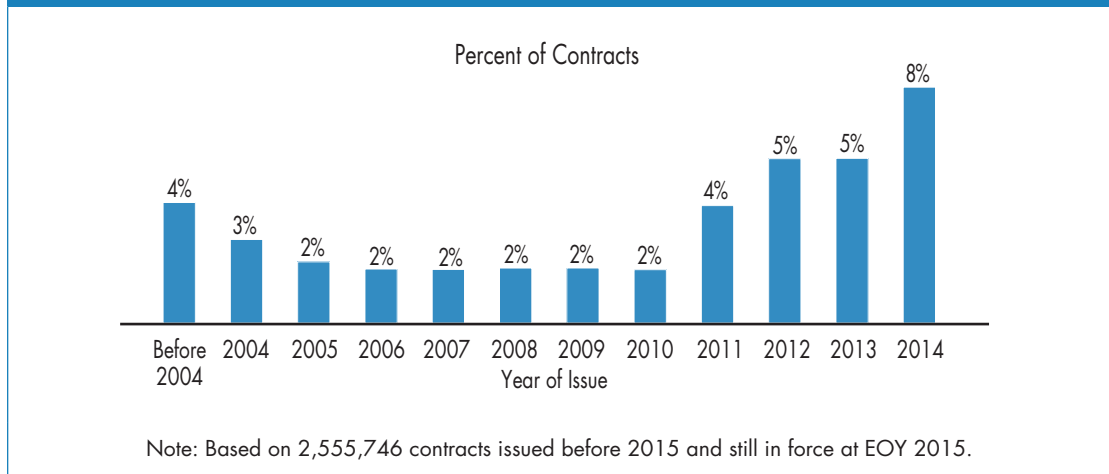
- Twenty percent of contracts owned by customers aged 45–59 had APVs higher than the contract values. This age group held a fifth of all GLWB contracts at the end of 2015.
- Thirteen percent of owners aged 60 to 69 and only 7 percent of owners aged 70 to 79 had APVs greater than their contract values. For customers aged 80 or over, almost all of the contracts had larger contract values compared to APVs.

Additional Premium and Net Flows

Many retail VAs allow owners to add premium after issue, though in practice most contracts do not receive ongoing deposits. For most GLWBs, the calculation of the benefit base incorporates premium received within a certain time period after contract issue. For contracts issued before 2015:

- Received nearly \$2.9 billion in additional premium in 2015. This has declined since 2014 by over 20 percent, partially driven by restrictions certain manufacturers have placed on additional premium.
- Four percent of contracts received additional premium in 2015. Contracts issued in 2014 were more likely than contracts issued in earlier years to have additional premium (Figure 1-47).

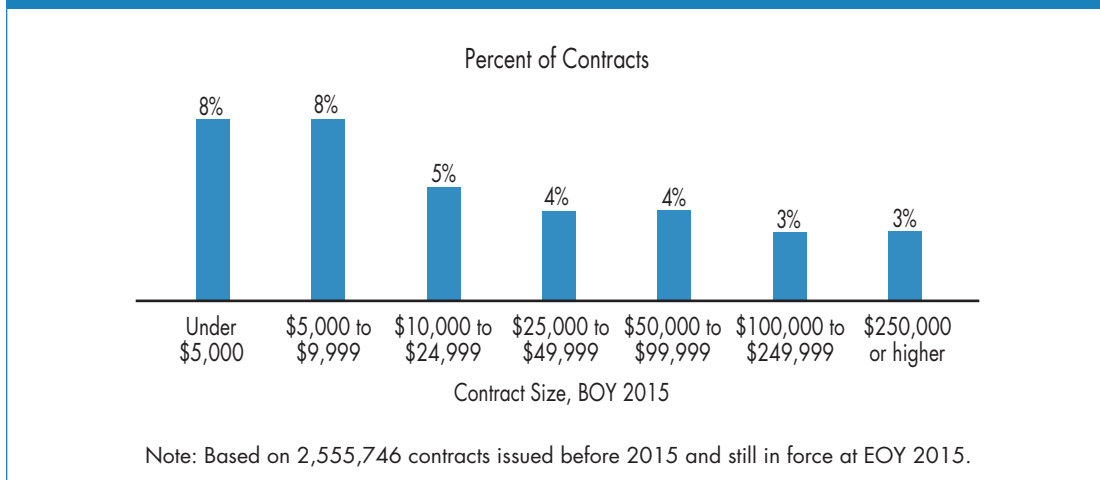
Figure 1-47: GLWB Percentage of Contracts Receiving Additional Premium



- Younger owners are more likely to add premium than older owners. For example, 10 percent of owners under age 50 added premium, compared with 2 percent of owners aged 70 or older. Six percent and 5 percent of owners aged 50–59 and aged 60–64 respectively added additional premium to their contracts in 2015.

One in 12 contracts that had BOY contract values under \$5,000 received additional premiums (Figure 1-48). The average additional premium received in 2015 was \$ 30,575 (median of \$8,000).

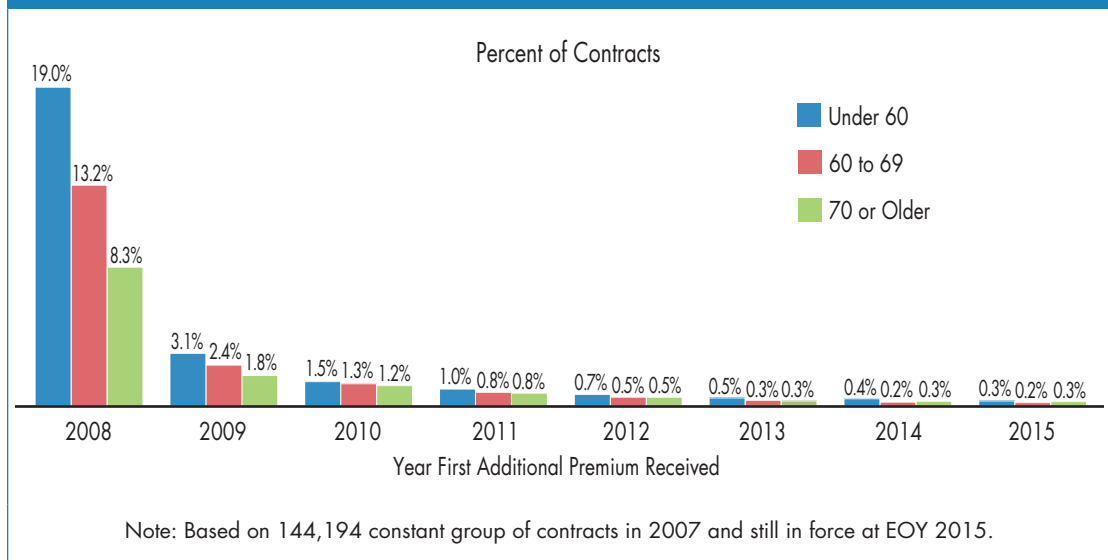
Figure 1-48: GLWB Percentage of Contracts Receiving Additional Premium by Size of Contract



Owners rarely add premium after the second year of owning a GLWB contract.

Owners rarely add premium after the second year of owning a GLWB contract (Figure 1-49). Based on a constant group of contracts issued in 2007, 14.6 percent added premium in one of the calendar years after issue, and only 6.4 percent added premium two or more years after the year of issue. In addition, younger owners are more likely to put additional premiums into their contracts. In the first year, owners under age 60 were more than two times as likely to put additional money into their contracts as owners aged 70 or older. In the second and future years, owners under age 60 were only slightly more likely to contribute additional premiums than older owners. We found a very similar pattern for a constant group of contracts issued in 2008 and 2009.

Figure 1-49: Additional Premium for Contracts Issued in 2007



Premiums received for newly issued and existing contracts far exceed outflows associated with withdrawals, surrenders, deaths, and annuitizations — \$35.8 billion and \$19.7 billion, respectively (Table 1-22). The total number of GLWB contracts in force grew by over 4 percent during 2015. At year-end, GLWB assets were \$368 billion, nearly the same from the beginning of the year.

Table 1-22: GLWB Net Flows

	Dollars (Billions)	Contracts	Average Contract Size
In-force, BOY 2015	\$366.9	2,664,303	\$137,706
Premium received			
Newly issued contracts	\$32.9	228,809	\$ 143,637
Existing contracts	\$2.9	N/A	N/A
Benefits paid			
Partial withdrawals	\$7.8	N/A	N/A
Full surrenders	\$9.6	90,129	\$ 107,028
Annuitizations	\$0.1	749	\$118,296
Death/Disability	\$2.2	18,254	\$119,376
Investment growth	-\$14.9	N/A	N/A
In-force, EOY 2015	\$368.0	2,783,980	\$132,198

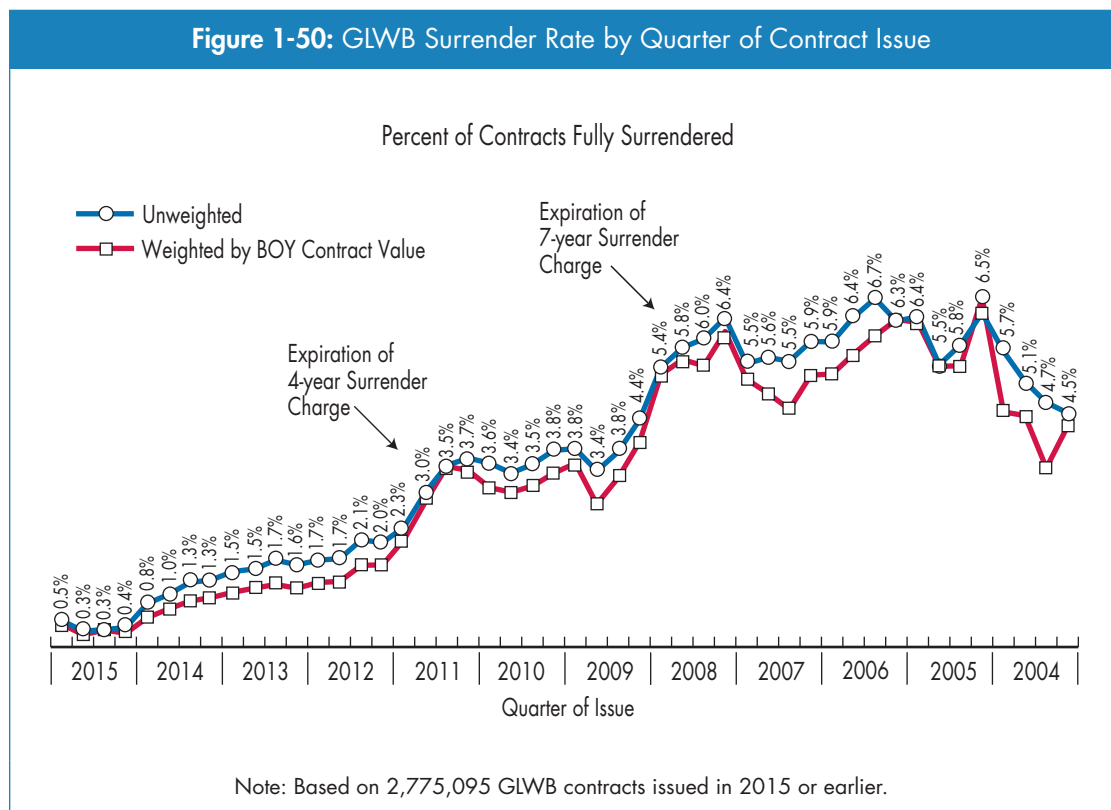
Note: Based on 2,893,112 GLWB contracts in the study. Dollar values for contracts issued before 2015 that terminated during the year were set equal to either the BOY contract value (if termination occurred before contract anniversary date) or the anniversary contract value (if termination occurred on or after the contract anniversary date). Dollar values for contracts issued in 2015 that terminated during the year were set equal to the current-year premium.

Persistency

Surrender activity for VAs with GLWBs is a critical factor in measuring liability. If persistency is very high among contracts with benefit base amounts that are larger than the contract value, or in contracts where the owners take withdrawals regularly, 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.

2015 GLWB
contract surrender
rate = **3.4%**.

Surrender rates for VAs with GLWBs in 2015 were relatively low, even among contracts issued five years earlier (Figure 1-50). Across all contracts issued before 2015, 3.4 percent surrendered during 2015, lower than the surrender rates experienced in the prior year. There was a noticeable increase in surrender rates at the expiration of the L-share and B-share surrender charge. For business issued before 2015, cash value surrender rates were 2.9 percent, suggesting that smaller size contracts were more likely to be surrendered. By comparison, the cash value surrender rate for all retail VA contracts still within the surrender charge period (i.e., including contracts without GLBs) was approximately 1.8 percent in 2015.¹⁴



¹⁴ Based on analysis of LIMRA Secure Retirement Institute *U.S. Annuity Persistency Survey Data*.

We are seeing a new trend that companies need to monitor — surrender rates for older duration contracts was lower in the current study than in previous studies. We observed that the surrender rates for contracts that were 4 years old or older were experiencing lower surrender rates than comparable surrender rates from previous study years, particularly in the third party distribution channels. It is possible that more of these owners are holding onto their contracts because their riders offer attractive features at a competitive cost and they do not want to give up these benefits.

Surrender Activity by Share Class and Presence of Surrender Charge

Looking at the surrender rates by the presence of surrender charges shows that persistency among contracts with surrender charges was higher than for contracts without surrender charges. Almost all (86 percent) of B-share contracts and 36 percent of the L-share contracts were within the surrender charge periods in 2015. Figure 1-51 shows contract surrender rates and Figure 1-52 shows cash value surrender rates for contracts by share classes.

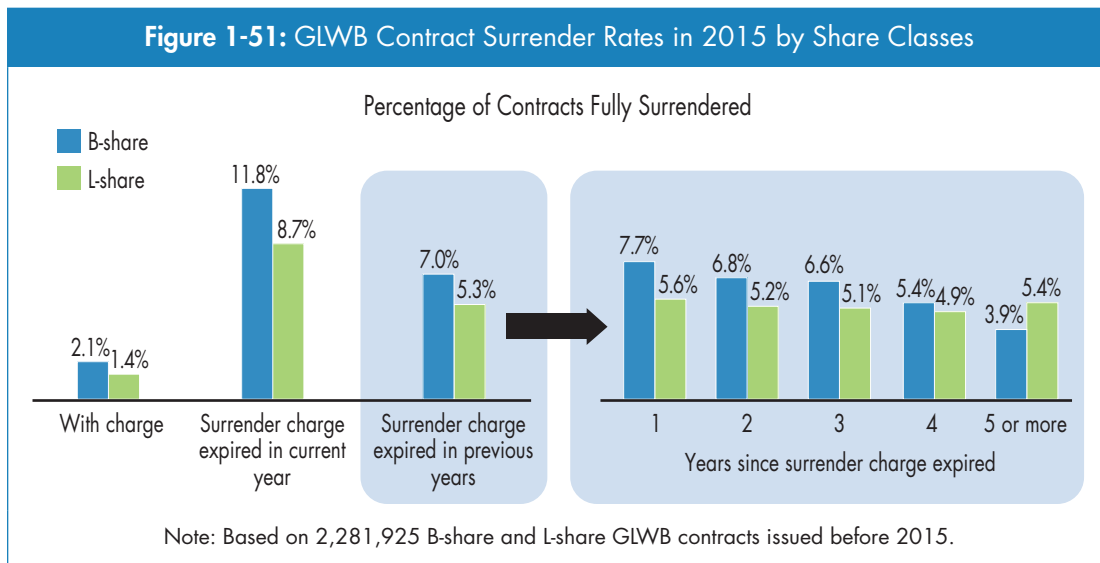
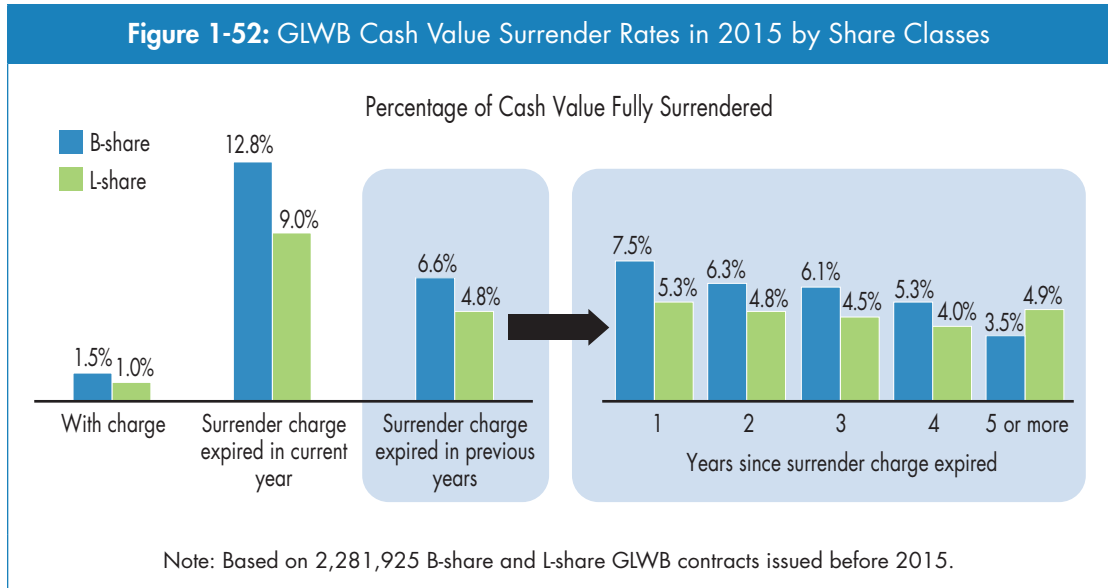


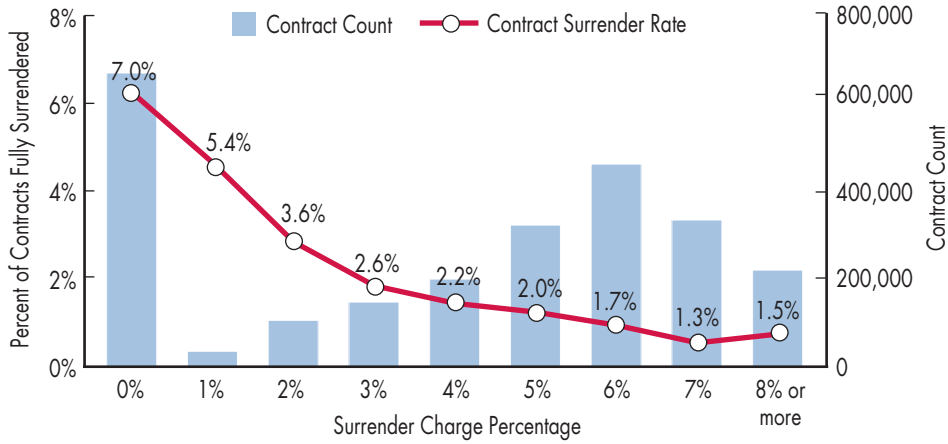
Figure 1-52: GLWB Cash Value Surrender Rates in 2015 by Share Classes



- With B- and L-share combined, 71 percent of GLWB contracts were under surrender penalty.
- The overall contract surrender rate for B-share and L-share contracts that did not have surrender charges or came out of the surrender charge period was 7.1 percent compared with 2.0 percent for contracts that had surrender charges.

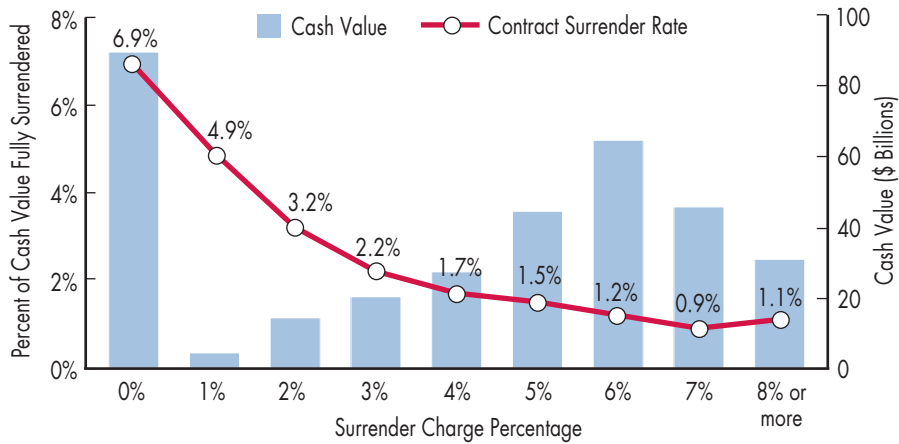
The surrender rates of GLWB contracts are also influenced by the surrender charge present in the contract. Naturally, contracts with high surrender charges have low surrender rates and vice versa (Figures 1-53 and 1-54). At EOY 2015, 62 percent of contracts had surrender charges of 4 percent or more. Twenty-seven percent of the contracts were free of surrender charges.

Figure 1-53: GLWB Contract Surrender Rate by Surrender Charge Percentage



Note: Based on 2,489,721 GLWB contracts issued before 2015. This analysis excludes C-share and other types of contracts that did not have any surrender charge schedule.

Figure 1-54: GLWB Cash Value Surrender Rate by Surrender Charge Percentage

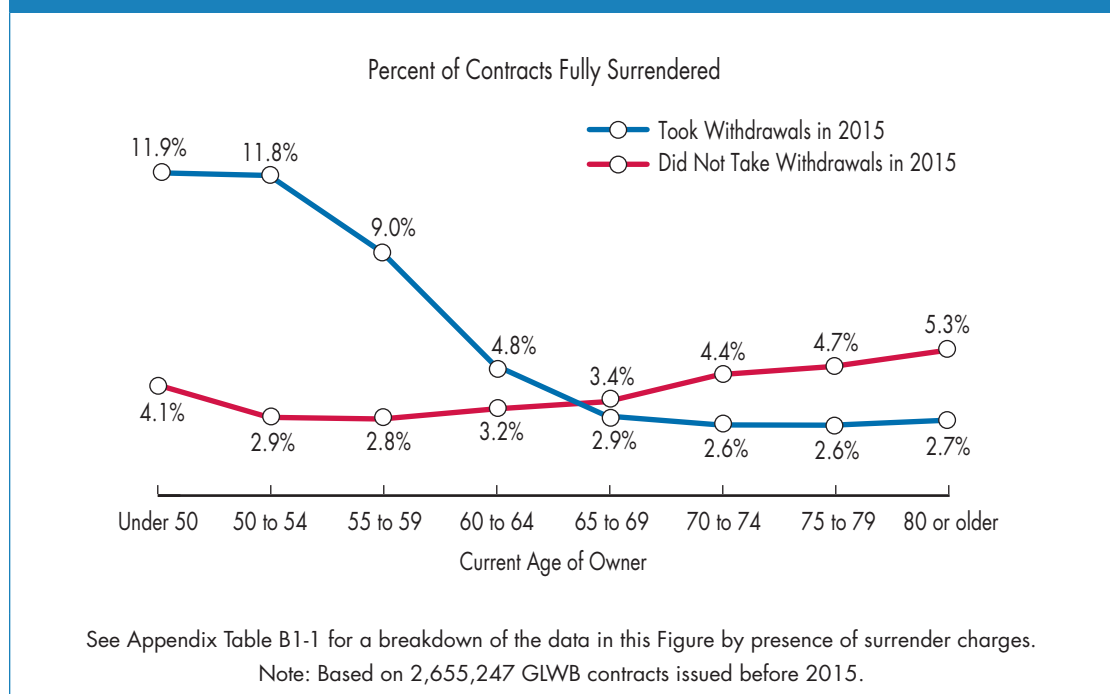


Note: Based on 2,489,721 GLWB contracts issued before 2015. This analysis excludes C-share and other types of contracts that did not have any surrender charge schedule.

Surrender Activity of Owners Taking Withdrawals

Younger owners have higher surrender rates, particularly those under age 60 who took withdrawals before or in 2015. We have already shown that even though younger owners own a significant portion of GLWB contracts, most of them are not likely to take withdrawals. When some of these younger owners take withdrawals, they typically do so through occasional withdrawals. Moreover, their average withdrawal amount is much higher, and not likely to be supported by the guaranteed benefit base in their contracts. It is likely that these younger owners are really taking partial surrenders. Younger owners who took withdrawals in 2015 were also more likely to fully surrender their contracts (Figure 1-55).

Figure 1-55: GLWB Contract Surrender Rate by Owners Taking Withdrawals in 2015



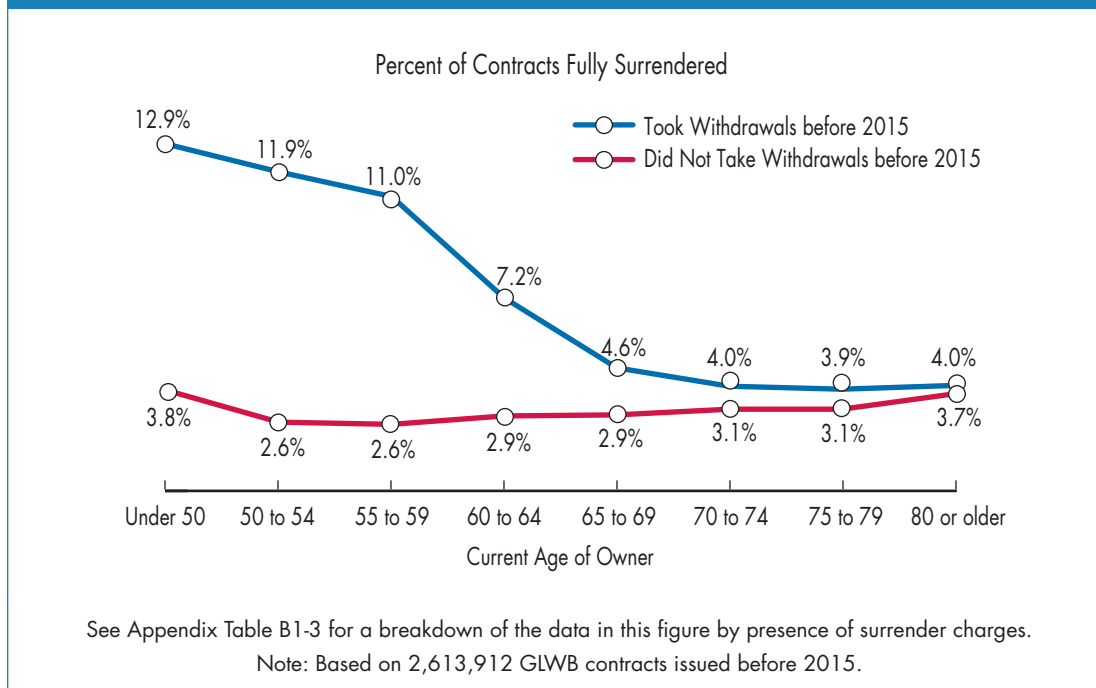
Contract surrender rate among owners under age 60 who took withdrawals in 2015 = **10.0%**.

Contract surrender rate among owners under age 60 who did not take any withdrawals in 2015 = **3.0%**.

Ten percent of owners under age 60 who took withdrawals during 2015 subsequently surrendered their contracts by EOY. Some of these younger owners may have had emergency needs while others may have decided they no longer needed their contracts. On the other hand, the surrender rate was only 3 percent among owners under age 60 who did not take any withdrawals in 2015.

The surrender rate for owners aged 60 or older who took withdrawals in 2015 (2.9 percent) was lower than those who did not take withdrawals (3.7 percent). Past withdrawals can also indicate whether younger owners is more likely to fully surrender contracts in future. Figure 1-56 shows the surrender rate for owners who took withdrawals before 2015.

Figure 1-56: GLWB Contract Surrender Rate by Owners Taking Withdrawals Before 2015



As we have seen, younger owners are the most likely to take withdrawals that exceed the benefit maximum. We believe that this activity represents an increased likelihood that their contracts will surrender. There was an increased likelihood of surrender for contracts where owners under age 60 took withdrawals, either in current or past years. However, this increased surrender activity did not occur for owners over age 60 who took withdrawals. For them, a withdrawal in one year did not necessarily signal a higher likelihood of surrender in the next year. In general, those who do not take withdrawals are not likely to surrender. Understanding this behavior is important since withdrawal activity, particularly withdrawals that exceed the benefit maximum can be an early indicator of increased surrender activity for a book of business.

In general, GLWB surrender rates are relatively low for those who do not take withdrawals, regardless of age.

We also looked at the cash value surrender rates of contracts with withdrawals in 2015. The cash value surrender rates follow a similar pattern as the contract surrender rates except the cash value surrender rates tend to be slightly lower, particularly for younger owners under age 70 who took withdrawals (Figures 1-57 and 1-58).

Figure 1-57: GLWB Cash Value Surrender Rate by Owners Taking Withdrawals in 2015

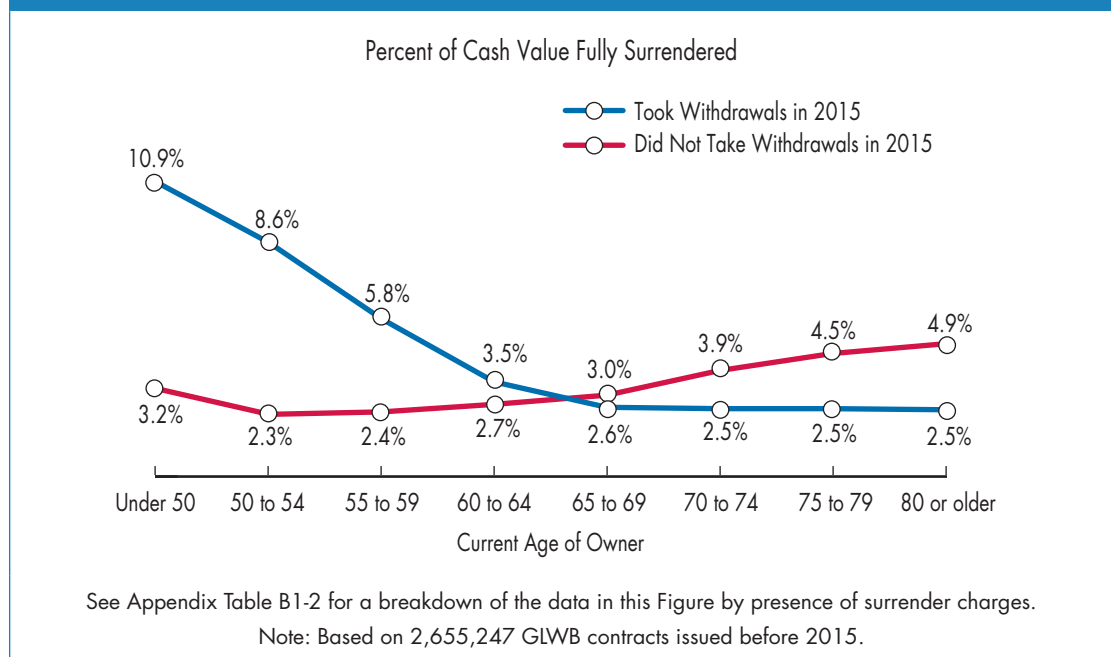
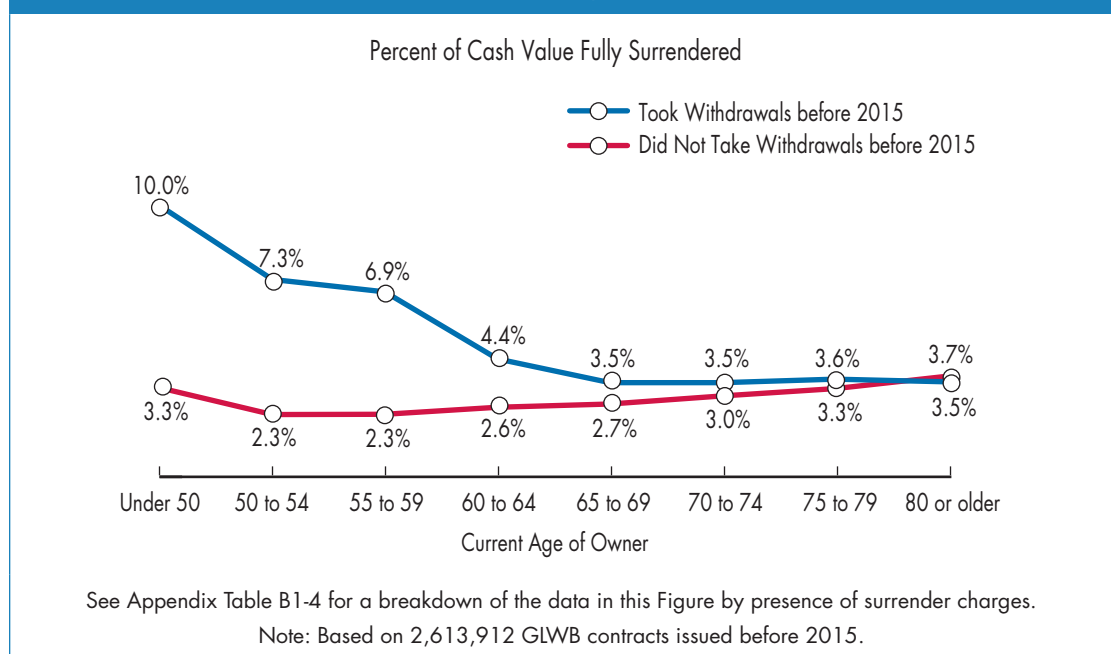
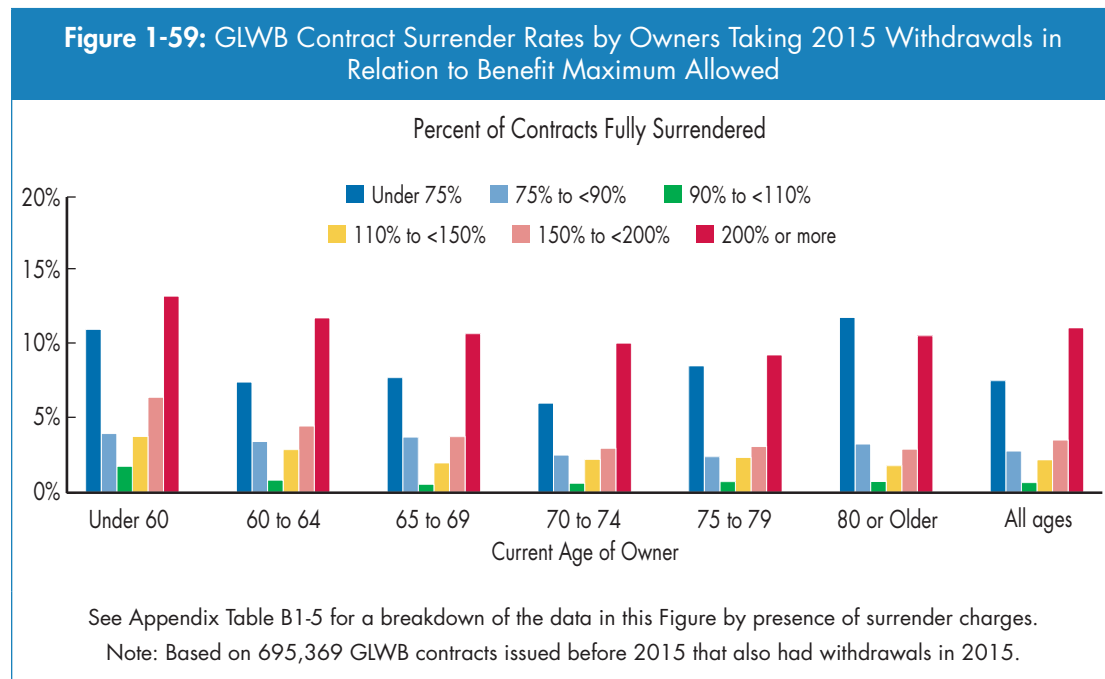


Figure 1-58: GLWB Cash Value Surrender Rate by Owners Taking Withdrawals Before 2015



Surrender Activity by Percentage of Annual Benefit Maximum Withdrawn

Figure 1-59 shows the contract surrender rates for owners who took withdrawals in 2015, based on the percentage of annual benefit maximum withdrawn. Contract surrender rates for owners who took withdrawals under 75 percent of the maximum allowed in the contracts, and for owners who took 200 percent or more of the maximum allowed, are quite high.



The surrender rates show a U-shaped relationship to percent of benefit maximum withdrawn — those with very low and very high ratios of withdrawals to maximum allowed have higher surrender rates than those in the middle categories.

- Surrender rates among owners who took withdrawals of between 75 percent to less than 200 percent of the maximum withdrawal amount allowed in the contracts are relatively low. This is true across all age groups.

— This group of owners constitutes three-quarters of all owners who took withdrawals in 2015.

— As a group, the surrender rate among these owners is very low, only 1.2 percent.

— Surrender rate is the lowest (0.7 percent) among owners who took between 90 percent and <110 percent of the maximum benefit allowed.

The owners who withdrew between 110 percent and <150 percent of the maximum withdrawal amount are few, only 7 percent, and the surrender rate for them is also low at 2.2 percent.

- Fifteen percent of all owners who took withdrawals in 2015 took less than 75 percent of the maximum withdrawal amount allowed in the contract. Surrender rate for this group is relatively high at 7.6 percent and noticeably higher for these contract owners across all age groups. These contract owners are not utilizing the maximum allowed guaranteed withdrawal benefit, as they are not taking advantage of the maximum withdrawal amount allowed in the contract.

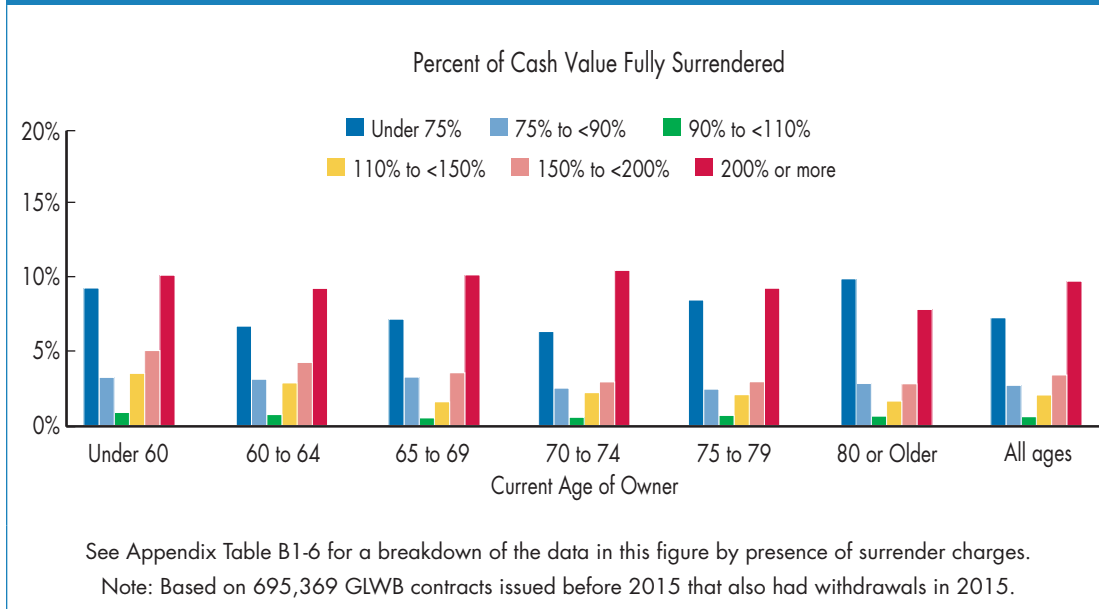
71% of all contracts surrendered in 2015 came from owners who withdrew either less than 75 percent or 200 percent or more of the maximum withdrawal amount allowed in their contracts.

- Ten percent of GLWB owners took withdrawals of 200 percent or more of the maximum withdrawal amount allowed in their contracts. Surrender rates among these contracts were 11.1% and were the highest across almost all age groups. Their withdrawals were likely partial surrenders of their contracts and most of them surrendered fully before the end of the year. These owners are responsible for 35 percent of all GLWB contracts surrendered in 2015 and 26 percent of the cash surrender values in 2015.

In summary, the GLWB owners in two extremes — those taking less than 75 percent or 200 percent or more of the maximum withdrawal amount allowed in their contracts accounted for a quarter of all owners who took withdrawals in 2015. But they were responsible for 71 percent of contracts surrendered and 69 percent of cash surrender values in 2015.

The cash value surrender rates among owners who took withdrawals in 2015 by the percentage of benefit maximum withdrawn follow a very similar pattern to the contract surrender rates. The only difference is that cash value surrender rates are typically slightly lower, particularly for younger owners under age 60 taking withdrawals that are under 75 percent or 200 percent or more than the benefit maximum (Figure 1-60).

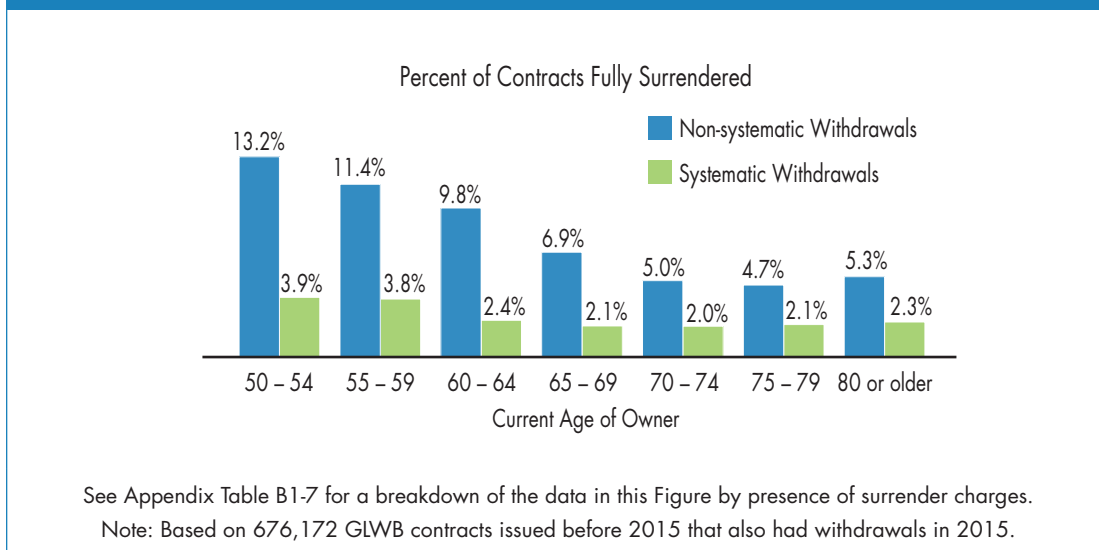
Figure 1-60: GLWB Cash Value Surrender Rates by Owners Taking 2015 Withdrawals in Relation to Benefit Maximum Allowed



Surrender Activity by Owners Taking Systematic Withdrawals

Another strong indicator of whether owners are likely to surrender their contracts is the method they use to take withdrawals — systematic or non-systematic (Figure 1-61).

Figure 1-61: GLWB Contract Surrender Rates by Withdrawal Methods



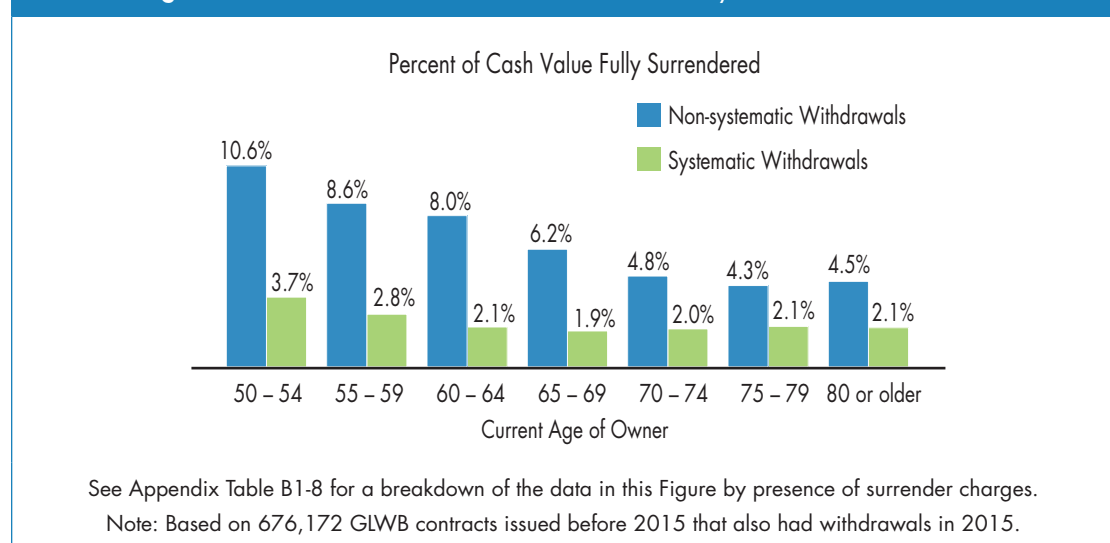
GLWB contract surrender rates for owners who take non-systematic withdrawals = 6.9%. Contract surrender rates for owners who took systematic withdrawals = 2.2%.

Overall, the contract surrender rate for owners who took non-systematic withdrawals in 2015 was 6.9 percent, while the surrender rate for owners who withdrew systematically was a very low 2.2 percent. Non-systematic withdrawals do not always maximize their benefit withdrawals.

Owners taking non-systematic withdrawals accounted for just under a quarter of all owners taking withdrawals; but they account for half of all surrendered contracts and almost half of cash surrender values in 2015. Surrender rates among older owners who take non-systematic withdrawals are more than double the surrender rates of older owners who take systematic withdrawals. Owners who take systematic withdrawals are less likely to take more than the benefit maximum.

The cash value surrender rates by withdrawal methods follow a very similar pattern as the contract surrender rates except the cash value surrender rates are slightly lower, particularly for owners under age 65 taking non-systematic withdrawals (Figure 1-62).

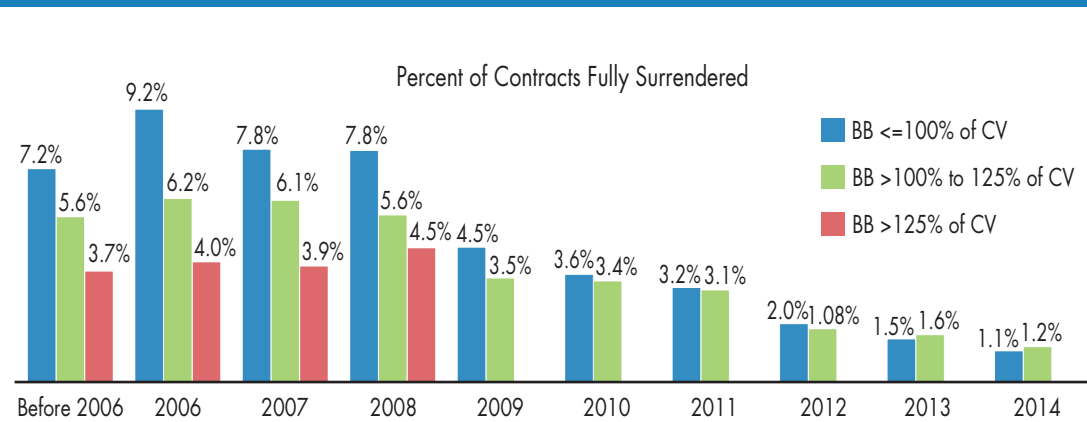
Figure 1-62: GLWB Cash Value Surrender Rates by Withdrawal Methods



Surrender Activity Based on the Amount the Benefit Base Exceeds Contract Value

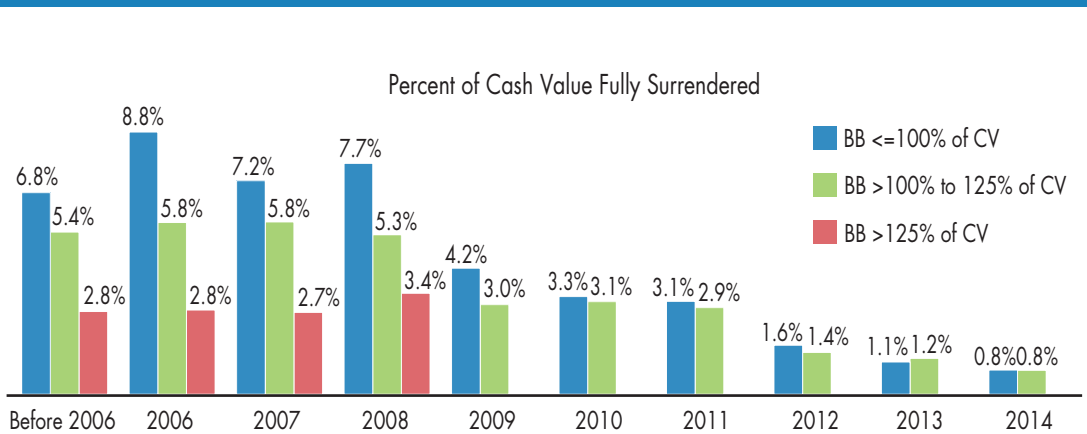
Another important analysis of surrender rates involves whether or not the benefit base is greater than the contract value. Surrender rates for most issue years are lower when the benefit base is greater than the contract value (Figures 1-63 and 1-64).

Figure 1-63: GLWB Contract Surrender Rate by Amount Benefit Base Exceeds Contract Value



Note: Based on 2,595,158 GLWB contracts issued before 2015. We have not shown some measures related to certain issue years either because of low sample size or to preserve confidentiality and avoid revealing company-specific information as data in those characteristics were heavily weighted for one company or a very limited number of participating companies — but this data generally followed a similar pattern.

Figure 1-64: GLWB Cash Value Surrender Rate by Amount Benefit Base Exceeds Contract Value



Note: Based on 2,595,158 GLWB contracts issued before 2015. We have not shown some measures related to certain issue years either because of low sample size or to preserve confidentiality and avoid revealing company-specific information as data in those characteristics were heavily weighted for one company or a very limited number of participating companies but this data generally followed a similar pattern.

GLWB owners appear to be sensitive to how much the benefit base exceeds the contract value when deciding whether to surrender their contracts.

However, looking at the surrender rates based only on the amount by which the benefit base exceeds the contract value may not completely address all issues when trying to understand the persistency risk. Owner surrender behavior is also closely connected with withdrawal behavior. Insurance companies assume more risk when the business left has more contracts where the benefit base amounts are greater than the contract values, and these contracts have lower surrender rates. They need to fulfill their commitments on withdrawal guarantees if owners decide to start or continue withdrawals.

Insurance companies can look at surrender rates and their relationship to owner withdrawal behavior since there are some connections:

- The overall surrender rates for GLWB contracts are very low.
- Though duration and surrender charge rates present in the contracts influence persistency, it is customers under age 60 who take withdrawals who contribute toward high surrender rates.
- Owners who take too little or too great a withdrawal amount compared with the benefit maximums allowed in the contract are more likely to fully surrender the contract subsequently.
- The surrender rate among owners under age 65 who have not started taking withdrawals is very low, and they may use the rider benefits.
- The surrender rates among owners over age 65 who are either taking or not taking withdrawals are very likely to remain low. Some of them, particularly owners of nonqualified annuities, may delay withdrawals but hold the contracts for the income assurance in retirement.
- Owners who are taking withdrawals through a SWP are likely to remain within benefit maximums and are less likely to surrender their contracts.
- Surrender rates are low in contracts where the benefit base amounts exceed the contract values.
- Owners with contract values less than \$25,000 have the highest surrender rates across the different bands of contract sizes.
- GLWBs issued through banks have the highest surrender rates by distribution channel.
- Nearly all contracts issued during 2014 remained in force at the end of that year (99 percent).

Table 1-23: GLWB Surrender Rates

	Percent of Contracts Surrendered	Percent of Cash Value Surrendered
All contracts issued before 2015	3.4%	2.9%
Year of issue		
Before 2004	4.1%	3.9%
2004	5.0%	4.2%
2005	6.0%	5.9%
2006	6.3%	5.7%
2007	5.6%	5.0%
2008	5.9%	5.6%
2009	3.8%	3.3%
2010	3.5%	3.1%
2011	3.1%	2.9%
2012	1.9%	1.4%
2013	1.6%	1.1%
2014	1.1%	0.8%
Age of owner		
Under 50	4.4%	3.6%
50 to 54	3.1%	2.5%
55 to 59	3.0%	2.5%
60 to 64	3.4%	2.8%
65 to 69	3.3%	2.9%
70 to 74	3.5%	3.2%
75 to 79	3.5%	3.4%
80 or older	3.8%	3.6%
Contract value, BOY 2015		
Under \$25,000	6.5%	5.5%
\$25,000 to \$49,999	3.7%	3.7%
\$50,000 to \$99,999	3.0%	3.0%
\$100,000 to \$249,999	2.7%	2.7%
\$250,000 to \$499,999	2.8%	2.8%
\$500,000 or higher	3.2%	3.3%
Gender		
Male	3.4%	3.0%
Female	3.3%	2.8%
Market type		
IRA	3.3%	2.8%
Nonqualified	3.5%	3.3%

Table 1-23: GLWB Surrender Rates (continued)

	Percent of Contracts Surrendered	Percent of Cash Value Surrendered
Distribution channel		
Career agent	2.5%	1.9%
Independent agent/independent B-D	3.7%	3.2%
Full Service National B-D	3.1%	3.1%
Bank	3.9%	3.4%
Cost structure		
B-share	3.1%	2.5%
C-share/no load	4.1%	3.2%
L-share	4.4%	4.0%
O-share/level load	1.5%	1.4%
<p>Note: Based on 2,659,683 contracts issued before 2015. Percent of contracts surrendered = number of contracts fully surrendered / total number of contracts in force. Percent of contract value surrendered = sum of values of fully surrendered contracts / total contract value in force. We have not shown some measures related to asset allocation restrictions and share classes to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.</p>		

Product and Benefit Characteristics

Living benefits tend to have complex designs, which limit the ability to categorize and make comparisons across products and carriers. Nonetheless, these benefits can be grouped based on some of their basic features, including cost, age restrictions, and step-up options, as well as specific benefit features. For GLWBs, the key features are spousal payouts, increased benefit bases when withdrawals are delayed, and maximum annual withdrawal rates (Table 1-24).

Table 1-24: GLWB Product and Benefit Characteristics

	Issued in 2006	Issued in 2007	Issued in 2008	Issued in 2009	Issued in 2010	Issued in 2011	Issued in 2012	Issued in 2013	Issued in 2014	Issued in 2015
Number of contracts:	120,073	214,932	275,794	317,184	344,130	379,590	359,509	320,761	272,846	228,809
Avg. mortality and expense charge	1.44%	1.38%	1.38%	1.37%	1.30%	1.28%	1.25%	1.25%	1.22%	1.20%
Average benefit fee	0.69%	0.65%	0.83%	0.98%	1.00%	1.05%	1.06%	1.08%	1.14%	1.17%
Average number of subaccounts	82	74	71	75	62	58	58	57	55	55
Product has fixed account										
Yes	85%	87%	88%	95%	98%	97%	96%	95%	96%	96%
No	15%	13%	12%	5%	2%	3%	4%	5%	4%	4%
Product still available as of 12-31-15										
Yes	27%	28%	28%	30%	61%	76%	84%	94%	99%	99%
No	73%	72%	72%	70%	39%	24%	16%	6%	1%	1%
Rider still available as of 12-31-15										
Yes	9%	13%	8%	7%	9%	15%	23%	56%	83%	85%
No	91%	87%	92%	93%	91%	85%	77%	44%	17%	15%
Cap on benefits										
Yes	26%	34%	34%	32%	34%	37%	41%	50%	48%	53%
No	74%	66%	66%	68%	66%	63%	59%	50%	52%	47%
Benefit fee basis*										
Contract value	36%	18%	4%	2%	1%	1%	1%	2%	6%	18%
Benefit base	38%	69%	92%	98%	99%	70%	58%	73%	74%	64%
VA subaccounts	24%	12%	4%	0%	0%	29%	40%	23%	19%	17%
Other	2%	1%	0%	0%	0%	0%	1%	2%	1%	1%

Table 1-24: GLWB Product and Benefit Characteristics (continued)

	Issued in 2006	Issued in 2007	Issued in 2008	Issued in 2009	Issued in 2010	Issued in 2011	Issued in 2012	Issued in 2013	Issued in 2014	Issued in 2015
Average maximum age at election	87	86	86	89	90	86	84	84	83	83
Average minimum age at onset of lifetime benefits	57	57	58	52	52	52	51	53	53	52
Average maximum age at onset of lifetime benefits	99	99	99	96	96	91	89	90	89	90
Asset allocation restrictions										
Forced asset allocation model	39%	32%	29%	22%	18%	23%	18%	16%	11%	16%
Limitations on fund selection	10%	8%	6%	8%	11%	13%	9%	12%	15%	12%
Other restrictions	7%	15%	26%	8%	4%	5%	8%	16%	20%	20%
None/may restrict allocations	3%	7%	8%	10%	11%	10%	5%	0%	0%	0%
Dynamic asset allocation	41%	38%	31%	52%	56%	49%	48%	28%	26%	24%
Managed volatility funds	0%	0%	0%	0%	0%	0%	12%	28%	28%	28%
Step-up availability**										
Quarterly or more frequently	8%	13%	21%	3%	0%	0%	0%	0%	0%	0%
Annually	90%	85%	78%	97%	100%	100%	100%	100%	100%	100%
Every 3 years	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Every 5 years	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%
Benefit base automatically increases if withdrawals are deferred										
Yes, based on simple interest	35%	29%	27%	20%	26%	33%	24%	29%	35%	42%
Yes, based on compound interest	36%	43%	60%	71%	69%	64%	72%	67%	62%	56%
No	29%	28%	13%	9%	5%	3%	4%	4%	3%	2%
Payments can continue to spouse after owner's death										
Yes	35%	48%	61%	58%	61%	65%	57%	66%	69%	69%
No	65%	52%	39%	42%	39%	35%	43%	34%	31%	31%

Table 1-25: GLWB Product and Benefit Characteristics (continued)

	Issued in 2006	Issued in 2007	Issued in 2008	Issued in 2009	Issued in 2010	Issued in 2011	Issued in 2012	Issued in 2013	Issued in 2014	Issued in 2015
Maximum annual withdrawal percent										
3% or under	0%	0%	0%	1%	2%	8%	10%	6%	8%	8%
>3% to 4%	1%	2%	3%	18%	28%	29%	31%	36%	38%	42%
>4% to 5%	55%	60%	63%	56%	48%	44%	49%	48%	44%	37%
>5% to 6%	20%	25%	25%	21%	18%	16%	7%	7%	7%	10%
>6% to 7%	24%	13%	7%	2%	1%	1%	0%	0%	0%	0%
>7%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Impact on benefit base if excess withdrawal are taken										
Pro rata	92%	89%	91%	90%	89%	81%	77%	82%	82%	85%
Dollar-for-dollar	16%	18%	11%	14%	16%	28%	23%	15%	13%	13%
None if RMDs from IRA	94%	96%	99%	100%	100%	100%	100%	83%	75%	75%
Other	20%	26%	25%	20%	21%	36%	45%	53%	63%	44%
Among contracts with maximum charge info provided										
Standard rider charge	0.70%	0.67%	0.83%	0.98%	1.01%	1.08%	1.07%	1.07%	1.10%	1.12%
Maximum rider charge	1.34%	1.45%	1.53%	1.52%	1.61%	1.68%	1.71%	1.93%	2.02%	2.02%
*If the benefit fee was based on the higher of benefit base or contract value, then the basis categorization was determined for each individual contract.										
**Among contracts that allowed multiple step-ups										
Note: Based on 2,887,555 GLWB contracts issued in 2015 or before.										

Key Findings

- The average buyer in 2015 paid 237 basis points for a VA with a GLWB (M&E and rider fees, not including subaccount fees), as a percentage of contract value, VA subaccounts, or benefit base values.
- Just under two thirds of the 2015 contracts base the benefit fee on the value of the benefit base. A growing proportion of contracts base benefit fees on the higher of contract or benefit base values.
- Asset allocation restrictions are an important way to manage risk for the insurance companies. Just over a quarter of contracts issued in 2015 required a managed volatility fund.
- The average number of subaccounts for contracts issued in 2015 was 55, level from the prior year.
- Six out of seven riders issued in 2015 were still available as of EOY 2015. Only 23 percent of riders issued in 2012 are still available.

- On average, owners who bought contracts in 2015 can take lifetime benefits as early as age 52 and can elect the GLWB until they reach age 83. However, some allow lifetime benefits to begin as early as age 50 or as late as age 99.
- Options to step up the GLWB benefit base were once typically offered annually. More than 1 in 5 contracts issued in 2008 allowed quarterly step-up options, allowing owners to lock in market gains through more frequent step-ups. However, beginning in 2010, all contracts went back to a conservative annual step-up option.
- Just over two thirds of the 2015 contracts with GLWBs have spousal lifetime withdrawal privileges.
- Fifty-five percent of 2015 GLWB contract designs offer compound interest growth of the benefit base if withdrawals are not taken.
- Nearly all VAs with GLWB issued before 2009 allowed annual withdrawal maximums of more than 4 percent, companies began issuing a larger percentage of contracts with lower payout rates in 2009. By 2015, half of the contracts issued had maximum payouts of 4 percent or lower.
- Withdrawals that exceed annual benefit maximums lead to reductions in benefit bases or loss of lifetime guarantees. Up until 2010, for roughly 9 in 10 contracts, benefit bases were reduced in proportion to the amount of the excess withdrawal (i.e., the ratio of the excess withdrawal to the contract value before the excess is withdrawn). By 2014, it had dropped slightly. RMD-friendly contracts have also been reducing, where all of the contracts issued in 2012 were RMD-friendly to 3 in 4 in 2015 being RMD-friendly.



*Guaranteed Minimum
Withdrawal Benefits*

CHAPTER TWO

Chapter Two: Guaranteed Minimum Withdrawal Benefits

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.¹⁵ 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 have 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. New sales of GMWBs in 2015 dropped to \$662 million, down over 50 percent in the last three years. GMWB election rates, when any GLB was available, remained low, around 1 percent.¹⁶ In 2007, GMWBs enjoyed an election rate around 8 percent. With lifetime withdrawal guarantees becoming more popular, the period-certain withdrawal guarantee has become almost nonexistent.

This chapter is based on \$19.6 billion of annuity assets from 193,639 GMWB contracts issued by 13 companies. Of these contracts, 175,102 were issued before 2015 and were in force as of December 31, 2015. The LIMRA Secure Retirement Institute estimates that industry GMWB assets totaled \$30.6 billion at end-of-year (EOY) 2015. This study represents two-thirds of industry GMWB assets from a total of 30 GMWB riders introduced between 2000 and 2015.

¹⁵ For GMWBs, the benefit base balance is the declining benefit base amount.

¹⁶ *Variable Annuity Guaranteed Living Benefits Election Tracking, 4th Quarter 2015*, LIMRA Secure Retirement Institute, 2015.

GMWB Owner and Contract Characteristics

Table 2-1 provides a summary of GMWB owner and contract characteristics at EOY 2015.

Table 2-1: GMWB Owner and Contract Characteristics	
	All Contracts In Force
Age of owner	
Age 59 and under	14%
60 to 64	12%
65 to 69	18%
70 to 74	20%
75 to 79	16%
80 or older	20%
Average Age	70
Gender	
Male	48%
Female	52%
Market type	
IRA	60%
Nonqualified	40%
Distribution channel	
Career agent	30%
Independent agent/independent B-D	36%
Full-service National B-D	17%
Bank	17%
Cost structure	
A-share	3%
B-share	61%
C-share/no load	3%
L-share	29%
O-share	4%
Contract value, EOY 2015 as percent of contracts issued	
Under \$25,000	17%
\$25,000 to \$49,999	20%
\$50,000 to \$99,999	26%
\$100,000 to \$249,999	27%
\$250,000 to \$499,999	8%
\$500,000 or higher	2%

Table 2-1: GMWB Owner and Contract Characteristics (continued)

	All Contracts In Force
Contract value, EOY 2015 as percent of contract value	
Under \$25,000	2%
\$25,000 to \$49,999	7%
\$50,000 to \$99,999	17%
\$100,000 to \$249,999	37%
\$250,000 to \$499,999	23%
\$500,000 or higher	14%
Average contract value, EOY 2015	\$111,040
Median contract value, EOY 2015	\$70,676
Note: Percentages are based on number of contracts unless stated otherwise. Based on 176,465 contracts still in force at EOY 2015.	

Key Findings

- Over half of the in-force GMWB owners were aged 70 or older.
- Two thirds of the contracts were issued by career agents or independent agent/independent broker-dealers (B-Ds).
- By EOY 2015, just over half of the in-force contracts with GMWBs had contract values between \$50,000 and \$249,999.
- Although just over a third of the in-force contracts had values of \$100,000 or more, these contracts constituted three quarters of GMWB contract values at EOY.

Benefit Base Balance

At beginning-of-year (BOY) 2015, 29 percent of contracts with GMWBs issued before 2015 had benefit base balances that exceeded contract values. Of these contracts, the average difference between the benefit base balance and contract value was approximately \$6,500. On average, contract values were around 106 percent of the benefit base balances (Table 2-2).

Table 2-2: GMWB Benefit Base Balances and Contract Values, at BOY 2015

	Benefit Base Balance Amount	Contract Value	
		Amount	Percent of Benefit Base Balance
Sum	\$19,302,859,427	\$20,415,555,738	106%
Average	\$112,073	\$118,533	106%
Median	\$70,062	\$75,784	108%
Percent of contracts where benefit base balance > contract value			29%
Note: Based on 172,235 contracts issued before 2015. Excludes contracts for which the GMWB benefit base balances could not be determined or did not have EOY benefit base balance amounts.			

Over half of the contracts had benefit base balances that exceeded contract values at EOY 2015.

In 2015, the S&P 500 index was down 1 percent, excluding dividends. Given that half of the contract owners took withdrawals, the average contract value decreased 7 percent and the average benefit base decreased 2 percent. As a result, over half of the GMWB contracts had a benefit base balance amount greater than the contract value at EOY 2015 (Table 2-3).

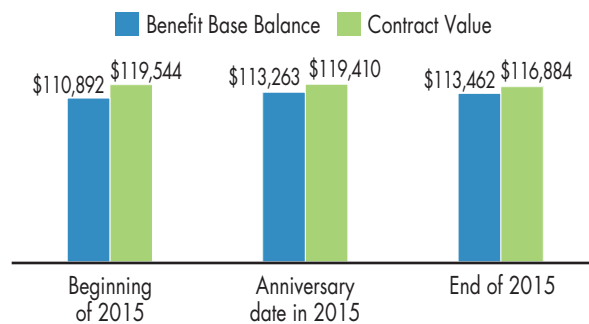
Table 2-3: GMWB Benefit Base Balances and Contract Values, at EOY 2015

	Benefit Base Balance Amount	Contract Value	
		Amount	Percent of Benefit Base Balance
Sum	\$18,918,287,697	\$19,088,011,903	101%
Average	\$109,840	\$110,825	101%
Median	\$68,000	\$70,570	104%
Percent of contracts where benefit base balance > contract value			56%
Note: Based on 172,235 contracts issued before 2015. Excludes contracts for which the GMWB benefit base balances could not be determined or did not have EOY benefit base balance amounts.			

Benefit Base Balance for Contracts with Withdrawals versus Without Withdrawals

For in-force contracts issued before 2015 that did not have withdrawals in 2015, the average benefit base balance rose slightly by EOY, up 2.3 percent (Figure 2-1). Such a small increase in the benefit base balance is primarily because few GMWB riders offered an automatic increase of benefit base balances in case of non-withdrawals. The contract values, given the lack of investment performance in 2015, declined 2.2 percent by EOY.

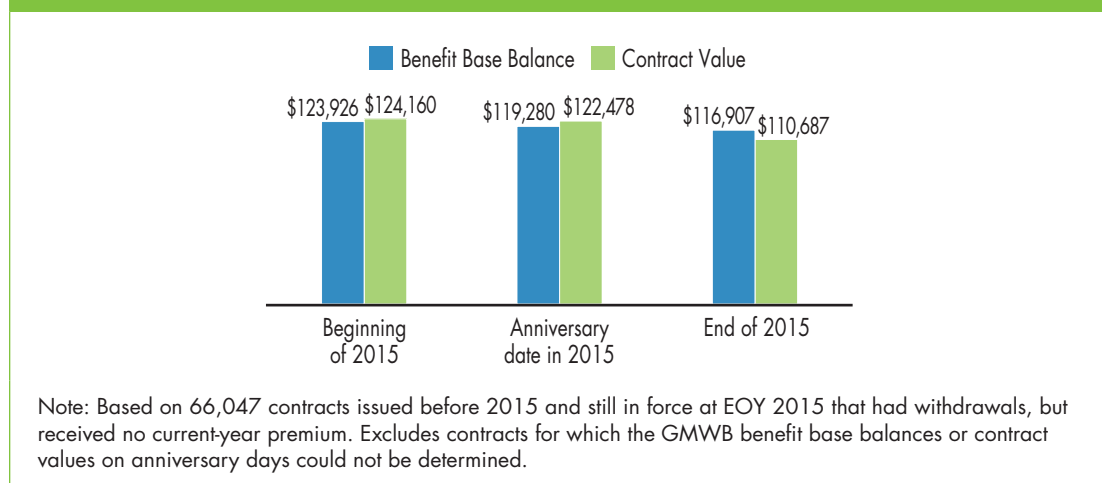
Figure 2-1: GMWB Average Contract Value and Benefit Base Balance for Contracts Without Withdrawals



Note: Based on 61,226 contracts issued before 2015 and still in force at EOY 2015 where there were no withdrawals made or current-year premium received. Excludes contracts for which the GMWB benefit base balances or contract values on anniversary days could not be determined.

For GMWB contracts that incurred withdrawals in 2015, the average benefit base balance dropped 5.7 percent during the year. The lack of investment performance, combined with contract fees lead to a decrease in the contract value. The average contract value decreased 10.9 percent during the year, making the average benefit base higher than the average contract value (Figure 2-2).

Figure 2-2: GMWB Average Contract Value and Benefit Base Balances for Contracts With Withdrawals



Benefit Base Balance to Contract Value Ratios by Age

This analysis of benefit base to contract value (BB/CV) ratios drills down on age or age cohorts to see if a link exists between withdrawal risks and BB/CV ratios.

Figure 2-3 shows the BB/CV ratios by age at BOY. One-third of in-force contracts issued before 2015 had BB/CV ratios below 90 percent at BOY; 36 percent had ratios between 90 and less than 100 percent; 19 percent had BB/CV ratios between 100 and less than 110 percent; and 5 percent of contracts had BB/CV ratios of 110 to less than 125 percent. Only 6 percent of the contracts had BB/CV ratios of 125 percent or more.

Figure 2-3: GMWB Benefit Base Balance to Contract Value Ratios by Age — at BOY 2015

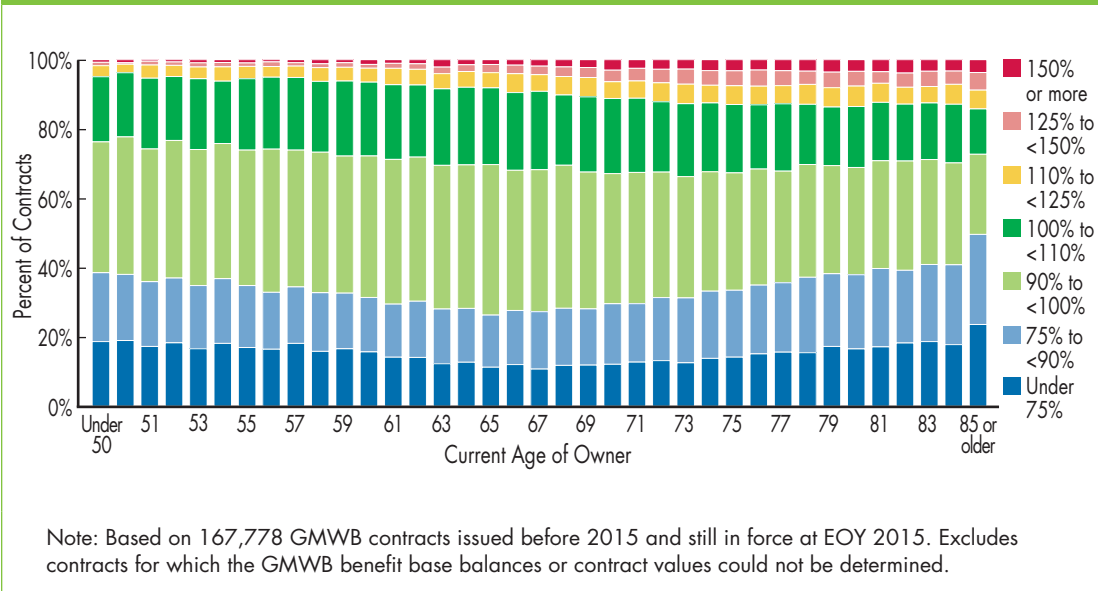
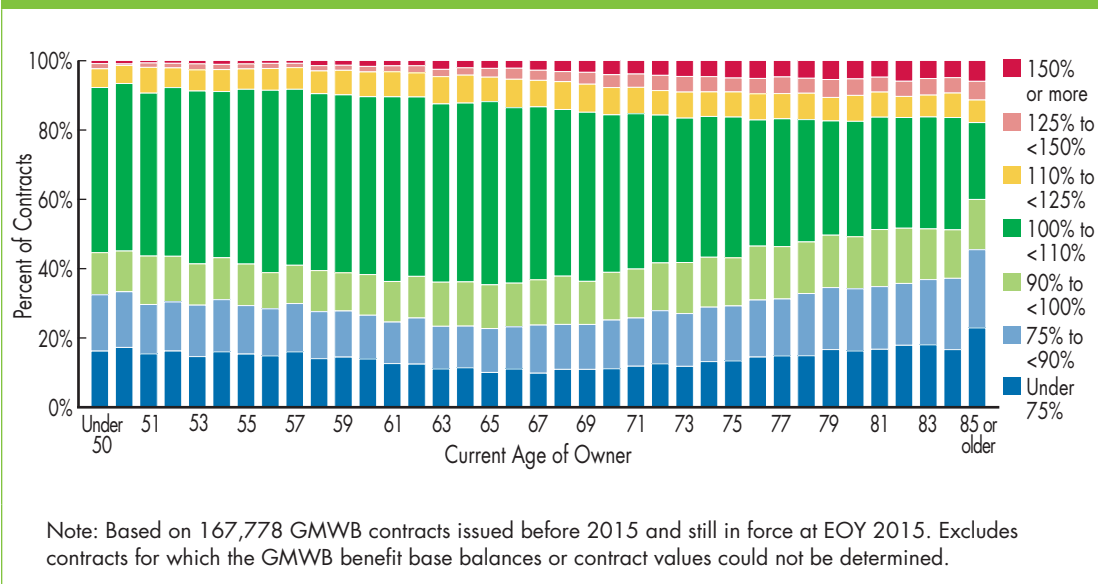


Figure 2-4 shows the distribution of BB/CV ratios by age at EOY 2015. The percentage of contracts with BB/CV ratios less than 100 percent decreased from 70 percent at BOY to 43 percent at EOY.

The percentage of contracts with BB/CV ratios less than 100% decreased from 70% at BOY to 43% at EOY.

Figure 2-4: GMWB Benefit Base Balance to Contract Value Ratios by Age — at EOY 2015



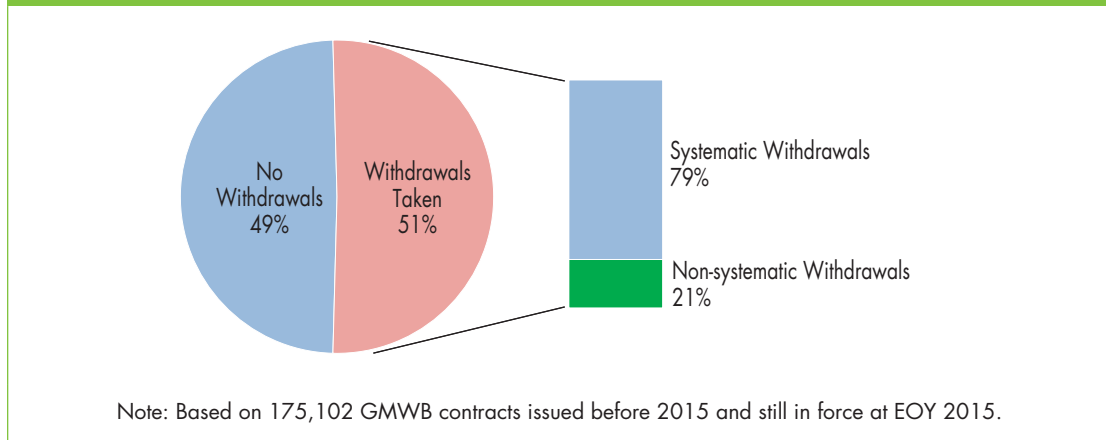
Withdrawal Activity

Overall Utilization for Contracts Issued Before 2015

51% of GMWB contracts had at least some withdrawal activity during 2015.

Half of contracts with GMWB riders issued before 2015 and still in force at EOY had at least some withdrawal activity during 2015 (Figure 2-5). Eight in 10 of these contracts had systematic withdrawals.

Figure 2-5: GMWB Overall Utilization of Withdrawals



Based on nearly 90,000 GMWB contracts issued before 2015 and remaining in force at EOY 2015, with withdrawals in 2015:

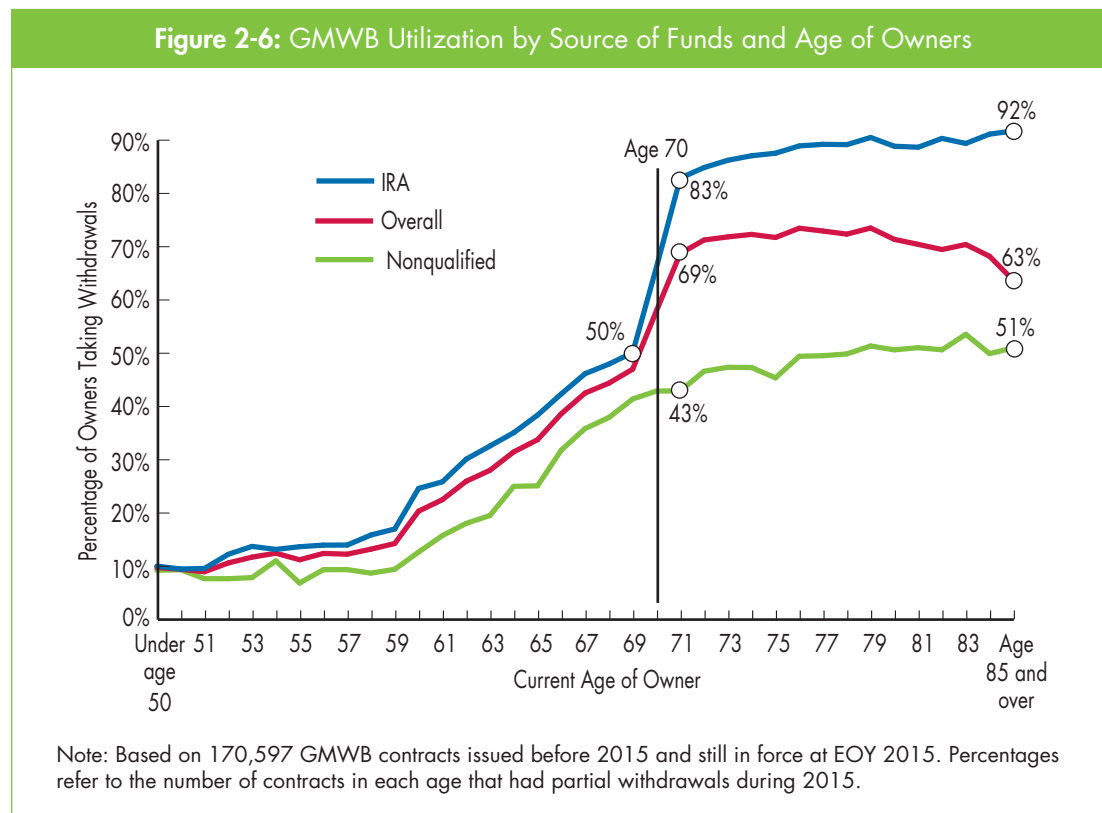
- Total withdrawals amounted to nearly \$1.0 billion.
- The median withdrawal amount was \$6,100 or around 7.5 percent of the median contract value of \$80,000 at BOY. The average withdrawal amount was \$10,900 around 9 percent based on the average BOY contract value of \$122,700.
- The median systematic withdrawal amount was \$4,200. The mean was \$6,900.

For the constant group of 13 companies that provided data for this study, overall utilization rates rose in 2015 for contracts that were in force for an entire year. The overall utilization rate among all GMWB owners with contracts sold before 2015 and who took withdrawals in 2015 was 51 percent. The overall utilization rate among all GMWB owners with contracts sold before 2013 and who took withdrawals in 2013 was 47 percent; and the overall utilization rate among all GMWB owners with contracts sold before 2014 and who took withdrawals in 2014 was 49 percent.

Withdrawal Activity by Source of Funds

The analysis of withdrawals by GMWB owners based on the source of funds (i.e., whether the annuity was funded with qualified or nonqualified savings) gives a more accurate picture of the dynamics of withdrawal behavior among owners. Source of funds and age are the two most important factors that drive owner withdrawal behavior. Half of GMWB owners utilized their riders in 2015. Examining withdrawal activity by source of funds and owner age shows that the 2015 GMWB utilization rate was in fact quite high for certain customer segments (Figure 2-6).

Close to 90% of GMWB owners aged 75 and older took withdrawals from annuities purchased with IRA money.



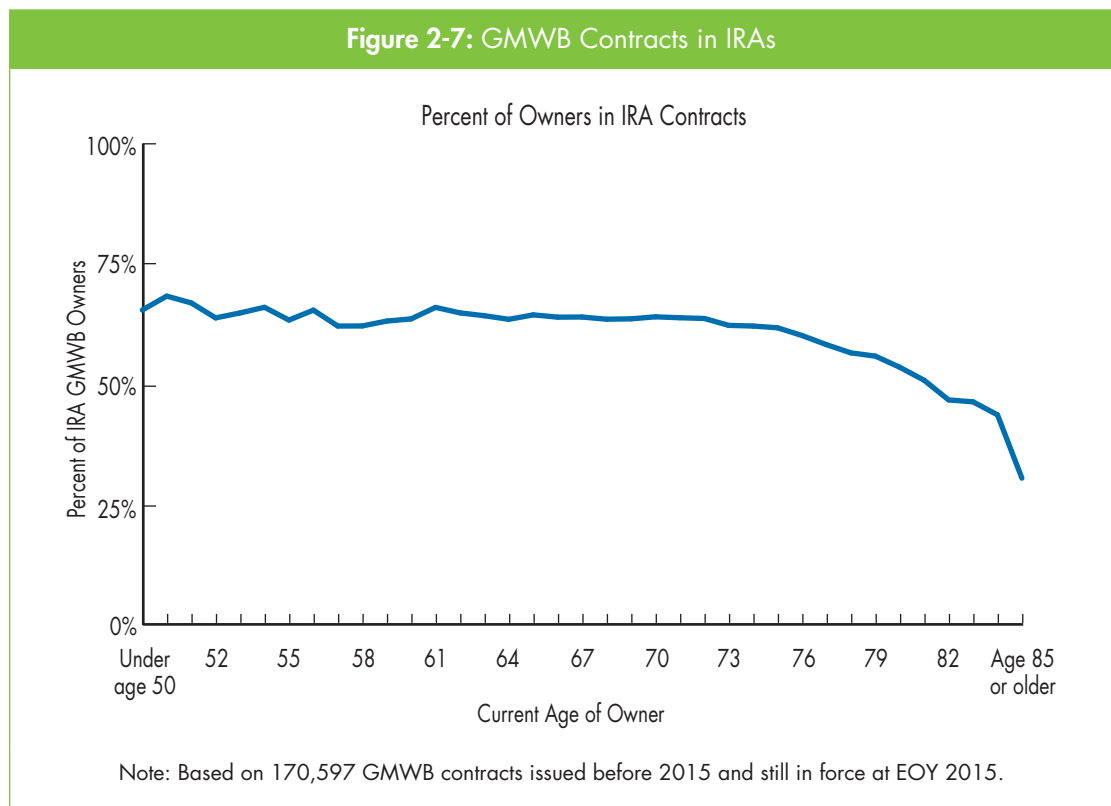
Withdrawal rates for customers under age 70 who used either qualified or nonqualified money to buy their contracts remained at or under 50 percent. After age 70, the need for required minimum distributions (RMDs) from qualified GMWB annuities forced owners to take withdrawals and the withdrawal rate quickly jumped to 83 percent by age 71. The percent of these customers withdrawing then slowly rose to over 90 percent by age 85.

GMWB owners are less likely to take withdrawals if they used nonqualified money to purchase their VA. Nonetheless, there is a steady increase in the proportion of owners who take withdrawals as they age. Half of the customers aged 85 and older took withdrawals.

59% of all GMWB contracts were IRA annuities by EOY 2015.

However, it helps to assess the withdrawal behavior in the context of the proportion of GMWB contracts that are qualified or nonqualified, by owner age. This analysis provides us with a withdrawal trend for future years, as the owner's age.

By EOY 2015, GMWB IRA contracts constituted 59 percent of all GMWB contracts while 41 percent of GMWB contracts were sourced from nonqualified savings. IRA contracts are more likely to have owners under age 70 (Figure 2-7).

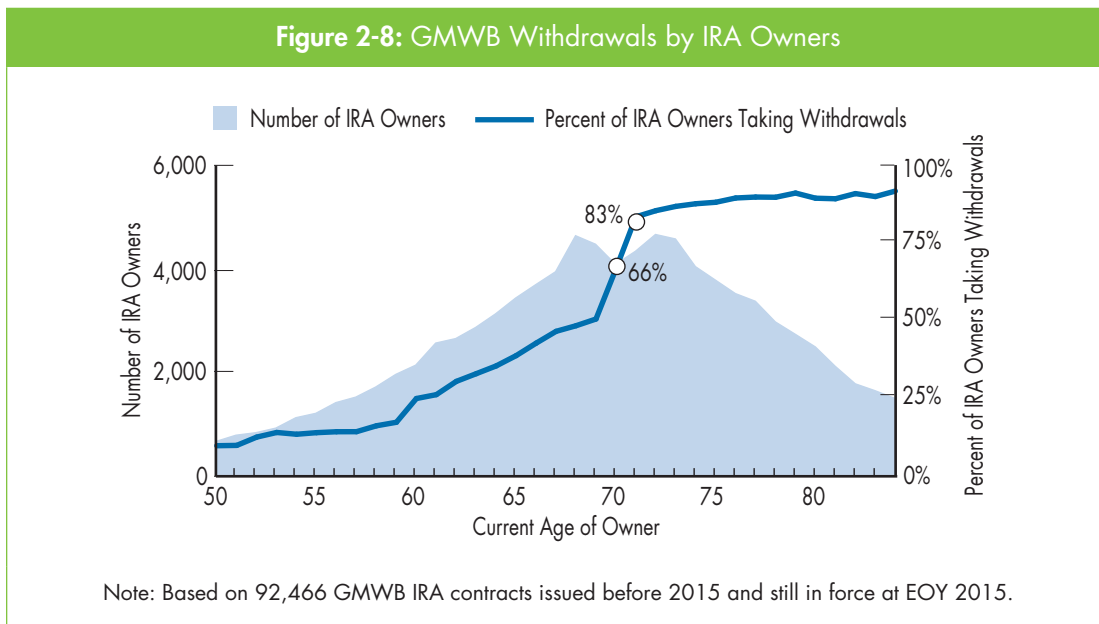


This reflects broader industry developments, with a majority of annuities being funded with qualified money — particularly younger owners using rollovers from retirement plans. Two thirds of owners aged 70 or younger funded their GMWB annuities with qualified money. At EOY 2015, just over half of the GMWB owners over age 70 funded their contracts with qualified money. Nearly 6 in 10 of all nonqualified GMWB owners were over age 70.

There are two distinct stages for IRA owner withdrawal patterns — before age 70 and after age 70 (Figure 2-8). While the percent of IRA owners aged 50 taking withdrawals was only around 10 percent, that number increases to half by age 69. The need to take RMDs drives the percent of owners taking withdrawals at ages 70 and 71, hitting 66 percent and 83 percent respectively. After that, the percent of owners taking withdrawals increased slowly to over 90 percent by age 85.

The need to take RMDs drives the percent of owners taking withdrawals at ages 70 and 71 to **66%** and **83%** respectively.

Figure 2-8: GMWB Withdrawals by IRA Owners

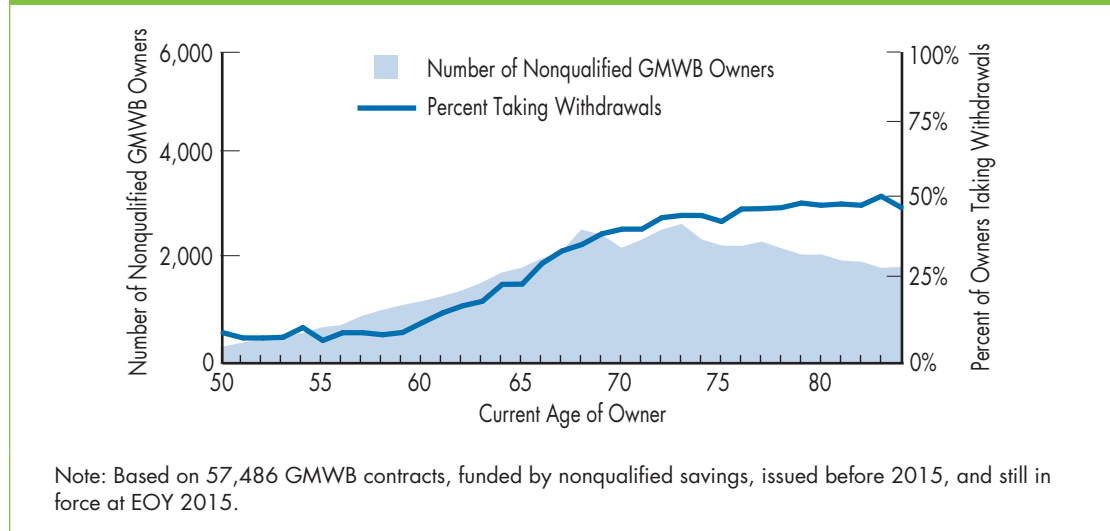


The need to take RMDs from qualified GMWB contracts will continue to drive withdrawal behavior for these contract owners in the next few years. At EOY 2015, a third of IRA GMWB owners were between ages 60 and 69. Many of these GMWB owners will be forced to take withdrawals in the next few years; and, as new sales in GMWB riders will likely remain very low, the overall utilization rate will increase in the absence of new contracts.

59% of nonqualified GMWB owners were over age 70 in 2015.

In contrast to the 47 percent of IRA GMWB owners over age 70, 59 percent of nonqualified GMWB annuity owners were over age 70. Roughly half of nonqualified owners took withdrawals in this age group, significantly less than the 7 in 8 owners withdrawing from their IRA annuity (Figure 2-9).

Figure 2-9: GMWB Withdrawals by Nonqualified Owners



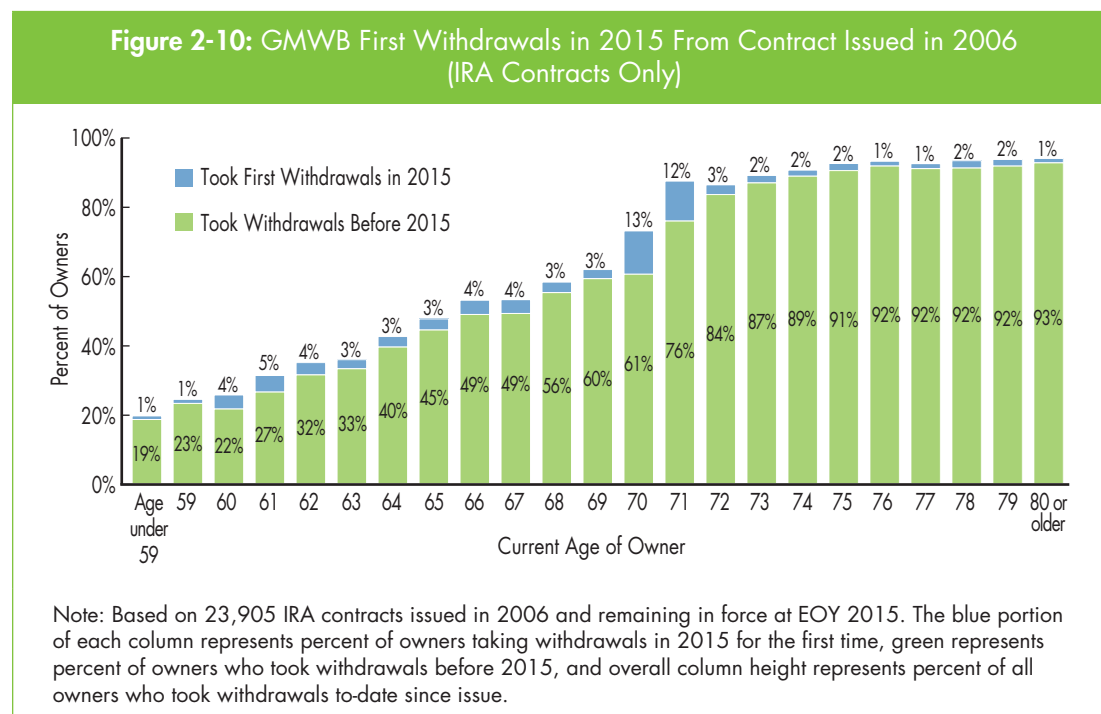
Taking First Withdrawals

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 (2015 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.

Taking First Withdrawal from IRA Annuity in 2015

There is a distinct pattern of withdrawal behavior from IRA-funded GMWB annuities, principally driven by age and the need to take RMDs. Figure 2-10 shows the percent of owners taking their first withdrawals in 2015 for GMWB contracts issued in 2006.¹⁷



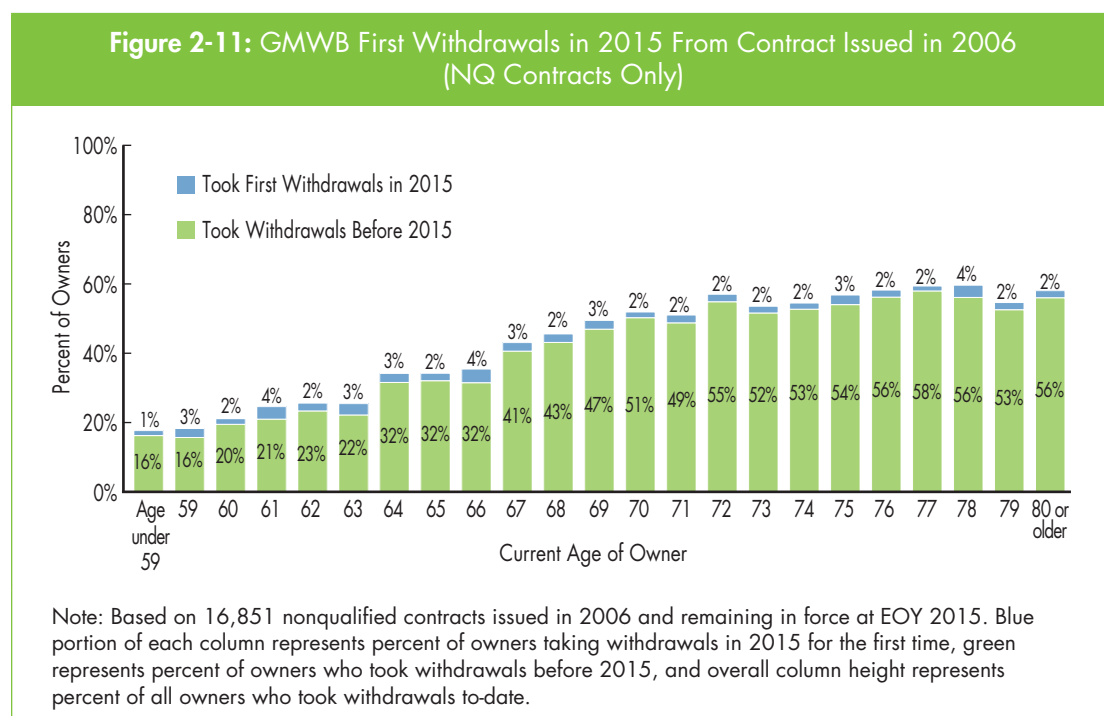
This analysis — based on owners who bought their GMWB annuities in 2006 — gives us a much clearer picture of IRA owner withdrawal behavior. Owners who bought their annuities in 2006 had eight to nine years to take withdrawals. The marginal increases in the percentage of owners taking their first withdrawals remain almost uniform for owners between ages 60 and 69 — within a close single digit range — with the cumulative percent rising with age. A jump in owners taking their first withdrawals is seen at ages 70 and 71. After age 71, the percent of owners taking their first withdrawals drops quickly to the low single digits.

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.

¹⁷ Due to constraints with sample sizes for contracts issued in years 2007 to 2014 in each individual age, the analysis represents contracts issued in 2006.

Taking First Withdrawal from Nonqualified Annuity in 2015

The percent of nonqualified annuity owners who took their first withdrawals in 2015 reflects more streamlined behavior. Figure 2-11 shows the percent of these owners, for contracts issued in 2006.¹⁸



Because there were no RMDs, the percent of nonqualified owners taking their first withdrawals remained within a tight single digit range irrespective of age.

First Withdrawal Activity for Contracts Issued in 2007

In order to get a clear and consistent picture of when owners first start to take withdrawals, and how many start to take their first withdrawals in the following years, we followed 2007 VA GMWB buyers and tracked their withdrawal behaviors. We looked at withdrawal behavior of 2007 buyers aged 57 to 75 from 2007 to 2015 (nine years of withdrawal history), and assessed what percent of those buyers began taking their first withdrawals from 2007 to 2015 (Table 2-4). We are unable to separate the data by source of funds (IRA vs. nonqualified) due to the limited sample sizes.

¹⁸ Due to constraints with sample sizes for contracts issued in years 2007 to 2014 in each individual age, the analysis represents contracts issued in 2006.

This analysis reveals some important insights:

- Overall, 3 in 10 owners initiated their withdrawals immediately in 2007, the same year they purchased their annuities. There is a discernible jump in first withdrawals both at purchase age and at the attained age of 60.
- The percentages of owners taking their first withdrawals in subsequent years are typically lower than in the first year, as the number of owners who have not taken withdrawals diminishes.
- Overall, once owners initiate withdrawals, three quarters continue to take withdrawals in all subsequent years.
- Across all ages, almost two thirds have used the guaranteed benefit rider in their contracts.

Systematic Withdrawal Activity

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. Withdrawals through SWPs can be viewed as customers' intentions to take withdrawals on a continuous basis, and are a strong indication that the customers are utilizing the GMWB.

Overall, 79 percent of GMWB owners who took withdrawals used an SWP. Just over three quarters of IRA owners and 83 percent of nonqualified owners who took withdrawals used an SWP. Older GMWB owners are more likely to take withdrawals through SWPs (Figure 2-12).

Table 2-5 shows the median withdrawal amount for occasional and SWP withdrawals for both qualified and nonqualified contracts. Some GMWB riders offer the owner the ability to select which withdrawal rate they want, allowing owners to choose between a lower payout and a longer duration vs. a higher payout with a shorter duration. Though the median withdrawal amount should vary by the benefit base balance amount and the number of years of guaranteed withdrawal, it appears, from looking at median withdrawal amounts, that younger nonqualified owners use shorter guaranteed withdrawal periods than do older owners.

Figure 2-12: GMWB Owners Taking Withdrawals With SWPs

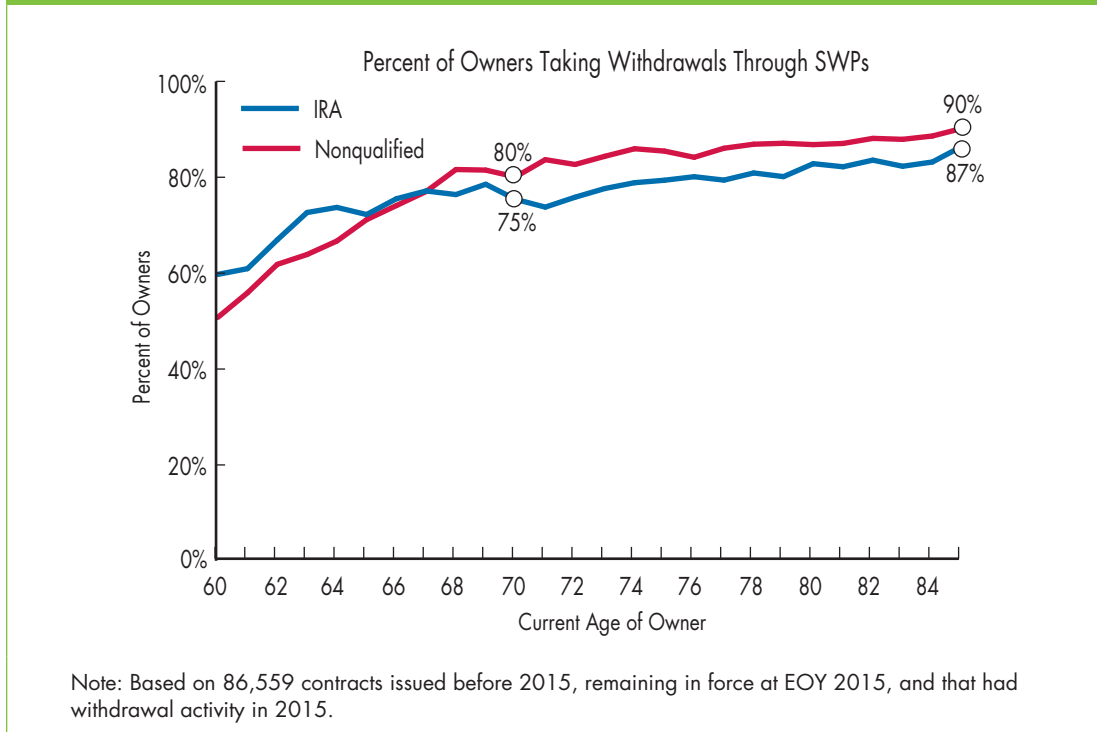


Table 2-5: GMWB Withdrawal Types and Median Amount by Source of Funds

Age	Occasional Withdrawal Median Withdrawal Amount		Systematic Withdrawal Median Withdrawal Amount	
	IRA	Nonqualified	IRA	Nonqualified
Under 60	\$10,288	\$10,000	\$6,804	\$7,350
60-69	\$9,721	\$8,133	\$8,706	\$6,619
70 or more	\$5,911	\$7,332	\$5,163	\$5,600
Total	\$6,858	\$7,892	\$5,706	\$5,880

Note: Based on 85,666 GMWB contracts issued before 2015 and remaining in force at EOY 2015. Occasional withdrawal data are based on contracts only taking occasional withdrawals, and SWP withdrawal data are based on contracts taking only systematic withdrawals.

GMWB contracts with only systematic withdrawals in 2015 totaled \$557.1 million. Contracts with only occasional withdrawals in 2015 totaled \$288.6 million and contracts with both occasional and systematic withdrawals totaled \$100.9 million. Owners aged 70 or over accounted for almost two-thirds of the total amount withdrawn in 2015 (Table 2-6). Owners under age 60 were responsible for only 7 percent of the total withdrawals. Many of these GMWB owners — particularly those who take occasional withdrawals — may be partially surrendering their contracts.

Table 2-6: GMWB Withdrawal Amounts as Percentage of Total Withdrawal Amount

Age	Only Occasional Withdrawals		Only Systematic Withdrawals		Both Occasional and Systematic Withdrawals		Total
	IRA	Nonqualified	IRA	Nonqualified	IRA	Nonqualified	
Under age 60	3%	1%	1%	0%	0%	0%	6%
Age 60–69	8%	4%	11%	4%	3%	1%	30%
Age 70 or older	10%	5%	27%	15%	4%	2%	64%
Total	20%	10%	39%	19%	8%	3%	100%

Note: Based on 86,559 contracts that were issued before 2015, still in force EOY 2015, and that had withdrawal activity in 2015.

For percentage of benefit maximum withdrawn, we looked at the relationship of customers’ actual withdrawal amounts in calendar year 2015 to the maximum withdrawal amounts allowed in the contracts. Given that our study is done on a calendar-year basis, there is some imprecision in measuring the maximum annual withdrawal amounts because benefit base balances can vary under certain circumstances during the year (e.g., if additional premium is received) and most benefit base balance increases occur on a contract anniversary. Accordingly, we used a conservative measure of excess withdrawals — if partial withdrawals exceeded the maximum annual withdrawal as of BOY by at least 10%, then we considered them to have exceeded the benefit maximum.

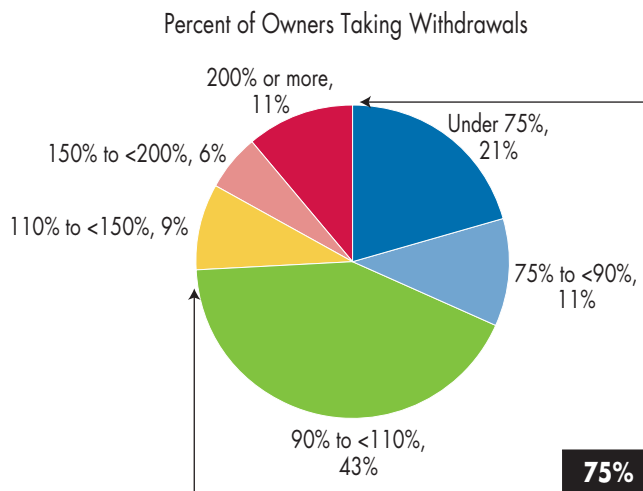
Percentage of Benefit Maximum Withdrawn

GMWB riders provide a specified annual withdrawal amount for a certain period of time, typically at a withdrawal rate of 5 to 7 percent of the benefit base. The rider ensures protection of a minimum floor of income against adverse market performance during that period. However, if the owner withdraws more than the maximum allowed withdrawal amount in a contract year, it is considered an excess withdrawal. Excess withdrawals trigger an adjustment of a benefit’s guaranteed amount, which reduces the benefit base balance and ensuing withdrawal amount for subsequent years.

In this section, we will look at the relationship of customers' actual withdrawal amounts in calendar year 2015 to the maximum withdrawal amount allowed in the contract. Participating companies were asked to provide this maximum amount as of BOY 2015. 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 reported maximum annual withdrawal percentage multiplied by average benefit base balance.

Figure 2-13 shows the percent of owners taking withdrawals — and their withdrawal amounts — in relation to maximum withdrawal amount allowed in the contracts. Three quarters of owners that took withdrawals in 2015 withdrew within 110 percent of the maximum withdrawal amount allowed in the contract.

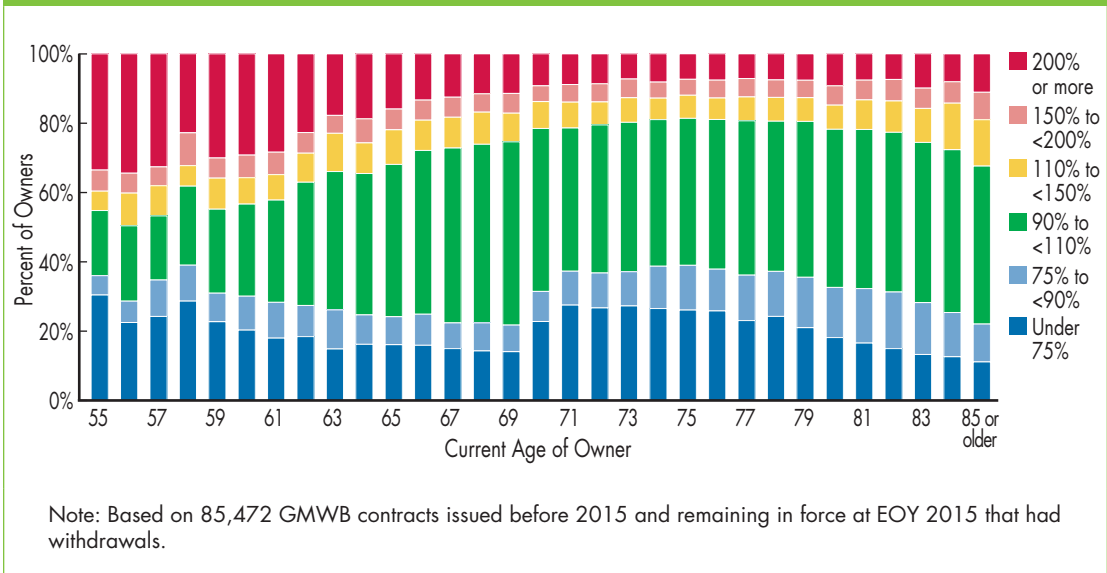
Figure 2-13: GMWB Actual Withdrawals as a Percentage of Maximum Annual Benefit Amount



Note: Based on 88,893 GMWB contracts issued before 2015 and remaining in force at EOY 2015 that had withdrawals.

Looking at the age of owners and their withdrawal amount in relation to 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 (Figure 2-14). Some older owners may have taken withdrawals that exceeded 100 percent of the maximum limit in order to meet RMD requirements.

Figure 2-14: GMWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age



One in five owners took less than 75 percent of the maximum withdrawal amount allowed in the contract and a significant percentage of them (80 percent) were aged 70 and older. It is notable that the percent of owners taking 150 percent or more than the maximum withdrawal amount allowed in the contract is lowest for owners aged 70 and older — ranging from 5 to 10 percent for each individual age.

There are some salient insights from the above chart:

- The majority of owners taking withdrawals are typically aged 65 or older. There are few instances where these older owners take significantly more than the annual benefit maximum.
- Younger owners, particularly under age 60, are more likely to take 200 percent or more of the benefit maximum allowed in the contract.

- There is a noticeable increase at ages 70 and 71 in the percentage of owners taking withdrawals less than 90 percent of the benefit maximum. This can be explained by the need for IRA owners to take minimum withdrawals under RMDs, which are typically at a lower withdrawal rate. In Appendix C, Figures C2-1 and C2-2, you can see that some owners at age 70 and 71 are taking RMD withdrawals, as a necessity and expediency — at a lower rate based on life expectancy — rather than as a measure of maximizing their withdrawal benefits.
- On the other hand, some IRA owners aged 75 or older are taking withdrawals in the range of 110 to 149 percent of the maximum benefit rate allowed in the contracts (see Appendix C, Figures C2-1 and C2-2). They are apparently using higher RMD withdrawal rates applicable in these older ages, often without jeopardizing their benefit bases in the contract, as most insurance companies allow IRA-owners to adhere to the RMD rules.

Almost two thirds of owners who took withdrawals in 2015 took 75 to 150 percent of the benefit maximum.

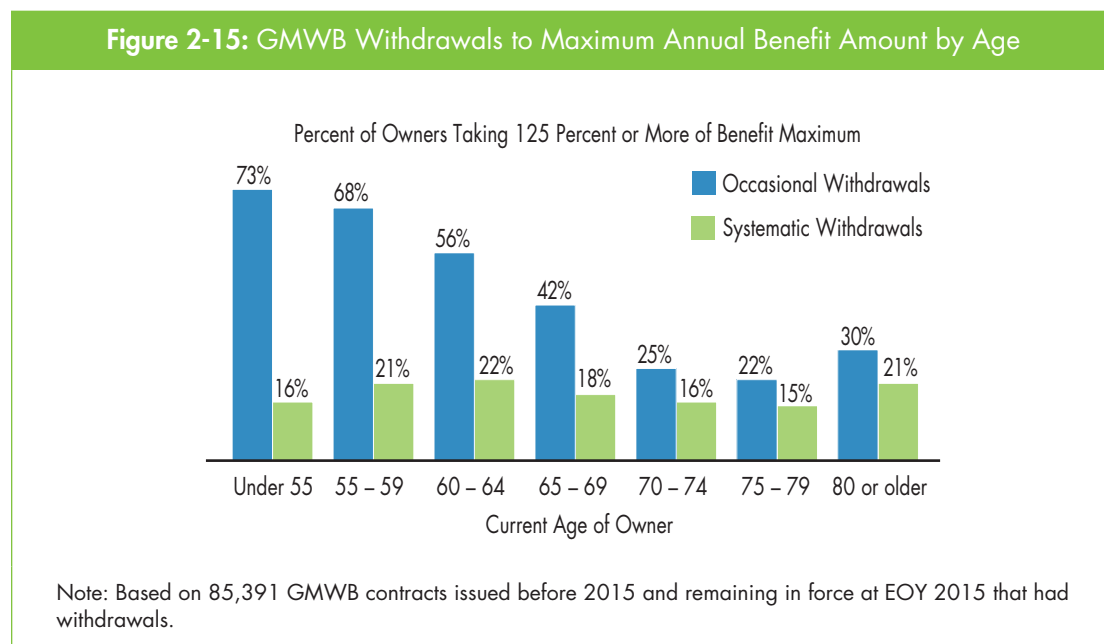
A majority of GMWB owners taking withdrawals are utilizing their benefit efficiently (Table 2-7). However, a significant spike can be seen with owners under age 60 taking excess withdrawals of 200 percent or more. Some of these younger owners may have intended to partially surrender their contracts as opposed to taking regular withdrawals under the terms of the GMWB benefit.

Table 2-7: GMWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age Groups

Age	Percent Taking Withdrawals to Maximum Annual Benefit Amount					
	Under 75%	75% to <90%	90% to <110%	110% to <150%	150% to <200%	200% or more
Under 60	26%	7%	20%	7%	6%	35%
60–69	16%	8%	46%	9%	6%	15%
70 or more	21%	12%	44%	8%	6%	8%
All ages	20%	11%	44%	8%	6%	11%

Note: Based on 85,472 GMWB contracts issued before 2015 and remaining in force at EOY 2015 that had withdrawals.

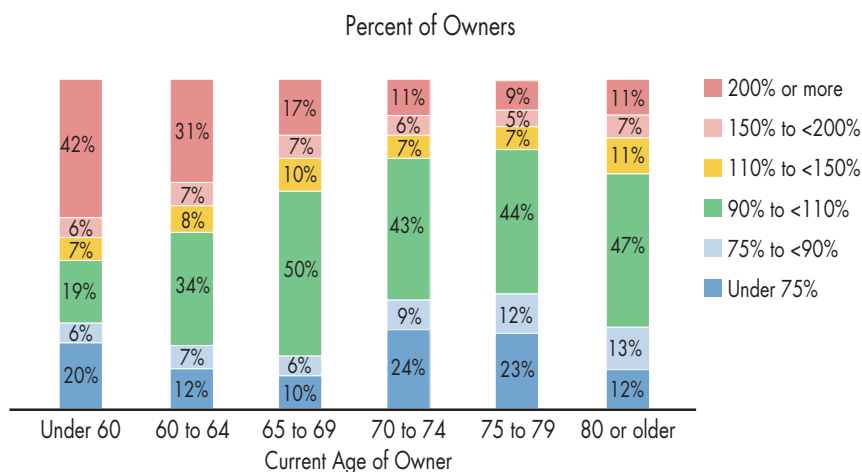
Which method owners use for withdrawals — systematic or occasional — is a strong indicator of whether owners are likely to exceed the benefit maximum allowed in their contracts. Most withdrawals exceeding 125 percent of the annual benefit maximum amount are occasional withdrawals by owners under age 70 (Figure 2-15).



Overall, one third of owners who took occasional withdrawals had excess withdrawals of 125 percent or more of benefit maximum, while just under 1 in 5 (18 percent) of owners with SWP withdrawals had similar excess withdrawals. We also examined how the proportion of the benefit maximum withdrawn varies by contract size. We expected that larger contract sizes would be linked to wealthier and more sophisticated owners who are more likely to work with financial advisors and less inclined to exceed the GMWB benefit maximum. They might also be less likely to take out an amount well below the maximum, thereby passing up a potential opportunity to maximize the value of the benefit. Taking out significantly more or less than the benefit maximum could represent an “inefficient” (or sub-optimal) utilization of the guarantee.

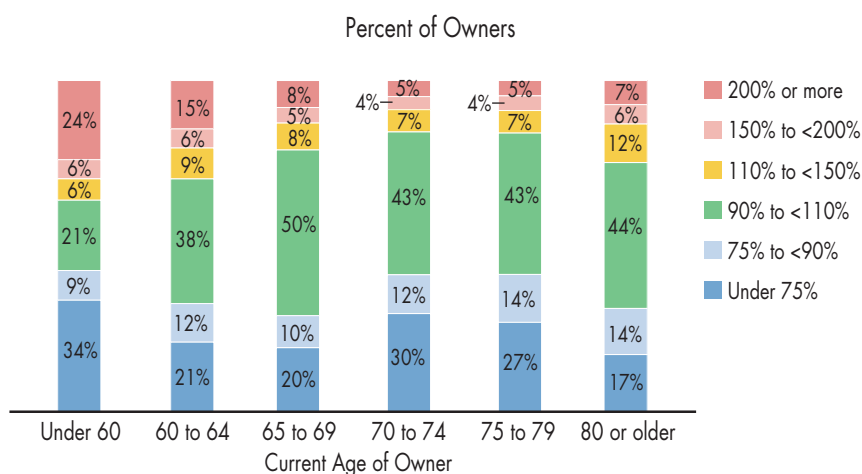
Figures 2-16 and 2-17 illustrate the proportion of owners withdrawing amounts as a percentage of the benefit maximum, by age and contract size. If efficiency is positively associated with contract value, then the proportion taking 90 percent to less than 110 percent of the benefit maximum should rise as contract value rises.

Figure 2-16: GMWB Withdrawals to Maximum Annual Benefit Amount by Age, Contracts Less Than \$100,000



Note: Based on 50,632 GMWB contracts issued before 2015, still in force at EOY 2015, with withdrawals in 2015.

Figure 2-17: GMWB Withdrawals to Maximum Annual Benefit Amount by Age, Contracts \$100,000 or More



Note: Based on 34,759 GMWB contracts issued before 2015, still in force at EOY 2015, with withdrawals in 2015.

Owners aged 65 or older (who make up 91 percent of all individuals taking withdrawals), taking 90 percent to less than 110 percent of the benefit maximum with contracts worth \$100,000 or more, had average withdrawals rates that were in line or just slightly below owners with contract sizes under \$100,000.

The relationship between efficiency and contract size is most noticeable with owners under age 60; and, even among this group, the greatest difference across contract sizes is not the increasing proportion taking amounts close to the benefit maximum, but rather the shrinking proportion taking amounts well above the benefit maximum.

Owners of GMWBs with higher contract values not only are less likely than those with lower contract values to exceed the benefit maximum, but also do not avail themselves of the full potential withdrawal amounts the GMWB offers. For both GLWBs and GMWBs, larger contract sizes are associated with a greater tendency toward withdrawals that are less than the benefit maximum.

We have seen some key indications for understanding the withdrawal behavior of GMWB owners:

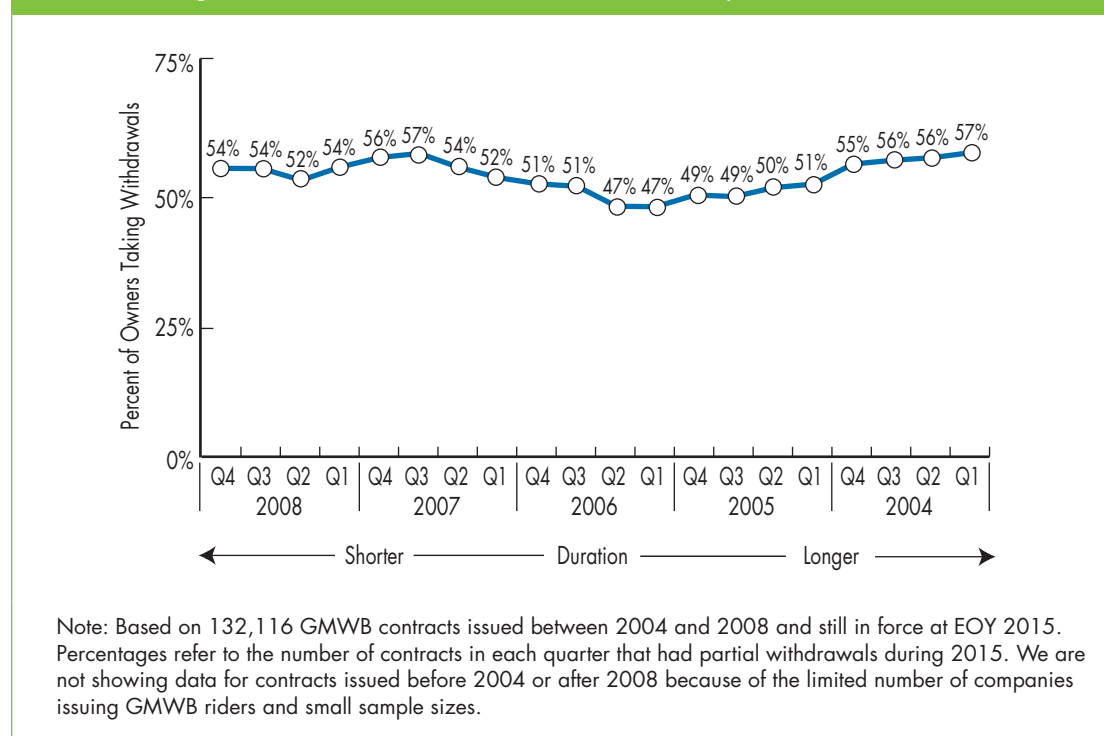
- Overall withdrawal activity, even the composite withdrawal activity by age cohort, is not a reliable measure of actual risk. The measure is skewed downward particularly because the majority of current GMWB owners are under age 70, and most of them have not yet started withdrawals.
- Source of funding (i.e., qualified or nonqualified) is a key determinant as to when owners will start their withdrawals. A large percentage of owners with qualified annuities start taking their withdrawals at ages 71 and 72 to meet their RMDs. In contrast, nonqualified contracts show an incremental and steady increase in the number of owners taking withdrawals.
- Once owners start to take withdrawals, they are likely to continue withdrawals.
- A majority of owners take withdrawals through SWPs. When owners use SWPs, they are also likely to make withdrawals within the maximum amount allowed in their contracts.
- Older owners are more likely to take withdrawals through SWPs.
- Younger owners are more likely to take occasional withdrawals. Many of these occasional withdrawals exceed the maximum benefit amount allowed in the contracts and may lead to a partial surrender of contracts.

Withdrawal Activity by Duration

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.

Just over half of the GMWB owners who bought their contracts in 2008 took withdrawals from their annuities in 2015 (Figure 2-18). As the contract duration increases, withdrawal activity remains within a tight range.

Figure 2-18: GMWB Overall Utilization Rates by Contract Duration



Companies can use incremental rates of overall utilization by contract duration to estimate future cash outflows.

Contracts issued in 2007 or later allow for higher maximum withdrawal percentages; for example, it is common to see a maximum withdrawal percentage of 7 percent in contracts issued in 2007 or later, instead of 5 percent in contracts issued before 2007. This may have influenced these owners to start their withdrawals sooner. In addition, step-up

provisions and bonuses are less frequent among recently issued contracts. All of these reasons may contribute to higher withdrawal activity in more recently issued contracts.

However, this incremental growth pattern in 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.

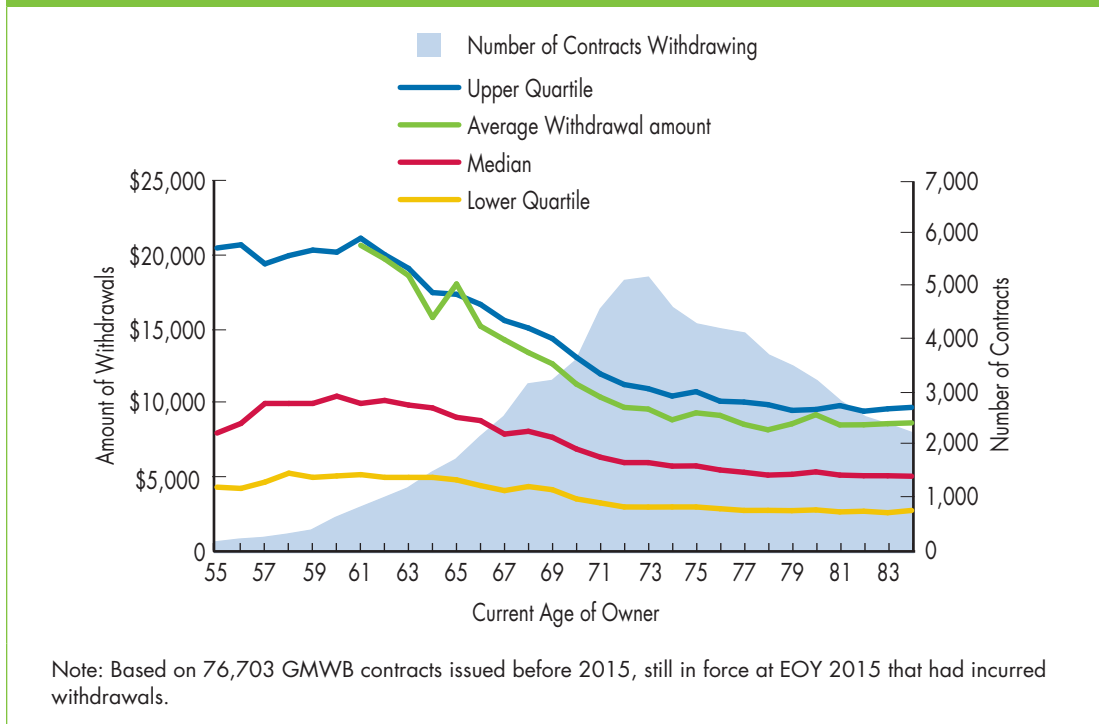
Average Withdrawal Amounts

Median withdrawal amount from GMWB contracts in 2015 = **\$6,100.**

The median amount of withdrawals from GMWB contracts was \$6,100 for contracts issued before 2015 that were in force at EOY 2015. The average amount of withdrawals was \$10,900.

Some owners in their 50s took withdrawals of more than \$20,000 from their contracts (Figure 2-19). However, there were not a lot of contracts that had withdrawals from this age group so data should be interpreted accordingly. As a result, we only show average withdrawal amounts beginning at age 61. It is safe to assume that many of these withdrawals were partial surrenders of the contracts, unconnected to regular withdrawals as part of the GMWB benefit and were taken sporadically, not through an SWP. A comparison of the average amount withdrawn to the average contract value shows that the average withdrawal percentage — 12 to 16 percent — is relatively high for owners under age 60.

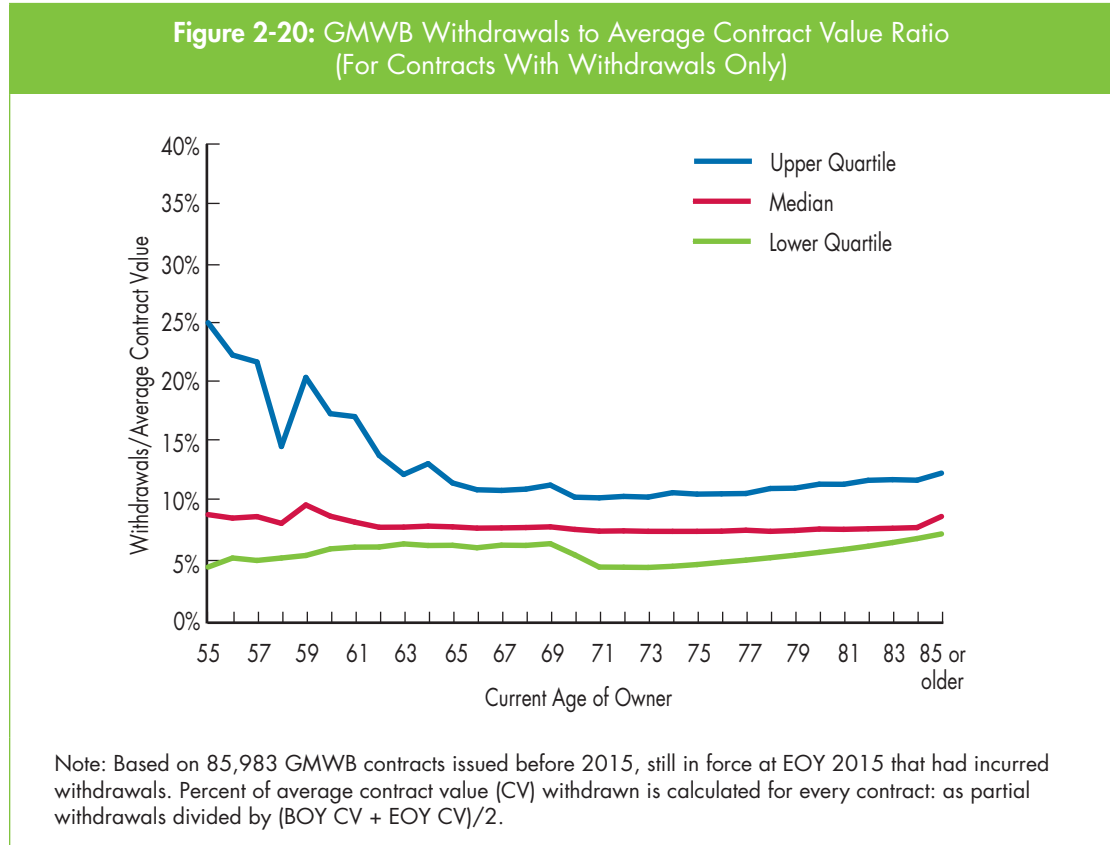
Figure 2-19: GMWB Amount of Withdrawals by Owner's Current Age



After age 60, as the number of GMWB owner's increases, a more sustainable withdrawal pattern and average withdrawal amount emerges. Withdrawals by owners aged 60 to 69 are a mix of both occasional and systematic withdrawals. A relatively level trend appears for owners over age 70, with average withdrawal amounts around \$9,000 and median withdrawal amounts from \$5,100 to \$6,400. These withdrawal amounts are commensurate with (or slightly above) the maximum withdrawal amount for this age group.

Withdrawals as a Percentage of Contract Value and Benefit Base Balance

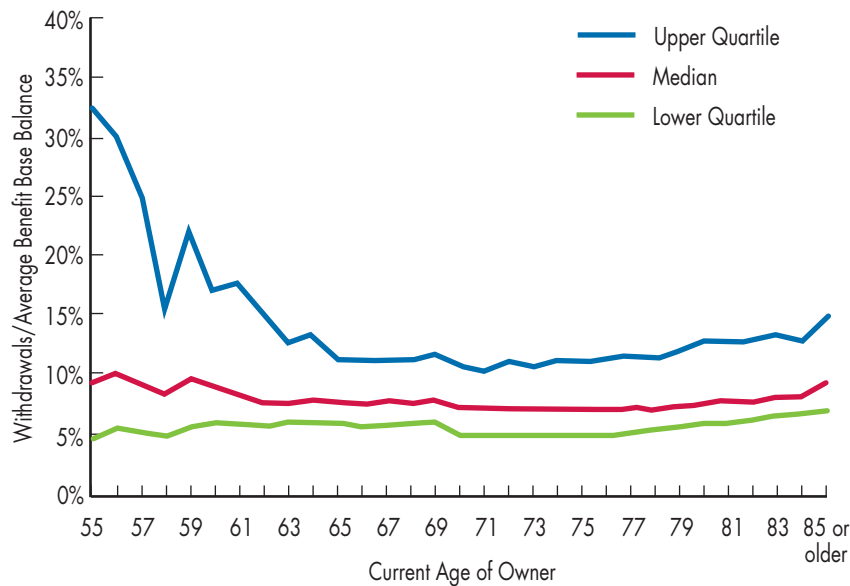
In order to provide some context, we assessed withdrawal amounts in relation to both contract values and benefit base balances. Figure 2-20 shows the median withdrawal amount for all ages and the quartile distribution of the withdrawal amounts in 2015.



The distribution of the withdrawals as a percent of average contract value withdrawn shows that, for owners aged 65 or over, the upper quartile and lower quartile values are within four percentage points of the median. The pattern also indicates that the majority of older owners taking withdrawals do so at similar ratios to their contract values. For owners under age 60, the median of the ratios remains around 8 to 12 percent. However, there is a much wider dispersion between the median and the upper quartile values, indicating that the majority of these owners are taking more than the maximum allowed in the contracts.

The distribution of withdrawal amount to the average benefit base balance ratio supports the same conclusion that we reached earlier: that the withdrawal amount is unduly weighted by very large withdrawals taken by a few younger owners (Figure 2-21). The distribution of ratios of withdrawal amount to benefit base balance shows that the upper quartile and lower quartile values are within a relatively tight range of the median for owners aged 65 or over. This is a similar to what we saw with the withdrawal to average contract value ratio. The ratios also indicate that the majority of owners taking withdrawals do so at a rate of around 7 percent of their benefit base values — a typical GMWB maximum payout rate for this age.

Figure 2-21: GMWB Withdrawals to Average Benefit Base Balance Ratio (For Contracts With Withdrawals Only)

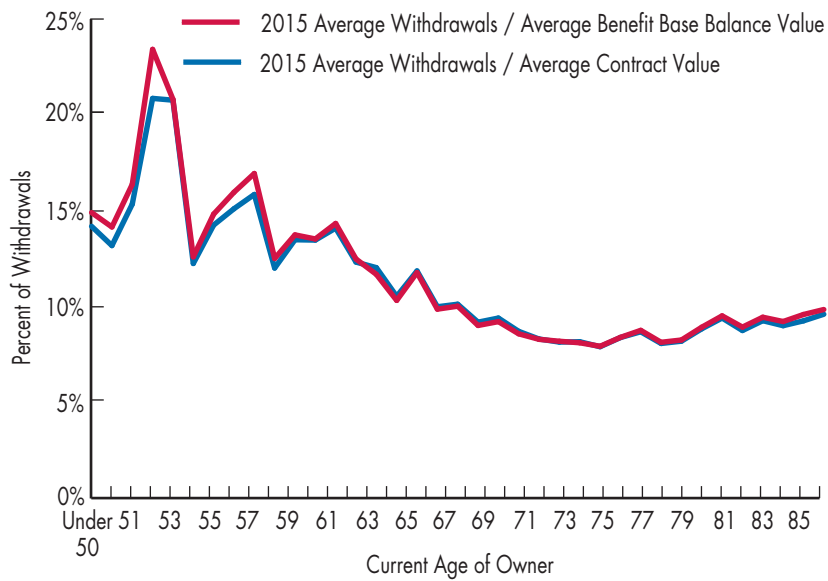


Note: Based on 85,983 GMWB contracts issued before 2015, still in force at EOY 2015 that had incurred withdrawals. Percent of average benefit base balance (BB) withdrawn is calculated for every contract: as partial withdrawals divided by $(BOY\ BB + EOY\ BB)/2$.

Ratio of Withdrawal to Contract Value and Benefit Base Balance

For most GMWB contracts, the ratio of average withdrawal amount to average contract value (average of contract values at BOY and EOY) is similar to the ratio of withdrawal to average benefit base balance value (Figure 2-22). The fluctuations in the ratios for owners under age 60 are due to low sample sizes. On average, the gap between the two ratios was less than half of one percent in 2015.

Figure 2-22: GMWB Withdrawal Amount to Average Contract Value and Benefit Base Balance



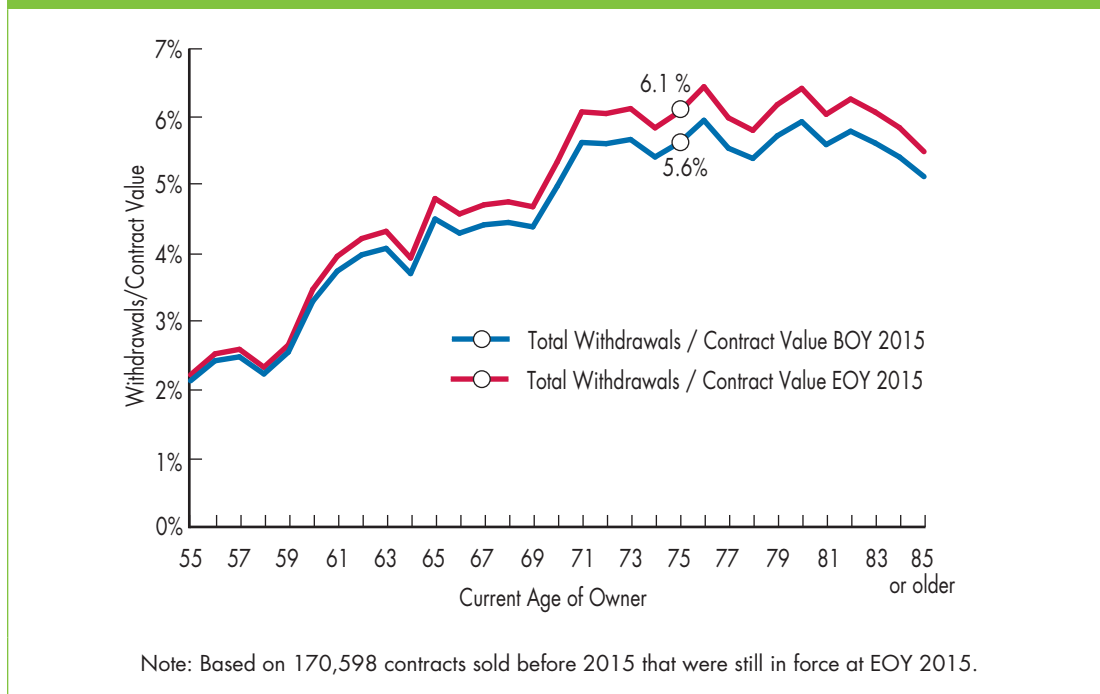
Note: The ratio of withdrawals to average contract values is calculated as the average of withdrawal amounts divided by the average of beginning and ending contract values. The ratio of withdrawals to average benefit base balances is calculated as the average of withdrawal amounts divided by the average of beginning and ending benefit base balances. In both cases, only the 85,208 GMWB contracts that were sold before 2015, were still in force at EOY 2015, had withdrawals in 2015, and with benefit base balance information were considered.

Ratio of Total Withdrawal Amount 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 2015 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 2015. 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. The second provides an estimation of risk from withdrawals among the contracts that are in withdrawal mode.

In 2015, the ratio of total withdrawal amounts to BOY contract values for all contracts in force throughout the year was slightly lower than the corresponding ratio for EOY contract values across all ages (Figure 2-23). Owners took nearly \$1.0 billion in withdrawals from \$20.1 billion at a rate of 4.7 percent, based on the BOY contract values of in-force contracts. Based on EOY contract value, the rate of withdrawals or outflow was higher, 5.0 percent, as the lack of investment gains dropped the contract values by EOY.

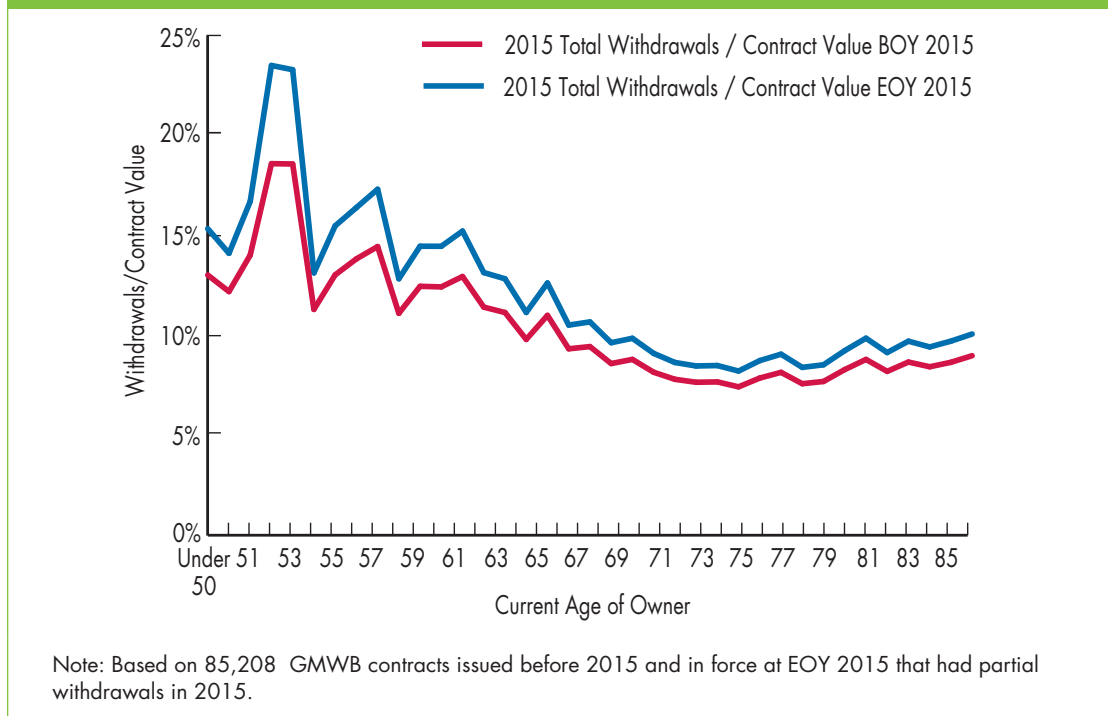
Figure 2-23: GMWB Total Withdrawals to Total Contract Value (All Contracts)



The ratio of total withdrawals to contract values increased from BOY to EOY 2015.

Companies can also examine the risks associated with the subset of contracts that had withdrawals in 2015. The equity market and fixed-income fund performance in 2015 were unable to keep up with the percentage withdrawn, so the ratio of total withdrawals to contract values increased from BOY to EOY for contracts that had withdrawals (Figure 2-24). Overall, for all contracts that had withdrawals in 2015, there was an average 11 percent decline in contract values.

Figure 2-24: GMWB Total Withdrawals to Total Contract Value (for Contracts With Withdrawals Only)



A contract where the benefit base balance exceeded the contract value did not experience any noticeable difference in withdrawal behavior.

Withdrawal Activity in Contracts Where the Benefit Base Balance Exceeded the Contract Value

The 2008–2009 market downturn caused large losses in contract values of annuity contracts, causing most GMWB benefits to have benefit base balances that were higher than the contract values. Many of these contracts experienced gains due to the market recovery that began

in the later part of 2009 and continued through 2014. By EOY 2015, 56 percent of GMWB contracts had benefit base balances greater than the contract values. Our findings indicate that GMWB benefit base balances being larger than the contract values was not a major driver in customers’ decisions to take withdrawals in 2015.

In order to understand the impact this relationship had on withdrawal activities, it helps to understand the severity and spread of the benefit base balance compared to the contract value among owners by age and by duration of contracts. We should also consider other factors, like market performance, investor confidence, market volatility, the state of the economy, and confidence in the financial strength of financial service providers. In order to conclude that the benefit base balance being greater than the contract value influenced the owners' withdrawal activity, we would expect to see increased withdrawal activity irrespective of age when the contracts benefit base balance exceeded the contract value.¹⁹

For GMWB contracts issued before 2015, it is evident that:

- A majority of GMWB contracts that had benefit base balances significantly larger than the contract values at BOY were held by older owners (Figure 2-3). These contracts are also more likely to have a higher representation of older duration contracts.
- A majority of older GMWB owners with older duration contracts initiated withdrawals in previous years and continued taking withdrawals in subsequent years. Older owners — particularly those aged 65 or older — are more likely to take and continue withdrawals over a longer period of time. Since their withdrawal amounts typically remain within the maximum amount offered in the GMWB contracts, their contract values are likely to decline over a period (unless they experience growth due to large and consistent market gains). Meanwhile, their benefit base balances are likely to remain level or proportionately adjusted with withdrawals, causing the gap between the benefit base balance and contract value to grow as the withdrawals continue.

As a result, we expect that the percentages of owners taking withdrawals by the amount the benefit base balance exceeded the contract value will be skewed both by older owners who started withdrawals years ago and contracts with long duration. We also expect that the percentage of owners who take withdrawals in a particular year where the benefit base balance was greater than the contract value may grow in the future.

Examining the withdrawal behavior of contract owners and the relationship between the benefit base balance and the contract value can shed some light on these issues. Just looking at owner's age and the relationship between the benefit base balance and the contract value, in isolation (Figure 2-25), may not provide a complete picture. Similar to GLWBs, it is likely that age and source of funds — not the amount the benefit base balance exceeds the contract value

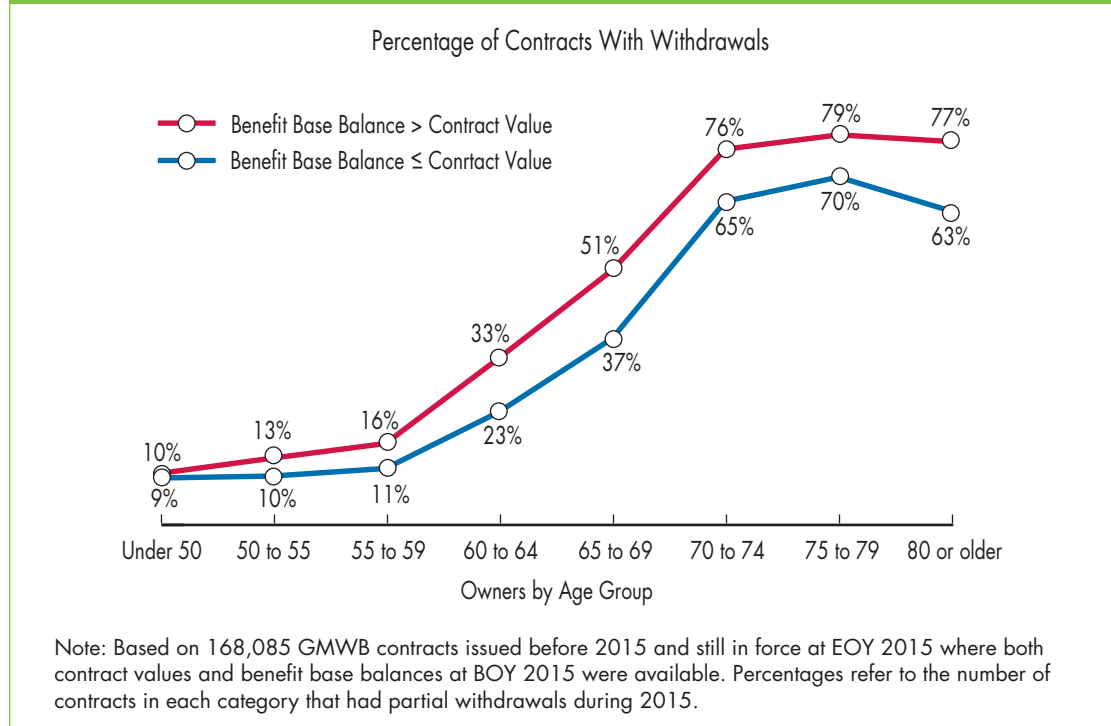
¹⁹ Additional analysis found no significant difference in the withdrawal pattern for contracts where the benefit base balance exceeded the contract value when looking at withdrawal amounts that were above, at, or below the benefit maximum.

— that drive owner withdrawal behavior, although there may be a small effect driven mainly by withdrawals among younger owners.²⁰

The percentage of owners who took withdrawals in 2015 was higher for contracts where the benefit base balance was greater than the contract value (Figure 2-25). The gap between the percentages of owners age 60 and older who took withdrawals remained within a tight range.

The fact that the vast majority of owners who start withdrawals are likely to continue withdrawals in subsequent years influences the trend shown in the Figure 2-25. The contracts where the contract values were greater than or equal to the benefit base balance were likely issued recently and have not been exposed to the market volatility, or are contracts issued years ago that did not have withdrawals and have experienced growth in their contract value. This helps to explain why contracts owned by older owners taking withdrawals from longer duration contracts have a widening gap.

Figure 2-25: GMWB Withdrawal Rates for Contracts Where the Benefit Base Balance Exceeded the Contract Value



²⁰ Refer to “Withdrawal Activity for Contracts In-the-Money or Not-in-the-Money” section of the GLWB chapter for additional discussion of the relationship between the benefit base, the contract value, and withdrawal activity.

GMWB contracts, by design, have a limited number of guaranteed income payments and do not provide guaranteed income for life. As a result, a higher percentage of owners are likely to take withdrawals compared to the percentage of owners taking withdrawals from GLWB contracts. It can be argued that GMWB contract owners might be more sensitive regarding initiating withdrawals when the benefit base balance exceeds the contract value so that they could take advantage of guaranteed withdrawals over a certain number of years at a time when their contract values are lower.

Over the last few years, we have seen very little evidence that a benefit base balance exceeding the contract value was a principal driver of GMWB withdrawal activity:

- As shown earlier in this chapter, the percentage of owners taking withdrawals is linked closely with owners reaching age 70½ and the need for RMDs. Increased withdrawal activity among owners aged 70 or older was mostly due to their taking withdrawals from contracts that had longer durations which increases the chances that contract value will be lower than the benefit base balance.
- Our analysis of the timing of first withdrawals among contracts issued in 2007 (Table 2-4) provides further evidence that a benefit base balance exceeding the contract value is not a strong determinant of withdrawal activity. Over a nine-year period, most of these contracts were exposed to different degrees of which the benefit base balance surpassed the contract value, especially between years 2009 and 2012. Yet we did not observe any significant difference in the onset of withdrawal activity during these years. If the amount that the benefit base balance exceeded the contract value was a major force behind the decision to begin taking withdrawals, we should have seen a jump in withdrawal activity in 2009, when contracts contract values were likely to be well below their benefit base balances after the market crisis. The same could be said for 2012 when market volatility in late 2011 and low returns to start 2012 caused many contract values to be lower than the benefit base balances. Instead, attained age and the need for RMDs for IRA contracts explained much of the pattern we observed.
- In 2009, the RMD restrictions were waived after the market crisis yet we did not see any heightened withdrawal activity.

Utilization by Select Characteristics

Utilization of GMWBs varies substantially across a variety of owner, contract, and benefit characteristics for contracts sold before 2015 (Table 2-8). These patterns are consistent across different utilization measurements, such as the percent of contracts with systematic withdrawals and the withdrawal rate weighted by contract value.²¹

Table 2-8: GMWB Utilization by Selected Characteristics

	Unweighted		Weighted by 2015 Contract Value	
	Partial Withdrawals	Systematic Withdrawals	Partial Withdrawals	Systematic Withdrawals
Age of owner				
50 to 54	11%	5%	15%	8%
55 to 59	13%	7%	18%	12%
60 to 64	26%	17%	33%	24%
65 to 69	42%	32%	47%	37%
70 to 74	68%	53%	69%	53%
75 to 79	73%	59%	70%	55%
80 or older	67%	58%	61%	51%
Market type				
IRA	60%	46%	63%	48%
Nonqualified	39%	32%	39%	31%
Distribution Channel				
Career Agent	47%	31%	50%	33%
Independent agent/ independent B-D	53%	46%	56%	48%
Full service national B-D	51%	41%	50%	39%
Bank	56%	46%	56%	46%
Share Class				
B-share	50%	39%	53%	40%
C-share	54%	45%	53%	44%
L-share	53%	44%	53%	44%

²¹ This measure of utilization should not be equated with the percentage of contract value withdrawn.

Table 2-8: GMWB Utilization by Selected Characteristics (continued)

	Unweighted		Weighted by 2015 Contract Value	
	Partial Withdrawals	Systematic Withdrawals	Partial Withdrawals	Systematic Withdrawals
Contract Value, EOY 2015				
Under \$25,000	48%	38%	57%	41%
\$25,000 to \$49,999	53%	43%	57%	45%
\$50,000 to \$99,999	53%	43%	56%	44%
\$100,000 to \$249,999	51%	40%	53%	41%
\$250,000 to \$499,999	51%	40%	53%	41%
\$500,000 or more	48%	37%	48%	37%

Note: Based on 175,101 contracts sold before 2015 and still in force at EOY 2015. Percentages refer to the number of contracts in each category that had partial (or systematic) withdrawals during the year. Systematic withdrawals represent a subset of all partial withdrawals.

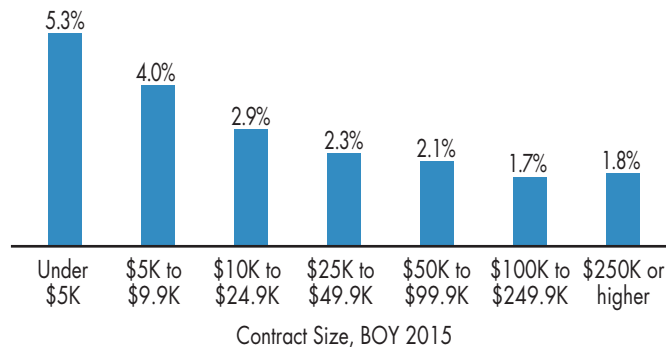
- As with GLWBs, older GMWB owners are much more likely to take withdrawals, especially systematic withdrawals, than are younger owners. In part, this activity reflects RMDs from IRAs after age 70½.
- Size does not appear to be a significant factor in determining when a contract owner is likely to take withdrawals.
- Owners of VAs purchased through banks and independent B-Ds are more likely to take withdrawals compared with other channels.

Additional Premium and Net Flows

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 2015 or earlier:

- Only 2 percent received additional premium during 2015.
- The average additional premium in 2015 was \$21,400, with a median of \$5,700.
- Younger owners were more likely to add premium than older owners. For example, 7 percent of owners under age 60 added premium, compared with 1 percent of owners aged 70 or older.
- Two percent of IRAs received additional premium consistent with nonqualified contracts.
- Five percent of contracts with values less than \$5,000 at BOY received additional premiums, while contracts with BOY values of \$10,000 or more were less likely to receive additional premiums (Figure 2-26).

Figure 2-26: GMWB Percentage of Contracts Receiving Additional Premium by Size of Contract



Note: Based on 175,102 contracts issued before 2015 and still in force at EOY 2015.

As the appeal of GMWB has declined, sales into new and existing contracts have constituted less than 10 percent of total outflows (Table 2-9). This, combined with the negative investment performance during the year, caused in-force assets to drop 14 percent by EOY while the number of contracts in-force dropped 8 percent in 2015.

Table 2-9: GMWB Net Flows

	Dollars (Billions)	Contracts	Average Contract Size
In-force, BOY 2015	\$22.84	192,270	\$118,811
Premium received during 2015			
New	\$0.20	1,369	
Existing	\$0.08	N/A	
Benefits paid			
Partial withdrawals	\$1.08		
Full surrenders	\$1.58	14,926	106,042
Annuitizations	\$0.06	403	152,374
Deaths/Disability	\$0.16	1,822	90,533
Investment growth	\$(0.65)		
In-force, EOY 2015	\$19.59	176,488	\$111,040

Note: Based on 192,270 contracts. Premium received = newly issued contracts + premium into existing contracts. Dollar values for contracts sold before 2015 that terminated during the year were set equal to either BOY contract value (if termination occurred before contract anniversary date) or the anniversary contract value (if termination occurred on or after the contract anniversary date). Dollar values for contracts sold in 2015 that terminated during the year were set equal to the current-year premium.

We have not shown some measures to preserve confidentiality and avoid revealing company-specific information, as data in those measures were heavily weighted for one company or due to a very limited sample size.

Persistence

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.

The GMWB
contract surrender
rate in 2015
was **7.8%**.

Surrender rates in 2015 among GMWB contracts issued before 2015 were 7.8 percent for contract surrender rate and 8.1 percent for cash value surrender rate.

Surrender Activity of Owners Taking Withdrawals

Owners who did not take withdrawals in 2015 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 at around 5 percent (Figures 2-27 and 2-28).

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.

Figure 2-27: GMWB Contract Surrender Rates by Owners Taking Withdrawals in 2015

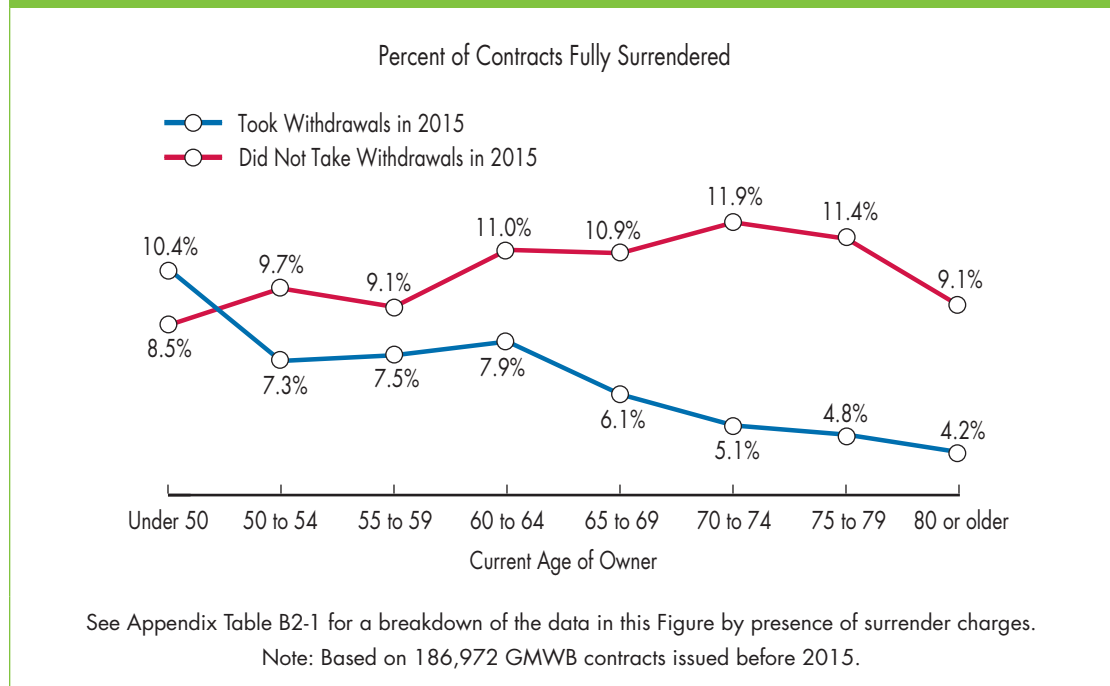
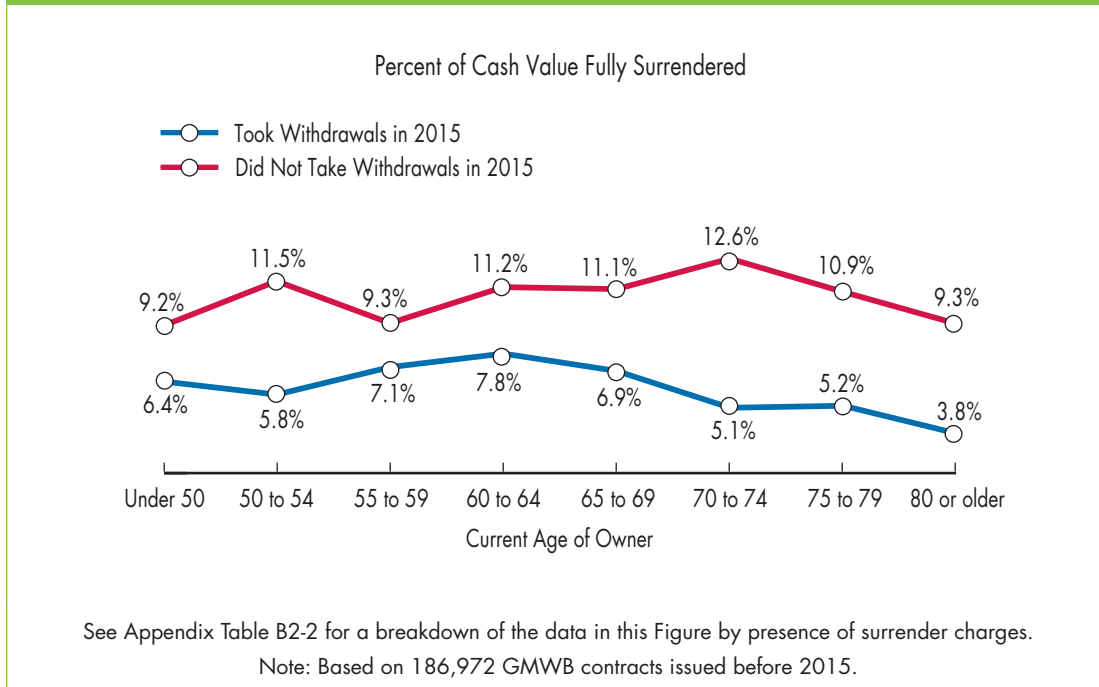


Figure 2-28: GMWB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015



Past withdrawals can also indicate increased likelihood that owners will surrender earlier than expected. Figures 2-29 and 2-30 show the contract and cash value surrender rates for owners who took withdrawals before 2015.

Figure 2-29: GMWB Contract Surrender Rates by Owners Who Took Withdrawals Before 2015

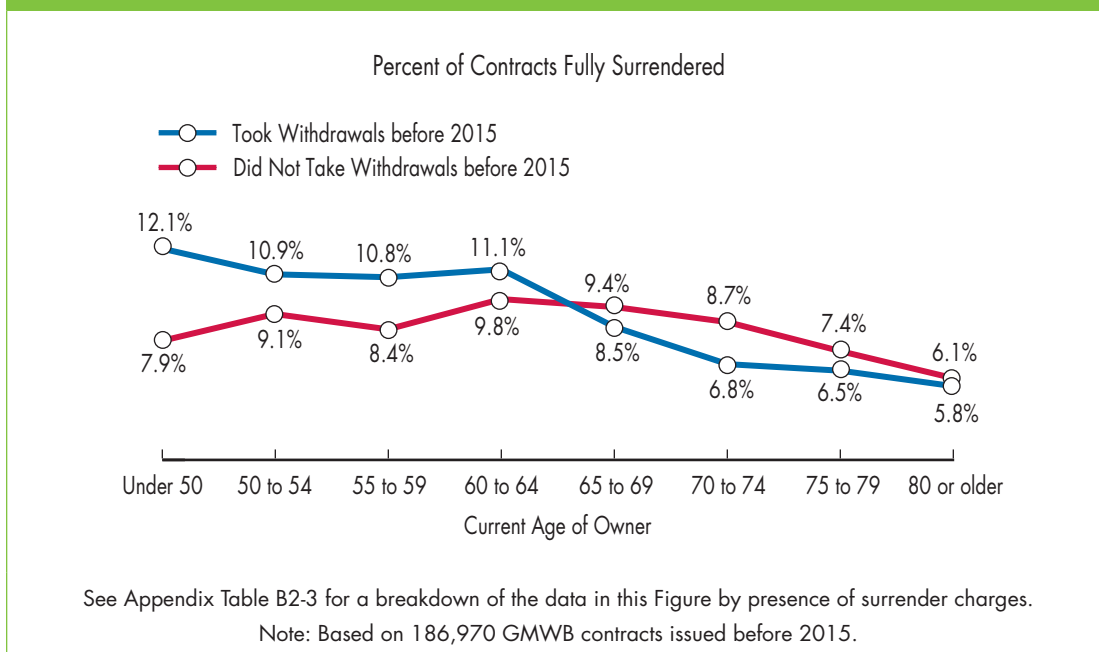
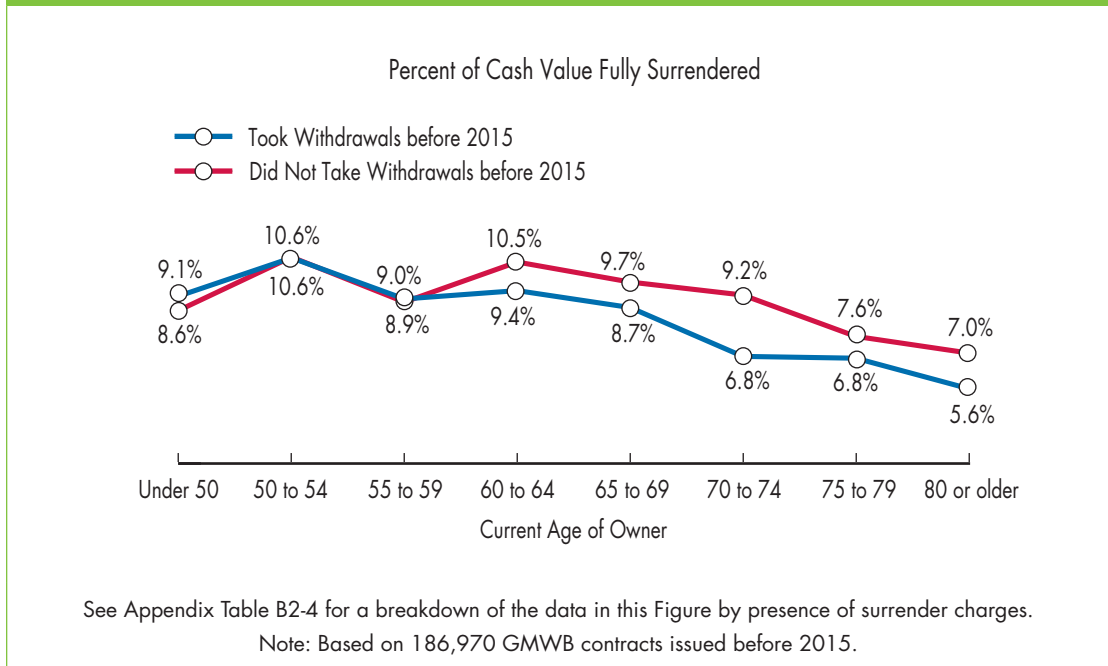


Figure 2-30: GMWB Cash Value Surrender Rates by Owners Who Took Withdrawals Before 2015

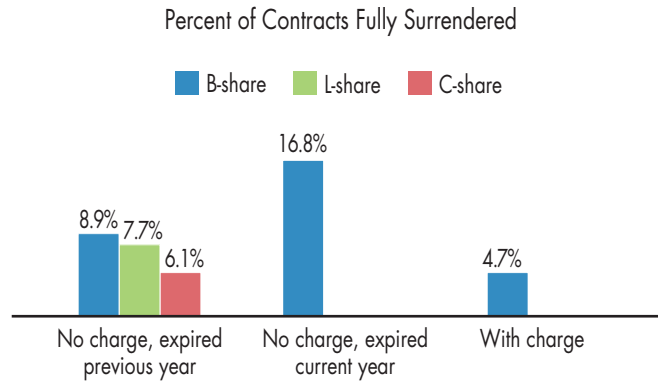


Surrender Activity by Share Class and Presence of Surrender Charge

Persistency for contracts with surrender charges is higher than for contracts without surrender charges. The contract surrender rate in 2015 was 4.5 percent for contracts with surrender charges and almost four times that amount (16.0 percent) for contracts that exited the surrender penalty period in 2015. Among contracts that exited the surrender penalty period in 2014 or earlier, the contract surrender rate was 8.2 percent.

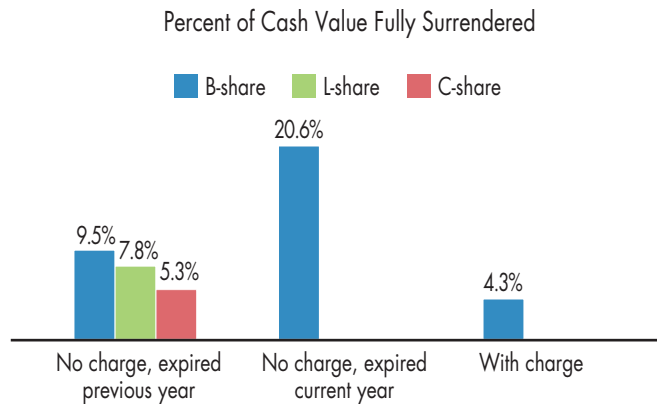
Figures 2-31 and 2-32 illustrate the contract and cash value surrender rates by presence of surrender charges and share classes. At BOY 2015, 72 percent of GMWB contracts had no surrender charges.

Figure 2-31: GMWB Contract Surrender Rates in 2015 by Share Classes



Note: Based on 170,191 GMWB contracts issued in or before 2015. We have not shared some surrender rate data in order to preserve confidentiality and avoid revealing company-specific information, as data are heavily weighted for one company or contain data from a very limited number of companies.

Figure 2-32: GMWB Cash Value Surrender Rates in 2015 by Share Classes



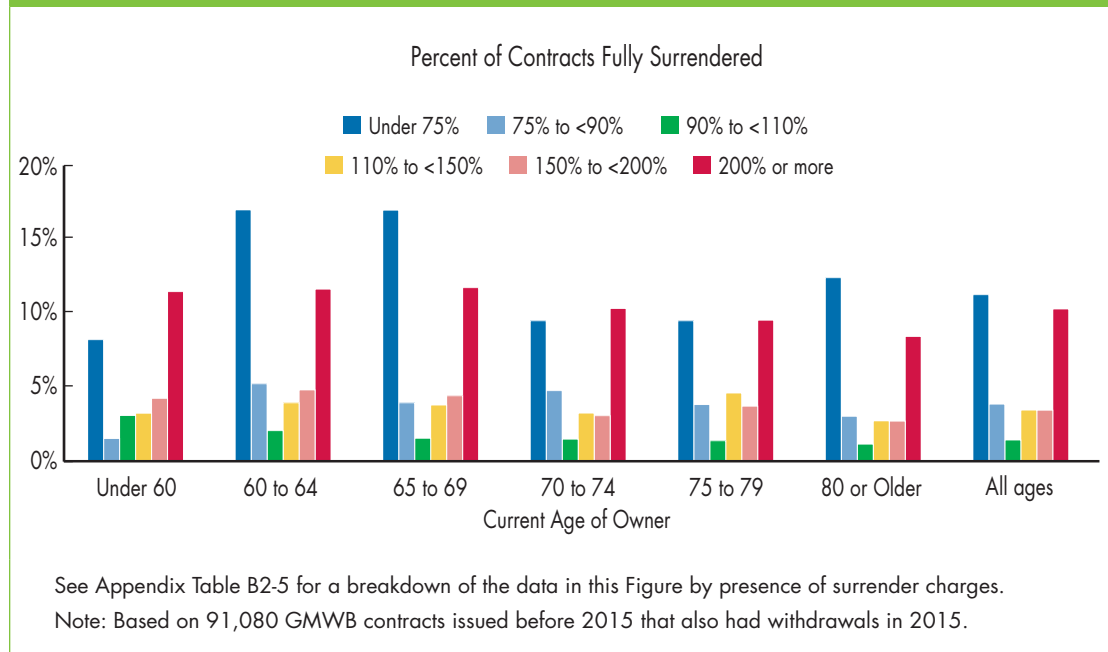
Note: Based on 170,191 GMWB contracts issued in or before 2015. We have not shared some surrender rate data in order to preserve confidentiality and avoid revealing company-specific information, as data are heavily weighted for one company or contain data from a very limited number of companies.

Surrender rates are influenced by the presence of surrender charges. Contracts with higher surrender charges have lower surrender rates and vice versa. The contract surrender rates for contracts with no charge was 9.3 percent, 6.9 percent for contracts with a surrender charge of 1 to 2 percent, 3.2 percent for contracts with a surrender charge of 3 to 4 percent, and 2.1 percent for contracts with a surrender charge of 5 to 6 percent. We have not shown the actual data points in order to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.

Surrender Activity by Percentage of Benefit Maximum Withdrawn

Figure 2-33 shows the contract surrender rates among owners who took withdrawals in 2015 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.

Figure 2-33: GMWB Contract Surrender Rates by Owners Who Took 2015 Withdrawals, in Relation to Annual Benefit Maximum Allowed



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

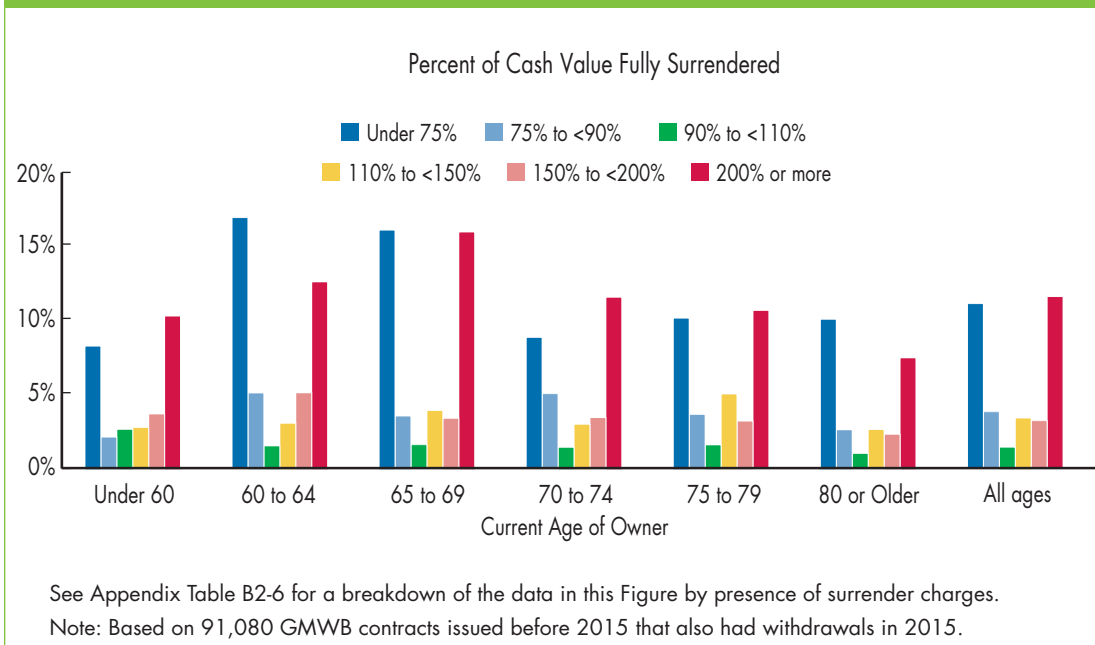
categories. This relationship holds true across all age groups. Among the two thirds of owners who withdrew between 75 percent and less than 200 percent of the benefit maximum, surrender rates were 2.3 percent. Among the subset of these owners who withdrew between 90 percent and less than 110 percent of the benefit maximum, rates were 1.5 percent.

Owners who withdrew either less than 75% or 200% or more of the maximum withdrawal amount allowed accounted for 71% of all contracts surrendered in 2015.

In summary, the GMWB owners in two extremes — those taking less than 75 percent or 200 percent or more of the maximum withdrawal amount allowed in their contracts accounted for 33 percent of all owners who took withdrawals in 2015. But they were responsible for around 7 out of 10 contracts surrendered and cash value surrendered in 2015. Any withdrawal behavior not in line with the GMWB’s maximum withdrawal amount is thus a reliable indicator of surrender behavior.

The cash value surrender rates among owners who took withdrawals in 2015, split by the percentage of benefit maximum withdrawn, show a similar pattern to contract surrender rates (Figure 2-34).

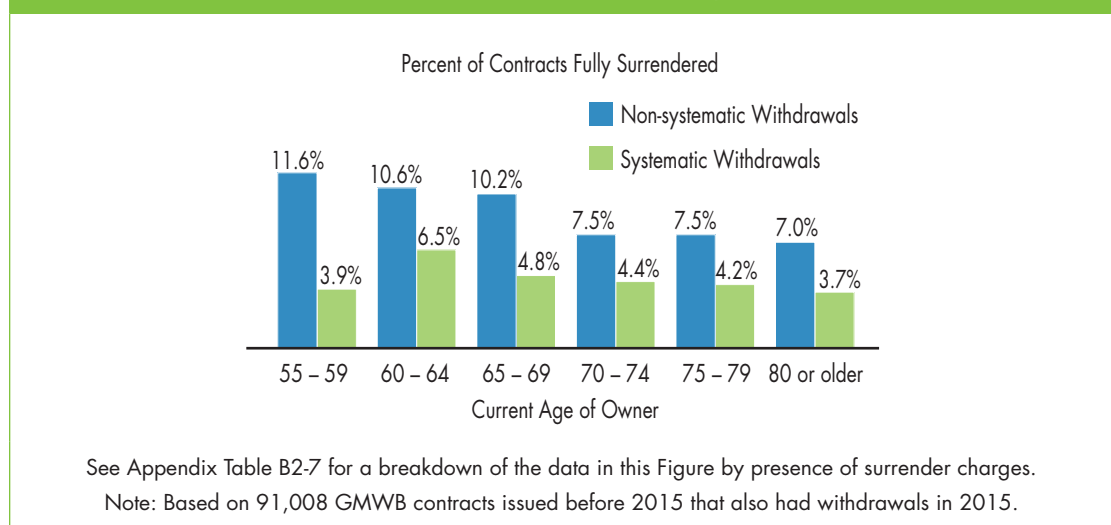
Figure 2-34: GMWB Cash Value Surrender Rates by Owners Who Took 2015 Withdrawals, in Relation to Annual Benefit Maximum Allowed



Surrender Activity by Owners Taking Withdrawals by Withdrawal Method

Another strong indicator of whether owners are likely to surrender their contracts is the method they use to take withdrawals — systematic or non-systematic (Figure 2-35). As we have seen, owners who use systematic withdrawals are less likely to take more than the benefit maximum, and younger owners are making the most excess withdrawals.

Figure 2-35: GMWB Contract Surrender Rates by Withdrawal Method



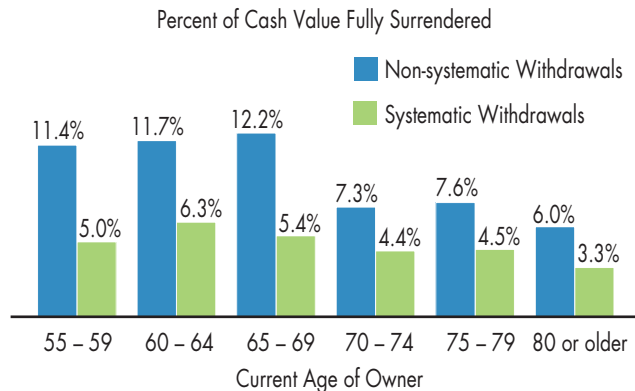
Systematic withdrawal contract surrender rate = **4.3%**

Non-systematic withdrawal contract surrender rate = **8.5%**

Overall, the contract surrender rate among owners who took non-systematic withdrawals in 2015 was 8.5 percent while the surrender rate among owners who withdrew systematically was 4.3 percent. Non-systematic withdrawals are more often linked with younger owners who have higher surrender rates.

Owners using a non-systematic withdrawal method accounted for a third of all owners taking withdrawals, and cash surrender values in 2015. The cash value surrender rates by withdrawal methods follow a similar pattern to the contract surrender rates (Figure 2-36).

Figure 2-36: GMWB Cash Value Surrender Rates by Withdrawal Method



See Appendix Table B2-8 for a breakdown of the data in this Figure by presence of surrender charges.
 Note: Based on 91,008 GMWB contracts issued before 2015 that also had withdrawals in 2015.

Another factor that influenced surrender rates involves whether or not 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.

However, looking at surrender rates based only on the amount that the benefit base balance exceeds the contract value may not completely address all issues regarding persistency risk. Owner surrender behavior also correlates closely with withdrawal behavior.

Surrender rates for GMWB contracts are not as low as for VAs with GLWBs. Across all contracts, 7.8 percent surrendered during 2015. For business sold before 2015, cash value surrender rates were 8.1 percent (Table 2-10).

Table 2-10: GMWB Surrender Rates

	Percent of Contracts Surrendered	Percent of Contract Value Surrendered
All contracts	7.8%	8.1%
Year of issue		
Before 2004	6.0%	6.1%
2004	7.7%	8.0%
2005	9.5%	10.1%
2006	8.0%	8.3%
2007	9.1%	9.6%
2008	9.6%	10.7%
2009	6.4%	5.8%
Age of owner		
Under 50	8.6%	8.7%
50 to 54	9.4%	10.6%
55 to 59	8.9%	8.9%
60 to 64	10.2%	10.1%
65 to 69	9.0%	9.2%
70 to 74	7.4%	7.5%
75 to 79	6.7%	7.0%
80 or older	5.9%	6.0%
Contract value, BOY 2015		
Under \$25,000	9.7%	8.5%
\$25,000 to \$49,999	7.0%	7.0%
\$50,000 to \$99,999	6.9%	6.9%
\$100,000 to \$249,999	7.8%	7.9%
\$250,000 to \$499,999	8.5%	8.6%
\$500,000 or higher	9.0%	9.3%

Table 2-10: GMWB Surrender Rates (continued)

	Percent of Contracts Surrendered	Percent of Contract Value Surrendered
Gender		
Male	8.1%	8.4%
Female	7.6%	7.7%
Market type		
IRA	8.0%	8.0%
Nonqualified	7.6%	8.1%
Cost structure		
B-share	8.0%	8.2%
C-share	6.0%	5.3%
L-share	7.6%	7.7%
Distribution channel		
Bank	7.8%	7.9%
Career agent	7.5%	7.4%
Independent agent/independent B-D	8.0%	8.0%
Full-service National B-D	9.0%	9.0%
<p>Note: Based on 186,972 contracts sold before 2015. Percent of contracts surrendered = number of contracts fully surrendered/total number of contracts in force. Percent of contract value surrendered = sum of values of fully surrendered contracts/total contract value in force.</p> <p>We have not shared some surrender rates by year of issue and share classes in order to preserve confidentiality and to avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or only a very limited number of companies.</p>		

Product and Benefit Characteristics

GMWB features are similar to those of GLWBs, with some important differences (Table 2-11). GMWBs tend to be less expensive, are much less likely to reward delayed withdrawals with automatically increasing benefit base balances, and often have higher maximum annual withdrawal percentages.

Table 2-11: GMWB Product and Benefit Characteristics

	Issued before 2006	Issued in 2006	Issued in 2007	Issued in 2008	Issued in 2009	Issued in 2010	Issued in 2011	Issued in 2012	Issued in 2013
Average M&E charge	1.33	1.26	1.39	1.36	1.37	1.35	1.36	1.37	1.22
Average benefit fee	0.55	0.57	0.53	0.53	0.56	0.62	0.61	0.73	0.94
Average number of subaccounts	69	63	67	69	76	74	72	89	78
Product has fixed account									
Yes	85%	91%	75%	74%	63%	65%	65%	18%	15%
No	15%	9%	25%	26%	37%	35%	35%	82%	85%
Product still available as of 12-31-15									
Yes	44%	53%	77%	80%	72%	73%	75%	50%	74%
No	56%	47%	23%	20%	28%	27%	25%	50%	26%
Rider still available as of 12-31-15									
Yes	0	0	2%	5%	6%	5%	7%	17%	59%
No	100%	100%	98%	95%	94%	95%	93%	83%	41%
Cap on benefits									
Yes	60%	71%	29%	25%	2%	0	0	0	0
No	40%	29%	71%	75%	98%	100%	100%	100%	100%
Benefit fee basis*									
Contract value	56%	44%	31%	31%	41%	38%	36%	82%	40%
Benefit base	41%	55%	65%	67%	58%	62%	64%	18%	60%
VA subaccounts	3%	1%	3%	2%	1%	0	0	0	0
Other	0	0	1%	0	0	0	0	0	0
Average maximum age at election	81	80	83	83	85	85	85	85	85
Asset allocation restrictions									
Forced asset allocation model	32%	29%	71%	83%	98%	99%	100%	100%	100%
Limitations on fund selection	7%	9%	5%	3%	0	0	0	0	0
No, but may restrict	31%	29%	19%	11%	1%	0	0	0	0
No restrictions	9%	3%	5%	3%	1%	1%	0	0	0
Dynamic asset allocation	21%	30%	0	0	0	0	0	0	0

Table 2-11: GMWB Product and Benefit Characteristics (continued)

	Issued before 2006	Issued in 2006	Issued in 2007	Issued in 2008	Issued in 2009	Issued in 2010	Issued in 2011	Issued in 2012	Issued in 2013
Among contracts with maximum charge info. provided									
Average maximum rider charge	1.16%	1.27%	0.87%	0.81%	0.78%	0.77%	0.76%	0.76%	2.27%
Step-up use restrictions									
Can be used multiple times	84%	95%	94%	94%	94%	95%	93%	84%	86%
Can be used once	9%	4%	4%	1%	0	0	0	0	0
No	7%	1%	2%	5%	6%	5%	7%	16%	14%
Step-up availability**									
Quarterly or more frequently	0	0	3%	11%	0	0	0	0	0
Annually	69%	84%	74%	72%	97%	99%	100%	100%	100%
Every 3 years	1%	1%	1%	1%	1%	0	0	0	0
Every 5 years	30%	15%	22%	16%	2%	1%	0	0	0
Benefit base automatically increases if withdrawals are not taken immediately									
Yes, based on compound interest	0	1%	1%	1%	1%	0	0	0	0
Yes, based on simple interest	13%	7%	13%	15%	1%	1%	1%	2%	1%
No	87%	92%	86%	84%	98%	99%	99%	98%	99%
Maximum annual withdrawal percentage									
5%	23%	28%	18%	20%	7%	6%	7%	16%	14%
6%	0	0	1%	0	0	0	0	0	0
7%	74%	69%	79%	79%	93%	94%	93%	84%	86%
10%	3%	3%	2%	1%	0	0	0	0	0
Impact on benefit base if excess withdrawals are taken									
Pro rata	31%	21%	32%	30%	42%	39%	37%	84%	86%
Dollar-for-dollar	7%	23%	45%	56%	58%	62%	64%	18%	15%
None, if RMDs from IRA	61%	58%	68%	82%	99%	100%	100%	100%	100%
Other	63%	83%	53%	49%	3%	0	0	0	0
*If the benefit fee was based on the higher of benefit base or contract value, then the basis categorization was determined for each individual contract.									
**Among contracts that allowed multiple step-ups									
Note: Based on 193,639 contracts sold before 2015. We have not shared data on products issued in 2015 in order to preserve confidentiality and to avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or only a very limited number of companies.									

Key Findings

- Seven percent is by far the most common annual withdrawal maximum, followed by 5 percent.
- Unlike GLWB contracts, most GMWB contracts do not offer an automatic increase in benefit base in case owners do not take immediate withdrawals. Also, most GMWB contracts do not have caps on benefit base balances.
- Annual step-up options are the most common.



*Guaranteed Minimum
Income Benefits*

CHAPTER THREE

Chapter Three: Guaranteed Minimum Income Benefits

Guaranteed minimum income benefits (GMIBs) are the second most popular type of GLB in the VA market. In 2015, sales of GMIBs were estimated at \$7.1 billion, but sales of GMIB riders have declined substantially as only a few carriers are still offering GMIB options. GMIB election rates, when any GLB was available, were fairly consistent throughout 2015, at 9 percent.²² With the purchase of a GMIB, owners can receive guaranteed income at the end of a waiting period, based on annuitization of the benefit base. However, most GMIB owners have the flexibility of taking withdrawals during the waiting period without disturbing the benefit base. Feature innovation for GMIBs has incorporated withdrawals similar to GLWBs, blurring the distinction between GLWBs and GMIBs.

Nearly all GMIBs have waiting periods of 7 to 10 years or more before the contract can be annuitized. During the waiting period, annuitizations are not subject to the guarantees specified within the GMIBs. By the end of 2015, 1 in 3 contracts had reached their benefit maturity date.

As they did with GLWBs, companies enhanced GMIB benefits during early 2008. Some enhancements include easing asset allocation restrictions and increasing benefit base growth rates (e.g., from 5 to 6 percent annually). After the market crisis of 2008 and 2009, companies made their GMIBs less generous by reducing the growth rates and annuitization factors that determine guaranteed payout amounts.

GMIB analyses are based on a total of 1,562,610 VAs, issued by 15 companies. These results represent a total of 71 GMIB riders introduced between 1989 and 2015. Just over 80 percent of the contracts were issued between 2003 and 2012.

At end-of-year (EOY) 2015, the LIMRA Secure Retirement Institute estimates the GMIB assets in the industry at \$209 billion.²³ The in-force GMIB contracts in the current study represent \$177 billion in assets — 85 percent of the industry total.

²² *Variable Annuity Guaranteed Living Benefits Election Tracking, 4th Quarter 2015*, LIMRA, 2016.

²³ *Ibid.*

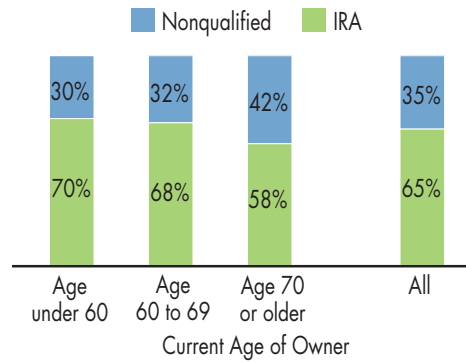
Owner Profiles

Source of Funds and Ownership of GMIBs

Two thirds of GMIB contracts were funded with IRA money.

Two-thirds of GMIB contracts were funded from qualified sources of money, part of a trend where a greater share of annuity contracts are being funded from qualified sources or rollover assets rather than nonqualified sources (Figure 3-1). Funding a GMIB with IRA savings is more common among younger buyers, particularly those under age 70.

Figure 3-1: GMIB Ownership of Annuity by Sources of Funds and Age Groups



Based on 1,473,831 contracts issued before or in 2015 and still in force at EOY 2015.

GMIB Owner and Contract Characteristics

Table 3-1 provides a summary of GMIB owner and contract characteristics at EOY 2015.

Table 3-1: GMIB Owner and Contract Characteristics	
	GMIB Contracts In Force
Age of owner	
Under 50	9%
50 to 54	8%
55 to 59	12%
60 to 64	18%
65 to 69	21%
70 to 74	16%
75 to 79	10%
80 or older	7%
Average age	65 years
Gender	
Male	51%
Female	49%
Market type	
IRA	65%
Nonqualified	35%
Distribution Channel	
Career agent	28%
Independent agent/independent B-D	37%
Full-service National B-D	25%
Bank	10%
Year of issue	
Before 2002	4%
2002	3%
2003	7%
2004	7%
2005	7%
2006	8%
2007	9%
2008	8%
2009	8%
2010	7%
2011	13%
2012	8%
2013	5%
2014	3%
2015	3%

Table 3-1: GMIB Owner and Contract Characteristics (continued)

	GMIB Contracts In Force
Cost Structure	
A-share	2%
B-share	70%
C-share	2%
L-share	20%
Other	5%
Contract value, EOY 2015 as percent of contracts	
Under \$25,000	19%
\$25,000 to \$49,999	18%
\$50,000 to \$99,999	25%
\$100,000 to \$249,999	27%
\$250,000 or higher	11%
Contract value, EOY 2015 as percent of contract value	
Under \$25,000	2%
\$25,000 to \$49,999	6%
\$50,000 to \$99,999	15%
\$100,000 to \$249,999	35%
\$250,000 or higher	42%
Average contract value, EOY 2015	\$119,973
Median contract value, EOY 2015	\$73,361
Note: Based on 1,475,734 contracts still in force at EOY 2015.	

Key Findings

- B-share contracts were by far the most common cost structures in 2015.
- Two-thirds of GMIB contracts were purchased using qualified money.
- Just over a third of contracts were issued through the independent agent/independent B-D channel; roughly a quarter were issued through both the career agent and full-service national B-D channels.
- At EOY 2015, nearly 40 percent of the contracts had values of \$100,000 or more, representing over three quarters of GMIB assets.

Benefit Base

At beginning-of-year (BOY) 2015, 82 percent of GMIB contracts issued before 2015 had benefit bases that exceeded contract values. Many of these contracts are have yet to fully recover from market losses incurred during the financial crisis. The average difference between the median benefit base and contract value was approximately \$12,500 (Table 3-2).

Table 3-2: GMIB Benefit Bases and Contract Values, at BOY 2015

	Benefit Base Amount	Contract Value	
		Amount	Percent of Benefit Base
Sum	\$198,856,113,463	\$172,969,676,994	87%
Average	\$146,933	\$127,806	87%
Median	\$90,754	\$78,215	86%
Percent of contracts where benefit base was greater than contract value.			82%
Note: Based on 1,353,382 GMIB contracts issued before 2015 with GMIB benefit bases as of BOY and EOY 2015. Excludes contracts for which the GMIB benefit bases could not be determined.			

As investment performance was minimal in 2015, the average contract value declined by 6 percent while the average benefit base amount grew 4 percent due to auto roll-ups and other incentives allowed in the contracts. As a result, almost all of the GMIB contracts benefit base value exceeded the contract value at the EOY (Table 3-3). The average difference between the median benefit base and contract value grew from \$12,500 at BOY to \$21,200 by EOY. At EOY, the median benefit base stood was, 29 percent higher than the median contract value.

The average benefit base was **28%** higher than the average contract value at EOY 2015.

Table 3-3: GMIB Benefit Bases and Contract Values, at EOY 2015

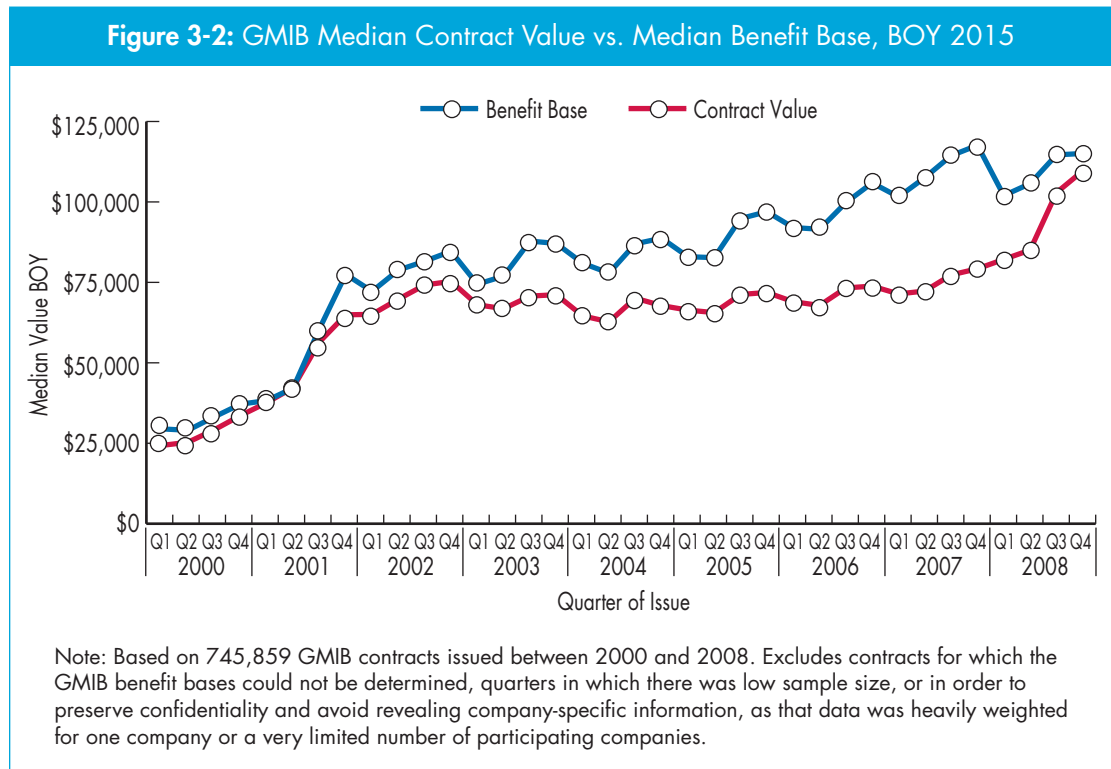
	Benefit Base Amount	Contract Value	
		Amount	Percent of Benefit Base
Sum	\$207,138,085,146	\$162,451,992,857	78%
Average	\$153,052	\$120,034	78%
Median	\$94,378	\$73,159	78%
Percent of contracts where benefit base was greater than contract value			96%
Note: Based on 1,353,382 GMIB contracts issued before 2015 with GMIB benefit bases as of BOY and EOY 2015. Excludes contracts for which the GMIB benefit bases could not be determined.			

Benefit Bases by Quarter and Year of Issue

GMIB contracts — particularly those that have been in force for a long period of time — have experienced considerable market volatility: gains in the early periods of 2005–2007, deep losses during the market crisis in 2008–2009, moderate gains in 2010, a flat return in 2011, reasonable to strong gains from 2012 to 2014 followed by relatively flat returns in 2015.

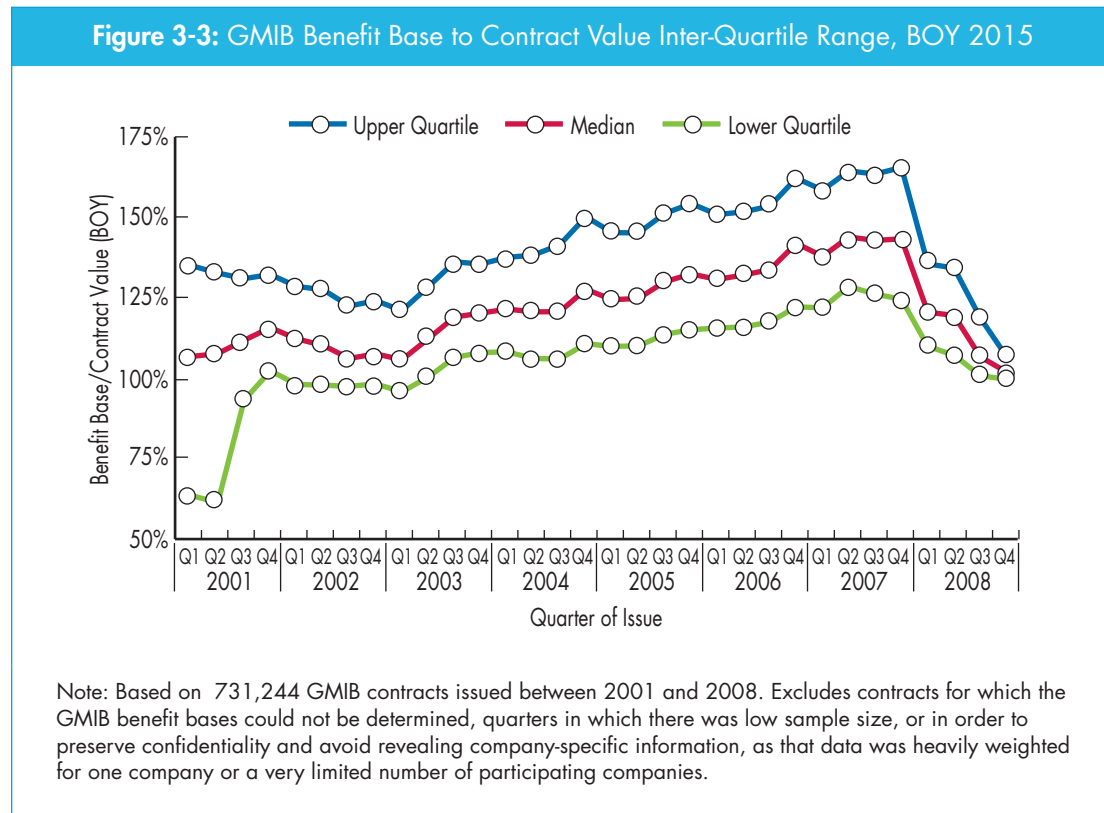
Figure 3-2 shows BOY 2015 median contract value and median benefit base value by quarter of issue. Contracts sold before 2002 had smaller contract values than those sold in mid to late 2000. For these contracts, exposure to two bear markets (2001–2002 and 2008–2009) impacted their contract values while their benefit bases remained the same or grew.

New benefit calculation methods were introduced in 2003 and later. Older benefit calculation methods defined the benefit base in terms of premiums paid, or premiums increased at a specified annual rate (e.g., 6 percent roll-up) until benefit maturity. The more recent benefit calculations take into account positive investment performance, by “ratcheting up” the benefit base over time. Market losses had the most impact on contracts issued in late 2006 through 2007.

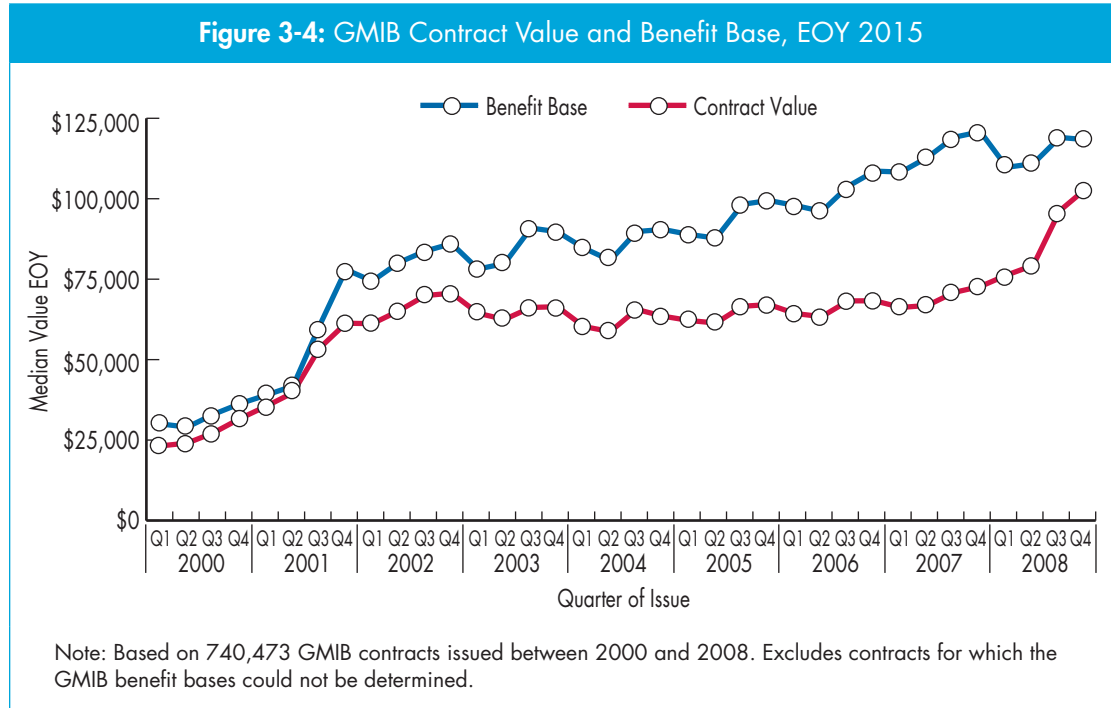


Looking at the quartile ranges of the benefit base to contract value (BB/CV) ratios at BOY 2015, contracts issued in early 2001 had the largest deviation of BB/CV ratios (Figure 3-3). From 2002 through mid-2008, the range between the upper and lower quartiles remained fairly tight. All of these trend lines increased from 2003 through 2007. Beginning in 2008, the inter-quartile ratios start to decline with decreasing duration (more recently issued contracts tend to have a tighter distribution) because there has been less time for any group of contracts to pull far ahead (or fall far behind) the rest of the pack in terms of performance.

The upper and lower quartiles refer to the distribution of BB/CV ratios at BOY 2015, not the distribution of contract values. The inter-quartile range gives a sense of how widely (or narrowly) the ratios are distributed.

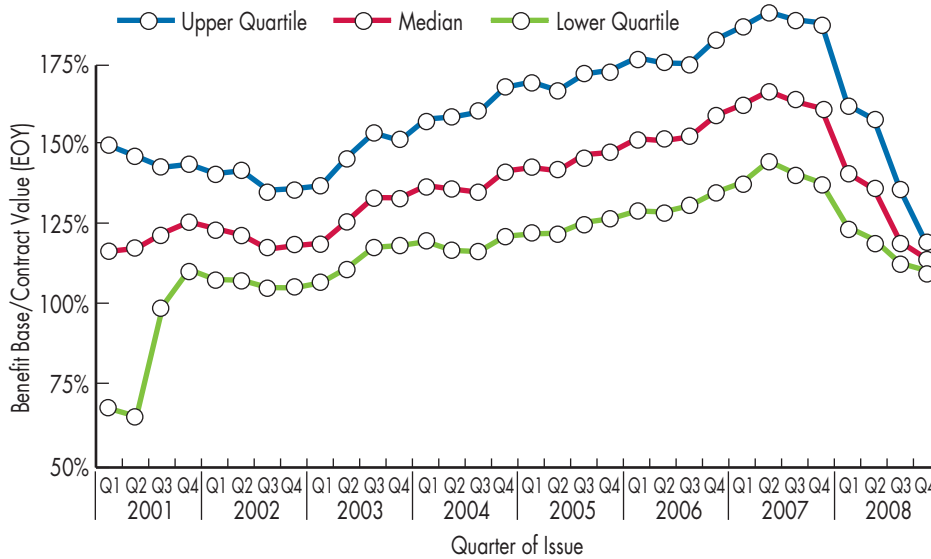


By EOY 2015, the difference between the benefit base amount and contract value for the typical contract had increased (Figure 3-4). Overall, the median contract value declined 6 percent while the median benefit base grew 4 percent. The median contract value declined from \$78,200 at BOY 2015 to \$73,200 at EOY 2015, while the median benefit base amount increased from \$90,800 at BOY 2015 to \$94,400 at EOY 2015.



The inter-quartile range analysis at EOY 2015 shows an increase in BB/CV ratios compared to BOY (Figure 3-5). The range between the upper and lower quartiles expanded slightly — particularly for contracts issued from 2005 – mid 2008. The median ratios of BB/CV in contracts issued from Q1-2001 through Q4-2008 ranged from 114 to 166 percent at EOY.

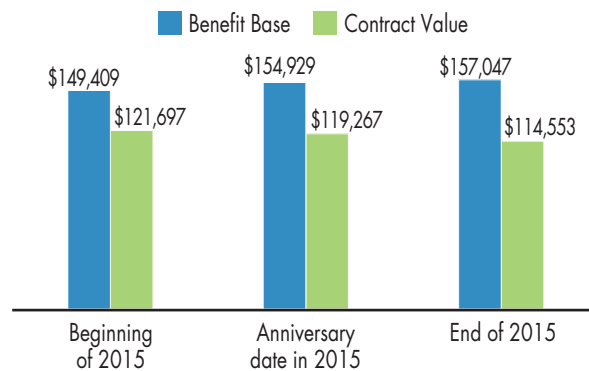
Figure 3-5: GMIB Benefit Base to Contract Value Inter-Quartile Range, EOY 2015



Note: Based on 726,063 GMIB contracts issued between 2001 and 2008. Excludes contracts for which the GMIB benefit bases could not be determined, quarters in which there was low sample size, or in order to preserve confidentiality and avoid revealing company-specific information, as that data was heavily weighted for one company or a very limited number of participating companies.

The average contract value declined 6 percent during 2015 (Figure 3-6). On the anniversary date, the average benefit base increased 4 percent, due to roll-up and step-up provisions. At EOY 2015, the average benefit base exceeded the average contract value by \$42,500.

Figure 3-6: GMIB Average Contract Value and Average Benefit Base Values



Note: Based on 676,470 GMIB contracts issued before 2015 and still in force at EOY 2015. Excludes contracts for which the GMIB benefit bases (as of BOY, the contract's anniversary date, or EOY) could not be determined.

Benefit Base to Contract Value Ratios by Age

The analysis of BB/CV ratios can be expanded to include age or age cohorts to see how the withdrawal risks from a particular age or age cohort can be linked to BB/CV ratios. The BB/CV ratios are impacted by factors like the duration of contracts and the impact of market returns on the contract values, infusion of new contracts into the book by age groups, richness of in-force contract features like automatic roll-up percentages, and impact of withdrawals on the contract values and benefit bases. This analysis can allow companies to assess withdrawal risks associated with each age or age cohort in relation to the industry.

19% of the contracts had BOY BB/CV ratios of less than 100%, while **4%** had EOY ratios of less than 100%.

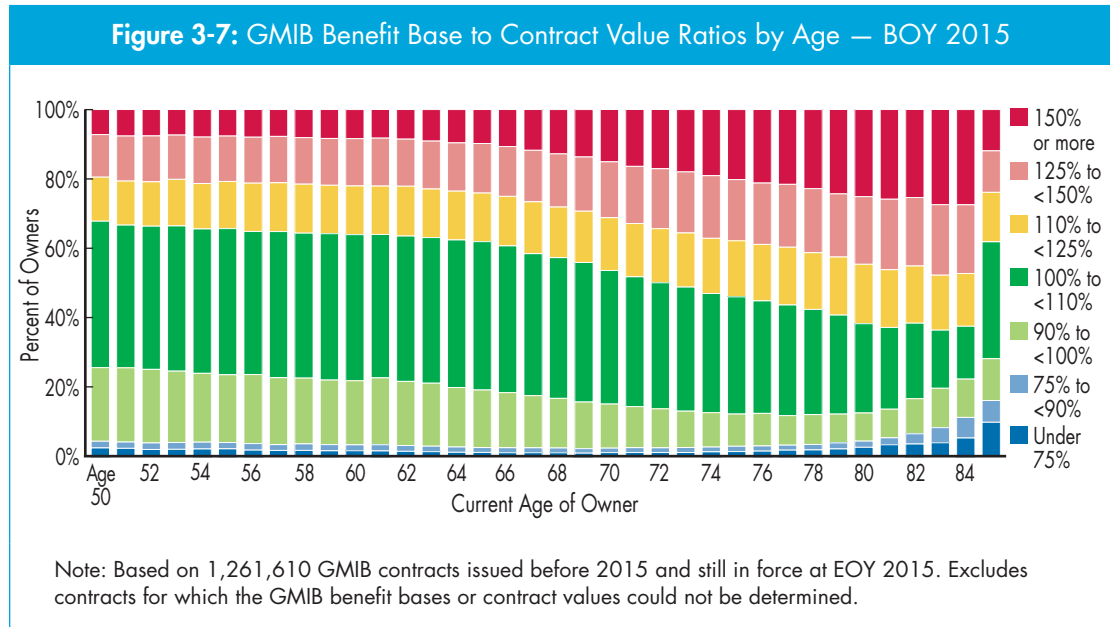
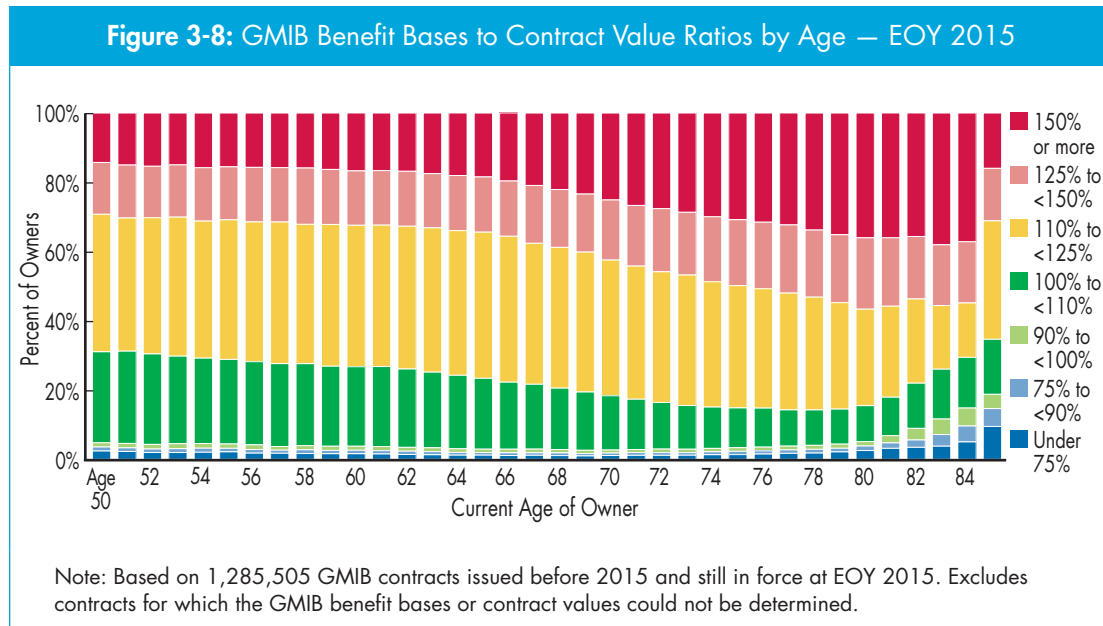


Figure 3-7 shows the BB/CV ratios by age at BOY 2015. Only 4 percent of contracts had BB/CV ratios below 90 percent and 16 percent had ratios of 90 to less than 100 percent; 39 percent of the contracts had BB/CV ratios of 100 to less than 110 percent; and 14 percent of contracts had their benefit bases exceeding contract values by 110 to less than 125 percent. Twenty-seven percent of the contracts had BB/CV ratios of 125 percent or more.

Owners aged 70 or older had comparatively more contracts with BB/CV ratios of 125 percent or more. Thirty-seven percent of contracts with owners aged 70 and older had BB/CV ratios of 125 percent or more. Though owners aged 70 or older constituted just a third of all contract owners, 45 percent of all contracts with BB/CV ratios of 125 percent or more were within this age cohort.

Figure 3-8 shows the distribution of BB/CV ratios by age at EOY 2015. There were 4 percent of contracts having BB/CV ratios below 100 percent; 19 percent had BB/CV ratios of 100 to less than 110 percent; 39 percent had benefit bases exceeding contract values by 110 to less than 125 percent, and 38 percent had BB/CV ratios of 125 percent or more.²⁴

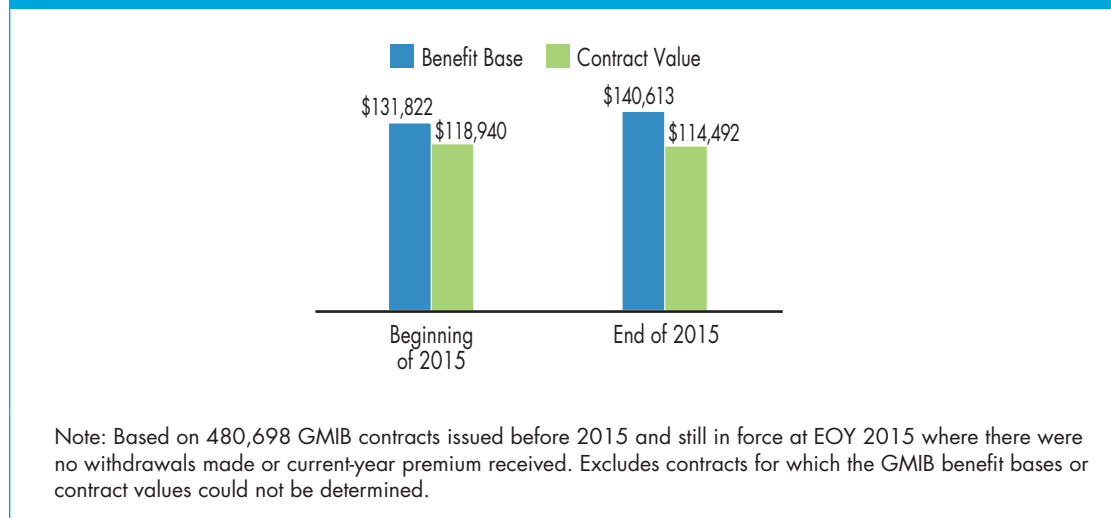


²⁴ Refer to “Benefit Base to Contract Value Ratios by Age” in GLWB chapter for additional discussion of the relationship between BB/CV ratios and age.

Benefit Base for Contracts With Withdrawals versus Without Withdrawals

For in-force contracts issued before 2015 that did not have withdrawals (or additional premium) during the year, the average benefit base rose steadily, registering a 6.7 percent overall increase by EOY (Figure 3-9). The reason for such increases can be attributed to automatic roll-up of benefit bases in the case of non-withdrawals. The average contract value declined 3.7 percent during 2015 for contracts without withdrawals.

Figure 3-9: GMIB Average Contract Value, Average Benefit Base for Contracts Without Withdrawals



Among contracts that incurred withdrawals in 2015, the average benefit base remained level from BOY to EOY while the average contract value decreased 11 percent.

In-the-Moneyness

We can assess the extent to which a contract with a GMIB is in-the-money by comparing the GMIB benefit base with the contract value at a particular point in time. This measure has the advantage of being straightforward and may correspond with how some contract owners perceive the in-the-moneyness of their benefits. However, the BB/CV ratio is not a precise measurement because the true value of the GMIB benefit lies in its ability to generate a specific lifetime income stream, which cannot be determined from the benefit base alone. Moreover, the value of the income stream that can be generated from the GMIB cannot be directly compared with the contract value; it must instead be compared with the income that can be generated from the contract value. If the income guaranteed under the terms of the

GMIB exceeds the income that can be derived from the contract value, then the benefit is in-the-money from the perspective of the contract owner.

While this in-the-money metric is less straightforward to determine than the simple BB/CV ratio, it could conceivably be part of the decision-making process when owners and their financial advisors assess whether or not to utilize the GMIB. If so, then annuitization activity may be better calibrated to this metric than the simpler ratio, particularly among owners with larger contract sizes who are more likely to receive assistance from financial professionals.

To calculate the in-the-moneyness of contracts with GMIBs, we used the following procedure, first for all in-force contracts, and then for the subset of contracts that reached their benefit maturities in 2015 or earlier:

1. For each contract in force at EOY 2015, we determined the hypothetical payout under the terms of the GMIB using actuarial present value (APV) factors reported by companies for each of the GMIB riders they sold. These APV factors included: a) the mortality table; b) mortality improvement scale; c) age setback, if any; and d) interest rate. For each of the GMIB riders we examined two payout options: life only, and life with 10-year period certain. We multiplied these APV factors by the EOY benefit base. To facilitate this analysis, we assumed that all contracts had the option of exercising the GMIB benefit as of EOY 2015.
2. We determined the hypothetical single premium immediate annuity (SPIA) income that could be generated using the contract value (ignoring any surrender charges or other fees). For each in-force contract, we applied the contract value to average SPIA quotes available from 16 insurers — representing 78 percent of 2015 fixed immediate annuity industry sales — in December 2015, using data from CANNEX to determine the corresponding payout income. As with the GMIBs, we calculated life only, and life with 10-year period certain payouts.
3. We divided the hypothetical GMIB payout by the hypothetical SPIA payout for each contract. Ratios greater than 1.0 indicate the contract was (hypothetically) in-the-money at EOY 2015. Higher ratios indicate greater in-the-moneyness, and lower ratios indicate lower in-the-moneyness. If the ratio was under 1.0, it was set to 1.0 on the grounds that an owner

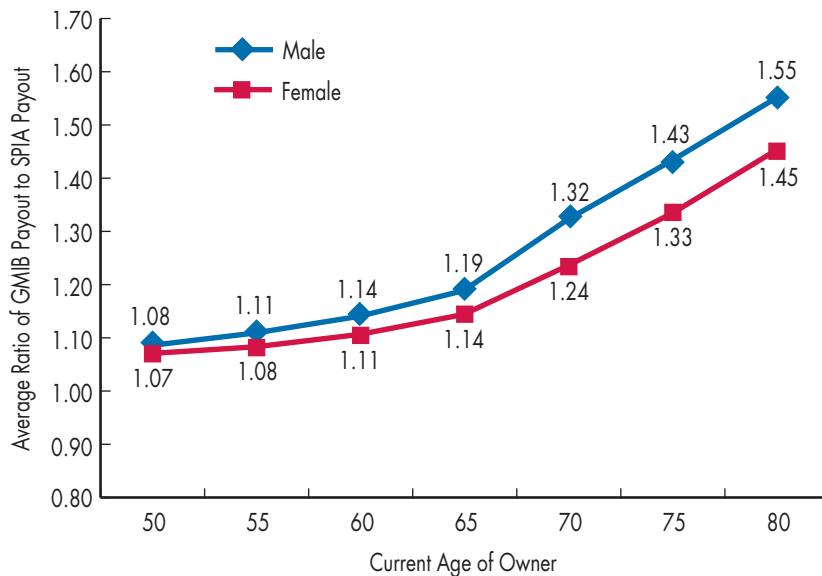
There are multiple ways to measure in-the-moneyness. One method is to compare the benefit base to the contract value. This method can be found in the “Withdrawal Activity for GMIB Contracts In-the-Money or Not-in-the-Money” section of this chapter. Another method is to compare the value of the income stream that can be generated from the GMIB to the income that can be generated from the contract value. This method is used in this section of the report.

would always select the higher of the GMIB or SPIA payout. Ratios were also capped at a maximum of 15.0. For each company represented in the analysis, we then averaged these ratios for each age (50 to 80) and gender.

On average, the GMIB life-only payout is about **22 percent higher** than the corresponding SPIA payout.

Figure 3-10 illustrates the average GMIB-to-SPIA payout ratios for life-only payouts for male and female owners, for all benefit maturity years. Among the the 44 percent of contracts that have GMIB payouts exceeding SPIA payouts, contracts that are well in the money pull up average ratios so that they exceed 1.0 across the entire age range for both genders. On average, for ages 50 through 80, the GMIB payout is about 22 percent higher than the corresponding SPIA payout. This result reflects the fact that at EOY 2015, most GMIB contracts had benefit bases that were higher than contract values — enough to offset any reductions in payouts based on the GMIB calculation (e.g., age setbacks).

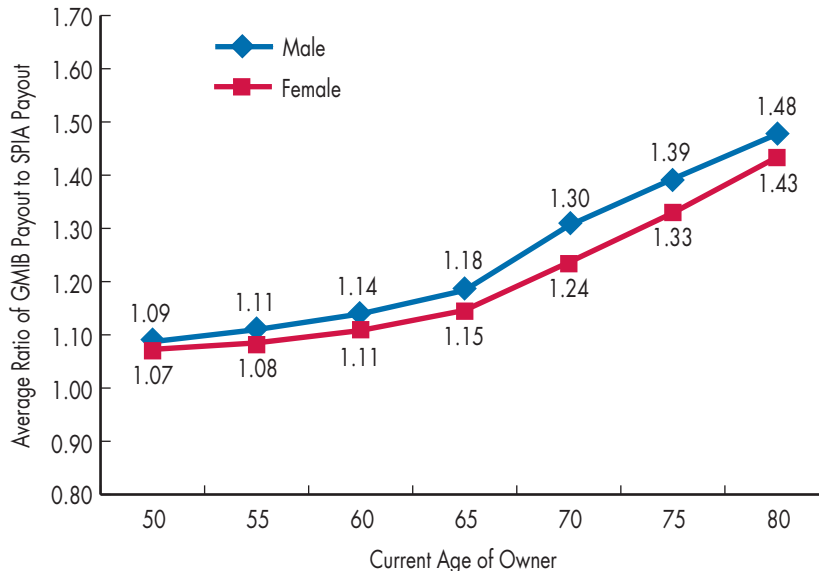
Figure 3-10: Ratio of GMIB Payout to SPIA Payout, for Life-Only Payouts by All Benefit Maturity Years



Note: Based on 233,206 contracts in force at the end of 2015.

The ratios are higher for men than for women, and increase with age, largely because the GMIB payouts become more generous relative to SPIA payouts, per dollar applied, at older ages. The pattern is not appreciably different for life with 10-year period-certain payouts (Figure 3-11). One possible reason why GMIB payouts become more generous relative to SPIA payouts at older ages has to do with the effect of shorter durations at older ages and the current shape of the yield curve (i.e., low, short-term rates) on current SPIA rates. In addition, insurers may need to absorb the upfront expense loads (unique to SPIA rates in comparison) over a shorter time frame at older ages.

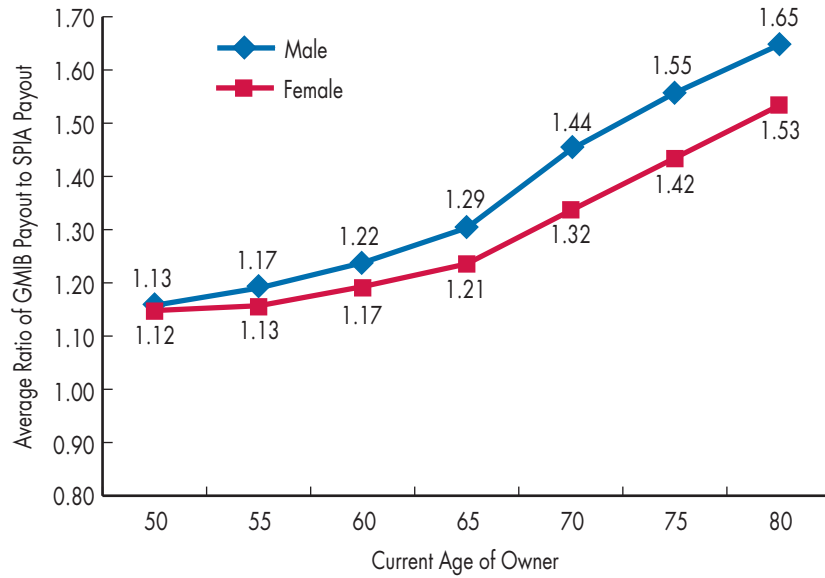
Figure 3-11: Ratio of GMIB Payout to SPIA Payout, for Life With 10-Year Period-Certain Payouts by all Benefit Maturity Years



Note: Based on 233,206 contracts in force at the end of 2015.

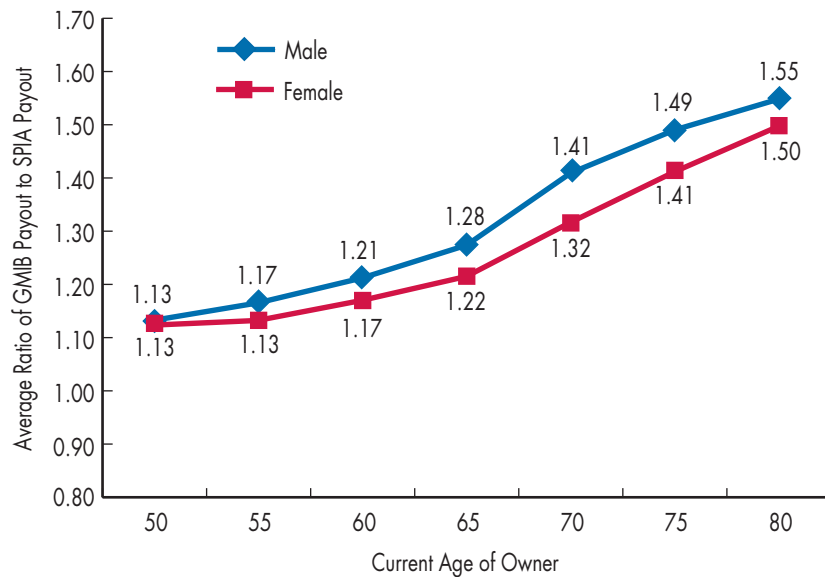
The previous analyses assumed that all contracts had the option of exercising the GMIB benefit as of EOY 2015. In fact, only 33 percent of these contracts had reached the end of the waiting period by 2015 and therefore most did not have the ability to activate the GMIB. Among the group of contracts that did have GMIB maturities in 2015 or earlier, a similar pattern exists: Average ratios of GMIB payouts to SPIA payouts increase with age (Figures 3-12 and 3-13). However, one notable difference is that the overall ratios are higher. On average, the GMIB payout is about 33 percent higher than the corresponding SPIA payout. The higher in-the-moneyness results from the higher BB/CV ratios for older business.

Figure 3-12: Ratio of GMIB Payout to SPIA Payout, for Life-Only Payouts by Benefit Maturity Years 2015 or Earlier



Note: Based on 77,165 contracts in force at the end of 2015.

Figure 3-13: Ratio of GMIB Payout to SPIA Payout, for Life With 10-Year Period-Certain Payouts by Benefit Maturity Years 2015 or Earlier



Note: Based on 77,165 contracts in force at the end of 2015.

An alternative method for assessing in-the-moneyness for all contracts in force (not just those that have reached their benefit maturities) is to estimate the future GMIB benefit bases and contract values as of the end of the waiting period, and discount these values back to the end of 2015. While it might be possible to estimate future benefit bases for GMIBs with annual roll-ups at a set percentage, future contract values will represent returns based on market performance and are thus largely unpredictable (especially given asset allocation restrictions and/or use of limited subaccounts like managed volatility funds). Some GMIBs allow step-ups if the contract value exceeds the benefit base — owners may or may not choose to exercise this option, so the benefit base could be greater than what would result from the annual roll-up percentage. Future immediate annuity payouts may be more or less generous than they were at EOY 2015. And this method would also have to assume no surrenders or deaths occur prior to the benefit maturity date, or else incorporate still more assumptions about termination activity. For these reasons we only assessed the GMIB to SPIA ratios as they were at the end of 2015.

GMIB Benefit Calculation Methods

Almost all GMIB contracts issued before 2015 had GMIB benefits that were based on the roll-up or higher of ratchet or roll-up calculation methods (97 percent), which sets benefit bases equal to the higher of the largest prior anniversary or premiums rolled up at a specified growth rate (Figure 3-14).

The most common roll-up percentages in 2015 were from 5 to less than 7 percent. Roll-up rates from 5 to less than 6 percent were offered on 41 percent of all contracts while roll-up rates from 6 to less than 7 percent make up 44 percent of GMIB contracts (Figure 3-15).

Figure 3-14: GMIB Calculation Methods

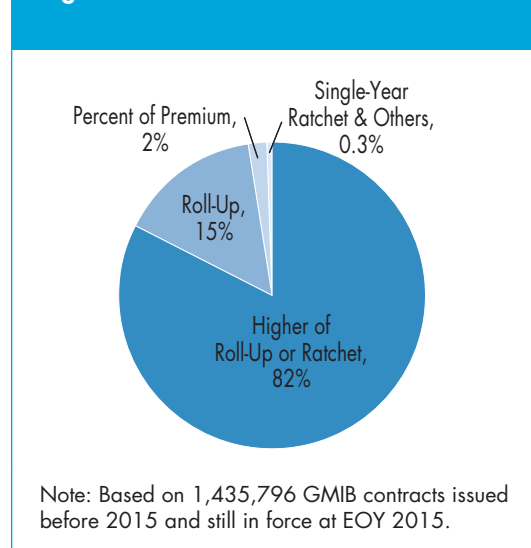
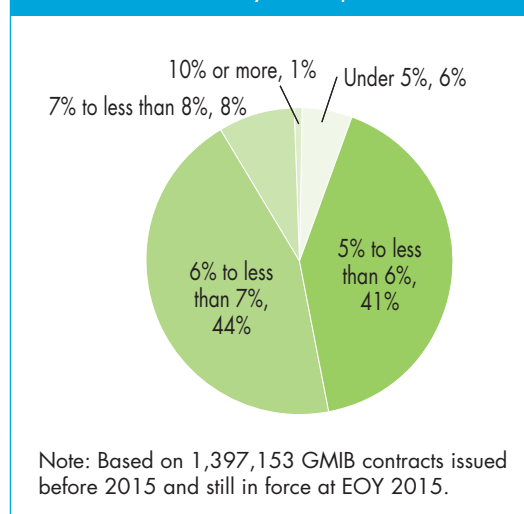


Figure 3-15: GMIB Percentage of Contracts by Roll-Up Rates



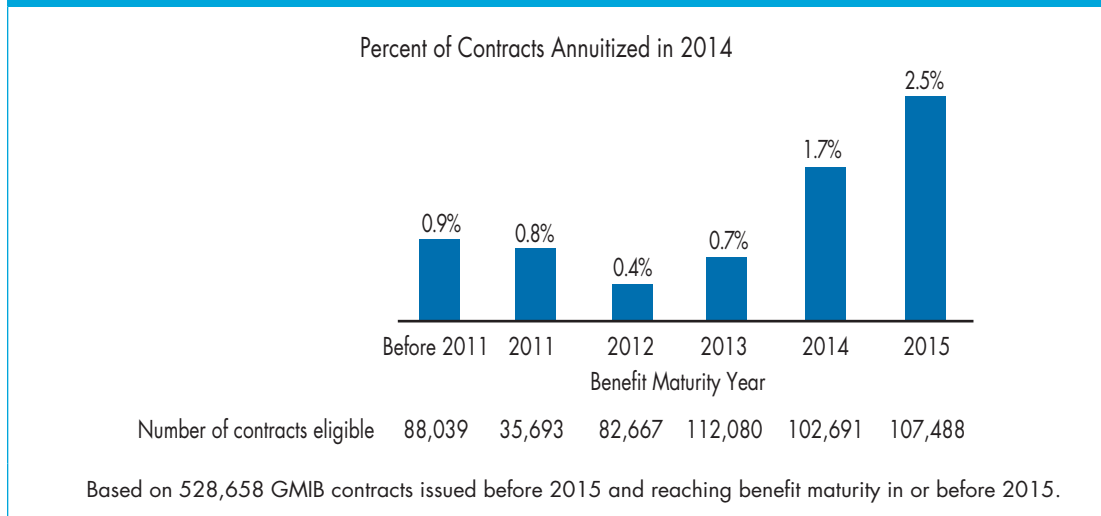
The ability to take withdrawals up to the roll-up rate for a limited period of time is one of the most distinguishing features of GMIBs, attracting investors to stay in the contracts while still providing guaranteed income for life upon annuitization. In GMIB contracts, the combined effect of market gains or losses, roll-up percentages, and withdrawal provisions (e.g., dollar-for-dollar adjustment with benefit bases) influences the difference between the benefit bases and contract values.

One notable difference between GMIBs and GLWBs is their relative measures of the benefit base to contract value ratio. The ratio of benefit base to contract value in GLWBs at EOY 2015 was lower than the ratio in GMIBs for contracts with or without withdrawals. However, one risk for GMIB contracts lies in how many owners annuitize their contracts at the end of the waiting period, and what minimum interest rate and corresponding assumptions will be used to calculate guaranteed income for life.

Annuitization

One integral part of the GMIB value proposition is the ability to receive guaranteed income upon annuitization after the initial accumulation period or waiting period is over. Owners of traditional annuities rarely exercise their right to annuitize, and that behavior also applies to contracts with GMIBs.

About 107,500 GMIB contracts reached benefit maturity in 2015 (Figure 3-16). The annuitization rate for contracts reaching benefit maturity in 2015 was 2.5 percent. These contracts were mainly issued in the early to mid 2000s. The annuitization rate in 2015 for contracts reaching benefit maturity in 2014 was lower, at 1.7 percent. More than 88,000 GMIB contracts annuitized in 2015 that had reached their benefit maturity before 2011, and the annuitization rate for these in-force GMIB contracts was very low. Overall, the annuitization rate for all GMIB contracts issued before 2015 — and annuitized in 2015 — was only 0.6 percent.

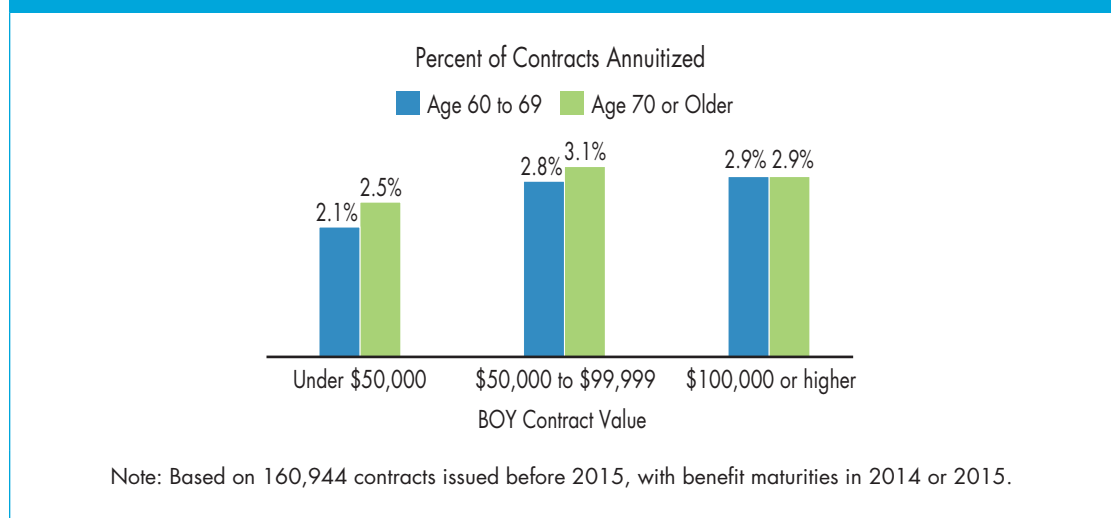
Figure 3-16: GMIB Contracts Annuitized in 2015, by Benefit Maturity

Contracts With Benefit Maturities in 2014 or 2015

Contract owners aged 60 and older are more likely to annuitize than younger owners. Among contracts that reached benefit maturity in 2014 or 2015, 2.8 percent of owners in their 70s or older annuitized in 2015, compared with 2.6 percent for ages 60 to 69 and 0.2 percent for owners under age 60. It is likely that some of this activity is driven by the need for individuals owning IRA VAs to commence required minimum distributions (RMDs) after age 70½. However, among IRA contracts, the slight increase in annuitization activity around age 70 is less pronounced than the increase in withdrawal activity observed at this age. For nonqualified contracts, annuitization rates were 2.7 percent for both owners aged 60 to 69 and owners aged 70 or older.

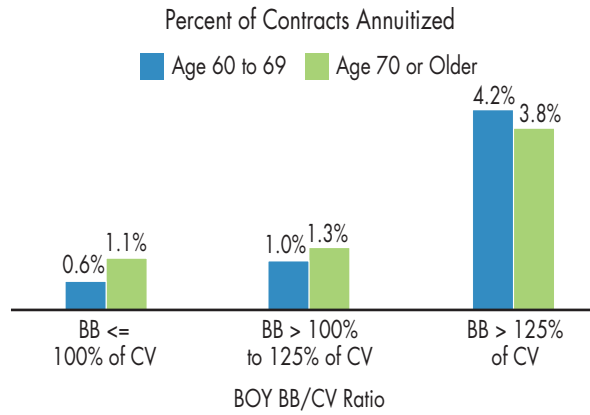
Larger contract sizes are associated with higher annuitization activity among contracts that reached benefit maturity in 2014 or 2015 (Figure 3-17). For owners aged 60 to 69, the percentage of contracts with BOY contract values of \$100,000 or more that annuitized in 2015 was significantly larger than the percentage of contracts with values under \$50,000. A similar yet slightly less pronounced pattern was seen for owners aged 70 or older.

Figure 3-17: GMIB Contracts Annuitized in 2015, by Age and Contract Size



The amount the benefit base exceeded the contract value, as measured by the BB/CV ratio, also appears to be linked to annuitization rates (Figure 3-18). Less than 1 percent of contracts that reached benefit maturity in 2014 or 2015 were annuitized when the benefit base was equal to or less than the contract value. But the annuitization rate jumped to around 4 percent when the benefit base was more than 125 percent of the contract value.

Figure 3-18: GMIB Contracts Annuitized in 2015 With Benefit Maturity Date in 2014 or 2015, by Age and BOY 2015 BB/CV Ratio



Note: Based on 159,443 contracts issued before 2015, with benefit maturities in 2014 or 2015.

Table 3-4 provides a summary of owner and contract characteristics of the GMIB contracts that annuitized in 2015. Understanding which owners are likely to annuitize their contracts will provide annuity manufacturers with information to better anticipate which owners will take advantage of their GMIB riders.

Table 3-4: GMIB Owner of Annuitized Contract Characteristics Issued 2015 or Earlier*

	GMIB Contracts In Force
Age of owner	
Under 50	0.9%
50 to 54	0.3%
55 to 59	2.5%
60 to 64	12.5%
65 to 69	23.5%
70 to 74	22.8%
75 to 79	15.8%
80 or older	21.7%

Table 3-4: GMIB Owner of Annuitized Contract Characteristics Issued 2015 or Earlier*
(continued)

	GMIB Contracts In Force
Average age	71 years old
Gender	
Male	53%
Female	47%
Market type	
IRA	56%
Nonqualified	44%
Distribution Channel	
Career agent	16%
Independent agent/independent B-D	51%
Full-service National B-D	24%
Bank	9%
Cost Structure	
A-share	0.6%
B-share	73.7%
C-share	1.7%
L-share	19.7%
Contract value, BOY 2015 as percent of contracts	
Under \$25,000	13.7%
\$25,000 to \$49,999	16.3%
\$50,000 to \$99,999	26.3%
\$100,000 to \$249,999	31.8%
\$250,000 to \$499,999	8.3%
\$500,000 of higher	3.6%
Contract value, BOY 2015 as percent of contract value	
Under \$25,000	1.6%
\$25,000 to \$49,999	4.2%
\$50,000 to \$99,999	21.3%
\$100,000 to \$249,999	34.0%
\$250,000 to \$499,999	20.7%
\$500,000 of higher	18.2%
Average contract value, BOY 2015	\$133,483
Median contract value, BOY 2015	\$86,587
Note: Based on contracts that annuitized in 2015.	
*Based on metrics that are calculated for each individual company and then the mean of these metrics was reported. This was necessary in order to preserve confidentiality and avoid revealing company-specific information, as this data was heavily weighted for one company or a very limited number of participating companies.	

Withdrawal Activity

Withdrawals

GMIB contracts have no guaranteed withdrawal benefit during the accumulation years, and the true guaranteed income benefit or benefit utilization starts after annuitization. However, many popular GMIB contracts allow dollar-for-dollar annual withdrawals, typically equal to or less than the roll-up percentages applied in the contract to reset the benefit base upward on every anniversary. Thus, a GMIB owner can withdraw up to a certain percentage annually without reducing the starting benefit base. This is an attractive and flexible option for many investors. The attraction lies in the ability to take withdrawals at a prescribed rate, without disturbing the benefit base, irrespective of market gains or losses. So, if partial withdrawals occur, we assume that owners have utilized the withdrawal provisions in their contracts.

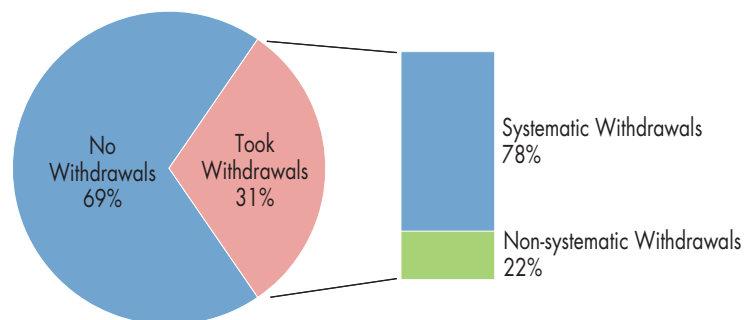
Because the present study is based on a single calendar year, withdrawal activity over time usually could not be tracked. Although we asked companies for the cumulative total withdrawals prior to 2015, not all companies could provide this information. In addition, not all companies could distinguish systematic withdrawals — which are more likely to be associated with utilization of withdrawal benefit contracts — from non-systematic or occasional withdrawals.

Overall Withdrawals From Contracts Issued Before 2015

Thirty-one percent of GMIB contracts issued before 2015 and still in force at EOY 2015 had at least some withdrawal activity during 2015 (Figure 3-19). This is relatively close to the 27 percent of GLWB owners who took withdrawals in 2015. Seventy-eight percent of these GMIB contract owners utilized systematic withdrawals.

31% of GMIB contract owners took withdrawals during 2015; **78%** were systematic withdrawals.

Figure 3-19: GMIB Percentage of Contracts With Withdrawals



Note: Based on 1,435,908 GMIB contracts issued before 2015 and still in force at EOY 2015.

Based on the 444,389 contracts issued before 2015 with withdrawals in 2015:

- The average withdrawal amount was \$11,432. The withdrawal rate was 7.7 percent based on the average BOY contract value of \$148,504.
- The median withdrawal amount was \$6,352. The withdrawal rate was 6.6 percent based on the median BOY contract value of \$95,773.
- Total 2015 withdrawals were \$5.1 billion; 2.8 percent of BOY in-force assets.

Withdrawal Activity by Benefit Reduction Methods

\$6,352 was the median withdrawal amount in 2015.

In general, GMIB riders allow owners to take withdrawals based on either a dollar-for-dollar or a pro-rata reduction from the benefit base. Dollar-for-dollar reductions allow the owner to withdraw up to the roll-up amount in the benefit base so that the base benefit remains unchanged. This method of benefit base calculation and withdrawal provision provides protection during a declining market. Eighty-six percent of contracts allow this benefit reduction method for withdrawals. Approximately 1 in 3 dollar-for-dollar contracts had withdrawals in 2015.

On the other hand, pro-rata withdrawals reduce the benefit base by the same percentage as the withdrawal. This withdrawal provision benefits contract owners when there are market gains in the contract value. Fourteen percent of GMIB contracts offer this method. Just under 1 in 5 pro-rata contract owners took withdrawals in 2015.

Withdrawal Activity by Source of Funds

Over **80%** of GMIB owners in their mid-70s and older took qualified withdrawals.

The source of funds (i.e., whether the annuity was funded with qualified or nonqualified money) is one of the key drivers in understanding customer withdrawal behavior. The overall incidence of withdrawals in GMIB contracts over the past few years has stayed around 20 to 30 percent. However, analyzing withdrawal activity by source of funds and age reveals that the utilization rate of withdrawal provisions in GMIB contracts is in fact, quite high for certain customer segments.

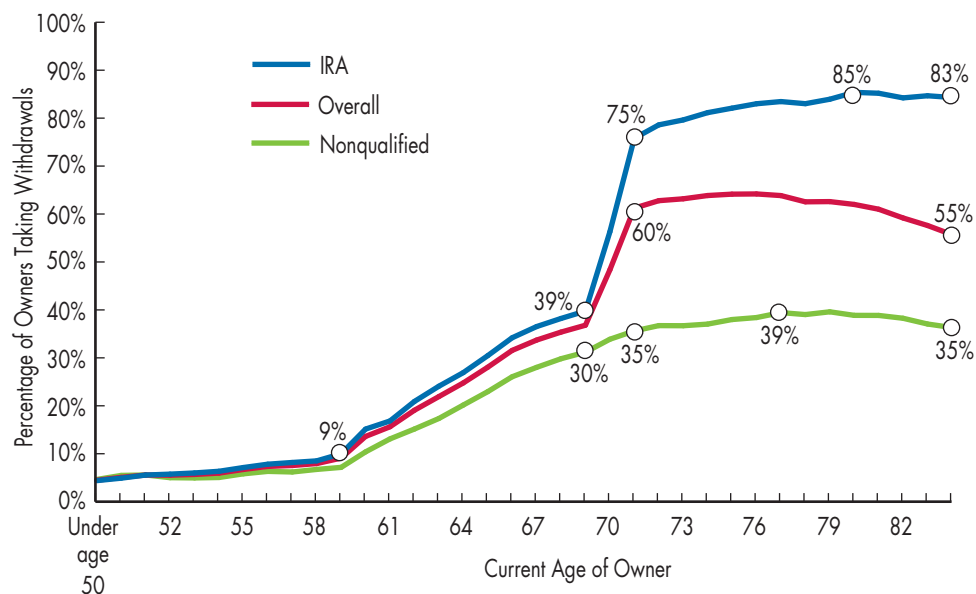
As with GLWBs, GMIB owner withdrawal behavior has three different phases (Figure 3-20):

- Under age 60, when most of the owners are not retired, withdrawal rates for customers who use either qualified or nonqualified money to buy their contracts remain low, typically less than 10 percent. Withdrawals for both types of owners do not start to rise until they reach age 60 or later, when some of the owners enter the retirement phase. Early in this phase,

the percent of owners taking withdrawals rises slowly in parallel for both qualified and nonqualified owners.

- Between ages 60 and 69 — sometimes termed as the transition ages in retirement — less than 40 percent are utilizing the withdrawal provisions in their GMIB contracts.
- After age 70, the need for RMDs from qualified annuities forces many GMIB owners to take withdrawals, and the percent of IRA customers taking withdrawals quickly jumps to 75 percent by age 71. After this age, the percent of qualified owners withdrawing slowly rises to 85 percent by age 80.

Figure 3-20: GMIB Percentage of Contracts With Withdrawals, by Source of Funds and Age of Owners



Note: Based on 1,403,562 GMIB contracts issued before 2015 and still in force at EOY 2015.

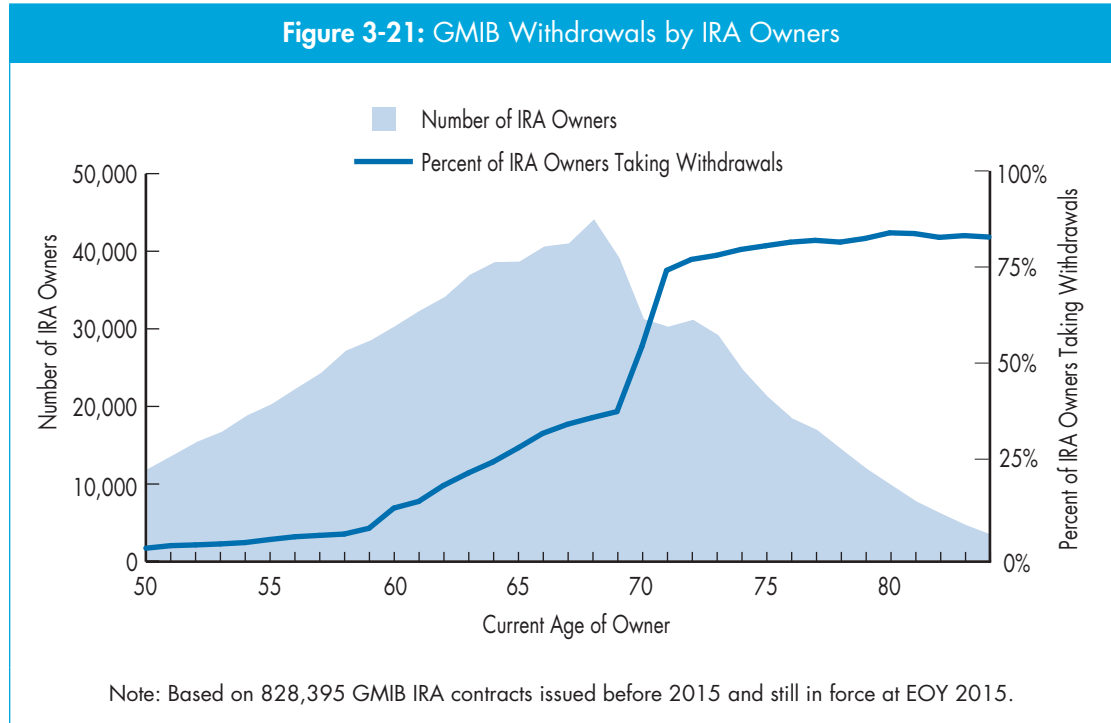
GMIB owners are less likely to use withdrawal provisions if they bought the annuity with nonqualified money. Nonetheless, there is a steady increase in the proportion of owners who take withdrawals from age 60 to age 65 (12 percentage points), and from age 65 to age 75 (11 percentage points). Then the percentage of owners taking withdrawals levels off at around 38 percent before declining for owners aged 82 and older.

The overall percent of owners taking withdrawals increasingly resembles the nonqualified line after age 75, because more and more contracts are nonqualified as owner age increases. Among GMIB owners aged 70 and over, 42 percent own nonqualified annuities and only 36 percent

are taking withdrawals. On the other hand, 75 percent of owners aged 70 and over who own qualified annuities are taking withdrawals. Overall, 58 percent of owners aged 70 and over are taking withdrawals from their GMIB contracts.

Insurance companies managing GMIB rider risk can consider distinguishing and evaluating that risk based on the sources of funding. The distinction between qualified and nonqualified sources of funds is important. The composite withdrawal activity by age cohort is not as reliable a measure of actual risk. With 70 percent of qualified GMIB owners under age 70 — and only 1 in 5 taking withdrawals — the measure is skewed downward. This is particularly important as younger customers invest in annuities with qualified savings (Figure 3-21).

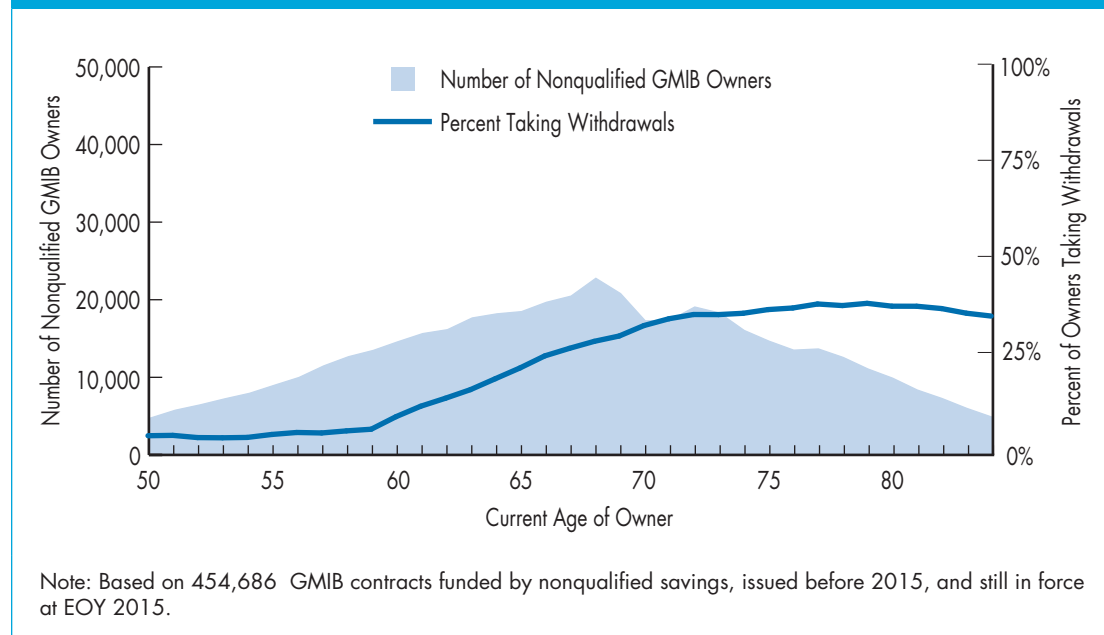
Figure 3-21: GMIB Withdrawals by IRA Owners



In the next five years, another 21 percent of owners (around 200,000) currently between ages 65 and 69 will reach age 70 or older, and a majority of them will start to take withdrawals to meet RMDs. In 2015, only 35 percent of owners aged 65 to 69 took withdrawals. The need to take RMDs will essentially drive withdrawal behavior, so companies with a customer mix heavily weighted toward qualified contracts must manage their business accordingly.

In comparison with IRA annuities, 36 percent of GMIB owners aged 70 or over who funded their annuities with nonqualified money took withdrawals in 2015 (Figure 3-22). Twenty-seven percent of GMIB nonqualified owners aged 65 to 69 took withdrawals in 2015.

Figure 3-22: GMIB Withdrawals by Nonqualified Owners



First Withdrawals

One of the value propositions for GMIB annuities is the ability to take withdrawals. To better understand owners' inclinations to take withdrawals, we have analyzed owner withdrawal behavior by considering at what age or in what year of annuity ownership the owner is likely to initiate their first withdrawal. We also look at how many continue taking withdrawals once they start doing so. Extending that logic, 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 differs from contracts that have not had withdrawals or excess withdrawals.

Analysis of when owners are likely to take first withdrawals provides important information on the withdrawal risks of these contracts. These findings can help insurance companies to assess risk more precisely by identifying clusters of owners who are likely to start withdrawals in their first year, second year, etc., after purchase. The first withdrawal activity analysis can be done in two ways: First, we can determine the percentage of owners who initiated their first withdrawals in 2015 by age, source of money, and issue year, 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 sources of money influence their first withdrawals.

First Withdrawals From IRA Annuity in 2015

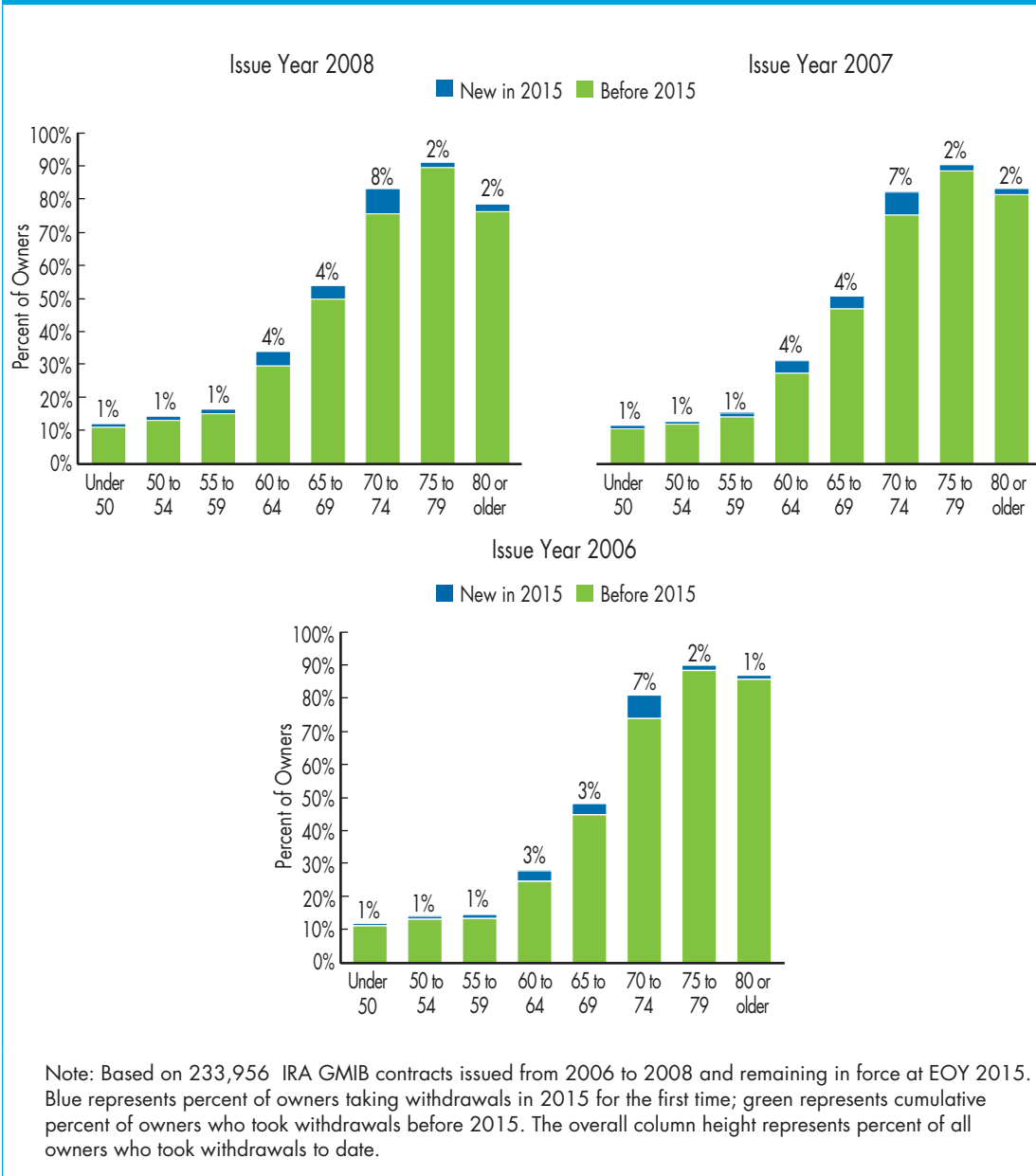
There is a distinct pattern of withdrawal behavior from IRA-funded GMIB annuities, principally driven by age and the need to take RMDs. Figure 3-23 shows the percent of owners taking their first withdrawals in 2015 by individual issue years from 2006 to 2008. We have kept the analysis limited to issue years 2006 to 2008 due to lack of representative company samples from all participating companies.

8% of 2008 qualified owners aged 70 to 74 took first withdrawals in 2015.

Owners who bought their annuities in 2008 had at least seven years to take withdrawals. Of these owners, only a small percent under age 70 initiated their first withdrawals in 2015. The marginal increases in the percentage of owners from each age group who took first withdrawals remains relatively small — within a range of 1 to 4 percent for each age group under age 70. However, 8 percent of owners aged 70 to 74 took their first withdrawals in 2015. Over three-quarters of owners aged 70 to 74 had taken withdrawals before 2015. Previous LIMRA Secure Retirement Institute studies show that owners who turn age 71 have the highest percentage of first withdrawals due to RMDs.

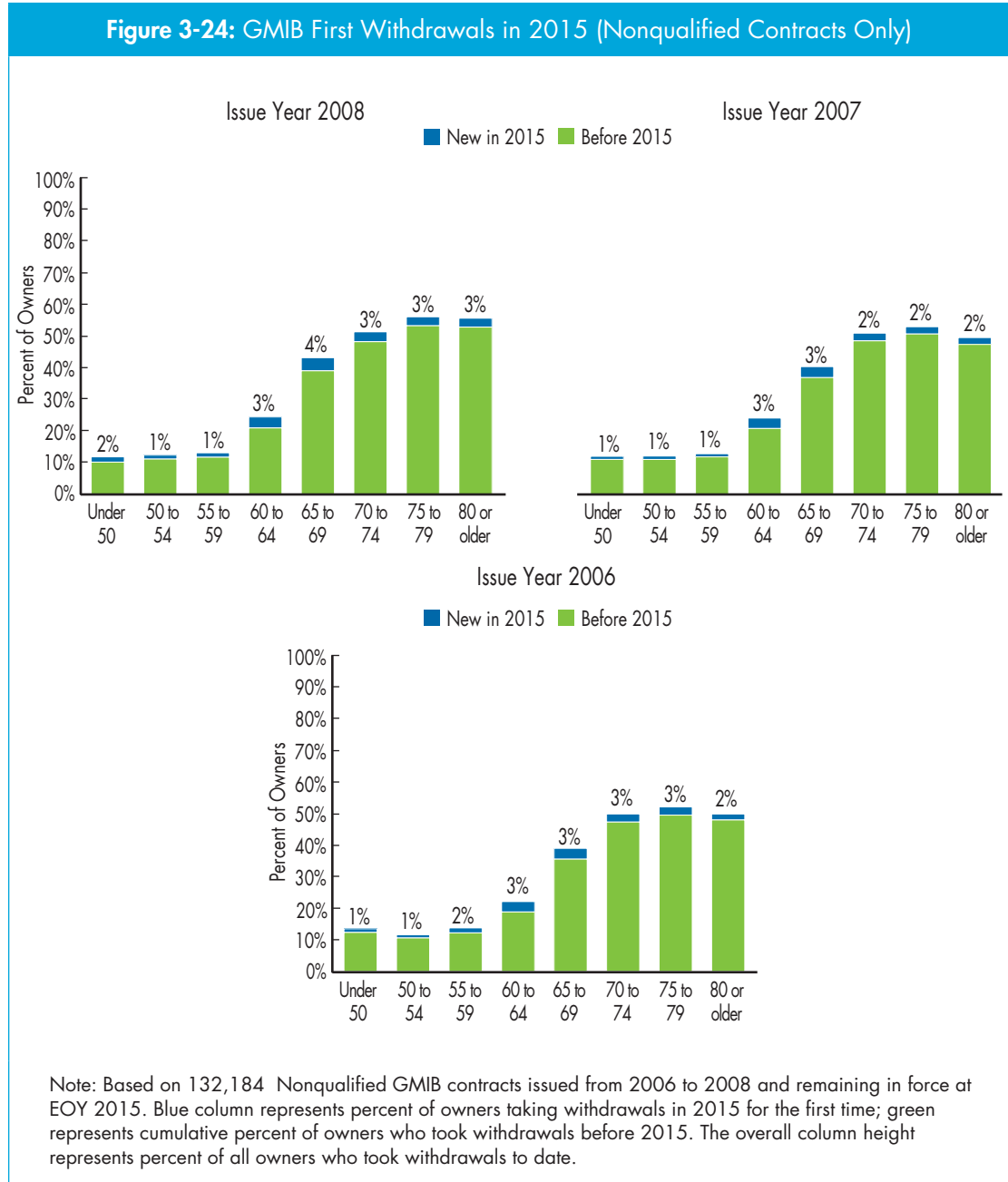
We witness an almost identical trend in owner withdrawal behavior for IRA annuity contracts issued in 2007 and 2006. For IRA contracts, age and the need to take RMDs are the principal drivers for withdrawals from GMIBs. The pattern of first withdrawals in 2015 from GMIB contracts is remarkably similar to the pattern of first withdrawals in 2015 for GLWB owners.

Figure 3-23: GMIB First Withdrawals in 2015 (IRA Contracts Only)



First Withdrawal From Nonqualified Annuity in 2015

The percent of nonqualified GMIB annuity owners who took their first withdrawals in 2015 reflects more streamlined withdrawal behavior. Figure 3-24 shows the percent of nonqualified owners who took their first withdrawals in 2015 by individual issue years from 2006 to 2008.



Without the need to take RMDs, the percent of nonqualified owners who bought their annuities in 2008 and took their first withdrawals in 2015 increased slightly from age 55 through age 69. Only a small percent of owners under 70 took their first withdrawals in 2015 within a range of 1 to 4 percent, which is similar to the behavior of IRA owners. For ages 70 and up, the percent of customers taking their first withdrawals remained around 3 percent for each age group. Just under 40 percent of owners aged 65 to 69 had already taken withdrawals before 2015; this percentage increases to just under half for ages 70 to 74.

We witnessed an almost identical pattern in owner withdrawal behavior for nonqualified annuity contracts issued in 2007 and 2006. For nonqualified contracts, age and contract duration are the principal drivers for withdrawals. Four percent or fewer of the nonqualified owners took their first withdrawals each year; and the cumulative percent of these owners who took withdrawals from their GMIB contracts was around 50 percent or less.

First Withdrawal Activity for IRA Contracts Issued in 2008

In order to gain a clear and consistent picture of when owners first start to take withdrawals and how many start to take their first withdrawals in the following years, we tracked GMIB contracts bought in 2008 and measured owner withdrawal behaviors. Table 3-5 shows the withdrawal behavior of 2008 IRA buyers aged 57 to 75 during 2008 to 2015 (eight years of withdrawal history) and assesses what percent of those buyers began taking their first withdrawals from 2008 to 2015.

Analysis of the eight years of first withdrawal history of 2008 owners shows some important insights:

- Overall, 1 in 10 owners of 2008 initiated their withdrawals in the same year they purchased their annuity. In the first year, the percent of owners taking withdrawals rises from ages 60 to 65, then levels off until age 70.
- The percentages of owners aged 60 and older who took their first withdrawals in subsequent years are typically lower than in the first year, as the number of owners who have not taken withdrawals diminishes.
- Once owners initiate withdrawals, just under three quarters continue to take withdrawals in all subsequent years.
- More than 90 percent of owners aged 70 or above from 2008 took withdrawals from their annuities in the last eight years. Across all ages, half of 2008 owners took withdrawals. This is particularly noteworthy because a third of the 2008 owners were aged 60 or under in 2015, and a majority of them are not yet in or near retirement.
- Contract benefits being greater than the benefit bases appears to have very little impact on first withdrawal behavior (addressed later in this chapter). From 2009 to the beginning of 2012, most of the GMIB contracts had benefit bases that exceeded the contract values. However, the percentage of owners taking withdrawals from their contracts does not show any deviation from the general trend by any particular age or age groups.

First Withdrawal Activity for Nonqualified Contracts Issued in 2008

For nonqualified annuity owners aged 57 to 69, we see a similar first-year withdrawal pattern to the 2008 IRA owners (Table 3-6). In the second year, 7 to 15 percent of owners aged 60 and older took their first withdrawals. After the second year, the range is much tighter — 2 to 8 percent of owners

Withdrawals started at		Age at Purchase																	All Ages*	
		Age 57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73		74
Age 57	2%																			
Age 58	3%	3%																		
Age 59	5%	4%	5%																	
Age 60	5%	7%	9%	8%																
Age 61	5%	4%	5%	7%	11%															
Age 62	4%	5%	5%	5%	9%	11%														
Age 63	4%	5%	4%	5%	6%	9%	13%													
Age 64	3%	4%	4%	5%	5%	5%	9%	13%												
Age 65		4%	5%	5%	5%	7%	10%	14%												
Age 66			4%	5%	4%	5%	6%	6%	12%	15%										
Age 67				4%	4%	6%	4%	6%	6%	10%	15%									
Age 68					4%	4%	4%	5%	5%	5%	10%	17%								
Age 69						4%	4%	4%	4%	5%	7%	11%	19%							
Age 70							3%	4%	5%	6%	8%	11%	18%							
Age 71								4%	4%	4%	5%	4%	6%	11%	19%					
Age 72									3%	4%	4%	5%	5%	7%	13%	21%				
Age 73										3%	3%	4%	5%	4%	5%	12%	21%			
Age 74											3%	3%	5%	4%	4%	6%	15%	21%		
Age 75												3%	5%	4%	5%	4%	6%	13%	23%	
Age 76													3%	4%	3%	5%	4%	7%	14%	
Age 77														3%	3%	4%	5%	5%	6%	
Age 78															3%	3%	3%	3%	4%	
Age 79																2%	3%	4%	3%	
Age 80																	4%	3%	4%	
Age 81																		3%	4%	
Age 82																			2%	
Cumulative	31%	35%	40%	44%	48%	49%	50%	51%	53%	52%	53%	55%	58%	55%	56%	57%	60%	58%	60%	38%
Percent of owners taking withdrawals in all subsequent years	63%	62%	68%	70%	73%	75%	75%	77%	74%	76%	75%	75%	76%	76%	73%	78%	76%	73%	72%	69%

Note: Based on a constant group of 24,455 contracts issued in 2008 and still in force at EOY 2015. The percent of owners taking withdrawals in all subsequent years is based on contracts where the first withdrawal occurred from 2008 to 2014, with withdrawals continuing every year through 2015.
 *All ages analysis includes all ages reported, including ages not shown in the chart.

aged 60 and older took their first withdrawals in each year. This is expected as the pool of owners who have not taken withdrawals up to that point shrinks. We expect the percentage of owners taking their first withdrawals in the following years to be lower, as more and more owners start taking lifetime withdrawals. However, for ages 70 or 71 we do not see a spike in withdrawals. Note that most of these owners used systematic withdrawal plans (SWPs) to receive their regular withdrawals.

Overall, similar to IRA annuities, nearly 10 percent of owners initiated withdrawals from their nonqualified annuities in their first year of ownership.

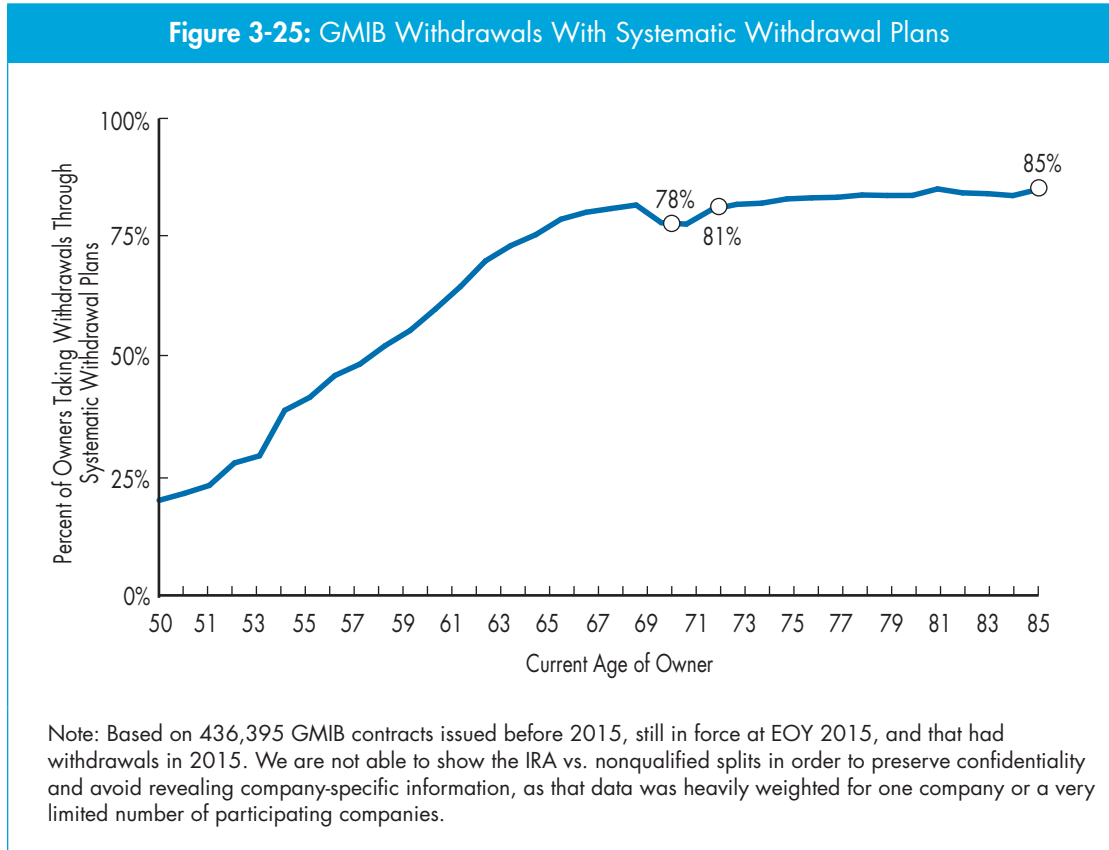
- Also like IRA annuities, once nonqualified owners start taking withdrawals 7 in 10 continue withdrawals in all subsequent years.
- We also see little or no impact on withdrawal behavior from contracts where the benefit base exceeded the contract value during the last four years after the market crisis, when the majority of contracts had benefit base amounts that exceeded the contract values (discussed later in this chapter).

Systematic Withdrawal Activity

One predictor that can help determine if GMIB owners will continue to take advantage of withdrawal provisions is what method they use — SWPs or occasional withdrawals. Withdrawals through SWPs indicate customers' intentions to take withdrawals on a continuous basis, and strongly suggest that they are utilizing the withdrawal provisions in their GMIB contracts.

The median withdrawal amount was **\$6,000** (systematic) and **\$8,000** (occasional).

Overall, 3 out of 4 owners who take GMIB withdrawals use SWPs. Older owners are more likely to take withdrawals through SWPs, and younger owners — particularly those under age 60 — are more likely to take occasional withdrawals (Figure 3-25). After age 70, owners who take withdrawals from their GMIB annuities are more likely to use SWPs — the percentage of owners using SWPs reaches around 85 percent for owners in their 80s. There is a decline around ages 70 to 71 as some GMIB IRA owners made adjustments due to RMDs.



The median annual withdrawal amount for those taking just a SWP in 2015 was \$6,000 and the average was \$9,100. Table 3-7 shows the median withdrawal amount for owners who took only SWP withdrawals in 2015. The median withdrawal amounts for owners aged 60 and older were within expectations, while those under age 60 were influenced by owners who were likely taking partial surrenders. This is a relatively small percentage of contracts that had withdrawals. The average systematic withdrawal amount was \$8,800 for IRAs and \$9,700 for nonqualified contracts.

Table 3-7: GMI Systematic Withdrawal Amounts by Age and Source of Funds

Age	Systematic Withdrawal Median Withdrawal Amount	
	IRA	Nonqualified
Under 60	\$9,240	\$8,280
Age 60–69	\$8,000	\$6,509
Age 70 or older	\$4,873	\$5,880
Total	\$5,846	\$6,000

Note: Based on 325,466 GMI contracts issued before 2015 and still in force at EOY 2015, taking only systematic withdrawals in 2015.

For those contracts with only occasional (i.e., non-systematic) withdrawals, the median amount was \$8,000 and the average was \$16,800. For owners under age 60 taking occasional withdrawals, the median withdrawal amount was relatively high, and they are more likely to partially surrender the contracts (Table 3-8). The average occasional withdrawal amount was \$15,300 for IRAs and \$21,600 for nonqualified contracts.

Table 3-8: GMI Occasional Withdrawal Amounts by Age and Source of Funds

Age	Occasional Withdrawals Median Withdrawal Amount	
	IRA	Nonqualified
Under 60	\$11,500	\$12,000
Age 60–69	\$10,000	\$9,680
Age 70 or older	\$6,000	\$8,416
Total	\$7,739	\$9,500

Note: Based on 98,688 GMI contracts issued before 2015 and still in force at EOY 2015, taking only occasional or non-systematic withdrawals in 2015.

A small percentage of owners took both SWP and occasional withdrawals. Table 3-9 provides the distribution of withdrawals for those owners taking only occasional withdrawals, only systematic withdrawals, and those who took both occasional and systematic, based on the dollar amount of their withdrawals.

Table 3-9: GMIB Withdrawal Amounts as Percentage of Total Withdrawal Amount

Age	Only Occasional Withdrawals		Only Systematic Withdrawals		Both Occasional and Systematic Withdrawals		Total
	IRA	Nonqualified	IRA	Nonqualified	IRA	Nonqualified	
Under age 60	5%	2%	1%	1%	0%	0%	9%
Age 60–69	10%	4%	17%	6%	3%	1%	40%
Age 70 or older	8%	4%	23%	10%	3%	1%	50%
Total	23%	10%	41%	17%	7%	2%	100%

Note: Based on 444,083 GMIB contracts issued before 2015 and still in force at EOY 2015 with withdrawals in 2015.

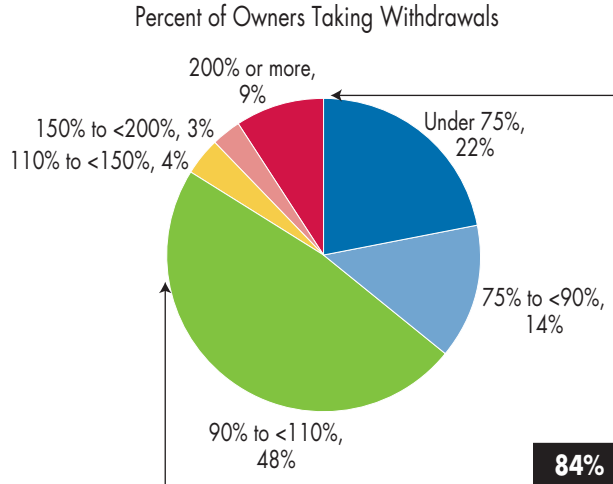
Percentage of Maximum Annual Benefit Withdrawn

Like GLWBs, many GMIBs provide a specified maximum withdrawal amount, typically a dollar-for-dollar amount equal to roll-up rates, annually, for a certain period until the income phase begins, without disturbing the benefit base. However, if the owner withdraws more than the maximum allowed amount in a contract year, this triggers an adjustment of the benefit base.

In this section, we look at the relationship of GMIB customers' actual withdrawal amounts in calendar-year 2015 to the maximum annual withdrawal amounts allowed in the contracts, which for our analysis is equal to the average benefit base multiplied by the BOY 2015 roll-up rate. There is some imprecision in measuring the maximum annual withdrawal amounts that are calculated based on the roll-up rate, because benefit bases can vary under certain circumstances during the year (e.g., if additional premium is received). Accordingly, we used a conservative measure of excess withdrawals — if partial withdrawals exceeded the maximum annual withdrawal as of BOY 2015 by 10 percent or more, then we considered them to have exceeded the withdrawal maximum.

Figure 3-26 shows the degree to which withdrawals are higher or lower than the maximum withdrawal amounts allowed.

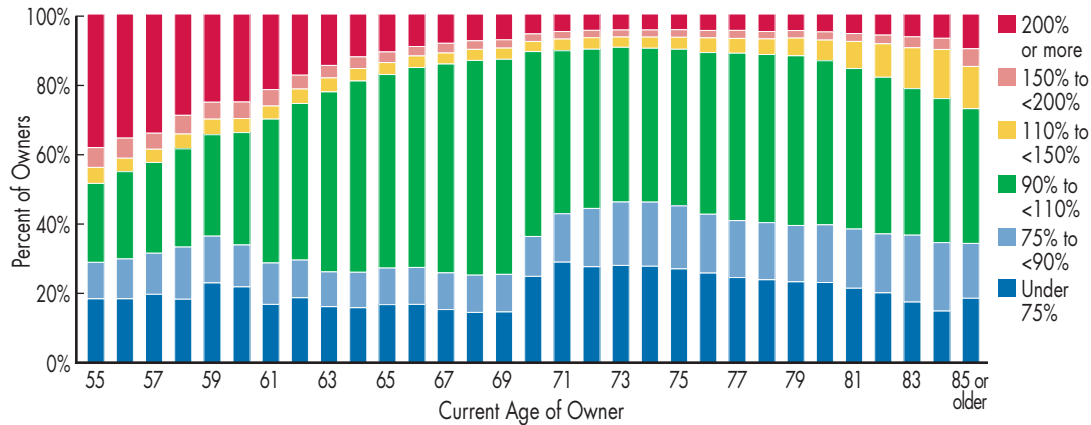
Figure 3-26: GMIB Actual Withdrawals as a Percentage of Annual Benefit Maximum



Note: Based on 401,796 GMIB contracts issued before 2015 and remaining in force at EOY 2015. The maximum annual withdrawal amount is equal to the average benefit base multiplied by the BOY roll-up rate.

Around 8 in 10 owners who took withdrawals took less than 110 percent of the maximum allowed. If we look at owner age, and withdrawal amounts in relation to maximum annual amounts allowed, we see that younger owners are more likely to take 110 percent or more of the maximum amount allowed (Figure 3-27).

Figure 3-27: GMIB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age



Note: Based on 393,820 GMIB contracts issued before 2015, still in force at EOY 2015, with withdrawals in 2015.

Salient insights from Figure 3-27:

- The majority of owners taking withdrawals, as we have seen in previous sections, are typically age 65 or older. There are few instances where these older owners break the benefit maximum rule.
- Younger owners, particularly under age 60, are more likely to take 200 percent or more of the benefit maximum allowed in the contract.

Only **14 percent** of owners aged 60 or over took withdrawals of 110 percent or more of the maximum amount allowed.

There is a noticeable increase at ages 70 and 71 in the percentage of owners taking withdrawals of less than 90 percent of the benefit maximum. This can be explained by the need to take minimum withdrawals under RMDs, which are typically at a lower withdrawal rate. See Figures C3-1 and C3-2 in Appendix C for splits of Figure 3-27 by IRA and nonqualified contracts.

Out of the owners age 55-59, 36 percent took withdrawals that exceeded 150 percent or more of the benefit maximum, and most took 200 percent or more (Table 3-10). It is likely that many of these individuals are partially surrendering their contracts. On the other hand, out of the owners aged 60 or older, only 10 percent took withdrawals that exceeded 150 percent or more of the benefit maximum. Many contracts do not penalize IRA annuity owners over age 70½ for taking excess withdrawals if they are doing so to satisfy IRS RMDs.

Table 3-10: Percentage of GMIB Owners Taking Withdrawals as Percentage of Benefit Maximum

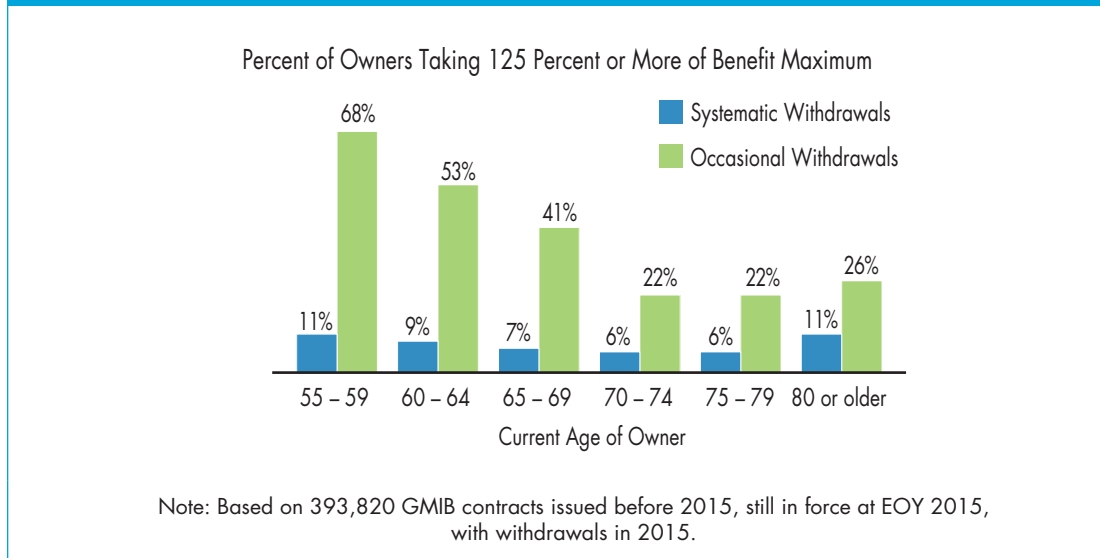
Age	Withdrawal Amount as Percent of Annual Benefit Maximum Allowed in the Contract					
	Less than 75%	75% to <90%	90% to <110%	110% to <150%	150% to <200%	200% or more
55 to 59	20%	13%	27%	4%	5%	31%
60 to 64	17%	11%	47%	4%	4%	17%
65 to 69	15%	11%	60%	3%	3%	9%
70 to 74	27%	16%	47%	3%	2%	5%
75 to 79	25%	17%	47%	4%	2%	5%
80 to 84	20%	17%	45%	9%	3%	6%
85 or older	18%	16%	39%	12%	5%	10%
All ages	22%	14%	48%	4%	3%	9%

Note: Based on 393,820 GMIB contracts issued before 2015 with withdrawals in 2015.

We have already demonstrated that reaching age 70½ is a trigger for owners to begin withdrawals from qualified contracts if they haven't already started them. However, there is a noticeable change in the withdrawal pattern at age 70, when owners are taking out low withdrawal amounts relative to the benefit maximum. Many are likely taking out only the RMD, which at these ages, is a lower percentage of their balance. The percentage increases with age as the proportion of owners taking out less than the maximum declines.

A strong indicator of whether owners are likely to exceed the annual benefit maximum is the method they use — systematic or occasional. Most withdrawals that exceed 125 percent of the annual benefit maximum amount come from occasional withdrawals (Figure 3-28).

Figure 3-28: GMIB Withdrawals to Benefit Maximum Amount by Withdrawal Method and Age



Six out of 10 contracts with excess withdrawals (125 percent or more of the benefit maximum) came from occasional withdrawals. Around 4 in 10 occasional withdrawals exceeded 125 percent or more of the benefit maximum. On the other hand, only 7 percent of contracts using SWPs exceeded 125 percent or more of the maximum annual income allowed. Owners using SWPs who withdraw at or below the benefit maximum, are quite consistent across all age groups. Even withdrawals between 110 to 125 percent of benefit maximum account for only another 2 percent of SWP users. Three quarters of GMIB owners take withdrawals through a SWP; and when most of them withdraw amounts within the benefit maximum, they no doubt are utilizing the GMIB rider.

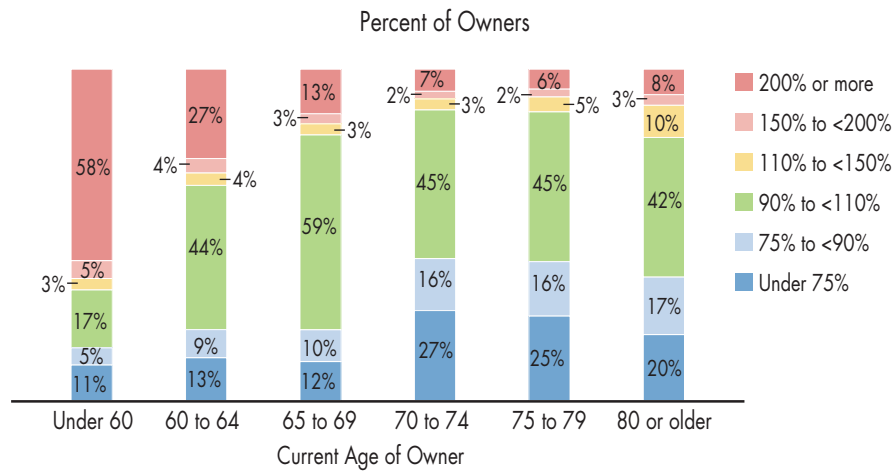
GMIB owners with higher contract values are less likely than those with lower contract values to significantly exceed the benefit maximum.

We also examined how the proportion of the benefit maximum withdrawn varies by contract size. We might expect larger contract sizes to be linked to wealthier and more sophisticated owners who are more likely to work with financial advisors and less inclined to exceed the GMIB benefit maximum, which could result in a reduction of the annual benefit base. Figures 3-29 and 3-30 illustrate the proportion of owners taking withdrawals by age and contract size. We are not able to provide the data for contract sizes of \$250,000 or more in order to preserve confidentiality.

Around two-thirds of owners under age 60 with contract sizes under \$100,000 at BOY 2015 took withdrawals of 150 percent or more of their maximum amount, compared with 36 percent of owners under age 60 with contract values of \$100,000 to \$249,999. We see the opposite relationship for owners under age 60 taking withdrawals that were less than 90 percent of the maximum annual amount.

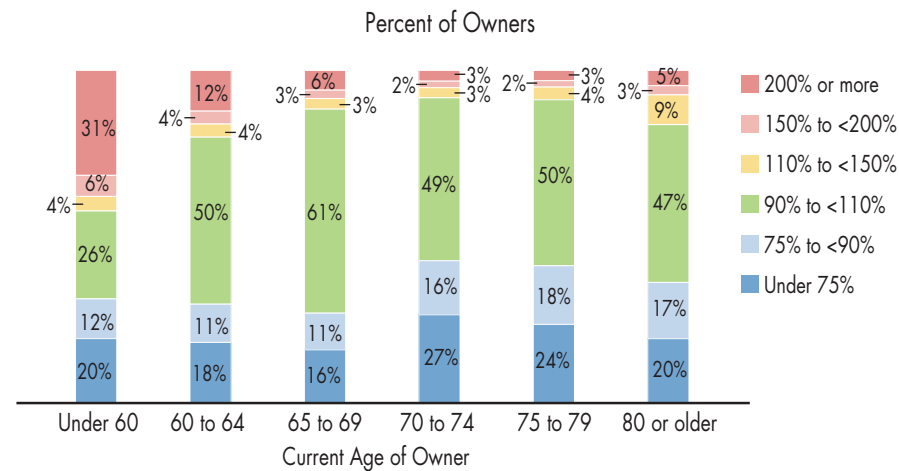
As noted earlier, the relationship between inefficiency and contract size is typically limited to owners under age 60; and even among this group, the greatest difference across contract sizes is not the increasing proportion taking amounts close to the benefit maximum, but rather the proportion of owners with contract sizes below \$100,000 taking amounts well above the benefit maximum. In short, GMIB owners with higher contract values are less likely than those with lower contract values to significantly exceed the benefit maximum, particularly among younger owners.

Figure 3-29: GMIB Withdrawals to Annual Benefit Maximum Amount by Age, Contract Sizes Under \$100,000



Note: Based on 202,181 GMIB contracts issued before 2015, still in force at EOY 2015, with withdrawals in 2015.

Figure 3-30: GMIB Withdrawals to Annual Benefit Maximum Amount by Age, Contract Sizes \$100,000 to \$249,999



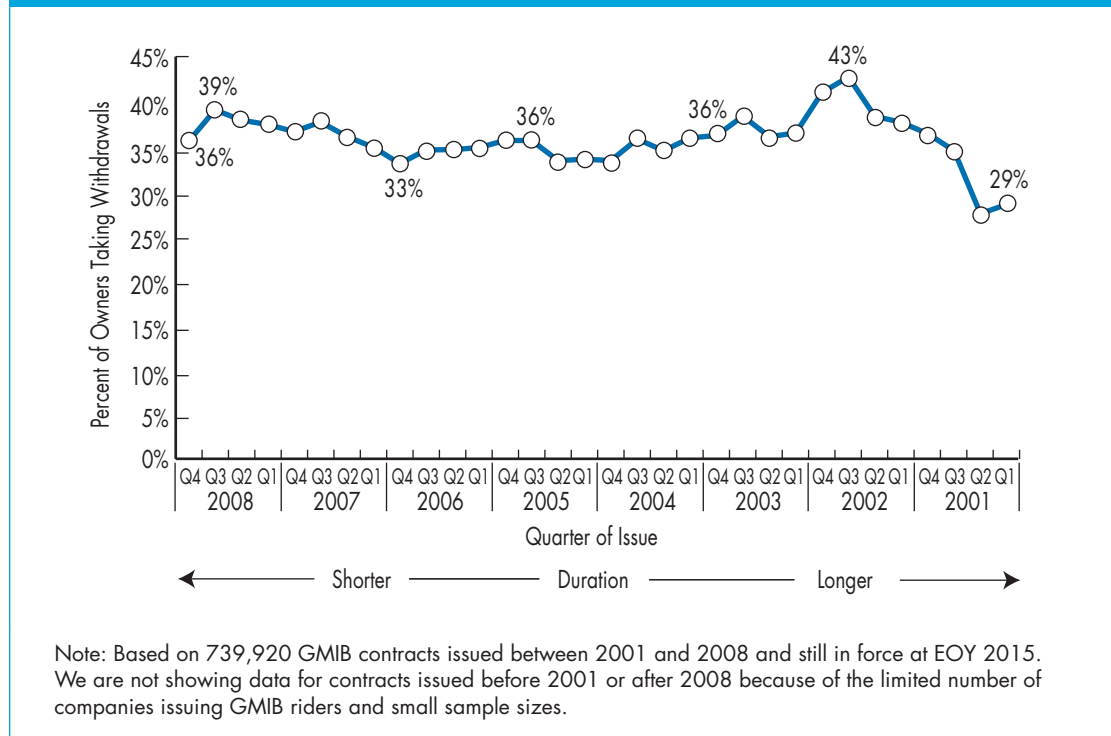
Note: Based on 132,412 GMIB contracts issued before 2015, still in force at EOY 2015, with withdrawals in 2015.

Withdrawal Activity by Duration

Contract duration is an important measure for evaluating what proportion of owners take withdrawals from their annuities. By comparing their own withdrawal activity by contract duration with that of the industry, companies can assess the extent to which their customers' withdrawal 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 many of the GMIB customers will take withdrawals and the resulting cash flow needed for the book of business.

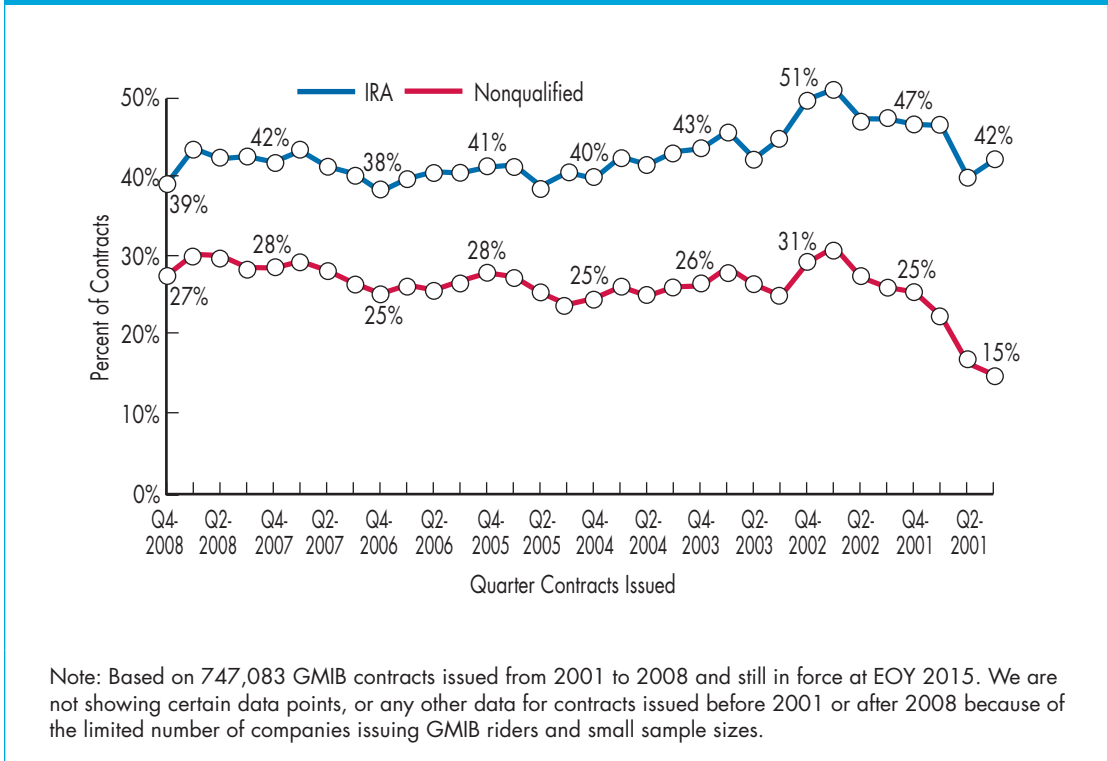
Withdrawals ranged from 28 to 43 percent for contracts issued between 2001 and 2008 and still in force at EOY 2015. Withdrawal activities in longer-duration GMIB contracts were comparatively lower than those in GLWB contracts (Figure 3-31).

Figure 3-31: GMIB Overall Utilization Rates of Withdrawal by Contract Duration



How do the overall utilization rates by contract duration periods differ for qualified and nonqualified contracts? For qualified owners, the withdrawal pattern remained consistent for IRA contracts issued after 2002, while contracts issued in 2002 or earlier had more variation with withdrawal rates (Figure 3-32). Nonqualified contracts also had a relatively level withdrawal pattern for contracts issued after 2001. However, for nonqualified contracts issued in 2001, the withdrawal rates start to decline to around 15 percent by Q1 2001.

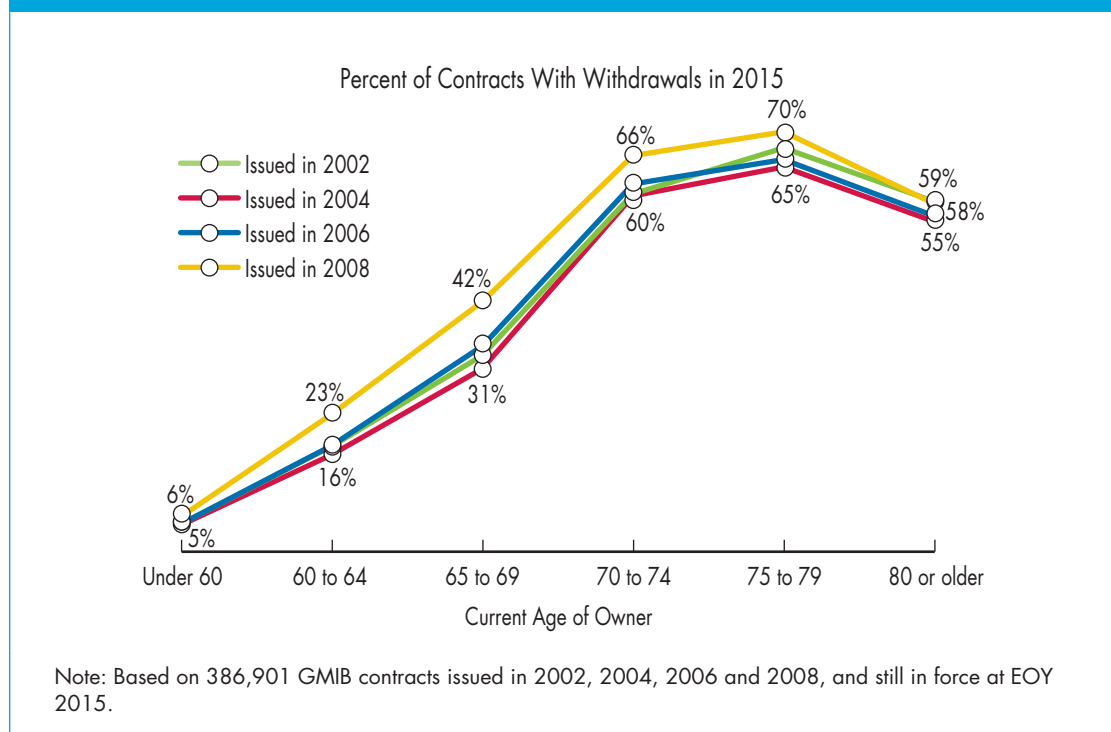
Figure 3-32: GMB Overall Utilization Rates by Contract Duration and Source of Funds



Withdrawal Activity by Duration and Age

We analyzed withdrawal activity by contract duration and owner age (Figure 3-33). For contracts purchased by individuals under age 60, the overall utilization rate is fairly stable across different issue years. Withdrawals among these younger age groups are uncommon.

Figure 3-33: GMIB Overall Utilization Rates by Contract Duration and Current Owner Age



Mapping the duration of contracts by age group can improve understanding of GMIB customer withdrawal behavior — as it follows a fairly consistent pattern.

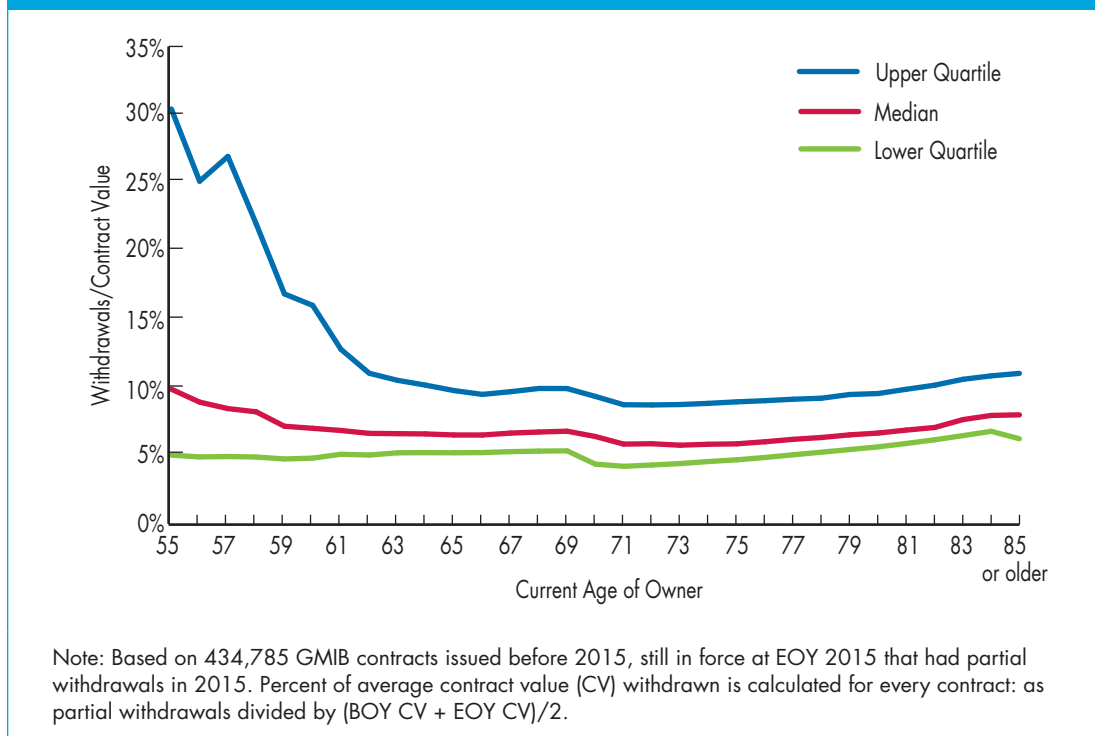
From ages 60 to 79, withdrawal activity increases, as owners begin to retire or need to make withdrawals to satisfy RMDs. Withdrawal rates peak for ages 75 to 79 and then decrease for ages 80 and older. We found a similar pattern for contracts issued in 2002 to 2008. The source of funds used to purchase the annuity remains the underlying force for these incremental increases. However, mapping the duration of contracts by age groups can improve our understanding of GMIB customer withdrawal behavior.

Withdrawal Amount as a Percentage of Contract Value

In order to provide context for the withdrawal amounts, we assessed the withdrawal amounts in relation to the contract values. Figure 3-34 shows the median and inter-quartile range for

withdrawal amount as a percentage of average contract value. Typically, a small number of younger owners take out large withdrawals. However, as we have seen, an increasing number of owners beginning at age 60, take withdrawals, and their withdrawal amounts represent a more sustainable withdrawal pattern.

Figure 3-34: GMIW Withdrawals to Average Contract Value Ratio (For Contracts With Withdrawals Only)



The distribution of the withdrawals as a percent of average contract value withdrawn shows that, for owners aged 70 or over, the median, the upper quartile, and the lower quartile values are relatively close. This pattern also indicates that many owners taking withdrawals at older ages are withdrawing at similar ratios from their contract values. For example, for owners in their 60s and 70s, the median was around 6 to 7 percent. For owners under age 60, the median of the ratios is higher than that of older owners, ranging from 7 to 10 percent, with the highest ratios among younger owners. In addition, there is a wide difference between the median and the upper quartile values, indicating that a group of these younger owners are taking far more than the maximum allowed in the contracts. These large withdrawal amounts push up the overall average.

The median withdrawal amount was **\$6,400** for contracts issued before 2015 and in force at EOY 2015.

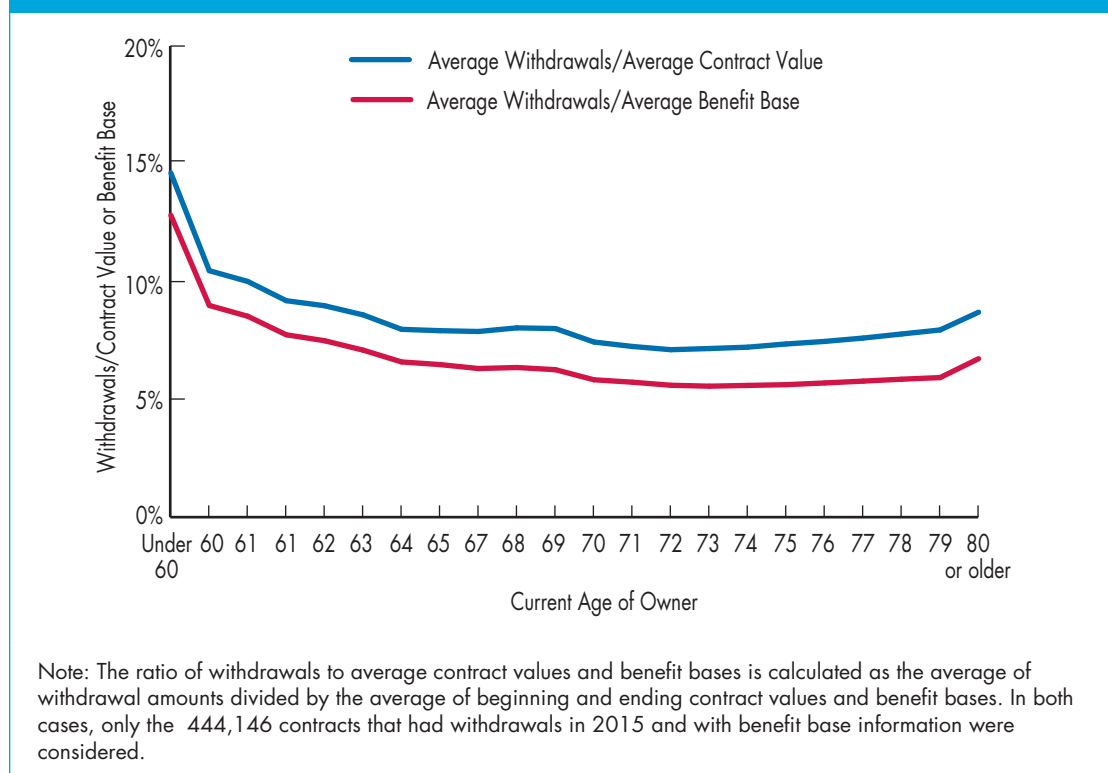
Ratio of Withdrawal to Contract Value and to Benefit Base (for Contracts With Withdrawals Only)

On average, the ratio of withdrawals to contract value is higher than the ratio of withdrawals to benefit base.

Measuring the average withdrawal amount as a percent of average contract value and benefit base yields valuable insights into the risk associated with withdrawal provisions in GMIB riders. If the ratio of withdrawal to contract value remains lower than or very close to the ratio of withdrawal to benefit base, insurance companies take very little risk on the withdrawal provisions offered in GMIB riders.

For all ages, the ratio of average withdrawal amount to average contract value is higher than the ratio of average withdrawals to average benefit bases (Figure 3-35). The average difference between the ratios is around one to two percentage points. For owners under age 60 who took withdrawals, the ratios of their withdrawal amount to average contract value as well as to benefit base were higher. Many of these withdrawals are likely partial surrenders of contracts that may be fully surrendered in future.

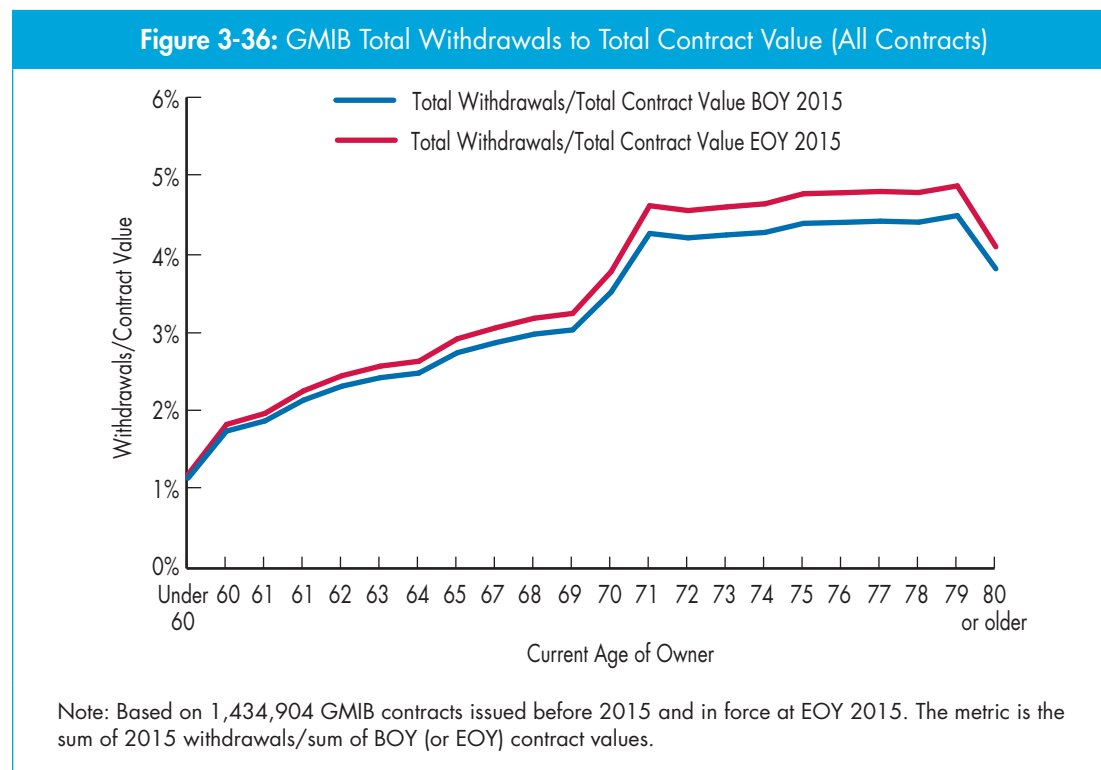
Figure 3-35: GMIB Ratio of Withdrawal Amount to Average Contract Value and to Benefit Base



Ratio of Withdrawal Amount to Contract Value

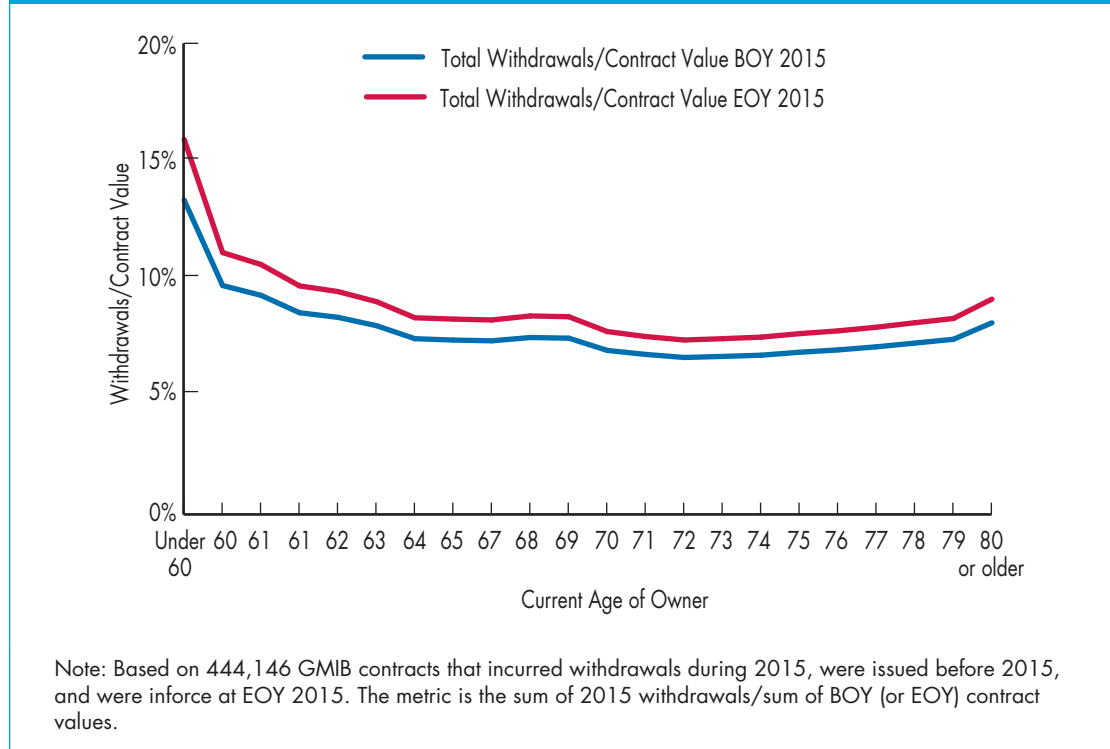
Another measure of withdrawal risk in GMIB riders originating in customer behavior can be ascertained by comparing the ratio of withdrawal amount to BOY contract value and the ratio of withdrawal amount to EOY contract value. This measure can be calculated two ways. First, total withdrawals in 2015 can be divided by total contract values at BOY and EOY, for all in-force contracts. Second, the same ratios can be computed for only the subset of contracts that had withdrawals in 2015. The first metric provides a measure of risk in terms of the total book of business, as well as the rate of cash outflow for each age, while the second provides an estimation of risk among the contracts where owners use the withdrawal provisions in GMIB riders.

The cash outflow ratio, or ratio of total withdrawals to total BOY contract values for all contracts in force throughout the year, was 2.8 percent similar to the corresponding 3.0 percent ratio for EOY contract values. Across all ages, the ratio of total withdrawals to total contract values increased in 2015, due to the lack of investment performance (Figure 3-36).



For GMIB contracts that had withdrawals, the rate of withdrawals or cash outflow ratio in relation to contract values at BOY was 7.7 percent (Figure 3-37). Contracts that had withdrawals in 2015 experienced an increase in their ratio of withdrawals to contract values by EOY (8.7 percent) due to the lack of investment performance during the year.

Figure 3-37: GMIB Total Withdrawals to Total Contract Values (For Contracts With Withdrawals)



There are a few noteworthy comparisons of withdrawals from GMIBs and guaranteed withdrawal benefits in GLWB contracts:

- GMIB contracts are not designed primarily for regular withdrawals. The GMIB withdrawal percentages — typically less than or equal to roll-up rates — are often higher than the withdrawal rates allowed in GLWB contracts, particularly for younger customers. So, as customers take withdrawals, the outflow of assets and resulting depletion rate on the contract value are more prominent in GMIB contracts than in GLWB contracts.
- The overall percent of contracts with withdrawals from GMIBs and GLWBs is fairly close, (27 percent for GLWB versus 31 percent for GMIB).
- As a result, the ratio of withdrawals to contract values is higher in GMIBs (7.7 percent of BOY contract value) than in GLWBs (7.1 percent of BOY contract value).

However, an important distinction must be made. GLWB owners are guaranteed a withdrawal rate for life, while GMIB owners can take advantage of withdrawal provisions in the rider only for a specific period of time, typically until the end of the waiting period. The risk management for these riders is very different, despite similar owner behavior.

Withdrawal Activity for GMIB Contracts In-the-Money or Not-In-the-Money

GMIB riders were the first GLB riders introduced so they tend to have older duration contracts that were severely affected by the equity market crisis of 2007 to 2008. At the beginning of 2015, almost seven years after the crisis, 8 in 10 GMIB contracts had benefit bases that were still higher than the contract values. By the end of 2015, nearly all GMIB contracts remained in-the-money. As stated in the beginning of this section, GMIB contracts issued around the crisis had enriched withdrawal features that could be utilized before annuitization, similar to the withdrawal benefits in GLWB contracts. This raises the question: Does a contract being in-the-money impact withdrawal activities? This in-the-moneyness analysis refers to simple analysis of contracts when the benefit bases exceed the contract values.

In order to conclude that in-the-moneyness has a major influence on withdrawal activities for GMIB contracts, we must consider the same issues as we did for other GLBs. If the incentive for owners to exercise their options to take guaranteed withdrawals from their contracts is particularly compelling when GMIB contracts are in-the-money, then we should see increased withdrawal activity irrespective of owner age.

There are multiple ways to measure in-the-moneyness. One method is to compare the benefit base to the contract value. This method is used in this section of the report. Another method is to compare the value of the income stream that can be generated from the GMIB to the income that can be generated from the contract value. This method can be found in the “In-the-Moneyness” section of this chapter.

GMIB contract benefits being in-the-money had little influence on withdrawal behavior.

We cannot furnish an analysis of withdrawal activities where we isolate contracts based on in-the-moneyness because of the limitations of low sample size and the need to preserve confidentiality to avoid revealing any company-specific information, as age or issue-year-specific data were heavily weighted by a limited number of companies. However, we can summarize some of the broad findings from our analysis to demonstrate that in-the-moneyness has very little influence on withdrawal activities in GMIB contracts.

For GMIB contracts issued before 2015, we see that:

- Older duration contracts are more likely to be in-the-money (Figure 3-3). The older duration contracts, particularly those issued before 2007, are more likely to have a higher representation of older owners, and the more recently issued contracts are more likely to have a higher proportion of younger owners.
- At the beginning of 2015, the amount that benefit bases were in-the-money was not widely spread across all age groups (Figure 3-7). In fact, contracts owned by individuals aged 70 or older were more likely to be deeper in-the-money than younger owners. This is because large numbers of older owners from older duration contracts had already initiated withdrawals in previous years and continued to take withdrawals from their contracts in all following years.
- Since older owners — particularly those aged 70 or older — are more likely to take withdrawals from their GMIB contracts over a longer period of time (Tables 3-5 and 3-6), and a majority of their withdrawal amounts remain within the maximum amount offered in the GMIB contracts (Figure 3-27), their contract values are likely to decline over time while the GMIB benefit bases are likely to remain level. As a result, these contracts become more in-the-money as the withdrawals continue.

Our analysis shows that the percentage of owners aged 60 or older who took withdrawals in 2015 was higher among GMIB contracts that were in-the-money compared with those not in-the-money. Also, the gap between the percentage of owners taking withdrawals in contracts that were in-the-money increases with older age groups compared with owners not-in-the-money.

Once owners take their first withdrawals and continue to take withdrawals in subsequent years, their contracts are likely to remain in-the-money. Simply put, owners who start withdrawals are likely to continue withdrawals in subsequent years irrespective of in-the-moneyness, and this influences the data showing that more owners may be withdrawing when they are in-the-money. As owners continue their withdrawals, it is also likely these contracts will remain in-the-money even without a positive equity market.

In addition, over the last few years, we have seen very little evidence that benefits being in-the-money are a principal driver for withdrawal activities:

- Our analysis of the timing of first withdrawals among contracts issued in 2008 (Tables 3-5 and 3-6) provides further evidence that in-the-moneyness is not a strong determinant of withdrawal activity. Over a seven-year period, most of these contracts were exposed to different degrees of in-the-moneyness, especially between 2009 and 2014. Yet we did not observe any significant difference in the onset of withdrawal activity during these years. If in-the-moneyness was a major driver of the decision to begin taking withdrawals, we should have seen a jump in withdrawal activity in 2009 to 2010, when the contracts' account values were likely to be well below their benefit bases following the major drop in contract values in 2008. The same can be said about 2012, when market volatility in late 2011 and low returns caused many contracts to start 2012 deeply in-the-money. Instead, attained age and the need for RMDs for IRA contracts explained much of the withdrawal pattern that we observed. Also, the first withdrawal activity patterns among nonqualified GMIB annuity owners does not show any major shift over the past few years.
- We should note that in 2009 the RMD restrictions were waived after the market crisis. Instead of heightened withdrawal activities, the percentage of IRA owners taking withdrawals dropped to its lowest level in recent years.

Withdrawals by Selected Characteristics

Utilization of withdrawal provisions in GMIB contracts varies substantially across a variety of owner, contract, and benefit characteristics for contracts sold before 2015 (Table 3-11).

Table 3-11: GMIB Withdrawals by Select Characteristics

	Unweighted		Weighted by BOY 2015 Contract Value	
	Partial Withdrawals	Systematic Withdrawals	Partial Withdrawals	Systematic Withdrawals
Age of owner				
Under 50	4%	1%	6%	2%
50 to 54	5%	1%	7%	3%
55 to 59	7%	3%	11%	7%
60 to 64	18%	12%	25%	19%
65 to 69	32%	26%	38%	32%
70 to 74	59%	47%	61%	48%
75 to 79	63%	53%	63%	51%
80 or older	51%	42%	47%	37%
Market type				
IRA	35%	27%	41%	32%
Nonqualified	23%	18%	27%	22%
Gender				
Male	31%	24%	36%	29%
Female	30%	23%	35%	27%
Contract value, EOY 2014				
Under \$25,000	23%	16%	31%	19%
\$25,000 to \$49,999	30%	23%	33%	25%
\$50,000 to \$99,999	33%	26%	35%	27%
\$100,000 to \$249,999	33%	27%	36%	28%
\$250,000 to \$499,999	37%	30%	39%	31%
\$500,000 or higher	36%	28%	36%	28%
<p>Note: Based on 1,435,908 GMIB contracts issued before 2015 and still in force at EOY 2015. Percentages refer to the number of contracts in each category that had partial (or systematic) withdrawals during the year. Systematic withdrawals represent a subset of all partial withdrawals. We've not shown some measures, for example data by distribution channels, in order to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.</p>				

Key Findings

- Older owners are much more likely to take withdrawals than are younger owners, especially systematic withdrawals. In part, this reflects RMDs from IRAs after age 70½.
- Owners with larger contract values are more likely to take withdrawals than owners with smaller contracts.

Additional Premium and Net Flows

Many retail VAs allow owners to add premium after issue, though in practice, most contracts do not receive ongoing deposits. For most GMIBs, the calculation of the benefit base incorporates premium received within a certain time period after contract issue. Among GMIB contracts issued before 2015 and still in force at EOY 2015:

- Two percent received additional premium in 2015. Contracts issued in 2014 were more likely than contracts issued in earlier years to have additional premium.
- Younger owners are more likely to add premium than older owners. For example, 6 percent of owners under age 50 added premium, compared with less than 1 percent of owners aged 70 or older. Four percent and 2 percent of owners aged 50 to 59 and aged 60 to 69 respectively, added additional premium to their contracts in 2015.
- Contracts owned by men and women were equally likely to receive additional premium (2.5 percent).
- IRA and nonqualified contracts were equally likely to receive additional premium (2.5 percent).
- Eleven percent of a constant group of contracts that were issued in 2008 added additional premium in 2009; roughly 4 to 7 percent added additional premium each year for 2010 through 2012, only 1 percent in 2013 and 2014, and less than 1 percent in 2015.

Premiums received for newly issued and existing contracts were below the outflows associated with withdrawals, surrenders, deaths, and annuitizations — \$6.3 billion and \$11.9 billion, respectively (Table 3-12). The total number of GMIB in-force contracts declined slightly during 2015. At EOY 2015, GMIB assets were \$177.0 billion, 8 percent lower than the \$191.7 billion at BOY 2015.

Table 3-12: GMIB Net Flows

	Dollars (Billions)	Contracts	Average Contract Size
In-force, BOY 2015	\$191.7	1,522,535	\$125,923
Premium received	\$6.3		
Benefits paid			
Partial withdrawals	\$5.5		N/A
Full surrenders	\$4.8	65,177	\$73,625
Annuitizations	\$0.5	8,886	\$51,348
Death/Disability	\$1.1	12,687	\$84,344
Investment growth	-\$9.2		N/A
In-force, EOY 2015	\$177.0	1,475,860	\$119,973

Note: Based on 1,562,610 GMIB contracts in the study.
N/A=Not available.

Premium received = newly issued contracts + premium into existing contracts. Dollar values for contracts issued before 2015 that terminated during the year were set equal to either BOY contract value (if termination occurred before contract anniversary date) or the anniversary contract value (if termination occurred on or after the contract anniversary date). Dollar values for contracts issued in 2015 that terminated during the year were set equal to the current-year premium. We have not shown some measures in order to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.

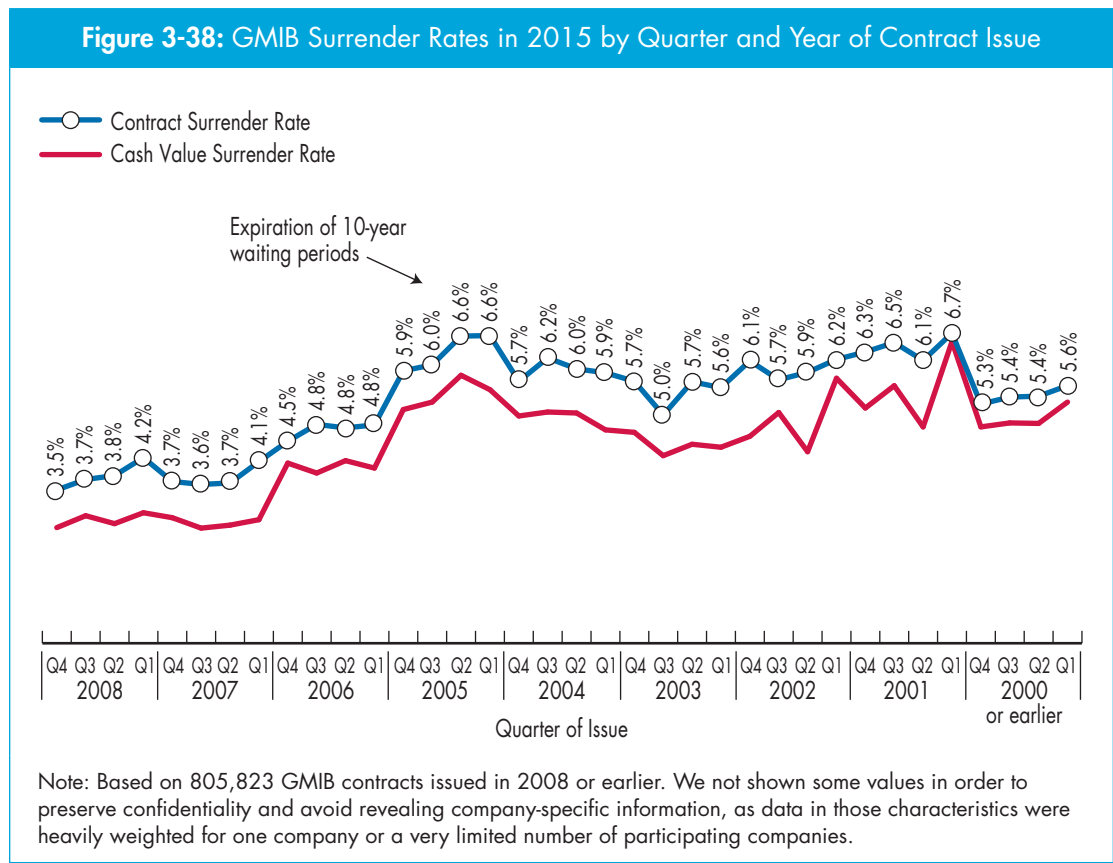
Persistency

2015 GMIB contract
surrender rates
were **4.0%**

Surrender activity among VAs with GMIBs is a critical factor in measuring risk. High or low persistency, as well as withdrawal rates and the difference between benefit bases and contract values, can have an impact on product profitability and the reserve requirements for insurance companies.

Overall surrender rates for VAs with GMIBs in 2015 were higher than surrender rates for VAs with GLWBs — 4.0 percent versus 3.4 percent. However, the comparison to GLWBs reflects the older GMIB contract base — just over half of which were issued in 2008 or before, thus completing at least seven years of holding periods — so that by 2015 most of these contracts were free of surrender charges. The surrender rate among contracts issued in 2008 or before was 5.0 percent (Figure 3-38). Moreover, the difference between surrender rates based on contract values (3.1 percent) and those based on contract counts (4.0 percent) is relatively large for GMIB business, which indicates that smaller-than-average contracts are more likely to be surrendered.

One or more companies reported unusually high surrender activity for some of their contracts. To avoid distortion of industry surrender rates, these contracts were excluded from all analyses in this section.



Surrender Activity by Share Class

The surrender rates for contracts where surrender charges existed are low.

Persistency among contracts with surrender charges is much higher than among contracts without surrender charges. The surrender rates for L-share contracts where surrender charges expired in previous years was 40 percent lower than that for B-share contracts (Figure 3-39). The surrender rates for B-share contracts where surrender charges expired in 2015 were 6.5 percent. The surrender rates for L-share contracts where surrender charges existed was approximately 30 percent of the surrender rates for contracts where the surrender charge had expired in previous years. Just over half of B-share contracts were still within the surrender charge period in 2015. B-share contracts constituted 77 percent of contracts. In general, cash value surrender rates were roughly ½-1 percentage point below the contract surrender rates (Figure 3-40).

Figure 3-39: GMI Contract Surrender Rates by Share Classes

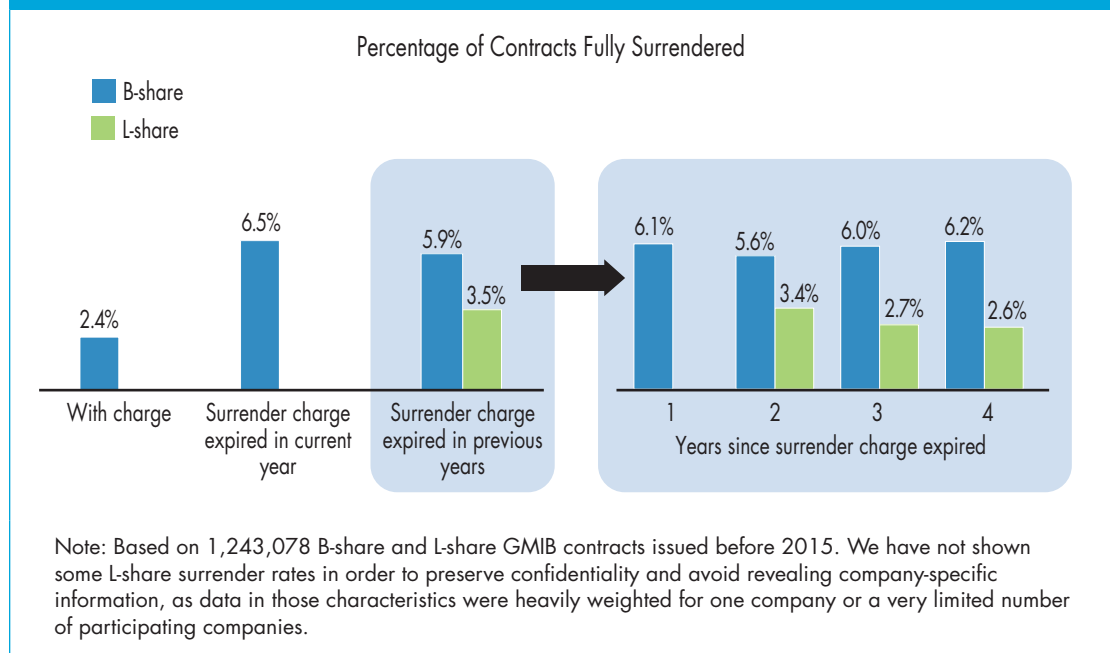
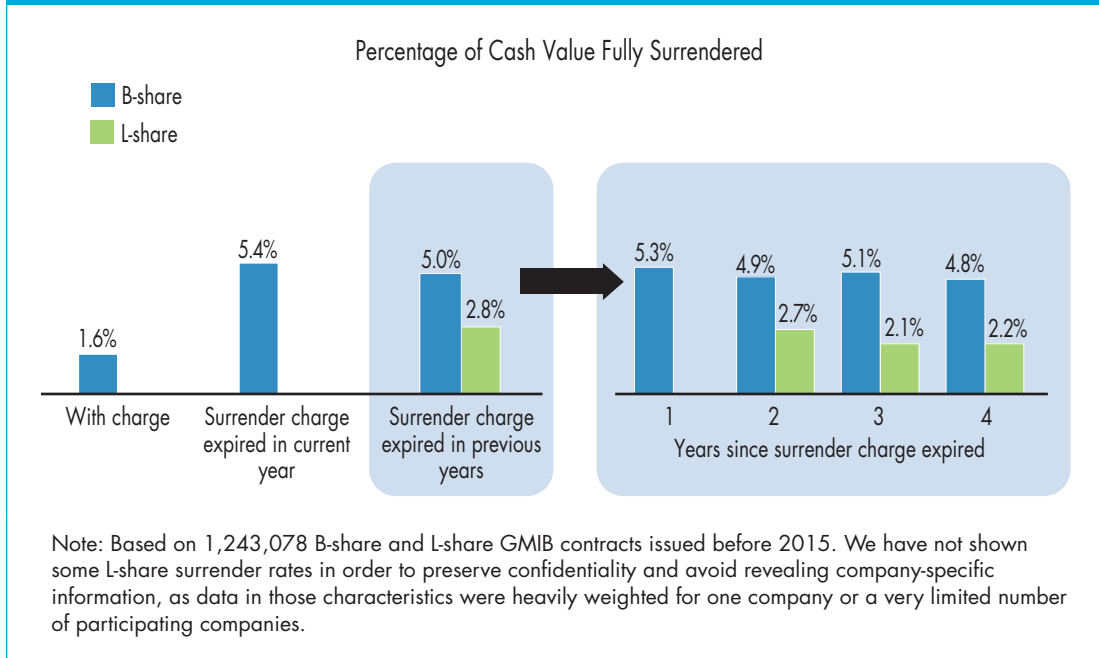


Figure 3-40: GMIB Cash Value Surrender Rate by Share Classes



The surrender rates for GMIB contracts are influenced by the level of the surrender charges present in the contract. Naturally, contracts with high surrender charges have lower surrender rates and vice versa. The contract surrender rates are around 5 to 6 percent for contracts with no surrender charge, drop to around 3 to 4 percent for contracts with a 1 to 2 percent surrender charge, fall to around 2.5 to 3.0 percent for those with 3 to 4 percent surrender charges, and remain around 1 to 2 percent for those with surrender charges at 5 percent or above. Cash value surrender charges are about one percentage point less and follow a similar pattern.

Surrender Activity of Owners Who Take Withdrawals

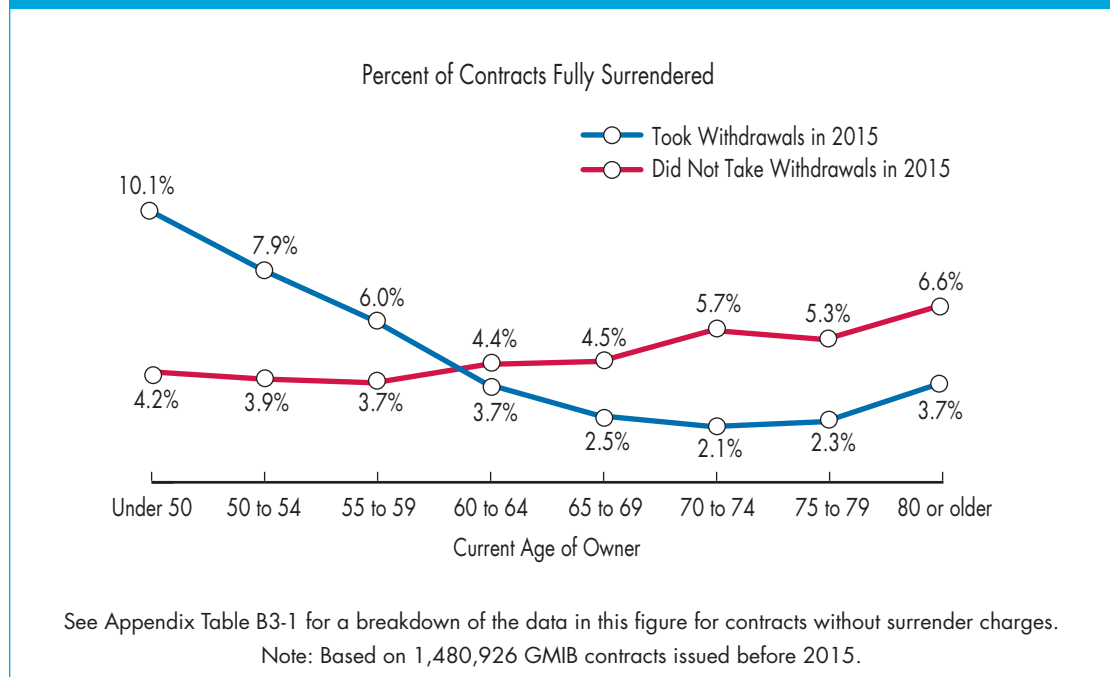
Like persistency trends in other GLB riders, GMIBs with high surrender rates are influenced by younger owners, particularly those under age 60 who took withdrawals before or in 2015. We have already shown that even though younger owners own a significant portion of GMIB

contracts, they are not likely to take withdrawals. However, when these younger owners take withdrawals, they typically do so with occasional withdrawals. Moreover, their average withdrawal amount is much higher, and not always supported by the guaranteed benefit base in their contracts. These younger owners are likely taking partial surrenders. Younger owners who took withdrawals in 2015 were also more likely to fully surrender their contracts (Figure 3-41).

Contract surrender rate among owners under age 60 who took withdrawals in 2015 is **7.3%**.

Contract surrender rate among owners under age 60 who did not take withdrawals in 2015 is **3.9%**.

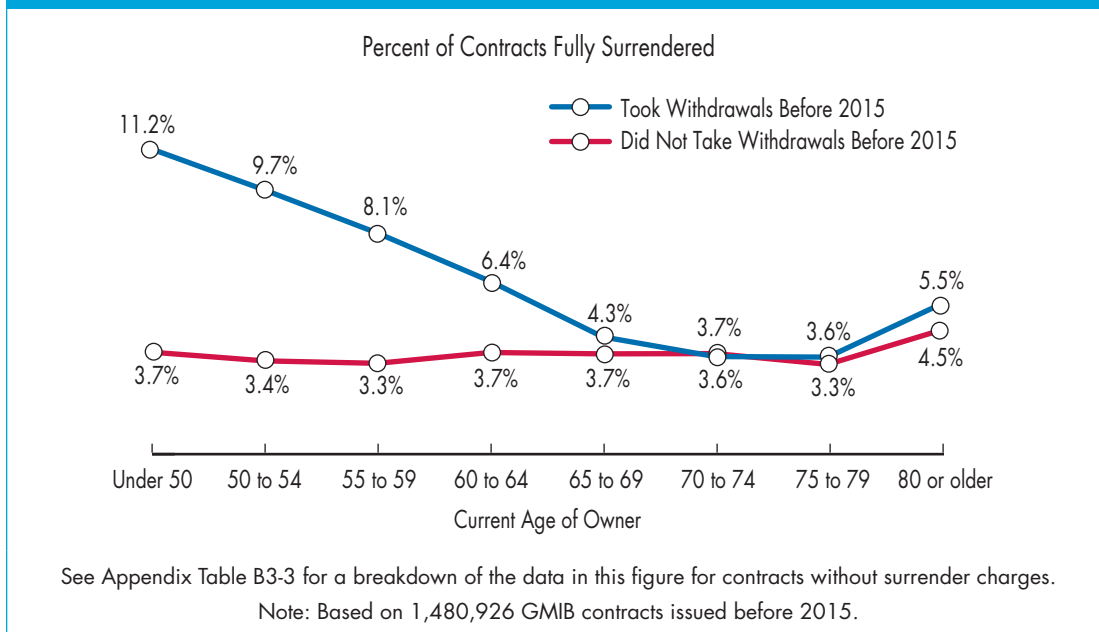
Figure 3-41: GMIB Contract Surrender Rate by Owners Who Took Withdrawals in 2015



The contract surrender rate among owners under age 60 who took withdrawals in 2015 was 7.3 percent. On the other hand, the surrender rate was only 3.9 percent among owners under age 60 who did not take any withdrawals in 2015. The surrender rate for owners aged 60 or older who took withdrawals in 2015 (2.6 percent) was lower than the rate for those who did not take withdrawals (4.9 percent).

Past withdrawals can also indicate whether younger owners are likely to surrender contracts in future. Figure 3-42 shows the surrender rate for owners who took withdrawals before 2015.

Figure 3-42: GMIB Contract Surrender Rate by Owners Taking Withdrawals Before 2015



As we have seen, younger owners are the most likely to take withdrawals that exceed the benefit maximum. Contracts where owners under age 60 took withdrawals — either in current or past years — show an increased likelihood of surrender. However, this increased surrender activity did not occur for owners over age 60. For them, a withdrawal in one year did not necessarily signal a higher likelihood of surrender in the next year. In general, the likelihood of surrender increases with age among contracts with no withdrawal activity. Understanding the behavior particularly with withdrawals that exceed the benefit maximum, can be an early indicator of increased surrender activity for a book of business.

GMIB surrender rates are relatively low for owners under age 80 who are not taking withdrawals.

We also looked at the cash value surrender rates of contracts with withdrawals in and before 2015. The cash value surrender rates follow a similar pattern to the contract surrender rates, except the cash value surrender rates are slightly lower, particularly for owners under age 75 who took withdrawals (Figures 3-43 and 3-44).

Figure 3-43: GMB Cash Value Surrender Rate by Owners Who Took Withdrawals in 2015

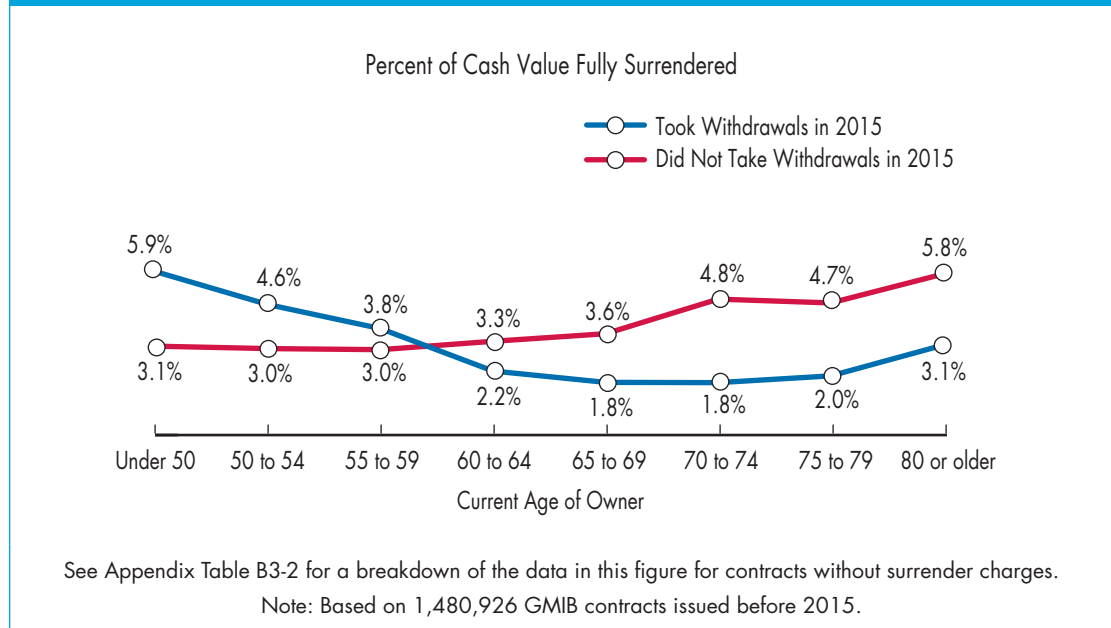
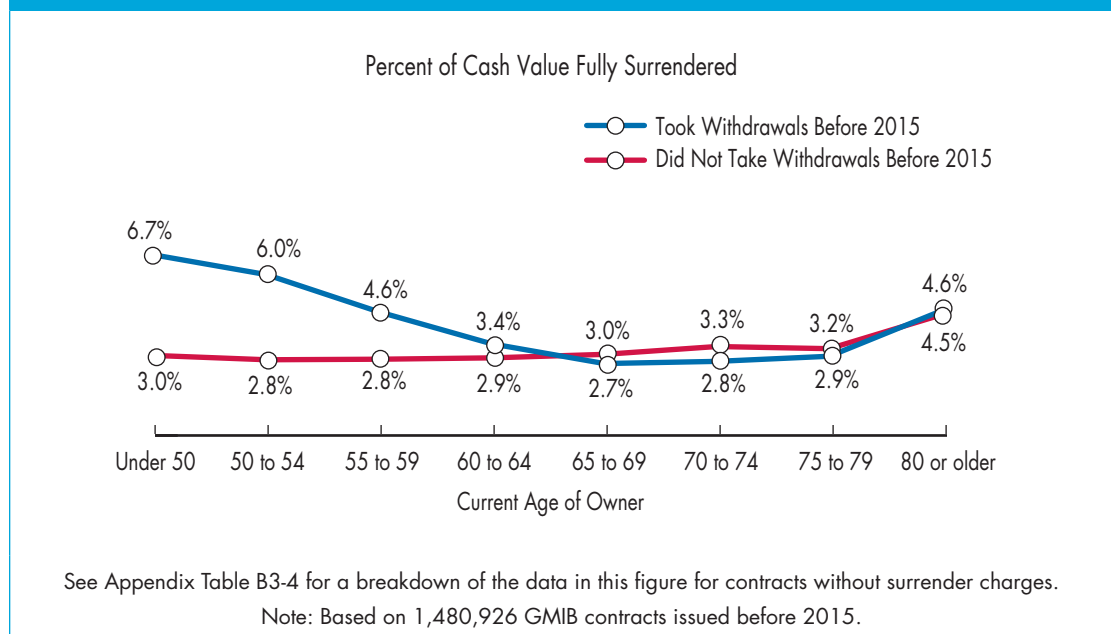


Figure 3-44: GMB Cash Value Surrender Rate by Owners Who Took Withdrawals Before 2015

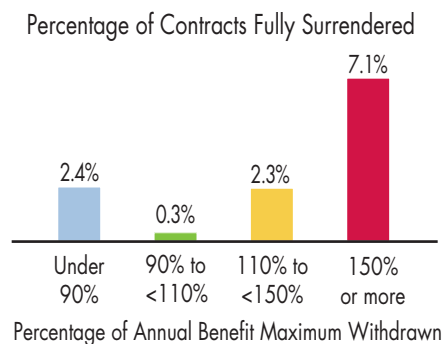


Surrender Activity by Percentage of Annual Benefit Maximum Withdrawn

The previous section established the relationship between surrender activity and withdrawal activity. In this section, we focus on those contracts that had withdrawals, and examine how withdrawal amounts as a percentage of the GMIB annual benefit maximum are linked to surrender activity. To avoid exposing a single company's results, we limited this analysis to contracts issued in 2008 or earlier.

Figure 3-45 shows the contract surrender rates — for owners aged 60 to 79 who took withdrawals in 2015 — based on the percentage of annual benefit maximum withdrawn.²⁵ Owners who took between 90 and less than 110 percent of the maximum allowed rarely surrendered the contract.

Figure 3-45: GMIB Contract Surrender Rates by Owners With Contracts Issued Between 2006-2008 Who Took Withdrawals, in Relation to Annual Benefit Maximum Allowed



Note: Based on 200,166 GMIB contracts issued between 2006 - 2008 with withdrawals in 2015, and owners aged 60-79.

The surrender rates show a U-shaped relationship to percent of benefit maximum withdrawn — those with very low and very high ratios of withdrawals to maximum allowed have higher surrender rates than those in the middle category.

The GMIB owners taking 150 percent or more of the maximum accounted for 9 percent of all owners who took withdrawals in 2015. They are

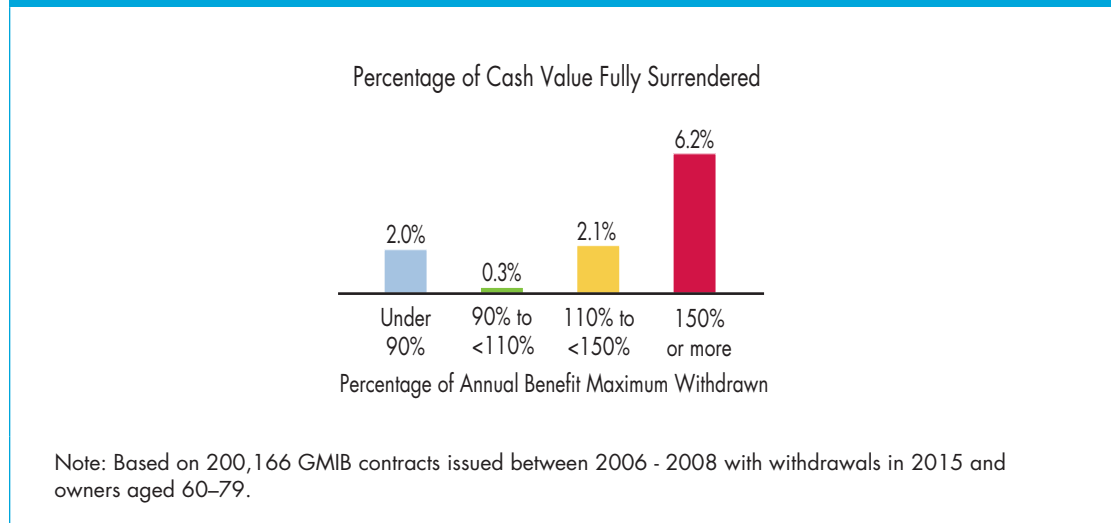
Owners taking less than 90 percent or 150 percent or more of the annual maximum withdrawal amount allowed in their contracts accounted for half of all owners who took withdrawals in 2015, and were responsible for 86 percent of the surrendered contracts.

²⁵ See “Percentage of Maximum Annual Benefit Withdrawn” earlier in this chapter for the definition of GMIB benefit maximum.

also responsible just over a third of the contracts that surrendered. The GMIB owners who took less than 90 percent of the maximum accounted for 40 percent of the owners who took withdrawals and were responsible for half of the contracts that surrendered. Any withdrawal behavior not in line with the maximum withdrawal amount can be a reliable indicator of possible surrender behavior of GMIB owners.

The cash value surrender rates among owners who took withdrawals in 2015 — based on the percentage of annual benefit maximum withdrawn — follow a very similar pattern to that of contract surrender rates, except the cash value surrender rates were slightly lower (Figure 3-46).

Figure 3-46: GMIB Cash Value Surrender Rates by Owners With Contracts Issued Between 2006-2008 Who Took Withdrawals, in Relation to Annual Benefit Maximum Allowed

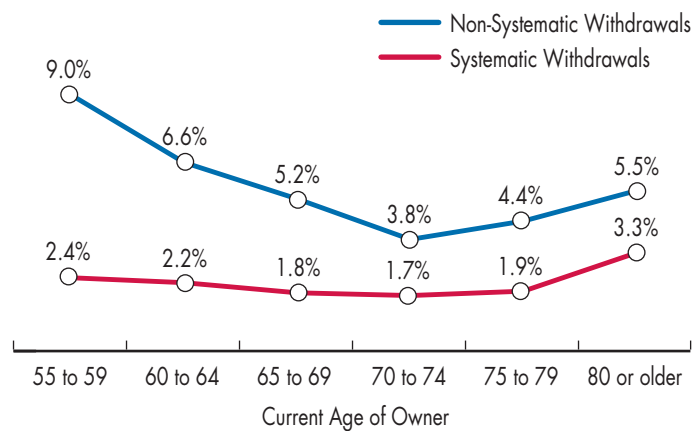


Surrender Activity of Owners Taking Systematic Withdrawals

Another strong indicator of whether owners are likely to surrender their contracts is the type of withdrawal method they use — systematic or occasional. As we have seen, owners who use systematic withdrawals are less likely to take more than the benefit maximum, and most excess withdrawals are being made by younger owners.

Overall, the contract surrender rate among owners who took non-systematic or occasional withdrawals in 2015 was 5.6 percent; while the surrender rate among owners who withdrew systematically was a very low 2.0 percent. Non-systematic or occasional withdrawals do not always maximize the benefit withdrawals; and, for younger owners, this indicates higher surrender rates (Figure 3-47).

Figure 3-47: GMIB Contract Surrender Rates by Withdrawal Methods



See Appendix Table B3-5 for a breakdown of the data in this figure for contracts without surrender charges.

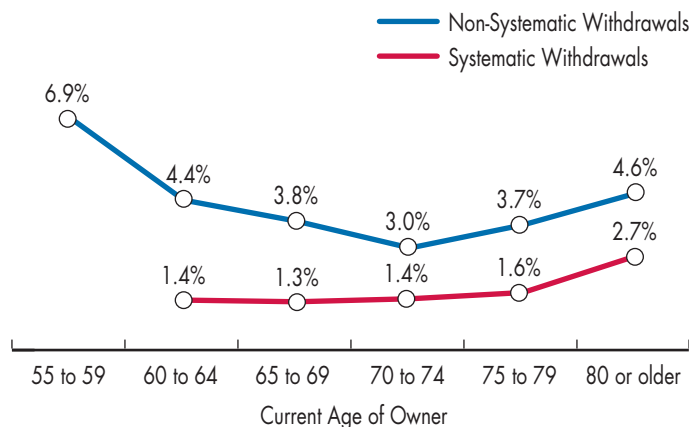
Note: Based on 441,635 GMIB contracts issued before 2015 that also had withdrawals in 2015.

Owners using a non-systematic or occasional withdrawal method accounted for just under a quarter of all owners who took withdrawals, but they accounted 46 percent of all surrendered contracts and 43 percent of cash surrender values in 2015. Surrender rates among older owners who take non-systematic or occasional withdrawals are roughly double the surrender rates of older owners who take systematic withdrawals.

GMIB contract surrender rates are **5.6%** among owners who take occasional withdrawals compared with **2.0%** among owners who take systematic withdrawals.

The cash value surrender rates by withdrawal methods follow a very similar pattern to the contract surrender rates, except the cash value surrender rates are lower across all ages (Figure 3-48).

Figure 3-48: GMIB Cash Value Surrender Rates by Withdrawal Methods



See Appendix Table B3-6 for a breakdown of the data in this figure for contracts without surrender charges. We have not shown some measures in order to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.

Note: Based on 441,635 GMIB contracts issued before 2015 that also had withdrawals in 2015.

However, companies should note that GMIB contract owners — particularly owners under age 70 who are not taking withdrawals — hold on to their contracts longer. All VAs with GLBs are experiencing lower persistency compared with VAs without GLBs; this will have an impact on the company's assets and reserves, as a greater number of contract owners may ultimately receive benefits over the life of their contracts.

Surrender Activity by Amount the Benefit Base Exceeded the Contract Value

Another important way to look at GMIB surrender rates involves whether or not the benefit base exceeded the contract value. We looked at surrender rates by the amount the benefit base exceeded the contract value for contracts issued before 2015 that did not have withdrawals before 2015, for issue years 2008 and earlier (Figures 3-49 and 3-50).

Surrender rates were lower for contracts that did not have any withdrawals before 2015 and the benefit base amount exceeded the contract value. GMIB owners appear to be sensitive to this when deciding whether to surrender their contracts. Actuaries should account for this sensitivity when setting assumptions for lapse behavior.

Figure 3-49: GMI Contract Surrender Rate by Amount the Benefit Base Exceeded the Contract Value When No Withdrawals Taken Before 2015

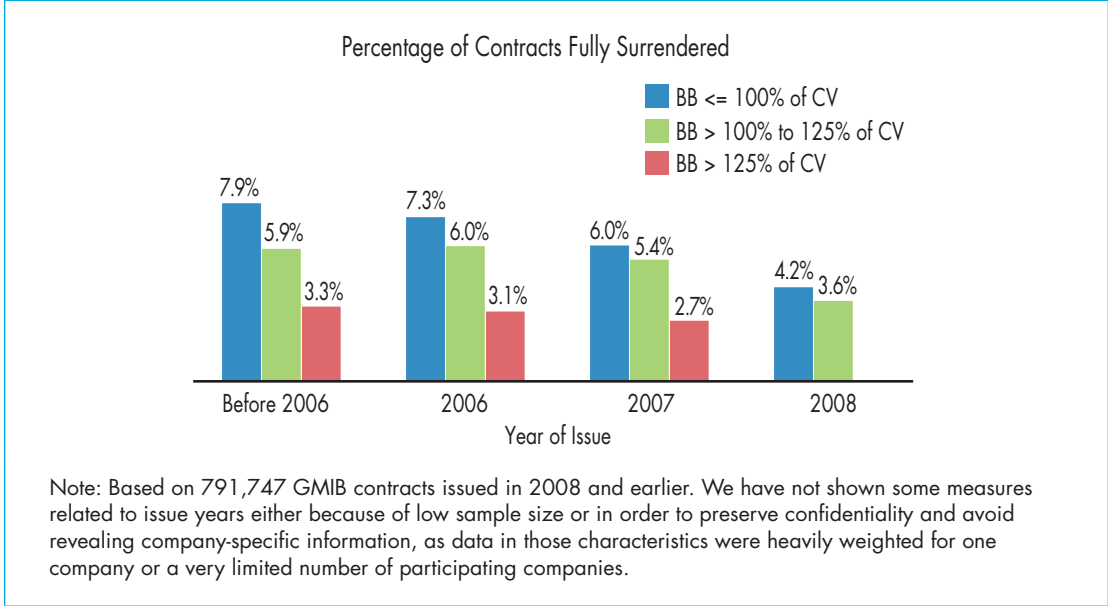
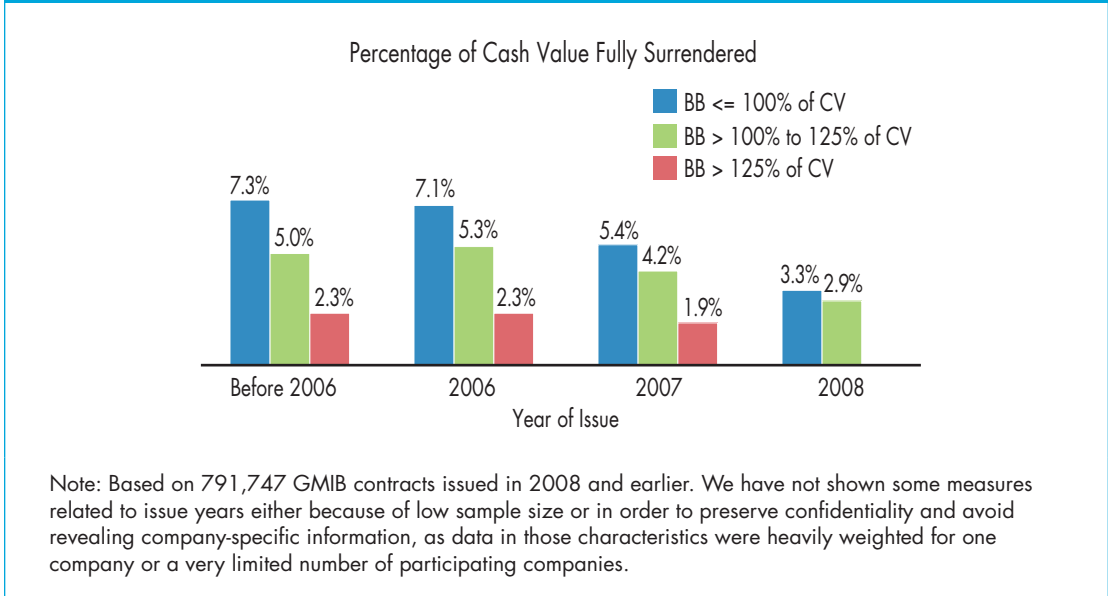


Figure 3-50: GMI Cash Value Surrender Rate by Amount the Benefit Base Exceeded the Contract Value When No Withdrawals Taken in or Before 2015



However, looking at the surrender rates based on only the amount the benefit base exceeded the contract value may not completely address all issues when trying to understand the persistency risk. First, the vast majority of contracts — particularly those issued before 2008 — had benefit base amounts that exceeded the contract values at the beginning of 2015.

Second, for contracts with withdrawals before 2015, the benefit bases being lower than contract values could have been caused by owners taking withdrawals exceeding the benefit maximums, resulting in pro-rata adjustments. Contracts that had benefit base amounts that exceeded the contract values were most likely the contracts where owners took withdrawals within the benefit maximums, or through SWPs, or where owners have not yet started their withdrawals.

Surrender Activity by GMIB Benefit Maturity Year

Our analysis of surrender rates by the GMIB benefit maturity year indicates there is an increased likelihood that GMIB owners wait until the GMIB benefit matures to surrender (Figure 3-51). Persistency is high for contracts where the GMIB benefit (the annuitization benefit of guaranteed lifetime income based upon the specified income benefit base) has not yet matured, and is lower for contracts past the benefit maturity period.

Figure 3-51: GMIB Contract and Cash Value Surrender Rates in 2015 by Benefit Maturity Year

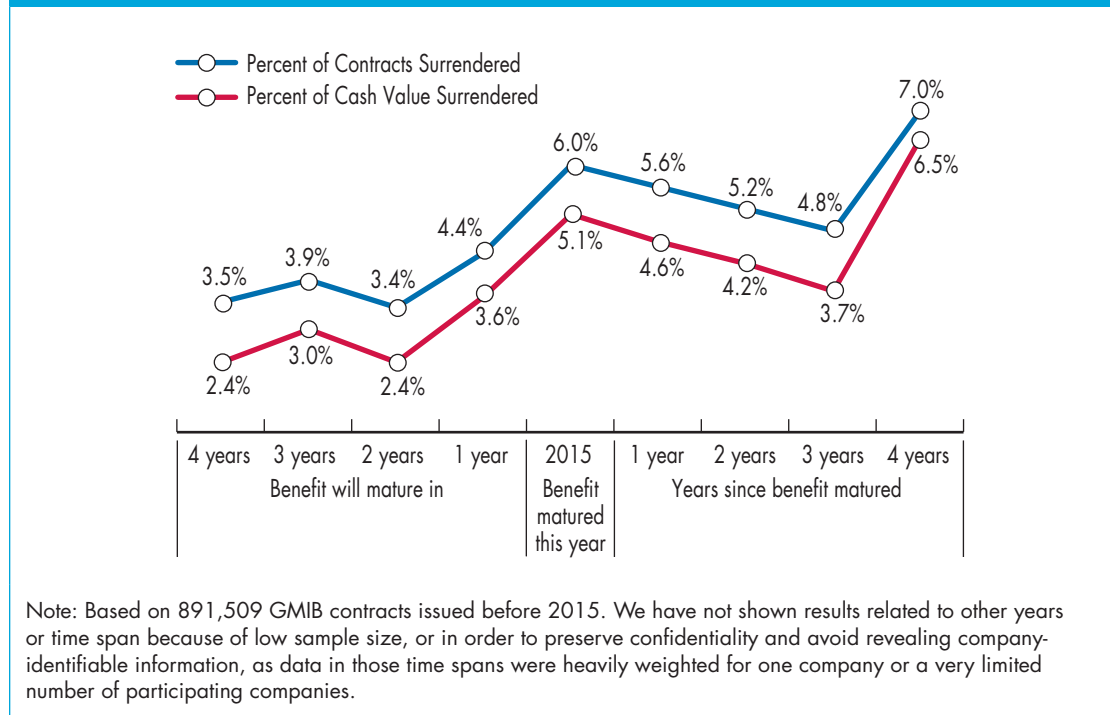


Figure 3-51 highlights a few important points:

- Both the contract and cash value surrender rates in 2015 for contracts where the GMIB benefit matured in the same year increased slightly. These surrender rates are higher than the surrender rates typically experienced just after GMIB contracts exit their surrender charge period (Figure 3-38). The GMIB benefit maturity period is typically longer than the contract surrender charge period.

- Contract and cash value surrender rates based on when the benefit matures follow a very similar pattern, irrespective of whether or not the contracts are still within the surrender charge period. Nearly half of the GMIB contracts in the analysis were past the surrender charge period.

Table 3-13 provides the GMIB contract and cash value surrender rates by selected characteristics.

Table 3-13: GMIB Surrender Rates		
	Percent of Contracts Surrendered	Percent of Cash Value Surrendered
All contracts issued before 2015	4.0%	3.1%
Year of issue		
Before 2002	5.7%	5.1%
2002	6.0%	4.8%
2003	5.5%	4.4%
2004	5.9%	5.0%
2005	6.3%	5.5%
2006	4.7%	4.0%
2007	3.8%	2.9%
2008	3.8%	2.9%
Age of owner		
Under 50	4.4%	3.3%
50 to 54	4.1%	3.1%
55 to 59	3.9%	3.1%
60 to 64	4.3%	3.0%
65 to 69	3.9%	2.9%
70 to 74	3.6%	3.0%
75 to 79	3.5%	3.0%
80 or older	5.1%	4.6%
Contract value, BOY 2015		
Under \$25,000	6.8%	5.9%
\$25,000 to \$49,999	4.3%	4.3%
\$50,000 to \$99,999	3.5%	3.5%
\$100,000 to \$249,999	3.0%	3.0%
\$250,000 to \$499,999	2.7%	2.7%
\$500,000 or higher	2.8%	2.9%
Gender		
Male	4.0%	3.1%
Female	4.2%	3.2%
Market type		
IRA	3.9%	2.9%
Nonqualified	4.2%	3.4%

Table 3-13: GMIB Surrender Rates (continued)

	Percent of Contracts Surrendered	Percent of Cash Value Surrendered
Cost structure		
B-share	4.1%	3.1%
L-share	3.7%	3.1%

Note: Based on 1,481,946 contracts issued before 2015. Percent of contracts surrendered = number of contracts fully surrendered/total number of in-force contracts. Percent of contract value surrendered = sum of values of fully surrendered contracts/total contract value in force. We have not shown some measures in order to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.

Key Findings

- Larger GMIB contracts tend to have lower surrender rates.
- There is no significant difference in GMIB surrender rates based on gender.
- B-share contracts tend to have higher surrender rates than L-share contracts and nonqualified contracts had higher surrender rates than IRA contracts.



***Guaranteed Minimum
Accumulation Benefits***

CHAPTER FOUR

Chapter Four: Guaranteed Minimum Accumulation Benefits

Guaranteed minimum accumulation benefit (GMAB) riders in variable annuities (VAs) guarantee that the contract owner will receive a minimum amount of the principal after a set period of time or waiting period — either the amount initially invested or the contract value with a locked-in guaranteed rate, or market gains locked in during the waiting period. The rider guarantees protection of the investment’s value from a down market. The GMAB typically provides a one-time adjustment to the contract value on the benefit maturity date if the contract value is less than the guaranteed minimum accumulation value as stipulated in the contract. However, if the contract value is equal to or greater than the guaranteed minimum accumulation value, the rider ends without value and the insurance company pays no benefits.

Even though they are one of the simplest living benefits, GMABs differ from other GLB riders in terms of the nature of the guarantee. While GLWBs, GMWBs, and GMIBs offer guaranteed retirement income for life or for a certain period of time (at the owner’s discretion), GMABs mainly guarantee protection of investments from market risk. GMABs are also different from other GLBs in terms of the risk posed to the insurer. With GLWBs, GMWBs, and GMIBs, the contract owner must choose to utilize the benefit. With GMABs, insurers are obligated to provide the guaranteed benefit to all GMAB owners where the guaranteed benefit base exceeds the contract value on their maturity date. This makes it even more important for companies to scrutinize the persistency patterns of contracts with these benefits.

Sales of contracts with GMABs increased in 2015, up 16 percent to \$2.8 billion. Election rates for GMABs remain very low, accounting for around 3 percent of sales where any living benefit is available for purchase.²⁶ This chapter is based on an analysis of 280,310 VA contracts with GMABs, issued by 15 companies. Of these contracts, 236,275 were issued before 2015 and were in force as of December 31, 2015. A total of 19,325 contracts were issued in 2015 and were in force at end-of-year (EOY) 2015. Almost all of GMAB contracts (93 percent) that are still in force were issued in the last decade.

At EOY 2015, the LIMRA Secure Retirement Institute estimates that GMAB assets in the industry were \$28.0 billion. These results from the companies in this study represent a total of 54 in-force GMAB riders introduced between 1991 and 2015, valued at \$24.6 billion at EOY 2015 — 88 percent of total GMAB industry assets.

²⁶ *Variable Annuity Guaranteed Living Benefits Election Tracking, 4th Quarter 2015*, LIMRA Secure Retirement Institute, 2016.

Owner Profiles

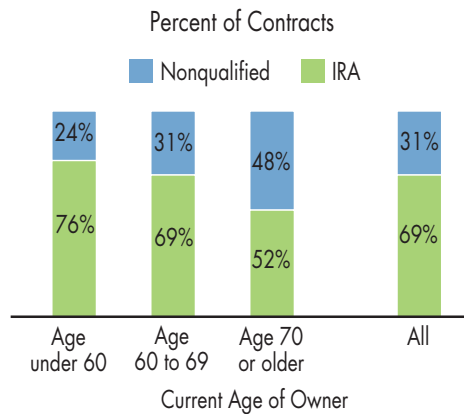
Ownership of IRA and Nonqualified GMAB Annuities

Sixty-nine percent of GMAB contracts issued in 2015 or earlier were IRA, and this is slightly higher than broader industry developments that the LIMRA Secure Retirement Institute has tracked, where roughly 6 in 10 retail VAs are funded with tax-qualified money, the bulk of which is from rollovers.

Seven out of ten
GMAB contracts issued
in 2015 or
earlier were IRA.

Based on contracts issued in 2015 or earlier and still in force at EOY 2015, ownership of IRA annuities is largely concentrated in the hands of owners under age 60. Among those owners, three quarters fund their annuities with qualified money (Figure 4-1). In contrast, half of the owners aged 70 or over fund their GMAB annuities with nonqualified sources.

Figure 4-1: GMAB Ownership by Source of Funds and Age Group



Note: Based on 236,210 contracts issued in 2015 or before and still in force at EOY 2015.

- GMABs can be appropriate annuity investments for conservative to moderate investors who have a long-term investment horizon, typically 10 years or more. The key motivators for buying a GMAB are its guarantee of principal protection, and the potential it offers for growth.
- GMAB riders often compete with fixed indexed annuities, which also offer upside market potential with downside risk protection. While growth from market gains in fixed indexed annuities is subject to many complex calculations, a VA with a GMAB rider typically enjoys unlimited upside potential.
- Since GMAB benefits are equally effective in guaranteeing both qualified and nonqualified assets against market volatility and loss of principal, the increased flow of qualified funds underscores investor concern about protecting retirement assets from a down market.
- After the waiting period is over in a GMAB contract, the initial guarantee and the obligation of the insurance company expire after adjustment of the guaranteed benefit, if there is any. However, the client can renew the GMAB contract for another period, surrender the contract, or exchange the contract for another annuity. Subsequent to the need for preserving assets for a definite period from market downturn, a client may transition into another life stage and may be interested in converting savings into income. As most of the investments in GMABs are qualified, clients will at least need to take RMDs.

We have not shown any buyer information to preserve confidentiality and avoid revealing company-specific information, since these data were heavily weighted for a very limited number of participating companies.

GMAB Owner and Contract Characteristics

Table 4-1 provides a summary of GMAB owner and contract characteristics at EOY 2015.

Table 4-1: GMAB Owner and Contract Characteristics			
	GMAB Contracts Issued Before 2015	GMAB Contracts Issued in 2015	All GMAB Contracts In Force
Age of owner			
Under 50	21%	24%	22%
50 to 54	13%	15%	13%
55 to 59	17%	19%	17%
60 to 64	17%	20%	17%
65 to 69	14%	13%	14%
70 to 74	9%	6%	8%
75 to 79	5%	2%	5%
80 or older	4%	1%	4%
Average age	59 years	56 years	59 years
Gender			
Male	48%	49%	48%
Female	52%	51%	52%
Market type			
IRA	69%	71%	69%
Nonqualified	31%	29%	31%
Distribution Channel			
Career agent	46%	78%	48%
Independent agent/independent B-D	32%	10%	30%
Full-service National B-D	5%	2%	5%
Bank	17%	10%	17%
Cost Structure			
B-share	83%	93%	84%
C-share	1%	0	1%
L-share	14%	7%	13%
Other	2%	0	2%

Table 4-1: GMAB Owner and Contract Characteristics (continued)

	GMAB Contracts Issued Before 2015	GMAB Contracts Issued in 2015	All GMAB Contracts In Force
Contract value, EOY 2015 as percent of contracts			
Under \$25,000	25%	16%	24%
\$25,000 to \$49,999	21%	19%	21%
\$50,000 to \$99,999	24%	27%	24%
\$100,000 to \$249,999	22%	27%	23%
\$250,000 to \$499,999	6%	8%	6%
\$500,000 or higher	2%	3%	2%
Contract value, EOY 2015 as percent of contract value			
Under \$25,000	4%	2%	3%
\$25,000 to \$49,999	8%	6%	8%
\$50,000 to \$99,999	18%	17%	18%
\$100,000 to \$249,999	36%	35%	36%
\$250,000 to \$499,999	20%	23%	20%
\$500,000 or higher	14%	17%	15%
Average contract value, EOY 2015	\$94,204	\$121,961	\$96,302
Median contract value, EOY 2015	\$55,078	\$80,640	\$56,586
Note: Based on 255,599 GMAB contracts still in force at EOY 2015. Percentages are based on number of contracts unless stated otherwise. We have not shown some data (such as buyer information) to preserve confidentiality and avoid revealing company-specific information, as those data were heavily weighted for one company or a very limited number of participating companies.			

Key Findings

- One-fifth of owners were under age 50 while half were under age 60.
- Nine out of 10 contracts issued in 2015 were B-share contracts, while L-share contracts made up 7 percent of contracts issued in 2015.
- Career agents issued three quarters of GMAB contracts issued in 2015.
- The average contract value for all GMABs still in force at EOY 2015 was \$96,302.

Benefit Base

At beginning-of-year (BOY) 2015, the average GMAB contract value exceeded the average benefit base by 8 percent (Table 4-2). At BOY 2015, 10 percent of GMAB contracts issued before 2015 still had benefit bases that were greater than the contract value. This measure was much lower than in 2010 when 55 percent of GMAB contracts issued before 2010 had benefit bases that exceeded contract values, after experiencing severe losses during the market crisis of 2008 to 2009.

Table 4-2: GMAB Benefit Base and Contract Value, at BOY 2015

	Benefit Base Amount	Contract Value	
		Amount	Percent of Benefit Base
Sum	\$20,387,335,531	\$22,006,869,694	108%
Average	\$91,659	\$98,940	108%
Median	\$51,576	\$57,892	112%
Percent of contracts where benefit base exceeded the contract value			10%
Note: Based on 222,426 GMAB contracts issued before 2015 and remaining in force at EOY 2015. Excludes contracts for which the GMAB benefit bases could not be determined.			

Table 4-3: GMAB Benefit Base and Contract Value, at EOY 2015

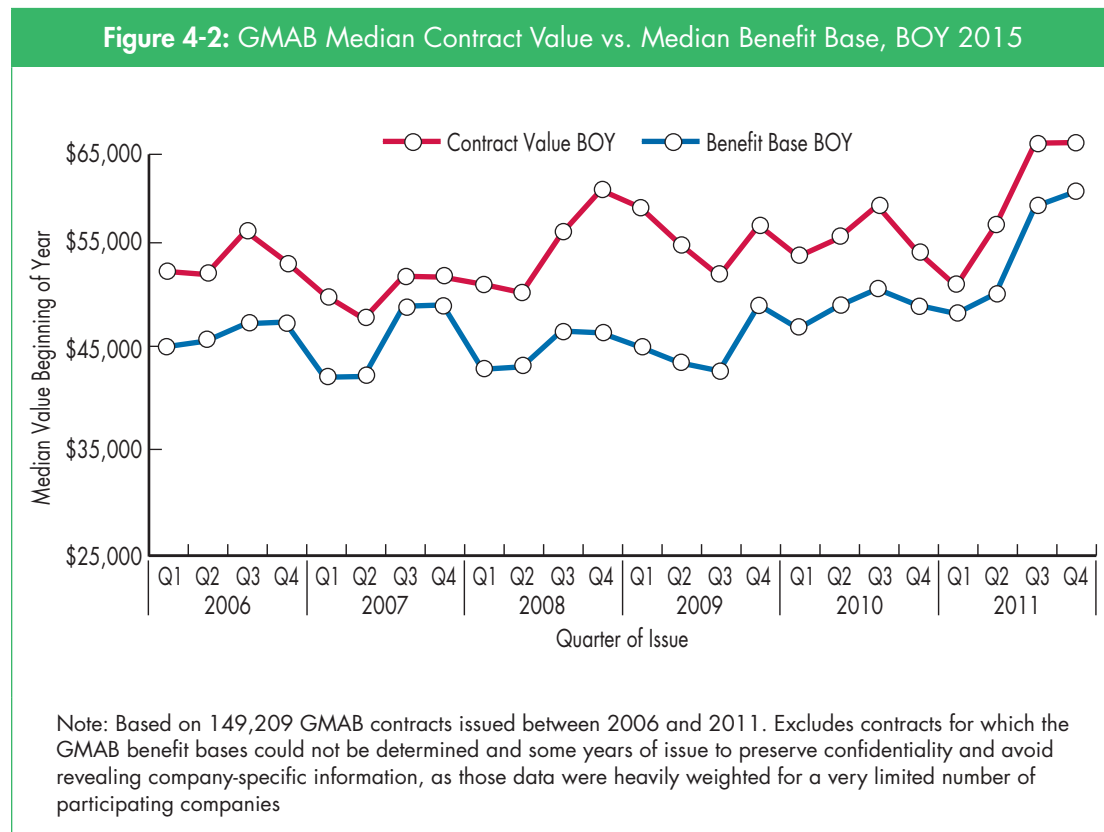
	Benefit Base Amount	Contract Value	
		Amount	Percent of Benefit Base
Sum	\$20,068,614,040	\$20,956,651,078	104%
Average	\$90,226	\$94,219	104%
Median	\$50,791	\$54,954	108%
Percent of contracts where benefit base exceeded the contract value			40%
Note: Based on 222,426 GMAB contracts issued before 2015 and remaining in force at EOY 2015. Excludes contracts for which the GMAB benefit bases could not be determined.			

40% of GMAB contracts had benefit bases that exceeded the contract values at EOY, compared with 10% at BOY 2015.

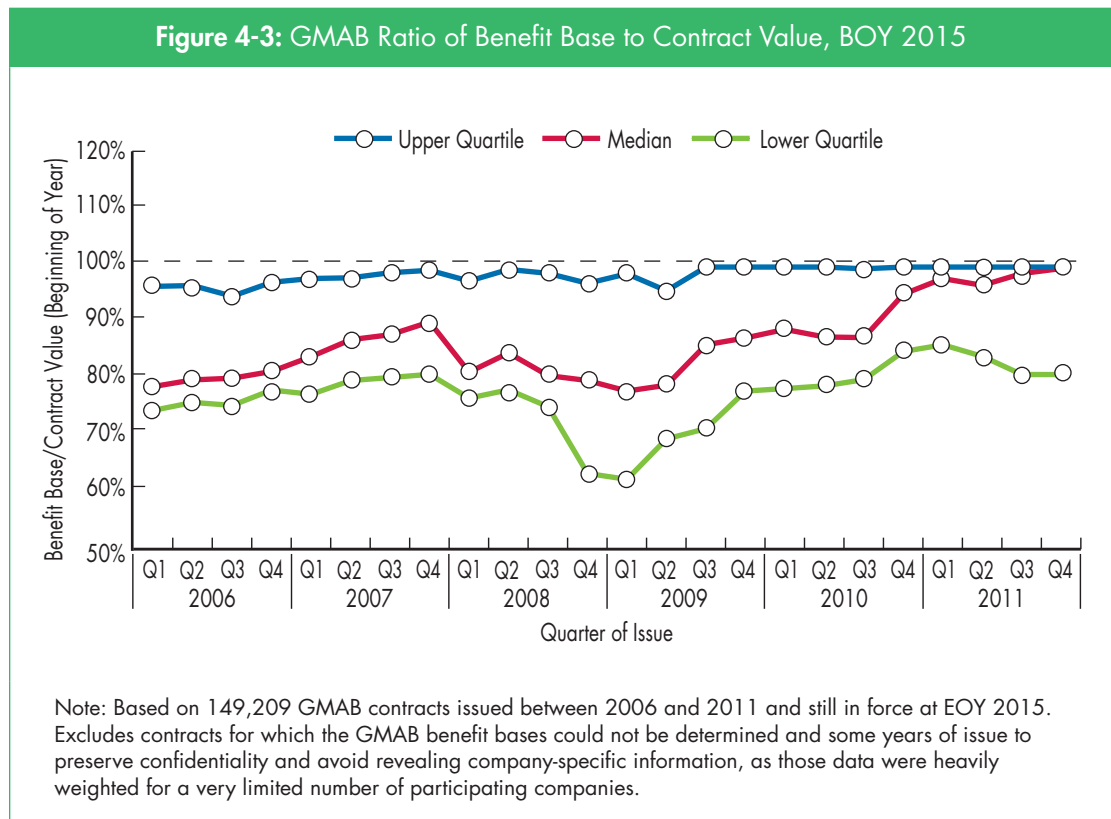
In 2015, the S&P 500 market was down 1 percent (excluding dividends). By EOY 2015, the average GMAB contract value declined 5 percent (Table 4-3), while the average benefit base fell 2 percent. In aggregate, 40 percent of the GMAB contracts had benefit bases that were greater than the contract values at EOY.

Benefit Base by Quarter and Year of Issue

A third of GMAB contracts were issued in 2007 or prior, thus a large segment of the contracts went through considerable market volatility — involving both deep losses during the market crisis in 2008 to 2009 and significant gains from 2010 to 2014. The contracts issued in 2006, for example, experienced a brief period of market gains in 2006 to 2007, and had less of a setback during the last market crisis (Figure 4-2). At BOY 2015, median GMAB contract values were higher than the median benefit base from 2006 through 2011.



Not all GMAB contracts had contract values that were greater than or equal to the benefit base. For example, some GMAB contracts issued during 2002–2004 had benefit bases that exceeded the account values at BOY 2015. Favorable market conditions in 2010–2014 helped to bring the median benefit base to median contract value ratio equal to or less than 100 percent for many contracts. Figure 4-3 shows the comparison between the ratio of the median benefit base to median contract value for GMABs at BOY 2015, as well as the inter-quartile range to understand how widely (or narrowly) distributed the ratios were.

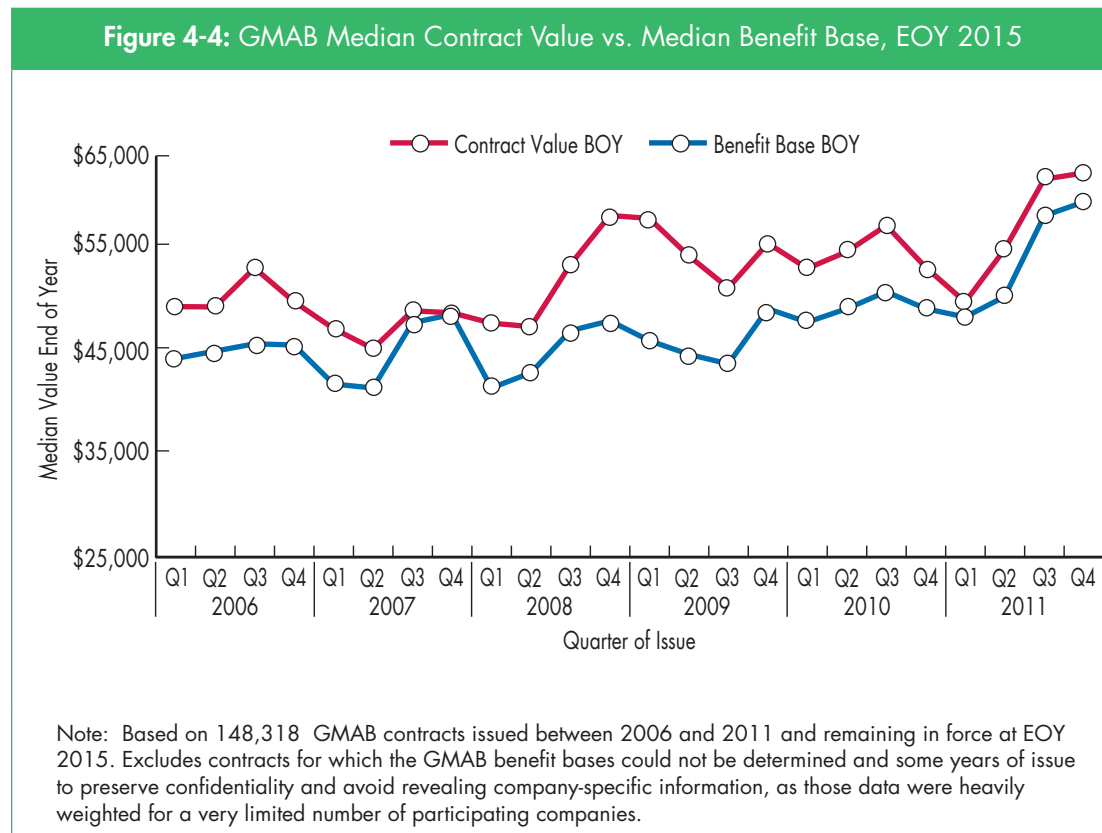


The upper and lower quartiles in Figure 4-3 refer to the distribution of median benefit base to median contract value (BB/CV) ratios, not to the distribution of contract values.

The data show that the BB/CV ratios for contracts issued during the market crisis — from Q4 2008 to Q3 2009 — had a large spread in BB/CV ratios. Those contracts that were issued without a step-up or other ratcheting method have lower benefit bases relative to contract values, as the contract values were much higher in recent years than 2009.

During 2015 contract values declined causing the BB/CV ratio to increase for most quarters.

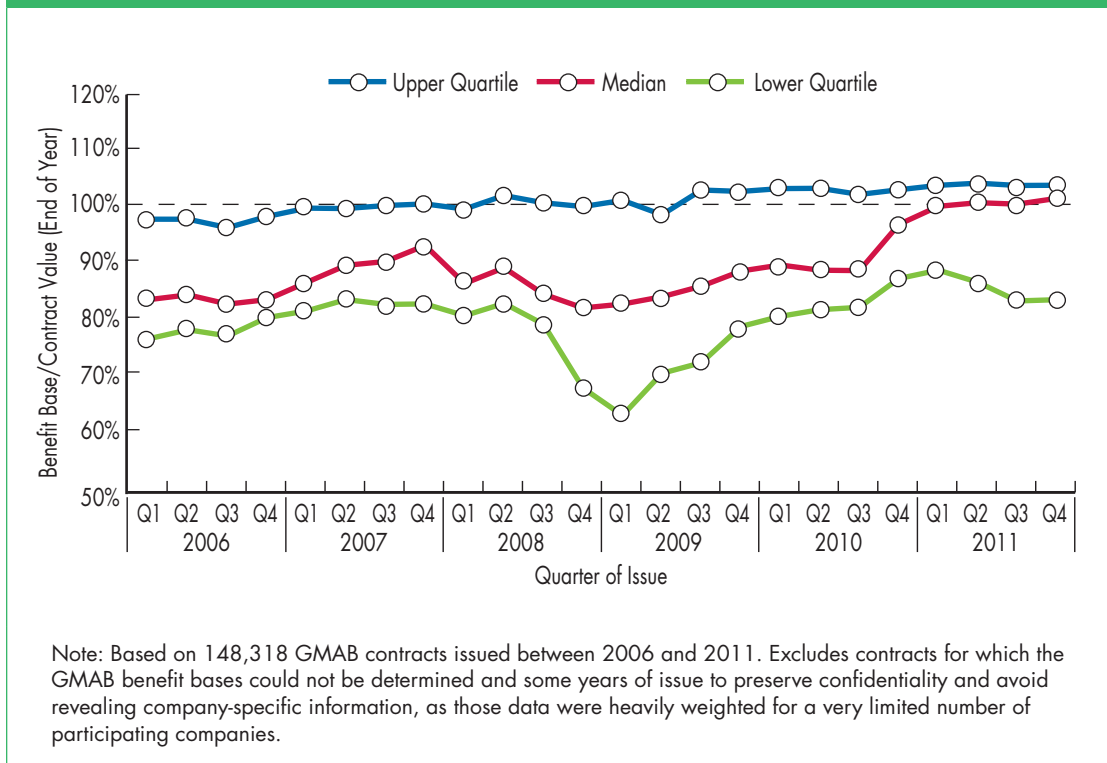
At EOY 2015, the median contract values for contracts issued prior to 2005 started to drop below the median benefit base. The gap between the median contract value and the median benefit base in GMAB contracts was largest for contracts issued in Q4 2008 and Q1 2009 (Figure 4-4). For these contracts, contract values exceeded benefit values by a range of \$10,600 to \$12,300 — these differences were due to buying the GMAB contract in a low market, and subsequent market recoveries.



There was a decline in the number of GMAB contracts that had contract values that were greater than or equal to the benefit base at EOY 2015.

At EOY, many quarters of the upper quartile ratios of BB/CV for GMAB contracts were at or above 100 percent. Figure 4-5 shows the year-end comparison of these ratios by quarter of issue, and the distribution of ratios in quartiles.

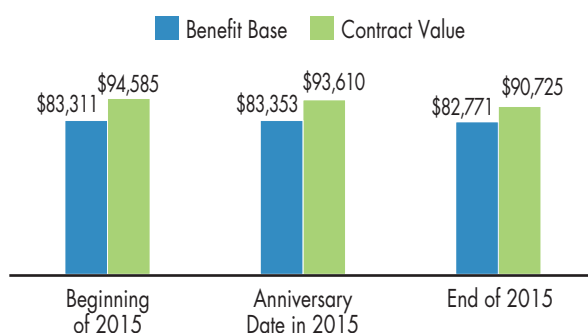
Figure 4-5: GMAB Ratio of Benefit Base to Contract Value Distribution at EOY 2015



Given the growth in the equity markets in the previous few years, the majority of GMAB contracts had BB/CV ratios that were near or below 100 percent. Of all the contracts issued from 2006 to 2011, one-third were issued in 2006 to 2007 and these contracts had a median ratio between 83 and 94 percent. Another one-third of the contracts were issued between 2008 and 2009 and these contracts also had relatively low BB/CV ratios at EOY 2015, with median ratios between 83 and 90 percent.

In Figure 4-6, the average contract value declined 4 percent during 2015. At EOY 2015, the average benefit base value was about \$8,000 less than the average contract value.

Figure 4-6: GMAB Average Contract Values and Benefit Base Values



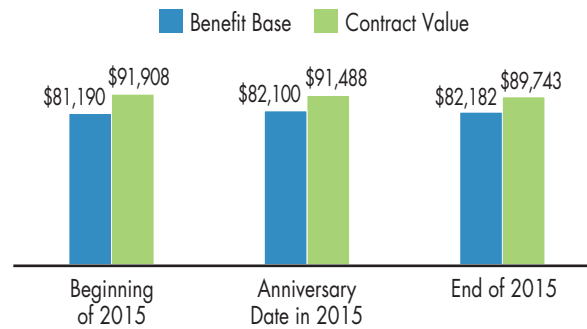
Note: Based on 168,754 GMAB contracts issued before 2015 and still in force at EOY 2015. Excludes contracts for which the GMAB benefit bases (as of BOY, the contract's anniversary date, or EOY) could not be determined.

Across all GMAB contracts where companies reported both contract values and benefit bases, benefit bases totaled \$14.0 billion as of EOY 2015, compared with account balances of \$15.3 billion.

Benefit Base for Contracts with Withdrawals versus Without Withdrawals

GMAB contracts are not designed for taking withdrawals, and withdrawals typically cause a pro-rata reduction in the benefit base. For in-force contracts issued before 2015 that did not have withdrawals in 2015, the average benefit base increased slightly by 1.2 percent (Figure 4-7). Such a minor change in the benefit base is primarily because very few GMAB riders offer automatic increases of benefit bases in the case of non-withdrawals. The average value of these contracts declined during the year, given the lack of investment performance. At EOY 2015, the average contract value declined 2.4 percent and was \$7,600 larger than the average benefit base value for contracts without withdrawals.

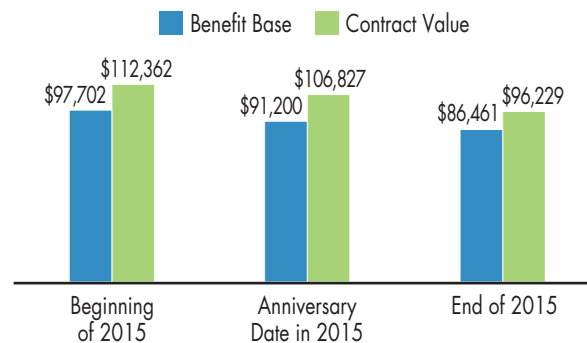
Figure 4-7: GMAB Average Contract Value and Benefit Base for Contracts Without Withdrawals



Note: Based on 137,151 GMAB contracts issued before 2015 and still in force at EOY 2015 with no withdrawals made or current-year premium received. Excludes contracts for which the GMAB benefit bases or contract values could not be determined.

Among contracts that had withdrawals in 2015, the average benefit base declined 12 percent. The average contract value declined by 14 percent, but was \$9,800 larger than the benefit base (Figure 4-8).

Figure 4-8: GMAB Average Contract Value and Benefit Base for Contracts With Withdrawals



Note: Based on 26,406 GMAB contracts issued before 2015 and still in force at EOY 2015 with withdrawals made, but no current-year premium received. Excludes contracts for which the GMAB benefit bases or contract values could not be determined.

Benefit Base to Contract Value Ratios by Age

We have expanded the analysis of BB/CV ratios to drill down on age or age cohorts to see if any risks can be linked to BB/CV ratios by age. This analysis shows that the BB/CV ratios differ by age, and provides insights related to risks associated with each age or age cohort and comparisons within the GMAB industry.

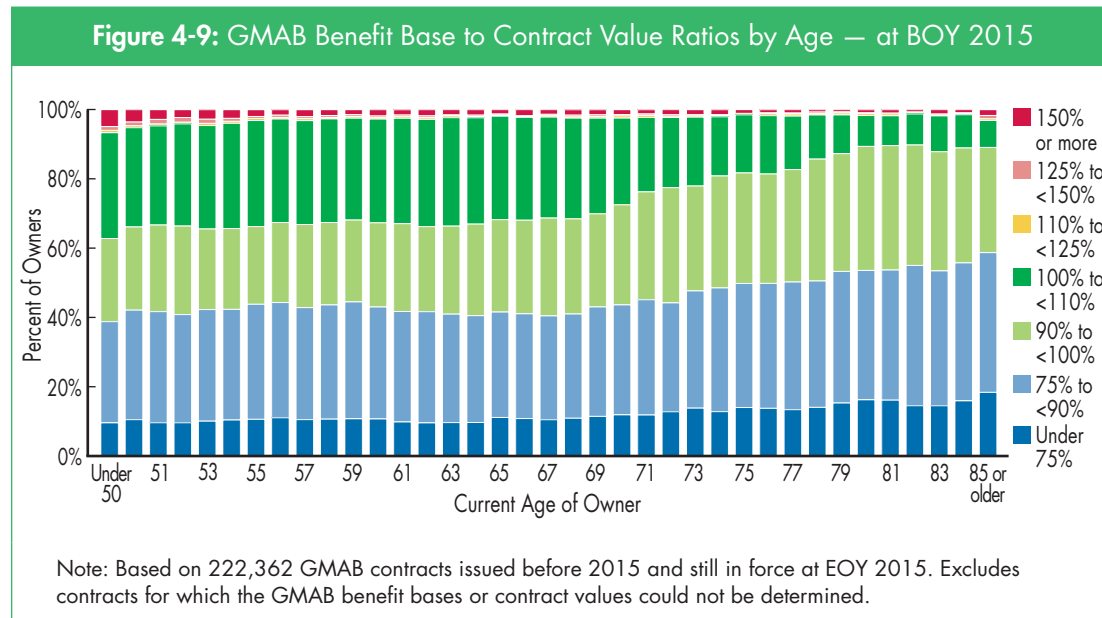


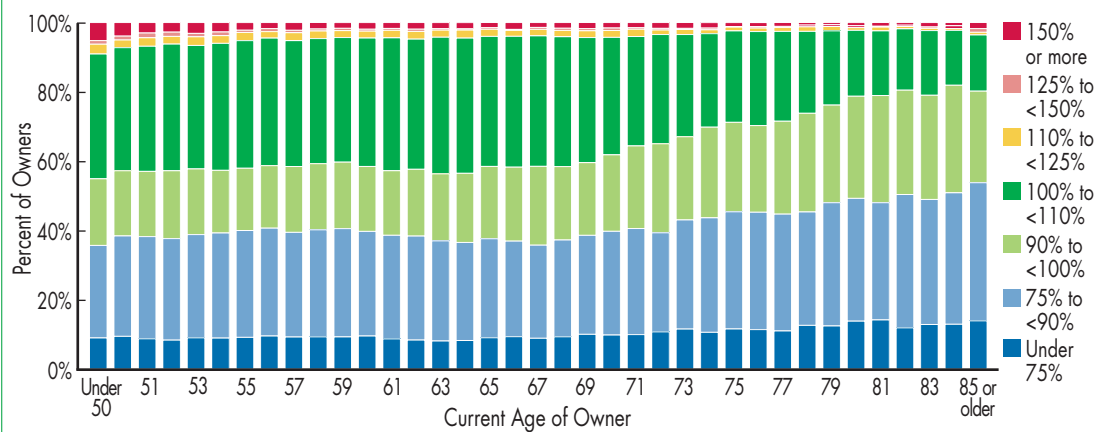
Figure 4-9 provides the BB/CV ratios by age at BOY 2015. For in-force GMAB contracts issued before 2015, at BOY: 69 percent had benefit base amounts below their contract values — with one-quarter falling between 90 percent and less than 100 percent; 28 percent had BB/CV ratios between 100 to less than 110 percent; 1 percent had benefit bases that exceeded contract values by 110 to less than 125 percent; and only 2 percent had BB/CV ratios of 125 percent or more. Eighty-one percent of the owners aged 70 or older had BB/CV ratios below 100 percent.

At EOY 2015, **6 out of 10** GMAB contracts had BB/CV ratios **less than 100%**

Figure 4-10 shows the distribution of BB/CV ratios by age at EOY 2015. The contracts with BB/CV ratios less than 100 percent declined to 6 out of 10 by EOY 2015: 1 in 5 had BB/CV ratios between 90 percent and less than 100 percent; 29 percent had BB/CV ratios between 75 to less than 90 percent, and 1 in 10 had ratios less than 75 percent. A third of contracts had BB/CV ratios between 100 to less than 110 percent; 2 percent had

benefit bases that exceeded contract values by 110 to less than 125 percent; and only 3 percent had BB/CV ratios of 125 percent or more.

Figure 4-10: GMAB Benefit Base to Contract Value Ratios by Age — at EOY 2015

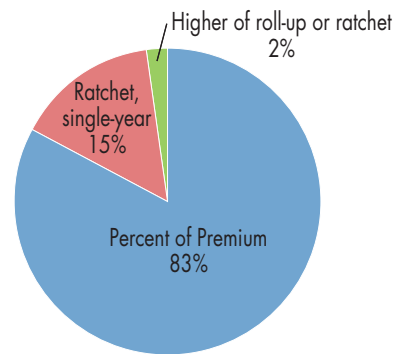


Note: Based on 222,362 GMAB contracts issued before 2015 and still in force at EOY 2015. Excludes contracts for which the GMAB benefit bases or contract values could not be determined.

GMAB Benefit Calculation Method

Just over 8 out of 10 GMABs had benefit bases that were determined based on total premiums received (Figure 4-11). Only 3 percent of the GMAB contracts using the percent-of-premium benefit calculation method had roll-ups above 100 percent of premium.

Figure 4-11: GMAB Benefit Calculation Method



Note: Based on 236,275 GMAB contracts issued before 2015.

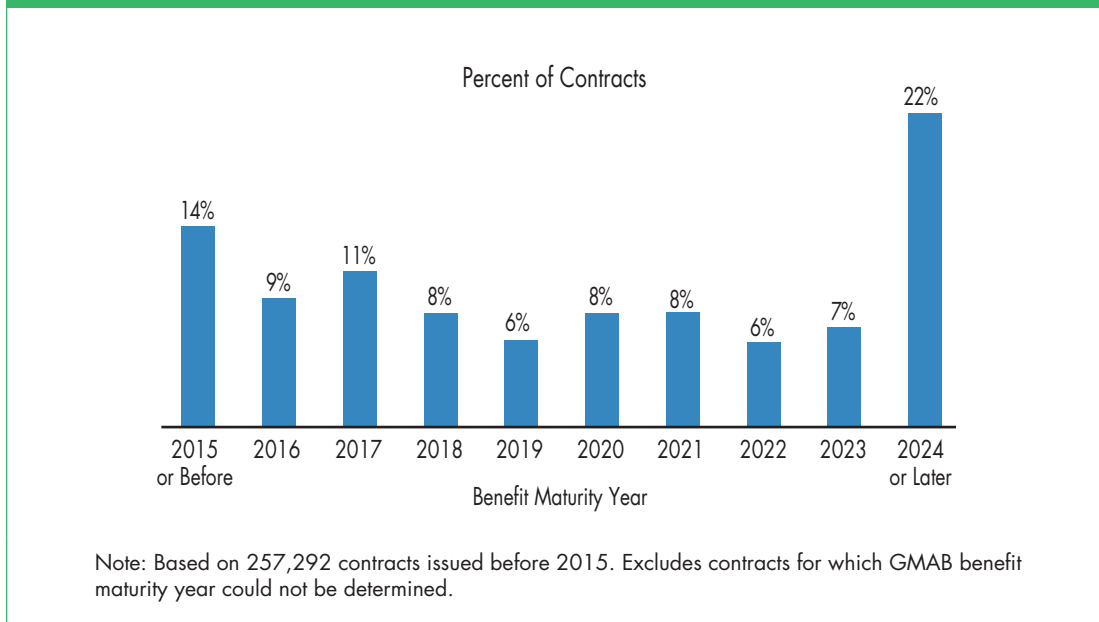
Benefit Maturity

Benefit Maturity of GMAB Contracts

GMAB benefit utilization simply requires the owner to keep the contract in force until the day of benefit maturity. At that point, if the accumulation benefit is greater than the contract value, then it is automatically set to the guaranteed benefit base.

Most contracts (86 percent) have benefit maturity dates in 2016 or later (Figure 4-12). Half of GMAB contracts in-force will mature between 2016 and 2021.

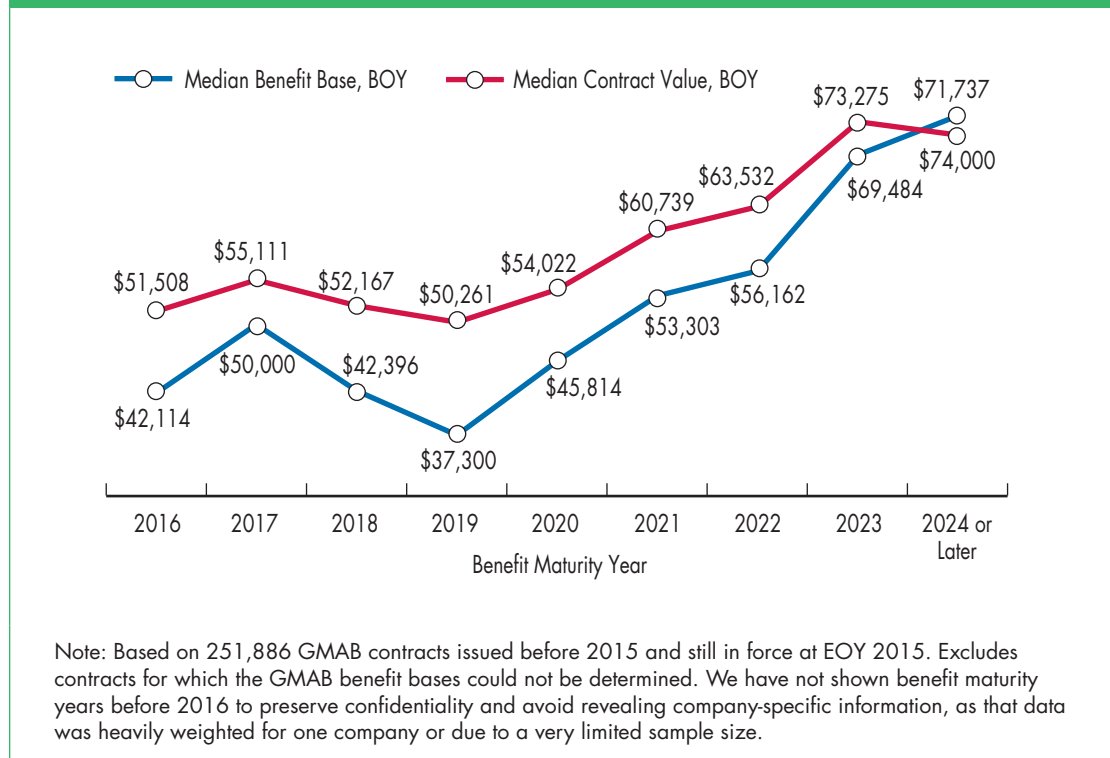
Figure 4-12: GMAB Percentage of Contracts by Benefit Maturity Year



Year of Benefit Maturity

Most of the GMAB benefits in force mature 7 to 10 years after they are elected. Contracts with benefit maturities that occur before 2024 — three-quarters of all GMAB contracts — have median contract values that exceed the median benefit bases (Figure 4-13). The difference between the median contract value and the median benefit base ranges from \$5,100 to \$13,000 for GMAB contracts where guarantees may accrue in the next five years. The contracts that will mature in 2019 have the greatest difference, most likely driven by just missing the equity downturn during the financial crisis in 2008-2009.

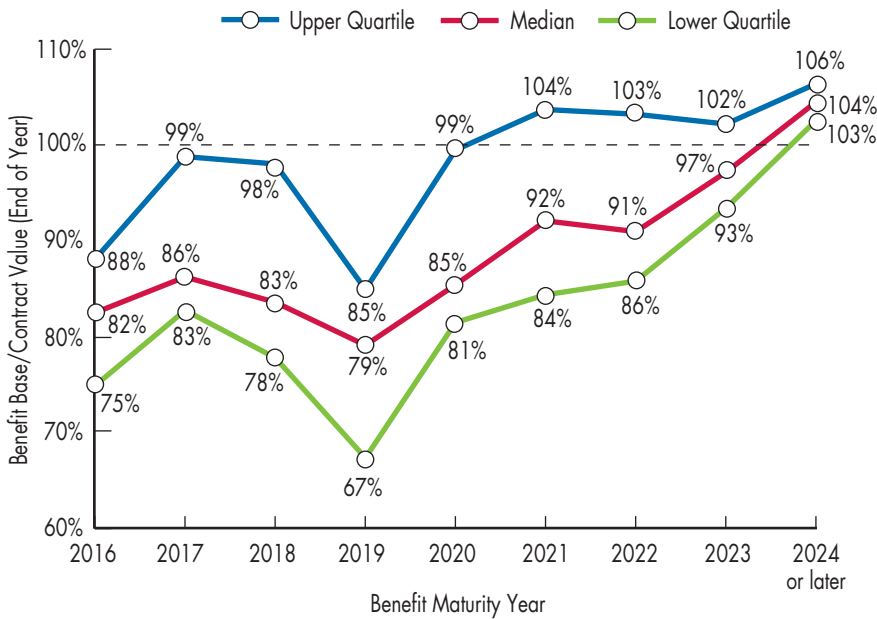
Figure 4-13: GMAB Median Benefit Bases and Contract Values by Benefit Maturity Year



A comparison of the ratio of median benefit base to median contract value for GMAB contracts at EOY 2015 is shown in Figure 4-14. The inter-quartile ranges show the distribution of ratios for different maturity years by year-end. Companies can compare their own quartiles of this ratio and its distribution to see how their own book of business compares with this industry snapshot at EOY 2015.

GMAB contracts with benefit maturity in 2017 and 2020 or after tend to have higher BB/CV ratios, with median ratios at or exceeding 85 percent.

Figure 4-14: GMAB Median Benefit Base to Median Contract Value Ratio at EOY 2015, by Benefit Maturity Year

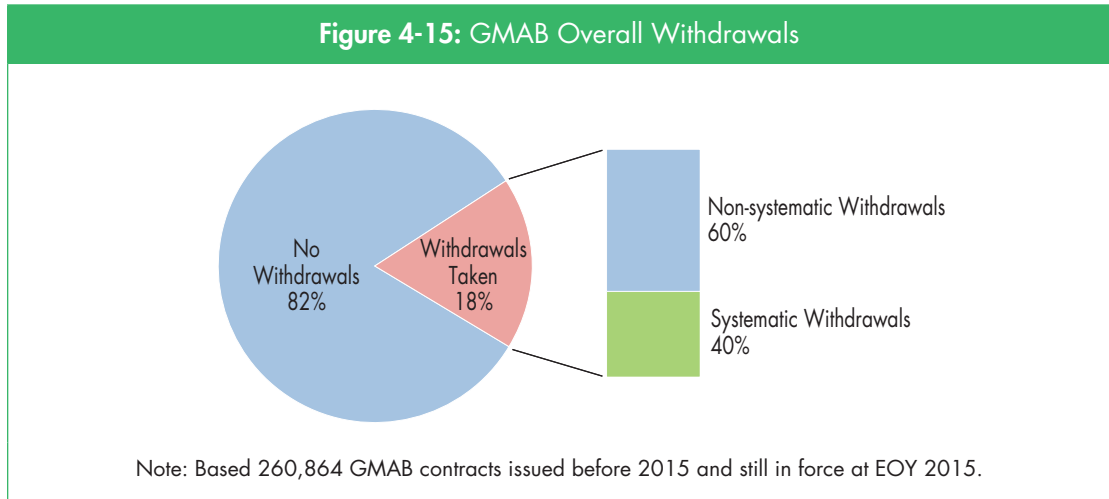


Note: Based on 225,692 GMAB contracts issued before 2015 and still in force at EOY 2015.

Withdrawal Activity

Despite the fact that GMAB contracts are not designed for owners to take withdrawals, and withdrawals cause the benefit base to be proportionately reduced, annuity customers do take withdrawals to meet financial needs. For example, customers may take withdrawals for emergencies, or to satisfy RMDs. Among GMAB contracts issued before 2015 and still in force at EOY, 18 percent had some withdrawal activity during 2015 (Figure 4-15), very similar to experience in prior years. For 40 percent of contracts, these withdrawals were systematic withdrawals.

Figure 4-15: GMAB Overall Withdrawals



The highlights below are based on GMAB contracts that had withdrawals in 2015:

- The percent of GMAB owners using systematic withdrawals is much lower compared to the other GLB products.
- Total withdrawals amounted to \$947 million for the year, of which \$145 million were systematic.

18% of GMAB owners took withdrawals in 2015.

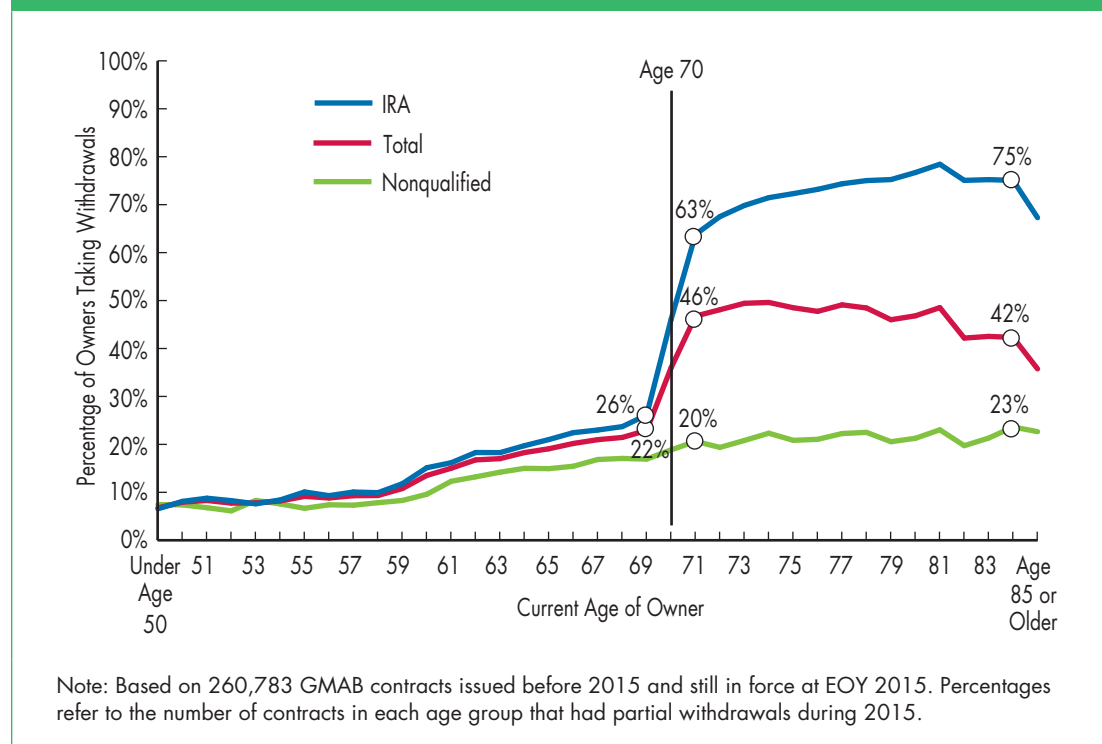
- The median withdrawal amount was \$7,700. The median withdrawal rate was 10.6 percent based on the average BOY median contract value of \$72,600.
- Median systematic withdrawal amount during the year was \$4,800.

Withdrawal Activity by Source of Funds

Like all other GLBs, the source of funds is a major driving force for withdrawal behavior in GMABs. Even though the overall percent of owners taking withdrawals in GMAB contracts remained low, the percent of owners taking withdrawals was quite high for those who funded their annuities with IRA funds (Figure 4-16).

Three-quarters or more of owners in their upper 70s and lower 80s took withdrawals from annuities purchased with IRA money.

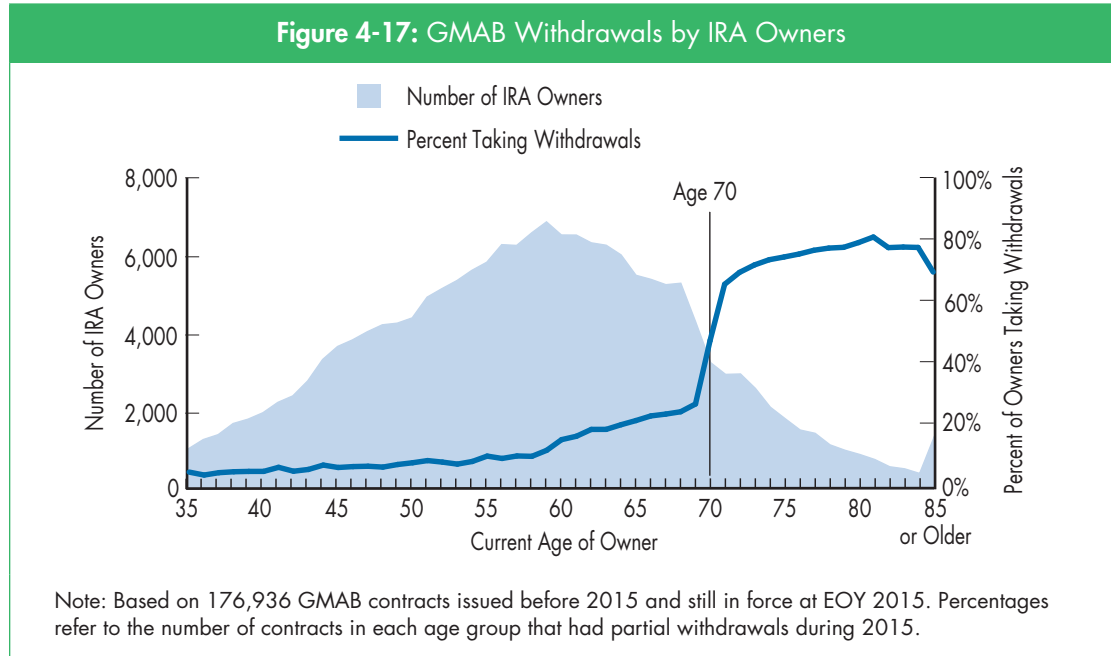
Figure 4-16: GMAB Withdrawals by Fund Source and Owner Age



After age 70, the need for RMDs from IRA annuities forces owners to take withdrawals; and the percentage of these customers taking withdrawals quickly jumps to 63 percent by ages 71 to 72. After age 72, the percent of IRA owners withdrawing slowly rises to roughly 75 percent for owners aged 76 and older. Owners are less likely to take withdrawals if they used non-qualified money, and the percent of nonqualified customers withdrawing remains under 25 percent for all ages.

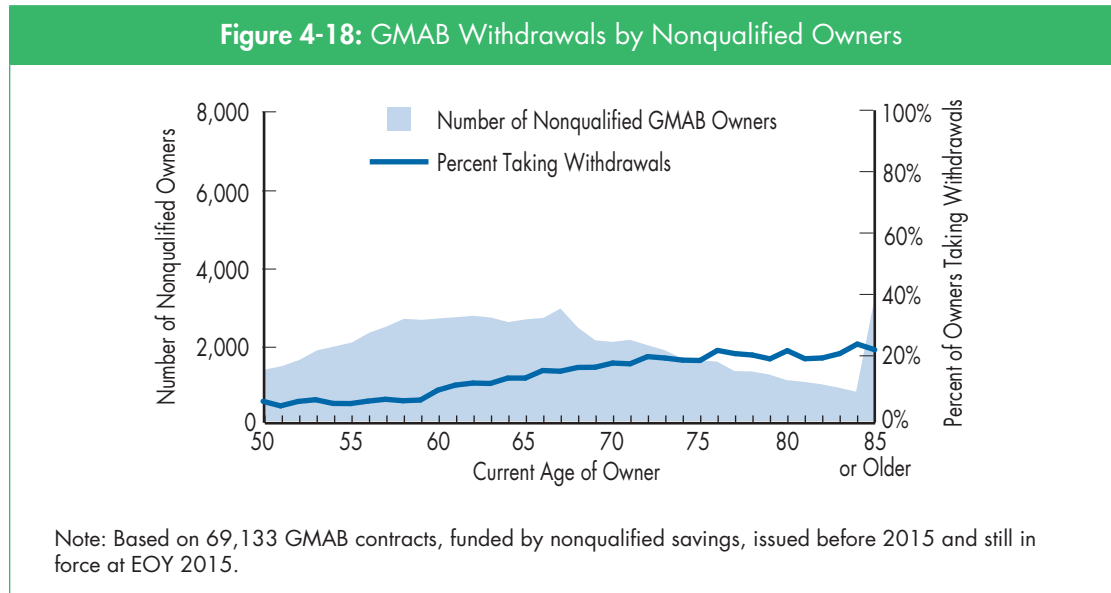
In 2015, only 14 percent of GMAB owners who funded their annuities with IRA sources were aged 70 or over (Figure 4-17). Two-thirds of these owners took withdrawals in 2015. On the other hand, only 12 percent of IRA owners aged 69 or under took withdrawals in 2015.

Figure 4-17: GMAB Withdrawals by IRA Owners



Only 13 percent of nonqualified owners took withdrawals in 2015 (Figure 4-18). The percent of owners taking withdrawals increases very slowly with age. Twenty-one percent of owners aged 70 or over and 10 percent of owners aged 69 or under took withdrawals from their GMAB contracts.

Figure 4-18: GMAB Withdrawals by Nonqualified Owners

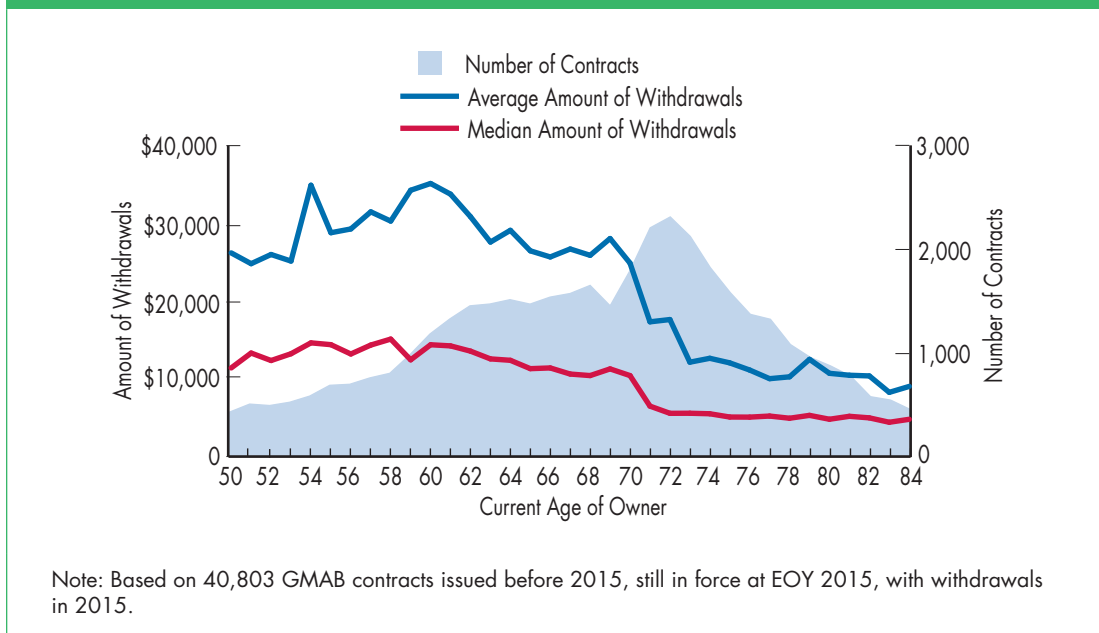


Average Amount of Withdrawals

The average amount of withdrawals in GMAB contracts was \$20,700 for contracts issued before 2015 that were in force at EOY 2015. The median amount was \$7,700.

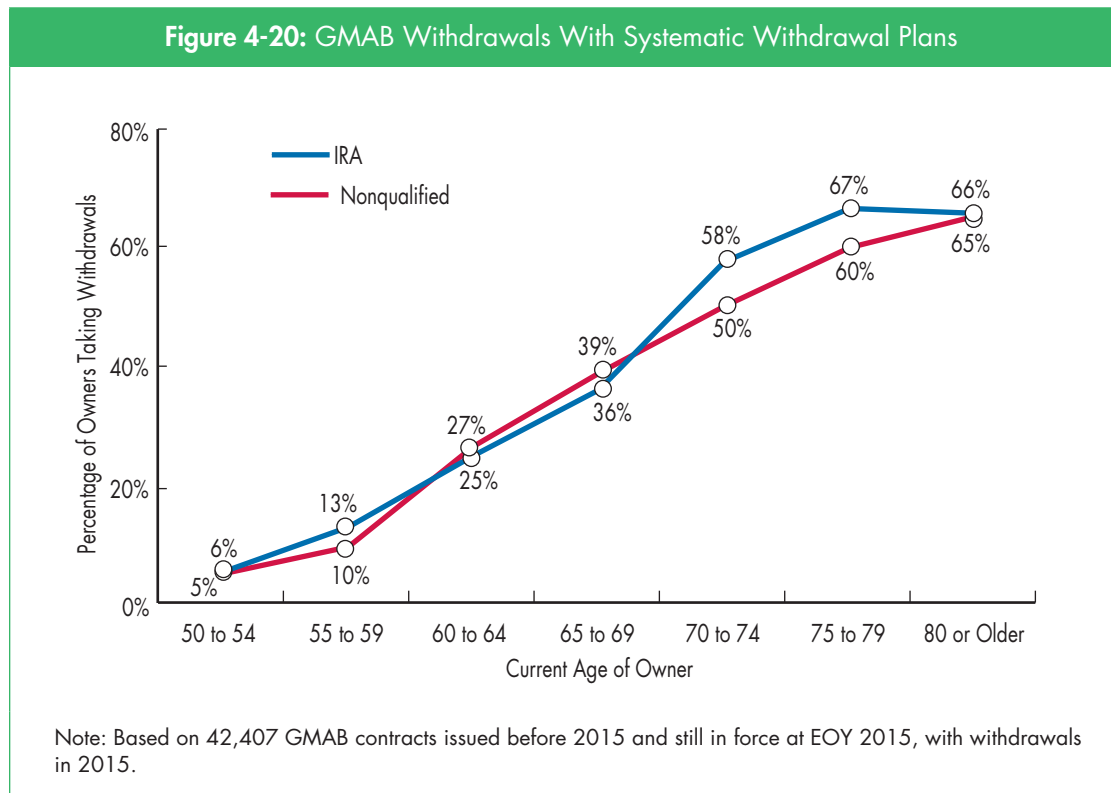
Some owners in their 50s and 60s took average withdrawals of more than \$25,000 from their contracts (Figure 4-19). Despite only 13 percent of these owners taking withdrawals, their high withdrawal amounts accounted for 63 percent of all withdrawals in 2015. Since these withdrawals by owners under age 70 were not for RMDs, the withdrawals will reduce the benefit amount on a pro-rata basis. Most of these withdrawals were likely partial surrenders of the contracts. A more reasonable withdrawal pattern and average withdrawal amount emerges for owners over age 70, commensurate with RMD needs.

Figure 4-19: GMAB Amount of Withdrawals by Owner's Current Age



Systematic Withdrawal Activity

One-fifth of GMAB owners are taking withdrawals; which, for older owners are often to satisfy RMDs. When older owners take withdrawals, many of them take advantage of a systematic withdrawal plan (SWP) or program (Figure 4-20). All insurance companies allow owners to use SWPs, particularly to satisfy RMDs. Typically, companies treat RMD withdrawals on accumulation benefit base as partial withdrawals, which may impact the benefit base negatively as they are adjusted on a pro-rata basis.



Overall, 41 percent of IRA owners took withdrawals using SWPs while 39 percent of nonqualified owners used SWPs. However, use of an SWP is higher among older owners. For example, 21 percent of IRA owners under age 70 used SWPs for withdrawals, and the rest took withdrawals non-systematically or occasionally. On the other hand, 62 percent of IRA owners aged 70 or over used SWPs for their withdrawals. In GMAB contracts, older owners are more likely to take withdrawals through SWPs; and younger owners — particularly those under age 70 — are more likely to take occasional withdrawals.

Additional Premium and Net Flows

Contracts with GMAB riders typically do not allow owners to add premium to the guaranteed portion after the first anniversary. Many contracts have strict provisions to allow additional premium only during the first 90 to 180 days after issue. Among contracts issued in 2015 or earlier:

- Four percent received additional premium in 2015. Among contracts issued in 2014, 9 percent received additional premium and 4 percent of contracts issued in 2013 added premium in 2015.
- The average additional premium in 2015 was \$24,200, with a median of \$5,500.
- Younger owners were more likely to add premium than older owners. For example, 5 percent of owners under age 50 added premium, compared with 2 percent of owners aged 70 or older.

Premium received, new contracts issued, and investment growth were offset by outflows associated with partial withdrawals, full surrenders, deaths, and annuitizations (Table 4-4). The total number of GMAB contracts in force declined by 2 percent during 2015.

Table 4-4: GMAB Net Flows

	Dollars (in Billions)	Contracts	Average Contract Size
In-force, BOY 2015	\$25.7	260,864	\$98,431
Premium received			
Newly issued contracts	\$2.3	19,446	\$120,779
Existing contracts	\$0.2	N/A	N/A
Benefits paid			
Partial withdrawals	\$1.0	N/A	N/A
Full surrenders	\$1.7	22,945	\$73,107
Deaths	\$0.14	1,638	\$86,834
Annuitizations	\$<0.1	126	\$69,769
Investment growth	-\$0.84	N/A	N/A
In-force, EOY 2015	\$24.6	255,601	\$96,302

N/A=Not available.

Note: Based on 280,310 GMAB contracts. Dollar values for contracts issued before 2015 that terminated during the year were set equal to either BOY contract value (if termination occurred before contract anniversary date) or the anniversary contract value (if termination occurred on or after the contract anniversary date). Dollar values for contracts issued in 2015 that terminated during the year were set equal to the current-year premium.

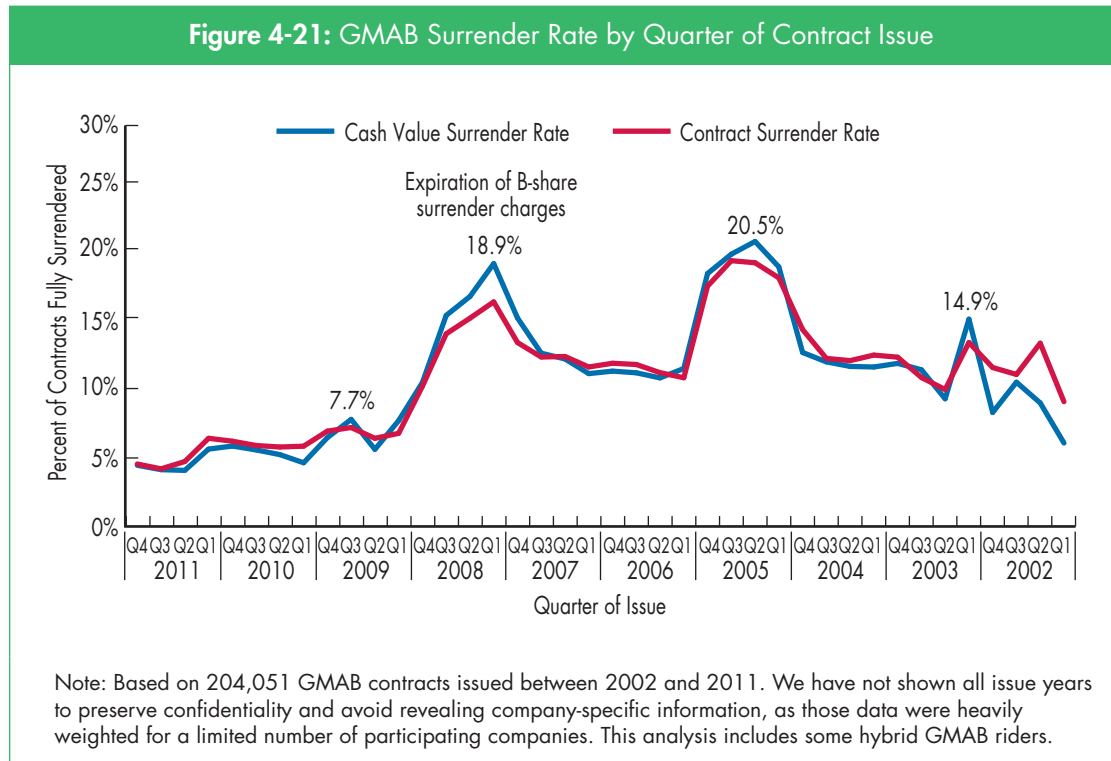
Persistence

GMABs have the highest overall contract surrender rates (8.7 percent) compared with other GLBs. However, surrender rates are expected to be higher for GMAB contracts once the benefit maturity period is reached, as the typical contract does not continue any protection of principal, while some other traditional benefits of annuities — like guaranteed death benefits, tax deferral for nonqualified contracts, and guaranteed lifetime income through annuitization — remain in effect.

Surrender rate for GMAB contracts in 2015 = **8.7%**

Contract surrender rates were extremely high (13.2 percent) for GMAB contracts issued from 2002 – 2008 (Figure 4-21). There is also a noticeable increase in surrender rates at the expiration of the B-share and L-share surrender charges as well as the expiration of the guaranteed benefit for some GMAB riders.

Figure 4-21: GMAB Surrender Rate by Quarter of Contract Issue



Surrender Activity by Share Class and Surrender Charge

Surrender rates among contracts with surrender charges were much lower than in contracts without surrender charges. Irrespective of share classes, the surrender rate for contracts where charges expired in 2014 was 25.0 percent — over five times the rate of contracts where charges exist (4.4 percent). The surrender rate of contracts that expired in previous years was 13.2 percent. Figure 4-22 illustrates the contract surrender rates for contracts by share classes while Figure 4-23 provides the cash value surrender rates. Just under two-thirds of GMAB contracts, B-share and L-share combined, were within the surrender charge periods in 2015.

Contract surrender rate in GMAB contracts with surrender charges = **4.4%**.

Contracts surrendered where charges expired in previous years = **13.2%**.

Contracts surrendered where charges expired in the current year = **25.0%**.

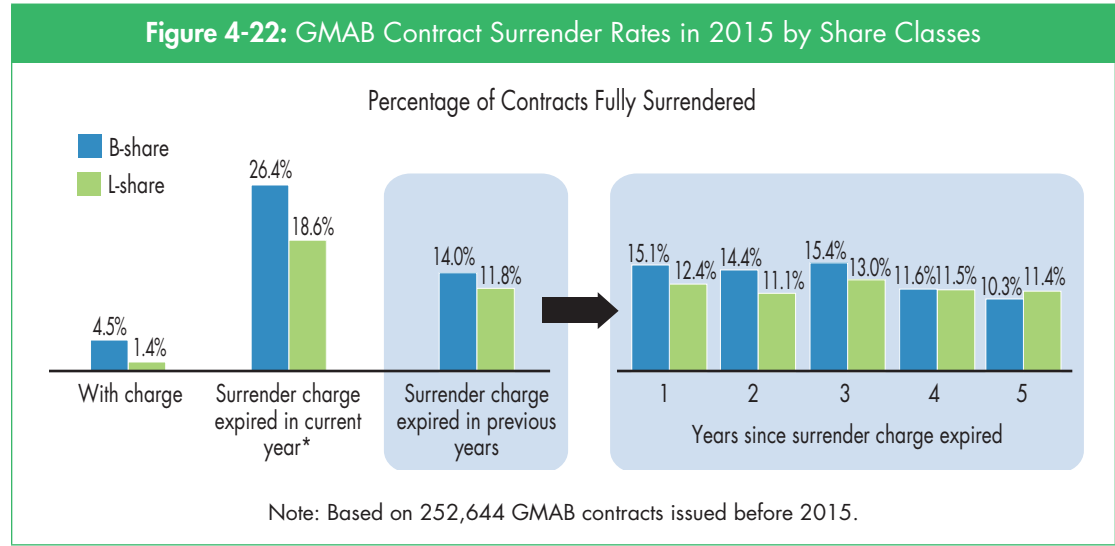
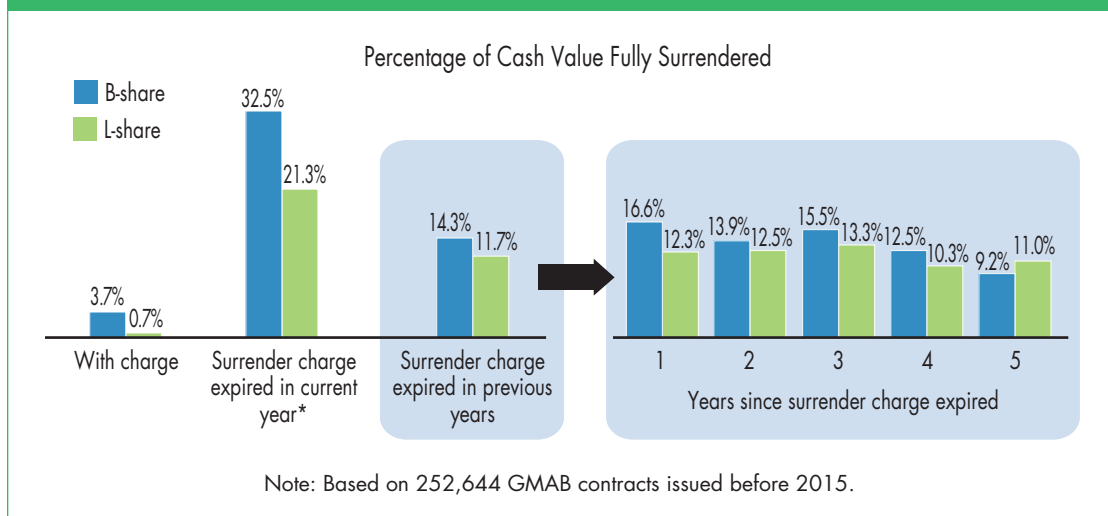


Figure 4-23: GMAB Cash Value Surrender Rates in 2015 by Share Classes



Contract surrender is influenced by the rate of surrender charge present. Naturally, contracts with higher penalties have lower surrender rates and vice versa (Figure 4-24). Around a third of GMAB contracts and cash value were free of surrender charges in 2015. Figure 4-25 provides the cash value surrender rates by presence of surrender charge.

Figure 4-24: GMAB Contract Surrender Rates in 2015 by Surrender Charge Percentage

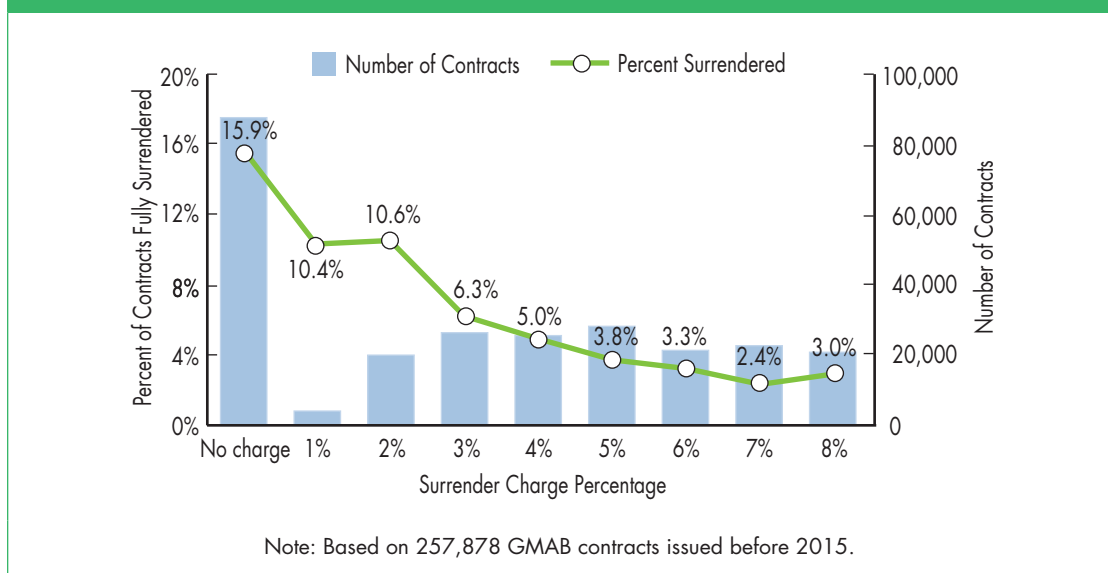
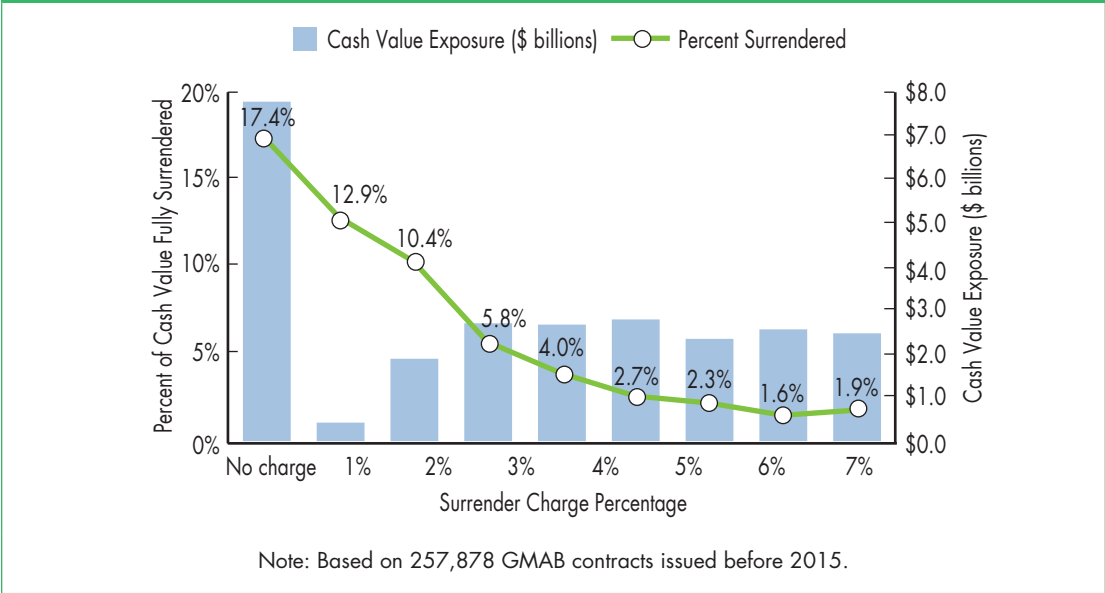


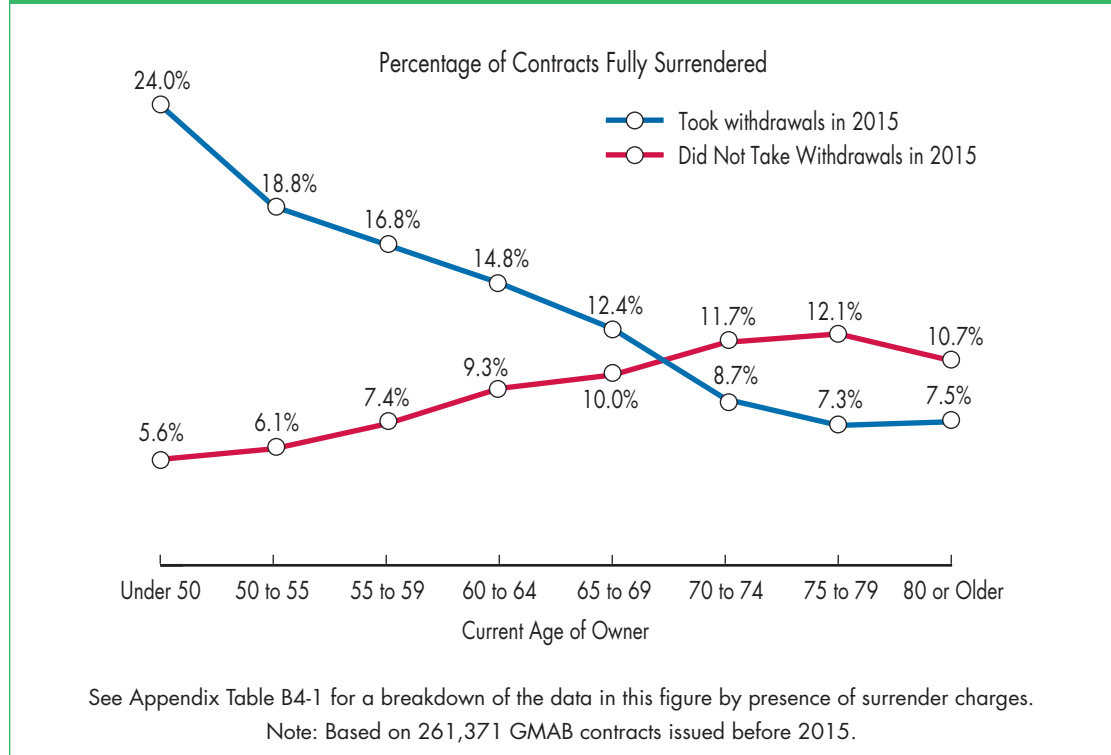
Figure 4-25: GMAB Cash Value Surrender Rates in 2015 by Surrender Charge Percentage



Surrender Activity by Owners Who Took Withdrawals

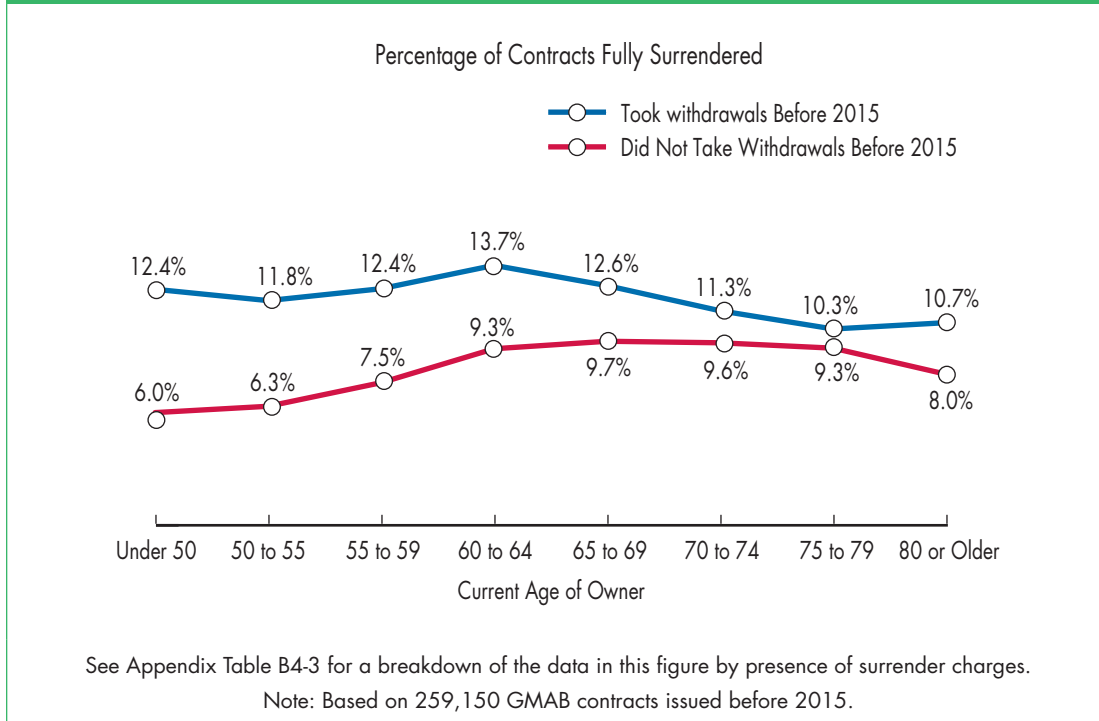
Higher GMAB surrender rates are associated with younger owners, particularly those under age 60 who took withdrawals before or in 2015. Even though younger owners own a significant portion of GMABs, some of them are taking large average withdrawals. It is likely that these younger owners are really taking partial surrenders. Owners under age 60 who took withdrawals in 2015 were also more likely to fully surrender their contracts compared to older owners (Figures 4-26).

Figure 4-26: GMAB Contract Surrender Rates in 2015, by Owners Who Took Withdrawals in 2015



Past withdrawals can also indicate whether younger owners are more likely to fully surrender contracts in the future. Figure 4-27 provides the contract surrender rates for owners who took withdrawals before 2015.

Figure 4-27: GMAB Contract Surrender Rates by Owners Who Took Withdrawals Before 2015



Figures 4-28 and 4-29 show the cash value surrender rates for owners taking withdrawals in 2015 and before 2015, respectively.

Figure 4-28: GMAB Cash Value Surrender Rates in 2015, by Owners Who Took Withdrawals in 2015

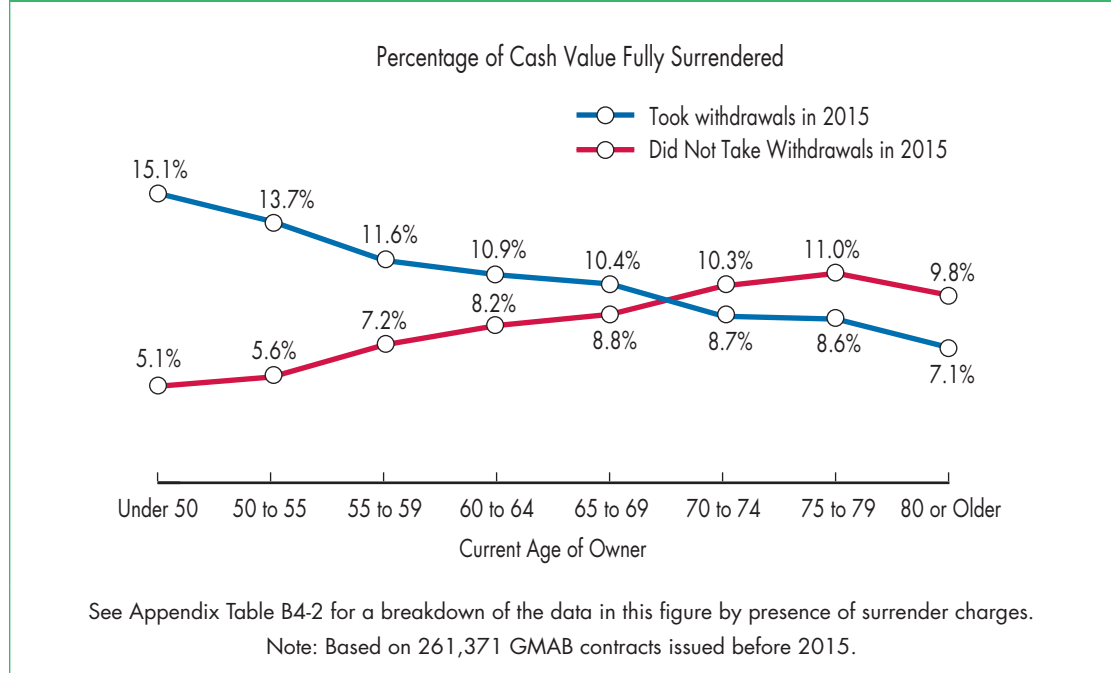
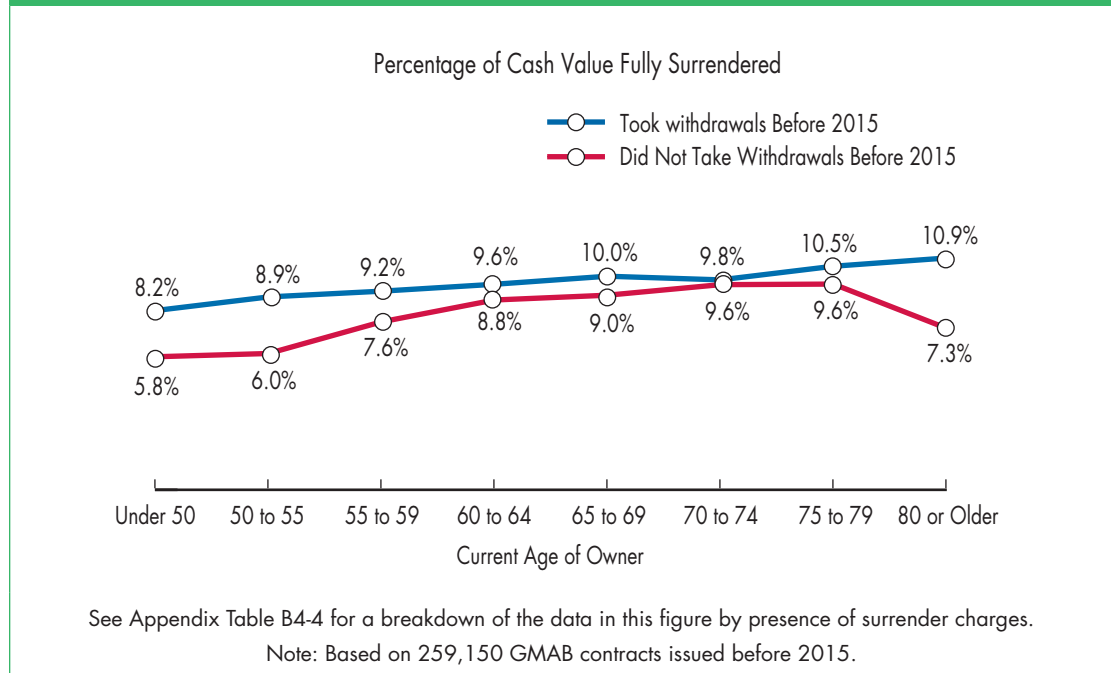


Figure 4-29: GMAB Cash Value Surrender Rates by Owners Who Took Withdrawals Before 2015



Many of these GMAB owners may have surrendered the contracts because the contract benefit matured. Benefit maturity may be the driving force for high surrender rates, and we see that reflected in high surrender rates among older owners (e.g., owners aged 70 to 79 who did not take any withdrawals in 2015). But for many younger owners, taking withdrawals may be an early indicator of full contract surrender. Figure 4-30 provides contract and cash value surrender rates in 2015 by year of benefit maturity. Surrender rates are elevated from benefit maturity years 2016 to 2018 and then slowly decline.

Figure 4-30: GMAB Surrender Activity by Benefit Maturity Year

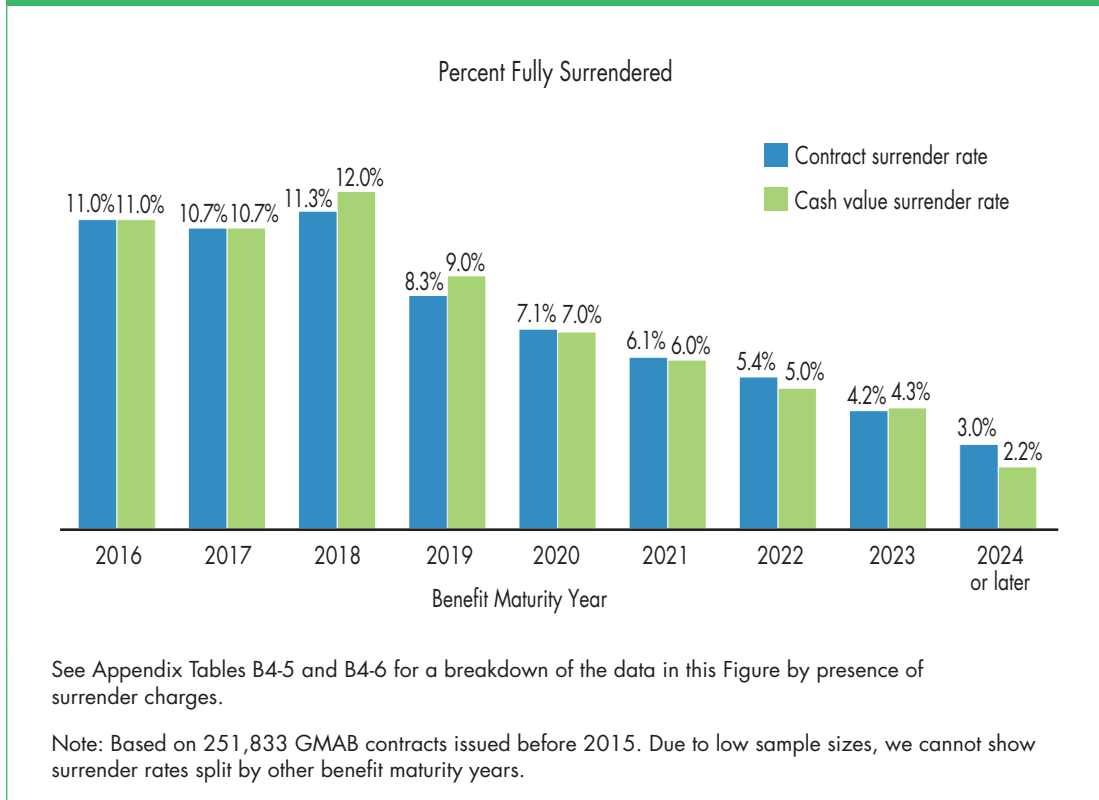
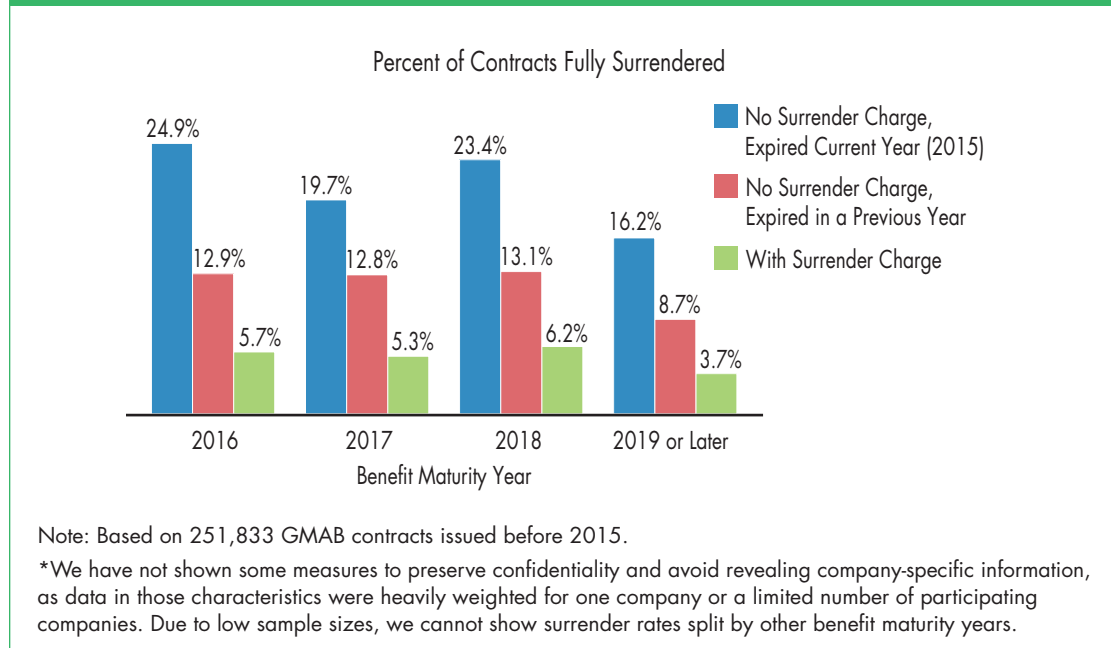


Figure 4-31 provides surrender rates for contracts where the surrender charge expired in 2015, before 2015, and those that still have a surrender charge by benefit maturity year. The surrender rates for contracts where the surrender charge expired in 2015 experience the shock lapse we see with other contracts in the year the surrender charge expires. Surrender rates for contracts where the surrender charge expired in previous years were around 9 to 13 percent. As we saw in Figures 4-22 and 4-23, surrender rates for GMABs are relatively high once the surrender charge expires. Surrender rates for contracts that still have a surrender charge are relatively low. Two thirds of the GMAB contracts still had a surrender charge in 2015, 8 percent had surrender charges that expired in 2015, and a quarter had surrender charges expire in a previous year.

Figure 4-31: GMAB Contract Surrender Activity by Benefit Maturity Year and Presence of Surrender Charge



Surrender Activity when Benefit Base Exceeded the Contract Value

Another important analysis of surrender rates involves whether or not the GMAB benefit base amount exceeded the contract value. Controlling for year of issue, contracts where the contract value was greater than or equal to 95 percent of the benefit base generally had slightly higher surrender activity (Figures 4-32 and 4-33).

Other issues such as the expiration of the surrender charge or benefit maturity could explain some of the increased surrender activity.

Figure 4-32: GMAB Contract Surrender Activity by Amount The Benefit Base Exceeded the Contract Value

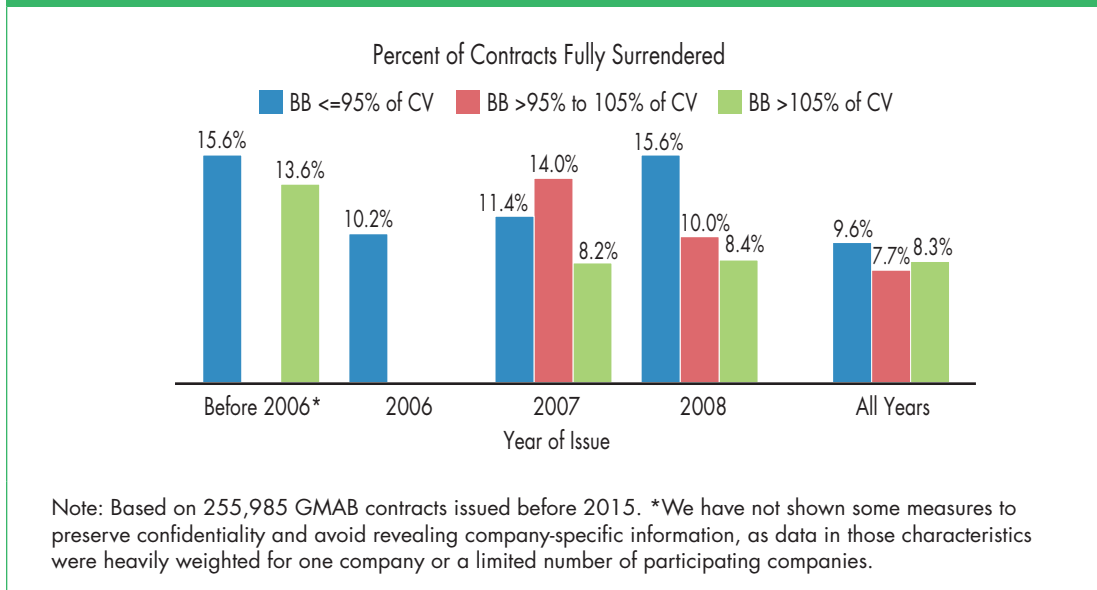


Figure 4-33: GMAB Cash Value Surrender Activity by Amount The Benefit Base Exceeded the Contract Value

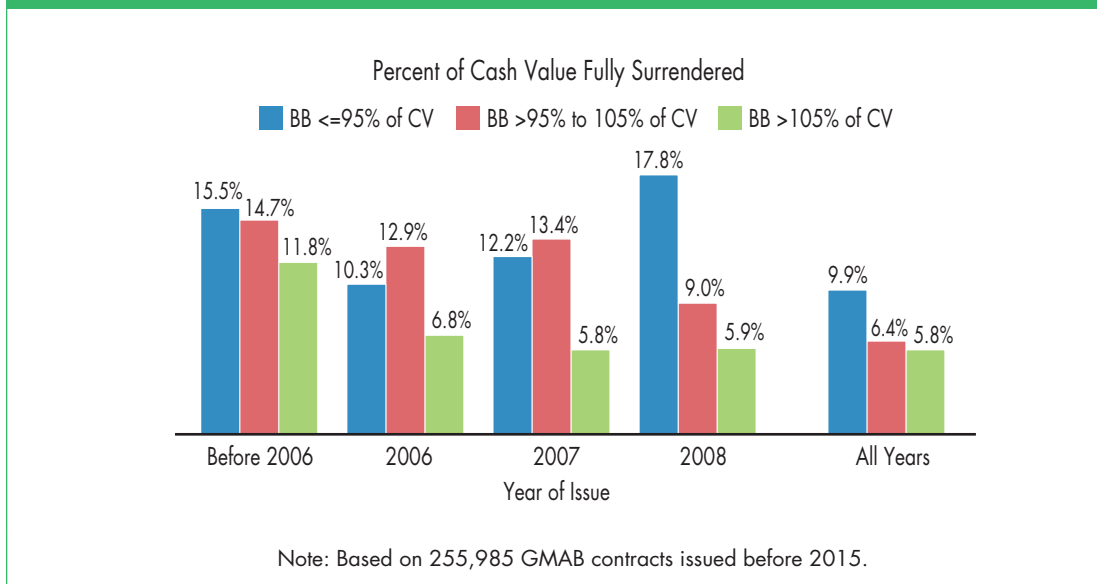


Table 4-5 provides GMAB contract and cash value surrender rates for various categories.

Table 4-5: GMAB Surrender Rates

	Percent of Contracts Surrendered	Percent of Cash Value Surrendered
All contracts	8.7%	8.2%
Year of issue		
Before 2004	11.5%	10.7%
2004	12.6%	11.8%
2005	18.3%	19.3%
2006	11.3%	11.0%
2007	12.3%	12.6%
2008	13.9%	15.1%
2009	6.7%	6.7%
2010	5.8%	5.2%
2011	5.0%	4.5%
2012	3.8%	2.7%
2013	3.0%	2.3%
2014	2.1%	1.4%
Age of owner		
Under 50	6.7%	6.0%
50 to 54	7.1%	6.3%
55 to 59	8.3%	7.8%
60 to 64	10.1%	8.8%
65 to 69	10.5%	9.2%
70 to 74	10.3%	9.6%
75 to 79	9.8%	9.9%
80 or older	9.4%	8.9%
Contract value, BOY 2015		
Under \$25,000	10.4%	9.4%
\$25,000 to \$49,999	8.4%	8.4%
\$50,000 to \$99,999	8.2%	8.2%
\$100,000 to \$249,999	8.1%	8.1%
\$250,000 to \$499,999	8.2%	8.2%
\$500,000 or higher	8.0%	7.9%

Table 4-5: GMAB Surrender Rates (continued)

	Percent of Contracts Surrendered	Percent of Cash Value Surrendered
Gender		
Male	9.0%	8.5%
Female	8.5%	8.7%
Share class		
B-share	8.4%	7.8%
L-share	10.9%	10.4%
Market type		
IRA	8.7%	7.9%
Nonqualified	8.9%	8.6%
Distribution Channel		
Career agent	5.8%	4.9%
Independent agent/independent B-D*		10.6%
Full-service national B-D	11.5%	11.9%
Bank	11.4%	12.3%

Note: Based on 261,450 GMAB contracts issued before 2015. Percent of contracts surrendered = number of contracts fully surrendered/total number of contracts in force. Percent of contract value surrendered = sum of values of fully surrendered contracts/total contract value in force.

*We have not shown some measures in order to preserve confidentiality and avoid revealing company-specific information, as data in those characteristics were heavily weighted for one company or a very limited number of participating companies.

Key Findings

- Surrender activity is higher for older contracts and older owners.
- There is little difference between persistency in contracts funded by nonqualified and qualified money.
- There is even less difference based on gender or contract size.
- L-share contracts have higher surrender rates than B-share contracts.

Product and Benefit Characteristics

GMABs are the least expensive GLB, especially for contracts issued before 2010. Most cost around 0.50 to 1.00 percent of contract value — including or excluding any fixed account balance (Table 4-6).

Table 4-6: GMAB Product and Benefit Characteristics

	Issued before 2006	Issued in 2006	Issued in 2007	Issued in 2008	Issued in 2009	Issued in 2010	Issued in 2011	Issued in 2012	Issued in 2013	Issued in 2014	Issued in 2015
Avg. mortality and expense charge	1.45%	1.34%	1.39%	1.38%	1.38%	1.36%	1.37%	1.43%	1.37%	1.34%	1.19%
Average benefit fee	0.54%	0.61%	0.57%	0.69%	0.66%	0.77%	0.85%	0.80%	0.81%	0.90%	1.00%
Average number of subaccounts	85	81	80	78	78	66	65	68	62	60	59
Product has fixed account											
Yes	95%	92%	90%	93%	87%	90%	84%	79%	85%	87%	91%
No	5%	8%	10%	7%	13%	10%	16%	21%	15%	13%	9%
Product still available as of 12-31-15											
Yes	10%	10%	10%	22%	20%	51%	65%	63%	75%	81%	80%
No	90%	90%	90%	78%	80%	49%	35%	37%	25%	19%	20%
Rider still available as of 12-31-15											
Yes	17%	10%	13%	15%	21%	23%	33%	21%	22%	51%	69%
No	83%	90%	87%	85%	79%	77%	67%	79%	78%	49%	31%
Cap on benefits											
Yes	22%	27%	26%	16%	24%	23%	31%	40%	34%	36%	37%
No	78%	73%	74%	84%	76%	77%	69%	60%	66%	64%	63%
Benefit fee basis*											
Contract value	29%	56%	50%	45%	27%	23%	24%	25%	27%	23%	32%
Benefit base	27%	20%	21%	27%	37%	36%	54%	72%	69%	71%	47%
VA subaccounts	44%	23%	27%	27%	36%	41%	22%	3%	4%	6%	21%
Other	0	1%	3%	1%	0	0	0	0	0	0	0
Average maximum age at election	79	81	80	81	81	80	78	80	81	80	79
Step-up if available**											
Annually	78%	70%	75%	83%	83%	87%	78%	71%	73%	74%	82%
Every 3 years	8%	1%	1%	11%	15%	11%	18%	22%	15%	14%	8%
Every 5 years	14%	28%	24%	6%	2%	2%	4%	7%	12%	12%	10%

Table 4-6: GMAB Product and Benefit Characteristics (continued)

	Issued before 2006	Issued in 2006	Issued in 2007	Issued in 2008	Issued in 2009	Issued in 2010	Issued in 2011	Issued in 2012	Issued in 2013	Issued in 2014	Issued in 2015
Asset allocation restrictions											
Forced asset allocation model	16%	26%	29%	24%	16%	11%	19%	25%	18%	18%	10%
Limitations on fund selection	0	4%	5%	5%	6%	4%	2%	0	0	2%	23%
Dynamic asset allocations	49%	49%	47%	52%	56%	59%	37%	4%	0	0	0
No, but may restrict	12%	9%	13%	16%	18%	22%	36%	52%	49%	48%	37%
No restrictions	10%	4%	2%	1%	1%	2%	2%	4%	3%	3%	0
GMAB roll-up percent											
100% of premium	95%	95%	97%	97%	94%	95%	96%	96%	96%	94%	74%
Over 100%	5%	5%	3%	3%	6%	5%	4%	4%	4%	6%	26%
Waiting period											
5-year	6%	5%	5%	18%	2%	0	0	0	0	0	0
7-year	41%	20%	23%	16%	19%	23%	12%	0	0	0	0
10-year	50%	74%	71%	66%	77%	75%	86%	67%	55%	81%	95%
More than 10-year	3%	1%	1%	0	1%	2%	2%	33%	45%	19%	5%
Among contracts with maximum charge info. provided											
Standard rider charge	0.54%	0.60%	0.57%	0.70%	0.66%	0.77%	0.85%	0.80%	0.81%	0.90%	0.99%
Maximum rider charge	0.85%	1.12%	1.06%	1.03%	1.05%	1.03%	1.14%	1.35%	1.55%	1.67%	1.71%
*If the benefit fee was based on the higher of contract value or benefit basis, then the basis categorization was determined for each individual contract.											
** Among contracts that allow multiple step-ups.											
Note: Based on 280,310 GMAB contracts issued in or before 2015.											

Key Findings

- In 2015, almost half of GMAB fees were based on the benefit base. On average, maximum fees in 2015 increased to 171 basis points.
- The average buyer of a VA with a GMAB in 2015 paid 100 basis points as the rider fee. Including the mortality and expense charges, the total charge was around 2.19 percent for contracts issued in 2015.
- All of the contracts issued in 2012 or later had a 10-year waiting period or longer.
- Over the past few years, annual step-up options have become more common.

Participating Companies

AIG Companies

Ameritas Life

AXA US

CMFG Life Insurance Company

Guardian Life of America

Lincoln Financial Group

Massachusetts Mutual Life

MetLife

Minnesota Life

Nationwide

New York Life

Pacific Life

Phoenix Life Insurance Company

Principal Financial Group

Protective Life

Prudential Annuities

RiverSource Life Insurance

Security Benefit Life

Transamerica

Voya Financial

Appendix A: About the Survey

Twenty companies provided contract and product information for their VA GLB business that met the following criteria:

1. Were in force as of January 1, 2015, or were issued during 2015;
2. Were nonqualified contracts except for IRA annuities; and
3. The contract owner had elected at least one GLB offered on the product.

The study excluded contracts for which no GLB was available and contracts for which one or more GLBs were available but the owner elected none. In total 4.9 million contracts were represented in this study.

For each contract, companies indicated which GLB had been elected and provided specific information about the characteristics of that benefit, including:

- Method of benefit base calculation (e.g., percent of premium, roll-up, ratchet)
- Timing of benefit maturity
- Asset allocation restrictions
- Presence and use of step-up options
- Benefit base at beginning of year, anniversary, and end of year

Contracts with withdrawal benefits included information on the maximum annual withdrawal amounts (and percentages) and the selection of lifetime payouts.

Companies also provided the following information at the contract level:

- Basic owner demographics (age, sex)
- Distribution channel
- Market type (nonqualified or IRA)
- Cost structure (A-share, B-share, C-share, or L-share)
- Account values (beginning of year, at anniversary, and end of year)

- Cash-flow activity (current-year premium, cumulative premiums, cumulative withdrawals, and current-year partial withdrawals)
- Contract status (in-force, end-of-year, surrendered, terminated due to death, or annuitized) and timing of status change

The study collected detailed, product-level information for each product represented in each company's data. This product information was used to categorize products in terms of their benefit features. LIMRA relied solely on the product specifications for certain characteristics, including product and rider costs and method of reduction of benefit bases due to withdrawals, though these components may vary across individual contracts.

Appendix B

Table B1-1: GLWB Contract Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge

	With charge	No charge, expired current year	No charge, expired previous year
Did not take withdrawals in 2015			
Under age 50	2.6%	12.8%	7.8%
Age 50 to 54	1.9%	8.8%	6.1%
Age 55 to 59	1.7%	9.2%	5.5%
Age 60 to 64	1.8%	10.8%	5.7%
Age 65 to 69	1.8%	11.2%	6.1%
Age 70 to 74	2.2%	13.9%	7.3%
Age 75 to 79	2.2%	13.9%	7.6%
Age 80 or older	2.6%	12.3%	7.5%
Took withdrawals in 2015			
Under age 50	10.7%	—	—
Age 50 to 54	10.7%	—	—
Age 55 to 59	7.8%	17.2%	10.6%
Age 60 to 64	3.6%	11.7%	5.9%
Age 65 to 69	2.0%	7.9%	3.6%
Age 70 to 74	1.5%	7.4%	3.2%
Age 75 to 79	1.5%	7.1%	3.1%
Age 80 or older	1.6%	5.1%	3.5%
— Insufficient sample			
Note: Based on 2,653,577 GLWB contracts issued before 2015.			
We have not shown some results because of low sample size.			

Table B1-2: GLWB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge

	With charge	No charge, expired current year	No charge, expired previous year
Did not take withdrawals in 2015			
Under age 50	1.7%	14.3%	7.5%
Age 50 to 54	1.3%	8.6%	5.5%
Age 55 to 59	1.3%	9.7%	4.9%
Age 60 to 64	1.4%	10.9%	5.1%
Age 65 to 69	1.4%	11.3%	5.6%
Age 70 to 74	1.8%	13.8%	6.6%
Age 75 to 79	1.8%	15.3%	7.7%
Age 80 or older	2.3%	12.9%	6.9%
Took withdrawals in 2015			
Under age 50	5.8%	—	—
Age 50 to 54	6.7%	—	—
Age 55 to 59	4.1%	17.6%	8.5%
Age 60 to 64	2.1%	12.1%	4.7%
Age 65 to 69	1.5%	8.4%	3.5%
Age 70 to 74	1.4%	8.6%	3.1%
Age 75 to 79	1.4%	8.3%	3.0%
Age 80 or older	1.4%	5.4%	3.2%
— Insufficient sample			
Note: Based on 2,653,577 GLWB contracts issued before 2015.			
We have not shown some results because of low sample size.			

Table B1-3: GLWB Contract Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge

	With charge	No charge, expired current year	No charge, expired previous year
Did not take withdrawals before 2015			
Under age 50	2.4%	12.1%	7.6%
Age 50 to 54	1.7%	8.2%	5.8%
Age 55 to 59	1.5%	8.6%	5.1%
Age 60 to 64	1.7%	9.9%	5.2%
Age 65 to 69	1.5%	9.7%	5.2%
Age 70 to 74	1.5%	10.2%	5.2%
Age 75 to 79	1.5%	9.7%	5.0%
Age 80 or older	1.8%	8.3%	5.5%
Took withdrawals before 2015			
Under age 50	11.6%	—	12.5%
Age 50 to 54	10.6%	—	12.2%
Age 55 to 59	9.3%	21.8%	12.3%
Age 60 to 64	5.4%	17.0%	8.8%
Age 65 to 69	3.1%	12.1%	5.6%
Age 70 to 74	2.4%	10.9%	4.8%
Age 75 to 79	2.2%	10.3%	4.6%
Age 80 or older	2.3%	8.1%	4.8%
— Insufficient sample			
Note: Based on 2,612,728 GLWB contracts issued before 2015.			
We have not shown some results because of low sample size.			

Table B1-4: GLWB Cash Value Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge

	With charge	No charge, expired current year	No charge, expired previous year
Did not take withdrawals before 2015			
Under age 50	1.7%	14.2%	7.8%
Age 50 to 54	1.4%	8.5%	5.6%
Age 55 to 59	1.3%	9.2%	4.8%
Age 60 to 64	1.3%	10.4%	4.9%
Age 65 to 69	1.2%	10.0%	5.0%
Age 70 to 74	1.4%	10.8%	5.0%
Age 75 to 79	1.3%	11.9%	5.6%
Age 80 or older	1.7%	9.0%	5.8%
Took withdrawals before 2015			
Under age 50	6.1%	—	13.5%
Age 50 to 54	5.3%	—	10.7%
Age 55 to 59	4.5%	22.4%	8.9%
Age 60 to 64	2.6%	15.1%	5.6%
Age 65 to 69	2.0%	11.6%	4.4%
Age 70 to 74	1.9%	11.5%	4.2%
Age 75 to 79	1.9%	11.2%	4.4%
Age 80 or older	2.0%	8.9%	4.2%
— Insufficient sample			
Note: Based on 2,612,728 GLWB contracts issued before 2015.			
We have not shown some results because of low sample size.			

Table B1-5: GLWB Contract Surrender Rates by Owners Taking Withdrawals in Relation to Annual Benefit Maximum Allowed and by Presence of Surrender Charge

	With charge	Without charge
Age 60 to 69		
Under 75%	3.7%	16.4%
75% to 89.9%	2.3%	6.1%
90% to 109.9%	0.4%	0.9%
110% to 149.9%	1.5%	3.8%
150% to 199.9%	2.9%	6.8%
200% or more	9.1%	16.0%
Age 70 to 79		
Under 75%	3.5%	11.3%
75% to 89.9%	1.5%	4.1%
90% to 109.9%	0.4%	1.0%
110% to 149.9%	1.5%	3.4%
150% to 199.9%	2.1%	4.2%
200% or more	6.9%	13.3%
Age 80 or older		
Under 75%	6.9%	16.4%
75% to 89.9%	2.2%	4.1%
90% to 109.9%	0.4%	1.0%
110% to 149.9%	0.9%	2.9%
150% to 199.9%	2.4%	3.3%
200% or more	6.9%	13.5%
Note: Based on 675,978 GLWB contracts issued before 2015 that had withdrawals during 2015.		

Table B1-6: GLWB Cash Value Surrender Rates by Owners Taking Withdrawals in Relation to Annual Benefit Maximum Allowed and by Presence of Surrender Charge

	With charge	Without charge
Age 60 to 69		
Under 75%	3.3%	15.8%
75% to 89.9%	1.9%	5.9%
90% to 109.9%	0.3%	1.0%
110% to 149.9%	1.6%	3.2%
150% to 199.9%	2.6%	7.6%
200% or more	6.2%	18.4%
Age 70 to 79		
Under 75%	3.5%	12.4%
75% to 89.9%	1.4%	4.4%
90% to 109.9%	0.4%	0.9%
110% to 149.9%	1.4%	3.5%
150% to 199.9%	2.0%	4.5%
200% or more	5.8%	16.4%
Age 80 or older		
Under 75%	5.5%	15.3%
75% to 89.9%	1.8%	3.9%
90% to 109.9%	0.4%	0.9%
110% to 149.9%	0.8%	3.0%
150% to 199.9%	2.1%	3.6%
200% or more	4.7%	11.5%
Note: Based on 675,978 GLWB contracts issued before 2015 that had withdrawals during 2015.		

Table B1-7: GLWB Contract Surrender Rates by Withdrawal Method and by Presence of Surrender Charge

	With charge	Without charge
Did not take systematic withdrawals		
Age 55 to 59	9.9%	16.5%
Age 60 to 64	7.8%	15.3%
Age 65 to 69	4.7%	11.9%
Age 70 to 74	2.9%	8.8%
Age 75 to 79	2.4%	7.9%
Age 80 or older	3.1%	8.0%
Took systematic withdrawals		
Age 55 to 59	2.5%	6.5%
Age 60 to 64	1.5%	4.2%
Age 65 to 69	1.3%	3.2%
Age 70 to 74	1.2%	3.1%
Age 75 to 79	1.3%	3.1%
Age 80 or older	1.3%	3.1%
Note: Based on 678,778 GLWB contracts issued before 2015 that had withdrawals during 2015.		

Table B1-8: GLWB Cash Value Surrender Rates by Withdrawal Method and by Presence of Surrender Charge

	With charge	Without charge
Did not take systematic withdrawals		
Age 55 to 59	6.3%	17.6%
Age 60 to 64	4.9%	16.3%
Age 65 to 69	3.3%	13.1%
Age 70 to 74	2.4%	9.4%
Age 75 to 79	1.9%	7.8%
Age 80 or older	2.6%	7.3%
Took systematic withdrawals		
Age 55 to 59	1.5%	6.1%
Age 60 to 64	1.2%	3.9%
Age 65 to 69	1.1%	3.3%
Age 70 to 74	1.2%	3.2%
Age 75 to 79	1.3%	3.2%
Age 80 or older	1.1%	3.0%
Note: Based on 678,778 GLWB contracts issued before 2015 that had withdrawals during 2015.		

Table B2-1: GMWB Contract Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge

	With charge	No charge, expired current year	No charge, expired previous year
Did not take withdrawals in 2015			
Under age 50	5.0%	—	9.6%
Age 50 to 54	5.7%	—	10.5%
Age 55 to 59	5.0%	16.8%	10.6%
Age 60 to 64	5.7%	22.1%	12.6%
Age 65 to 69	5.9%	21.2%	12.0%
Age 70 to 74	6.9%	25.2%	12.3%
Age 75 to 79	6.3%	—	11.7%
Age 80 or older	6.0%	—	9.0%
Took withdrawals in 2015			
Under age 50	—	—	—
Age 50 to 54	—	—	—
Age 55 to 59	—	—	—
Age 60 to 64	4.7%	—	8.3%
Age 65 to 69	3.5%	12.6%	6.6%
Age 70 to 74	2.5%	11.6%	5.3%
Age 75 to 79	2.6%	11.2%	4.8%
Age 80 or older	2.4%	6.7%	4.4%
— Insufficient sample			
Note: Based on 179,833 GMWB contracts issued before 2015.			
We have not shown some results because of low sample size.			

Table B2-2: GMWB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge

	With charge	No charge, expired current year	No charge, expired previous year
Did not take withdrawals in 2015			
Under age 50	4.6%	—	10.4%
Age 50 to 54	5.8%	—	12.8%
Age 55 to 59	5.1%	17.7%	11.1%
Age 60 to 64	5.7%	23.8%	12.7%
Age 65 to 69	5.1%	22.8%	12.7%
Age 70 to 74	6.6%	30.6%	12.7%
Age 75 to 79	4.7%		11.2%
Age 80 or older	4.6%		9.0%
Took withdrawals in 2015			
Under age 50	—	—	—
Age 50 to 54	—	—	—
Age 55 to 59	—	—	—
Age 60 to 64	4.2%	—	7.5%
Age 65 to 69	3.3%	17.4%	7.6%
Age 70 to 74	2.4%	13.4%	5.2%
Age 75 to 79	2.6%	13.3%	5.3%
Age 80 or older	1.9%	8.1%	3.8%
— Insufficient sample			
Note: Based on 182,201 GMWB contracts issued before 2015.			
We have not shown some results because of low sample size.			

Table B2-3: GMWB Contract Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge

	With charge	No charge, expired current year	No charge, expired previous year
Did not take withdrawals before 2015			
Under age 50	4.6%	—	8.9%
Age 50 to 54	5.0%	—	10.4%
Age 55 to 59	4.2%	15.2%	10.3%
Age 60 to 64	4.8%	20.0%	11.5%
Age 65 to 69	4.3%	18.5%	10.9%
Age 70 to 74	4.1%	18.5%	9.5%
Age 75 to 79	2.8%	—	8.0%
Age 80 or older	3.8%	—	6.2%
Took withdrawals before 2015			
Under age 50	—	—	—
Age 50 to 54	—	—	—
Age 55 to 59	7.4%	—	11.1%
Age 60 to 64	6.9%	—	11.6%
Age 65 to 69	5.5%	16.8%	8.8%
Age 70 to 74	3.9%	14.8%	6.9%
Age 75 to 79	3.9%	13.9%	6.5%
Age 80 or older	3.5%	9.2%	5.9%
— Insufficient sample			
Note: Based on 179,464 GMWB contracts issued before 2015.			
We have not shown some results because of low sample size.			

Table B2-4: GMWB Cash Value Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge

	With charge	No charge, expired current year	No charge, expired previous year
Did not take withdrawals before 2015			
Under age 50	4.2%	—	9.4%
Age 50 to 54	5.2%	—	12.7%
Age 55 to 59	4.6%	17.2%	10.7%
Age 60 to 64	5.2%	23.2%	12.0%
Age 65 to 69	3.8%	18.5%	11.9%
Age 70 to 74	3.5%	22.3%	10.1%
Age 75 to 79	2.4%	—	8.2%
Age 80 or older	3.4%	—	6.8%
Took withdrawals before 2015			
Under age 50	—	—	—
Age 50 to 54	—	—	—
Age 55 to 59	3.9%	—	11.7%
Age 60 to 64	5.0%	—	9.7%
Age 65 to 69	4.6%	21.9%	9.0%
Age 70 to 74	3.8%	17.7%	6.7%
Age 75 to 79	3.4%	16.9%	6.8%
Age 80 or older	2.6%	12.1%	5.7%
— Insufficient sample			
Note: Based on 179,464 GMWB contracts issued before 2015.			
We have not shown some results because of low sample size.			

Table B2-5: GMWB Contract Surrender Rates by Owners Taking Withdrawals in Relation to Annual Benefit Maximum Allowed and by Presence of Surrender Charge

	With charge	Without charge
Age 60 to 69		
Under 75%	7.2%	22.1%
75% to 89.9%	2.1%	5.5%
90% to 109.9%	1.3%	1.9%
110% to 149.9%	—	5.1%
150% to 199.9%	—	5.5%
200% or more	9.3%	13.0%
Age 70 to 79		
Under 75%	4.2%	11.7%
75% to 89.9%	2.1%	4.8%
90% to 109.9%	1.0%	1.6%
110% to 149.9%	1.4%	5.1%
150% to 199.9%	—	3.9%
200% or more	6.9%	10.9%
<p>Note: Based on 64,428 GMWB contracts issued before 2015 that had withdrawals during 2015. We have not shown measures related to owners under age 60 or age 80 or older because of low sample size.</p>		

Table B2-6: GMWB Cash Value Surrender Rates by Owners Taking Withdrawals in Relation to Annual Benefit Maximum Allowed and by Presence of Surrender Charge

	With charge	Without charge
Age 60 to 69		
Under 75%	6.6%	22.4%
75% to 89.9%	1.9%	5.6%
90% to 109.9%	1.4%	1.8%
110% to 149.9%	—	5.1%
150% to 199.9%	—	5.3%
200% or more	9.8%	18.0%
Age 70 to 79		
Under 75%	3.9%	12.2%
75% to 89.9%	1.9%	5.3%
90% to 109.9%	1.1%	1.8%
110% to 149.9%	1.2%	5.6%
150% to 199.9%	—	4.2%
200% or more	8.5%	12.6%
<p>Note: Based on 64,428 GMWB contracts issued before 2015 that had withdrawals during 2015. We have not shown measures related to owners under age 60 or age 80 or older because of low sample size.</p>		

Table B2-7: GMWB Contract Surrender Rates by Withdrawal Method and by Presence of Surrender Charge

	With charge	Without charge
Did not take systematic withdrawals		
Age 55 to 59	8.0%	15.4%
Age 60 to 64	7.3%	13.3%
Age 65 to 69	7.9%	11.7%
Age 70 to 74	4.9%	9.1%
Age 75 to 79	5.5%	8.5%
Age 80 or older	5.0%	7.7%
Took systematic withdrawals		
Age 55 to 59	—	5.8%
Age 60 to 64	2.7%	8.3%
Age 65 to 69	1.6%	6.2%
Age 70 to 74	1.4%	5.3%
Age 75 to 79	1.5%	4.8%
Age 80 or older	1.8%	4.1%
— Insufficient sample		
Note: Based on 92,384 GMWB contracts issued before 2015 that had withdrawals during 2015.		

Table B2-8: GMWB Cash Value Surrender Rates by Withdrawal Method and by Presence of Surrender Charge

	With charge	Without charge
Did not take systematic withdrawals		
Age 55 to 59	4.6%	14.8%
Age 60 to 64	8.4%	15.2%
Age 65 to 69	4.5%	9.4%
Age 70 to 74	5.4%	8.9%
Age 75 to 79	4.1%	6.7%
Age 80 or older	5.8%	10.5%
Took systematic withdrawals		
Age 55 to 59	—	8.8%
Age 60 to 64	2.2%	8.8%
Age 65 to 69	1.4%	7.4%
Age 70 to 74	1.3%	5.5%
Age 75 to 79	1.3%	5.5%
Age 80 or older	1.3%	3.8%
— Insufficient sample		
Note: Based on 92,384 GMWB contracts issued before 2015 that had withdrawals during 2015.		

Table B3-1: GMIB Contract Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge

	No charge, expired current year	No charge, expired previous year
Did not take withdrawals in 2015		
Under age 50	7.8%	5.8%
Age 50 to 54	7.2%	5.4%
Age 55 to 59	6.6%	5.2%
Age 60 to 64	8.3%	6.2%
Age 65 to 69	8.7%	6.1%
Age 70 to 74	10.5%	7.2%
Age 75 to 79	10.4%	6.2%
Age 80 or older	9.8%	7.5%
Took withdrawals in 2015		
Under age 50	—	9.6%
Age 50 to 54	—	7.4%
Age 55 to 59	9.9%	6.3%
Age 60 to 64	6.3%	4.0%
Age 65 to 69	4.4%	2.8%
Age 70 to 74	3.9%	2.4%
Age 75 to 79	4.4%	2.5%
Age 80 or older	4.5%	4.0%
— Insufficient sample		
Note: Based on 804,659 GMIB contracts issued before 2015.		
We have not shown some results because of low sample size, and we are not showing results for contracts with surrender charges in effect because a single company represents a significant portion of the exposures.		

Table B3-2: GMIB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge

	No charge, expired current year	No charge, expired previous year
Did not take withdrawals in 2015		
Under age 50	7.2%	4.8%
Age 50 to 54	6.2%	4.7%
Age 55 to 59	6.1%	4.4%
Age 60 to 64	7.4%	4.8%
Age 65 to 69	7.5%	5.0%
Age 70 to 74	9.7%	6.3%
Age 75 to 79	9.6%	5.7%
Age 80 or older	8.4%	7.0%
Took withdrawals in 2015		
Under age 50	—	7.1%
Age 50 to 54	—	4.9%
Age 55 to 59	7.9%	5.1%
Age 60 to 64	5.4%	2.5%
Age 65 to 69	4.1%	2.0%
Age 70 to 74	4.2%	1.9%
Age 75 to 79	4.5%	2.2%
Age 80 or older	5.1%	3.4%
— Insufficient sample		
Note: Based on 804,659 GMIB contracts issued before 2015.		
We have not shown some results because of low sample size, and we are not showing results for contracts with surrender charges in effect because a single company represents a significant portion of the exposures.		

Table B3-3: GMIB Contract Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge

	No charge, expired current year	No charge, expired previous year
Did not take withdrawals before 2015		
Under age 50	7.3%	5.4%
Age 50 to 54	6.6%	4.9%
Age 55 to 59	6.1%	4.8%
Age 60 to 64	7.3%	5.4%
Age 65 to 69	7.3%	5.2%
Age 70 to 74	7.4%	5.0%
Age 75 to 79	6.9%	4.0%
Age 80 or older	7.8%	5.3%
Took withdrawals before 2015		
Under age 50	15.5%	10.2%
Age 50 to 54	11.5%	9.3%
Age 55 to 59	11.5%	8.3%
Age 60 to 64	9.7%	7.1%
Age 65 to 69	7.0%	4.7%
Age 70 to 74	6.0%	4.0%
Age 75 to 79	6.5%	3.9%
Age 80 or older	6.5%	6.0%
Note: Based on 723,496 GMIB contracts issued before 2015. We are not showing results for contracts with surrender charges in effect because a single company represents a significant portion of the exposures.		

Table B3-4: GMIB Cash Value Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge

	No charge, expired current year	No charge, expired previous year
Did not take withdrawals before 2015		
Under age 50	7.0%	4.7%
Age 50 to 54	6.0%	4.4%
Age 55 to 59	6.0%	4.2%
Age 60 to 64	6.9%	4.3%
Age 65 to 69	6.6%	4.4%
Age 70 to 74	7.2%	4.7%
Age 75 to 79	6.9%	4.1%
Age 80 or older	7.5%	5.5%
Took withdrawals before 2015		
Under age 50	13.8%	6.9%
Age 50 to 54	6.9%	7.0%
Age 55 to 59	8.2%	5.5%
Age 60 to 64	6.7%	4.2%
Age 65 to 69	5.7%	3.0%
Age 70 to 74	5.9%	3.1%
Age 75 to 79	6.1%	3.3%
Age 80 or older	6.3%	5.2%
<p>Note: Based on 723,496 GMIB contracts issued before 2015. We are not showing results for contracts with surrender charges in effect because a single company represents a significant portion of the exposures.</p>		

Table B3-5: GMIB Contract Surrender Rates by Withdrawal Method and by Presence of Surrender Charge

	Without charge
Did not take systematic withdrawals	
Under age 50	12.9%
Age 50 to 54	9.4%
Age 55 to 59	10.6%
Age 60 to 64	8.2%
Age 65 to 69	6.4%
Age 70 to 74	4.7%
Age 75 to 79	5.0%
Age 80 or older	6.0%
Took systematic withdrawals	
Under age 50	—
Age 50 to 54	—
Age 55 to 59	3.5%
Age 60 to 64	2.9%
Age 65 to 69	2.2%
Age 70 to 74	2.1%
Age 75 to 79	2.3%
Age 80 or older	3.7%
— Insufficient sample	
Note: Based on 280,311 GMIB contracts issued before 2015 that had withdrawals during 2015.	
We have not shown some results because of low sample size, and we are not showing results for contracts with surrender charges in effect because a single company represents a significant portion of the exposures.	

Table B3-6: GMB Cash Value Surrender Rates by Withdrawal Method and by Presence of Surrender Charge

	Without charge
Did not take systematic withdrawals	
Under age 50	11.4%
Age 50 to 54	8.2%
Age 55 to 59	11.5%
Age 60 to 64	6.9%
Age 65 to 69	5.4%
Age 70 to 74	4.1%
Age 75 to 79	4.6%
Age 80 or older	5.2%
Took systematic withdrawals	
Under age 50	—
Age 50 to 54	—
Age 55 to 59	2.6%
Age 60 to 64	1.9%
Age 65 to 69	1.8%
Age 70 to 74	1.8%
Age 75 to 79	2.1%
Age 80 or older	3.1%
— Insufficient sample	
Note: Based on 280,311 GMB contracts issued before 2015 that had withdrawals during 2015.	
We have not shown some results because of low sample size, and we are not showing results for contracts with surrender charges in effect because a single company represents a significant portion of the exposures.	

Table B4-1: GMAB Contract Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge

	With charge	Without charge
Did not take withdrawals in 2015		
Under age 50	3.6%	12.5%
Age 50 to 54	3.2%	13.7%
Age 55 to 59	3.7%	15.8%
Age 60 to 64	4.2%	18.6%
Age 65 to 69	4.5%	18.3%
Age 70 to 74	4.9%	19.7%
Age 75 to 79	5.4%	18.4%
Age 80 or older	5.5%	13.2%
Took withdrawals in 2015		
Under age 50	23.1%	—
Age 50 to 54	16.4%	—
Age 55 to 59	13.8%	25.0%
Age 60 to 64	11.1%	23.4%
Age 65 to 69	8.7%	18.0%
Age 70 to 74	6.0%	11.1%
Age 75 to 79	6.0%	8.2%
Age 80 or older	6.1%	8.1%
— Insufficient sample		
Note: Based on 260,202 GMAB contracts issued before 2015.		
We have not shown some results because of low sample size.		

Table B4-2: GMAB Cash Value Surrender Rates by Owners Taking Withdrawals in 2015 and by Presence of Surrender Charge

	With charge	Without charge
Did not take withdrawals in 2015		
Under age 50	2.9%	14.2%
Age 50 to 54	2.5%	15.6%
Age 55 to 59	2.9%	19.1%
Age 60 to 64	3.5%	19.7%
Age 65 to 69	3.5%	18.9%
Age 70 to 74	4.0%	19.8%
Age 75 to 79	4.0%	19.6%
Age 80 or older	4.9%	12.7%
Took withdrawals in 2015		
Under age 50	11.8%	—
Age 50 to 54	10.7%	—
Age 55 to 59	8.4%	25.2%
Age 60 to 64	7.3%	22.6%
Age 65 to 69	6.3%	18.9%
Age 70 to 74	6.4%	11.4%
Age 75 to 79	6.7%	10.0%
Age 80 or older	5.9%	7.7%
— Insufficient sample		
Note: Based on 260,202 GMAB contracts issued before 2015.		
We have not shown some results because of low sample size.		

Table B4-3: GMAB Contract Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge

	With charge	Without charge
Did not take withdrawals before 2015		
Under age 50	4.1%	12.8%
Age 50 to 54	3.4%	14.3%
Age 55 to 59	3.9%	16.1%
Age 60 to 64	4.4%	18.8%
Age 65 to 69	4.3%	18.2%
Age 70 to 74	3.9%	17.0%
Age 75 to 79	4.0%	14.9%
Age 80 or older	4.0%	10.1%
Took withdrawals before 2015		
Under age 50	11.1%	16.3%
Age 50 to 54	10.1%	15.5%
Age 55 to 59	9.5%	18.5%
Age 60 to 64	9.5%	20.9%
Age 65 to 69	8.3%	18.3%
Age 70 to 74	7.6%	14.3%
Age 75 to 79	7.5%	12.0%
Age 80 or older	7.8%	11.8%
Note: Based on 259,150 GMAB contracts issued before 2015.		

Table B4-4: GMAB Cash Value Surrender Rates by Owners Taking Withdrawals Before 2015 and by Presence of Surrender Charge

	With charge	Without charge
Did not take withdrawals before 2015		
Under age 50	3.5%	15.9%
Age 50 to 54	2.8%	16.4%
Age 55 to 59	3.3%	19.9%
Age 60 to 64	3.9%	20.6%
Age 65 to 69	3.6%	19.3%
Age 70 to 74	4.3%	17.7%
Age 75 to 79	3.4%	17.7%
Age 80 or older	3.7%	9.5%
Took withdrawals before 2015		
Under age 50	5.9%	16.8%
Age 50 to 54	6.7%	16.8%
Age 55 to 59	5.8%	19.7%
Age 60 to 64	6.0%	19.1%
Age 65 to 69	6.1%	17.4%
Age 70 to 74	6.2%	13.5%
Age 75 to 79	7.5%	12.6%
Age 80 or older	7.4%	12.7%

Note: Based on 259,150 GMAB contracts issued before 2015.

Table B4-5: GMAB Contract Surrender Rates by Benefit Maturity Year and by Presence of Surrender Charge

	With charge	Without charge
2016	5.7%	13.8%
2017	5.3%	14.8%
2018	6.2%	18.0%
2019	5.7%	15.9%
2020	5.1%	14.8%
2021	4.4%	12.7%
2022	4.1%	11.0%
2023	3.2%	8.9%
2024 or later	2.7%	5.6%

— Insufficient sample
 Note: Based on 220,518 GMAB contracts issued before 2015.
 Due to low sample sizes, we cannot show surrender rates split by other benefit maturity years.

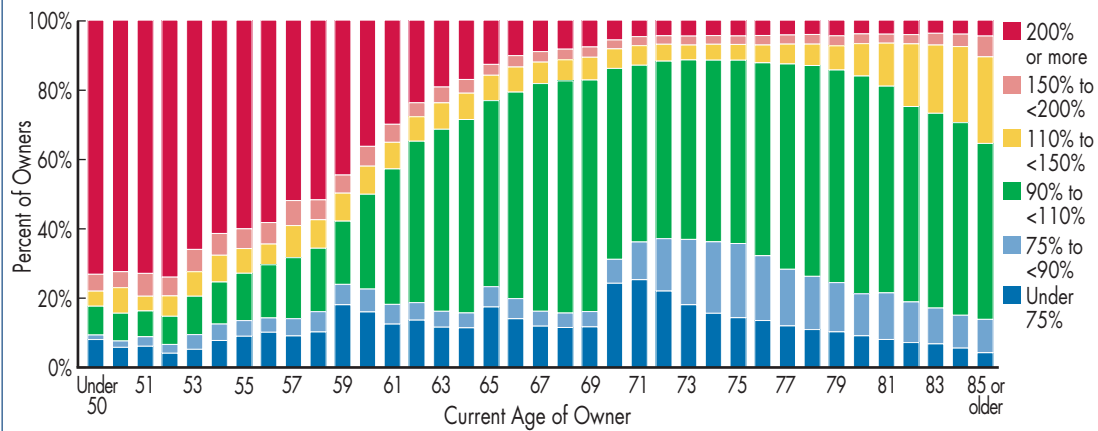
Table B4-6: GMAB Cash Value Surrender Rates by Benefit Maturity Year and by Presence of Surrender Charge

	With charge	Without charge
2016	5.0%	14.7%
2017	4.8%	16.1%
2018	5.2%	21.1%
2019	5.5%	18.8%
2020	4.3%	16.5%
2021	3.8%	13.9%
2022	3.0%	14.0%
2023	3.1%	10.5%
2024 or later	1.8%	5.5%

— Insufficient sample
 Note: Based on 220,518 GMAB contracts issued before 2015.
 Due to low sample sizes, we cannot show surrender rates split by other benefit maturity years.

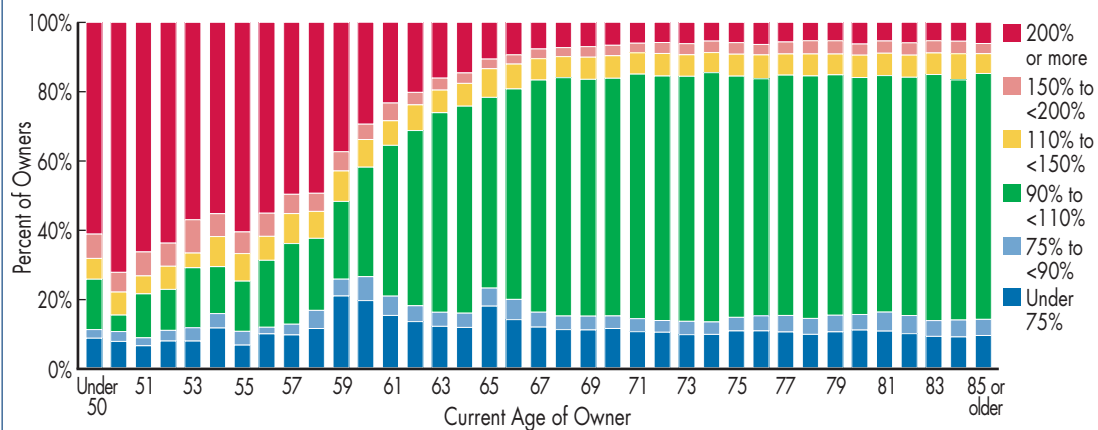
Appendix C

Figure C1-1: GLWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Traditional IRA Only



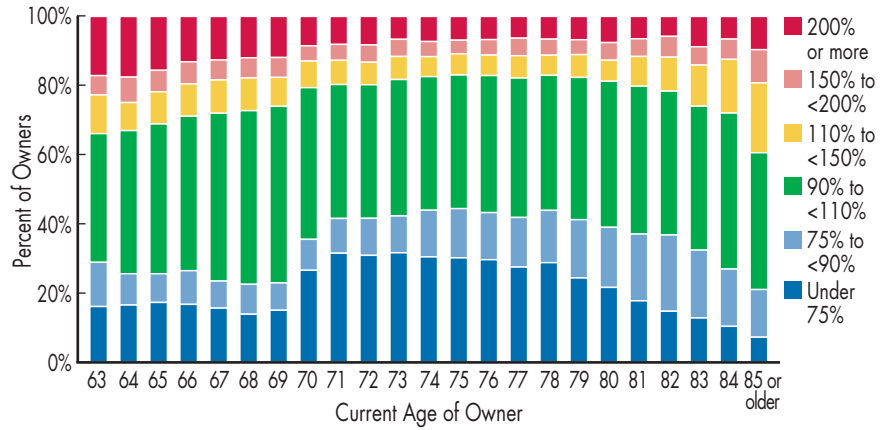
Note: Based on 487,605 IRA GLWB contracts issued before 2015, still in force at EOY 2015, and with withdrawals in 2015.

Figure C1-2: GLWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Nonqualified Only



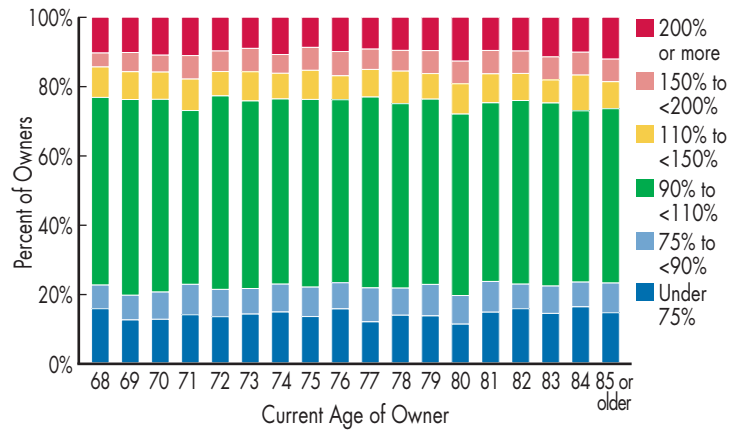
Note: Based on 180,892 Nonqualified GLWB contracts issued before 2015, still in force at EOY 2015, and with withdrawals in 2015.

Figure C2-1: GMWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Traditional IRA Only



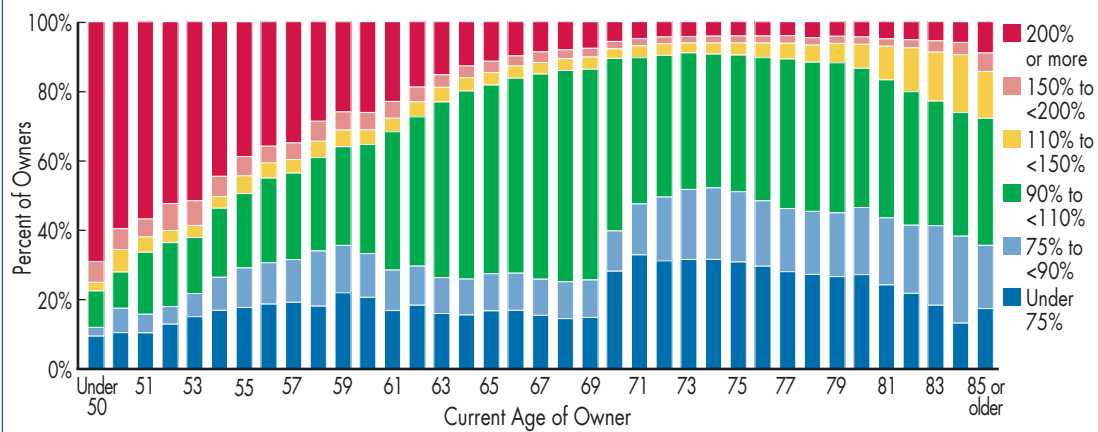
Note: Based on 55,033 IRA GMWB contracts issued before 2015 and remaining in force at EOY 2015 that had withdrawals. Some ages have been suppressed due to low sample sizes.

Figure C2-2: GMWB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Nonqualified Only



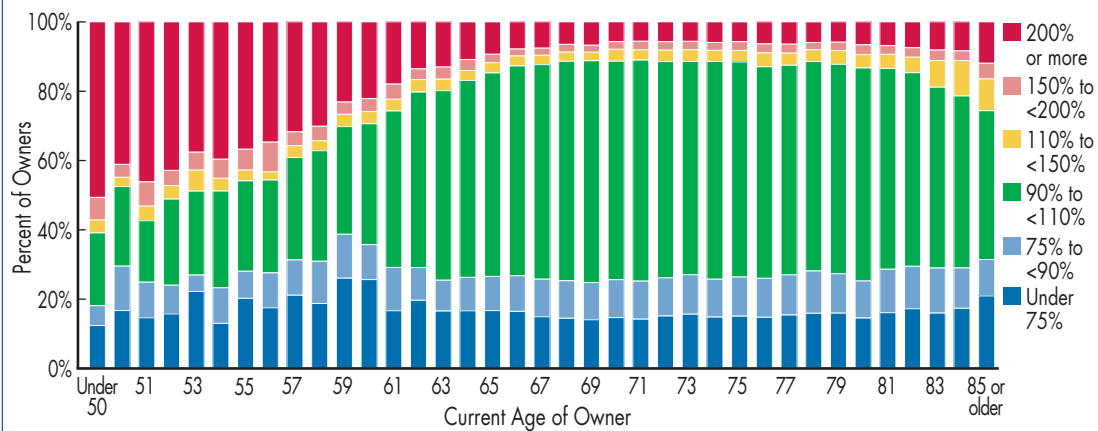
Note: Based on 22,754 Nonqualified GMWB contracts issued before 2015 and remaining in force at EOY 2015 that had withdrawals. Some ages have been suppressed due to low sample sizes.

Figure C3-1: GMB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Traditional IRA Only



Note: Based on 295,372 Traditional IRA GMB contracts issued before 2015 and remaining in force at EOY 2015 that had withdrawals in 2015.

Figure C3-2: GMB Withdrawals as a Percentage of Maximum Annual Benefit Amount by Age — Nonqualified Only



Note: Based on 106,181 Nonqualified GMB contracts issued before 2015 and remaining in force at EOY 2015 that had withdrawals in 2015.

Related Links

The following links are valid as of April 2017.

LIMRA

Variable Annuity Guaranteed Living Benefit Election Tracking Survey, Fourth Quarter 2015 (2016)

This survey tracks industry VA GLB election rates on a quarterly basis. GLB election rates for new VA sales are tracked by type of GLB, as well as by distribution channel.

[http://www.limra.com/Research/Abstracts/2016/Glimpse__Variable_Annuity_Guaranteed_Living_Benefit_Election_Tracking_\(2015,_4th_Quarter\).aspx?div=sri](http://www.limra.com/Research/Abstracts/2016/Glimpse__Variable_Annuity_Guaranteed_Living_Benefit_Election_Tracking_(2015,_4th_Quarter).aspx?div=sri)

Variable Annuity Guaranteed Living Benefits Utilization —2014 Experience (2017)

Based on 2014 data for 21 companies.

http://www.limra.com/research/abstracts/2017/variable_annuity_guaranteed_living_benefits_utilization_-_2014_experience.aspx

Variable Annuity Guaranteed Living Benefits Utilization —2013 Experience (2015)

Based on 2013 data for 21 companies.

[http://www.limra.com/Research/Abstracts/2016/Variable_Annuity_Guaranteed_Living_Benefits_Utilization_-_2013_Experience_\(2015\).aspx?LangType=1033](http://www.limra.com/Research/Abstracts/2016/Variable_Annuity_Guaranteed_Living_Benefits_Utilization_-_2013_Experience_(2015).aspx?LangType=1033)

Variable Annuity Guaranteed Living Benefits Utilization —2012 Experience (2014)

Based on 2012 data for 22 companies.

[http://www.limra.com/Research/Abstracts/2014/Variable_Annuity_Guaranteed_Living_Benefits_Utilization_-_2012_Experience_\(2014\).aspx?LangType=1033](http://www.limra.com/Research/Abstracts/2014/Variable_Annuity_Guaranteed_Living_Benefits_Utilization_-_2012_Experience_(2014).aspx?LangType=1033)

Variable Annuity Guaranteed Living Benefits Utilization — 2011 Experience (2014)

Based on 2011 data for 19 companies.

[http://www.limra.com/Research/Abstracts/2014/Variable_Annuity_Guaranteed_Living_Benefits_Utilization_%E2%80%93_2011_Experience_\(2014\).aspx?](http://www.limra.com/Research/Abstracts/2014/Variable_Annuity_Guaranteed_Living_Benefits_Utilization_%E2%80%93_2011_Experience_(2014).aspx?)

Variable Annuity Guaranteed Living Benefits Utilization: 2010 Data (2013)

Based on 2010 data for 23 companies.

http://www.limra.com/Research/Abstracts/2013/Variable_Annuity_Guaranteed_Living_Benefits_Utilization__2010_Data_Summary_Report.aspx?

Guaranteed Living Benefits Utilization: 2009 Data (2011)

Based on 2009 data for 21 companies.

[http://www.limra.com/Research/Abstracts/2011/Guaranteed_Living_Benefits_Utilization__2009_Data_\(2011\).aspx?](http://www.limra.com/Research/Abstracts/2011/Guaranteed_Living_Benefits_Utilization__2009_Data_(2011).aspx?)

Guaranteed Living Benefits Utilization: 2008 Data (2009)

Based on 2008 data for 19 companies.

[http://www.limra.com/Research/Abstracts/2009/Guaranteed_Living_Benefits_Utilization__2008_Data_\(2009\).aspx?](http://www.limra.com/Research/Abstracts/2009/Guaranteed_Living_Benefits_Utilization__2008_Data_(2009).aspx?)

Guaranteed Living Benefits Utilization: 2007 Data (2009)

Based on 2007 data for 19 companies.

[http://www.limra.com/Research/Abstracts/2009/Guaranteed_Living_Benefits_Utilization__2007_Data_\(2009\).aspx?](http://www.limra.com/Research/Abstracts/2009/Guaranteed_Living_Benefits_Utilization__2007_Data_(2009).aspx?)

Guaranteed Living Benefits Utilization: 2006 Data (2008)

Based on 2006 data for 19 companies.

[http://www.limra.com/Research/Abstracts/2008/Guaranteed_Living_Benefits_Utilization__2006_Data_\(2008\).aspx?LangType=1033](http://www.limra.com/Research/Abstracts/2008/Guaranteed_Living_Benefits_Utilization__2006_Data_(2008).aspx?LangType=1033)

Non-LIMRA

SOA Panel Discussion on Variable Annuity Policyholder Behavior, May 2015

This session presented results of a study that identified the general drivers of optimal policyholder behavior and provided a better understanding of the risks associated with policyholder behavior. The results of a joint SOA/LIMRA study of the utilization of guaranteed living benefits in variable annuities were also presented.

<https://www.soa.org/Professional-Development/Event-Calendar/2015/las/Agenda-Day-2.aspx>

Unpredictable policyholder behavior challenges U.S. life insurers' variable annuity business,

Moody's Investors Service, June 2013

Unpredictable behavior by variable annuity policyholders will continue to pressure U.S. life insurers going forward, says Moody's Investors Service in its new special comment.

https://www.moody.com/research/Moodys-Unpredictable-policyholder-behavior-challenges-US-life-insurers-variable-annuity--PR_276484

Related Links *(continued)*

Nearly 15% of Variable Annuity Policies With a Guaranteed Withdrawal Benefit Started Withdrawals Within the First 12 Months After Attaining Eligibility; Milliman, June 2011

This Milliman survey provides insight into consumer use of guaranteed living benefits on variable annuities.

<http://www.prnewswire.com/news-releases/nearly-15-of-variable-annuity-policies-with-a-guaranteed-withdrawal-benefit-started-withdrawals-within-the-first-12-months-after-attaining-eligibility-123737939.html>

Practice Note for the Application of C-3 Phase II and Actuarial Guideline XLII (2009), American Academy of Actuaries, July 2009

This practice note was prepared by a work group set up by the Life Practice Note Steering Committee of the American Academy of Actuaries. It is an update of the September 2006 C-3 Phase II Practice Note and represents a description of practices believed by the VA Practice Note Work Group to be commonly employed by actuaries in the United States in 2009. It includes discussion of owner behavior (e.g., lapsation) when living benefits are present on the VA contract.

http://www.actuary.org/pdf/life/c3p2_july09.pdf

“Guaranteed Living Benefits: Before the Meltdown,” *Product Matters!* June 2009.

This article describes a study by Milliman Inc. that explores overall living benefit utilization rates for a group of 21 companies.

<https://www.soa.org/library/newsletters/product-development-news/2009/june/pro-2009-iss-74-saip.pdf>

LL Global, Inc.



Secure
Retirement
INSTITUTE®

©2017, LL Global, Inc.SM

This publication is a benefit of Society of LIMRA membership. No part may be shared with other organizations or reproduced in any form without LL Global's written permission.