## Alternative Values at Death of the Male

Table 3 shows that, for $46,700 annual income, the original principal for the remaining maturities of $887,300 was $373,347. Based on the replicated 2012 yield curve, the present value (principal) of those bonds at the time of death is $700,770, which is a significant upside to the original principal. This represents a 188% increase in the principal for the 15 years to death. The May 15, 1992, yields show the present value of the bonds at the time of death would be $493,109, which is a cumulative gain of 132% over the original principal—again, a significant upside.

Table 4 shows that, for the inflation-adjusted annual income, the original principal for the remaining maturities of $1,200,900 was $493,218. Based on the replicated 2012 yield curve, the present value of those bonds at the time of death is $927,095 and as above represents a 188% increase in the principal for the 15 years to death. The May 15, 1992, yields show the present value of the bonds at the time of death to be $634,424, which is a cumulative gain of 129% over the original principal—again, a significant upside.

### Table 3. Present Values for Male Death During Year 16 in 2027—$46,700 Annual Income

| Maturity Date | 3/19/12 YTM (%) | Maturity Value ($) | Original Principal Based on 3/19/12 YTM ($) | Present Value Based on 3/19/12 YTM ($) | Approx 5/15/92 YTM (%) | Present Value Based on 5/15/92 YTM ($) | Forward Yields for Principal Recovery (%) |
|---|---|---|---|---|---|---|---|
| 05/15/28 | 0.19 | 46,700 | 26,951 | 46,611 | 4.70 | 44,580 | 63.27 |
| 05/15/29 | 0.42 | 46,700 | 25,918 | 46,310 | 4.95 | 42,349 | 31.72 |
| 05/15/30 | 0.67 | 46,700 | 24,887 | 45,772 | 5.20 | 40,034 | 22.12 |
| 05/15/31 | 1.04 | 46,700 | 23,837 | 44,802 | 5.45 | 37,662 | 17.54 |
| 05/15/32 | 1.33 | 46,700 | 22,855 | 43,705 | 5.70 | 35,259 | 14.81 |
| 05/15/33 | 1.61 | 46,700 | 21,922 | 42,416 | 5.95 | 32,850 | 13.01 |
| 05/15/34 | 1.89 | 46,700 | 21,037 | 40,938 | 6.20 | 30,458 | 11.72 |
| 05/15/35 | 2.17 | 46,700 | 20,213 | 39,294 | 6.45 | 28,103 | 10.75 |
| 05/15/36 | 2.38 | 46,700 | 19,449 | 37,743 | 6.70 | 25,806 | 9.97 |
| 05/15/37 | 2.56 | 46,700 | 18,687 | 36,211 | 6.95 | 23,583 | 9.37 |
| 05/15/38 | 2.75 | 46,700 | 17,926 | 34,581 | 7.20 | 21,449 | 8.90 |
| 05/15/39 | 2.93 | 46,700 | 17,236 | 32,940 | 7.45 | 19,414 | 8.48 |
| 05/15/40 | 3.11 | 46,700 | 16,614 | 31,267 | 7.70 | 17,488 | 8.11 |
| 05/15/41 | 3.26 | 46,700 | 15,970 | 29,696 | 7.95 | 15,679 | 7.81 |
| 05/15/41 | 3.26 | 233,500 | 79,848 | 148,482 | 7.95 | 78,393 | 7.81 |
| **Totals** | | **887,300** | **373,347** | **700,770** | | **493,109** | |
| **Cumulative Gain** | | | | **188%** | | **132%** | |

### Table 4. Present Values for Male Death During Year 16 in 2027—Inflation-Adjusted Income

| Maturity Date | 3/19/12 YTM (%) | Maturity Value ($) | Original Principal Based on 3/19/12 YTM ($) | Present Value Based on 3/19/12 YTM ($) | Approx 5/15/92 YTM (%) | Present Value Based on 5/15/92 YTM ($) | Forward Yields for Principal Recovery (%) |
|---|---|---|---|---|---|---|---|
| 05/15/28 | 0.19 | 49,100 | 28,336 | 49,007 | 4.70 | 46,871 | 63.27 |
| 05/15/29 | 0.42 | 50,600 | 28,082 | 50,177 | 4.95 | 45,886 | 31.72 |
| 05/15/30 | 0.67 | 52,100 | 27,765 | 51,065 | 5.20 | 44,664 | 22.12 |
| 05/15/31 | 1.04 | 53,700 | 27,410 | 51,517 | 5.45 | 43,308 | 17.54 |
| 05/15/32 | 1.33 | 55,300 | 27,064 | 51,754 | 5.70 | 41,752 | 14.81 |
| 05/15/33 | 1.61 | 57,000 | 26,757 | 51,771 | 5.95 | 40,095 | 13.01 |
| 05/15/34 | 1.89 | 58,700 | 26,443 | 51,458 | 6.20 | 38,284 | 11.72 |
| 05/15/35 | 2.17 | 60,500 | 26,186 | 50,906 | 6.45 | 36,408 | 10.75 |
| 05/15/36 | 2.38 | 62,300 | 25,945 | 50,351 | 6.70 | 34,427 | 9.97 |
| 05/15/37 | 2.56 | 64,100 | 25,649 | 49,703 | 6.95 | 32,370 | 9.37 |
| 05/15/38 | 2.75 | 66,100 | 25,372 | 48,947 | 7.20 | 30,359 | 8.90 |
| 05/15/39 | 2.93 | 68,100 | 25,134 | 48,035 | 7.45 | 28,310 | 8.48 |
| 05/15/40 | 3.11 | 70,100 | 24,939 | 46,934 | 7.70 | 26,251 | 8.11 |
| 05/15/41 | 3.26 | 72,200 | 24,690 | 45,912 | 7.95 | 24,240 | 7.81 |
| 05/15/41 | 3.26 | 361,000 | 123,448 | 229,558 | 7.95 | 121,198 | 7.81 |
| **Totals** | | **1,200,900** | **493,218** | **927,095** | | **634,424** | |
| **Cumulative Gain** | | | | **188%** | | **129%** | |

**Table 5. Present Values for Female Death During Year 19 in 2030—$46,700 Annual Income**

| Maturity Date | 3/19/12 YTM (%) | Maturity Value ($) | Original Principal Based on 3/19/12 YTM ($) | Present Value Based on 3/19/12 YTM ($) | Approx 5/15/92 YTM (%) | Present Value Based on 5/15/92 YTM ($) | Forward Yields for Principal Recovery (%) |
|---|---|---|---|---|---|---|---|
| 05/15/31 | 0.19 | 46,700 | 23,837 | 45,825 | 4.70 | 44,580 | 79.94 |
| 05/15/32 | 0.42 | 46,700 | 22,855 | 46,310 | 4.95 | 42,349 | 39.12 |
| 05/15/33 | 0.67 | 46,700 | 21,922 | 45,772 | 5.20 | 40,034 | 26.87 |
| 05/15/34 | 1.04 | 46,700 | 21,037 | 44,802 | 5.45 | 37,662 | 20.96 |
| 05/15/35 | 1.33 | 46,700 | 20,213 | 43,705 | 5.70 | 35,259 | 17.47 |
| 05/15/36 | 1.61 | 46,700 | 19,449 | 42,416 | 5.95 | 32,850 | 15.15 |
| 05/15/37 | 1.89 | 46,700 | 18,687 | 40,938 | 6.20 | 30,458 | 13.52 |
| 05/15/38 | 2.17 | 46,700 | 17,926 | 39,294 | 6.45 | 28,103 | 12.33 |
| 05/15/39 | 2.38 | 46,700 | 17,236 | 37,743 | 6.70 | 25,806 | 11.39 |
| 05/15/40 | 2.56 | 46,700 | 16,614 | 36,211 | 6.95 | 23,583 | 10.61 |
| 05/15/41 | 2.75 | 46,700 | 15,970 | 34,581 | 7.20 | 21,449 | 10.00 |
| 05/15/41 | 2.75 | 233,500 | 79,848 | 169,562 | 7.20 | 107,244 | 10.00 |
| **Totals** | | **747,200** | **295,591** | **627,161** | | **469,379** | |
| **Cumulative Gain** | | | | **212%** | | **159%** | |

**Table 6. Present Values for Female Death During Year 19 in 2030—Inflation Adjusted Income**

| Maturity Date | 3/19/12 YTM (%) | Maturity Value ($) | Original Principal Based on 3/19/12 YTM ($) | Present Value Based on 3/19/12 YTM ($) | Approx 5/15/92 YTM (%) | Present Value Based on 5/15/92 YTM ($) | Forward Yields for Principal Recovery (%) |
|---|---|---|---|---|---|---|---|
| 05/15/31 | 0.19 | 53,700 | 27,410 | 52,694 | 4.70 | 51,262 | 79.94 |
| 05/15/32 | 0.42 | 55,300 | 27,064 | 54,838 | 4.95 | 50,148 | 39.12 |
| 05/15/33 | 0.67 | 57,000 | 26,757 | 55,868 | 5.20 | 48,864 | 26.87 |
| 05/15/34 | 1.04 | 58,700 | 26,443 | 56,314 | 5.45 | 47,340 | 20.96 |
| 05/15/35 | 1.33 | 60,500 | 26,186 | 56,620 | 5.70 | 45,679 | 17.47 |
| 05/15/36 | 1.61 | 62,300 | 25,945 | 56,585 | 5.95 | 43,823 | 15.15 |
| 05/15/37 | 1.89 | 64,100 | 25,649 | 56,192 | 6.20 | 41,806 | 13.52 |
| 05/15/38 | 2.17 | 66,100 | 25,372 | 55,618 | 6.45 | 39,778 | 12.33 |
| 05/15/39 | 2.38 | 68,100 | 25,134 | 55,039 | 6.70 | 37,632 | 11.39 |
| 05/15/40 | 2.56 | 70,100 | 24,939 | 54,356 | 6.95 | 35,400 | 10.61 |
| 05/15/41 | 2.75 | 72,200 | 24,690 | 53,464 | 7.20 | 33,161 | 10.00 |
| 05/15/41 | 2.75 | 361,000 | 123,448 | 262,150 | 7.20 | 165,803 | 10.00 |
| **Totals** | | **1,049,100** | **409,036** | **869,736** | | **640,697** | |
| **Cumulative Gain** | | | | **213%** | | **157%** | |

## Alternative Values at Death of the Female

Table 5 shows that for $46,700 annual income, the original principal for the remaining maturities of $747,200 was $295,591. Based on the replicated 2012 yield curve, the present value (principal) of those bonds at the time of death is $627,161, which is a significant upside to the original principal. This represents a 212% increase in the principal over the 18 years to death. The May 15, 1992, yields show the present value of the bonds at the time of death to be $469,379, which is cumulative gain of 159% over the original principal—again, a significant upside.

Table 6 shows that for the inflation-adjusted annual income, the original principal for the remaining maturities of $1,049,100 is $409,036. Based on the replicated 2012 yield curve, the present value (principal) of those bonds at the time of death is $869,736 and as above represents a 212% increase in the principal over the 18 years to death. The May 15, 1992, yields show the present value of the bonds at the time of death to be $640,697, which is a cumulative gain of 157% over the original principal—again, a significant upside.

## Death in Year 29

For either the male or female, if death occurs in the 29th year, the decision to sell or wait the year could depend on the loss, relative to the maturity values, that would be incurred by selling. Using an annual income option of $40,000, if the one-year yield is the same as the original yield, the loss from the respective maturity value of $240,000 by not waiting the one year would be negligible: $455. However, if the one-year yield replicates the May 15, 1992, value of 4.7%, the loss will be $11,329. (Bond prices and yields are inverted, so the rise in yields would hurt the value of the bonds.) For this situation, it might be wiser for the beneficiary to wait. The cumulative gain on the original principal would be 292% for the 2012 yield curve and 179% for the 1992 yield curve, as shown in Table 7.

**Table 7. Present Values for Death During Year 29 in 2040**

| 3/19/12 1-Year Yield (%) | Income ($) | Maturity Value 6 Times Income ($) | Original Principal Based on 3/19/12 29-Year Yield ($) | Present Value Based on 3/19/12 1-Year Yield ($) | Approx 5/15/92 1-Year Yield (%) | Present Value Based on 5/15/92 1-Year Yield ($) | 1-Year Yield for Principal Recovery (%) |
|---|---|---|---|---|---|---|---|
| 0.19 | 40,000 | 240,000 | 82,070 | 239,545 | 4.70 | 228,671 | 192.43 |
| 0.19 | 46,700 | 280,200 | 95,817 | 279,668 | 4.70 | 266,973 | 192.43 |
| 0.19 | 72,200 | 433,200 | 148,137 | 432,378 | 4.70 | 413,535 | 192.43 |
| | **Cumulative Gain** | | | **292%** | | **179%** | |