



Tax rate changes effected by JGTRRA make it imperative for financial advisors to re-evaluate the strategies employed to ensure that clients reap the maximum benefit on retirement.

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**N**ow that the 2003 Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) has been enacted, it is important for financial advisors to rethink the way they help clients build wealth for their retirement. Not only did JGTRRA reduce the tax rates on long-term capital gains and dividend income, it accelerated the reduction in the ordinary income tax rates originally introduced in EGTRRA in 2001. Prior to JGTRRA, the conventional wisdom had been to take advantage of accounts that allow for tax-deductible contributions and tax-deferred growth. Under some scenarios, that may no longer be true.

The authors have developed a model, which will aid financial advisors in selecting the type of account that will create the greatest amount of wealth for their clients during their retirement years. All too often, the emphasis is on comparing different alternatives up to the point at which an individual retires. However, the authors have gone one-step further. They have developed a model that compares the *average after-tax withdrawal* during retirement among various savings vehi-

cles. Because the model is quite extensive, it is not included in the article. However, the authors have included a description of the model, beginning on page 268, and would be very happy to share the details with anyone who is interested.

All too often, advisors have focused only on the advantages of the various types of investment vehicles during the years that individuals are working and saving money up to retirement. With the "Baby Boomers" quickly approaching their retirement years, it is important to focus on the tax implications of these investments during retirement when individuals start to live off their investments. Increased retirement plan contribution limits and revisions in the tax rate structure for taxable investments make it imperative for financial advisors to reassess their clients' investment vehicles to determine which are most effective in generating funds for a comfortable retirement.

### The model

The authors have created a model that takes into account the criteria that affect the various types of investment vehicles that can be used to fund an individual's retirement. Unless otherwise indicated, the model is based on the following assumptions:

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**EXHIBIT 1. Roth IRA—contribution phase**

Con. year	Beg. pre-invest. value	Pretax saving	After-tax saving	Beg. post-invest. value	Annual increase	Ending value
1	\$ -	\$3,500.00	\$2,546.25	\$ 2,546.25	\$ 178.24	\$ 2,724.49
2	2,724.49	4,500.00	3,273.75	5,998.24	419.88	6,418.11
3	6,418.11	5,000.00	3,637.50	10,055.61	703.89	10,759.51
4	10,759.51	5,000.00	3,637.50	14,397.01	1,007.79	15,404.80
5	15,404.80	6,000.00	4,365.00	19,769.80	1,383.89	21,153.68
6	21,153.68	6,180.00	4,495.95	25,649.63	1,795.47	27,445.11
7	27,445.11	6,365.40	4,630.83	32,075.94	2,245.32	34,321.25
8	34,321.25	6,556.36	4,769.75	39,091.01	2,736.37	41,827.38
9	41,827.38	6,753.05	4,912.85	46,740.22	3,271.82	50,012.04
10	50,012.04	6,955.64	5,060.23	55,072.27	3,855.06	58,927.33
11	58,927.33	7,164.31	5,212.04	64,139.37	4,489.76	68,629.12
12	68,629.12	7,379.24	5,368.40	73,997.52	5,179.83	79,177.35
13	79,177.35	7,600.62	5,529.45	84,706.80	5,929.48	90,636.27
14	90,636.27	7,828.64	5,695.33	96,331.61	6,743.21	103,074.82
15	103,074.82	8,063.50	5,866.20	108,941.02	7,625.87	116,566.89
16	116,566.89	8,305.40	6,042.18	122,609.07	8,582.63	131,191.70
17	131,191.70	8,554.57	6,223.45	137,415.15	9,619.06	147,034.21
18	147,034.21	8,811.20	6,410.15	153,444.36	10,741.11	164,185.47
19	164,185.47	9,075.54	6,602.45	170,787.92	11,955.15	182,743.07
20	182,743.07	9,347.80	6,800.53	189,543.60	13,268.05	202,811.65

- An individual will contribute to an investment vehicle for 20 years, at which time that individual will retire and immediately start withdrawing from his or her investment account.
  - In year one of retirement, the individual will withdraw  $\frac{1}{20}$ th of the account. At the end of year two, the individual will withdraw  $\frac{1}{19}$ th of the account. This pattern will continue until the 20th year of retirement, at which time the individual will withdraw whatever remains.
  - The individual is age 50 in year one, files a joint tax return, and will contribute \$3,500 before taxes in 2004, and then the maximum contribution that can be made to an IRA in the subsequent 19 years.
  - Investments are made in a stock mutual fund that has an annual return of 7% with an annual ordinary dividend distribution of 2% and a capital gain distribution of 4%.
  - 100% of distributions from retirement accounts are taxable at the state level.
  - Employment income begins at \$100,000, which escalates at the rate of 3% per year. This same rate of growth is used for dividends and long-term capital gains, as well as the growth in the income tax brackets, itemized deductions, and personal exemptions.
  - At the beginning of the model period, the individual has a combination of dividend income and capital gains in a taxable account that generates \$100 of income.
  - Itemized deductions (other than the deduction for state income taxes) and personal exemptions amount to 10% of employment income, dividends, long-term capital gains, and retirement income.
  - During retirement, the individual has other retirement income (perhaps from a pension) of 50% of pre-retirement employment income.
  - The individual will have a part-time job after retirement in which he or she earns 50% of his or her pre-retirement employment income. The model assumes no Social Security benefits are being received.
- The effectiveness of each saving device is measured by the average withdrawals, after taxes, that our hypothetical individual makes during the 20-year withdrawal period. In the base case, having an investment in either a Roth IRA, a regular IRA, a 401(k) plan, or a 403(b) plan, produced the same results with an aver-

## COMPUTER MODEL DESCRIPTION

The model is designed to compare the results of equal investments in three different retirement saving accounts: a Roth IRA, a 401(k)/403(b)/regular IRA, and a taxable account. For 20 years, starting in 2004, the maximum investment allowed to a regular IRA is made to each of the three accounts (assuming an individual who is 50 years old). Then for the following 20 years, withdrawals are made that bring the balances in the three accounts down to zero. The average withdrawals from each of the three accounts are compared. The model is run and the results described in this section for a set of inputs known as the base case. Throughout the article as different topics are discussed, the base case inputs are modified and the new output results are discussed.

Exhibits 1 and 2 portray the effects of investing in a Roth IRA, Exhibits 3 and 4 employ a 401(k)/403(b)/regular IRA, and Exhibits 5 and 6 employ a taxable account. Exhibits 1 and 2 are discussed in detail below as an introduction to the computer model. Exhibits 3-6 are then described in detail only when they differ conceptually from Exhibits 1 and 2. The discussion of Exhibit 7 summarizes the input parameters to the model.

**Roth IRA.** Exhibit 1 shows the first 20 years, during which time the contributions are made to the Roth IRA. The first column shows the year with year 1 equal to 2004. The second column shows the value of the Roth account at the beginning of each year. Note that all accounts (see also Exhibits 3 and 5) start the first year with a zero balance. The column labeled "Pre-tax saving" shows the maximum amount that can be contributed to an IRA. To keep the Roth and regular IRAs comparable, this maximum amount is assumed to be pretax dollars. Because after-tax dollars are actually contributed to a Roth IRA, the after-tax equivalent is shown in the following column. This after-tax saving is computed as the pretax savings less the difference between the tax paid by a contributor to a Roth IRA and the tax paid by a contributor to a regular IRA. In other words, one can contribute \$3,500 pretax dollars to a regular IRA or pay the tax on that \$3,500 and contribute the net amount of \$2,546 to a Roth IRA and maintain the equivalency of the investments.

In this model, the assumption is that the individual has a beginning employment income of \$100,000 and a capital gain/dividend income of \$100. These amounts then grow at the rate of 3% per year, as do the tax brackets and allowed contributions to IRAs (after 2008). The itemized deductions (other than state tax on the account) and personal exemption are assumed to be 10% of the employment income and capital gain/dividend income. State tax is calculated based on adjusted gross income in the same manner as the federal tax is calculated on taxable income, but with reduced rates (see the Tax brackets portion of Table 7). So the after-tax saving of \$2,546 is calculated as \$3,500 - (tax (\$100,100) - tax (\$96,600)).

The after-tax savings is then added to the beginning balance to give a beginning-of-the-year, post-investment value. This assumes that the investment is made at the beginning of the year. During the year, the account grows at an assumed 7% rate. This growth is shown in the annual increase column, and when added to the beginning of the year, post-investment value, the sum is shown in the ending value column.

Exhibit 2 shows the withdrawal phase for the Roth IRA. The first two columns are similar to those in Exhibit 1. The third column shows the withdrawals, which are tax free because this is a Roth IRA. The withdrawals are calculated as follows. In the first year,  $\frac{1}{20}$  of the balance is withdrawn. In year two,  $\frac{2}{20}$  is withdrawn. This pattern continues until in year 18,  $\frac{18}{20}$  is withdrawn; year 19,  $\frac{19}{20}$ ; and in the last year the remaining balance is withdrawn. The withdrawals are assumed to take place at the beginning of the year and growth continues during this withdrawal phase at the rate of 7% per year.

**401(k)/403(b)/regular IRA.** Exhibit 3 represents the contribution phase of the 401(k)/403(b)/regular IRA. The first three columns are equivalent to those in the Roth IRA's Exhibit 1. Because pretax dollars are contributed to a 401(k)/403(b)/regular IRA, the pretax savings amount (column three) is added to the beginning-of-the-year, pre-investment value (column two) to give the beginning-of-the-year, post-investment value (column four). Adding the assumed 7% growth (column five) gives the end-of-the-year value (column six).

Exhibit 4 shows the withdrawal phase of the 401(k)/403(b)/regular IRA. It is similar to the withdrawal phase of the Roth IRA (Exhibit 2) except that the withdrawal is taxable income. Column four shows the after-tax equivalent of the pretax withdrawal in column three. These after-tax withdrawals from the 401(k)/403(b)/regular IRA are the same as the after-tax withdrawals from the Roth IRA in Exhibit 2. This shows that it does not matter whether the contributions (Roth IRA) are taxed and then allowed to grow or whether the pretax contributions are allowed to grow and then the withdrawals are taxed (401(k)/403(b)/regular IRA). This is true as long as the tax rates during the contribution phase are the same as the tax rates during the withdrawal phase.

**Taxable account.** The taxable account is significantly more complex than either of the previous two accounts. In the case of the Roth IRA, the income is taxed (i.e., included in gross income) before being contributed. For the 401(k)/403(b)/regular IRA, the withdrawals are included in gross income. The taxable account is taxed before, during, and after. As with the Roth IRA, the income is included in gross income before being contributed. While the account is growing (during both the contribution and withdrawal phases), dividend, interest, and capital gain distributions are included in gross income. Finally, when the withdrawal is made, the previously undistributed capital gains are included in gross income. In order to make apparent the amount of the undistributed capital gains, the basis of the account is shown any time the account value is provided.

Exhibit 5 represents the taxable account contribution phase. The first two columns contain the same information as shown for the previous two accounts. Because this exhibit contains many columns, the pretax savings figure has not been shown to save space. The pretax savings is the same as for the previous two accounts. The beginning-of-the-year, post investment value and basis are then shown.

The growth in the taxable account is more complex than growth for either of the two IRAs. The entire 7% growth of the IRAs is recognized immediately, and the nature of the income is lost. It becomes simply retirement income on withdrawal (nontaxable retirement income in the case of the Roth IRA). In the taxable account, because dividends, interest, and capital gains are taxed differently, separate columns display each of the above incomes. For the base case, those returns are assumed to be 2%, 0%, and 4%, respectively. Because those three returns add up to 6%, the remaining 1% portion of the total return of 7% is the unrealized capital gain, which causes the difference between the value and basis amounts seen for the taxable account. The returns indicated might represent an investment in a stock mutual fund.

After displaying those values post investment and pretax, the tax on the distribution is shown. The withdrawal from the taxable account to pay that tax triggers additional tax on the unrealized gain portion of the withdrawal. The additional withdrawal to pay the tax on the unrealized gain portion of the withdrawal causes additional capital gain tax to be incurred and so on. The model solves this recurring problem by entering a loop that continues to withdraw more money until the change in the total tax due is less than  $\frac{1}{20}$  of a cent. The resulting amount is shown in the column labeled "Withdrawal needed to pay the total tax on the distribution and withdrawal." Finally, the end of the year value and basis are shown.

Exhibit 6 shows the withdrawal phase of the taxable account. After the columns for the year and beginning-of-the-year value and basis, the amount of the withdrawal is calculated in the same way as for the previous two accounts. As with the 401(k)/403(b)/regular IRA account, the withdrawal from the taxable account causes taxes to be due. In the case of the taxable account, tax is due on the previously undistributed capital gain. After showing the pretax and after-tax withdrawal amounts, the value and basis at the beginning of the year and post withdrawal are shown. The remaining columns show the same information as the last columns of Exhibit 5.

The average after-tax withdrawal from the taxable account is \$16,310.92, whereas the average for both the Roth IRA and the 401(k)/403(b)/regular IRA is \$20,785.91. The taxable account's average withdrawal is 78% of the other two accounts. The taxable account is smaller because the other two accounts were only taxed once each, whereas the taxable account is taxed

more than once. As long as there is a tax on dividends, interest, and capital gains, the taxable account average withdrawal will always be smaller than the Roth IRA's withdrawal. It is theoretically possible, but practically unlikely, that the taxable account average withdrawal could be larger than the 401(k)/403(b)/regular IRA's withdrawal. This could occur if the tax rate on ordinary income is much larger during the withdrawal phase than during the contribution phase.

**Summary of input parameters.** Exhibit 7 shows the input parameters used by the computer model. Parameters 1-15 have been described above. Parameters 16 and 17 reflect the impact of inflation on incomes and the indexing of tax amounts. Parameters 18-21 show the effect of retirement. It is assumed that on retirement, the individual receives a pension equal to 50% of his or her pre-retirement income. The individual continues to be employed (perhaps part-time) earning 50% of his or her pre-retirement income. To reduce the complexity of the modeled cases, it is assumed that the individual does not collect Social Security benefits. The reason that the model distinguishes between employment and retirement income is that the later is possibly taxed at a reduced rate by the state (versus federal) government.

Parameter 22 allows the model to treat corporate bonds differently than Treasury securities with the later not being taxed at the state level. Parameter 23 allows the model to assume that an employer could contribute to the individual's 401(k). Parameter 24 allows comparison of the current treatment of dividends (the same as capital gains) to the previous treatment (the same as employment income).

The tax brackets reflect the brackets and rates in effect during 2004. The brackets are allowed to grow at the rate indicated by parameter 17 (i.e., 3%). Because each state taxes income in a different way, a generic version is assumed. This assumed state tax on income mimics the federal tax except at the reduced rates shown.

age withdrawal after-taxes of \$20,786. In contrast, an investment in a taxable account would have produced an average withdrawal after taxes of only \$16,310.

### Reduction of ordinary income tax rates

Initially, President Bush had proposed two new generous savings plans that did not make it to the final legislation. Although those savings plans would have been very conducive to saving, other JGTRRA provisions have substantially reduced the tax burden of saving in taxable accounts. In general, JGTRRA reduced the ordinary tax rates in 2003 by two percentage points. The highest tax bracket was reduced by 3.6 percentage points.<sup>1</sup> The reduction of ordinary income tax rates make investments in taxable accounts more appealing than in the past. Taking this into account, along with other factors such as greater flexibility, should cause financial advisors to rethink their advice to clients for retirement wealth building.

To illustrate the impact of the income tax rate reduction on the selection of an investment vehicle, the authors compared the results, using the pre-EGTRRA 2000 tax rates (taking

into account the applicable tax rates for ordinary income, including dividend income, and the applicable rates for long-term capital gains), with the results in the base case. In both scenarios it was assumed that items subject to the consumer price index (CPI) escalation were increased at the rate of 3% a year. The average withdrawal, after taxes, is greater in the base case than the withdrawal would be using the 2000 rates, as shown below:

#### Average withdrawal after taxes

Base case	
Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	16,311
Assuming 2000 tax rates	
Roth IRA	\$19,954
401(k) plan	19,900
Regular IRA	19,900
Taxable account	14,119

### Qualified dividend income and net capital gains

JGTRRA has substantially reduced the tax burden on individuals who receive qualified div-

idend income and net capital gains. The tax rate on these items is 5% for individuals who are in either the 10% or 15% income tax bracket.<sup>2</sup> Otherwise, the rate is 15%.<sup>3</sup> This dramatic reduction in tax rates for qualified dividend income and net capital gains should cause financial planners to review strategies to help clients create more funds for retirement. For instance, investments made in taxable accounts should favor those likely to generate dividend income and net capital gains. Investments made in vehicles that do not generate qualified dividend income or net capital gains, such as bonds or in REITS, should be made instead in a Roth IRA, so that distributions will be tax-free. Alternatively, investments in bonds or REITS should be made in tax-deductible retirement accounts, so that the investment income can be deferred until retirement withdrawals. Of course, such withdrawals will be considered ordinary income.

Qualified dividend income is defined to be dividends received from domestic corporations, and qualified foreign corporations.<sup>4</sup>

The following dividends do not qualify for the preferential treatment:

1. If a shareholder does not hold stock for more than 60 days during the 121-day period beginning 60 days before the ex-dividend date.<sup>5</sup>
2. Any dividend on any share of stock to the extent that the taxpayer is under an obligation to make related payments with

#### PLANNING TIP

**Individuals who have funds to invest in excess of the current contribution limits for the qualified retirement plans, and who seek diversification, should take into account changes made by JGTRRA. That is, they should place investments that are likely to produce qualified dividend income and net capital gains in taxable accounts. In contrast, they should place investments that produce interest income and rental income into a form of qualified retirement plan.**

respect to positions in substantially similar or related property.<sup>6</sup>

3. Any payments in lieu of dividends.
4. Dividends that individuals take into account as investment income for purposes of determining the investment interest expense deductible under Section 163(d)(4)(B).<sup>7</sup>
5. Dividends paid by a corporation that is exempt under Section 501.<sup>8</sup>
6. Dividends paid by mutual savings banks.<sup>9</sup>
7. Dividends paid on "applicable employer securities" held by an ESOP.<sup>10</sup>
8. Most dividends paid from a regulated investment company or a real estate investment trust.<sup>11</sup>

The definition of net capital gains was not changed by JGTRRA and is defined to be the

**EXHIBIT 2. Roth IRA—withdrawal phase**

W/d year	Beg. pre-w/d value	After tax w/d	Beg. post-w/d value	Annual increase	Ending value
1	\$202,811.65	\$10,140.58	\$192,671.07	\$13,486.98	\$206,158.05
2	206,158.05	10,850.42	195,307.62	13,671.53	208,979.16
3	208,979.16	11,609.95	197,369.20	13,815.84	211,185.05
4	211,185.05	12,422.65	198,762.40	13,913.37	212,675.77
5	212,675.77	13,292.24	199,383.53	13,956.85	213,340.38
6	213,340.38	14,222.69	199,117.69	13,938.24	213,055.92
7	213,055.92	15,218.28	197,837.64	13,848.64	211,686.28
8	211,686.28	16,283.56	195,402.72	13,678.19	209,080.91
9	209,080.91	17,423.41	191,657.50	13,416.03	205,073.52
10	205,073.52	18,643.05	186,430.48	13,050.13	199,480.61
11	199,480.61	19,948.06	179,532.55	12,567.28	192,099.83
12	192,099.83	21,344.43	170,755.40	11,952.88	182,708.28
13	182,708.28	22,838.54	159,869.75	11,190.88	171,060.63
14	171,060.63	24,437.23	146,623.40	10,263.64	156,887.03
15	156,887.03	26,147.84	130,739.19	9,151.74	139,890.94
16	139,890.94	27,978.19	111,912.75	7,833.89	119,746.64
17	119,746.64	29,936.66	89,809.98	6,286.70	96,096.68
18	96,096.68	32,032.23	64,064.45	4,484.51	68,548.97
19	68,548.97	34,274.48	34,274.48	2,399.21	36,673.70
20	36,673.70	36,673.70	-	-	-

amount by which long-term capital gains exceed short-term capital losses.<sup>12</sup>

### Tax deductibility of contributions

A distinct advantage of investing in a regular IRA, 401(k) plan, or a 403(b) plan ("tax-deductible retirement plans") is the fact that such contributions are tax deductible.<sup>13</sup> The deductibility of contributions to these invest-

ment vehicles can give an individual a significant "head-start" in developing a retirement fund. However, with reduced income tax rates, the advantage of the tax deductibility of these plans is diminished somewhat when compared to a taxable account.

*Caveat.* As explained later in the article, for individuals receiving withdrawals from tax-deductible retirement accounts, the reduction of income tax rates increases the benefit of

**EXHIBIT 3. 401(k), 403(b), and regular IRA—contribution phase**

Con. year	Beg. pre-invest. value	Pretax saving	Beg. post-invest. value	Annual increase	Ending value
1	\$ -	\$3,500.00	\$ 3,500.00	\$ 245.00	\$ 3,745.00
2	3,745.00	4,500.00	8,245.00	577.15	8,822.15
3	8,822.15	5,000.00	13,822.15	967.55	14,789.70
4	14,789.70	5,000.00	19,789.70	1,385.28	21,174.98
5	21,174.98	6,000.00	27,174.98	1,902.25	29,077.23
6	29,077.23	6,180.00	35,257.23	2,468.01	37,725.23
7	37,725.23	6,365.40	44,090.63	3,086.34	47,176.98
8	47,176.98	6,556.36	53,733.34	3,761.33	57,494.67
9	57,494.67	6,753.05	64,247.73	4,497.34	68,745.07
10	68,745.07	6,955.64	75,700.71	5,299.05	80,999.76
11	80,999.76	7,164.31	88,164.08	6,171.49	94,335.56
12	94,335.56	7,379.24	101,714.80	7,120.04	108,834.84
13	108,834.84	7,600.62	116,435.46	8,150.48	124,585.94
14	124,585.94	7,828.64	132,414.58	9,269.02	141,683.60
15	141,683.60	8,063.50	149,747.10	10,482.30	160,229.40
16	160,229.40	8,305.40	168,534.80	11,797.44	180,332.24
17	180,332.24	8,554.57	188,886.80	13,222.08	202,108.88
18	202,108.88	8,811.20	210,920.08	14,764.41	225,684.49
19	225,684.49	9,075.54	234,760.03	16,433.20	251,193.23
20	251,193.23	9,347.80	260,541.03	18,237.87	278,778.91

**EXHIBIT 4. 401(k), 403(b), and regular IRA—withdrawal phase**

W/d year	Beg. pre-w/d value	Pre-tax w/d	After tax w/d	Beg. post-w/d value	Annual increase	Ending value
1	\$278,778.91	\$13,938.95	\$10,140.58	\$264,839.96	\$18,538.80	\$283,378.76
2	283,378.76	14,914.67	10,850.42	268,464.09	18,792.49	287,256.57
3	287,256.57	15,958.70	11,609.95	271,297.87	18,990.85	290,288.72
4	290,288.72	17,075.81	12,422.65	273,212.92	19,124.90	292,337.82
5	292,337.82	18,271.11	13,292.24	274,066.71	19,184.67	293,251.38
6	293,251.38	19,550.09	14,222.69	273,701.29	19,159.09	292,860.38
7	292,860.38	20,918.60	15,218.28	271,941.78	19,035.92	290,977.70
8	290,977.70	22,382.90	16,283.56	268,594.80	18,801.64	287,396.44
9	287,396.44	23,949.70	17,423.41	263,446.73	18,441.27	281,888.01
10	281,888.01	25,626.18	18,643.05	256,261.82	17,938.33	274,200.15
11	274,200.15	27,420.02	19,948.06	246,780.14	17,274.61	264,054.75
12	264,054.75	29,339.42	21,344.43	234,715.33	16,430.07	251,145.40
13	251,145.40	31,393.18	22,838.54	219,752.23	15,382.66	235,134.88
14	235,134.88	33,590.70	24,437.23	201,544.19	14,108.09	215,652.28
15	215,652.28	35,942.05	26,147.84	179,710.23	12,579.72	192,289.95
16	192,289.95	38,457.99	27,978.19	153,831.96	10,768.24	164,600.20
17	164,600.20	41,150.05	29,936.66	123,450.15	8,641.51	132,091.66
18	132,091.66	44,030.55	32,032.23	88,061.10	6,164.28	94,225.38
19	94,225.38	47,112.69	34,274.48	47,112.69	3,297.89	50,410.58
20	50,410.58	50,410.58	36,673.70	-	-	-

these accounts relative to withdrawals from a Roth IRA.

**Example.** Sarah is an employee of a company that has a 401(k) plan. She is 50 years old. Assume that she is in the 25% federal income tax bracket and the 3% tax bracket for state income tax purposes. She would like to invest \$3,500 a year of her before-tax earnings. If she decides to invest in her 401(k) plan, because the contributions are made in before-tax dollars, she will be able to invest the entire \$3,500. In contrast, if she invests in a taxable account, because she will be investing in after-tax dollars, she will be able to invest only \$2,546. This

amount is arrived at by taking into account her total taxes paid net of state income taxes. Thus, by investing in a 401(k) plan, she winds up with an extra \$954 working for her. If she continuously adds to her 401(k) plan for many years, she can substantially enhance the funds she will have for retirement in contrast to investing in a taxable account.

*Caveat.* In the prior example, although Sarah will have a greater amount saved in her 401(k) plan in comparison to a taxable account, she will have a greater tax liability when she starts to withdraw from her 401(k) account in contrast to a taxable account.

#### EXHIBIT 5. Taxable account—contribution phase

Con. year	Beg. pre-invest. value	Beg. pre-invest. basis	After-tax saving	Beg. post-invest. value
1	\$ -	\$ -	\$2,546.25	\$ 2,546.25
2	2,698.09	2,672.88	3,273.75	5,971.84
3	6,327.92	6,243.81	3,637.50	9,965.42
4	10,559.55	10,377.57	3,637.50	14,197.05
5	15,043.36	14,722.55	4,365.00	19,408.36
6	20,565.21	20,055.32	4,495.95	25,061.16
7	26,554.78	25,801.67	4,630.83	31,185.61
8	33,044.04	31,989.44	4,769.75	37,813.79
9	40,066.98	38,648.18	4,912.85	44,979.83
10	47,659.74	45,809.33	5,060.23	52,719.97
11	55,860.72	53,506.28	5,212.04	61,072.76
12	64,710.76	61,774.50	5,368.40	70,079.16
13	74,253.26	70,651.69	5,529.45	79,782.71
14	84,534.34	80,177.88	5,695.33	90,229.68
15	95,603.02	90,395.62	5,866.20	101,469.22
16	107,511.37	101,350.06	6,042.18	113,553.55
17	120,314.72	113,089.19	6,223.45	126,538.16
18	134,071.84	125,663.96	6,410.15	140,481.99
19	148,845.18	139,128.48	6,602.45	155,447.84
20	164,701.06	153,540.20	6,800.53	171,501.59

Con. year	Beg. post-invest. basis	Annual increase	Div. distrib.	Int. distrib.
1	\$ 2,546.25	\$ 178.24	\$ 50.93	-
2	5,946.63	418.03	119.44	-
3	9,881.31	697.58	199.31	-
4	14,015.07	993.79	283.94	-
5	19,087.55	1,358.59	388.17	-
6	24,551.27	1,754.28	501.22	-
7	30,432.50	2,182.99	623.71	-
8	36,759.19	2,646.97	756.28	-
9	43,561.03	3,148.59	899.60	-
10	50,869.57	3,690.40	1,054.40	-
11	58,718.32	4,275.09	1,221.46	-
12	67,142.90	4,905.54	1,401.58	-
13	76,181.14	5,584.79	1,595.65	-
14	85,873.22	6,316.08	1,804.59	-
15	96,261.81	7,102.85	2,029.38	-
16	107,392.24	7,948.75	2,271.07	-
17	119,312.64	8,857.67	2,530.76	-
18	132,074.11	9,833.74	2,809.64	-
19	145,730.94	10,881.33	3,108.95	-
20	160,340.73	12,005.11	3,430.03	-

A distinct advantage of investing in a Roth IRA in comparison to investing in a regular IRA is that taxes have already been paid on the Roth IRA contributions. Although both the regular and Roth IRAs have the same \$3,500 limit, because Roth IRA contributions are in after tax dollars, one can effectively contribute a greater amount to a Roth IRA. This allows one to protect a greater amount from the additional taxes that a taxable account faces.

**Example.** George is in a 35% tax bracket while investing and will be in the same bracket dur-

ing retirement. He can afford to invest \$5,385 of his pre-tax income into retirement savings. Unfortunately, he is employed by an organization that does not have a qualified retirement plan, so he must choose among a Roth IRA, a regular IRA, and a taxable account. If George decides to invest in a Roth IRA, after paying tax of \$1,885, he can place \$3,500 into his IRA. On the other hand, if he decides to invest in a regular IRA, he would put \$3,500 into the account (pre-tax) and have \$1,885 dollars of pre-tax income left. After paying tax of \$660 on that,

**EXHIBIT 5.** Taxable account—contribution phase (*cont.*)

Con. year	Capital gain distrib.	Ending pretax value	Ending pretax basis	Total tax on distrib.
1	\$ 101.85	\$ 2,724.49	\$ 2,699.03	\$ 26.35
2	238.87	6,389.87	6,304.94	61.81
3	398.62	10,663.00	10,479.23	103.14
4	567.88	15,190.84	14,866.89	146.94
5	776.33	20,766.95	20,252.05	200.88
6	1,002.45	26,815.44	26,054.94	259.38
7	1,247.42	33,368.60	32,303.63	322.77
8	1,512.55	40,460.76	39,028.02	391.37
9	1,799.19	48,128.42	46,259.82	465.54
10	2,108.80	56,410.37	54,032.76	545.65
11	2,442.91	65,347.85	62,382.69	632.10
12	2,803.17	74,984.70	71,347.65	725.32
13	3,191.31	85,367.50	80,968.11	825.75
14	3,609.19	96,545.76	91,287.00	933.88
15	4,058.77	108,572.06	102,349.96	1,050.21
16	4,542.14	121,502.30	114,205.45	1,175.28
17	5,061.53	135,395.83	126,904.93	1,309.67
18	5,619.28	150,315.73	140,503.03	1,453.99
19	6,217.91	166,328.97	155,057.80	1,608.88
20	6,860.06	183,506.70	170,630.82	1,775.04

  

Con. year	W/d needed to pay total tax on distrib. and w/d	Ending value	Ending basis
1	\$ 26.40	\$ 2,698.09	\$ 2,672.88
2	61.95	6,327.92	6,243.81
3	103.45	10,559.55	10,377.57
4	147.48	15,043.36	14,722.55
5	201.74	20,565.21	20,055.32
6	260.66	26,554.78	25,801.67
7	324.56	33,044.04	31,989.44
8	393.78	40,066.98	38,648.18
9	468.68	47,659.74	45,809.33
10	549.65	55,860.72	53,506.28
11	637.09	64,710.76	61,774.50
12	731.44	74,253.26	70,851.69
13	833.16	84,534.34	80,177.88
14	942.74	95,603.02	90,395.62
15	1,060.69	107,511.37	101,350.06
16	1,187.58	120,314.72	113,089.19
17	1,323.99	134,071.84	125,663.96
18	1,470.55	148,845.18	139,128.48
19	1,627.91	164,701.06	153,540.20
20	1,796.79	181,709.91	168,960.10

he would be left with \$1,225 that he could put into only a taxable account. Assuming that all accounts are invested in the same asset, the \$3,500 in a Roth IRA is more valuable than the \$3,500 in a regular IRA and \$1,225 in a taxable account because no further taxes will be owed on the Roth IRA. For example, if all accounts grow by a factor of ten, George can withdraw and spend \$35,000 from the Roth IRA. The regular IRA grows to \$35,000, and after paying tax of \$12,250, George can spend \$22,750. The taxable account will grow to \$12,250, and after paying tax on long-term capital gains of \$1,654 (15% multiplied by the gain of \$11,025), he can spend \$10,596. The investment in the Roth IRA allowed \$35,000 to be spent. The investment in the regular IRA and taxable account only allowed \$33,346 to be spent.

### Employer match

Section 401(k) plans permit an employer to make a contribution to the plan on behalf of an employee. This is often referred to as an "employer match." The amount will vary from employer to employer, depending on the financial resources of the employer and its philosophy toward employee benefits. This "free-money" can add up over the years to a sizeable employee 401(k) plan contribution. This feature should be a major consideration in selecting an account for retirement saving.

When the authors put a 50% match by the employer into the model, the average withdrawal after-taxes by the individual was dramatically increased to \$31,167, which was much greater than the other investment vehicles as indicated in the table below:

#### Average withdrawal after taxes

Base case	
Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	16,311
Employer match	
Roth IRA	\$20,786
401(k) plan	31,167
Regular IRA	20,786
Taxable account	16,311

### Tax-deferred and tax-free growth

During the contribution phase, a significant advantage of investing in tax-deductible retire-

### PLANNING TIP

**During an economic slowdown, many companies have either reduced the employer match or eliminated it to reduce costs to offset the pressure to their bottom line. Many of these companies could reinstate or increase the employer match when their businesses improve. Accordingly, when planning to use this savings vehicle, caution on assumptions made in regard to the employer match should be exercised.**

ment plans is that the income and appreciation in these accounts are deferred until there are distributions from them. Postponing the payment of taxes will allow investments in such accounts to grow faster than investments made in taxable accounts. However, in order to measure the tax-efficiency of the various types of accounts, it is important to focus on the amount of withdrawals an individual will receive on an after-tax basis while in retirement.

The after-tax withdrawals from the tax-deductible retirement plans are the same as the after-tax withdrawals from the Roth IRA in the base case. This shows that it does not matter whether (1) contributions are made on an after-tax basis to a Roth IRA and allowed to grow on a tax-free basis; or (2) contributions are made to a tax-deductible retirement plan, but the withdrawals are included in gross income. This is true as long as the income tax rates during the withdrawal phase are the same as the income tax rates during the contribution phase.

Roth IRAs grow tax-free. For individuals who will be in a high income tax bracket during their retirement, these accounts are more tax-efficient than tax-deductible retirement plans. In addition, because a Roth IRA is not subject to minimum distribution rules, a Roth IRA is more effective at building a legacy for an individual's heirs than is a tax-deductible retirement plan.

Due to unique circumstances, mutual fund investments in taxable accounts may temporarily have results similar to a Roth IRA. Because of the prolonged "bear market" in stocks in 2000-2002, many mutual funds have capital loss carry-forwards that will be netted with future capital gains as they are realized. For those funds, there will be significant tax-efficiency because their future capital gains will not be passed-through to their shareholders for many years. The carry forwards make investing in taxable accounts more attractive because investors can achieve the "best of both worlds": a high degree of tax-efficiency, and greater flexibility than can be achieved in a tax-deductible

retirement plan. Accordingly, individuals who want to create a retirement fund might reconsider investing in mutual funds in their taxable accounts because growth in many mutual funds will not be taxed for many years, or until investors decide they want to liquidate some or all of their mutual funds.

### Required distributions

Individuals who invest in tax-deductible retirement plans are required to receive distributions no later than April 1 of the year following the year they become age 70½.<sup>14</sup> Many well-

heeled individuals will not need the funds in their tax-deductible retirement account at the time they receive the required minimum distributions. Instead, they might postpone distributions until they are in their 80s or 90s. Such people will find investing in these accounts less attractive than investing in Roth IRAs or taxable accounts because tax is due when the required distributions are received. Because investments in Roth IRAs and taxable accounts have no required distributions, asset growth in them can compound tax-free until the account owners choose to take a distribution or the assets are left to the next generation.

**EXHIBIT 6. Taxable account—withdrawal phase**

<i>W/d year</i>	<i>Beg. pre-w/d. value</i>	<i>Beg. pre-w/d. basis</i>	<i>Pre-tax w/d</i>	<i>After-tax w/d</i>
1	\$181,709.91	\$168,960.10	\$ 9,085.50	\$ 8,975.53
2	182,898.07	169,195.12	9,626.21	9,501.81
3	183,582.63	169,012.47	10,199.03	10,059.40
4	183,699.69	168,357.22	10,805.86	10,650.18
5	183,179.55	167,169.44	11,448.72	11,276.11
6	181,946.22	165,383.81	12,129.75	11,939.28
7	179,916.92	162,929.21	12,851.21	12,641.90
8	177,001.58	159,728.25	13,615.51	13,386.30
9	173,102.20	155,696.76	14,425.18	14,174.98
10	168,112.30	150,743.30	15,282.94	15,010.56
11	161,916.20	144,768.55	16,191.62	15,895.82
12	154,388.33	137,664.69	17,154.26	16,833.72
13	145,392.47	129,314.78	18,174.06	17,827.38
14	134,780.88	119,592.05	19,254.41	18,880.12
15	122,393.50	108,359.10	20,398.92	19,995.43
16	108,056.91	95,467.15	21,611.38	21,177.03
17	91,583.37	80,755.10	22,895.84	22,428.87
18	72,769.73	64,048.65	24,256.58	23,755.12
19	51,396.23	45,159.28	25,698.11	25,160.18
20	27,225.25	23,883.15	27,225.25	26,648.74

  

<i>W/d year</i>	<i>Beg. post-w/d. value</i>	<i>Beg. post-w/d. basis</i>	<i>Annual increase</i>	<i>Div. distrib.</i>
1	\$172,624.41	\$160,512.10	\$12,083.71	\$3,452.49
2	173,271.85	160,290.11	12,129.03	3,465.44
3	173,383.59	159,622.89	12,136.85	3,467.67
4	172,893.83	158,453.86	12,102.57	3,457.88
5	171,730.83	156,721.35	12,021.16	3,434.62
6	169,816.47	154,358.22	11,887.15	3,396.33
7	167,065.71	151,291.41	11,694.60	3,341.31
8	163,386.07	147,441.46	11,437.03	3,267.72
9	158,677.02	142,722.03	11,107.39	3,173.54
10	152,829.36	137,039.37	10,698.06	3,056.59
11	145,724.58	130,291.69	10,200.72	2,914.49
12	137,234.07	122,368.61	9,606.39	2,744.68
13	127,218.41	113,150.43	8,905.29	2,544.37
14	115,526.47	102,507.47	8,086.85	2,310.53
15	101,994.58	90,299.25	7,139.62	2,039.89
16	86,445.52	76,373.72	6,051.19	1,728.91
17	68,687.53	60,566.33	4,808.13	1,373.75
18	48,513.16	42,699.10	3,395.92	970.26
19	25,698.11	22,579.64	1,798.87	513.96
20	-	-	-	-

Although income earned from taxable accounts must be reported in the year earned, individuals can time the sale of these investments and in that manner control the timing of capital gains and losses.

### Income tax on distribution

Part of the tax benefit of investing in a tax-deductible retirement plan is that the plan participant will be in a lower income tax bracket when distributions are received than when the contributions were made. An individual expected to be in a higher income tax bracket

in retirement would be better off investing in a Roth IRA. Not only is there no income recognized on withdrawals from a Roth IRA, but also there is no required distribution. Individuals who, in the early part of their retirement years, will not need the money invested in their Roth IRA can let it grow tax-free for later in life, or can bequeath it to their heirs without having to withdraw a certain minimum amount.

Baby boomers who have a high cost of living, may very well have to take part-time or even full-time jobs in retirement to "make ends meet." When income from these jobs are

**EXHIBIT 6.** Taxable account—withdrawal phase (cont.)

W/d year	Int. distrib.	Capital gain distrib.	Ending pretax value	Ending pretax basis
1	-	\$6,904.98	\$184,708.12	\$170,869.56
2	-	6,930.87	185,400.88	170,686.42
3	-	6,935.34	185,520.44	170,025.91
4	-	6,915.75	184,996.39	168,827.49
5	-	6,869.23	183,751.99	167,025.20
6	-	6,792.66	181,703.62	164,547.21
7	-	6,682.83	178,760.31	161,315.35
8	-	6,535.44	174,823.10	157,244.62
9	-	6,347.08	169,784.41	152,242.65
10	-	6,113.17	163,527.42	146,209.13
11	-	5,828.98	155,925.30	139,035.17
12	-	5,489.36	146,840.46	130,602.65
13	-	5,088.74	136,123.70	120,783.54
14	-	4,621.06	123,613.32	109,439.06
15	-	4,079.78	109,134.20	96,418.93
16	-	3,457.82	92,496.71	81,560.45
17	-	2,747.50	73,495.66	64,687.58
18	-	1,940.53	51,909.08	45,609.89
19	-	1,027.92	27,496.98	24,121.53
20	-	-	-	-

  

W/d year	Total tax on distrib.	W/d needed to pay total tax on distrib. and w/d	Ending value	Ending basis
1	\$1,786.66	\$1,810.06	\$182,898.07	\$169,195.12
2	1,793.36	1,818.26	183,582.63	169,012.47
3	1,794.52	1,820.75	183,699.69	168,357.22
4	1,789.45	1,816.84	183,179.55	167,169.44
5	1,777.41	1,805.77	181,946.22	165,383.81
6	1,757.60	1,786.70	179,916.92	162,929.21
7	1,729.13	1,758.74	177,001.58	159,728.25
8	1,691.05	1,720.89	173,102.20	155,896.76
9	1,642.31	1,672.11	168,112.30	150,743.30
10	1,581.78	1,611.22	161,916.20	144,768.55
11	1,508.25	1,536.97	154,388.33	137,664.69
12	1,420.37	1,447.99	145,392.47	129,314.78
13	1,316.71	1,342.81	134,780.88	119,592.05
14	1,195.70	1,219.83	122,393.50	108,359.10
15	1,055.64	1,077.30	108,056.91	95,467.15
16	894.71	913.34	91,583.37	80,755.10
17	710.92	725.92	72,769.73	64,048.65
18	502.11	512.85	51,396.23	45,159.28
19	265.98	271.73	27,225.25	23,883.15
20	-	-	-	-

## PLANNING TIP

Even though investments in taxable accounts are subject to income tax (which was reduced by JGTRRA), these investments need not be liquidated. Even though funds in a taxable account cannot be invested as tax-efficiently as funds in tax-deductible retirement plans, they can be transferred from generation to generation without any required distribution to the owner of the investment. In addition, investments in taxable accounts are subject to the rules for a "step-up" in basis under Section 1014, which will diminish some or all of the gains when heirs liquidate their inheritances.

added to income received as distributions from a tax-deductible retirement plan, they could be in a higher income tax bracket than they were during their prime working years. Accordingly, for people who suspect that they will continue working beyond the normal retirement age, investing in a Roth IRA is more tax efficient.

One of the most difficult and frustrating aspects of financial planning is the constant change in tax rates. It is almost impossible to put together a plan that will be appropriate for more than two or three years because income tax rules and rates have been in a constant flux. Accordingly, it is imperative that financial plans be flexible, and reviewed periodically to assure that they still make sense given the current tax rates at that particular point in time.

To illustrate how income tax rates in the year of distribution can affect an individual, the model's base case assumed that post-retirement employment income was 50% of the amount immediately before retirement. In addition, other retirement income (i.e., from sources other than wages) was assumed to be 50% of pre-retirement employment income. Thus, the model, in the base case, has post-retirement employment income and retirement income equal to pre-retirement employment income (with an assumed growth rate of 3%). In contrast, if the individual does not work during retirement, the relative changes in the average withdrawals after taxes among the various investment vehicles are shown below:

### Average withdrawal after taxes

Base case	
Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	16,311

No post-retirement income	
Roth IRA	\$20,786
401(k) plan	23,742
Regular IRA	23,742
Taxable account	17,693

According to the results, if an individual is not working during his or her retirement, he or she will be in a lesser income tax bracket, resulting in a greater relative average withdrawal after taxes for tax-deductible retirement plans. As a consequence, the average withdrawal for the Roth IRA stays the same, while the other investment vehicles become relatively greater.

In contrast, if an individual continues to work full-time during "retirement," and, therefore, is in a higher income tax bracket during his or her retirement years, the results are much different. If the model input is changed so that an individual is in a higher tax bracket during retirement, using a Roth IRA is more effective. For instance, suppose the individual retires with a 50% pension and then obtains other employment that pays the same amount as his or her prior job. In that situation, the Roth IRA is more beneficial relative to the other investment vehicles. This can be seen in the results below:

### Average withdrawal after taxes

Base case	
Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	16,311
Post-retirement income	
Roth IRA	\$20,786
401(k) plan	19,749
Regular IRA	19,749
Taxable account	16,232

If an individual plans to continue working beyond the normal retirement age, investing in a Roth IRA will produce greater amounts after taxes that can be withdrawn during retirement.

## Social Security benefits

The type of investment vehicles chosen by individuals may have a profound impact on the income taxation of their Social Security benefits. The income tax characteristics of the various investment vehicles that individuals own can influence the extent to which Social Security benefits have to be included in gross income. Generally, the amount of Social Secu-

**EXHIBIT 7. Input parameters**

Num.	Input parameter name	Base Case Value			
1	Contribution years	20.00			
2	Withdrawal years	20.00			
3	Beginning balance	-			
4	Contribution amount Yr 1	\$3,500.00			
5	Contribution amount Yr 2	\$4,500.00			
6	Contribution amount Yr 3	\$5,000.00			
7	Contribution amount Yr 4	\$5,000.00			
8	Contribution amount Yr 5	\$6,000.00			
9	Rate of return	7.00%			
10	Dividend distribution	2.00%			
11	Interest distribution	0.00%			
12	Capital gain distribution	4.00%			
13	Employment income (EI)	\$100,000.00			
14	Dividends and capital gain income (not from subject account) (DivCG)	\$100.00			
15	Itemized deductions (other than state tax on subject account) and personal exemption as a percent of EI, DivCG, and retirement income	10.00%			
16	Growth rate of incomes	3.00%			
17	Growth rate of tax amounts (including allowed contribution to IRAs after 2008)	3.00%			
18	Retirement income as percent of pre-retirement EI	50.00%			
19	Post-retirement EI as percent of pre-retirement EI	50.00%			
20	Social Security benefit during retirement as percent of pre-retirement EI	0.00%			
21	Amount of retirement income that state taxes	100.00%			
22	Percent of account's interest distribution taxable at state level	100.00%			
23	Employer contribution to 401(k)/403(b) per dollar of employee contribution	-			
24	Dividend treated the same as capital gain (1 is Yes, 0 is No)	1			
25	<b>Tax brackets</b>				
	<i>Cutoff</i>	<i>Fed. amt.</i>	<i>Fed. %</i>	<i>State amt.</i>	<i>State % &amp; C.G. %</i>
	-	-	10%	-	1% 5%
	\$14,300.00	\$1,430.00	15%	\$143.00	2% 5%
	58,100.00	8,000.00	25%	1,019.00	3% 15%
	117,250.00	22,787.50	28%	2,793.50	4% 15%
	178,650.00	39,979.50	33%	5,249.50	5% 15%
	319,100.00	86,328.00	35%	12,272.00	6% 15%

ity benefits required to be included in gross income is the lesser of one-half of the annual benefits received or one-half of the excess of "provisional income" over a base amount.<sup>15</sup> For individuals who are filing a single return, the base amount is \$25,000. For those who are filing a joint return, the base amount is \$32,000.<sup>16</sup>

Individuals, who have provisional incomes in excess of \$34,000 on a single return, or \$44,000 on a joint return, may have to include up to 85% of their Social Security benefits in their gross incomes.<sup>17</sup> Provisional income is generally equal to adjusted gross income plus all tax-exempt interest, and one-half of social security benefits.<sup>18</sup>

Because distributions from tax-deductible retirement plans are included in gross income, they will increase provisional income. Hence, these distributions may result in a greater amount of Social Security benefits being included in gross income. On the

other hand, distributions from a Roth IRA are not included in gross income, and, therefore, have no impact on the taxation of Social Security benefits.

Liquidation of taxable accounts have a more limited impact on the taxation of Social Security benefits than distributions from tax-deductible retirement plans. That is, taxpayers who sell investments in their taxable accounts will be able to get their adjusted basis in their investment back tax-free. The larger the gain, the greater will be the impact on the taxation of Social Security benefits. However, individuals can "pick-and choose" which investments they want to sell from their taxable accounts. Doing so provides an opportunity for individuals to control their provisional income. Of course, if they own investments that have "paper losses," they can sell those securities and take advantage of the tax benefit from the capital loss.

## SUMMARY OF RESULTS

The following outline presents the advantages of the various investment vehicles to maximize average withdrawals, after taxes, while in retirement.

### Roth IRA

- When an individual is in a higher tax bracket in year of distribution.
- No required distribution.
- 100% exclusion for state income tax purposes.
- Minimizes tax burden on Social Security benefits.
- Effectively shelters more income in contrast to a regular IRA

### 401(k) plan.

- Employer match.
- When an individual is in a lower tax bracket in year of distribution.
- High state income tax rate while contributing to plan; low state income tax rate when receiving distributions.

### 403(b) plan and regular IRA

- When an individual is in a lower tax bracket in year of distribution.
- High state income rate while contributing to plan; low state income tax rate when receiving distributions.

### Taxable account

- No required distribution.
- No contribution limits.
- Minimizes tax burden on Social Security benefits.
- Use capital loss deduction.
- Step-up in basis of property in the hands of heirs.

The model does not address the impact of the selection of an investment vehicle on the taxation of Social Security benefits. Because the model includes employment income of \$100,000, the hypothetical individual would have adjusted gross income large enough that 85% of his or her Social Security benefits would be included in gross income regardless of investment strategy.

## State income taxation

The impact of state income taxes must be considered in deciding which type of account is most effective in building a retirement fund. Although the laws of each state will vary, most states allow some credit or exemption for the receipt of retirement income from a tax-deductible retirement account. For states that have high tax rates, this is an important factor to consider. For individuals who plan to move from a high-tax state to a low-tax state at retirement, investing in a tax-deductible retirement plan can be very effective in creating a retirement fund that results in greater distributions after-taxes during the "golden years."

The base case assumed that 100% of income distributed from a tax-deductible

retirement plan was included in gross income at the state level. However, when the authors changed the model input so that only 50% was included in gross income, the investment in a tax-deductible retirement plan resulted in larger average withdrawals after-taxes in contrast to an investment in a Roth IRA. Changing the model input had no effect on the investment in the taxable account. The results are shown below:

### Average withdrawal after taxes

Base case	
Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	16,311
50% exclusion from state taxes	
Roth IRA	\$20,786
401(k) plan	21,107
Regular IRA	21,107
Taxable account	16,311

To take it one step further, investing in a tax-deductible retirement plan becomes even more beneficial if the model input is changed to assume that distributions from a tax-deductible retirement plan are com-

pletely excluded from state gross income as shown below:

**Average withdrawal after taxes**

**Base case**

Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	16,311

**100% exclusion from state taxes**

Roth IRA	\$20,786
401(k) plan	21,429
Regular IRA	21,429
Taxable account	16,406

The results indicate that individuals who have sizeable amounts invested in a tax-deductible retirement plan, and who are considering moving to a state that is tax-friendly toward distributions from retirement accounts, may have a tax incentive to make the move. This may be a very serious consideration for these individuals.

Interest income earned on U.S. Treasury bonds in a taxable account is excluded for state income taxation purposes. Thus, with respect to state income taxation, in determining whether to put Treasury bonds in a taxable account or a tax-deductible retirement plan, the financial advisor must weigh the tax characteristics. Investing in Treasury bonds in a tax-deductible retirement account results in a tax deduction for the original contribution. In addition, the interest paid on the bonds grows on a tax-deferred basis while the bonds are in this

account. When the interest (along with the principal) is subsequently distributed during an individual's retirement, it is considered to be gross income on the state income tax return. Depending on where the retiree resides, such a distribution may be subject to a full or partial exemption or credit. Of course, any state income tax paid on such a distribution can be deducted on the federal tax return.

Unlike Treasury bonds, if corporate bonds are placed in a taxable account, the full interest earned is subject to taxation.

The base case in the model assumes that the investment was a stock mutual fund with an annual return of 7%, an annual dividend distribution of 2%, and an annual capital gain distribution of 4%. If the assumptions in the model are changed so that the investment is in a corporate bond fund that has an annual distribution (of interest) of 7%, the results stay the same for all of the retirement plans. The results for the taxable account, however, are diminished quite substantially, as shown below:

**Average withdrawal after taxes**

**Base case**

Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	16,311

**Corporate bond fund**

Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	13,873



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For individuals who want to invest in corporate bonds, putting them in a qualified retirement plan rather than in a taxable account generates better results.

If it is assumed that the savings are being invested in Treasury bonds at the rate of 7%, there is no change from the base case for the Roth IRA or the tax-deductible retirement accounts. Even though there is a decline in average withdrawals from a taxable account in contrast to the base case, there is an increase from the case in which the underlying securities are assumed to be corporate bonds. This is shown below:

**Average withdrawal after taxes**

<b>Base case</b>	
Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	16,311
<b>Corporate bond fund</b>	
Roth IRA	\$20,786
401(k) plan	20,786
Regular IRA	20,786
Taxable account	14,337

As can be seen, assuming the same rate of return, reducing the federal income tax rate applicable to qualified dividends is more beneficial for the stock mutual fund alternative than the state exclusion is for interest earned in the Treasury bond mutual fund.

*Caveat.* The long-term return for the investment in the stock mutual fund, corporate bond fund, and the Treasury bond fund were all assumed to be 7%. In reality, of course, the returns would not be the same. However, it allowed the authors to focus on the influence of the tax rates on the various types of investment vehicles. Although the last century of his-

tory indicates that the total return on stocks has been greater than for bonds, in several shorter periods the opposite has been true. For instance, during the years 2000-2002, the total return on bonds far exceeded the total return on stocks.

## Conclusion

After JGTRRA, investors need to rethink various strategies to create a retirement fund to maintain their lifestyle while in retirement. The model developed by the authors can help to quantify the many variables that must be taken into account in determining the most effective way to create a retirement fund. The model's focus is on the average withdrawal that can be made on an after-tax basis. Apart from quantifiable variables, however, several unknown factors affect investment planning. These include future tax law changes, introductions of new financial products, and an individual's ability to save money in the future. ■

## NOTES

- <sup>1</sup> Section 1(i)(2).
- <sup>2</sup> Section 1(h)(1)(B).
- <sup>3</sup> Section 1(h)(1)(C).
- <sup>4</sup> Section 1(h)(11)(B)(i). For a discussion of the taxation of dividends, see Yang and Chang, "Not All Dividends Qualify for the Reduced Tax Rate," 72 PTS 171 (March 2004).
- <sup>5</sup> Section 1(h)(11)(B)(iii)(I), as modified by IR-2004-22, 2/19/04.
- <sup>6</sup> Section 1(h)(11)(B)(iii)(II).
- <sup>7</sup> Section 1(h)(11)(D)(i).
- <sup>8</sup> Section 1(h)(11)(B)(ii)(I).
- <sup>9</sup> Section 1(h)(11)(B)(ii)(II).
- <sup>10</sup> Section 1(H)(11)(B)(iii)(III).
- <sup>11</sup> Section 1(h)(11)(D)(iii).
- <sup>12</sup> Section 1222(11).
- <sup>13</sup> Section 404(a).
- <sup>14</sup> Reg. 1.401(a)(9)-2.
- <sup>15</sup> Section 86(a)(1).
- <sup>16</sup> Section 86(c)(1).
- <sup>17</sup> Sections 86(a)(2) and (c)(2).
- <sup>18</sup> Section 86(b).