

Spending from a Portfolio: Implications of Withdrawal Order for Taxable Investors

Vanguard Investment Counseling & Research



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Executive summary. At retirement, many investors turn to their investment portfolio to help meet their spending needs. Whether their accounts are taxable, tax-deferred (such as a traditional 401(k) or IRA), or tax-free (such as a Roth 401(k) or IRA),¹ investors must decide the most tax-efficient way to spend from their portfolios so as to extend the accounts' longevity.

This paper provides general guidelines for the order of withdrawing assets from a portfolio to maximize its tax-efficiency and long-term durability. We offer practical guidelines for individual investors who have assets outside of tax-qualified retirement plans. We examine several scenarios among taxable, tax-deferred, and tax-free accounts—with various spending rates, asset allocations, and tax assumptions. We demonstrate that it is generally advantageous to spend taxable assets first, before tax-deferred or tax-free accounts.

Within tax-advantaged accounts, the decision to spend from tax-deferred or tax-free investments depends primarily on *current* versus *future* tax-rate expectations. It is generally recommended to spend from tax-deferred accounts when current tax rates are expected to be lower than future tax rates and, conversely, from tax-free accounts when current tax rates are expected to be higher than future tax rates. Certainly, an investor's specific financial plan may warrant a different spending order, but this paper's framework can serve as a prudent guideline for most investors. Investors considering a personalized spending program should consult a tax-planning professional.

¹ Under IRS rules, contributions may be withdrawn tax-free and penalty-free. Distributions after age 59½ are tax-free and penalty-free if the account has been established for five years or more. Withdrawals that do not meet one of the IRS-allowed exceptions may be subject to penalties and taxes.

Authors

Colleen M. Jaconetti, CPA, CFP[®]
Maria A. Bruno, CFP[®]

Developing a withdrawal plan

At retirement, many investors face what can seem like an overwhelming decision: How to spend tax-efficiently from their investment accounts so as to extend their portfolio's longevity? This paper offers withdrawal guidelines for investors who have taxable and tax-advantaged assets.

Review your income sources

An investor's first step in developing a withdrawal plan should be to review his or her income sources. Common income sources include Social Security, pensions, and other income such as part-time employment, trust income, or rental income. Investment cash flows should also be included, such as any required minimum distributions (RMDs) from tax-deferred accounts (beginning at age 70½); and dividend, interest, and capital gains distributions from taxable accounts. Since these portfolio cash flows are taxable to the investor, regardless of whether the proceeds are reinvested or received as cash distributions, it is generally recommended to put the proceeds in a spending account. If excess monies build up in the spending account, the investor can use them to periodically rebalance the portfolio.

An investor's spending account—typically a money market fund or a checking account—represents a cash-management vehicle to which cash flows can be directed and from which expenses are paid. Although the target balance in the spending account is an investor-driven preference, it is generally recommended that the account contain enough funds to cover at least 6 to 12 months of anticipated spending needs. Some investors with additional short-term goals beyond the usual expenses (for example, a large one-time expense within the next two years such as for a home improvement or a vacation) might opt to keep a higher balance in the spending account.

Decide which account type to spend first

If the total of income sources and portfolio cash flows is inadequate for the investor's spending needs, then portfolio withdrawals are needed. This, then, brings the investor to the first decision point. Which account type should an investor spend from first—taxable, tax-deferred, or tax-free—and why? Taxes are the primary determinant of this decision. Absent taxes, the order in which an investor withdraws monies from the various account types would yield identical results (assuming all account types earn the same rate of return); therefore, spending from tax-advantaged accounts before taxable accounts would have the same inflation- and tax-adjusted ending asset balances. Unfortunately, taxes are a reality, so the order in which an investor withdraws monies from his or her portfolio can affect the portfolio's longevity.

Taxable versus tax-deferred?

The general rule of thumb is for investors to spend from their taxable portfolios before spending from their tax-deferred portfolios (after taking their required minimum distributions).² This spending order is the one most likely to produce a lower current tax bill and to allow for more tax-deferred growth. The additional asset growth is likely to result in less current need to spend from the portfolio and therefore higher asset balances. In other words, spending from the tax-deferred account prior to the taxable account will accelerate the payment of income taxes on the tax-deferred account. These income taxes will likely be higher than the taxes paid for any withdrawals from the taxable account, for two reasons. First, the investor will pay tax on the entire withdrawal (assuming all contributions were made with pre-tax dollars), rather than just on the capital appreciation. In addition, ordinary income tax rates are currently higher than the respective capital gains tax rates, so the investor would pay tax at a higher rate on a larger withdrawal amount by spending from the tax-deferred account first. Over time, the acceleration of income taxes and the resulting loss of tax-deferred growth can negatively affect the portfolio by causing lower terminal wealth and lower success rates.

² In unique situations, this may not be the optimal draw-down strategy—for example, if the investor has large embedded gains in taxable assets with an anticipated step-up (e.g., due to a short life expectancy) in the near term. Strategies such as this are typically part of a more comprehensive financial plan, often under the guidance of a tax-planning professional.

To illustrate, consider the following Scenario 1. **Table 1** lists the scenario's data assumptions, and **Table 2** shows a range of spending percentages and asset allocations supporting the "taxable-assets-first" scenario.³ (See the Appendix, on page 14, for a more detailed list of assumptions supporting this analysis.)

We compared the two orders of withdrawal—(1) taxable, then tax-deferred, versus (2) tax-deferred, then taxable—using several different asset allocations and spending percentages. As shown in **Table 2**, spending from the taxable portfolio before the tax-deferred portfolio results in higher "success rates"

overall, meaning a higher likelihood that the portfolio will *not* be depleted before the end of the planning horizon. The table can be read as follows (see highlighted numbers): For a spending rate of 3.5% of the initial portfolio balance (spending increased by inflation each year thereafter) plus the associated taxes, with a moderate asset allocation, spending from the taxable account before the tax-deferred account results in a 90% chance of *not* running out of money over the next 30 years. On the other hand, spending from the tax-deferred account before the taxable account

Table 1. Data assumptions for Scenarios 1 and 2

Age	65 years	Marginal tax bracket	35%
Time horizon	30 years	Asset allocations (stock %, bond %):	
Taxable asset balance	\$1,000,000	Conservative (C)	(20%, 80%)
Taxable asset basis	\$500,000	Moderate (M)	(50%, 50%)
Tax-deferred asset balance (Scenario 1)	\$1,000,000	Aggressive (A)	(80%, 20%)
or			
Tax-free asset balance (Scenario 2)	\$1,000,000		

Source: Vanguard.

IMPORTANT: The projections or other information generated in this paper regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results.

Table 2. Scenario 1—Spending from taxable portfolio before tax-deferred portfolio results in less chance of depleting assets over 30-year time horizon

Spending percentage	Success rate (%): Taxable, then tax-deferred spending order			Success rate (%): Tax-deferred, then taxable spending order			Taxable-first advantage (%)		
	C	M	A	C	M	A	C	M	A
3.0%	76%	98%	100%	70%	96%	100%	6%	2%	0%
3.5	55	90	95	54	82	93	1	8	2
4.0	51	74	87	50	72	80	1	2	7
4.5	44	68	77	41	63	74	3	5	3
5.0	38	54	67	32	49	65	6	5	2
5.5	20	44	61	13	39	59	7	5	2

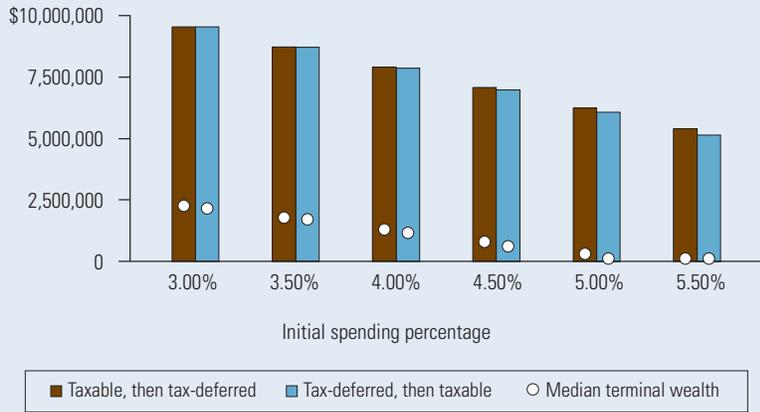
Notes: "Success rate" throughout the tables and figures in this paper refers to the likelihood (expressed as a percentage) that the portfolio will not be depleted before the end of the planning horizon. *C*, *M*, and *A* refer, respectively, to conservative, moderate, and aggressive asset allocations. Throughout the tables and figures in this paper, asset outcomes were determined using a proprietary real-path analysis, which assumed that the investor began investing at a specific date in history (for example, 1930 or 2000); actual returns and inflation rates were then applied to the investor's cash flow. Once the current date was reached, the calculation applied historical data, starting in 1926, in an uninterrupted loop that continued until either the assets were depleted or the planning horizon was attained. The time period used was 1926–2007, representing 82 real-path simulations applied to the investor's 30-year planning horizon. Results will vary over different time periods.

Source: Vanguard.

³ Return assumptions used throughout this paper: Stock returns are based on the Standard & Poor's 500 Index from 1926 through 1970; the Dow Jones Wilshire 5000 Composite Index from 1971 through April 22, 2005; and the MSCI US Broad Market Index thereafter. Bond returns are based on the S&P High-Grade Corporate Index from 1928 through 1968; the Citigroup High-Grade Index from 1969 through 1972; the Lehman Brothers Long-Term AA Corporate Index from 1973 through 1975; and the Lehman U.S. Aggregate Bond Index thereafter.

Figure 1. Range of terminal wealth after 30 years: Scenario 1

Inflation and tax-adjusted dollars



Note: This figure assumes a moderate asset allocation (50% stocks/50% bonds).
Source: Vanguard.

results in an 82% chance of not running out of money (a 10% versus an 18% chance of running out of money before the end of the planning horizon). This relationship holds over nearly all the different spending percentages and asset allocations analyzed.

Figure 1 illustrates the range of terminal wealth values (inflation and tax-adjusted balances at the end of the retirement planning horizon) for Scenario 1. For the majority of spending percentages, the median terminal wealth is higher when the taxable portfolio is depleted before the tax-deferred portfolio (the median path is represented by the white dot in each bar); the same is true for the maximum and minimum terminal wealth values. For the 3.5% spending example just outlined, the difference in the median terminal wealth is approximately \$70,000.

This analysis illustrates that the acceleration of income taxes from tax-deferred accounts and the resulting loss of tax-deferred growth make it more advantageous for investors to deplete their taxable portfolios before spending from their tax-deferred accounts (with the exception of required minimum distributions [RMDs]).

Taxable versus tax-free?

Investors should likewise consider spending from their taxable portfolios before spending from their tax-free portfolios, to maximize the long-term growth of their overall portfolios. Reducing the amount of assets that have tax-free growth potential can result in lower terminal wealth values and

success rates. As a result, investors are likely to be better served by spending from their taxable portfolios before tapping their tax-free accounts.

To illustrate, we provide Scenario 2, using the same assumptions as Scenario 1, with one exception—a tax-free account worth \$1 million replaces the tax-deferred account of the same value (see Table 1, for data assumptions). Again, we evaluated the two orders of spending withdrawal—(1) taxable, then tax-free, versus (2) tax-free, then taxable—using several different asset allocations and spending percentages. As shown in **Table 3**, spending from the taxable portfolio before the tax-free portfolio results in higher overall success rates.

Table 3. Scenario 2—Spending from taxable portfolio before tax-free portfolio results in less chance of depleting assets over 30-year time horizon

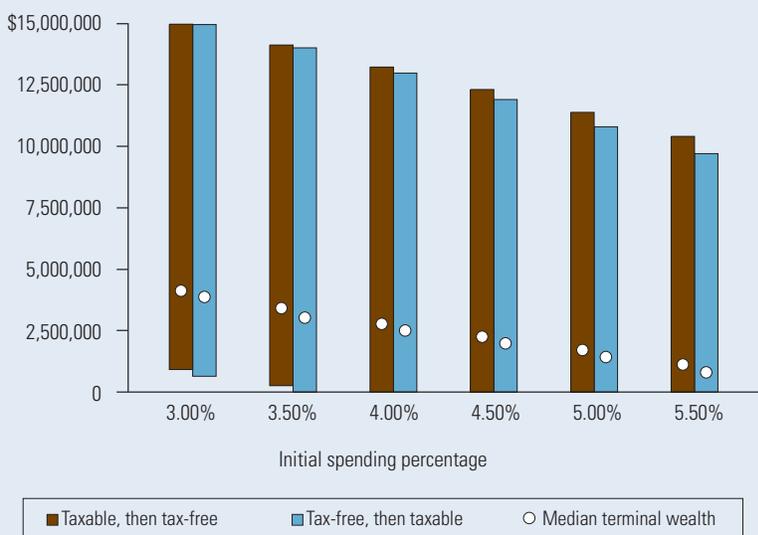
Spending percentage	Success rate (%): Taxable, then tax-free spending order			Success rate (%): Tax-free, then taxable spending order			Taxable-first advantage (%)		
	C	M	A	C	M	A	C	M	A
3.0%	100%	100%	100%	100%	100%	100%	0%	0%	0%
3.5	91	100	100	82	98	100	9	2	0
4.0	68	96	99	61	90	98	7	6	1
4.5	55	87	93	51	82	89	4	5	4
5.0	51	74	85	49	72	80	2	2	5
5.5	46	70	77	43	65	74	3	5	3

Notes: C, M, and A refer, respectively, to conservative, moderate, and aggressive asset allocations. Success rates are higher in this scenario, compared with Scenario 1, because the \$1 million tax-deferred portfolio in Scenario 1 equates to \$650,000 tax-free, rather than \$1 million.

Source: Vanguard.

Figure 2. Range of terminal wealth after 30 years: Scenario 2

Inflation and tax-adjusted dollars



Notes: This figure assumes a moderate asset allocation (50% stocks/50% bonds). Terminal wealth values are higher in this scenario, compared with Scenario 1, because the \$1 million tax-deferred portfolio in Scenario 1 equates to \$650,000 tax-free, rather than \$1 million.

Source: Vanguard.

As in the previous example, we also include a chart showing the range of terminal wealth values (Figure 2).

The figure shows that for the majority of spending percentages, median terminal wealth is higher when the taxable portfolio is depleted before spending from the tax-free portfolio. For the 3.5% spending example, the difference in the median terminal wealth, assuming a moderate asset allocation (50% stocks/50% bonds), is approximately \$385,000.

Our analysis thus supports the general conclusion that investors are likely to be better off if they deplete their taxable portfolio before spending from their tax-advantaged portfolio.

Within the tax-advantaged portfolio, which is next? Tax-deferred or tax-free?

Once the taxable portfolio has been depleted, deciding which account to spend from next depends primarily on the investor's expectations for future tax rates relative to current tax rates.

If an investor expects that his or her future tax rate (or the beneficiary's future tax rate) will be *higher* than the current tax rate, then spending from tax-deferred accounts should take priority over spending from tax-free accounts. This allows the investor to lock in taxes on the tax-deferred withdrawals "today" at the lower

rate, rather than allowing the tax-deferred account to continue to grow and be subject to a higher rate on future withdrawals (and associated earnings).

To illustrate, consider Scenario 3 (Tables 4 and 5). The primary difference between this scenario's assumptions and those for Scenarios 1 and 2 is a change in the marginal tax bracket. The previous scenarios assumed a constant marginal tax rate of 35%. Scenario 3, however, assumes a 25% marginal tax rate for the first 10 years and then an increase to 35% for the remaining 20 years. Again, we compared two asset-withdrawal orders—(1) tax-deferred, then tax-free, versus (2) tax-free, then tax-deferred—using several different asset allocations and spending percentages. As shown in Table 5, spending from the tax-deferred portfolio before the tax-free portfolio results in higher overall success rates.

Table 4. Data assumptions for Scenario 3

Age	65 years	Asset allocations (stock %, bond %):	
Time horizon	30 years	Conservative (C)	(20%, 80%)
Tax-deferred asset balance	\$1,000,000	Moderate (M)	(50%, 50%)
Tax-free asset balance	\$1,000,000	Aggressive (A)	(80%, 20%)
Current marginal tax bracket*	25%	Future marginal tax bracket	35%

*Tax rate increases after ten years.

Source: Vanguard.

Table 5. Scenario 3—When investor's marginal tax rate is expected to increase over time horizon, spending from tax-deferred portfolio before tax-free portfolio results in less chance of depleting portfolio over planning period

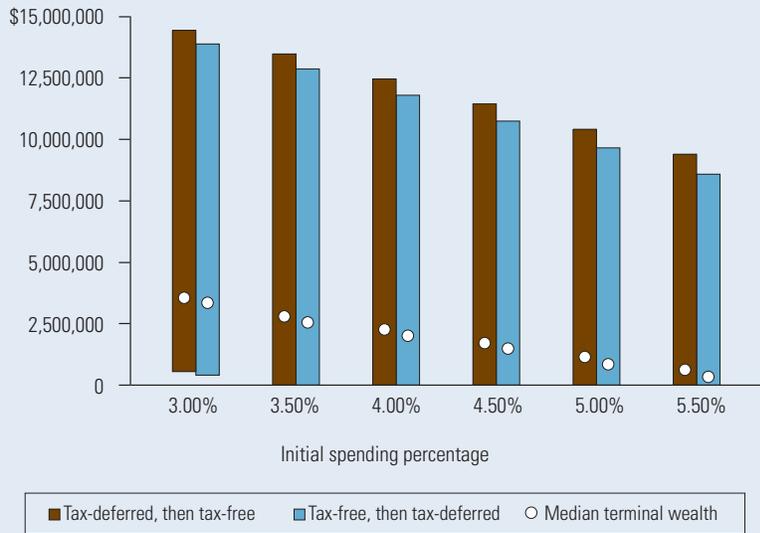
Spending percentage	Success rate (%): Tax-deferred, then tax-free spending order			Success rate (%): Tax-free, then tax-deferred spending order			Tax-deferred-first advantage (%)		
	C	M	A	C	M	A	C	M	A
3.0%	100%	100%	100%	96%	100%	100%	4%	0%	0%
3.5	80	98	100	72	96	99	8	2	1
4.0	59	90	95	55	88	91	4	2	4
4.5	52	78	87	51	73	83	1	5	4
5.0	48	71	77	46	67	74	2	4	3
5.5	43	62	67	41	54	66	2	8	1

Note: C, M, and A refer, respectively, to conservative, moderate, and aggressive asset allocations.

Source: Vanguard.

Figure 3. Range of terminal wealth after 30 years: Scenario 3

Inflation and tax-adjusted dollars



Note: This figure assumes a moderate asset allocation (50% stocks/50% bonds).
Source: Vanguard.

Figure 3 shows the range of terminal wealth values for Scenario 3. Similar to our previous conclusion, for the majority of spending percentages, the median terminal wealth is shown to be higher when the tax-deferred portfolio is depleted before spending from the tax-free portfolio, when the investor's tax rate increases during the planning horizon. For the 3.5%

spending example in Table 5, the difference in the median terminal wealth is approximately \$230,000, or 23% of the initial portfolio value (assuming a moderate asset allocation).

Conversely, if an investor anticipates the future tax rate will be *lower* than the current tax rate, spending from tax-free assets should take priority over spending from tax-deferred assets. Taking distributions from the tax-deferred account at the future lower tax rate will result in lower taxes over the entire investment horizon.

We show this with Scenario 4 (see Tables 6 and 7, on page 8). Again, the assumptions (Table 6) are the same, but this time with a different exception: Instead of the marginal tax rate increasing after ten years from 25% to 35%, we assume

it decreases, from 25% to 15% (see Table 6). As shown in Table 7, when the investor's marginal tax rate is expected to decrease over the planning horizon, spending from the tax-free portfolio prior to the tax-deferred portfolio results in less chance of depleting the portfolio over the planning horizon.

Figure 4 shows the range of terminal wealth values for Scenario 4. Similar to the preceding conclusion, for the majority of spending percentages in this scenario, the median terminal wealth is higher when the tax-free portfolio is depleted before spending from the tax-deferred portfolio, when the investor's tax rate decreases during the planning horizon. For the 3.5% spending example in Table 7, the difference in the median terminal wealth is approximately \$325,000 (assuming a moderate asset allocation).

Adhering to this strategy for spending from tax-advantaged accounts will likely minimize the total

taxes paid over the investor's (or his or her beneficiary's) lifetime and increase the longevity of the portfolio. See Figure 5, on page 10, for a diagram of the overall withdrawal-order decision process.

Determine specific assets to liquidate to meet spending need

Once the order of withdrawals among the account types has been determined, the next step is to specifically identify which asset to sell to meet spending needs. Within the taxable portfolio, the investor should consider selling the asset or assets that would produce the lowest taxable gain or would

even realize a loss. Investors who have a balance between their taxable and tax-advantaged accounts, or have a majority of their assets in tax-advantaged accounts, can then rebalance within their tax-advantaged accounts and align the portfolio to its target asset allocation.

Often, investors may hesitate to sell a position at a loss, because they believe the

Table 6. Data assumptions for Scenario 4

Age	65 years	Asset allocations (stock %, bond %):	
Time horizon	30 years	Conservative (C)	(20%, 80%)
Tax-deferred asset balance	\$1,000,000	Moderate (M)	(50%, 50%)
Tax-free asset balance	\$1,000,000	Aggressive (A)	(80%, 20%)
Current marginal tax bracket*	25%	Future marginal tax bracket	15%

*Tax rate decreases after ten years.

Source: Vanguard.

Table 7. Scenario 4—When investor's marginal tax rate is expected to decrease over time horizon, spending from tax-free portfolio before tax-deferred portfolio results in less chance of depleting portfolio over planning period

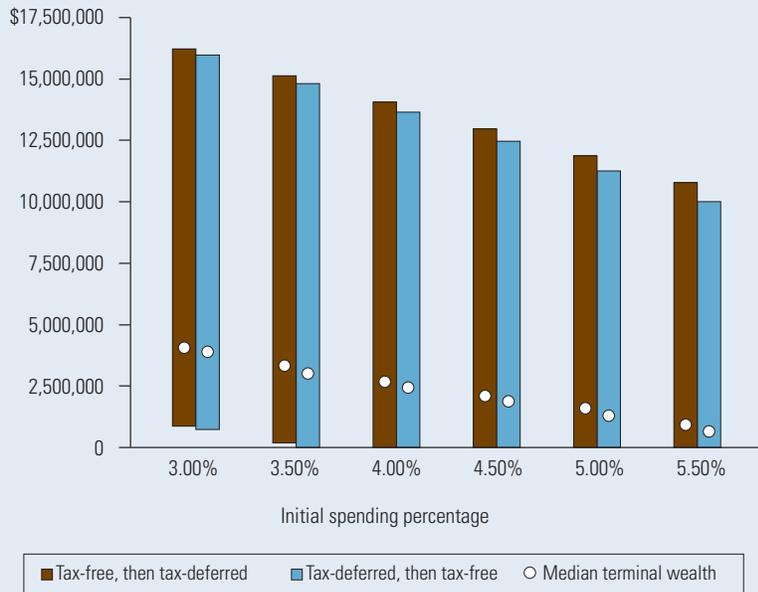
Spending percentage	Success rate (%): Tax-free, then tax-deferred spending order			Success rate (%): Tax-deferred, then tax-free spending order			Tax-deferred-first advantage (%)		
	C	M	A	C	M	A	C	M	A
3.0%	100%	100%	100%	100%	100%	100%	0%	0%	0%
3.5	90	100	100	84	98	100	6	2	0
4.0	67	94	98	63	91	95	4	3	3
4.5	54	82	89	52	79	87	2	3	2
5.0	51	73	82	48	71	77	3	2	5
5.5	46	67	74	43	62	67	3	5	7

Notes: C, M, and A refer, respectively, to conservative, moderate, and aggressive asset allocations.

Source: Vanguard.

Figure 4. Range of terminal wealth after 30 years: Scenario 4

Inflation and tax-adjusted dollars



Note: This figure assumes a moderate asset allocation (50% stocks/50% bonds).
Source: Vanguard.

asset will eventually recover. This kind of sale does not necessarily mean abandoning the asset. A security held at a loss in a taxable account can be sold (to capture the loss) and the proceeds used to meet spending needs. Then—within the constraints of wash-sale rules⁴—an investor can rebalance his or her portfolio by purchasing a similar investment in a tax-advantaged account at a similar depressed price. In the end, the investor obtains cash to meet the spending objective while also minimizing taxes and maintaining the target asset allocation.

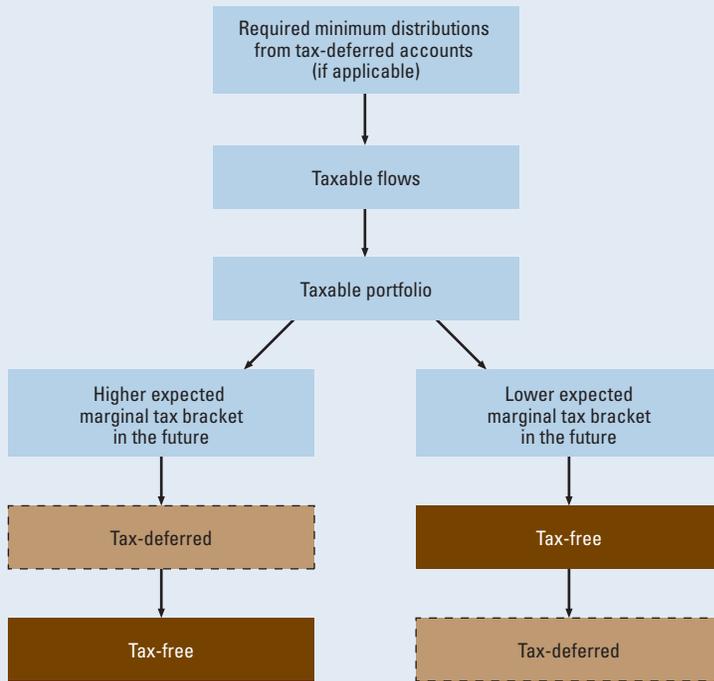
to tax-free accounts, he or she can select the most overweighted asset class in the tax-deferred account to spend first. If there are no overweighted asset classes, the investor can continue spending proportionately from tax-deferred accounts until they are depleted. If the spending need has been satisfied, the investor can then rebalance to the target asset allocation within his or her tax-free accounts. If the investor still needs money from the portfolio, spending first from the most overweighted assets in the tax-free accounts is recommended. By properly executing this approach, a majority of investors can spend and rebalance their portfolios with minimal taxes resulting.

Once the taxable portfolio has been depleted, the investor can take withdrawals from either his or her tax-deferred or tax-free accounts as discussed previously. Within the selected account type, the investor should consider selling holdings first from the most overweighted asset class. Selling in this manner brings the portfolio more in line with its long-term target asset allocation, which has a major impact on the portfolio's long-term performance.

If there are no overweighted asset classes, the investor can sell proportionately from the asset classes until the selected account type has been depleted or the spending need has been met. Once the selected account has been exhausted, a similar approach can be used in the other account type. For example, if the investor decides to spend from tax-deferred accounts prior

⁴ A wash sale occurs when an investor sells a security at a loss and purchases a substantially identical security within 30 days before or after the sale. Therefore, the wash-sale period for any sale at a loss lasts for 61 days (day of sale plus 30 days before and after). To deduct the loss for tax purposes, an investor would need to avoid purchasing a substantially identical security during the wash-sale period. Consult a tax advisor or see IRS Code 1091 for more information.

Figure 5. Withdrawal-order decision process



Source: Vanguard.

When should investors consider a different spending order?

In certain situations, however, it may be advantageous for an investor to consider accelerating distributions from his or her retirement accounts (for example, a dynamic distribution program that accelerates distributions from tax-deferred accounts in years in which the investor is in a low tax bracket).⁵ However, in such a strategy, the investor must proactively

monitor his or her tax situation for the current year and make decisions in advance, or throughout the year, to help regulate that year's taxable income level. This may also potentially provide the additional benefit of reducing future RMDs, perhaps lessening the tax burden in later years. As another example, an investor might consider spending early from tax-free accounts if large medical deductions are expected later in retirement; such deductions could be offset against taxes on tax-deferred withdrawals (Reichenstein, 2006).

Taxation can become even more complex when factoring in other issues, such as the taxation of Social Security benefits. When implementing a dynamic spending strategy, an advisor, preferably a tax-planning practitioner, can add significant

value to the investor's personalized distribution program. Consulting with an advisor is even more imperative if an investor is balancing the trade-offs of current spending versus wealth transfer. Most investors, however, stand to benefit from a portfolio that incorporates the tax-efficiency that can result from proper asset location (Jaconetti, 2007a) and from the lower capital gains rates that are applied to spending from taxable accounts.

⁵ This strategy has been presented in other industry research. For example, Horan (2006) analyzed traditional and Roth IRAs and concluded that in a progressive tax environment, a strategy of taking traditional IRA distributions that would be taxed at rates up to 15% and satisfying the remainder of the withdrawal from a Roth IRA yields a greater residual accumulation. Wealthier investors may benefit from taking distributions up through the 25% tax bracket. In a progressive tax environment, taxable distributions can be applied against personal exemptions and deductions or against tax brackets with low rates.

Other considerations

This paper's analysis incorporates a number of assumptions concerning our recommended spending order from a portfolio. Each assumption has its own set of considerations. Several of the most important factors are listed below.

Tax rates. Tax rates play a significant role in most investors' decisions about portfolio spending order, yet taxes are one factor an investor cannot control. An investor can decide to minimize taxes based on current and expected future tax rates, but there are no guarantees as to what the future tax environment will be.

Time horizon. The time horizon over which an investor expects to spend from a portfolio is also critical. In the case of most retirees, the time horizon is their life expectancy. Most people can estimate their anticipated longevity based on their health, family history, and current actuarial life expectancies. A default estimate of age 95–100 can also be used, which may be reasonable given today's longer life expectancies. Or one can refer to the IRS life-expectancy tables. The longer the anticipated time horizon, the greater the potential impact of tax-minimization strategies on the portfolio's overall durability.

Asset allocation. The scenarios discussed in this paper have included asset allocations ranging from conservative to aggressive, and the results show that scenarios with higher equity allocations have typically led to overall higher success rates. However, a portfolio's success rate should not be the sole basis for an asset allocation decision. Rather, the asset allocation decision itself needs to come first, based on an investor's goals, time horizon, and risk tolerance. This decision should be the investor's highest priority; in fact, the vast majority of investment returns for a broadly diversified stock and bond portfolio can be

attributed to asset allocation. Vanguard's studies agree with well-known research elsewhere that empirically supports the dominance of strategic asset allocation in determining total return and return variability.⁶

Portfolio composition. Investors have the most tax-diversification opportunities if their portfolios are evenly balanced among taxable, tax-deferred, and tax-free accounts. If the majority of an investor's assets are held in one of the account types, the benefits of the implemented withdrawal order will be greatly reduced. Our analysis narrowed the scope to illustrate a portfolio that is equal-weighted among the accounts. In reality, investors' portfolios will have a different combination of these accounts.

- For investors with most of their portfolio invested in taxable accounts, any distributions will be subject to capital gains taxes. To minimize taxes in any given year, an investor may be able to make withdrawals while taking advantage of certain tax-planning strategies, such as tax-loss harvesting or netting gains with losses. The capital gains tax is assessed only on the portion of the sale that represents a gain, and is currently capped at 15%.⁷
- On the other hand, investors with most of their portfolios in tax-deferred assets (assuming pre-tax contributions) will have less flexibility in managing the tax-efficiency of their withdrawals. Since these accounts were made with pre-tax contributions, any withdrawals will be fully taxed at ordinary income tax rates, which are currently as high as 35%. In addition, investors are subject to IRS required minimum distribution rules once they reach age 70½.
- Finally, any distributions from the Roth accounts will be tax-free (assuming the eligibility requirements are met), as contributions have been made with post-tax monies. Also, there are no RMDs on tax-free accounts.

6 See Davis, Kinniry, and Sheay (2007); Brinson, Hood, and Beebower (1986); Brinson, Singer, and Beebower (1991); and Ibbotson and Kaplan (2000).

7 As part of the Jobs and Growth Tax Relief Reconciliation Act of 2003, long-term capital gains and qualified dividends are taxed at 15%, or 5% for taxpayers in the 15% and 10% tax brackets. With the Tax Increase Prevention and Reconciliation Act of 2005, the 5% capital gains tax rate drops to 0% in 2008–2010. As of 2011, barring additional legislative changes, the tax rates will revert to pre-2003 tax rates (or higher).

Spending. Vanguard's general spending recommendation for investors entering retirement is to plan to withdraw 4% to 5% (including taxes) of their initial portfolio balance, adjusted for inflation every year thereafter. This recommendation is intended to produce a stable income stream that will keep pace with inflation while maintaining a high probability that the portfolio will not be depleted. This spending guideline is based on previous Vanguard research that examined outcomes for various hypothetical portfolios over a 30-year time horizon, using actual historical returns for stocks, bonds, and cash reserves (Jaconetti, 2007b). However, there is no "one-size-fits-all" spending rate for investors in the distribution phase of retirement, so each investor needs to select an asset allocation and withdrawal rate that offers the best balance between his or her current spending goals and the portfolio's longevity.

Estate planning. The decision about which account to spend first often has estate-planning implications as well. This is owing to the tax structure—one either pays them now or later. The first consideration is whether the investor's estate would be subject to estate taxation. Some investors overestimate whether their estate would be subject to estate taxes (exemption thresholds are \$2 million per individual in 2008). Although it is typically thought that tax-deferred assets may not generally be the ideal account for wealth transfer, higher-net-worth clients may want to consider certain existing planning opportunities. For example, proper beneficiary planning may help stretch out IRA distributions to future generations; or for those who are charitably inclined, gifting the tax-deferred assets may be more tax-advantageous. Strategies such as these should be discussed with a tax-planning professional.

Conclusion

This analysis has examined various scenarios among taxable, tax-deferred, and tax-free accounts, reviewing alternative spending rates, asset allocations, and tax assumptions. The results support the conclusion that it is generally most advantageous to spend taxable assets first, before any tax-deferred or tax-free accounts. Within tax-advantaged accounts, the decision to spend first from tax-deferred or tax-free assets depends primarily on current versus future tax-rate expectations. In these cases, it is generally recommended to spend from tax-deferred accounts when current tax rates are expected to be lower than future tax rates and, conversely, from tax-free accounts when current tax rates are expected to be higher than future tax rates. Certainly, there are situations in which an investor's specific financial plan may warrant a different spending order, but the framework outlined here can serve as a prudent guideline for most taxable investors. Investors considering a personalized spending program may benefit from consulting a tax-planning professional.

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Appendix. Assumptions for this analysis

- See **Table 1** for data assumptions supporting Scenarios 1 and 2.
 - See **Table 4** for data assumptions supporting Scenario 3.
 - See **Table 6** for data assumptions supporting Scenario 4.
 - “Success rates” refers to the likelihood (expressed as a percentage) that the portfolio will not be depleted before the end of the planning horizon.
 - Asset outcomes were determined using a proprietary real-path analysis, which assumed that the investor began investing at a specific date in history (for example, 1930 or 2000); actual returns and inflation rates were then applied to the investor’s cash flow. Once the current date was reached, the calculation applied historical data, starting in 1926, in an uninterrupted loop that continued until either the assets were depleted or the planning horizon was attained. The time period used was 1926–2007, representing 82 real-path simulations applied to the investor’s 30-year planning horizon. Results will vary over different time periods.
 - The analysis uses benchmark returns as outlined below, and does not incorporate investment fees.
 - Return assumptions used throughout the tables and figures in this paper: Stock returns are based on the Standard & Poor’s 500 Index from 1926 through 1970; the Dow Jones Wilshire 5000 Composite Index from 1971 through April 22, 2005; and the MSCI US Broad Market Index thereafter.
- Bond returns are based on the S&P High-Grade Corporate Index from 1928 through 1968; the Citigroup High-Grade Index from 1969 through 1972; the Lehman Brothers Long-Term AA Corporate Index from 1973 through 1975; and the Lehman U.S. Aggregate Bond Index thereafter.
- The “spending percentage” is a percentage of the initial portfolio, adjusted for inflation annually thereafter.
 - The analysis assumes annual rebalancing and does not include any costs to rebalance the portfolio.
 - The analysis assumes that RMDs begin at age 70½ and uses the joint life-expectancy factors provided by the IRS. See the IRS website for actual factor tables.
 - Terminal wealth illustrations are tax-adjusted and inflation-adjusted. This means we assume the ending balances are fully liquidated at the end of the planning horizon and taxed accordingly. All dollar figures are expressed in real terms, meaning today’s dollars.
 - Tax assumptions:
 - With 35% and 25% marginal tax bracket scenarios, a 15% capital gains rate was used.
 - With 15% marginal tax bracket scenarios, a 5% capital gains rate was used.
 - In all scenarios, 10% of each year’s total return is in the form of realized capital gains. When gains are realized from taxable holdings, we assume that the appropriate tax is paid.

IMPORTANT: The projections or other information generated in this paper regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results.



P.O. Box 2600
Valley Forge, PA 19482-2600

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E-mail > research@vanguard.com

Contributing authors

John Ameriks, Ph.D./Principal
Joseph H. Davis, Ph.D./Principal
Francis M. Kinniry Jr., CFA/Principal
Roger Aliaga-Diaz, Ph.D.
Donald G. Bennyhoff, CFA
Maria A. Bruno, CFP®
Scott J. Donaldson, CFA, CFP®
Michael Hess
Julian Jackson
Colleen M. Jaconetti, CPA, CFP®
Karin Peterson LaBarge, Ph.D., CFP®
Christopher B. Phillips, CFA
Liqian Ren, Ph.D.
Kimberly A. Stockton
David J. Walker, CFA

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ICRSP 062008