NORTHERN TRUST

ASSET LOCATION AND WITHDRAWAL SEQUENCING

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Northern Trust's Investment Policy Committee (IPC) updates our strategic asset allocation recommendations annually, including providing tax-optimized allocations for taxable investors. Since each client's portfolio is ultimately customized to their unique circumstances, we offer additional insights and guidance on tax-efficient asset location and withdrawal sequencing.

Our January 2015 research article "Tax-Efficient Wealth Management" noted that after-tax portfolio optimization is the gold standard for tax-efficient wealth management. After-tax portfolio optimization derives the optimal after-tax asset allocation and asset location simultaneously. Asset location refers to placing tax-inefficient assets in tax-favored accounts (e.g., tax-deferred and tax-exempt retirement accounts).

ASSET LOCATION

We illustrate asset location using IPC's capital market assumptions for four major asset classes commonly owned by high-net-worth investors across account types: taxable investment-grade bonds, tax-exempt municipal bonds, high-yield bonds and global equity (stocks). Exhibit 1 displays IPC's expected return (arithmetic) and risk (standard deviation) for these asset classes.[1] The after-tax version adjusts the pre-tax expected returns and standard deviations for estimates of interest income tax, dividend tax, and capital gains tax. Tax assumptions are based on the highest marginal federal rates as of 2019 for ordinary income, qualified dividends, and long-term capital gains.[2]

EXHIBIT 1 — CAPITAL MARKET ASSUMPTIONS

	PRE-TAX		AFTER-TAX	
	Return	Risk	Return	Risk
Investment-Grade Bonds	3.0%	3.4%	1.9%	2.7%
Municipal Bonds	2.2%	2.9%	2.2%	2.3%
High-Yield Bonds	5.5%	9.5%	3.5%	7.6%
Stocks	7.5%	15.0%	6.2%	12.5%

Sources: Northern Trust Research

Minimize ordinary income (and short-term gains) when all assets are in taxable accounts.

Two efficient frontiers are generated: one using the pre-tax return and risk forecasts in Exhibit 1 and the other using the after-tax version. The only constraints are long-only and no leverage to isolate the implications for asset location. Exhibit 2 compares the optimal pre-tax and after-tax allocations for the median-risk portfolio in the middle of the efficient frontier. This position on the frontier is moderate-risk and well-diversified – a popular choice among investors.

EXHIBIT 2 — OPTIMAL PRE-TAX AND AFTER-TAX ALLOCATIONS

	PRE-TAX	AFTER-TAX
Investment-Grade Bonds	33%	
Municipal Bonds		41%
High-Yield Bonds	19%	
Stocks	48%	59%
Portfolio	100%	100%

Sources: Northern Trust Research

The optimal pre-tax portfolio holds all assets but municipal bonds. In contrast, the optimal after-tax portfolio, which assumes all assets are in a taxable account, holds tax-exempt municipal bonds over taxable investment-grade and high-yield bonds. Tax-efficient stocks pick up some of the risk exposure otherwise provided by high-yield bonds. The results strongly support the principle of minimizing ordinary income when all assets are in taxable accounts – and by extension minimizing short-term capital gains which are essentially taxed like ordinary income (though more common to active trading strategies than broad asset classes).

After-tax portfolio optimization can help identify whether the diversification benefit of certain assets outweighs their otherwise inefficient tax profile. In our example, high-yield bonds have a 0.79 correlation to stocks and the asset was omitted from the after-tax portfolio. However, high-yield bonds would have an allocation with a correlation of 0.50. Indeed, a correlation of 0.50 or less is a good rule of thumb when considering tax-inefficient assets such as hedge funds for taxable accounts.

1 Exhibit 1 displays the 10-year forecasts used in IPC's annual strategic asset allocation update.

2 The after-tax methodology is based on Mladina, Murphy and Ruloff, "Asset Allocation with Real-World Constraints," Level 3 Reading 18, CFA Institute (2017) and enhanced with Mladina, "Refining After-Tax Return and Risk Parameters," (2019). Assumptions include a 37% ordinary income tax rate and 20% tax rate for qualified dividends and long-term capital gains. The example assumes a 15-year holding period for capital gains, which is the average holding period for the 30-year annual consumption goal in the withdrawal sequencing section.

Many investors also have tax-favored accounts that provide the opportunity to employ asset location. If we assume that each of the four asset classes can be held in either of two account types – taxable or tax-deferred – then the optimization uses eight different assets (four asset classes times the return and risk associated with two different account types),[3] with constraints based on the after-tax dollar values available in each account type. Exhibit 3 shows the optimal after-tax allocation and account location for the median-risk portfolio, assuming a $10 million portfolio of which $3 million is in a tax-deferred account.

Locate taxable investment-grade and high-yield bonds in tax-favored accounts.

The tax-deferred account holds taxable investment-grade bonds and high-yield bonds. The taxable account holds tax-exempt municipal bonds and tax-efficient stocks. The overall mix is 63% risk assets (stocks and high-yield bonds) and 37% risk-control assets (investment-grade and municipal bonds). The results are intuitive. The taxable account and tax-deferred account each have different allocations and risk profiles, with higher risk in the taxable account.

EXHIBIT 3 — OPTIMAL ASSET ALLOCATION AND LOCATION

	TAX-DEFERRED ACCOUNT	TAXABLE ACCOUNT
Investment-Grade Bonds	15%	
Municipal Bonds		22%
High-Yield Bonds	15%	
Stocks		48%
Portfolio	30%	70%

Sources: Northern Trust Research

WITHDRAWAL SEQUENCING

Tax-efficient withdrawal sequencing is the ordering of distributions from taxable accounts first and then tax-favored accounts to produce the best economic outcome. This preserves the compounding of tax-free returns in tax-favored accounts for as long as possible.

Withdrawal sequencing can run counter to asset location. Asset location typically results in very different allocations and risk profiles for taxable and tax-favored accounts as we see in Exhibit 3. Withdrawal sequencing can result in similar risk profiles across account types when there is a desire to align a consistent risk profile with consumption through time.

3 When tax rates are constant, the after-tax value of a tax-deferred retirement account is economically equivalent to a tax-exempt (Roth) account. For a tax-deferred account, the optimized after-tax allocations are adjusted up to allocate pre-tax values for implementation.

We compare asset location and withdrawal sequencing when funding a 30-year annual consumption goal. In the asset location scenario, the investor owns the portfolio in Exhibit 3 and can expect to fund about $521,000 per year with a $0 balance at the end of the 30-year period.[4] The investor maintains this asset allocation and location by rebalancing and taking withdrawals. In the withdrawal sequencing scenario, the investor funds consumption from the taxable account first until it depletes, and then from the tax-favored account. The taxable account employs the after-tax asset allocation in Exhibit 2 and the tax-favored account employs the pre-tax asset allocation in Exhibit 2 to align a consistent risk profile with consumption through time. The withdrawal sequencing scenario funds about $534,000 per year over the same period, a slightly better outcome than asset location.

Use withdrawal sequencing when relying on both taxable and tax-favored accounts to fund consumption.

Taxes inject complexity into the optimal investment strategy. We used after-tax portfolio optimization to provide insights and guidance. Investors should minimize ordinary income and short-term capital gains in taxable accounts. However, tax-inefficient assets can still play a positive role in taxable accounts if they are sufficiently diversifying. To the extent possible, locate taxable investment-grade bonds, high-yield bonds, real estate investment trusts (due to nonqualified dividend income) and hedge funds (due to short-term capital gains) in tax-favored accounts, while placing tax-exempt municipal bonds and tax-efficient stocks in taxable accounts. Asset location is perhaps most beneficial to investors who do not plan to consume their tax-favored accounts during their lifetime. Investors who rely on both taxable and tax-favored accounts to fund lifetime consumption should consider withdrawal sequencing. A hybrid of asset location and withdrawal sequencing can also be used in practice.

4 For simplicity, we make no adjustments for inflation or other non-tax expenses.

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