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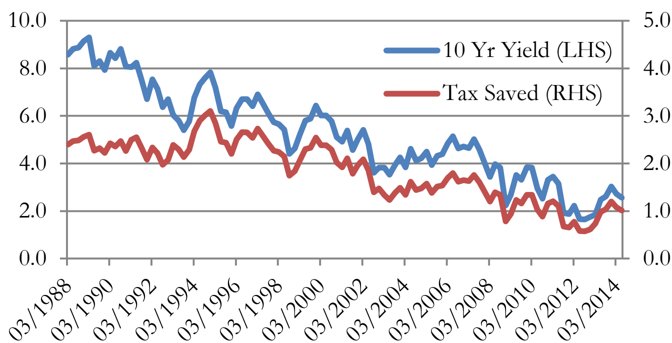
An Analysis of Asset Location

Over the last few years, we've probably spent more time in these *Investment Bulletins* on interest rates than on any other topic. The consequences of ultra-low interest rates are many: wealth transfer from savers to debtors, complicated pension funding, destabilized foreign-capital-dependent countries, etc. One consequence we have yet to cover, though, is that low rates may change the calculus on how to most efficiently use your tax-advantaged accounts (401(k)s, IRAs, and Roth IRAs, for instance).

Traditional guidance has been to stash less tax-efficient bonds in tax-advantaged accounts and more tax-efficient equities in taxable accounts. The bulk of a bond's return comes in the form of interest which is generally taxed at your marginal income rate whereas equities earn a large portion of their return via price appreciation on which taxes can be deferred if the stock is held. If sold, assuming the holding period exceeded one year, taxes are due, but at a lower rate. Further, equity dividends often qualify for this lower capital gains rate. It follows that you get to keep a greater percentage of what you earn if you avoid taxes on bonds by holding them in your tax-advantaged accounts.

Figure 1: Tax Savings from Locating Bonds in Tax-Advantaged Accounts
Assumes Highest Marginal Tax Rate
Sources: Yahoo! Finance; Tax Foundation



As bond interest has steadily declined, however, this advantage has whittled away. Figure 1 plots the yield of the 10 year US Treasury bond (scaled on the left hand side) and the tax you would have saved by owning the bond in a tax advantaged account (scaled on the right hand side). This analysis assumes your tax rate was the highest marginal rate for each year. (If we extended the analysis back to the '70s when both yields and tax rates were much higher, the analysis would be even more striking.) Owning treasuries in a tax-advantaged account would have saved 3% per annum in the early '90s versus barely over 1% per annum today.

This graph suggests that traditional asset location guidance is worth revisiting. It is also an oversimplification of the asset location optimization problem. A rigorous analysis would take into consideration, in addition to bond yields and marginal tax rates, investment horizon, expected total returns, expected frequency of capital gains taxes (every year? never?), qualified versus ordinary dividends, horizon intentions (liquidating assets thus generating taxes or gifting assets thus avoiding them), and more. We take a shot at this type of analysis in the sections to follow.

An important note before we get started: Keel Point does not offer tax advice. Your situation is almost certainly different from the one we've created. Any and all ideas expressed here should be reviewed with your tax advisor.

Why You Should Care About Asset Location

Asset allocation gets all of the attention, and deservedly so, as it is a major factor in determining the likelihood of reaching your financial goals. The question of what to own is more intriguing than where to own it. However, if you are lucky enough to have a significant portion of your investment portfolio in tax-advantaged accounts, thoughtful asset location adds real value. Vanguard recently conducted a study with a goal of estimating the benefits – they came up with a potential annualized benefit of 0.75%. Our simulations arrive at a similar figure.

Analysis Construction & Base Case

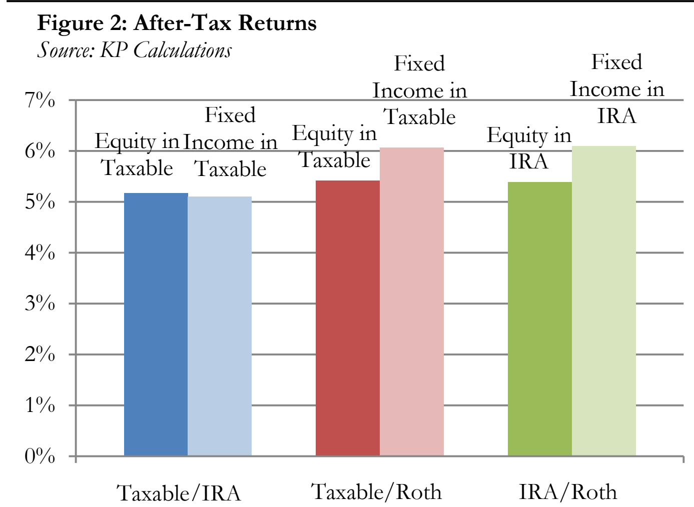
For simplicity, we structured the problem as a two-asset, two-account optimization. For example, you have a taxable account and an IRA and need to decide which account should buy stocks and which should buy bonds. In total we looked at three combinations of accounts: 1) taxable/IRA, 2) taxable/Roth, and 3) IRA/Roth. The key advantage of the Roth IRA of course is that tax is never due whereas an IRA pays tax as distributions are made. While these three account combinations oversimplify many client situations, hopefully we can draw conclusions that are broadly applicable.

The base case assumes you are in the highest marginal tax bracket (39.6%) and required to pay the Affordable Care Act (ACA) investment tax (3.8%). It assumes your capital gains rate is 20% and that the ACA rate applies here as well. Dividends earned by equity investments are assumed to be qualified (taxed at capital gains rate). Further we assume your income tax rate at retirement, the rate you will owe on IRA distributions, is 28%, the marginal rate for married couples earning more than $148,850 but not more than $226,850.

The base case also assumes you will liquidate and consume all of your assets as opposed to gifting them; this means you will owe substantial taxes on your IRA at liquidation.

We tested the traditional asset location guidance. We assumed that the equity portion of the portfolio was never sold – so no capital gains taxes came due regardless of the account holding the equity. Return assumptions are important. For this test, we assumed 8% total return for equities (6% price appreciation + 2% dividends) and 3% return for fixed income (all interest). The former assumption is close to historical averages and the latter is adjusted for the current rate environment. Portfolios begin with equal amounts in stocks and bonds and are never rebalanced. Results are presented in Figure 2 – these are annualized returns earned over a thirty year horizon.

Figure 2: After-Tax Returns
Source: KP Calculations



The location decision for a portfolio with both taxable and IRA dollars is nearly inconsequential. There is a 0.07% advantage to putting stocks in the taxable account and bonds in the IRA versus the opposite decision. Traditional location guidance still holds under these assumptions, but by the narrowest of margins. If you are locating either of the other two cases, taxable/Roth or IRA/Roth, equity belongs in the Roth by a comfortable margin – 0.7% in both.

How Sensitive is the Base Case to Our Assumptions?

Many assumptions are made to arrive at the conclusions presented in Figure 2. We've opted to vary a few of those assumptions to test if or when those conclusions flip. We vary one assumption at a time; in other words the sensitivity analysis assumes no changes to the variables we don't call out.

First let's consider the return assumptions. If your return expectation for equity is high enough eventually you would want to consider putting equity in your IRA in the taxable/IRA case. The crossover is around a 10% total return assumption (8% capital appreciation + 2% dividends). For the taxable/Roth and IRA/Roth cases, the fixed income assumptions needed to flip the conclusion are too far-fetched to print. However, you might extend this analysis to consider stocks vs. hedge funds. If you forecast a hedge fund to have a 3% return taxed at the marginal rate (like bonds) plus 4% or higher capital appreciation, then you would fund the hedge fund in your IRA in the taxable/IRA and IRA/Roth cases, and in your Roth in the taxable/Roth case.

We should also test the assumption that equity is never sold and therefore capital gains are deferred to the investment horizon. If you plan on realizing the capital gains in the equity portfolio on a periodic basis then equity flips into the IRA in the taxable/IRA case. This location decision is a full 0.5% better than the opposite if capital gains are realized every year at the long-term rate.

Do the conclusions change if you're in a lower tax bracket? If you expect to be in the lower 15 or 25% brackets at retirement then equity is ever so slightly better off in your IRA, in the taxable/IRA case, as the taxes due at distribution will be lower. Varying your bracket today doesn't change the analysis.

Lastly, what if you don't intend to use the money? If the goal is to gift, then equity belongs in the IRA or Roth. Eliminating the liability on the IRA due at liquidation is a huge advantage worth up to 1% in this simulation.

Extensions of the Analysis

While declining interest rates have changed the calculus for lots of investors, the asset location decision hasn't quite changed for our base case portfolio. However, it doesn't take much movement off these assumptions to reevaluate. There are limitations (or extensions for another research project) to this analysis. We assume steady growth for instance. The introduction of volatility can tip equity back towards the taxable accounts as tax loss harvesting opportunities are created. Studying the impact of rebalancing on these results would also improve the work. Nonetheless, we hope this might serve as a starting point for making your own specific asset location decisions. □

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