

WORLD MARKET SURVEY

Stocks Drop in US, Around World

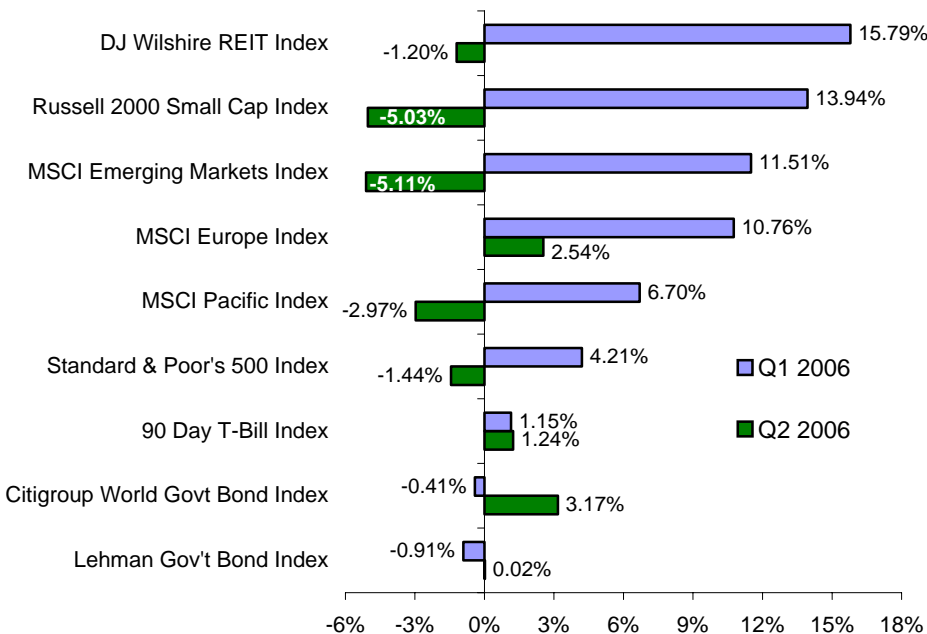
Despite experiencing the largest single day gain in more than three years on the second to last trading day of the quarter (on June 29, the Dow Jones Industrial Average gained 217 points and the NASDAQ rose 63 points), US equities experienced moderate losses in the second quarter. The benchmark S&P 500 dropped 2%, the tech-heavy NASDAQ fell 7% and the small cap Russell 2000 declined 5.3%. Fed Chairman Ben Bernanke showed greater than expected inflation fighting resolve by pushing short-term interest rates to 5.25%, and indicating that further rate increases are possible.

Foreign Stocks

Around the world, rising interest rates triggered stock market declines. In Japan, where interest rates haven't risen in more than a decade, expectations of a rate increase later this

(Continued on page 12)

Returns from Market Indices: Second Quarter 2006 vs. First Quarter 2006



THE ASSET LOCATION DEBATE: TAXABLE VS. TAX-DEFERRED ACCOUNTS

In this issue of *Investment Quarterly* (IQ) we continue the discussion of how taxes shape optimal investment decision-making. While the last issue of IQ focused on when to recognize taxable gains in appreciated investments, (tax-efficient investing), this issue addresses which assets should be held in a tax-favored retirement account, and which should be held in a taxable account. This decision is referred to as the asset location question.

Tax issues are generally complex, and the asset location question is no exception. Recent tax law changes, such as the introduction of the Roth 401(k) option in 2006 and a new proposal (currently before Congress) to implement a brief window in which Roth

IRA conversions would be permitted, regardless of income level, add to the complexity. Complex issues rarely have simple solutions. However, academic research into the asset location question generally concludes that mainstream financial planning advice is likely to generate suboptimal results. This issue of IQ will briefly summarize key academic articles investigating asset location.

Baylor Research Finds Tax Alpha Outweighs Manager Alpha

In 1996, William Ghee and William Reichenstein of Baylor University published an important article developing the concept of 'tax alpha.'¹ In investment jargon, 'alpha' generally measures a manager's ability to generate better returns than those of the overall market. The authors

extended the alpha concept to asset location issues, defining tax alpha as "the additional after-tax rates of return attributable to tax structures." The net, after-tax returns earned by stocks and bonds differ, depending on whether they are held in tax-deferred or taxable accounts. A tax alpha is a characteristic of certain tax-favored accounts, and it is measured in terms of a benchmark defined as "the after-tax rate of return that the individual could earn by holding the bond or stock in the personal tax structure."

Ghee and Reichenstein concluded that alpha generated by the tax structure of savings vehicles is more important to long-term wealth accumulation than alpha generated by investment management: "The investor with average stock-

THE ASSET LOCATION DEBATE

“... the ending after-tax wealth on stocks held in the pension is 60 percent larger after 20 years than if the same stocks were held in the benchmark personal tax structure.”

picking skills who saves in the pension tax structure will almost always retire with more wealth than the superior stock picker who saves in an account subject to the personal tax structure.” According to the authors’ calculations, “... the ending after-tax wealth on stocks held in the pension is 60 percent larger after 20 years than if the same stocks were held in the benchmark personal tax structure.”

Some financial advisors extrapolated these findings into a rationale for loading tax-deferred retirement accounts with equity. However, this extrapolation extends well beyond the authors’ conclusions. Most investors own both equity and debt securities. Although the article concluded that stocks generate greater after-tax wealth when owned through a tax-deferred vehicle, it did not address whether holding fixed income in the tax-deferred vehicle might generate an even better result.

Parenthetically, the authors noted that annuities provide a third tax structure for investors – namely, the ability to contribute after-tax dollars to a tax-deferred savings vehicle. In general, however, annuities lack sufficient tax-alpha to overcome their high fees: “Insurance companies charge annual fees on deferred annuity contracts. Unfortunately, the typical annual fee of 1.25% usually exceeds the tax advantages of the deferred-annuity tax structure.”

Tax Effects Smooth Net Returns

In 2000, John Shoven & Clemens Sialm re-examined the asset location debate.² They pointed out that investments held in a tax-deferred account (TDA) are generally not perfect substitutes for investments in conventional taxable accounts, because investments in TDAs have both a higher expected return and higher risk (as measured by standard deviation). Higher expected returns result from compounding unencumbered by periodic taxes. However, after-tax returns from equity held in a conventional account are less variable, because realized capital gains increase tax liability while realized losses decrease tax liability: “This symmetric tax system dampens both gains and losses.” The authors agreed that optimal asset location significantly enhances retirement resources, but argued that the preferred asset location for a given equity mutual fund is determined by three factors: its expected return; standard deviation; and the tax rates on the returns. The decision rests primarily on “the proportion of returns that the equity fund distributes annually as dividends and capital gains (tax effect). Only funds with

high annual (potentially taxable) distributions should be located in a TDA.” In the authors’ model, an equity fund should be held in the TDA if its annual taxable distributions are greater than 17% of total fund value. Furthermore, according to their model, optimal asset location increased the value of the TDA by 6.7%, relative to the base scenario.

The Shoven/Sialm paper also discussed municipal bonds. Historically, the implicit tax rate on munis has been lower than the marginal tax rate of high-income taxpayers, hovering at about 30%. Traditional financial planning wisdom holds that high bracket individuals should own tax-exempt bonds if their marginal tax rate is higher than the implicit tax rate on munis. But Shoven and Sialm argued that the relevant comparison should be between the implicit tax rates on municipal bonds and on stocks: “Individuals should put [taxable] bonds in the TDA and mostly stocks in the [conventional account] if the taxes on stocks are lower than the implied taxes on municipal bonds. This reduces the demand of investors for municipal bonds” One key implication of this argument is that an investor’s demand to hold municipal bonds decreases with the availability of tax-efficient equity vehicles, such as Exchange Traded funds (ETFs) and most index funds.

MIT Research into “Asset Habitats”

A 2001 research monograph by James Poterba of MIT advanced the proposition that it is important to separate an asset’s risk characteristics and its tax attributes.³ Differing tax attributes lead to the concept of “asset habitat,” which may be understood as the tax situation of the household that owns a security. That overall tax situation bears upon the optimal location of assets, whether in a TDA or not.

The habitat issue complicates the portfolio optimization problem. Differences in post-tax payoffs influence decisions on asset allocation. For long-term investors, estimates of future tax rates (government tax rate schedules, tax policy, and changes in future labor income) also complicate the portfolio choice problem. Tax law complications may help explain why less wealthy households often hold undiversified portfolios. For example, the costs of accounting for a real estate partnership may overwhelm any diversification benefit from including the asset in a small investment portfolio. Studies suggest a link between tax rates and portfolio structure: households with higher marginal tax rates are more likely to own tax-

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THE ASSET LOCATION DEBATE

favored assets, such as low dividend stocks or tax-exempt bonds. Poterba argued that taxable bonds should be held in the TDA: "This is a pure 'tax arbitrage' in the sense that the household's after-tax return can be increased without changing its risk exposure." However, many households own both equity and taxable fixed income investments in both taxable and tax-deferred accounts – and this is an asset location puzzle. Poterba noted that, "relatively few investors are choosing markedly different asset allocation patterns in their taxable and in their tax-deferred accounts."

Disconnect Between Advice from Academics, Advice from Practitioners

Following the work of Poterba, Shoven and Sialm, most academic studies have advocated owning equity in taxable accounts and taxable bonds in TDAs. Indeed, since 2002, a kind of disconnect has developed between advice from academics and the planning recommendations given by many financial advisors. The topic's complexity may explain this disconnect. Nancy Jacob addressed these complexities in a speech to the New York Society of Security Analysts in 2002.⁴ Jacob pointed out that private client portfolios are complex because they often include:

- 1) Fully taxable sub-portfolios (Grantor trusts, personal portfolios);
- 2) Tax-advantaged sub-portfolios (IRAs, 401(k)s, variable annuities, charitable remainder trusts); and,
- 3) Tax-exempt sub-portfolios (life insurance policies, private foundations).

Additionally, there are two types of tax exposure to consider: income tax and estate tax. "The more estate tax exposure you have, the more taxes you're going to ultimately pay and you have to think about having growth assets in those portfolios versus income-producing assets" Restructuring existing portfolios is especially complex because of possible embedded capital gains and transaction costs. Tax-aware asset allocation becomes a function of the portfolio's situation at inception: "It is almost like a Markoff Chain. The starting point determines the ending point." [A Markoff Chain is a period-by-period evolution of a system from its current state to a future state in which the evolution from one period to the next is governed by transition probabilities].

Financial advisors work with complex real-life asset habitats, which may include legacy assets with large embedded capital gains, bewildering arrays of accounts established for disparate life purposes, and multiple owners. Thus, simple rules of thumb like 'put all taxable bonds in an IRA' may be difficult or impossible to apply because of the complexity and relative sizes of the sub-portfolio accounts. Generally, however, "Where you have the highest tax rates, you want to have the most tax-efficient type of management, and passive generally is more tax-efficient than active management."

Mulvihill Blends Academic & Practitioner Approaches

An excellent application of the findings of academic research (characterized by mathematical modeling) to the sorts of practical complexities faced by the practitioner community may be found in Don Mulvihill's 2003 essay, "Asset Allocation and Location."⁵ Investors have complex goals. For example, a common statement of investor objectives might be, "subject to funding my remaining lifetime consumption needs, maximize the risk-adjusted real value of wealth that will be received, net of income and transfer taxes, by my intended heirs and charitable beneficiaries." Simple enough, perhaps; but multiple – and potentially incongruent – objectives are implicit in that statement. Mulvihill noted that the tax code permits investors to use various entities for purposes of income, gift and estate tax planning. Entities include qualified retirement plans, grantor trusts, private foundations, charitable trusts, etc. Given an adequate specification of investor objectives, optimization techniques can be used to determine both the ideal asset allocation and the ideal asset location. According to Mulvihill, the optimal solution usually entails:

- 1) Shifting highly appreciating assets to entities favored by the estate tax code, such as grantor trusts; and,
- 2) Shifting assets that are tax-inefficient with respect to income tax into TDAs.

Mulvihill added to the traditional rationale for locating bonds in TDAs – avoiding current income tax on dividend yields – an argument from estate tax benefits: "All return earned or accrued within the retirement account will be subject to ordinary income tax when it is withdrawn. Any balance left over when both parents have died will be subject to ordinary income tax. The remaining balance will then be subject to estate tax and will not have the

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THE ASSET LOCATION DEBATE

benefit of the step-up in basis ... it makes little sense to shift highly appreciating assets that generate long-term capital gains rather than ordinary income into the retirement account.”

Purdue Monograph Considers Portfolio Aspects of Asset Location

Ashraf Zaman of Purdue published a monograph in 2004 that increased the number of assets under consideration beyond the two-asset portfolio – a single stock and a single bond – to which most academic models are limited.⁶ This increase in the number of assets introduced new dimensions of correlation and portfolio rebalancing as factors in the asset allocation and asset location decisions. These considerations qualify the general rule that bonds should be preferred over equity in a TDA.

Zaman began by acknowledging the tradeoff between using the tax timing option to defer gain recognition and maintaining optimal portfolio diversification: “In a taxable account, investors have incentives to realize capital losses yet defer capital gains ... Over time, following this strategy will lead to a poorly diversified portfolio.”⁷ By placing some equities in the TDA, investors can “freely trade these assets to maintain a diversified portfolio without incurring the tax consequences.”

Zaman developed a model that incorporates two risky assets under various correlation parameter values and under various borrowing and short sale constraints. Other key factors include the investor’s bequest motives and the “retirement wealth ratio” (the fraction of total investor wealth held in the TDA). He developed an equation that returns the change in net cash flow assuming that an investor shifts from stock to bonds in the TDA and vice-versa in the taxable account. Given that the tax on ordinary income is higher than that on capital gains, and the coupon rate on bonds is higher than the dividend rate on stocks, the investor is “strictly better off holding the bond in the tax deferred account and holding stock in the taxable account.”

Zaman noted two schools of academic advice:

- 1) The yield-driven investor choice rule that says that TDAs should be funded with the assets that have the highest yields; and,
- 2) The tax-rate investor choice rule that says, “the preferred asset location is determined primarily by the tax rates facing the asset returns, and assets with the high tax rates should be allocated in the tax-deferred account.”

But Zaman’s model predicts various mixes of bonds and equities in both tax-deferred and taxable accounts, depending on the proportion of the investor’s total retirement savings owned through tax-deferred and conventional accounts. An investor who has saved for retirement primarily through TDAs (high retirement wealth ratio), will hold lots of equity in these accounts to maintain the desired asset allocation. However, “for low retirement wealth ratio, almost 100% of the retirement wealth is allocated to bonds.” As investors hold proportionally more assets in taxable accounts, their demand to hold equities in taxable accounts increases. This is especially true for investors planning to leave large inheritances. Indeed, older investors have an increasing demand to hold equity in conventional accounts to capture the step-up in basis at death.

Conversely, in Zaman’s more complex multi-asset model, the correlation structure among equities plays an important role in the asset location decision. If the performance of different equities varies significantly, the ability to conduct rebalancing trades among equities held through the TDA without any tax consequences becomes increasingly valuable. The degree to which assets perform similarly to each other is measured by the correlation coefficient. As the value of the correlation coefficient for equities decreases, the diversification benefit of equities increases. At perfect negative correlation, all of the retirement account should be funded with equities – “the diversification value simply outweighs the tax timing option value.” When correlation values are close to zero or positive, however, no equities should be held in a TDA if the investor has no borrowing constraints (so as to be able, i.e., to utilize margin loans on taxable brokerage accounts). Likewise, investors with lower bequest motives should tend to hold almost no equity in a TDA.

Arbitrage Study Questions Conventional Advice

In June of 2004, three finance professors published an important article in *The Journal of Finance* on the topics of asset location and asset allocation.⁸ They explored the relationships between the asset allocation decision (“deciding how much of each asset to own”) and the asset location decision (“deciding which assets to hold in the taxable and tax-deferred accounts”). The study was at least partially motivated by their desire to test the wisdom of conventional advice: “Financial advisors commonly

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THE ASSET LOCATION DEBATE

recommend that investors hold a mix of stocks and bonds in both their taxable and tax-deferred accounts, with some financial advisors recommending that investors tilt their tax-deferred accounts toward equity.” Such conventional advice seems to inform the asset location decisions of many investors. For example, the authors reported that 48.3% of investors who own taxable bonds in taxable accounts also own equity in TDAs, and 53.1% of the owners of tax-exempt bonds also own equity in TDAs.

The research study employed “arbitrage arguments” to test for optimal asset location. The arbitrage approach involves a risk-free shift in the location of assets – i.e., moving a dollar of taxable bond holdings either into or out of a TDA in favor of an “equivalent” after-tax dollar of equity holdings. The authors developed a series of equations designed to identify “... the asset location policy that produces the highest expected utility of after-tax wealth.” The equations accounted for a number of salient factors:

- 1) A dollar in a TDA is less valuable than a dollar in a taxable account, due to taxes on withdrawals from the TDA;
- 2) Investors face differential tax rates on different forms of investment return; and
- 3) Investors face differing borrowing and lending constraints on their taxable accounts.

To reduce the problem to manageable proportions, the authors made two simplifying assumptions:

- 1) The investor has a choice of investing in one of two assets: a riskless bond – either taxable or municipal – and an equity ‘portfolio;’ and,
- 2) The investor must realize all capital gains and losses each year.

This last condition is deliberately restrictive, so as to test conventional financial planning advice under the most unfavorable circumstances for holding equity in a taxable account. In practice, equity provides investors with valuable options with respect to lifetime tax liability timing or step-up in basis elections at death. The equations demonstrate that the change in after-tax wealth generated by a shifting dollar is independent of the stochastic growth rate of equity (bond interest and stock dividends are modeled as constants) and, therefore, the resultant change in wealth “represents a risk-free after-tax payoff that can be generated by shifting the location of asset holdings.”

However, there is no guarantee that a positive change in after-tax wealth in either the tax-deferred or taxable account will, in fact, increase

total after-tax wealth, because the tax structure affects taxable accounts and TDAs differently. To prove their arbitrage argument under reasonable assumptions regarding investment yields and tax rates, the authors verified that the investor is “strictly better off holding taxable bonds in the tax-deferred account.” The study extended the analysis to account for recent changes in US tax law that make equity dividends and capital gains taxable at the same rate, while interest income is taxed at a higher rate: “this implies that it is not optimal to hold equity in the tax-deferred account, regardless of the magnitude of the dividend yield on equity.” The authors concluded that, “it is tax efficient to hold equity (or equity mutual funds) in the taxable account and taxable bonds in the tax-deferred account if taxable bonds have higher yields.”

The study also revisited Shoven and Sialm’s argument, which had suggested that the opportunity to hold tax-exempt municipal bonds in a taxable account might change the optimal asset location decision. They concluded that, under certain conditions, it might be optimal for an investor to hold an actively managed equity mutual fund in a TDA and tax-exempt bonds in a taxable account. However, under reasonable assumptions regarding returns, distributions and tax rates, a stock mutual fund would have to be highly tax-inefficient to justify owning it in a TDA. The authors noted that:

- 1) To justify holding it in the TDA, the mutual fund would have to distribute approximately 75% of its capital gains each and every year; and,
- 2) The existence of tax-efficient index funds means that investors would generally be better off using them for their equity positions in taxable accounts.

A ‘certainty-equivalency’ analysis determined that an actively managed mutual fund must generate a “pre-tax abnormal [i.e., market beating] return (before transaction costs and fees) of 165 basis points or more ... before it is beneficial to hold the actively managed equity mutual fund in the tax-deferred account.” They concluded that “... the opportunity to invest in tax-exempt bonds does not alter the optimal asset location policy provided equity can be held in a relatively tax-efficient form.”

The study presented a simulation model which assumes that the investor does not leverage the taxable account (i.e., does not use margin loans). The model reaches conclusions similar to those of the Zaman monograph, suggesting that equity should appear in the TDA

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THE ASSET LOCATION DEBATE

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only under limited circumstances; and then, only in limited amounts. For example, if an investor had little taxable wealth, the demand to hold equity in the TDA to achieve an overall optimal asset allocation would increase. However, the tax-inefficiency of equity held in a TDA makes investors reluctant to substitute equity for taxable bonds unless the TDA is so large relative to total investable wealth that the investor must take reasonable steps to avoid becoming too underweighted in equity. Parenthetically, the model also indicates that older investors with strong bequest motives have an increasing demand to hold equity because of the forgiveness of capital gains at death and because they are faced with high mortality rates (which make the step-up in basis at death increasingly valuable). Again, this observation contrasts with conventional financial advice recommending decreasing equity exposure during retirement.

Next, the study calculated the utility costs to investors who follow conventional advice to allocate equity first to a TDA. The magnitude of the penalty was measured by “computing the amount of additional wealth ... that is needed to equate the investor’s total expected utility under the suboptimal location policy to that under the optimal location policy.” The penalty is greatest for younger investors, who will incur a higher utility cost because they maintain the suboptimal asset location policy over a longer planning horizon. The authors estimated that suboptimal asset location policies can reduce eventual after-tax portfolio values for younger investors by about 15%.

The study’s last section explored how precautionary savings motives might affect financial planning strategy. One reason to hold bonds in a taxable account might be to cover unexpected expenses (a “liquidity shock”) during a protracted bear market for stocks. For this strategy to make sense, there would first have to be a material chance of a liquidity shock severe enough to drive the investor’s standard of living below a minimum acceptable threshold. Funds in the taxable account would also have to be insufficient to compensate for the liquidity shock. The risk of holding equity in the taxable account derives from the fact that, “if equity values decline significantly, it may be necessary ... to incur a penalty to liquidate a portion of the tax-deferred accounts to finance consumption.” The simulation model suggests, however, that with the exception of a few years just prior to retirement, most liquidity shocks would not justify deviating from the tax-optimal allocation and location policies. These rare cases involve simulations wherein the value of the taxable account relative to total wealth is

small, and, therefore, in the authors’ opinion, do not apply to most investors. They posited that investors with low savings account balances are more likely to prepare for liquidity shocks by reducing contributions to retirement accounts and increasing after-tax savings than by adopting otherwise suboptimal asset location strategies.

Treatise Compares Broad Range of Tax Planning Vehicles

The CFA Institute published a comprehensive treatise on the topic of tax-efficient wealth accumulation in 2005.⁹ The book, by Stephen Horan, defined the relationship between asset allocation (“... how an investor allocates his or her investment portfolio among different asset classes.”) and asset location (“... how assets are distributed among taxable accounts and TDAs”). Horan developed a step by step framework to analyze investment decision-making under various tax regimes. He began with a detailed analysis of the “simple” choice between a ‘front-loaded’ tax favored account such as a traditional IRA, and a ‘back-loaded’ account such as a Roth IRA. Front-loaded accounts include 401(k) and Keogh Plans, and refer to the tax deductibility of the initial contribution. Back-loaded accounts include Roth 401(k) and 529 College Savings plans, and refer to the lack of deductibility for the initial contribution, balanced by the right to withdraw funds tax-free. Both types of accounts offer investors the opportunity to defer yearly taxes on earnings.

If there is no change in the applicable tax rate – a pivotal assumption – the present value of the future tax liability on withdrawals from a traditional IRA exactly equals the present value of the extra taxes paid due to the non-deductibility of Roth IRA contributions. Nominal taxes on the entire corpus of the traditional IRA are greater, but, “properly discounting these future taxes at the opportunity cost of capital exactly offsets their nominal growth.” Under these assumptions, the choice makes no difference.

However, in the real world, an investor choosing between tax-advantaged vehicles faces numerous complications. Analysis is difficult due to the arcane terminology both of tax law and of financial economics, and to the economic consequences of a complex tax system that incorporates differential rates and recognition rules. Horan’s monograph works through the dense thicket of tax and investment variables by creating algebraic models under certain simplifying assumptions (e.g., constant investment returns and con-

THE ASSET LOCATION DEBATE

stant pre- and post-retirement tax rates). The reader can insert values representative of his or her situation into the algebraic models to arrive at a 'first order' understanding of the financial consequences of investment decisions.

It is easy to see that a traditional IRA is relatively more valuable if marginal tax rates are expected to be higher when dollars are contributed, while a Roth IRA is relatively more valuable if marginal tax rates are expected to be higher when dollars are withdrawn. A formal analysis, however, requires a decision whether the comparison should be made on a pre- or a post-tax basis.

Horan used IRA contribution limits for 2004 (\$3,000) to begin the analysis. Suppose an investor in the 25% tax bracket wishes to make a contribution of \$3,000. The IRA account receives a total after-tax investment of \$3,000 while the Roth IRA account receives a total after-tax investment of \$2,250, because the contribution was not deductible, and so required the investor to pay tax of \$750 (\$3,000 x .25). Horan demonstrated also that an even more complex comparison can equate traditional and Roth IRAs on a pre-tax basis. He argued that either comparison is equally valid, provided tax consequences are fully accounted for and tax savings are appropriately invested.

This approach resolved a major academic debate over the merits of comparing accounts on a pre- or post-tax basis. Unfortunately, however, it introduced another complicated dimension to the analysis – the question of how the supplemental taxable account should be invested. For investors wishing to maximize pre-tax contributions, the attractiveness of the traditional IRA will depend on just how the taxable side account is taxed. This, in turn, requires a yet more complicated round of algebra to model the future value interest factors attributable to current contributions to both tax-favored and taxable accounts, where taxable accounts are subject to differential tax rates and where future taxes must reflect adjustments to basis caused by periodic payment of taxes as they fall due.

At this point, the "dimensionality" of the problem (i.e., the number of relevant variables) increases substantially. Other relevant variables include: planning horizon; assumed investment return; assumed pre- and post-retirement tax rates; and assumed investment characteristics of the taxable side account (ordinary income, capital gains, gain recognition rates, etc.). Horan provided illustrative tables for investors in various tax brackets

under differing planning horizons and investment returns. Changing any of these variables alters the relative attractiveness of the investment options significantly. The change in marginal tax bracket after retirement is particularly critical. Horan noted that, on average, retirement income is about 64% of pre-retirement income. For a married couple filing jointly with pre-retirement Adjusted Gross Income of \$180,000, such a decrease in income at retirement would drop them two tax brackets, to a marginal rate of 25%. Indeed, across many planning horizons and investment return rates, "... the optimal choice between a traditional IRA and a Roth IRA depends largely on the tax rate prevailing when the funds are withdrawn." Horan offered several observations:

- ◆ If the investor drops two tax brackets at retirement, the traditional IRA is generally preferable to the Roth IRA, because the benefit from the lower tax rate on withdrawals outweighs the disadvantage of the taxable side account associated with the traditional IRA strategy. When the same investor drops just one tax bracket, the traditional IRA is "optimal only for short time horizons or for investments with low rates of return" [e.g., short and intermediate term fixed income investments].
- ◆ Establishing both traditional and Roth IRA accounts may provide investors with a useful tax option: "... an investor with both types of accounts may choose the account from which withdrawals are made prior to the mandatory withdrawal age of 70 ½ years." This is "akin to a real option in a capital budgeting context."
- ◆ The tax characteristics of investment instruments held by the supplemental taxable account may profoundly influence the investor's choice between traditional and Roth accounts. The lower the tax drag in the taxable account, the less advantage the Roth IRA tax provisions confer, and the greater the relative attractiveness of the tax deduction in the current year of contributions to a traditional IRA. Thus, investors with low-cost, low-turnover, passively managed investment portfolios in their taxable accounts will tend to favor traditional IRAs.
- ◆ Investors subject to the Alternative Minimum Tax may wish to lower their Adjusted Gross Income by contributing to traditional IRAs, in order to avoid or mitigate the phase-out of exemptions that occurs as AGI increases.

The lower the tax drag in the taxable account, the less advantage the Roth IRA tax provisions confer, and the greater the relative attractiveness of the tax deduction in the current year of contributions to a traditional IRA.

THE ASSET LOCATION DEBATE

- ◆ Investors benefiting from employer matching contributions to 401(k) plans will almost always find them more valuable than back-loaded options lacking such matching.
- ◆ Converting a traditional IRA to a Roth IRA is attractive only if the tax liability triggered by the conversion is paid from funds in a highly taxed account, or if the investor's tax rate at withdrawal will increase by 11% or more. Thus an investor in the 25% marginal tax bracket while working must find himself in the 28% tax bracket ($1.11 \times 25 = 27.75$) after retirement to compensate for the payment of taxes and early withdrawal penalties at the date of IRA conversion.

Horan went on to discuss numerous other topics, such as comparisons between non-deductible IRAs and taxable investments, early withdrawal penalties and break-even horizons, etc. Of special interest is a lengthy discussion on the valuation of assets held within tax-sheltered accounts. Recognizing that retirees buy goods and services with after-tax dollars rather than with pre-tax dollars, Horan developed a formula for determining the taxable equivalent of a pre-tax dollar held in a tax favored account: "... that is, the amount of taxable assets that would produce the same after-tax cash flow as a withdrawal from the tax-sheltered account at some future date." The important message is that the determination of the value of a pre-tax dollar is *strictly relative* to the investment strategies and returns applied over the applicable planning horizon within the taxable account alternatives. In other words, depending on the tax efficiency and expected returns in the taxable account (not to mention the investor's tax bracket), a pre-tax dollar might be worth either more or less than an equivalent dollar within the taxable account.

The later chapters of the monograph addressed the asset location question proper – should stocks be owned in taxable accounts or in tax shelters? The asset location decision, "... involves a series of trade-offs. On the one hand, the higher expected return associated with equity investments increases the value of deferring taxes on their return (as opposed to bond returns) ... suggesting stocks might be optimally located in TDAs. On the other hand, the effective tax rate on equities is lower than on fixed-income instruments, suggesting stocks might be optimally located in taxable accounts." Horan summarized the research on the asset location topic. For example, arguments in favor of owning stocks in TDAs include:

- ◆ Active investors may wish to hold stocks in TDAs if frequent trading generates substantial short-term gains;
- ◆ Municipal bonds in a taxable account may tip the scale in favor of using tax-sheltered dollars to buy stocks.
- ◆ Investors with strong precautionary savings motives may prefer to have highly liquid, low risk portfolios that can be withdrawn to finance consumption in bad economic times, without triggering penalty taxes for early withdrawal from a TDA. Stocks are volatile, and their returns can be positively correlated with the investor's labor income (during recessions, stock prices can decline as unemployment increases). These factors make stock a poor candidate for a taxable "emergency" account.

Horan's Conclusions Echo Those of Other Studies

Having applied the after-tax valuation method, Horan concluded that it is generally better to hold bonds in TDAs and stocks in taxable accounts: "... investors should place bonds, which have a heavy tax burden, in TDAs and use taxable accounts to gain equity exposure This basic advice seems to hold even in relatively more complex environments...." The availability of municipal bonds does not materially change this conclusion. Unless the taxable account is invested in a tax-inefficient manner, even investors in high tax brackets are generally better off owning stocks outside a TDA and taxable bonds within. For equity mutual funds, the break-even point is reached when the fund distributes 68.6% or more of its annual returns. Thus, in Horan's opinion, "... the opportunity to use municipal bonds to optimize asset location is limited to investors using actively managed equity." However, "... holding more tax-efficient equity in a taxable account would obviate the need to [own municipal bonds] and tends to make the investor better off."

Only investors with very high precautionary savings motives (generally under age 59½) realize increased utility by owning bonds in the taxable account: "When it is costly to access funds held in the TDA, investors wishing to insulate themselves from unexpectedly high consumption needs or unexpected shortfalls in labor income may rationally forgo tax efficiency in favor of greater liquidity."

Free Loans from the Feds?

"... the opportunity to use municipal bonds to optimize asset location is limited to investors using actively managed equity."

THE ASSET LOCATION DEBATE

The CFA Institute published a second book dealing with taxes and investments in 2006.¹⁰ The gist of its argument with respect to the asset location problem is that the characterization of the tax-deferral of an account as an interest-free loan from the government is unfortunate, for a number of reasons:

- 1) The embedded gains (and hence the value of the "loan") may diminish over time with investment results; and,
- 2) The real value of tax deferral flows, not from the immediate tax relief provided by the deduction of the contribution in the year it is made, but from the deferral of current tax on the compounding of wealth at differential tax rates over time.

By comparing the terminal results of fully taxable, tax-exempt, and tax-deferred investors, the authors showed that deferral of taxes is valuable primarily at long horizons (greater than ten years). Thus, use of TDAs may not generate a significant "tax alpha" for short-term investors.

They agreed with Horan's analysis on the choice of a traditional or Roth IRA, in that the true value of either type of account flows primarily from unknown future tax rates rather than the tax-structure of contributions and withdrawals: "Whether a contribution to the account is made with after-tax money (and tax-free on withdrawal) or the contribution is made with pretax money (and taxed on withdrawal) is not key to the value of these accounts. The reason is that the tax payment is mathematically identical to a single-period negative return and thus has the same effect on the geometric mean return whether it occurs at the beginning or at the end." It is difficult to develop a general rule for selecting between a traditional or Roth IRA because of the uncertainty in future tax rates: "... there is no assurance that the future prevailing tax rates, even in lower income brackets, will be lower than the investor's tax rate at the time the funds are being placed in tax-deferred retirement accounts."

Interestingly, the authors suggested that the new low tax regime, in which qualifying dividends and capital gains are taxed at a 15% rate, decreases the value of TDAs for high net worth investors, unless their planning horizons are very long, so that higher tax rates on withdrawals from IRAs can be overcome by the benefit of the differential compounding rates over time. For less wealthy investors, however, locating assets in TDAs may permit them to escape both income taxes on account accumulations and estate taxes (assuming their

wealth remains below the estate tax exemption amount), provided that the minimum distribution regulations do not force out a significant portion of the account's value.

The authors pointed out that the need for liquidity and precautionary savings is an important factor in the asset location decision. If an investor has debts and could lose his or her job at the same time that equity markets are slumping, it might be useful to own more stable (albeit tax-inefficient) fixed-income assets in a taxable account, to increase the likelihood that funds will be available when needed to preserve the investor's standard of living. Absent a high need for liquidity to survive income shocks, and absent allocation constraints, wealthy investors should generally avoid holding equity in retirement accounts.

The exception is that actively managed stock funds should be held in TDAs, since it is so difficult for active managers to add sufficient value to overcome tax liabilities generated by high turnover. Equities in personally owned taxable accounts should be tax-efficient "... such as index funds or 'tax-aware' funds...." Finally, the authors noted that the need for periodic portfolio rebalancing might lead to different conclusions about asset location: "Rebalancing usually requires selling stocks and buying bonds, which triggers taxable gains for stocks held directly and thereby increases the tax inefficiency of stocks, which can make it worth at least considering holding some stocks in a retirement account."

Reichenstein Gets the First & Last Word

This brief review of the asset location debate begins and ends with William Reichenstein. In February 2006, Reichenstein published a short monograph summarizing the asset location debate that was, in large measure, fueled by his 1996 article.¹¹ It reviewed the major arguments for owning equity in a taxable personal account:

- 1) Equities benefit from lower tax rates on dividends and capital gains;
- 2) Taxation can be avoided completely if the owner receives a step-up in basis upon death; and
- 3) Capital losses can offset gains and, to a limited extent, ordinary income.

However, the general rules of thumb must be qualified by considering the equity management style applied to the personal portfolio. For example, a day trader will tend to incur tax liabilities at the highest capital gains tax rates. An active investor (e.g., an actively managed

"the more passive the stock management strategy, the more favorable is the treatment from the Tax Code."

THE ASSET LOCATION DEBATE

“Ideal assets to hold in taxable accounts are those that are expected to generate substantial capital gains that will be passively managed for long horizons.”

mutual fund) will generally face a lower tax rate; while a passive investor (e.g., an index fund) will suffer an even lower rate. Thus, “the more passive the stock management strategy, the more favorable is the treatment from the Tax Code.” Reichenstein concluded: “Good assets to hold in retirement accounts include all fixed-income assets and income-producing real estate including real estate funds. Ideal assets to hold in taxable accounts are those that are expected to generate substantial capital gains that will be passively managed for long horizons. Good choices include most index funds, Exchange Traded Funds, tax-managed stock funds, and individual stocks that the investor would be willing to hold passively.”

Conclusions

Reflecting on the studies of the last decade, it appears that there is little academic justification for loading tax-favored accounts with equity. That said, TDAs can rationally own equity investments such as stocks and stock mutual funds under a variety of circumstances and motivations. For example, when the value of TDAs is large relative to total financial wealth, the investor may wish to trade maximum tax efficiency so as to achieve a desired asset allocation. For high tax bracket investors, some equity in TDAs may reduce the tax costs of rebalancing.

All else equal, however, the availability of tax-efficient equity investments, such as index funds, greatly decreases the advantage of holding equities in a TDA. Similarly, a tax-efficient equity alternative makes municipal bonds relatively less attractive. When equity positions can be shifted from TDAs to taxable accounts, and a corresponding shift can be made from personal ownership of municipal bonds to tax-deferred ownership of taxable bonds, the utility of the investor’s total wealth increases.

¹ Ghee, William & Reichenstein, William, “The After-Tax Returns from Different Savings Vehicles,” Financial Analysts Journal (July/August, 1996), pp. 62-72.

² Shoven, John & Sialm, Clemens, “Asset Location in Tax-Deferred and Conventional Savings Accounts,” National Bureau of Economic Research Working Paper 7192 (April, 2000).

³ Poterba, James M., “Taxation and Portfolio Structure: Issues and Implications,” National Bureau of Economic Research Working Paper 8223 (February, 2001).

⁴ Jacob, Nancy L., “Advanced Tax-Aware Asset Allocation and Location,” New York Society of Security Analysts conference (January, 2002).

⁵ Mulvihill, Don, “Asset Allocation and Location,” Modern Investment Management edited by Bob Litterman (2003), pp. 565-578.

⁶ Zaman, Ashraf, “Asset Location and Allocation with Multiple Risky Assets,” Working Paper, Krannert Graduate School of Management, Purdue University (March, 2004). For a review of academic research on portfolio rebalancing approaches, see the white paper on the topic of “Risk, Return and Rebalancing” on our website: www.schultzcollins.com.

⁷ For an extensive discussion of this ‘portfolio lock-up’ problem, see Investment Quarterly for Q1 of 2006 at www.schultzcollins.com.

⁸ Dammon, Robert M., Spatt, Chester S. & Zhang, Harold H., “Optimal Asset Location and Allocation with Taxable and Tax-Deferred Investing,” The Journal of Finance (June, 2004), pp. 999-1037.

⁹ Horan, Stephen, Tax-Advantaged Savings Accounts and Tax-Efficient Wealth Accumulation (The Research Foundation of CFA Institute), 2005.

¹⁰ Wilcox, Jarrod, Horvitz, Jeffrey & deBartolomeo, Dan, Investment Management for Taxable Private Investors (Research Foundation of CFA Institute) 2006.

¹¹ Reichenstein, William, “Trends and Issues: Tax-Efficient Saving and Investing” TIAA-CREF Institute, (2006).

SURVEY OF INDICES & FUND AVERAGES
PERIOD AND ANNUALIZED COMPOUND RETURNS IN PERCENT

	Second Quarter 2006	Total Return 12 Month	3 Years Ending 06/30/06	5 Years Ending 06/30/06	10 Years Ending 06/30/06
Inflation Index & Risk Free Rate					
Consumer Price Index	1.35	4.11	3.30	2.61	2.60
U.S. 3-Month Treasury Bills	1.24	4.34	2.55	2.25	3.76
U.S. Stock Market (Large Companies)					
Standard & Poor's (S & P) 500 Index	-1.44	8.63	11.22	2.49	8.32
S & P/Citigroup Large Cap Growth Index	-3.46	2.66	6.54	-1.76	6.64
S & P/Citigroup Large Cap Value Index	0.61	14.90	16.15	6.68	9.27
Average Large Cap Blend Fund ‡	-2.11	8.84	10.97	2.31	7.39
U.S. Stock Market (Small Companies)					
Russell 2000 Index	-5.03	14.58	18.70	8.50	9.05
Dimensional US Micro Cap Fund	-7.11	15.48	20.45	13.14	12.55
Russell 2000 Growth Index	-7.25	14.58	16.27	3.49	4.13
Russell 2000 Value Index	-2.70	14.61	21.01	13.09	13.26
Average Small Cap Blend Fund ‡	-4.42	14.12	19.04	9.84	11.06
Real Estate					
DJ Wilshire REIT Index	-1.20	22.06	27.69	20.17	16.15
Fixed Income (Bond) Markets					
Lehman Government Bond Index	0.02	-1.16	1.31	4.73	6.04
Average Intermediate Gov't Bond Fund ‡	-0.29	-0.98	1.27	3.85	5.17
Lehman Municipal Bond Index	0.03	0.89	3.24	5.05	5.79
Avg. California Intermed/Short Muni Bond ‡	0.02	0.52	1.81	3.49	4.36
Credit Suisse High Yield Bond Index	0.39	5.03	8.92	9.66	7.10
Average High Yield Bond Fund ‡	-0.11	4.76	7.83	7.44	5.25
Citigroup World Gov't Bond Index	3.17	-0.36	4.25	8.51	5.43
Average World Bond Fund ‡	1.59	0.42	4.07	7.36	5.70
International Stocks					
MSCI EAFE Foreign Stock Index	0.70	26.56	23.94	10.02	6.40
Average Foreign Large Blend Stock Fund ‡	-0.69	26.38	21.90	8.08	6.35
MSCI Europe Stock Index	2.54	24.75	23.40	10.45	10.09
MSCI Pacific Stock Index	-2.97	30.93	25.37	9.03	1.19
MSCI Emerging Mkt Index (excl. dividends)	-5.11	32.27	30.98	18.35	4.08
Average Emerging Markets Fund ‡	-4.97	34.14	32.73	20.17	7.28

‡ Source: Morningstar Principia 06/30/2006

WORLD MARKET SURVEY

(Continued from page 1)

year led to a 9.1% drop in the Nikkei Stock Index. US investors saw foreign stock returns cushioned by the declining dollar—although the MSCI EAFE Index dropped 5.2% in local currencies, the loss was a scant 0.3% in dollar terms. MSCI's Europe Index posted a 1.2% gain for US investors, while MSCI's basket of Pacific stocks dropped 3.2%. Despite a rally of more than 6% in the last week of the quarter, the MSCI Emerging Markets Index dropped 5.1% in dollar terms.

Bond Markets Volatile

Rising interest rates this past quarter led to losses in US bond markets. The yield curve remained flat to negative, indicating that investors believe higher short-term rates are unsustainable. At the close of the quarter, two year Treasury notes (5.158%) yielded slightly more than ten year notes (5.145%). Yields rose roughly 0.3% over the quarter. Of course, longer bonds experience larger losses as rates rise. Ten year Treasury notes dropped 1.1% in the second quarter, and are off 3.8% year-to-date, while total return from two year Treasuries was +0.5% for the quarter and +0.8% year-to-date. High quality corporate bonds, as measured by the Ryan Labs Index, did slightly better than ten year Treasuries, off 0.7% for the quarter and down 2.4% year-to-date. Three month Treasuries earned 1.2% for the quarter and 2.2% year-to-date.

Rising Rates Behind Decline?

Why do ephemeral changes in short-term rates have such a pronounced impact on stock markets? Analysts and economists posit numerous explanations—rising rates increase corporations' cost of capital, reducing growth; rising rates indicate that central banks have a heightened fear of inflation, hence will focus less on economic growth and more on monetary stability; rising rates induce consumers to save more, reducing demand for products and services. Each of these explanations is plausible, however, the primary factor may be simpler. Every day, functioning markets must "clear"—the demand to sell stocks must be balanced by a demand to buy stocks. With US short-term rates cresting past 5%, some potential stock investors are happy to earn risk-free money market rates. These "sidelined" investors reduce the aggregate demand for stocks, resulting in a downward price adjustment.

Individual Country Returns Second Quarter 2006

	U.S. Dollar	Local Currency
North America		
United States	-2.21%	-2.21%
Canada	0.30	-4.39
Latin America		
Brazil	-3.39	-3.67
Chile	-5.43	-2.81
Mexico	-5.09	-1.65
Venezuela	-5.32	-3.39
Africa		
South Africa	-16.97	-3.94
Europe		
Austria	-2.67	-7.89
Belgium	0.44	-4.94
Denmark	1.23	-4.24
Finland	-3.48	-8.65
France	0.69	-4.71
Germany	-1.86	-7.11
Ireland	-1.36	-6.64
Great Britain	4.00	-2.46
Italy	0.86	-4.55
Netherlands	-2.24	-7.47
Norway	-1.03	-6.16
Portugal	-2.31	-7.54
Spain	2.79	-2.72
Sweden	-2.80	-10.16
Switzerland	1.99	-4.40
Asia		
Australia	3.21	-0.94
Hong Kong	-0.39	-0.30
Indonesia	-3.21	-1.34
Japan	-5.30	-8.25
New Zealand	-7.35	-7.19
Philippines	-6.90	-3.32
Singapore	-1.94	-4.17
South Korea	-1.45	-3.78
Taiwan	1.80	1.55
Thailand	-5.19	-6.99

Source: Dow Jones Global Indexes

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