PARAMETRIC & TAX-EFFICIENT INVESTING

Parametric invested its first tax-efficient separate account in 1992. Since then, we have remained focused on improving tax efficiency, and have built a reputation for excellence in the field. We currently manage more than $20 billion in explicitly tax-managed strategies.

Parametric is a global asset management firm offering a broad range of strategies, each engineered to achieve the right blend of risk, cost and return. Our capabilities span U.S. and non-U.S. markets, as well as traditional and specialty asset classes.

Parametric is a majority owned affiliate of Eaton Vance Corp, one of the world’s most dynamic global asset management companies.

www.parametricportfolio.com
The “fiscal cliff” negotiations of late 2012 culminated in the biggest tax increase in more than 20 years. As a result, building wealth—real wealth after taxes and costs—is even harder. Taxpayers can take modest solace in the fact that the increases might have been greater. However, we suspect that this process is not complete. We foresee that the fiscal challenges facing the U.S. could translate into further tax hikes down the road.

For investors and their advisors, there is meaningful work to be done. Investment taxes can be managed, and a focus on after-tax returns can be central to a successful client-advisor relationship. There are numerous strategies for improving after-tax investment performance—time-tested strategies that are even more valuable today.

Not surprisingly, there is spin and misconception around the 2013 tax changes. One common myth is that only the highest-income Americans will feel the pain. The reality is that the tax increases have a much broader effect. And while the increase in capital gains tax rates—which is substantial—is central to the story, other major tax increases have garnered less attention.

In the following guide, we shed some light on these issues and provide strategies for surviving—and ideally thriving—in the new world of higher taxes. More specifically, we address these questions:

> What is the current tax environment for U.S. investors?
> What does this mean for the active versus passive equity decision?
> What is “active tax management” and why is it important?
> How does tax management fit into an overall equity portfolio?
> What strategies can Parametric offer investment advisors and their taxable clients?
We hope the guide deepens your understanding of tax-efficient investing. Our focus here is primarily on equities, since equities are the largest allocation in most portfolios and our research and experience are centered there.

Parametric has been a leader in tax-efficient investing for more than 20 years. To us, the trend is clear: Rates are going up for U.S. taxpayers and will likely continue to rise in the future. As a result, it is imperative that investors and their advisors focus on after-tax returns.

Sincerely,

David Stein, Ph.D.
Chief Investment Officer
Parametric
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THE CURRENT TAX ENVIRONMENT FOR INVESTORS
The combined effect of several tax increases (capital gains + health care + reinstated limitations) will increase the tax burden on investors by as much as 60%.

Most long-term investors will experience taxes as their largest cost. Techniques that can mitigate the drag of taxes on investment returns are extremely valuable.

On January 1, 2013—in rather dramatic fashion—Congress passed the American Taxpayer Relief Act (ATRA), which President Obama signed into law on January 2. This legislation makes permanent the Bush-era tax rates for most Americans and allows the top tax rates to rise for high-income earners. For example, for individuals making at least $400,000 ($450,000 for couples):

- The top marginal tax rate on income increases from 35% to 39.6%.
- The tax rate on dividends and long-term capital gains increases from 15% to 20%.

Even though the law narrowly avoided the fiscal cliff chaos that would have been caused by a tax-rate increase for all taxpayers, many investors will still feel the sting of higher tax rates.

THE HEALTH CARE SURTAX

New health care taxes also come into play in 2013. The Patient Protection and Affordable Care Act of 2010 created the Unearned Income Medicare Contribution (UIMC) tax. Under UIMC, individuals earning more than $200,000 ($250,000 for couples) must pay a 3.8% tax on net investment income. Figure 1 shows the highest marginal tax rates and how they differ from previous rates.
The health care tax has an additional wrinkle. The tax rate applies to the lesser of:

- Net investment income, or
- Modified adjusted gross income in excess of the threshold ($200,000 for individuals; $250,000 for couples).

Consequently, in some situations, the 3.8% tax rate might not apply to the total investment amount. The interactions between the ATRA law and the UIMC law are confusing, to say the least. While we might hope for a cleaner tax code, any fundamental tax reform that occurs in the future is likely to result in further tax increases due to the magnitude of our nation’s budget deficit and debt burden.

**The recent tax law changes also include a “stealth” tax increase in the form of limitations on exemptions and itemized deductions.**
REINSTATED LIMITATIONS

The recent tax law changes also include a “stealth” tax increase in the form of limitations on exemptions and itemized deductions. These provisions do not increase the nominal tax rate, but they do increase the effective marginal rate and the overall amount of taxes paid. The limitations are:

- The reinstated phase-out of personal exemptions for individual taxpayers with adjusted gross incomes of $250,000 to $375,000 ($300,000 to $425,000 for couples). The phase-out increases marginal tax rates on income in the affected range by approximately 1% for each personal exemption taken. Marginal tax rates on income above the affected range do not change.

- The reinstated limitation on itemized deductions for taxpayers with adjusted gross incomes above $250,000 ($300,000 for couples). This increases marginal tax rates on income above the baseline levels by 3% of the relevant tax rate. For example, the increase on a 33% marginal tax rate would be 1% and the increase on a 39.6% marginal tax rate would be 1.2%.

THE IMPORTANCE OF ACTIVE TAX MANAGEMENT

For many investors, the biggest issue in the new tax legislation is the dramatic increase in the taxation of long-term capital gains. The spike in rates from 15% to 23.8% means that many investors will pay almost 60% more of this tax relative to 2012 rates and rules. This can have a major impact on the long-term growth of an investment portfolio.

Consider the following strategies for a $100,000 portfolio earning a 6% annual return. The strategy that ignores taxes results in a substantially worse outcome than the one that is perfectly tax-efficient, as shown in Figure 2.

Fig 2:
THE BENEFIT OF ACTIVE TAX MANAGEMENT

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>CAPITAL GAINS TREATMENT</th>
<th>AFTER-TAX RETURN</th>
<th>PORTFOLIO VALUE IN 20 YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax oblivious: no consideration given to taxes</td>
<td>100% of the returns are subject to the short-term tax rate of 43.4%</td>
<td>3.40%</td>
<td>$200,000</td>
</tr>
<tr>
<td>Tax-aware management</td>
<td>100% of the returns are subject to the long-term tax rate of 23.8%</td>
<td>4.57%</td>
<td>$240,000</td>
</tr>
<tr>
<td>Perfectly tax-efficient management</td>
<td>All net gains are deferred or offset by realized losses (and there are no dividends)</td>
<td>6.00%</td>
<td>$320,000</td>
</tr>
</tbody>
</table>

For illustrative purposes only.

\[ 3\% \times 33\% = 1.0\%; 3\% \times 39.6\% = 1.2\% \]
The results of these scenarios are shown graphically in Figure 3. While this is admittedly a simplistic analysis, it demonstrates that taxes are important and worthy of careful consideration by investors and their advisors.

**A Note on Pre-Liquidation vs. Post-Liquidation Values**

Figures 2 and 3, as well as tables and commentary elsewhere in this primer, track the growth of an investment prior to liquidation. At the end of the period, all three scenario portfolios have unrealized capital gain positions. Fully liquidating the portfolio would result in paying capital gain taxes and would reduce, but not eliminate, the relative advantage of the Tax-Efficient and Tax-Aware portfolios. Many U.S. investors avoid full liquidation of portfolios due to cost basis “step-up” provisions at death and the giving of appreciated securities to tax-exempt charities. Parametric has explored the tax-impact of full or partial liquidation on terminal portfolio value and after-tax performance in several research pieces — originally by CIO David Stein in “Measuring and Evaluating Portfolio Performance After Taxes,” The Journal of Portfolio Management, Winter 1998, Vol. 24 No. 2.

Fig 3:

**AFTER-TAX GROWTH IN PORTFOLIO VALUE**

![Graph showing after-tax growth in portfolio value](source)

Source: Parametric. For illustrative purposes only.

**Resources and Additional Reading**

“State and Federal Individual Capital Gains Tax Rates: How High Could They Go?”

“Swerving from the cliff: tax provisions in the American Taxpayer Relief Act of 2012.”
IS YOUR ALPHA BIG ENOUGH TO COVER ITS TAXES?
IS YOUR ALPHA BIG ENOUGH TO COVER ITS TAXES?

KEY TAKEAWAYS

> Many investment managers overlook taxes in their pursuit of pre-tax excess returns. As a result, negative tax consequences frequently obliterate the alpha generated from a manager’s skill.

> Given the dramatic increase in capital gains tax rates, taxable investors should demand active tax management in their portfolios.

In the 1993 article, “Is Your Alpha Big Enough to Cover Its Taxes?” Jeffrey and Arnott observed that most of the energy devoted to improving portfolio efficiency was being directed at tax-exempt investors. The emphasis was squarely on pensions, foundations and endowments, even though most of the managed assets in the United States are taxable. This focus typically triggers avoidable taxes—a negative “tax alpha”—in the quest for often illusory gains—the “pre-tax alpha.”

Twenty years later, despite significant advancements in both the theory and practice of tax management, little has changed. Most investment managers run their businesses focused exclusively on their pre-tax performance relative to a benchmark and remain reluctant to report after-tax performance.

It is ironic that portfolio turnover—the very activity designed to enhance returns—is the primary cause of tax drag. The portfolio manager sells one asset, potentially incurring a tax obligation, and buys another asset based on the belief that the trade will benefit the investor. In many cases, however, the resulting tax turns out to be larger than the unknowable return potential of the trade.

When evaluating managers, it would be absurd to consider a pre-cost performance record without accounting for the transaction costs and fees required to achieve it. But this happens all too frequently with regard to the effect of taxes—maybe because the investor’s tax liability is calculated independently from the manager and likely paid later from another account.
A HIGH HURDLE

In light of the recent tax increases, it makes sense to revisit the question of whether the typical active manager’s alpha is large enough to cover its taxes. We ignore dividends in our analysis for simplicity.

Assuming that the price-only return of a portfolio grows at 6% per year, then $100,000 will compound to approximately $320,000 after 20 years. However, as shown in Figure 4, if we assume there is 25% turnover within the portfolio, taxed at a 43.4% rate, the portfolio will grow to just over $217,000. This example effectively demonstrates the relationship between turnover, taxes and compounded growth.

Fig 4: EXAMPLE CALCULATION OF AFTER-TAX GROWTH* in thousands of dollars

<table>
<thead>
<tr>
<th>YEAR</th>
<th>1ST</th>
<th>2ND</th>
<th>...</th>
<th>20TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning market value</td>
<td>100.00</td>
<td>105.35</td>
<td>209.86</td>
<td></td>
</tr>
<tr>
<td>Ending market value pretax</td>
<td>106.00</td>
<td>111.67</td>
<td>222.46</td>
<td></td>
</tr>
<tr>
<td>Beginning cost basis</td>
<td>100.00</td>
<td>100.85</td>
<td>177.00</td>
<td></td>
</tr>
<tr>
<td>Realized gain</td>
<td>1.50</td>
<td>2.71</td>
<td>11.36</td>
<td></td>
</tr>
<tr>
<td>Capital gain tax</td>
<td>0.65</td>
<td>1.17</td>
<td>4.93</td>
<td></td>
</tr>
<tr>
<td>After-tax proceeds reinvested</td>
<td>0.85</td>
<td>1.53</td>
<td>6.43</td>
<td></td>
</tr>
<tr>
<td>Ending cost basis</td>
<td>100.85</td>
<td>102.38</td>
<td>183.43</td>
<td></td>
</tr>
<tr>
<td>Ending market value</td>
<td>105.35</td>
<td>110.50</td>
<td>217.52</td>
<td></td>
</tr>
</tbody>
</table>

*Assumes 6% growth of principal per year, 43.4% capital gains tax and 25% turnover.

For illustrative purposes only.

Figure 5 shows the alpha required to break even, after tax, using different assumptions for turnover and market growth. For example, holding turnover constant at 25%, the pre-tax growth of the portfolio must increase from 6% to 8.91% to generate after-tax ending wealth of $320,000. In other words, an annual alpha of 2.91% (in bold in the table) is required to cover the tax bill.
Given the large alpha hurdles for taxable investors, and the considerable erosion of wealth if that alpha doesn’t materialize, a low-turnover strategy starts to look quite attractive relative to the uncertain performance offered by strategies with substantial turnover.

Several academic studies found that taxes have a significant negative impact on returns averaging 1% to 3% per year for the typical active manager. With the recent tax increases, we estimate that an active manager would have to generate approximately 2% to 4% additional return per year to compensate for the drag from taxes. The tax costs are mainly due to frequent trading and the resulting short-term capital gains taxes. All too often, the negative tax impact exceeds the value added by the manager’s skill. Most managers’ alpha simply does not cover their clients’ tax bills, which likely explains the industry’s overall reluctance to draw attention to after-tax returns.

The investment management industry is far too willing to incur a large negative tax alpha for their taxable clients while pursuing pre-tax alpha. The result is that most investment products offer a combined alpha that is negative: pre-tax alpha, whether good or bad, less a relentlessly negative tax alpha.

The good news is that the problem is fixable—managers need only pay adequate attention to the tax consequences of their actions. Done correctly, a manager can capture the alpha of a sound investment process with a minimum of tax consequences. It’s a lot of mechanistic and tedious work for the manager, but the rewards for the taxable client are well worth the effort.

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**Fig 5:** ADDITIONAL ANNUAL PRE-TAX GROWTH REQUIRED TO OFFSET TAXES

<table>
<thead>
<tr>
<th>MARKET GROWTH %</th>
<th>4</th>
<th>6</th>
<th>8</th>
<th>10</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover 5%</td>
<td>0.65</td>
<td>0.89</td>
<td>1.09</td>
<td>1.26</td>
<td>1.40</td>
</tr>
<tr>
<td>10%</td>
<td>1.16</td>
<td>1.60</td>
<td>1.97</td>
<td>2.29</td>
<td>2.58</td>
</tr>
<tr>
<td>25%</td>
<td>2.05</td>
<td><strong>2.91</strong></td>
<td>3.69</td>
<td>4.40</td>
<td>5.04</td>
</tr>
<tr>
<td>50%</td>
<td>2.65</td>
<td>3.88</td>
<td>5.05</td>
<td>6.17</td>
<td>7.25</td>
</tr>
<tr>
<td>75%</td>
<td>2.92</td>
<td>4.34</td>
<td>5.73</td>
<td>7.09</td>
<td>8.45</td>
</tr>
<tr>
<td>100%</td>
<td>3.07</td>
<td>4.60</td>
<td>6.14</td>
<td>7.67</td>
<td>9.20</td>
</tr>
</tbody>
</table>


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2 See Arnott, Berkin and Ye (2000); Longmeier and Wotherspoon (2006); and Arnott, Berkin and Bouchey (2011).
Resources and Additional Reading


THE THEORY OF ACTIVE TAX MANAGEMENT
KEY TAKEAWAYS

> There are six basic techniques for increasing a portfolio’s tax efficiency, including deferring gains and realizing losses.

> A separate account offers the most options for implementing tax-efficient investment strategies because of the flexibility it offers.

> Based on theoretical results from academic research, thoughtful tax management can boost after-tax returns by 1% to 3%—results borne out by actual client experience. This positive tax alpha is likely to increase in the future given the new, higher tax rates.

Active tax management involves more than just letting gains run and cutting losses. It requires paying close attention to the trade-off among risk, return and taxes whenever an investment decision is made and whenever assets go through a transition. Decisions that have a taxable component include selling an investment, changing benchmarks, changing managers, making contributions and withdrawals, giving to charity and rebalancing the asset allocation.
TOOLS OF THE TRADE

Investment managers have six basic techniques they can use to build a comprehensive tax-management strategy and increase the tax efficiency of a portfolio:

• **Defer the Realization of Gains.** A manager has to sell an asset to incur a capital gain tax obligation. If the asset is held, the tax liability is deferred, which is mathematically identical to receiving a zero-interest loan of that amount from the government. An increase in the value of the investment increases the future tax liability, but the payment of that liability can, in some instances, be deferred indefinitely, allowing that money to compound over time. For some investors, the cost basis of assets in an estate is reset at the taxpayer's death. As such, the "loan" never needs to be repaid. This is the bread and butter of tax management.

• **Manage the Holding Period.** Capital gains from the sale of a security are taxed as ordinary income, unless the investment is held for longer than 12 months, in which case, it qualifies for a lower tax rate.

• **Harvest Losses.** Selling a security whose price has fallen below its purchase price (the market value is below the cost basis) results in a realized capital loss. These losses may be used to offset realized capital gains. This offset can be used in the current year or can be carried forward into future years. While many investors only harvest losses in December, this activity is far more valuable if it is done throughout the year within an overall portfolio management process.

• **Consider the Yield.** Dividends are also taxed as ordinary income, but most can qualify for a lower tax rate if the security is held for longer than 61 days. Tilting away from dividend-paying stocks toward capital appreciation can also increase tax deferral and reduce the tax bill. But be wary of the allure of low yields: low payout ratios are no assurance of faster earnings growth.

• **Pay Attention to Tax Lots.** Managers who pay attention to taxes will generally use "highest in, first out" (HIFO) tax-lot accounting whenever a security is sold to reduce the tax impact of the sale and improve after-tax returns. In some cases, however, HIFO may not be the desired method. For example, an investor with a tax-loss carry forward may find it beneficial to accelerate gains. Investors who need to generate cash flow from their investments or have charitable giving plans will benefit from a manager who pays attention to identifying the best tax lots for each event.

• **Avoid Wash Sales.** When a security is repurchased within 30 days of its sale, any loss realized cannot be used to shelter gains. Tracking wash sales is particularly challenging when an investor uses multiple managers. For example, the tax loss generated by manager "A" will be voided if manager "B" buys the same security within 30 days.

All managers who invest on behalf of taxable investors should employ the basics of tax management. However, these techniques are often ignored or implemented only as an afterthought.
INVESTMENT VEHICLES

Tax-management techniques must be applied in context. The vehicle used to implement an investment strategy has important consequences for a taxable investor. Below are some common ways investors access the market:

• **Mutual Funds.** Interest, dividends and realized capital gains of a portfolio are distributed pro-rata to mutual fund holders each year via the IRS 1099 form. Mutual fund managers can actively harvest losses, but those losses may only be used or carried forward within the fund—they may not be distributed to individual mutual fund holders. Some mutual funds are explicitly tax managed. However, for the majority of funds, tax management is a secondary consideration at best.

• **Exchange-Traded Funds.** ETFs are distinct from traditional mutual funds primarily due to the fact that they trade intra-day on an exchange. ETF managers can also employ tax-management techniques to avoid capital gains from being distributed to investors. ETFs are open funds that allow new investment dollars to flow into the fund or be redeemed from the fund. The fund manager may identify specific tax lots to be used in the redemption process. By choosing to deliver low-basis tax lots for delivery, the manager can improve tax efficiency.

• **Hedge Funds.** Hedge funds typically use a partnership structure, in which the investment manager is the general partner and the investors are limited partners. Gains and losses incurred within the portfolio flow through to the limited partners via the IRS Schedule K-1. Typically, hedge funds are tax-inefficient due to high levels of “bad turnover” (defined below). Investors who evaluate hedge funds tend to be more focused on ‘pure’ performance and less focused on the frictions caused by high fees and high taxes.

• **Separate Accounts.** The key advantage of a separate account owned by a single taxpayer is that it offers the most flexibility. Realized losses can be used to offset other gains (or from the sale of property, etc.). If the taxpayer has other goals or priorities—such as the desire to match gains and losses, to accelerate the realization of gains, to transition assets to another strategy or to give specific tax lots to charity—he or she has the flexibility to do that. In this way, the separate account is the most potentially tax-efficient investment vehicle.
MEASURING TAX EFFICIENCY

The terms “tax efficient,” “tax managed” and “tax aware” can mean different things depending on the context. Sometimes a strategy with low-to-moderate turnover is called “tax aware” even though there are no specific tax-management techniques used by the manager other than a tendency to hold stocks for a long time. The ability to measure the impact of taxes objectively is the first step in creating a more tax-efficient investment strategy. Some frequently used measures of tax efficiency are:

- **Turnover.** Many advisors use turnover as a proxy for tax efficiency, believing that the higher the turnover, the less tax-efficient the portfolio. This view ignores the fact that there is “bad turnover” and “good turnover.” From a tax perspective, bad turnover includes selling positions that trigger capital gains tax, especially at the higher short-term rate. Good turnover pays attention to the holding period (such as deferring gains to the longer-term rate) and includes realizing capital losses.

- **Unrealized Capital Gains / Loss Carry Forwards.** Funds and other pooled investment vehicles disclose the amount of unrealized capital gains that are embedded in the current portfolio, as well as the amount of realized losses that are available to be carried forward. These measures can give an incoming investor an idea of the potential future tax liabilities. A large unrealized gain means lower after-tax returns in the future, while a large loss carry forward implies that few gains will be distributed in the coming years.

- **After-Tax Return (Pre-Liquidation).** In 2002, the SEC adopted a rule that requires mutual funds to report both before- and after-tax returns. As part of the rule, the SEC defined two different measures of after-tax return: “pre-liquidation” and “post-liquidation.” The post-liquidation return is what an investor would earn if he or she were to liquidate the portfolio and realize all of the tax liabilities. The pre-liquidation return only reflects the tax effects of fund distributions, such as dividends and capital gains. It is thus a better measure of tax-efficiency for long-term investors.

- **Tax-Efficiency Ratio.** The tax-efficiency ratio, employed by Morningstar and others, shows how much investment return the investor can keep after paying taxes. The ratio is simply after-tax return divided by pretax return. For example, an investor who buys a fund with a tax-efficiency ratio of .80 keeps 80% of the annual return and gives up 20% to taxes.

- **Tax Alpha.** Attributing after-tax performance to the tax-management skill of a manager requires an after-tax benchmark. However, few managers report their returns relative to an after-tax benchmark. The metric “tax alpha” introduced in 1998 by David Stein, Parametric’s Chief Investment Officer, uses pre-liquidation returns to isolate the value added from tax management. Tax alpha is defined as:

\[
\text{Tax Alpha} = \text{After-Tax Excess Return} - \text{Pretax Excess Return}
\]
A FOCUS ON STRATEGY, NOT TACTICS

For taxable investors, tactical shifts in the portfolio come at a high cost. There is no question that dramatic market movements create a strong temptation to react. However, a portfolio should be designed to withstand the inevitable tempests that come whenever emotions or the need for liquidity are at their height.

It is important to remember that the investment industry and some of its constituents were built on active portfolio trading. Brokers generally have little incentive to recommend that an investor sit back and do nothing. In addition, some of the media has turned investing into a sport, urging action and reaction at every turn. Unfortunately, trading—if done without regard for tax consequences—can create significant tax liabilities. Therefore, a focus on the strategic, not tactical, structure of the portfolio should be the primary consideration for the taxable investor.

EVOLUTION OF TAX-EFFICIENT PORTFOLIO STRUCTURE

The optimal strategic structure for tax-efficient portfolios has evolved over time, as shown in Figure 6. The first phase was moving from a style box to a passive core-and-satellite approach. Style box investing was created for institutional investors to ensure they remained fully allocated. However, it turned out to be a very poor strategy for taxable investors given the tax consequences of transitioning assets between style boxes. Taxable investors embraced the core-and-satellite framework for its tax efficiency, as well as the added benefits of better risk control and a lower portfolio cost structure.

The next phase in the evolution—Tax-Managed Core—is to manage the core portfolio in a separate account so that gains realized by satellites can be offset by losses realized from the core. Our research shows that most or all of the performance drag from taxes can be mitigated by allocating 60% to 80% of an investor’s portfolio to a passive, Tax-Managed Core separate account.

“A focus on the strategic, not tactical, structure of the portfolio should be the primary consideration for the investor.”
Centralized portfolio management (CPM) is the final phase. This strategy brings the active managers into the tax-management fold and can be applied to a style box structure or include a passive core. Typically, the CPM also manages the passive core portfolio.

Beyond the six tax-management techniques described earlier, a centralized portfolio manager can also coordinate buys and sells across multiple active managers, implement manager and asset allocation changes and apply rebalancing policies to the overall portfolio—all in a tax-efficient manner.

**THE VALUE OF ACTIVE TAX MANAGEMENT**

A number of academic studies examine the benefits of actively “harvesting” losses in a portfolio and show that the cumulative tax benefit continues to rise over time. While the amount harvested is largest in the early years, when market values are close to cost basis, the benefits continue to accrue due to compound growth of the tax savings. As discussed above, loss harvesting is only one aspect of active tax management. However, it is the aspect that is the easiest to quantify, and has received most of the attention from the academic community.

Figure 7 shows the theoretical tax alpha generated from loss harvesting over a 10-year horizon, assuming a 6% annual market return, 15% market volatility, 35% stock volatility and the current highest marginal tax rates of 43.4% and 23.8%.

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3 See Stein and Narasimhan (1999); Amott, Berkin and Ye (2001); Berkin and Ye (2003); Horvitz and Wilcox (2003); Rogers (2006); and Stein, Vadlamudi, and Bouchey (2008).
This simulation assumes that losses realized in the core portfolio can be fully utilized by the taxpayer in the same year the loss was realized. (Fortunately, unused losses can be carried forward to future years.) Some investors will eventually liquidate and pay the taxes, thus reducing their tax alpha. Others will either give low-basis securities to charity or get a step up in basis at their death, never having the appreciation taxed.

The most important variable in managing a tax-efficient core portfolio is the level of benchmark-relative risk that a manager must create when harvesting losses, deferring gains, or other tax-related activities. Most taxable investors are willing to accept some variability of returns relative to the benchmark to capture the tax benefit. Tax alpha increases in lower-return markets, higher-volatility markets and higher-tax-rate environments.

*Using the methodology developed in Stein, Bouchey and Vadlamudi (2008).

Source: Parametric. For illustrative purposes only.
REAL IMPROVEMENT

Our simulation and the theoretical results from the academic literature tell us that careful tax management can improve after-tax returns by 1% to 3%, on average, with much of the benefit coming in early years. In practice, Parametric has found these estimates to be close to our own experience across many individual client accounts. The average tax alpha across our Tax-Managed Core accounts has been approximately 1.7% per year over the last 13 years. For CPM accounts, Stein and McIntire (2003) predicted 0.6% per year of tax alpha. In practice, Parametric has garnered 1.1% per year over the last ten years across hundreds of accounts in our CPM composite.

All else being equal, with higher tax rates going forward, we expect the after-tax return experience to be higher than it has been in the past.

Resources and Additional Reading


THE PRACTICE
OF ACTIVE
TAX MANAGEMENT
AT PARAMETRIC
04/
THE PRACTICE OF ACTIVE TAX MANAGEMENT AT PARAMETRIC

KEY TAKEAWAYS

> Because of the complexities of implementing tax-management techniques, a mathematical algorithm is used to identify the optimal portfolio trades.

> Parametric’s composite of tax-managed accounts benchmarked to the S&P 500® Index delivered an average tax alpha of approximately 1.7% from 2000 through 2012.

> Tax alpha tends to be greater in bear markets, in markets with positive momentum and when cross-sectional volatility is high.

> Active tax management can mitigate the potentially negative consequences of special situations, such as transitioning a portfolio from one manager to another.

Managing a taxable portfolio is a complex process that involves paying attention to taxes at the asset class, portfolio and security levels. In this section, we discuss the security-level process for a passive core portfolio. The theory is actually quite straightforward: avoid selling stocks at a gain and sell stocks that are at a loss. In practice, however, there are a number of complications.

The primary complication is the wash-sale rule, which negates the tax value of a realized loss if the stock is purchased within 31 days before or after the sale. There are several strategies that allow a portfolio to be managed tax efficiently, while still complying with the wash-sale rule. The simplest is to just hold cash for 31 days and then buy back the same security. Many investors engage in this type of transaction each December, which some have theorized is the cause of the turn-of-the-year return anomaly observed in the markets. The problem with this approach is that it leads to large performance differences between the portfolio and the benchmark index.

Instead of holding cash, replacement stocks can be used. Sell one soft drink company to harvest a loss and then buy a competitor soft drink company to maintain a similar exposure in the portfolio. It is difficult to find pairs for all stocks, but if we use a risk model as a framework for classifying stocks and estimating their return behavior, the problem becomes tractable.
THE DECISION MODEL

A typical risk model will have more than 50 variables to consider. So finding the correct trades that will balance the portfolio versus the index and harvest losses requires a mathematical algorithm. This algorithm takes both the market environment and the investor's individual situation into account.

As an example, the algorithm might be structured to find optimal trades that:

- Maximize realized losses
- Minimize realized gains
- Minimize tracking error risk (estimated using a risk model)
- Minimize trading costs
- Satisfy all constraints, such as:
  - Bounds on industry, sector, country weights
  - Corporate action restrictions
  - Wash-sale restrictions
  - Bounds on stock weights
  - Turnover limits
  - Client restrictions
  - Cash limits

Portfolio managers run the algorithm, adjust parameters to test variations and finalize the trades. The conceptual framework is shown in Figure 8.

Fig 8: CONCEPTUAL FRAMEWORK FOR TRADE IDENTIFICATION

[Diagram showing the conceptual framework]

Source: Parametric
AN EXAMPLE

Consider a trade executed in a two million dollar, tax-efficient, core equity separate account. Eighty tax lots were sold to harvest losses, and 60 securities were bought to control risk, resulting in a one-way turnover of 10%. Figure 9 shows the tax and risk results from the trade, which were generated by portfolio managers using the decision model, or solver.

Fig 9:
EXAMPLE OF A LOSS-HARVESTING TRADE

<table>
<thead>
<tr>
<th></th>
<th>INITIAL UNREALIZED**</th>
<th>FINAL UNREALIZED**</th>
<th>REALIZED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Gains</td>
<td>$120,000</td>
<td>$120,000</td>
<td>$0</td>
</tr>
<tr>
<td>Long Gains</td>
<td>$245,000</td>
<td>$242,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>Short Losses</td>
<td>($48,000)</td>
<td>($6,000)</td>
<td>($42,000)</td>
</tr>
<tr>
<td>Long Losses</td>
<td>$0</td>
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<td>$0</td>
</tr>
<tr>
<td>Net Gain (Loss)</td>
<td></td>
<td></td>
<td>($39,000)</td>
</tr>
<tr>
<td>Tax Benefit*</td>
<td></td>
<td></td>
<td>$17,514</td>
</tr>
</tbody>
</table>

*Assumes highest federal marginal tax rates of 43.4% and 23.8%.

**“Initial Unrealized” refers to the gains and losses embedded in the portfolio before the trade was made. “Final Unrealized” refers to the embedded gains and losses following the trade. The difference represents the tax consequences of the trade.

Source: Parametric. For illustrative purposes only.

In addition to the tax benefit of $17,514, the trade also produced the following risk benefits:

• Cash was reduced from 1.5% to 0.8%
• Predicted tracking error was reduced from 1.2% to 0.98%
• Financials underweight was reduced from 0.4% to 0.2%
• Value factor overweight was reduced from 3.1% to 2.0%
• All other industry, sector, country, currency, fundamental factor constraints and client restrictions were satisfied

At the end of the year, the investor will be able to offset $39,000 in gains realized elsewhere with the losses realized by this trade in the core portfolio. This is equivalent to capturing 0.88% of tax alpha while, at the same time, tightening up benchmark-relative risk. This particular trade was quite valuable. However, over a long horizon, what value has been generated through these techniques? To get the full benefit implied by the simulation, loss harvesting needs to be a practice throughout the year, not just as housekeeping in December.
LONG-TERM RESULTS

Figure 10 shows the tax alpha and pre-tax excess returns for Parametric's composite of Tax-Managed Core equity accounts benchmarked to the S&P 500 Index. The composite includes all accounts that were funded in cash in 1999 and had no investment restrictions. We call this a “vintage” composite because it tracks a group of portfolios with substantially similar start dates and lifecycles. This methodology avoids a problem inherent in traditional after-tax composites—namely that they tend to overstate the benefits of tax management because the cost basis is continually refreshed from the addition of new portfolios. In our vintage composite, the portfolios tracked the Index closely, with an average excess return of 0.2% per year. The average tax alpha over this 13-year period was 1.7% per year.

Bear markets clearly enhance tax alpha: 2000 to 2002 and 2008 to 2009 were periods of negative market returns for the S&P 500 Index and large tax alphas. Cross-sectional volatility is another factor that drives tax alpha. The middle part of the chart, 2004 to 2006, was a period of positive returns and distinctly low volatility with less opportunity for realizing losses.

It is also interesting to look at the pattern of pre-tax excess returns. To realize the tax benefit mentioned in the above loss-harvesting example, the portfolio manager must step away from the index by selling stocks that have gone down and holding onto stocks that have gone up. This can create a momentum bias in the portfolio that must be carefully controlled.

For example, in the first part of 2008, many stocks were trading below 2007 highs
including banking and financial stocks. These were likely candidates for loss harvesting and would have been sold out of the portfolio or held at a below-benchmark weight. While the overall weight of financials and banking stocks was controlled, individual stocks like these were underweight. Many stocks did even worse in the last half of 2008, and their relative underweight in the portfolio generated as much as 1% in excess return, on average, across the composite. In momentum markets, when winners keep winning or losers keep losing, a tax-managed portfolio will tend to outperform.

In rapid reversal markets, like in 2001 and 2003, where stocks that were loss harvested bounce back suddenly, the strategy lags. Over the course of a full market cycle, this effect tends to cancel out.

We also observe that the tax alpha was strong in the early years, then declined in 2004. This is predicted by our theoretical simulation of tax alpha over time. In the simulation, we assume a steady growing market environment and volatile underlying stock returns. However, the 2008 market crash showed that tax alpha does not always decrease over time.

**SPECIAL SITUATIONS**

There are several practical issues that arise for investment managers once they start paying attention to the impact of taxes. They include portfolio transitions, gifts of low-basis securities to charity, and concentrated, low-basis positions.

**Portfolio Transitions**

Any time assets are moved between asset classes, managers or accounts, there is the potential for the realization of gains. Typically, switching between investment strategies involves liquidating securities and sending cash to the new manager. Parametric takes a different tact by following this procedure:

1. The advisor reports the tax lots of the current holdings to Parametric.
2. Parametric analyzes which securities should be sold and which should be retained.
3. The advisor and client work together to choose an appropriate level of tax cost and benchmark-relative risk.
4. The retained securities are transferred in kind to the new account.
5. Parametric optimizes the portfolio to minimize tax cost and tracking error.

Take an account that was funded with a portfolio of 58 stocks that transferred into the account in kind. This portfolio had an estimated tracking error of 3% versus the S&P 500 Index. Liquidating all of the holdings would have resulted in realized gains equal to about a third of the portfolio and a tax liability equal to 7.4% of the portfolio. However, careful transitioning to a portfolio with close tracking to the index (less than 1%) incurred a tax liability of only about 2.7% of the portfolio. Figure 11 illustrates the relationship between tracking error and tax cost for this transition.
If the client had been willing to accept a higher tracking error of 2%, then tax cost would have only been 0.3% of the portfolio. In this case, we would have managed the portfolio with the objective of matching gains and losses until tracking error fell to 1%. Once the portfolio reached this level of risk, we would then switch the objective to generate the maximum net losses.

**Gifts of Low-Basis Securities to Charity**

In typical markets, an equity portfolio appreciates significantly over time. At some point, the investor will sell the shares and realize the capital gain, give the shares to charity or potentially be eligible for a step up in cost basis at the time of death. Often in the course of managing a tax-efficient core portfolio, we are asked to identify tax lots for the client in order to satisfy a charitable donation. Transitioning the shares directly to the charity and allowing the charity to sell the position avoids the realization of capital gains tax.

As with loss harvesting, it is important to ensure that the benchmark-relative risk of the portfolio does not become too high, and that a balance between risk and tax management is maintained when addressing this need.

**Concentrated, Low-Basis Positions**

Another special case in portfolio construction is when an investor has a significant portion of his or her portfolio concentrated in a single security, often at a very low cost basis. If significant wealth has been created by a concentrated position, the stock price has likely appreciated exponentially. How long can the trend continue, and how much downside risk is embedded in the current price?

The simplest approach to dealing with concentration risk is to sell the stock, pay the taxes and invest in a broadly diversified portfolio of stocks, bonds and other assets. A more nuanced approach is to stage the diversification over several tax years, add the proceeds to a tax-efficient core to help realize losses and thus mitigate some of the tax pain of the transition. Covered call writing and other strategies can also be employed to manage a concentrated position.
WHY PARAMETRIC TAX-MANAGED CORE?
WHY PARAMETRIC TAX-MANAGED CORE?

KEY TAKEAWAYS

> Tax-Managed Core is a proven strategy focused on delivering compelling after-tax performance.

> TMC capitalizes on Parametric's experience having managed tax-efficient portfolios since 1992.

> A high level of customization defines our approach. Each TMC portfolio is tailored to the individual circumstances and goals of the client.

Parametric’s Tax-Managed Core (TMC) solution strives to provide “better beta” regardless of whether the investor is using a passive capitalization-weighted index, an alternative equity index or an actively-managed portfolio. Better beta for a tax-paying investor means delivering predictable pre-tax returns, superior after-tax returns and customization benefits of many types. The combination of active tax management and flexible per-client customization is, for many affluent investors, an extremely compelling alternative to mutual funds or ETFs.

Working with our clients to create a customized solution is often the genesis of a new type of product offering. This was the case with our first TMC portfolio in 1992, when a family office inquired about actively managing the taxes incurred by custom growth and value index portfolios.
CUSTOMIZING TAX MANAGEMENT

Transition Tax Management – Custom Analysis

Building an index-based separate account from cash is a straightforward task. However, for investors funding the portfolio with existing securities, it is essential to understand current gain or loss status and short-term versus long-term holding periods for each security. Unlike mutual funds or ETFs, which force investors to raise cash to invest, a TMC portfolio can selectively use existing securities and raise cash tax-efficiently to reduce the impact of taxes at portfolio inception. A Parametric custom transition analysis can illustrate potential savings and trade-offs.

Transition Tax Management – Gain Budgeting and Staged Diversification

TMC investors sometimes prefer a transition analysis with a desire to limit the initial tax bill. In these cases, we can establish a gain budget (maximum gain realized per period), set up a multi-year plan for diversification, or both. A multi-year approach has the potential benefit of allowing loss harvesting to occur to offset some or all of subsequent gain realization. We have many clients who have fully transitioned fairly concentrated, low-basis portfolios with this type of approach. Transition analyses can be performed and evaluated by advisors before any contract is signed, relationship is formed or fees are incurred.

Ongoing Tax Management – Strategic Gain Realization

Given the U.S. government’s debt problems, we see the potential for further tax increases. When rising tax rates are on the horizon, it may make sense to accelerate the realization of select long-term gains to take advantage of current tax rates, reset the basis and holding period of a portfolio, and create greater potential for future short-term losses. Parametric can help describe and analyze the key variables, which include future tax rates, short-term versus long-term rate differences, time horizon and gain or loss realization outside the portfolio.

CUSTOMIZING THE INVESTMENT TARGET

Socially Responsible Investing (SRI) / Environmental, Social and Corporate Governance (ESG)

Incorporating client values and related preferences has been part of the TMC process since we started managing our first TMC portfolio. Parametric offers a number of ways to achieve this goal beyond the basic case of targeting an SRI or ESG index. We frequently work with clients and their advisors to apply custom social screens or focus on best-in-class companies.
**Custom Fundamental Exposures**

Sometimes advisors have strategic views they would like incorporated in clients’ core portfolios—tilts to value, growth, large cap, small cap and low volatility, among other factors. In the current low interest rate environment, increasing portfolio yield is a frequent Parametric project.

**Custom Target Benchmarks**

Sometimes there isn't a publicly available index target with the desired characteristics. In these instances, Parametric offers a variety of custom benchmarks:

- **Custom Combination Benchmarks.** Our proprietary portfolio management systems allow us to combine different indexes to create unique combinations. This often means blending U.S. and non-U.S. target indexes to create desired global beta exposure or blending style target indexes to emphasize growth, value or a capitalization segment.

- **Custom Exclusionary Benchmarks.** Parametric frequently responds to requests to exclude securities or industries from a target index. In many cases, the goal is to increase diversification relative to other holdings or express a performance or valuation view. When exclusions are a large portion of the target index, Parametric can provide information on the diversification and tracking error trade-offs. Performance measurement can also be customized to measure target performance with and without exclusions.

- **Custom Constructed Indexes.** Many of the advisors we work with are among the sharpest and most creative in the industry. It is exciting for us to be involved in building portfolios aimed in new directions. Recently, this meant developing a Master Limited Partnership (MLP) target index and a portfolio with limited Schedule K-1 issuance.

**CUSTOMIZING FOR OUTSIDE CONSTRAINTS**

**Estate Planning Vehicles and Alternative Minimum Tax (AMT)**

When clients’ tax situations change, we work with advisors and adapt accordingly. Estate planning vehicles have unique tax treatments from one year to the next, and clients sometimes move in and out of AMT status. Wherever practical, we coordinate with advisors to integrate new or anticipated rates and any unique, trust-related, taxable items.

**Option Writing**

Through our affiliate, Parametric Risk Advisors, we can alter, and potentially enhance, risk control and return patterns through option writing strategies. Our Index DeltaShift™ covered call or buy-write strategy can be managed in conjunction with a Tax-Managed Core portfolio to help to increase current cash flow and offer downside protection.
In one form or another, Parametric customizes every Tax-Managed Core portfolio we manage. Since investors can create standard equity index exposure inexpensively and conveniently via mutual funds and ETFs, our value proposition is centered on customization. In the base case, we build a portfolio from cash, target a standard benchmark and customize the construction as well as gain/loss recognition for each client. However, for the majority of our TMC clients, we extend our activities to one or more custom analyses or implementations.

Parametric’s credentials in the field of tax-efficient investing are unsurpassed. In terms of seminal research, years of practical experience, numbers of portfolios and breadth of custom implementations, Parametric is the market leader, advancing the art more than any other provider. We welcome an opportunity to discuss how our solutions may be a fit for your clients or your portfolio.

“Our value proposition is centered on customization.”
CONTRIBUTING AUTHORS

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Mr. Stein leads Parametric’s Investment, Research and Technology activities. David’s experience in the investment industry dates back to 1987. Prior to joining Parametric in 1996, he held senior research, development and portfolio management positions at GTE Investment Management Corp., The Vanguard Group and IBM Retirement Funds. He has additional experience as a Research Scientist with IBM Research Laboratories where he designed computer hardware and software systems. He has served on the After-Tax Subcommittee of the AIMR-PPS standards committee and on the advisory board of The Journal of Wealth Management. David holds a number of patents and is published in multiple academic journals, including Mathematics of Operations Research, The Journal of Wealth Management and The Journal of Portfolio Management. He earned B.S. and M.S. degrees from the University of Witwatersrand, South Africa. He earned a Ph.D. in Applied Mathematics from Harvard University.

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Mr. Bouchey leads the Research team at Parametric. He is responsible for setting the overall research agenda and new product development. Prior to joining Parametric in 2006, Paul was a quantitative analyst at Russell Investment Group, where he focused on simulation, optimization and quantitative decision models for institutional and private clients. He holds a patent on cross-sectional volatility indexing and has authored more than 10 academic and practitioner articles in journals such as The Journal of Wealth Management, Investments and Wealth Monitor and The Journal of Index Investing. Paul graduated with a B.A. in Mathematics and Physics from Whitman College and earned an M.S. in Computational Finance and Risk Management from the University of Washington.
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Mr. Nemtchinov’s primary responsibilities are the management and implementation of Parametric’s product development research. Within his broader responsibilities, Vassilii maintains particular focus on Parametric’s proprietary portfolio optimization technologies and advanced quantitative portfolio management. Prior to joining Parametric in 2003, he worked in both industry and academia. Vassilii holds a Ph.D. from State University of New York.

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Mr. Santodomingo is a member of the Research and Product Development team. Prior to joining Parametric in 2008, Rey was a Vice President in Product Management at MSCI Barra where he developed risk and portfolio management solutions for asset managers and institutional investors. He holds an M.S. degree in Financial Engineering from the University of California, Berkeley and a B.S. in Chemical Engineering from the University of California, Santa Barbara. He is a Board Member of the CFA Society of Seattle and an adjunct instructor at Seattle University’s Albers School of Business and Economics.

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When calculating after-tax returns, Parametric applies the highest U.S. federal marginal income tax rate of 39.6% plus the 3.8% Net Investment Income Tax, for a combined rate of 43.4%. These assumed tax rates are applied to both net realized gains and losses in the portfolio. Applying the highest marginal rate may cause the after-tax performance shown to be different than an investor’s actual experience. Investors’ actual tax rates, the presence of current or future capital loss carry forwards, and other investor tax circumstances will cause an investor’s actual after-tax performance to be over or under Parametric’s estimates presented here. In periods when net realized losses exceed net realized gains, applying the highest marginal tax rates to our hypothetical and/or model calculations illustrates the highest after-tax return that could be expected of the portfolio, and assumes the maximum potential tax benefit was derived. Actual client after-tax returns will vary. As with all after-tax performance, the after-tax performance reported here is an estimate. In particular, it has been assumed that the investor has, or will have sufficient capital gains from sources outside of this portfolio to fully offset any net capital losses realized, and any resulting tax benefit has been included in Parametric’s computation of after-tax performance. These examples do not consider state and local taxes or any future tax liability which may exist if and when any unrealized gains are realized. The results are not indicative of the actual experience of any particular Parametric investor or investment portfolio and no representation is being made that any investor or account will achieve the tax savings shown. Individual investor after-tax experience will vary according to each investor’s unique tax circumstances.

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