

# Is Your Alpha Big Enough To Cover Its Taxes? Revisited

By Robert D. Arnott, Andrew L. Berkin, PhD, and Paul Bouchey, CFA®

*In this world nothing is certain but death and taxes.*

—Benjamin Franklin, 1789

In the 1993 article “Is Your Alpha Big Enough To Cover Its Taxes?” Tad Jeffrey and Rob Arnott observe that most of the energy devoted to improving portfolio efficiency has been directed at tax-exempt investors (pension funds, endowments, and foundations), even though most of the managed assets in the United States are taxable. That effort typically triggers avoidable taxes, a negative “tax alpha,” in the quest for often illusory gains, the “pretax alpha.” Eighteen years later, despite significant advances in both the theory and practice of tax management, little has changed.

In a recent survey by Horan and Adler (2009), advisors responded that 76 percent of their taxable clients expect them to incorporate tax considerations into the portfolio management process. But, while most advisors claim a high level of tax awareness in their portfolio management activities, only 11 percent report tax-adjusted performance. Most advisors and managers run their businesses based on their pretax performance relative to a benchmark (i.e., their pretax alpha), so it is unsurprising that there is a reluctance to report after-tax performance. After-tax return is almost inevitably a drag, quite literally.

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—typically incurring a tax obligation—and buys another asset based on the belief that the trade will benefit the owner of the portfolio. In many cases,

**TABLE 1: EXAMPLE CALCULATION OF AFTER-TAX GROWTH\***

Year	1st	2nd	...	20th
Beginning Market Value	100.00	105.48		225.93
Ending Market Value Pretax	106.00	111.80		239.49
Beginning Cost Basis	100.00	100.98		191.11
Realized Gain	1.50	2.71		12.09
Capital Gain Tax	0.53	0.95		4.23
After-Tax Proceeds Reinvested	0.98	1.76		7.86
Ending Cost Basis	100.98	102.73		198.97
Ending Market Value	105.48	110.86		235.25

\*Assumes 6-percent growth of principal per year, 35-percent capital gains tax, and 25-percent turnover.  
Source: Parametric, based on the model proposed in Jeffrey and Arnott (1993)

**TABLE 2: ADDITIONAL ANNUAL PRETAX GROWTH REQUIRED TO OFFSET TAXES**

Market Growth	4%	6%	8%	10%	12%
Turnover 5%	0.51	0.70	0.85	0.99	1.11
10%	0.89	1.22	1.51	1.77	1.99
25%	1.51	<b>2.15</b>	2.73	3.26	3.76
50%	1.90	2.78	3.63	4.44	5.23
75%	2.06	3.07	4.06	5.03	5.99
100%	2.15	3.23	4.31	5.38	6.46

Source: Parametric, based on the model proposed in Jeffrey and Arnott (1993)

however, the resulting tax turns out to be larger than the unknowable advantage of the trade.

In this article we revisit the question of whether the typical active manager’s alpha is large enough to cover fees, trading costs, and the taxes caused by that turnover. We update and expand the original data set, coming to the same conclusion as Jeffrey and Arnott (1993). It would appear that the typical approach for managing taxable portfolios, acting as if the taxes cannot be reduced or deferred, remains the industry standard. Finally, we offer

some tactics and strategies to consider when managing taxable assets.

## The Theoretical Hurdle

For simplicity, let’s first ignore dividends. If we assume that the price-only return of a portfolio grows at 6 percent per year, then after 20 years \$100 will compound to just more than \$320. However, if we assume there is 25-percent turnover within the portfolio, taxed at a 35-percent rate, the portfolio will grow to only \$235 (see table 1).<sup>1</sup> This somewhat simplified example effectively demonstrates the relationship

**TABLE 3A: TAX IMPACT ON MUTUAL FUNDS WITH AT LEAST 10-YEAR TRACK RECORD**

	Number of Funds	Total Return			After-Tax			Tax Impact		
		1 Yr	5 Yr	10 Yr	1 Yr	5 Yr	10 Yr	1 Yr	5 Yr	10 Yr
All Domestic Funds	412	16.0	0.3	0.7	13.6	-0.9	-0.2	-2.5	-1.2	-1.0
All Large Funds	291	13.5	-0.3	-0.5	11.1	-1.4	-1.4	-2.4	-1.1	-0.9
All Mid Funds	98	21.8	1.8	3.8	19.4	0.3	2.6	-2.4	-1.4	-1.2
All Small Funds	23	23.2	1.4	3.7	19.8	-0.1	2.4	-3.4	-1.6	-1.2
Large Growth Funds	134	13.1	0.4	-2.4	10.8	-0.4	-3.1	-2.4	-0.8	-0.7
Large Value Funds	66	13.9	-1.5	2.7	11.1	-3.0	1.5	-2.8	-1.5	-1.2
Vanguard Total Stock Mkt	VTSMX	15.9	-0.3	-0.8	15.5	-0.6	-1.1	-0.3	-0.3	-0.3
SPDR S&P 500	SPY	13.8	-0.9	-1.7	13.3	-1.5	-2.1	-0.5	-0.6	-0.5
Vanguard Mid Cap Index	VIMSX	26.7	1.0	5.0	26.5	0.8	4.4	-0.2	-0.2	-0.6
Vanguard Tax-Mngd Small	VTMSX	23.6	0.9	5.6	22.2	0.7	5.4	-1.4	-0.1	-0.2
iShares Russell 1000 Growth	IWF	13.4	0.2	-5.3	12.8	-0.2	-5.6	-0.6	-0.4	-0.3
iShares Russell 1000 Value	IWD	16.5	-1.7	2.1	15.6	-2.5	1.3	-0.9	-0.8	-0.8

Source: Parametric, based on Morningstar data and the model proposed in Jeffrey and Arnott (1993)

**TABLE 3B: ACTIVE VS. REPRESENTATIVE PASSIVE—ALPHAS AND TAX DIFFERENCE**

	Number of Funds	Pretax Alpha			After-Tax Alpha			Tax Differential		
		1 Yr	5 Yr	10 Yr	1 Yr	5 Yr	10 Yr	1 Yr	5 Yr	10 Yr
Active vs. Passive, All Funds	412	+0.1	+0.6	+1.5	-1.9	-0.3	+0.9	-2.2	-0.9	-0.7
All Large Funds	291	-0.3	+0.6	+1.2	-2.2	+0.1	+0.7	-1.9	-0.5	-0.5
All Mid Funds	98	-4.9	+0.8	-1.2	-7.1	-0.5	-1.8	-2.2	-1.2	-0.6
All Small Funds	23	-0.4	+0.5	-1.9	-2.4	-0.8	-3.0	-2.0	-1.5	-1.0
Large Growth Funds	66	-0.3	+0.2	+2.9	-2.0	-0.2	+2.5	-1.8	-0.4	-0.4
Large Value Funds	291	-2.6	+0.2	+0.6	-4.5	-0.5	+0.2	-1.9	-0.7	-0.4

Source: Parametric, based on Morningstar data and the model proposed in Jeffrey and Arnott (1993)

between turnover, taxes, and compounded growth.

Table 2 shows the alpha required to break even, after tax, as we change the turnover and market-growth assumptions. For example, holding turnover constant at 25 percent, we need to adjust the pretax growth of the portfolio from 6 percent to 8.15 percent to bring our after-tax ending wealth back to \$320. In other words, we need an annual alpha of 2.15 percent (in bold in table 2) to cover our tax bill.<sup>2</sup>

Assuming taxes rise in the years ahead, this breakeven alpha gets larger and larger. Given the large alpha hurdles for taxable investors and the considerable erosion of wealth that occurs if the alpha doesn't materialize, a low turnover strategy starts to look quite attractive relative to uncertain prospec-

tive performance offered by strategies with substantial turnover.<sup>3</sup>

### Most Alphas Can't Support Their Taxes

Jeffrey and Arnott (1993) set the stage for more substantive empirical studies by Arnott et al. (2000), Dickson et al. (2000), and Longmeier and Wotherspoon (2006). These studies found that taxes have a significant negative impact on returns, averaging 1 to 3 percentage points per year for the typical active manager, which all too often exceed the value added by the manager's skill. These tax costs are mainly due to frequent trading and the resulting short-term capital gains taxes. Most managers' alpha does not cover their clients' tax bill, which likely explains the industry's reluctance to draw attention to after-tax returns.

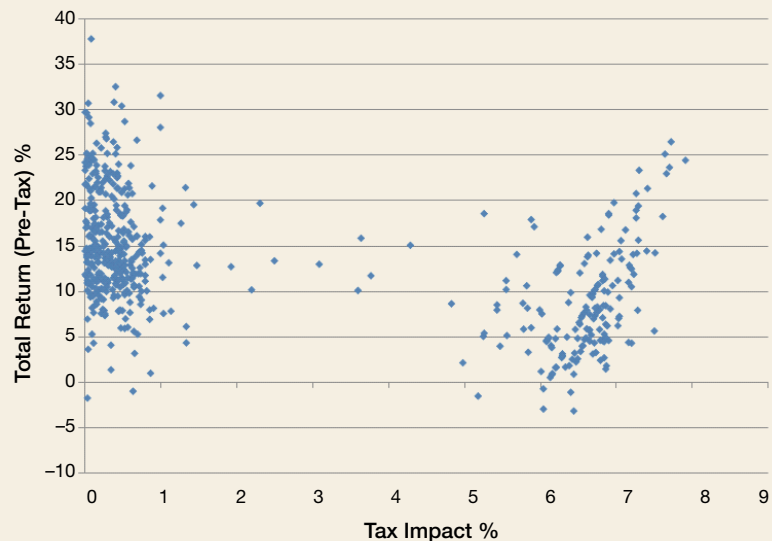
Since 2002, the Securities and Exchange Commission has required mutual funds to present both before and after-tax returns. Table 3A shows pretax and after-tax annualized returns for active managers in the Morningstar mutual fund database and several representative index funds.<sup>4</sup> These after-tax returns are calculated by reducing the portfolio value by the cost of federal income taxes and multiplying each income and capital distribution by the highest individual marginal rate. The tax rate matches the nature of the distribution based on tax rates at that time. The tax impact is the total return minus the after-tax return. While these after-tax returns consider the taxes on any distributions made by a fund, they do not assume liquidation of the fund.

Table 3B shows the relative performance for the active managers measured relative to our representative passive index funds.<sup>5</sup> Positive alphas are good; higher taxes are not. Here, we can see that all categories of active managers beat their index fund counterparts over the past five years, and most won over the past 10 years. It bears mentioning that this result includes a large dose of “survivorship bias”: active managers that went out of business, most of whom probably underperformed, aren’t included in these longer-term numbers.<sup>6</sup> It is also unsurprising that the tax bill is larger for the active managers, in all categories and over all three spans, than the representative indexes.

Some observations on these data:

- Similar to previous studies, we show tax impact in the 1–3 percent range for most strategies and time spans. The retained after-tax return for the buy-and-hold investor, even before paying any taxes for withdrawals or eventual liquidation, is markedly lower than the pretax returns.
- The markets have had low returns over the past five and 10 years. The annualized tax impact percentage is smaller over these horizons, but the tax pain is felt more keenly because it represents a larger portion of the total return. Indeed, it may surprise some readers that, even in categories with negative returns where investors might reasonably have expected to incur no tax obligations, taxes eroded these negative returns by roughly an additional 1 percent.
- Over the past five and 10 years, the active manager universe beat the index funds. This happens far less often net of active manager taxes. Large-cap active managers tend to have a mid-cap and small-cap bias (and vice versa); with both mid-cap and small-cap indexes outperforming large-cap in the past decade by 6 percent or more per year, the actively managed large-cap funds enjoyed the benefits: Their alpha in this period

**FIGURE 1: ONE IN EVERY THREE FUNDS IS EXTREMELY TAX INEFFICIENT, 12 MONTHS ENDING JUNE 30, 2010 (550 ACTIVE FUNDS)**



Source: Parametric, based on Morningstar data

**FIGURE 2: TURNOVER IS NOT A GOOD PREDICTOR OF TAX EFFICIENCY, 12 MONTHS ENDING JUNE 30, 2010 (550 ACTIVE FUNDS)**



Source: Parametric, based on Morningstar data

was respectable before the impact of taxes.

- Small- and mid-cap portfolios are typically less tax efficient because as a stock grows it will graduate from its

universe, creating a taxable event for both the active manager and the index.

- Value investing is less tax efficient than growth investing. This reflects both higher dividend taxes and the

lower return of the growth index in this period, which meant lower gains (or, all too often, no gains) when positions were sold.

The averages in tables 2 and 3 don't show the dispersion of results: Over the past year most funds were fairly tax efficient with a tax impact of less than 1 percent. However, about a third of the funds were extremely tax inefficient, with a shocking tax impact in the 6–7 percent range (figure 1). It appears that there were two types of managers: those who paid attention to taxes and those who were willing (or forced) to give up much of their clients' return to the tax man.

The tax-inefficient funds had very little in common other than their huge tax bills. The same lack of a pattern held for various subsets of the data: large, mid, small, value, growth, foreign. Even turnover was not a good predictor of tax inefficiency (figure 2). This may reflect fund flows in this period of redemptions and the tax overhang of legacy positions. For instance, some funds had virtually no turnover and yet incurred significant taxes; this must be from redemptions.

### Tax Management Tactics

Active tax management involves more than just letting our gains run and cutting our losses; it involves paying attention to the trade-off among risk, return, and taxes whenever an investment decision is made and whenever assets go through a transition. Examples of decisions that have a taxable component include selling an investment, changing benchmarks, changing managers, making contributions and withdrawals, charitable gifting, and rebalancing the asset allocation.

The academic literature attempts to quantify the value added from actively "harvesting" losses in a portfolio. Stein and Narasimhan (1999), Arnott et al. (2001), Berkin and Ye (2003), Horvitz and Wilcox (2003), Rogers (2006), and Stein et al. (2008) all examine the

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benefits of tax loss harvesting 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.

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

#### Defer the realization of gains.

We have to sell an asset to incur a capital gains tax obligation. If we hold the asset, the tax liability is deferred, which is mathematically identical to receiving a zero-interest loan from the government. An increase in the value of the investment increases the tax liability, but the payment of that liability can be deferred indefinitely, allowing that money to compound over time. Because the cost basis of assets in an estate is reset at the taxpayer's death, in some cases the "loan" need never 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 and, thus, qualifies for a lower tax rate. 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.

**Consider the yield.** Tilting away from dividend-paying stocks also can

reduce the tax bill. If the favorable tax treatment of dividends disappears at year-end, a low-yield strategy trumps a high-yield strategy of the same pretax return. But, be wary of the allure of low yields: Arnott and Asness (2003) showed that low payout ratios are no assurance of faster earnings growth.

**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 tax loss. These losses may be used to offset realized capital gains. While many investors only harvest losses in December, this activity is far more valuable if it is done throughout the year through carefully timed selling strategies.

**Pay attention to tax lots.** Managers who pay attention to taxes generally will 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 desirable. For example, an investor with a tax-loss carryforward 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 sale.

**Avoid wash sales.** When a security is repurchased within 30 days of its sale, any loss realized cannot be used to shelter gains. Policing wash sales is particularly challenging when an investor is using multiple managers. For example,

the tax loss generated by manager A will be voided if manager B buys within 30 days.

Managers should be watchful for any increase in tax rates and the opportunity it brings. Appreciated long-term positions sold before such an increase would have gains taxed at 15 percent. Should tax rates rise, loss harvesting creates the opportunity to shelter short-term capital gains that will be taxed at the higher tax rate.

### Tax Management Strategies

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, but a portfolio should be designed to withstand the inevitable tempests that come whenever emotions, competitive pressure, or the need for liquidity are at their height. It is important to remain aware that the industry and its constituents (brokerage, advisory, and media) were built on portfolio trading. Brokers and advisors generally have little incentive to recommend that we sit back and do nothing. Too, some media have turned investing into almost a sporting event, urging action and reaction at every turn.

Unfortunately, trading—if it is done without regard for tax consequences—can create significant tax liabilities. A focus on the strategic, not tactical, structure of the portfolio should be the primary consideration for the investor. In addition, a long-term view and a

sharp focus on the frictions of investing are critical to the success of an investment program.

The evolution of tax-efficient portfolio management can be thought of in phases (figure 3). Moving from a style box to a passive core-and-satellite was the first stage of evolution. This step has been adopted widely by investors because it reduces the cost structure of the portfolio and improves tax efficiency and risk control. The next step 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. Overlay portfolio management is the final phase of evolution. This process brings the active managers into the tax management fold and can be applied to a style box structure or can include a passive core. Typically, the overlay manager also manages the passive core portfolio.


In addition to the basic tax management techniques, the overlay manager also can coordinate buys/sells across managers, implement manager and asset allocation changes, and apply rebalancing policies to the overall portfolio—all in a tax-efficient manner.

### Conclusion

Taxes matter. For taxable clients, investment managers deliver two alphas: a pretax alpha and a tax alpha. The empirical evidence is overwhelming: The investment management community is far too willing to incur a large negative tax alpha for taxable clients while

pursuing a pretax alpha. But that pretax alpha is a zero-sum game. If we're winning, someone else is losing. The result is that most investment management products offer a combined alpha that is negative: pretax alpha, whether good or bad, less a relentlessly negative tax alpha.

It's a fixable problem. Managers need only pay attention to the tax consequences of their actions. Done correctly, we can capture the alpha of a sound investment process with a minimum of tax consequences. It's a lot of mechanistic and boring work, often as dull as watching grass grow. But like a lush lawn, the result is a worthy goal.

Taxes are going higher. We all know it; we just don't know how far or how fast they'll rise. Maybe the prospects of a negative tax alpha that obliterates our managers' skill alphas finally will prompt taxable investors to demand that tax-advantaged investing gets the attention that it richly deserves. We will be foolish to do otherwise in the years ahead. 

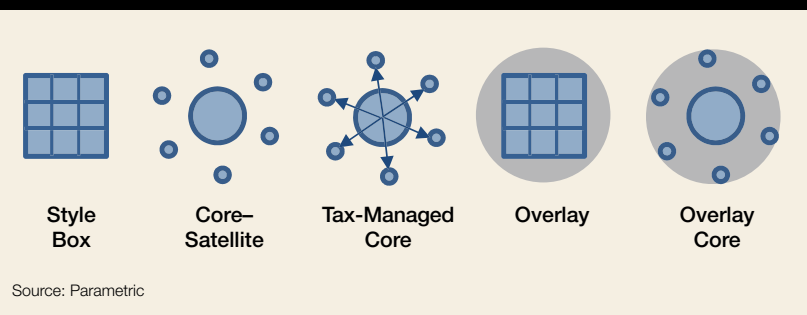
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**FIGURE 3: THE EVOLUTION OF EQUITY PORTFOLIO STRUCTURES FOR TAXABLE INVESTORS**



# Arnott-Berkin-Bouchey

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## Endnotes

- 1 This analysis understates the impact of taxes for most taxable investors. In most domiciles, state and local taxes boost the top effective marginal rate to about 41 percent, and future legislation may push this figure past 45 percent.
- 2 If we assume a full liquidation, the hurdle goes from 2.15 percent to 1.59 percent. Pre-liquidation numbers slightly overstate the case, but post-liquidation returns are probably too conservative. Many investors will never pay tax on an appreciated position due to the step up in basis received at death, or because they gift the shares to charity.
- 3 It bears mentioning that zero turnover is impossible: Even if we decide to do nothing, corporate actions will force some trades.
- 4 Our goal was to create a broad universe of active equity mutual funds. We screened the Morningstar Mutual Fund Database for all distinct active mutual funds with net assets greater than \$200 million as of June 30, 2010. We included only those funds with a prospectus objective of “growth” or “growth and income” and that had no significant allocation to bonds, real estate, or commodities. The final data-set contained 550 funds, of which 412 have full 10-year results.
- 5 Mutual funds and exchange-traded funds (ETFs) have similar pretax and after-tax performance despite having different legal structures and different strategies for tax management. Mutual funds rely primarily on loss harvesting to reduce the tax bill, while ETFs also can allocate low-basis shares to institutional investors during the creation/redemption process to ensure the price of the ETF follows the net asset value closely.
- 6 Morningstar estimates that 414 mutual funds (mostly stock) have merged or been liquidated in the past 12 months. An estimate by Standard and Poor’s puts the survival rate over the past five years at only 60 percent. Many of these failed funds are small ones that never accumulated a critical mass of assets; however, the high mortality rate likely inflates the average return of the survivors.

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