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**Is Your Alpha  
Big Enough To Cover Its Taxes?**  
The active management dichotomy

Robert H. Jeffrey and Robert D. Arnott





# Is Your Alpha Big Enough To Cover Its Taxes?

*The active management dichotomy.*

Robert H. Jeffrey and Robert D. Arnott

**M**uch capital and intellectual energy has been invested over the years in seeking to make portfolio management more efficient. But most of this effort has been directed at *tax-exempt* investors such as pension funds, foundations, and endowments, even though taxes are a major consideration for owners of approximately two-thirds of marketable portfolio assets in the United States.<sup>1</sup> Individuals and insurance and holding companies are cases in point; and their assets are too often managed with a blind eye to the tax consequences of the management style.

As Garland [1987], one of the few commentators on this subject, reminds us: "Taxes are the biggest expense that [many] investors face — more than commissions [and] more than investment management fees." Brealey [1983] comments that "return is likely to depend far more on the risk the fund assumes *and more on its tax liability* [emphasis added] than on the accuracy of the analysts' forecasts."

We demonstrate here that, for many investors, taxes are clearly the largest source of portfolio management *inefficiency*, and thus of mediocre investment returns. This is the bad news. The good news is that there are trading strategies that can minimize these typically overlooked tax consequences.

The intriguing but troublesome aspect of taxes, which obviously diminish investment returns, is that they are generated by the very activity that is intended to enhance returns, namely, *turnover*. Portfolio

**ROBERT H. JEFFREY** is president of The Jeffrey Company in Columbus (OH 43215).

**ROBERT D. ARNOTT** is president of First Quadrant Corporation in Pasadena (CA 91101).

managers sell one holding and buy another solely because they believe this activity will result in an economic benefit to the owner, which is to say they believe the trade will produce more wealth than if they simply held a static portfolio. In simplified portfolio management parlance, this expected economic benefit from trading is known as *alpha*.

As the title proposes, our purpose here is to question whether the typical active manager's alpha is large enough to cover not only fees and trading costs, which affect all investors, but also — for taxable investors — the taxes that this turnover begets. We offer both theoretical and empirical evidence that suggests quite clearly that the answer is generally — although not universally — negative. Because the preponderance of evidence is so convincing, we conclude that the typical approach of managing taxable portfolios as if they were tax-exempt is inherently irresponsible, even though doing so is the industry standard.

Taxable investors should bear two simple points in mind. First, passive indexing is a very difficult strategy to beat on an after-tax basis, and therefore active taxable strategies should always be benchmarked against the after-tax performance of an indexed alternative. Second, while active management can conceivably add value on an after-tax basis, this will occur only with careful planning that results in maximizing the buildup of unrealized capital gains.

## WHAT TAXES ARE WE TALKING ABOUT?

We are concerned primarily with taxes on *realized capital gains*, not on dividends and interest, because these are the taxes that are precipitated by trading activity. To put it another way, we want to focus on realized capital gains, because they are the root of the dichotomy between active management's hoped-for positive alpha and the assuredly negative impact of the resulting taxes. Furthermore, as we demonstrate in the case of equity portfolios, capital gains taxes typically have a substantially greater impact on after-tax returns than do dividend taxes, an important reality that is commonly overlooked.

Tax rates vary widely across jurisdictions (e.g., federal, state, and many municipalities). They apply differently to different classes of owners (individuals versus corporations, and special kinds of corporations such as insurance, Subchapter S, and personal holding

companies). And they also apply differently to different classes of income (dividends, both domestic and foreign, interest, both taxable and tax-exempt, and capital gains, both short-term and long).

To simplify the presentation, we assume throughout the article a constant 6% annual principal growth rate and a conservative 35% combined federal/state/local tax rate, applicable to both capital gains and ordinary income.<sup>2</sup> Recognizing that tax consequences vary directly with these rate assumptions, we leave readers to interpolate accordingly to reflect their own circumstances. Finally, because principal growth (and thus the capital gains tax problem) is more characteristic of stock than fixed-income investments, we use equity portfolios to illustrate our points.

## THE IMPORTANCE OF UNREALIZED GAINS

Although often disregarded, unrealized gains are an enormously valuable asset to a taxable investor. (We talk later about capital losses.) Unrealized gains are simply that part of the portfolio's principal growth that has not yet been "cashed in," and thus has not yet been diminished by taxes. While GAAP requires taxable corporate entities to maintain a liability account for the deferred taxes that would be due if the unrealized gains were immediately realized, this is a non-cash, bookkeeping entry that has absolutely no effect on the amount of the invested assets.

That this accounting provision for possible future taxes is sometimes termed an "interest-free loan from the Treasury" simply affirms the importance of maximizing unrealized gains, because the longer the gains remain unrealized (which is to say the longer this so-called interest-free loan remains unpaid), the more valuable it becomes, because the compounding is working for the owner and not the Treasury. (It is this same principle, of course, that makes IRAs so appealing.)

This term, "interest-free loan from the Treasury," is unfortunate, because it implies (given that one party's liability is another party's asset) that this liability provision for possible future taxes is *already* an asset of the Treasury, which has benevolently agreed to forgo the interest thereon. But this is clearly not the case, because the "loan" becomes due only at the "borrower's" option, i.e., when the taxpayer opts to liquidate the unrealized gain. Too many taxable investors, not to mention their advisors, overlook this immensely important distinction.

The horn-like pattern in Exhibit 1 illustrates the very positive relationship between the size of a portfolio's unrealized and thus untaxed gain (depicted by the width of the horn's bell) and its after-tax terminal market value (depicted by the upper curve). The upper curve also illustrates how steep and slippery is the turnover road — especially at the outset.

\$100 compounding at 6% per year grows to \$321 in twenty years if there is no turnover and thus no tax diminution, but with just 5% turnover the after-tax terminal value drops by 12% to \$284. (About two-thirds of this shrinkage is due to the taxes themselves; the balance is lost compounding.) At 10% the terminal value falls another 7% to \$263. At a still modest (by present-day standards) 25% turnover, it slips 11% more to \$235, and at 50% the terminal value is barely above the \$215 when turnover is 100%.

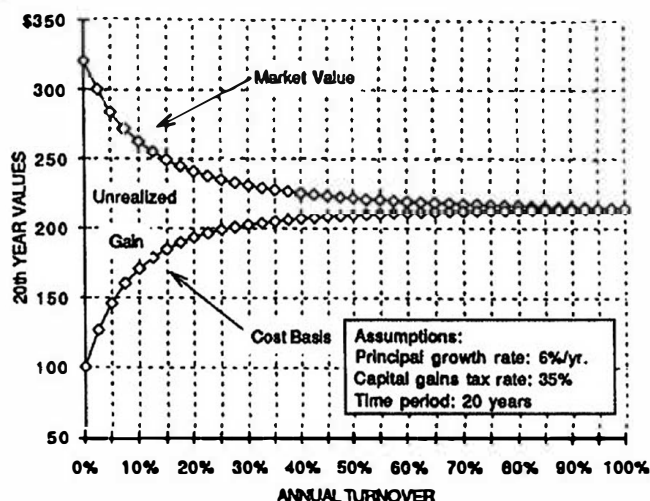
Beyond 100%, there is no further tax diminution, because the cost basis of the portfolio, having been increased by the reinvestment of the after-tax sales proceeds (depicted by the lower curve), now equals the market value, and there is no unrealized gain left to be realized and taxed.

A sample of the data underlying Exhibit 1 using 10% turnover for illustration appears in Exhibit 2. For comparison purposes, Exhibit 2 also includes ending terminal data for zero and 100% turnover.

## HOLDING PERIOD VERSUS TURNOVER

What is counter-intuitive — but *very* important — about the pattern in Exhibit 1 is that the marginal

**EXHIBIT 1**  
EFFECT OF TURNOVER ON TWENTY-YEAR AFTER-TAX GROWTH OF \$100



impact of taxes is the most severe at the outset (i.e., as turnover commences). Even the slightest turnover can sharply affect returns. Equally curious is that the marginal impact of taxes *diminishes* as turnover increases, and *disappears entirely* at turnover rates above 100%.

These surprising phenomena stem from the fact that *the tax consequences of trading are a function, not of turnover, but of holding period*. Turnover is a straight-line function that varies directly with trading activity; but holding period, which is the reciprocal of turnover, is non-linear with respect to activity. Exhibit 3 depicts the “hockey stick” relationship between turnover and

## EXHIBIT 2

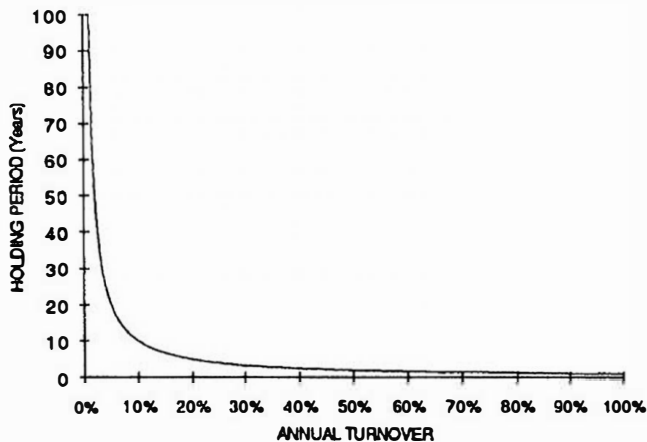
Examples of Effect of Turnover on Twenty-Year After-Tax Growth\*

	Annual Turnover					
	10%				0%	100%
	1st Year	2nd Year	20th Year	Σ1...20	20th Year	20th Year
Beginning Market Value	100.00	105.79	251.19			
Ending Market Value Before Taxes	106.00	112.14	266.27			
Beginning Cost Basis	100.00	100.39	164.17			
Realized Gain	0.60	1.17	10.21	108.94	0.00	176.83
Capital Gains Tax	0.21	0.41	3.57	38.13	0.00	61.89
After-Tax Proceeds Reinvested	0.39	0.76	6.63	70.81	0.00	114.94
Ending Cost Basis**	100.39	101.15	170.81		100.00	214.94
Ending Market Value	105.79	111.73	262.69		320.71	214.94

\*Assumes principal growth of 6% per year and a capital gains tax rate of 35%.

\*\*Note that the difference between the ending and beginning cost bases is the after-tax proceeds of the realized gains.

**EXHIBIT 3  
RELATIONSHIP BETWEEN TURNOVER AND  
HOLDING PERIOD**



holding period.

Look again at Exhibit 1. At 5% turnover and an average holding period of twenty years, the after-tax terminal value is \$284. With a seemingly nominal increase to just 10% turnover, the holding period drops in half to ten years, and the terminal value falls by more than 7% to \$263.

In contrast, at 50% turnover the holding period is two years, and the after-tax terminal value is \$222; but the same 5% increase in turnover (going to 55%) drops the holding period only slightly to 1.8 years, and the terminal value slips imperceptibly to \$221.

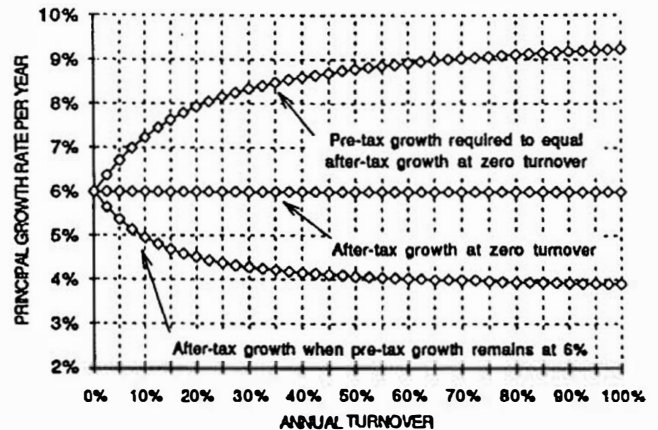
While conventional wisdom thinks of any turnover in the range of, say, 1% to 25% as categorically low and thus inconsequential, and of anything greater than 50% as being high and presumably of considerable consequence, the reality is just the opposite. While 25% turnover does seem low, such a strategy actually incurs over 80% of the taxes that would be generated at turnover levels of 100% or greater.

Because of the “hockey stick” relationship between turnover and holding period, *it is far more critical for taxable investors to be mindful of changes in the very low turnover ranges than in the medium and high ranges*, because once the low ranges have been passed, nearly all of the tax damage has already been done.

**HOW MUCH ADDITIONAL RETURN  
IS REQUIRED?**

Looking only at Exhibit 1, one would conclude

**EXHIBIT 4  
ADDITIONAL PRETAX GROWTH REQUIRED  
TO EQUAL AFTER-TAX GROWTH AT ZERO  
TURNOVER**



that a zero turnover, buy-and-hold passive approach is the optimal strategy for a taxable investor. But this presupposes two important conditions: First, that the active manager’s turnover will actually add nothing to the passive return (i.e., that the manager’s alpha is indeed zero or worse); and, second, that the assumed principal growth rate (6% in our example) will persist throughout the horizon period (twenty years) despite the maturation of the individual holdings that must inevitably occur.

Exhibit 4 addresses the first of these issues, and Exhibit 5 the second. The upper curve in Exhibit 4 indicates the annual pretax asset growth required at each turnover level to net the 6% after-tax growth when turnover is zero (the flat curve in the middle). At just 5% turnover, 6.7% growth (70 additional basis points) is needed to offset the taxes. At 10% turnover, 7.2% growth (120 additional basis points) is required. The breakeven incremental pretax growth increases to 215 basis points at 25%; to 278 at 50%; and to 323 at 100% or higher turnovers.

The lesson here is obviously that even at very low turnover levels the alphas required to compensate for the concomitant capital gains taxes are substantial, and are unlikely to be achieved except in a very inefficient market.

But despite this unpromising theoretical prospect, an ever-hopeful owner might still respond, “Well, let’s see what our manager can do.” But before signing the manager’s contract, the owner would be advised to study the lower curve in Exhibit 4, which

plots the after-tax growth that would result if the manager incurs the turnover but does *not* generate any additional alpha. At just 5% turnover, the owner ends up with 5.36% growth or 64 basis points less than the static return. This frictional loss from taxes increases to 105 basis points at 10% turnover; to 163 at 25%; to 193 at 50%; and 210 at 100%.

Given the size of the additional alpha required to break even after taxes, plus the considerable downside cost of coming up short, the “bird in the hand” of the static growth rate would seem to be a much better bet than an active manager’s “bird in the bush” promise of adding value by actively trading the portfolio.

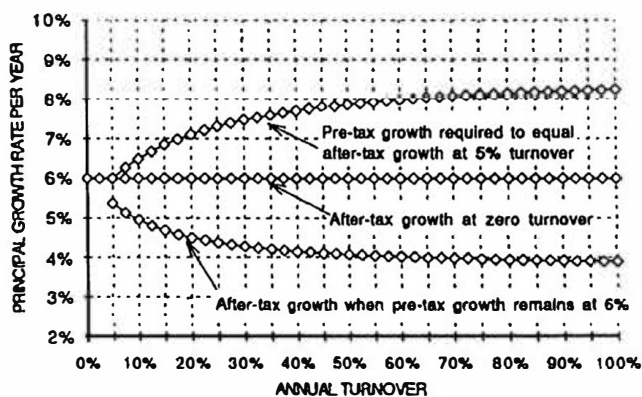
### BUT THE “STATIC GROWTH RATE” CAN’T GO ON FOREVER

We turn now to the second buy-and-hold mandatory condition, namely, that the assumed 6% static growth rate will persist undiminished throughout the horizon period, in this case twenty years. Since any sensible investor understands that a buy-and-hold strategy, if pursued long enough, must inevitably result in flat and eventually negative growth as the holdings mature, portfolios must therefore be pruned, and pruning means turnover, which means realizing gains, which for taxable investors means paying taxes. This reality pertains even to totally passive index funds, because the index compilers (be they Standard & Poor’s, Russell, Wilshire, or whoever) must periodically adjust their universes to reflect takeovers, bankruptcies, and so on.

As a proxy for this “some inevitable turnover,” we assume in Exhibit 5 a 5% annual turnover rate, which happens to be slightly more than the turnover in the S&P 500 in recent years.<sup>3</sup> The only difference between Exhibit 5 and Exhibit 4 is that the upper curve has been shifted downward as a result of reducing the after-tax bogey from zero turnover and 6% growth to 5% turnover and 5.36% growth.

Even after lowering the bogey, the additional alpha requirement to offset turnover-generated taxes is still considerable. 48 basis points is required at 10% turnover; 131 at 25%; 186 at 50%; and 224 at 100%. If 5% is a reasonable approximation of the real-world turnover that should be reflected in a passive or semi-passive performance benchmark, taxable investors would still be advised to remember *caveat emptor* (or, more specifically, *caveat mercator*<sup>4</sup>) when considering

**EXHIBIT 5**  
**ADDITIONAL PRETAX GROWTH REQUIRED TO EQUAL AFTER-TAX GROWTH WITH 5% TURNOVER**



active managers’ promises of sufficient additional alpha to cover their turnover-generated taxes.

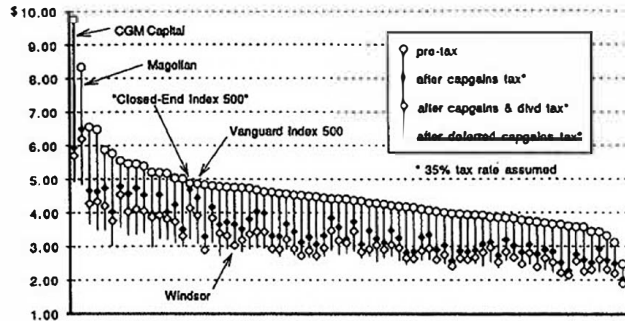
### MOST ALPHAS CAN’T SUPPORT THEIR TAXES

Having seen the height of the theoretical hurdles that the tax costs of active management impose, we turn in Exhibit 6 to a review of some empirical data. Exhibit 6 plots in order of descending pretax growth the pretax and after-tax performance of seventy-two large equity mutual funds from 1982 through 1991, including the Vanguard Index 500 fund, which mirrors the Standard & Poor’s 500 index.<sup>5</sup>

After-tax growth is shown for taxes actually paid during the ten years, first on the funds’ realized capital gains (marked with black diamonds) and then for capital gains plus ordinary dividends (marked with white diamonds). The straight lines extending *below* the white diamonds represent the tax consequences of liquidating the mutual fund investments at the end of the ten-year period and paying the deferred capital gains taxes, a subject we discuss later. The methodology underlying Exhibit 6 is detailed in the endnotes.<sup>6</sup>

Because index funds packaged in open-end mutual fund form, like the Vanguard Index 500, often realize capital gains when liquidations are made to meet net shareholder redemptions, and because these so-called redemption gains are *in addition* to gains arising from changes in the index’s constituent holdings, Exhibit 6 also includes a fictional (but quite possible to replicate) fund labeled the “Closed-End Index 500.”<sup>7,8</sup>

**EXHIBIT 6  
TEN-YEAR PRETAX AND AFTER-TAX GROWTH  
OF \$1.00 INVESTED IN VARIOUS MUTUAL  
FUNDS (1982-1991)**



This fund is basically a hypothetical closed-end version of the open-ended Vanguard Index 500.

Because a closed-end fund would not incur "redemption gains," the "Closed-End Index 500's" tax cost over the 1982-1991 period is 47 basis points a year less than the Vanguard Index 500.<sup>9</sup> We use the "Closed-End Index 500" as a proxy for a real-world after-tax benchmark in Exhibit 6. Some readers may prefer to substitute the readily available Vanguard Index 500, whose after-tax results still compare quite favorably.

Of the seventy-two actual funds in Exhibit 6, fifteen had pretax growth greater than the "Closed-End Index 500," but only five of these had better growth after capital gains taxes. And of these five, only two funds, CGM Capital and Magellan, exceeded the Closed-End Index 500 by significant margins. While it is tempting to assume that these exceptions are evidence that "it can be done" (i.e., that funds producing superior after-tax returns can be identified *ten years*

**EXHIBIT 7**

Number of Large Actively Managed Mutual Funds of Seventy-One That Outperformed the Respective Index Fund (1982-1991)

Total Return	"Closed-End Index 500"	Vanguard Index 500
Pretax	15	15
After Capital Gains Taxes	5	10
After Capital Gains and Dividend Taxes	6	9
After All Taxes Including Deferred	10	13

*in advance*), the reality is that the chances of success are slim at best.<sup>10</sup>

With its 200+% average turnover, capital gains taxes consumed almost 40% of CGM Capital's extraordinary ten-year pretax wealth.<sup>11</sup> Magellan, on the other hand, had 15% lower pretax wealth than CGM, but, giving back only 22% in capital gains taxes, its after-tax value was 9% higher.<sup>12</sup> Windsor, whose pretax value was almost as high as the S&P 500's, lost 23% to capital gains taxes as compared to only 9% for the Vanguard Index 500 and 4% for the "Closed-End Index 500."

Capital gains tax costs for the two index funds as a percent of pretax wealth were far and away the lowest of any of the funds. Studying the pattern of the black diamonds in Exhibit 6 should leave no doubt as to the major importance of capital gains taxes on a taxable investor's *real* economic return. Data in Exhibit 7 confirm the tendency of index funds to have superior after-tax returns.

Taxes on dividends are also important, especially for higher-yielding funds like Windsor or, to a lesser extent, the two index funds, but from the relative lengths of the vertical lines above and below the black diamonds in Exhibit 6 it is obvious that capital gains taxes are far and away the more significant. Windsor, whose 6% average dividend yield was the highest in the universe, gave up 13% of its pretax return in dividend taxes as compared with 23% in capital gains taxes. For the universe as a whole, dividend taxes consumed 7% on average of the pretax return while the capital gains tax cost averaged 23%.

For taxable investors, however, this is good news, because *the decision to incur capital gains taxes rests largely in the owner's hands*. The irony is that taxable owners usually delegate this very critical option to agents (mutual funds and portfolio managers), who typically disregard it completely.

While both the index funds' dividend tax expense was 11% of pretax value, which is the seventh highest in the Exhibit 6 universe, two additional points should be borne in mind. First, a *corporate* owner eligible for the 70% dividend received deduction would have a substantially lower (by about two-thirds) dividend tax expense. Second, it is possible to construct an index fund with a "low yield tilt," which, in combination with low turnover, might provide taxable investors with an even better after-tax return than the S&P 500, providing, of course, that the tax savings



from the tilt were not offset by a lower pretax return.

#### **BUT WHAT ABOUT THE DEFERRED TAXES?**

The casual rebuttal to the “taxes matter” argument usually seems to involve the “yet-to-be-paid” deferred taxes on the unrealized gains. Notwithstanding the fact that the decision to pay these deferred taxes is usually *voluntary*, we append the deferred taxes to the bottom of each line in Exhibit 6 as if they had been paid at the end of the ten-year period. The lower ends of each line therefore represent the “*after-all-taxes*” value of the mutual funds had they been liquidated at the end of 1991.

Because the two Index 500 funds had the lowest cost bases in the universe and thus the largest unrealized capital gains, their deferred tax expense, at 17% of the pretax return for the open-end fund and 19% for the closed-end fund, were the highest in the universe. Even so, only ten of the seventy-two funds had better “*after-all-taxes*” growth than the closed-end index fund, and only thirteen exceeded the open-end fund.

Furthermore, had we repeated the Exhibit 6 exercise using a longer holding period, the index funds’ “*after-all-taxes*” relative growth would have been even better, because pretax growth compounds geometrically (because the tax money is working for the owner and not the Treasury), while the deferred tax liability does not.

As we said at the outset, unrealized gains (which generate only “book entry” deferred taxes as distinct from real taxes paid with real money) are an enormously valuable asset to a taxable investor. Not only are the so-called deferred taxes working for the taxpayer and not the Treasury, but, better yet, tax deferral can in some cases eventually become tax avoidance, as, under present law in the case of individuals, the deferred tax liability is forgiven at death. Garland [1987] appropriately refers to this so-called stepped up cost basis at death provision as “free life insurance (from the IRS) for owners of appreciated property.” Given these points, it is difficult to understand how there could be any doubt about the importance of maximizing the deferred tax liability account.

#### **REALIZED LOSSES ARE LIKE CASH IN THE BANK**

Four approaches taxable investors might take to minimize capital gains taxes come to mind. The first is

the most simple and straightforward, namely, that *losses should always be realized (harvested) when they have reached an economical size*. Since realized capital losses can be offset against realized gains, whether concurrent or from the past or in the future, they are almost like cash in the bank, because they can be essentially exchanged at the Treasury window for tax dollars that would be paid, or have been paid, or will be paid in the future.<sup>13</sup>

There are only two limiting factors in realizing losses, of which the first, transaction costs, is far and away the more important. *The loss must be large enough so that the tax savings from netting realized losses against gains exceeds the transaction costs*, including brokerage and especially the unseen but very important “impact on the market.”<sup>14</sup>

The second factor is the IRS’s so-called wash sale rule, which prohibits holdings sold at a loss to be purchased within thirty-one days on either side of the sale. But given any reasonable assumption about the difficulty of predicting short-term market prices, the calculable “cash value” of realizing a loss would seem to outweigh the risk of “being out of the stock” — especially if the replacement investment were another equity.

While there is definite utility in realizing losses, it should be understood that this will only alleviate, but not resolve, the chronic capital gains tax problem that long-term equity investors are almost always facing. Because equity prices in general must rise over the long term as the economy grows, in long-horizon portfolios, unrealized gains will almost always dominate unrealized losses except for rare and relatively short periods such as the early ‘30s. Rather than viewing taxable losses as a panacea, taxable investors might better think of them as simply presenting periodic opportunities to refresh their portfolios by realizing offsetting capital gains tax-free.

#### **UNDER CERTAIN CIRCUMSTANCES, OVERLAY STRATEGIES CAN BE “PURE ALPHA”**

The second approach for minimizing taxes is the use of so-called *overlay strategies*, which have become practicable only in recent years with the advent of viable markets for derivative securities. Overlays, as the name implies, leave the basic underlying portfolio strategy in place, but, like a press in golf, they become a second — and typically contrary or hedging — bet on the market using futures (or options

or swaps) to tilt the strategy temporarily in a particular direction.

For instance, a manager of a taxable equity portfolio who is bearish about the near-term outlook for stocks should still be concerned about liquidating all or even a significant part of the portfolio, because avoiding the stock market decline (if the forecast were correct) would be offset in large part by the capital gains taxes that the liquidation would precipitate. Liquidation of a \$100 million portfolio with a \$50 million cost basis, that is, would trigger \$17.5 million in capital gains taxes at 35%. For this market timing strategy to break even on an after-tax basis assuming, say, 1% transaction costs each way, the underlying equity portfolio would have to decline by almost 20%, *and stay down long enough to allow buying back in.*

And this is the good news. The bad news is that if the manager's forecast were incorrect (i.e., if the market did not decline over the fairly short-term life of the overlay), the taxes triggered by the liquidation could not be undone, and thus the portfolio's after-tax total return would substantially underperform the market.

But suppose that, instead of selling the underlying portfolio's stocks, the manager sells \$100 million in futures contracts on, say, the S&P 500 index (which we assume to resemble the portfolio closely). Now the scenario becomes quite different.

In the first example, if the unrealized gain in the underlying portfolio were to decline by \$20 million, an offsetting gain of \$20 million (disregarding the fairly modest expenses of the futures contract) would be realized on the overlay futures contract. After deducting \$7 million in taxes on this gain, the overlay strategy would have produced \$13 million in "excess return" over and above the return from the primary underlying strategy.

Furthermore, if the overlay "hedge bet" should turn out to be wrong (i.e., if the market stays flat or goes up), the taxable loss on the overlay strategy would be available to offset realized gains (past, present, or future) in the underlying primary portfolio. To the extent that the gains being offset are from the "some inevitable turnover" discussed earlier, which all portfolios must incur to remain viable over the long term, the overlay strategy (by offsetting taxes that would otherwise be paid) is again providing "excess return," *even though the manager's market prediction was wrong.* In this limited sense, the overlay strategy can be termed "pure alpha."

But is this a free lunch? Of course not. Overlay strategies have their own costs, including commissions, fees, and collateral requirements. But the "killer cost" would be if the manager's overlay hedging bets were large, frequent, and often wrong, thereby necessitating *extra turnover* in the underlying portfolio to generate the offsetting capital gains.

In this regard, overlay strategies are much like any more conventional strategies: If they are likely to be unsuccessful, they shouldn't be pursued. While overlay strategies, standing alone, may appear to provide pure alpha, they can be used only in concert with the underlying basic portfolio strategy, where we have already demonstrated that the alpha from turnover is problematic at best.

It seems strange that overlay strategies are growing in popularity in pension and endowment situations, where wrong guesses about the market cannot be tempered by tax savings; yet they seem to be used rarely in taxable portfolios despite their very significant tax-minimizing potential. This is presumably for three reasons.

First, as already noted, taxable portfolio owners are too often oblivious to the tax consequences of the investment strategies being used on their behalf, and their managers are loathe, for obvious reasons, to call attention to the fact that their turnover-generated alphas may not, in fact, be positive after taxes. Second, derivative securities are still somewhat foreign to most taxable investors and to most conventional portfolio managers — not to mention derivatives' traditional "speculative" connotation. Third and perhaps most important, the benefits of overlay strategies for taxable investors are subtle and thus difficult to explain. Combining these factors with the ever-present "fail conventionally" syndrome, it is not difficult to see why business has continued as usual.

#### **"DESIGN A PORTFOLIO YOU'RE NOT LIKELY TO WISH TO TRADE"<sup>15</sup>**

The third approach taxable investors might take to minimize capital gains tax shrinkage sounds like premarital counseling advice: namely, to *try to build a portfolio that you can live with for a long, long time.* But how does one do this?

A passive, well-diversified, low-turnover index fund is an obvious answer.<sup>16</sup> A semi-passive portfolio tailor-made to fit the owner's particular taste and circumstances is another alternative.<sup>17</sup> Dealing with the

latter is best left to a separate article, but it may be helpful here to discuss briefly some categories that might best *not* be owned.

- So-called cyclical stocks are the first category that comes to mind. For taxable investors, cyclical strategies are likely to have mediocre results to the extent that the winners are typically not retained (because they aren't expected to be winners in the long term), and the taxes on the winnings are thus paid earlier rather than later. The cyclical losers do, of course, provide usable capital losses, but the higher turnover inherent in most cyclical strategies limits the after-tax rewards.
- Small companies may be another case in point insofar as the winners tend to disappear in taxable takeover transactions, although we would be the first to agree that an equity portfolio with a long-term growth orientation should probably have some seeding of smaller, younger companies.
- So-called select funds, where companies from a particular industry are grouped in a mutual fund format, are perhaps the *antithesis* of the ideal strategy for long-term taxable investors, because their whole *raison d'être* would seem to be to facilitate trading in and out of market sectors. Select fund sponsors would presumably argue that their *raison d'être* is to facilitate *concentration*, but since the keystone of a viable long-term investment strategy is *diversification* rather than concentration, we stand by our view that select funds are probably not in most taxable investors' best interest.

#### WHOSE RISK IS BEING DIVERSIFIED?

The last suggestion for minimizing capital gains taxes is simply to encourage owners to be more mindful of the selling that goes on in the good name of diversification. Too often, big winners are trimmed back or sold off at tremendous tax expense, not because the appreciated holding no longer fits the *owner's* circumstances, but rather because it "outgrows the portfolio in which it originated, either in terms of its own market capitalization or, more often, because its increased weight...exceeds the *manager's* comfort level" (Jeffrey [1991]).

As Kirby [1984] says of his own portfolio management profession, "most of us are faster than Wyatt Earp...when it comes to taking a profit." This

propensity for profit-taking is explained by the fact that portfolio managers are fearful of seeing their performance results "torpedoed" by a market downturn in a large holding, plus the fact that they are typically not held responsible by clients for the tax consequences of their trading activity.

In multiple-manager situations in particular, *taxable clients must become involved in the tax problem*, at least to the extent of insuring that the managers are cognizant of and accountable for the tax consequences of their activity, and that the tax consequences are integrated across the board. Common sense dictates that losses in one portfolio be realized to offset gains realized in another, and that no economically realizable losses be left unharvested.

There is an understandable tendency for clients to assume that their managers should be insulated from these tax problems lest their management styles be inhibited. This attitude presupposes, however, an affirmative answer to the question we ask in our title, "Is Your [Manager's] Alpha Big Enough To Cover Its Taxes?" Because we cannot find much evidence to support an affirmative answer, and because we know the money management industry tends to have a tax-free mentality, we believe taxable clients should become more involved.

As Garland [1987] reminds us, "treating appreciated securities like outlaws in a Western movie — worth as much dead as alive, or (in this case) worth as much sold as held" simply makes no sense if one is taxable.

#### SUMMARY

Managing a taxable portfolio is indeed a very different undertaking from managing a non-taxable portfolio, and the arithmetic basis of this contention is simple. If asset growth, for example, is 6% per year, and the capital gains tax rate is 35%, *the tax cost is a very material 210 basis points* if the portfolio is turned over completely each year, and nearly as much if turnover is held to a low (by modern-day standards) of 25%.

Perhaps the most valuable lesson that surfaces in this study is that *it is much more important for taxable investors to be concerned with changes in turnover in the very low ranges than in the high ranges*, because once the high ranges have been reached, nearly all the tax damage has already been done.

With very few exceptions, our comparison of the ten-year results of seventy-one actively managed mutual

funds with a passively managed S&P 500 index fund gives no indication that turnover adds enough value to compensate for the turnover-generated capital gains taxes. In fact, the evidence is quite to the contrary.

On a pretax basis, only fifteen of the actively managed funds outperformed the index, but after taxes — and after an average of 75% annual turnover in the quest for alpha — ten fewer active funds outperformed. Pretax, the average return of the seventy-one active funds was 16% per year; but after-tax the average dropped to 13%.

This empirical evidence on top of the arithmetic that demonstrates how quickly and how severely turnover-generated taxes impact returns would seem to answer the question we raise in the title, namely, that *most managers' alphas are not big enough to cover their taxes.*

We also demonstrate that there are some ways — besides the viable option of holding a totally passive portfolio — to reduce turnover and ameliorate the tax problem. Using these approaches, perhaps more active managers' alphas might actually become positive on a tax-adjusted basis.

Some of these tax-conscious approaches are dictated by common sense, such as always harvesting realizable losses when they are large enough to justify the transaction costs, and avoiding strategies that have inherently high turnover. Using derivatives to effect portfolio changes without realizing taxable gains in the underlying portfolio is another possibility. We suggest in particular that the use of a low-turnover primary strategy in concert with an active overlay strategy employing derivatives might conceivably be a major breakthrough in dealing with the active management dichotomy between turnover and taxes.

What we know for certain is that the job can be done better than it typically is today. But this will happen only if the client/owners become involved and insist that it happens. As Ellis [1985] says so well, "*Clients — not their portfolio managers — have the most important job in successful investment management.*" Nowhere is this more true than in the case of taxable portfolios.

## ENDNOTES

<sup>1</sup>Of the \$9 trillion in liquid, investable stock and bond assets in the U.S. at year-end 1990, only about \$3 trillion was held by pension funds and other tax-exempt investors.

<sup>2</sup>The top combined federal/state/local capital gains tax rate

for New York City individuals and corporations in 1991 was slightly over 40% and 48%, respectively. The federal rate alone was 28% and 34%, respectively. At the opposite end of the spectrum, some other locations will have lower effective rates than the 35% used here for illustration, but these differences will not materially affect the conclusions. The 6% growth assumption happens to approximate the Ibbotson Associates compound principal appreciation rate of common stocks for the sixty-six years ending in 1991.

<sup>3</sup>The turnover of a purely passive S&P 500 index fund for the ten years ending in 1991 was 3.2%.

<sup>4</sup>While Latin is not our forte, we believe that *caveat mercator* translates as "trader beware."

<sup>5</sup>The seventy-two mutual funds in Exhibit 6 are all the Growth and Growth & Income funds as classified in *Morningstar Mutual Funds* that had at least \$100 million in ending net assets throughout the 1982-1991 period.

<sup>6</sup>The methodology for calculating after-tax growth of mutual funds is explained best in an example. Assume for a given year a beginning NAV/share of \$10.00, a capital gains dividend/share of \$2.50, an income dividend/share of zero (to simplify the example), and a total return with all dividends reinvested of 30%. (These data are available in *Morningstar Mutual Funds* and elsewhere.) Using our assumed 35% tax rate, the tax expense is \$0.875 (35% of \$2.50). The ending pretax wealth is \$13.00 (\$10.00 plus 30%). "Paying" the \$0.875 tax out of the ending wealth leaves \$12.125, which is an after-tax return of 21.25%. Linking the decimalized after-tax returns (e.g., 1.2125) for each of the years produces the ten-year after-tax growth of \$1.00 as shown in Exhibit 6.

The deferred capital gains tax (which is assumed to have been "paid" at the end of the tenth year) is 35% of the difference between the ending pretax growth and the tax cost basis, which is the \$1.00 originally invested plus the sum of all the capital gains and income dividends received and reinvested during the ten years. The per share dividend information is known, but the additional number of shares bought with the previous dividends must be determined to calculate the cost basis. Using the example above (i.e., a beginning NAV/share of \$10.00, a capital gains dividend of \$2.50, a total return of 30%, and an ending NAV/share of \$12.00), we can calculate that the ending number of shares must be 1.0833 (130% of \$10 divided by \$12.00 times the beginning number of shares of 1). The next year's dividends per share are then multiplied by this 1.0833 factor to determine the new cost basis, and the procedure is repeated for each subsequent year. That this calculation assumes that all the dividends are reinvested at the same time each year would seem to be of minor consequence.

<sup>7</sup>Index funds generate capital gains taxes as gains are realized when the constituent companies change, with the replacement of taken-over companies being a significant case in point. Index funds like the Vanguard Index 500, which are packaged in open-end mutual fund form, however, may also realize capital gains when liquidations are made in the portfolio to meet net shareholder redemptions. These realized gains (although incurred on behalf of the departing shareholders, who will pay their own capital gains taxes) are distributed at year-end to the remaining fund shareholders and are taxable to them. The little-known result is that *the Treasury temporarily collects two taxes on essentially the same gain.* Because of this double taxation on so-called redemption gains, the use of an open-end vehicle such as the Vanguard Index 500 as an after-tax performance benchmark *overstates* the tax impact of owning an S&P 500 index fund outright.

<sup>8</sup>If there were sufficient demand from taxable investors, it is possible that one of the mutual fund houses might offer a closed-end index fund product where redemptions would be limited to the availability of cash flow coming into the fund. Alternatively, several large

taxable investors could, perhaps, create such a fund in partnership form. Obviously, any format that limits withdrawals has adverse liquidity implications, but for long-term investors the tax savings may well be worth this cost. In seeking more tax-efficient alternatives, however, investors need to remember that the Vanguard Index 500 and its cousin, the Vanguard Institutional Index, at 20 and 8 basis points, respectively, have exceptionally low fee structures, which may offset, to some extent, the "redemption gain" tax problem.

<sup>9</sup>Using Standard & Poor's "500 Information Bulletin," which first became available in September 1985, we analyzed the "sales" in the S&P 500 index for each of the seventy-six months ending December 1991. Because the "500 Information Bulletin" was not previously available, we assumed that 9/1/85 was the indexed portfolio's inception. We also assumed that "sales" were made at the holding's weighted market value at the end of the prior month. And, needing a reasonable approximation, we assumed that the cost basis was 50% of the holding's weighted market value at 9/1/85 if it had been in the "original portfolio," or its actual cost if it had been subsequently added to the S&P. (These cost basis assumptions have the effect of understating the tax consequences for a very long-term index fund holding, and vice versa.)

If all "sales" had been taxable, the annualized capital gains tax cost would have been 59 basis points per year (using the assumed 35% tax rate). Consulting a tax service, we then checked each "sale" for taxability (e.g., companies disappearing from the index as a result of exchanges of stock with other S&P 500 companies would not have been taxable transactions). This further analysis indicated that the true tax cost for this six-plus-year period was only 47 basis points per year, which we then opted to use to adjust the full ten-year history of the Vanguard Index 500.

This adjustment was made by reducing the Vanguard Index 500's actual capital gains dividends per share each year to the point where the capital gains tax equaled 0.0047 (47 basis points) of the beginning net asset value per share. Using these adjusted capital gains dividends, we repeated the procedure described in endnote 6, and labeled the result the "Closed-End Index 500."

<sup>10</sup>In the ten-year 1982-1991 period, Magellan's net assets grew from \$107 million to \$19.2 billion, but \$18.3 billion of this growth was *new money*, of which more than half came in the last three years, and more than a third in the final year. (The beginning NAV of \$107 million multiplied by the ten-year total return (1.236<sup>10</sup>) is about \$900 million.) While Magellan was indeed a marvelous horse to ride over these ten years or even over most of them, the fact is that very few investors actually did.

The other "big winner" in Exhibit 6, CGM Capital, presents a different story but a similar moral. The fund's net assets grew over the 1982-1991 period from \$64 million to \$326 million, but this was only about half of the fund's actual internal growth. Unlike Magellan, CGM Capital apparently had rather significant cash outflows, perhaps prompted by its very volatile performance (e.g., up 76% in 1982 and 99% in 1991). In any case, it is fair to say that many — if not most — investors did not enjoy the full extent of this fund's spectacular ten-year performance.

<sup>11</sup>The correlation between average annual turnover and capital gains taxes as a percent of pretax growth was just over 40% for the seventy-two-fund universe. This correlation, while statistically significant, was nonetheless lower than we would have intuitively suspected. A possible explanation may be that some very active managers turn over their *unsuccessful* holdings rapidly and retain their winners, while some very low turnover managers use their infrequent trades primarily to sell their highly appreciated holdings.

Another explanation — and probably a better one — is that within the high turnover range, the tax impact of changes in turnover

is minimal, because of the "hockey stick" effect discussed in connection with Exhibits 1 and 3. Given that the average turnover of the funds in Exhibit 6 was a hefty 75%, we probably should not have expected a stronger correlation between turnover and taxes.

<sup>12</sup>Because mutual funds typically distribute realized capital gains only at year-end, and because these distributions go to the year-end shareholders, these statistics on the impact of capital gains taxes on various funds may be somewhat misleading, especially in the case of a highly successful fund like Magellan. Funds that attract large amounts of new money (usually because of their superior performance records) have the additional advantage of having their capital gains distributions diluted, because the realized gains are distributed over a larger base of shareholders. That Magellan's capital gains tax impact in Exhibit 6 is so much less than CGM's may have as much or more to do with the funds' capital inflows as with their respective investment styles. (We are indebted to C.M. Royce for this important insight.)

<sup>13</sup>The IRS carryforward and carryback regulations obviously apply here, but, at least at the present time, these rules afford considerable flexibility.

<sup>14</sup>Jeffrey [1991] comments: "The only advantage taxable investors have over their non-taxable counterparts is that the transaction cost nemesis is so tangibly apparent (because of the taxes) that turnover is more apt to be minimized. For non-taxable investors, where the transaction costs may be only in the 100- to 300-basis point range and are mostly of the invisible 'impact on the market' variety, the cost of turnover is too easily overlooked."

<sup>15</sup>Arnott [1991].

<sup>16</sup>Not all index funds, however, have low turnover. Funds based on the Russell 2000, for instance, have considerably higher turnover than the S&P 500 funds. This is in part because of unsuccessful small companies dropping out of the universe, but the much more important factor is the upward migration of successful companies into the higher-capitalization Russell 1000.

<sup>17</sup>We are familiar with a taxable situation where *dividend growth* is the primary criterion in selecting and maintaining the portfolio. In addition to tilting the portfolio toward having good dividend growth itself, which the owner desires, steering primarily by the slow-turning "dividend compass" instead of the much more volatile "earnings compass" used by most other "portfolio navigators" tends to reduce turnover materially and, therefore, taxes, which is why the owner has made this choice.

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