WHITE PAPER

Sizing up the Potential Tax Benefits of Direct Indexing

Philip Straehl, Global Head of Research, Investment Management
Andy Kunzweiler, CFA, Portfolio Manager, Direct Indexing

Executive Summary

- Tax-loss harvesting is a strategy that helps investors to lower their tax bill by selling securities at a loss to offset realized capital gains.
- We study the performance of a hypothetical tax-loss harvesting strategy applied to a broad U.S. market index and show that the tax-loss harvesting strategy generates a tax alpha of 1.04% over our sample period from January 1999 to March 2022. This translates into a 28% improvement in the after-tax portfolio value at the end of the sample period, compared with an index portfolio agnostic to tax-loss harvesting.
- We break our sample into six-year sub-periods and show that while the magnitude of tax alpha is sensitive to the market environment, our tax-loss strategy generated positive tax alpha in every period and realized an average tax alpha of 1.65% across sub-periods.
- We also show that while liquidation plans and availability of external capital gain offsets reduce post-tax returns, our tax-loss harvesting strategy still produced improved after-tax returns compared with a naive index-tracking strategy.

Understanding Tax-Loss Harvesting

Tax-loss harvesting is a strategy that helps investors to lower their tax bill by selling securities at a loss to offset realized capital gains, all while managing risk in an investor's portfolio. The strategy seeks to achieve two objectives for investors: to closely track the return of a chosen benchmark on a pre-tax basis while adding value after taxes. The benefit to investors of systematically realizing, or "harvesting," losses has the potential to be significant over time, but what is tax-loss harvesting, and why is it important?

Tax-loss harvesting (TLH) involves systematically selling securities that have declined in price to realize losses. These losses can then be used to offset gains realized elsewhere in an investor's portfolio or to offset up to $3,000 of ordinary income[1]. A classic example of tax-loss harvesting is that an advisor or portfolio manager sells Coca-Cola to realize a loss and purchases Pepsi with the proceeds. The trade rationale in this example is simple; these are two similar companies, operating in the same industry and, therefore, are considered excellent replacements for each other. Exhibit 1 shows how this simple hypothetical two-stock example results in an after-tax benefit to an investor.

Investor 1 is a buy and hold investor who buys Stock ABC at $15. Over the course of the next year, Stock ABC declines in price by 10%, but Investor 1 maintains the position until it doubles in value to $27 by the end of year two. At this point, Investor 1 liquidates the position and pays the taxes on the realized gain of $12. This results in a tax cost of $2.86 ($12 realized gain multiplied by the long-term capital gains tax rate of 23.8%), leaving Investor 1 with an after-tax value of $24.14.

Investor 2 purchases Stock ABC at the same time but liquidates the position at the end of year one to realize the tax loss. Investor 2 purchases a suitable replacement stock, Stock XYZ, which performs similarly to the liquidated position and also doubles in value by the end of year two, at which point the position is liquidated. Investor 2 pays taxes on the realized gain at the long-term rate, but the post-liquidation value is greater than that of Investor 1. There are two factors responsible for this after-tax benefit to Investor 2. The first is that Investor 2 realized a short-term loss, which is taxed at a rate of 40.8%[1], and deferred the realization of gains into year two, when the tax rate shifted to the long-term rate of 23.8%[1]. The second factor is that Investor 2's tax savings from realizing the loss can be assumed to have been reinvested in the portfolio.

1. https://www.irs.gov

EXHIBIT 1

Tax-loss harvesting adds value by investing tax savings back into the portfolio. Hypothetical example.

Year 1

	Initial Value	Return (Net of Fees)	Ending Value	Realized Loss	Tax Benefit at 40.8% ST Tax Rate
Investor 1: Buy and Hold	$15.00	-10%	$13.50	—	—
Investor 2: Tax-Loss Harvest	$15.00	-10%	$13.50	$1.50	$0.61

Year 2

	Return (Net of Fees)	Ending Value	Unrealized Gain	Tax Cost at Liquidation at 23.8% LT Tax Rate	Post-Liquidation Value	Difference in Post-Liquidation Value
Investor 1: Buy and Hold	100%	$27.00	$12.00	$2.86	$24.14	—
Investor 2: Tax-Loss Harvest	100%	$28.22	$14.11	$3.36	$24.87	$0.72

Example for educational purposes only. As such, the performance shown is hypothetical, does not represent actual decision-making, and may not reflect the impact material economic and market factors might have had on Morningstar's decision-making process. Future performance can differ significantly from the back-tested. performance shown.[2]

In this hypothetical example, Exhibit 1 shows the tax benefit that can be achieved in a simple two-stock exercise. In practice, portfolio optimization and risk-modeling capabilities have significantly evolved over the last 30 years. Managers no longer need to scan spreadsheets for positions held at an unrealized loss and then determine which securities to buy as replacements. Individual tax lots can be sold to realize losses, and a basket of optimally selected replacement stocks can be purchased such that tracking error in the portfolio is unchanged because of the trade. Risk in a portfolio is examined across hundreds of distinct factors, including industry and sector membership, ESG exposure, financial characteristics such as dividend yield and P/E, and exposure to compensated risk factors such as momentum and volatility. This granularity allows managers to maximize the tradeoff between tracking error and tax-loss harvesting, which is important because in many cases taxes are the largest cost facing investors and can easily eclipse fees and trading costs if not managed appropriately.

Investors do not have to be in the highest tax bracket in order for taxes to take a significant bite out of their investment returns. In fact, maximizing after-tax wealth should be considered a principal objective for taxable investors. Every dollar not paid out in taxes is allowed to remain invested in the portfolio earning the market return. While tax alpha can fluctuate year over year and across market environments, it is a reliable benefit to investors and, as we discuss below, can be significant over time.

2. Net of Fees Return based on 1.65%.

Drivers of Tax-Loss Harvesting Benefits

Since every investor's tax and financial circumstance is different, we start by outlining the key drivers of the potential tax benefits of a tax-loss harvesting strategy. Exhibit 2 highlights the seven most important determinants and their directional impact on tax alpha.

EXHIBIT 2

Overview of Tax Alpha Drivers

	Potential Tax Benefits	Comment
Cash Flow	↑	Cash inflows create new tax lots and increase the ability to harvest future losses.
Rebalance Frequency	↑	Frequent loss harvesting (e.g., monthly) increases the tax alpha potential, creating an opportunity to harvest losses when market declines are at their peak.
Tax Rate	↑	The higher the tax rate, the greater the value of the tax liability that can be offset with losses.
Liquidation Preference	↓	Liquidation of holdings will create a taxable event and lead to the realization of gains.
Market Volatility / Drawdowns	↑	Tax alpha increases with market volatility and drawdowns, creating more opportunities to harvest losses.
Availability of Capital Gains	↑	The greater the realized capital gains available elsewhere in the investor's portfolio, the greater the ability to use losses to offset these gains.
Investment Horizon	↓	The longer the investment horizon, the less likely it is that position values will fall below their cost basis, reducing the ability to harvest losses over time.

Quantifying the Benefits of Tax-Loss Harvesting

Having identified some of the key drivers of the tax benefits of a tax-loss harvesting strategy, we now set out to quantify the potential tax benefits of systematically harvesting tax losses while tracking the U.S. market index compared to a portfolio with the sole objective of tracking an index. We call the portfolio that systematically harvests losses the Tax-Loss Harvesting (TLH) Portfolio and the tax-loss harvesting agnostic portfolio the Naive Index Tracking Portfolio. Our initial back-test for each strategy has the following specifications.

EXHIBIT 3

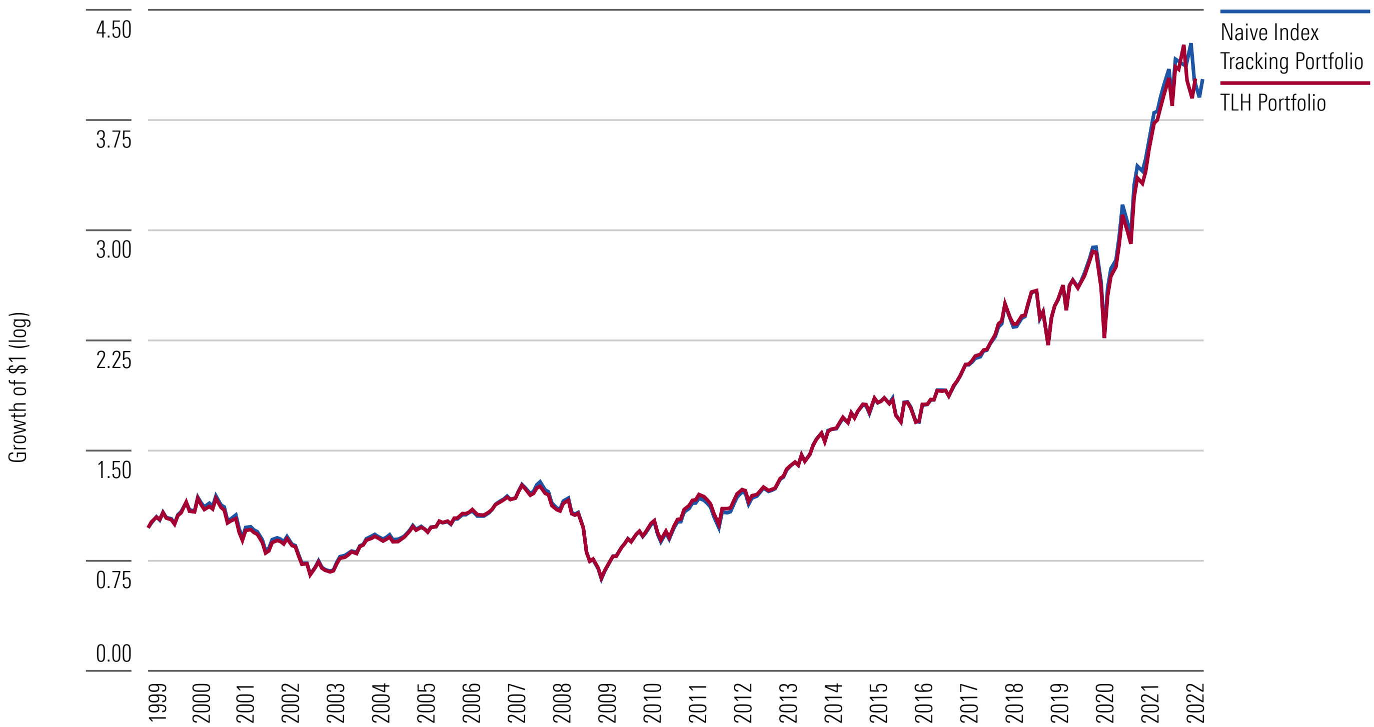
Back-Tested Parameters

	Tax-Loss Harvesting (TLH) Portfolio	Naive Index Tracking Portfolio
Time Period	January 1999 – March 2022	January 1999 – March 2022
Index*	Morningstar U.S. Large-Mid Cap Index	Morningstar U.S. Large-Mid Cap Index
Ticker	MSEGLMCA	MSEGLMCA
Beginning Account Size	$150,000	$150,000
Rebalance Frequency[3]	Monthly	Monthly
Objective	Minimize Net Tax Gains[4]	Minimize Tracking Error
Constraints	• No Fractional Shares • Max Cash of 1% • Tracking Error Limit 1%[5]	• No Fractional Shares • Max Cash of 1%

3. Refers to the frequency with which portfolios are re-optimized based on the objectives/constraints outlined.
4. We apply a short- and long-term tax rate of 40.8% and 23.8%, respectively. The short-term rate is based on the highest marginal tax rate of 37% plus a 3.8% net investment income tax. The long-term tax rate is 20% for high income earners plus the net investment income tax. Additionally, we apply the 31-day IRS Wash Sale rule in our back-test.
5. Based on Axioma U.S. medium-horizon risk model compared to the Morningstar US Large-Mid Cap Index.

EXHIBIT 4

TLH and Naive Index Tracking Portfolio performance is nearly identical on a pre-tax basis. Hypothetical back-tested parameters.



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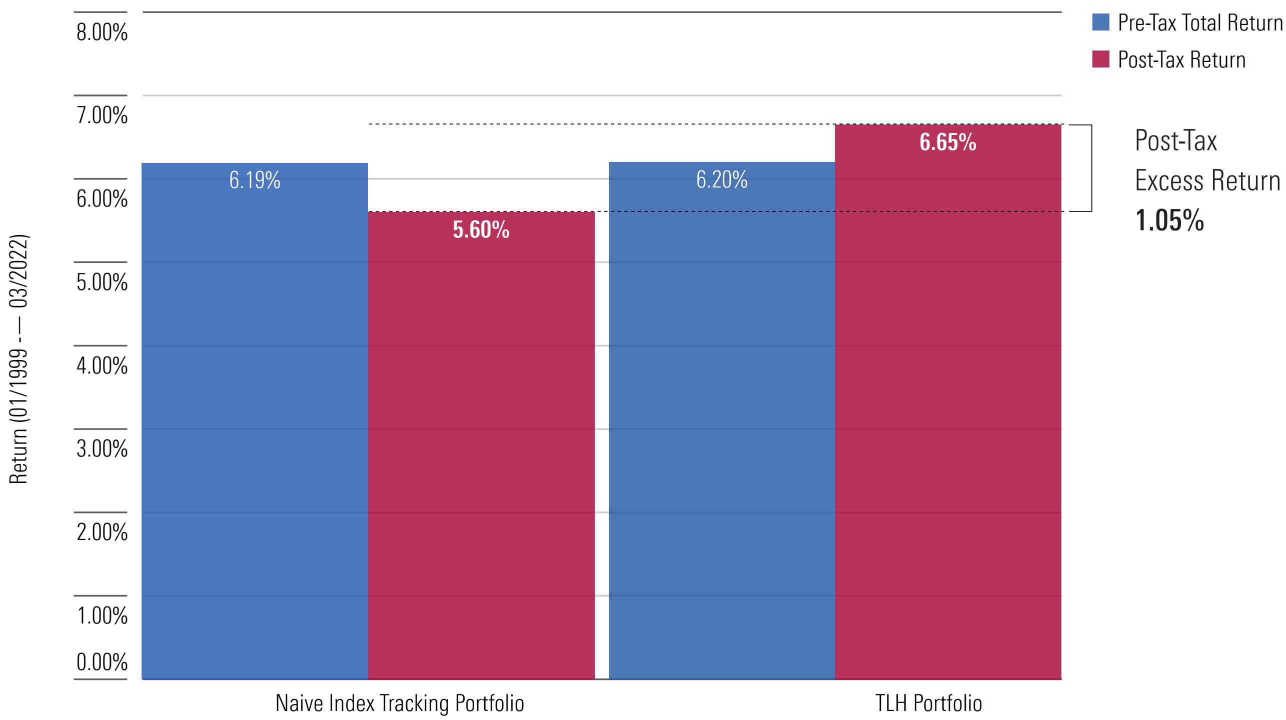
We start by comparing the before-tax returns of the TLH and Naive Index Tracking Portfolios. Exhibit 4 shows the growth of a pre-tax dollar for both strategies and shows that on a pre-tax basis, the TLH and Naive Index Tracking Portfolios are equivalent, ending the period at $4.03 and $4.02, respectively.

6. Net of Fees Return based on 1.65%.

EXHIBIT 5

The hypothetical TLH Portfolio has significantly higher post-tax returns than the Naive Index Tracking Portfolio (1999 – 2022).



Post-Tax Excess Return — Pre-Tax Excess Return = **Tax Alpha (1.04%)**

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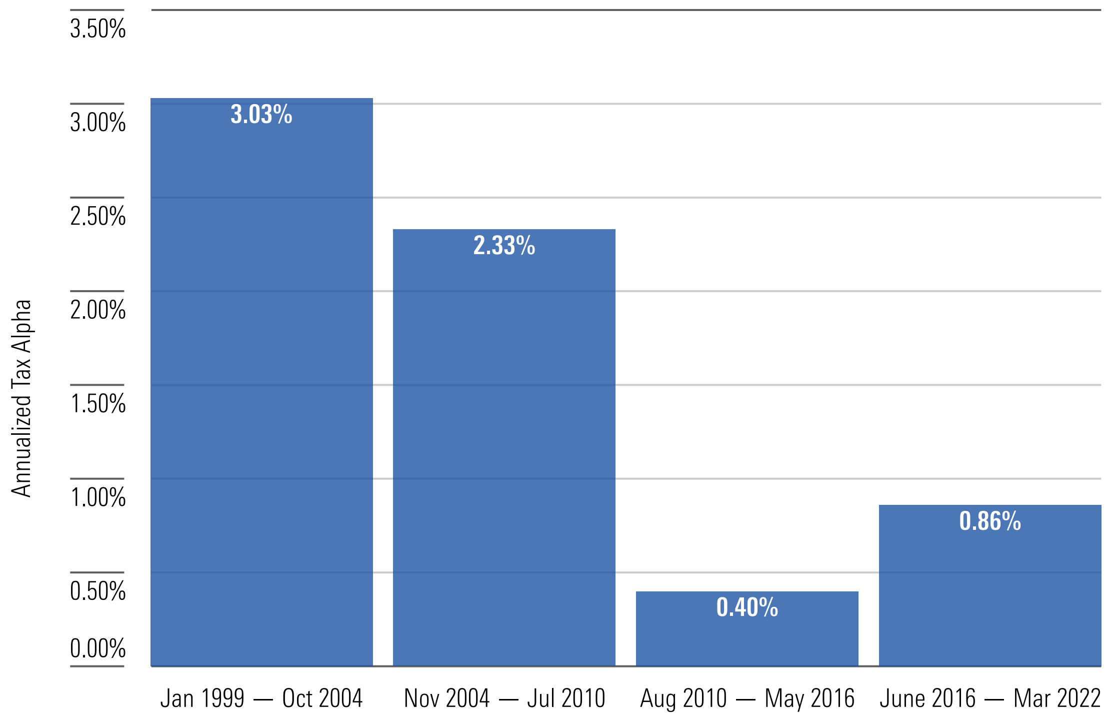
Shifting our analysis to post-tax returns, we calculate the post-tax returns by applying marginal 40.8% and 23.8% short- and long-term tax rates, respectively, and assume that all harvested losses can be offset against gains realized elsewhere in an investor's portfolio. Exhibit 5 shows both the annualized pre- and post-tax returns for the Naive Index Tracking and the TLH Portfolios. As previously established, while pre-tax returns for both strategies are nearly identical, post-tax outcomes differ significantly. The TLH Portfolio realizes a post-tax return that is 1.05 percentage points higher than the Naive Index Tracking Portfolio by systematically harvesting losses that are assumed to be fully offset against capital gains monthly over the sample period. This highlights the significant potential after-tax benefit that tax-loss harvesting can provide in a taxable account while still tracking an index.

Tax alpha[7]—the excess return solely attributable to tax benefit—is defined as the difference between the post-tax excess return and pre-tax excess return of the TLH Portfolio and Naive Index Tracking Portfolio. The tax alpha is 1.04%, only slightly lower than the post-tax excess return given the nearly identical pre-tax performance of the two strategies. In fact, the post-tax return of the TLH portfolio of 6.65% exceeds the pre-tax return of 6.20%, providing a significant boost to the investor after-tax outcome.

7. Tax alpha is defined as the difference between the post-tax excess return and the pre-tax excess return, where Tax Alpha = (Post-Tax ReturnTLH - Post-Tax ReturnNaïve) - (Pre-Tax ReturnTLH - Pre-Tax ReturnNaïve) = Tax Alpha = (6.65% - 5.60%) - (6.20% - 6.19%) = 1.04%. For the post Tax Portfolio, we applied a short and long term tax rate of 40.8% and 23.8% respectively. The short term rate is based on the highest marginal tax rate of 37% plus a 3.8% net investment income tax. The long term tax rate is 20% for high income earners plus the net investment income tax. additionally, we applied the 31 day Wash Sale rule in our backtest.

EXHIBIT 6

Magnitude of tax alpha varies by market environment but remains positive across sub-periods.



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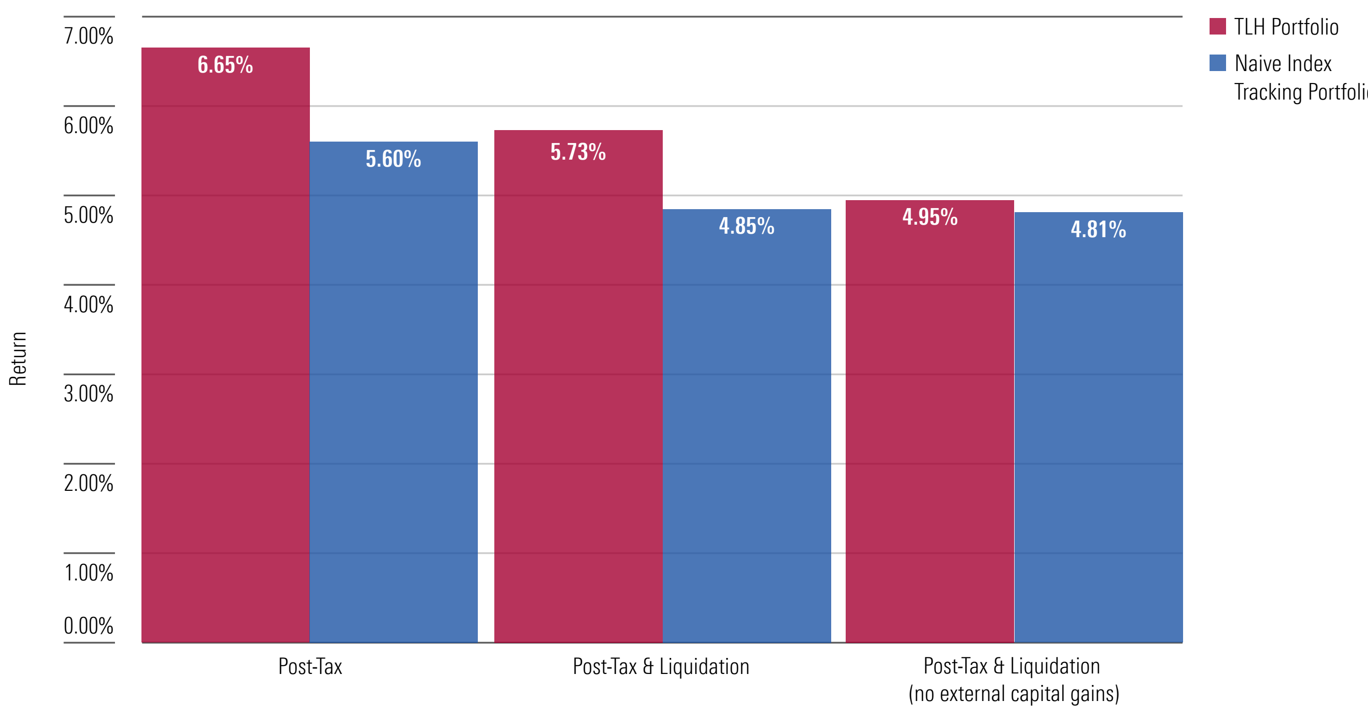
The simulation over the 1999-2022 hypothetical data sample period in Exhibit 5 masks some time variation in the ability to generate tax losses, depending on the market environment. In Exhibit 6, we break our sample into four equally sized periods of approximately six years and apply the same back-test parameters to these sub-periods to isolate how the tax alpha may vary, depending on the market environment. The first two periods were marked by significant tax-loss harvesting opportunities as the bursting of the dot-com bubble and the global financial crisis provided ample opportunity to harvest losses generating annualized tax alpha in the 2-3% range. The third period was the most challenging period for tax-loss harvesting, as the post-financial crisis recovery propelled markets to rise by more than 15% per year on average, providing limited opportunities to harvest losses. Nonetheless, the tax alpha was still economically meaningful at 40 basis points. The final period from June 2016 to March 2022, which includes the pandemic selloff, saw more tax-loss harvesting opportunities, leading to a tax alpha of 86bps. The average tax alpha generated by the TLH Portfolio compared to the Naive Index Tracking Portfolio was 1.65%, which is a meaningful improvement in post-tax outcomes. The fact that the average tax alpha across the four sub-periods is higher than the tax alpha of 1.04% over the full period is consistent with the fact that tax alpha tends to be higher over shorter periods, as cost bases tend to be higher, creating more opportunities to harvest losses.

In our final analysis, we isolate how after-tax returns are impacted by different assumptions around liquidation plans and the availability of external gains offsets. Assumptions around each can have meaningful impacts on after-tax outcomes. In the previous examples, we assumed that positions are not liquidated at the end of the holding period and that investors have unlimited potential gains to offset. The tax impact of liquidation can be ignored if we assume that assets are donated to a charity or passed along to the next generation by bequest. Also, the assumption around unlimited availability of capital gains is reasonable for an investor that has other holdings (e.g., mutual funds) that generate sizable ongoing capital gains against which losses can be offset. Since these assumptions do not apply to everyone, we want to study the marginal impact of relaxing each assumption.

To that end, we start by contrasting returns post-tax before liquidation (i.e., post-tax) with returns post-tax and liquidation shown in the first two columns of Exhibit 7. While post-tax excess returns are 92bps lower (6.65% versus 5.73%) after accounting for the impact of paying taxes on unrealized gains, the TLH Portfolio still offers significant after-tax benefits compared to the Naive Index Tracking Portfolio, maintaining a 88bps excess return edge (5.73% versus 4.85%). Next, we assume that in addition to liquidating his or her holdings at the end of the period, an investor can only offset losses against current or future capital gains of the direct indexing portfolio itself. In other words, we assume that the investor not only sells his or her holdings at the end of our sample period as in the prior example but also lacks ownership in external assets such as a mutual fund that generate capital gains outside of the direct indexing portfolio in question. While post-tax returns are further reduced by 78bps (5.73% versus 4.95%), the TLH Portfolio still maintained a superior albeit smaller after-tax excess return of 14bps compared with the Naive Index Tracking Portfolio (4.95% versus 4.81%).

EXHIBIT 7

After-tax outcomes vary based on liquidation and availability of external capital gains, but the hypothetical TLH Portfolio provides better after-tax outcomes in every tax scenario.



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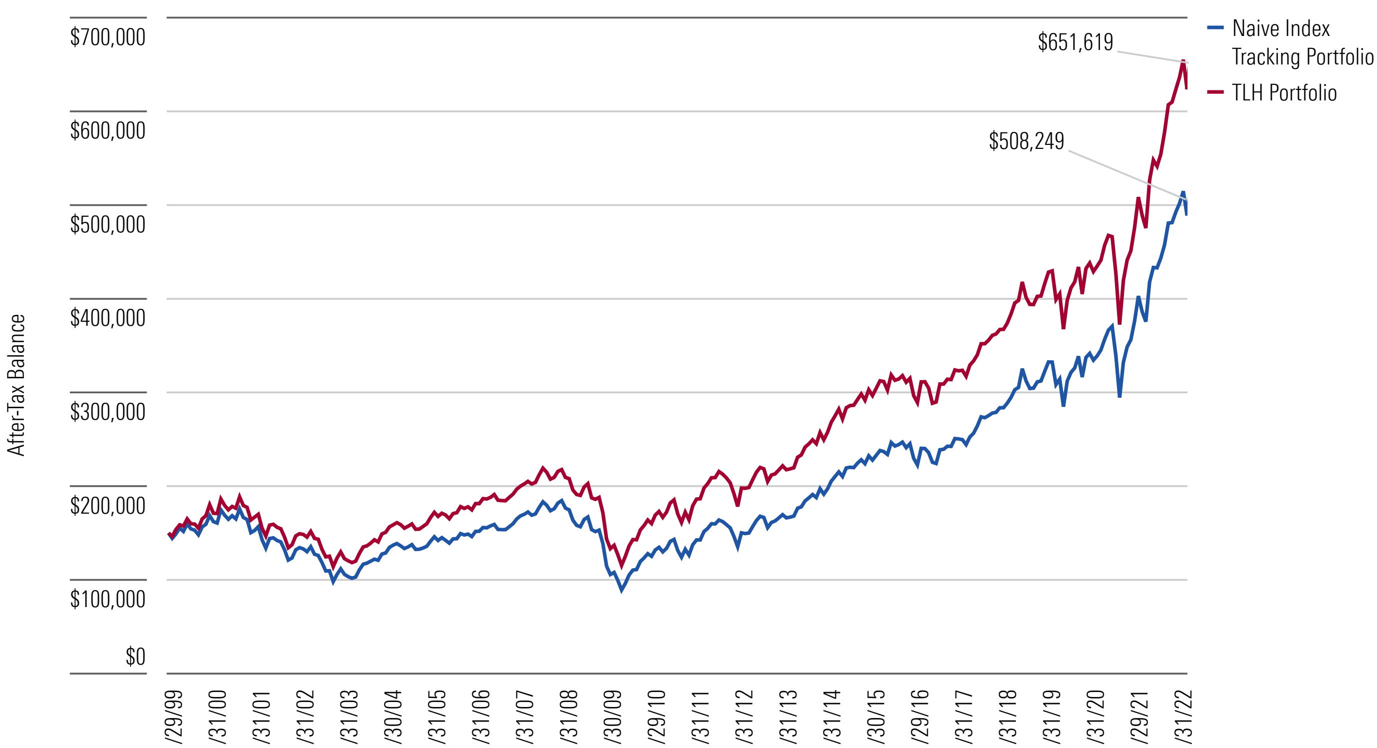
Overall, our back-test shows that systematically harvesting losses leads to economically meaningful improvements in after-tax outcomes across all scenarios we tested. Our base-case scenario covering the sample period from 1999 to 2022 suggests that an investor with unlimited capital gain offsets and no liquidation plans may boost his or her post-tax return by approximately 1%. To put this in context, Exhibit 8 shows the after-tax market value of the TLH and Naive Index Tracking portfolios over time. At the end of our sample period, the TLH Portfolio was $143,370, or 28%, more valuable than the Naive portfolio.

EXHIBIT 8

Hypothetical systematic tax-loss harvesting boosts the post-tax portfolio value by 28% in our base-case scenario with unlimited capital gain offsets and no liquidation plans.



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MORNINGSTAR Wealth

22 West Washington Street
Chicago IL 60602 USA

Contact Your Local Sales Representative

+1 877 626-3227

wealth.us@morningstar.com

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