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## Tax-adjusted performance metrics: integrating tax planning into risk-adjusted portfolio evaluation

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### ABSTRACT

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Traditional risk-adjusted performance metrics such as Jensen's alpha, the Sharpe ratio, and the Information ratio are typically computed on a pre-tax basis, even though taxes materially affect realized investor wealth. This paper develops an implementable framework for tax-adjusted versions of these measures by substituting after-tax returns into standard performance formulas and clarifying the required inputs, assumptions, and interpretation. Using a conceptual – empirical hybrid design, the paper formalizes tax-adjusted alpha, Sharpe, and Information ratios and then benchmarks the magnitude of tax alpha using scenario evidence from six widely used tax-aware portfolio platforms (Vanguard, Morningstar, Parametric, Axioma, Netbasis, and BlackRock). Spanning various tools and representative parameterizations, systematic tax-management techniques – including tax-loss harvesting, gain deferral, and tax-aware rebalancing – produce economically material improvements in after-tax, risk-adjusted performance, with implied annualized tax alpha, typically in the range of 0.7–3.5% for equity direct indexing and 1.0–2.0% for separately managed accounts. The paper concludes with implementation guidance for incorporating tax-adjusted metrics into performance reporting and portfolio analytics, and it discusses practical constraints (transaction costs, wash-sale rules, and investor heterogeneity) that shape realizable benefits.

**Keywords:** tax efficiency, tax planning, portfolio management, risk-adjusted performance, after-tax alpha, after-tax Sharpe ratio, after-tax Information ratio

**JEL Classification:** G11, G14, G23, H24, H21, K34, C58

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## Introduction

The current investment management landscape is becoming increasingly more competitive. Passive index products, factor-tilted exchange-traded funds (ETFs), algorithmic strategies, and fee compression have all contributed to a systematic erosion of traditional pre-tax alpha in numerous asset classes [PivotalPath, 2025]. In this setting, taxable investors still face a complex set of income and capital gains taxes, which often constitute one of the largest recurring drags on long-term wealth accumulation and capital formation [Dickson, Shoven, 1994].

The key objective of this paper is to develop implementable tax-adjusted versions of standard risk-adjusted performance metrics and to benchmark the magnitude of tax alpha using scenario evidence from widely used tax-aware portfolio platforms.

From the perspective of an investor, taxation is both costly and manageable. It is costly because even seemingly modest annual tax drags can compound into large losses of terminal wealth over multi-decade horizons. It is manageable because, unlike many sources of risk, taxes can be influenced by investor behaviour and portfolio design [Dammon, Spatt, Zhang, 2004]. Decisions about asset location, turnover, loss realization, rebalancing, and withdrawal patterns all affect when and how much tax is paid.

## Research objective and contribution

As aforementioned, the overriding objective of this paper is to develop implementable tax-adjusted versions of standard risk-adjusted performance metrics and to benchmark the magnitude of tax alpha using scenario evidence from widely used tax-aware portfolio platforms.

Despite extensive research on tax-aware investing, after-tax performance is still rarely evaluated using risk-adjusted metrics in a consistent, transparent way that supports attribution and comparison across strategies.

The paper addresses this gap with three contributions.

- **Conceptual formalization:** I propose formal, after-tax extensions of Jensen's alpha [Jensen, 1968], the Sharpe ratio [Sharpe, 1966], and the Information ratio [Goodwin, 1998], providing clear definitions, formulas, and interpretive guidance.
- **Empirical synthesis:** I systematically review and normalize simulation evidence from six institutional tax-aware portfolio tools, translating scenario-specific outputs into comparable ranges of annualized tax alpha under realistic investor assumptions.
- **Practical implementation framework:** The paper outlines actionable steps for embedding tax-adjusted metrics into portfolio analytics and discusses implications for product design, manager evaluation, and client communication.

To guide the investigation, three research questions have been posed:

- **RQ1:** What is the empirical magnitude of tax alpha generated by systematic tax-management strategies in taxable portfolios?
- **RQ2:** How can tax effects be formally incorporated into classical risk-adjusted performance measures?
- **RQ3:** What practical guidelines enable asset managers to implement tax-aware performance measurement?

The original contribution of the research lies not in developing new simulation engines, but in creating a unifying measurement framework that enables consistent evaluation and comparison of tax-aware strategies using familiar performance metrics. By formalizing tax-adjusted versions of the Jensen's alpha, Sharpe, and Information ratios, the work provides both researchers and practitioners with tools to quantify the contribution of tax management to investor welfare on a risk-adjusted basis.

## Scope and structure

The analysis centres on taxable US high net worth individuals (HNWIs), reflecting the depth of data and availability of detailed simulation tools in this particular jurisdiction and for this client segment. However, the conceptual framework is transferable to other tax regimes with realization-based capital gains taxation.

The remainder of the paper is organized in the following way:

- Review of relevant literature and identification of the research gap.
- Introduction of the capital gains tax features relevant to portfolio management.
- Classical risk-adjusted measures and their tax-adjusted counterparts.
- Hybrid research methodology, including the simulation approach for demonstrating tax-adjusted metric computation.
- Summary evidence from tax-aware simulation tools and presentation of the simulation results.
- Contributions and implications.
- Investor-specific, actionable recommendations.

## Literature review

### Classical performance measurement

The foundation of modern portfolio performance evaluation rests on risk-adjusted measures developed within the Capital Asset Pricing Model (CAPM) framework and its extensions. Sharpe [1964, 1966] introduced the reward-to-variability ratio (now known as the Sharpe

ratio), which measures excess return per unit of total risk. Treynor [1965] developed a similar measure using systematic rather than total risk. Jensen [1968] proposed alpha as a measure of risk-adjusted performance relative to the security market line, while F. Modigliani and L. Modigliani [1997] introduced  $M^2$  as a risk-adjusted performance measure comparable across portfolios. The Information ratio, measuring active return per unit of active risk, gained prominence through work by Grinold and Kahn [2000] and Goodwin [1998].

These metrics have become standard in mutual fund performance evaluation [Carhart, 1997; Fama, French, 2010] and manager selection [Bodie, Kane, Marcus, 2014], driving asset flows among individual asset managers. However, the metrics share a critical limitation: they evaluate performance on a pre-tax basis, ignoring the substantial impact of investor-level taxation on realized wealth accumulation.

## **Taxation and portfolio efficiency**

The interaction between taxation and portfolio management has been studied from multiple perspectives. Early theoretical work by Constantinides [1983, 1984] established how capital gains taxation creates a “lock-in effect” and distorts investment decisions. Stiglitz [1983] analyzed the optimal realization of capital gains under progressive taxation, while Dammon, Spatt, and Zhang [2001, 2004] examined optimal asset location and allocation in taxable and tax-deferred accounts.

Empirical studies have quantified the tax drag on mutual fund performance. Dickson and Shoven [1994] and Dickson, Shoven, and Sialm [2000] documented significant tax inefficiencies in actively managed funds. Bergstresser and Poterba [2002] found that tax burdens vary substantially across funds with similar pre-tax returns. More recently, Sialm [2009] and Sialm and Starks [2012] examined how taxes affect investor behaviour, asset pricing, and fund flows.

## **Tax-aware investment strategies**

Research on specific tax-management strategies has thus proliferated. Tax-loss harvesting (TLH) has received particular attention. Berkin and Ye [2003] demonstrated that TLH can add 0.5–1.0% annually to after-tax returns. Stein [2008] and Stein and Narasimhan [1999] analyzed TLH in the context of direct indexing and separately managed accounts. Arnott, Berkin, and Ye [2000] compared the tax efficiency of active and passive strategies over extended periods.

Other tax-aware strategies have also been examined. Apelfeld, Fowler, and Gordon [1996] introduced tax-aware equity management, while Jeffrey [2001] and Horan [2007] explored tax-efficient withdrawal strategies in retirement. Reichenstein [1998, 2006] and Poterba [2001] contributed to understanding asset location decisions, while Garlappi, J. Huang, and X. Huang [2016] and DeMiguel and Uppal [2005] examined tax-aware portfolio optimization.

## Industry practice and tax measurement

Industry practice has evolved alongside academic research. Morningstar's Tax Cost Ratio (TCR) methodology, described by Kinnel [2005] and expanded by Hale [2017], provides a standardized measure of tax drag. Vanguard's research on TLH [Bennyhoff, Kinniry, 2010; Bennyhoff, 2018] quantified potential benefits across market environments. Major asset managers including BlackRock [Schoenfeld, 2015], Parametric [Garland, 2016], and Axioma [Blin, Guerard, Mark, 2014] developed proprietary tax-aware optimization tools and published case studies of their effectiveness.

Despite such conceptual advances, performance reporting standards have been slow to evolve. While the CFA Institute [2010] provides guidelines for after-tax return calculation, actual implementation remains sluggish and patchy. The US Securities & Exchange Commission's (SEC's) requirements for after-tax returns in mutual fund prospectuses (Form N-1A) represent encouraging progress, but these returns often use simplifying assumptions that may not reflect actual investor experiences [Philips, 2012].

## The gap in after-tax risk-adjusted metrics

The subject literature reveals a yawning disconnect between tax-aware investing and performance measurement. While substantial research exists on tax effects and tax-management strategies, and while industry tools quantify tax benefits, no widely adopted framework exists for integrating tax effects into standard risk-adjusted performance metrics.

Several authors have noted this gap. Horan [2007] observed that traditional performance measures are "tax-blind," while Reichenstein [2006] argued for after-tax performance evaluation. More recently, Kinniry, Jaconetti, and Dijoseph [2018] and Bennyhoff [2019] called for better integration of tax considerations into investment analysis. However, formal frameworks for tax-adjusted alpha, Sharpe ratios, and Information ratios remain underdeveloped in the academic literature.

The paper addresses this gap by developing formal after-tax versions of standard performance metrics and providing a framework for their implementation using evidence from industry practice.

## Capital gains taxation and portfolio timing options

Capital gains tax (CGT) directly affects investor returns when assets are sold at a profit. Its key features create portfolio timing options:

- Realization-based taxation: tax is due only when gains are realized, allowing deferral opportunities [Constantinides, 1983].
- Preferential long-term rates: lower rates for assets held beyond specified periods.
- Loss offset provisions: losses can offset gains and sometimes ordinary income.

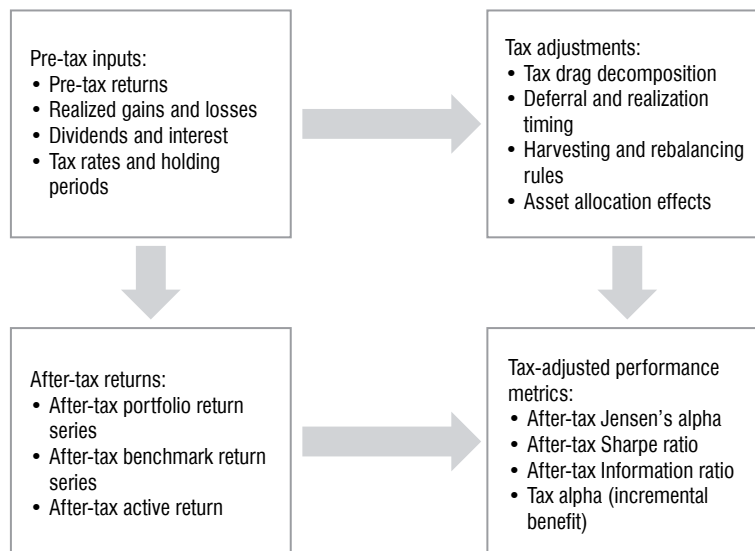
- These features enable tax-aware trading strategies:
- Tax-loss harvesting: realizing losses to create tax offsets [Berkin, Ye, 2003].
- Gain deferral: postponing realization to allow pre-tax compounding [Dammon et al., 2001].
- Bracket management: timing realizations to optimize tax rates [Stiglitz, 1983].

From a portfolio perspective, CGT is a central driver of tax alpha, as realization timing materially influences after-tax returns even with modest pre-tax outperformance.

## Classical and tax-adjusted risk-adjusted performance measures

Figure 1 sums up the interaction among pre-tax inputs, after tax returns, tax adjustments and tax adjusted performance metrics. As aforementioned, the success of tax-aware portfolio management requires a seamless embedding of the tax effects into the asset management process. This postulates a parallel management of investment decision and tax events towards optimal investment outcomes.

**Figure 1. Framework for tax-adjusted performance measurement**



Source: own elaboration.

Table 1 catalogues the classical and tax-adjusted performance metrics along with their tax-related interpretations. The overriding rationale for the tax-adjusted performance measurement is treating tax events as costs whose allocation on the timeline is largely flexible.

The tax-adjusted metrics require richer data (tax-lot information, realization patterns, investor-specific brackets) but maintain the familiar structure and intuition of their classical counterparts.

**Table 1. Classical and tax-adjusted risk-adjusted performance metrics**

Metric	Classical Definition (Pre-tax)	Tax-Adjusted Counterpart	Tax-Aware Interpretation
Jensen's Alpha ( $\alpha$ )	$\alpha = R_p - [R_f + \beta_p(R_m - R_f)]$	Tax Alpha ( $T\alpha$ ): Same formula with $R_p$ and $R_m$ replaced by after-tax returns $R^{(AT)}$	Value added after controlling for market risk and investor tax effects
Sharpe Ratio (S)	$S = (R_p - R_f)/\sigma_p$	After-tax Sharpe ( $S^{(AT)}$ ): $S^{(AT)} = (R_p^{(AT)} - R_f)/\sigma_p^{(AT)}$	Reward per unit of total risk after tax drag and tax-induced volatility
Information Ratio (IR)	$IR = (R_p - R_b)/TE$	After-tax IR ( $IR^{(AT)}$ ): $IR^{(AT)} = (R_p^{(AT)} - R_b^{(AT)})/TE^{(AT)}$	Active after-tax value per unit of tracking error versus after-tax benchmark

Source: own elaboration on the classical portfolio performance metrics.

## Research design and methodology

### Conceptual-empirical hybrid approach

I adopt a hybrid research design with two components:

1. **Conceptual development:** extending classical performance measures to tax-adjusted versions.
2. **Empirical synthesis:** systematically reviewing simulation outputs from market-based tax-aware portfolio tools.

This approach leverages available evidence while providing theoretical structure for interpretation. Rather than developing new simulation engines, I curate and normalize existing industry evidence to establish empirical ranges and patterns.

### Research hypotheses

Based on the research questions formulated, I test the following three hypotheses:

- H1:** Systematic tax-management strategies generate economically significant tax alpha (0.5–3.5% per annum, p.a.) for taxable investors.
- H2:** Tax-adjusted performance metrics provide materially different evaluations than pre-tax metrics for tax-aware strategies.
- H3:** The magnitude of tax alpha varies predictably with market conditions and investor characteristics.

### Data sources and tool selection

I analyze six prominent simulation tools used in institutional contexts (alongside their related fortes):

1. Vanguard's Tax Alpha Calculator (direct indexing TLH).
2. Morningstar's Tax Cost Ratio (tax drag measurement).
3. Parametric's SMA simulations (tax-managed equity).
4. Axioma's tax-aware optimizer (constrained rebalancing).

5. Netbasis year-end simulator (realization strategy).
6. BlackRock's SMA models (bracket-aware management).  
These tools have been selected because they display the following significant traits:
  - prevalence – are widely used in business practice;
  - transparency – disclose the underlying modelling assumptions;
  - actionability – they help to quantify incremental tax benefits.

## Simulation model for demonstrating tax-adjusted metric computation

To demonstrate the practical computation and interpretation of tax-adjusted metrics, I have developed a simulation model that compares a buy-and-hold strategy against a systematic tax-loss harvesting (TLH) strategy. The simulation was designed to reflect realistic market conditions and tax parameters drawn from industry practice.

The simulation models a taxable equity portfolio over a representative, 10-year horizon using daily returns. The key design parameters used by the simulations include:

1. Return process: daily returns are generated with an annualized expected return of 7% and volatility of 16%, incorporating mild autocorrelation to better reflect actual market behaviour.
2. Tax parameters: federal and state tax rates are applied (37% federal + 5% state for short-term gains; 20% federal + 5% state for long-term gains).
3. TLH rules: a security is harvested when it reaches a 5% loss relative to its tax basis, subject to a 30-day wash-sale restriction. Transaction costs of 5 basis points per trade are incorporated.
4. Tax lot accounting: the simulation tracks multiple tax lots with varying holding periods to determine applicable tax rates (short-term vs. long-term).
5. Initial investment: US\$ 250,000, consistent with case studies from industry tools and the HNWI archetype.

To test Hypotheses 1–3, the simulation compares two basic and starkly different strategies:

1. **Buy-and-hold:** no active tax management.
2. **Tax-loss harvesting:** systematic realization of losses when thresholds are met.

After-tax returns are calculated by netting out realized tax liabilities and adding tax savings from harvested losses. The tax-adjusted metrics are then computed as defined in Table 1.

## Analytical procedure

The three-step analytical procedure comprises the following actions:

1. Assumption review: documenting each tool's key parameters (tax rates, thresholds, costs, horizons).
2. Outcome normalization: converting scenario results to annualized tax alpha ranges.
3. Framework integration: interpreting results through tax-adjusted metric lens.

## Limitations

As with most research pursuits, the analysis hinges on a few simplifying assumptions. I thus acknowledge the following serious limitations to this study:

1. Third-party simulations: results depend on proprietary engines and assumptions. Each of these assumptions, although helpful in the research process, is an obvious shortcut.
2. US focus: numerical results are jurisdiction-specific. Extrapolations into other tax systems may be precarious. It is noteworthy that tax systems, as a rule, vary considerably among individual jurisdictions and even within a single jurisdiction (owing to local tax levies), which renders any comparisons controversial.
3. Stylized scenarios: not transaction-level fund data. Extension of the research into fund-specific empirical scrutiny is highly advisable in the future.

These limitations suggest directions for future research discussed at the end of this document.

## Empirical results

### Evidence from industry simulation tools

Table 2 describes the estimated tax alphas, key drivers of their extraction, as well as illustrative case studies.

**Table 2. Tax-alpha estimates from industry simulation tools with case study examples**

Tool & Strategy	Estimated Tax Alpha (% p.a.)	Key Drivers & Notes	Illustrative Case Study
Vanguard Tax Alpha Calculator (Direct indexing TLH)	0.7–3.5	Higher in volatile markets; depends on loss threshold, tax bracket	US\$250k direct indexing account: cumulative losses harvested ranged from \$ 18,500 to US\$ 142,000 over 1992–2022 [Vanguard, 2025]
Morningstar TCR (Tax drag measurement)	–2.0–0.5 (negative alpha)	Fund turnover, distribution yield; lower TCR = higher effective after-tax Sharpe	Top vs bottom decile: 28.9% higher terminal wealth for funds with TCR 0.35% vs 1.80% over 20 years [Morningstar, 2025]
Parametric SMA Simulations (Tax-managed equity)	1.0–2.0	Volatility, unrealized gain distribution, tracking error tolerance	US\$ 1M 60/40 portfolio: realized 1.45% annualized tax alpha via monthly loss harvesting [Parametric, 2025]
Axioma Tax-Aware Optimizer (Constrained rebalancing)	0.5–1.5 (vs. calendar rebalancing)	Gain thresholds, turnover limits; trades off tax alpha vs. tracking error	US\$ 46M university endowment: shift to ESG policy with only 4.1% realized gains saved US\$ 2M in deferred taxes [Axioma, 2025]
Netbasis Year-End Simulator (Realization optimization)	Scenario-dependent (0.5–2.0 equivalent)	Lot selection, timing; non-linear tax outcomes	Two-parent household with US\$ 375k AGI: donor-advised fund strategy saved US\$ 22,400 capital gains tax + US\$ 9,800 income tax [Netbasis, 2025]
BlackRock SMA Models (Bracket-aware management)	1.0–1.5	Income trajectory, threshold proximity, multi-account coordination	US\$ 500k household portfolio: generated 1.25%–1.55% annual alpha with bracket-aware deferral across CA, NY, TX tax regimes [BlackRock, 2025]

Source: own elaboration based on the original tool data.

Although the magnitude of such alphas may seem unimpressive at first, yet given the extremely competitive nature of the contemporary asset management industry, any improvement in the risk-adjusted wealth remains nontrivial.

## Key patterns from industry tools

The research reveals several consistent patterns. While largely intuitive to investors, classifying them facilitates more effective tax-oriented stewardship of assets. The following key takeaways deserve particular emphasis.

**Volatility drives opportunity:** higher market volatility increases TLH opportunities and tax alpha potential. This is inherent to the tax mechanism itself: offsetting losses against gains requires significant price fluctuations in the underlying assets.

**Bracket sensitivity matters:** tax alpha is more pronounced for investors in higher tax brackets. This aligns with the natural tendency of taxpayers to employ mitigation strategies to avoid higher marginal rates.

**Implementation is key:** transaction costs, wash-sale rules, and trading constraints directly impact realizable benefits. While taxes are a significant investment cost, they are not the only ones. Modern portfolio management must balance various cost factors and their interaction with gains to achieve an optimal risk-reward profile.

**Multi-account coordination:** managing taxes at the household level adds incremental value, especially when individual members have significantly different income levels or tax statuses – a common real-world scenario.

These results provide empirical grounding for the tax-adjusted metrics framework and corroborate Hypotheses: 1 and 3.

## Simulation outcomes

In a representative simulation run, the TLH strategy has generated:

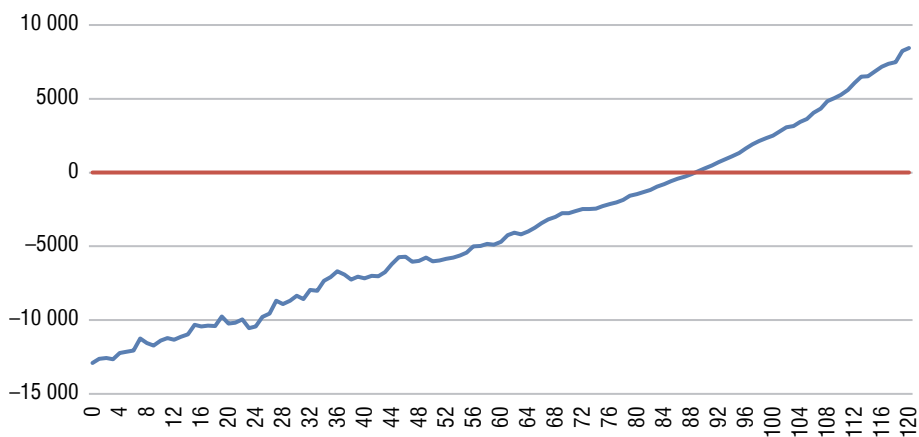
1. Tax alpha: 0.82% per annum (within the 0.7–3.5% range observed in industry simulations).
2. After-tax Sharpe ratio improvement: from 0.35 (buy-and-hold) to 0.42 (TLH), a 20% enhancement.
3. Tax savings: US\$ 8,450 on the initial US\$ 250,000 investment.
4. Wealth path smoothness: the TLH strategy produced a more stable after-tax growth trajectory with reduced drawdowns.

Figure 2 plots the incremental after-tax wealth of systematic TLH relative to buy-and-hold, i.e. the result of TLH – buy-and-hold calculation. The incremental benefit is negative for much of the horizon, which is consistent with TLH benefits being primarily a *timing* effect rather than an immediate return enhancement: the strategy may incur early realization frictions and/or implementation drag while harvested losses are carried forward and only become valuable once they can be used to offset gains. In this run, the incremental series “breaks even” around

month 89 and thereafter enters positive territory, implying that the tax-timing benefits of TLH accumulate over time and can require a long stretch to outweigh early drags. By month 120, TLH finishes ahead by about US\$ 8,450, roughly 1.88% of the terminal buy-and-hold wealth.

The simulation demonstrates several key insights for practical implementation, including threshold sensitivity, wash-sale impact, transaction cost trade-offs, and scalability considerations. While simplified relative to institutional systems, this simulation provides a transparent foundation for understanding how tax-adjusted metrics are computed and how TLH contributes to after-tax risk-adjusted performance. The results support Hypothesis 2, showing that tax-aware strategies receive materially different evaluations under tax-adjusted metrics compared to traditional pre-tax measures.

**Figure 2. After-tax TLH minus B&H over the surveyed period (10 years)**



Source: own elaboration of the original data based on the assumptions made.

## Discussion: contributions and implications

### Theoretical contributions and originality

The primary theoretical contribution here is bridging the gap between tax research and performance measurement [Horan, 2007] by providing the first unified framework that translates disparate industry tax-alpha simulations into standardized, comparable tax-adjusted performance metrics. Unlike previous studies that quantify tax benefits in isolation [Chaudhuri et al., 2020; Goldberg et al., 2019], the paper provides a systematic methodology for integrating these benefits into mainstream performance evaluation.

The originality of the approach lies in a few vital breakthroughs:

1. Formalization of tax-adjusted metrics with clear mathematical definitions.
2. Normalization framework for comparing heterogeneous industry simulations.
3. Implementation of the pathway from conceptual metrics to practical analytics.

This addresses the literature gap identified earlier, moving beyond certain informal references to “tax alpha” all the way to measurable, comparable metrics that can be consistently applied across strategies and managers.

## Practical implications

For practitioners, the framework enables:

1. Enhanced performance reporting: after-tax versions of alpha, Sharpe, and Information ratios for client reporting.
2. Improved product design: tax-managed products positioned using risk-adjusted tax benefits.
3. Better client communication: tax planning framed as risk-adjusted value addition rather than a compliance chore.
4. Manager evaluation: assessment of tax management skills alongside traditional investment talents will lead to a more merit-based playing field.

## Limitations and future research

The limitations of the study can be explored in several directions in future research:

1. Cross-jurisdictional insights: applying the framework to different tax regimes (e.g. wealth-tax systems and accrual-based taxation).
2. Transaction-level analysis: using actual fund data rather than simulations. This will require broad access to detailed fund statistics.
3. Behavioural integration: incorporating investor biases (gain aversion, mental accounting) and constraints.
4. Dynamic tax policy: modelling effects of changing tax rules and political environments

Future work should also explore integration with sustainable finance frameworks, where tax efficiency could be construed as a component of environmental, social, and governance (ESG) integration – particularly under the “G” (i.e. governance) pillar.

## Summary

The paper advances tax-aware investing research by providing a measurement framework and evidence that connects tax management to mainstream risk-adjusted performance evaluation.

First, the paper derives tax-adjusted versions of Jensen’s alpha, the Sharpe ratio, and the Information ratio and clarifies their implementation requirements, enabling consistent reporting of after-tax, risk-adjusted outcomes in taxable portfolios.

Second, synthesizing scenario outputs from six widely used tax-aware portfolio platforms, the paper documents that the implied magnitude of tax alpha is often material under realistic

assumptions: reported ranges typically fall between 0.7–3.5% p.a. for equity direct-indexing implementations centred on TLH and roughly 1–2% per year for separately managed accounts.

Third, I translate these results into an implementable workflow for practitioners and researchers, highlighting how transaction costs, wash-sale constraints, turnover, and investor tax circumstances affect realizable benefits.

Taken together, the results imply that in settings where pre-tax alpha is difficult to sustain, tax management can represent a measurable and potentially first-order source of after-tax value added. More broadly, the proposed metrics offer a practical route towards after-tax performance standards that better reflect investors' economic outcomes and permit clearer attribution of value between investment selection, risk exposure, and tax decisions.

Table 3 encapsulates stakeholder groups affected by the new tax-aware portfolio management framework, implications for their behaviour, and actions required towards a holistic (tax aware) portfolio management paradigm.

**Table 3. Stakeholder engagement, implications, and actions required as part of the tax-aware portfolio management strategy**

Stakeholder	Implication	Action Required
Researchers	New tools for evaluating performance in taxable contexts	Develop cross-jurisdictional studies and behavioural extensions
Asset Managers	Tax management as measurable core competency	Integrate tax-adjusted metrics into analytics and reporting
Financial Advisors	Enhanced value proposition through tax-aware planning	Adopt tax-adjusted metrics in client communications
Investors	Better alignment of metrics with true economic outcomes	Demand after-tax performance reporting
Regulators	Opportunity for standardized after-tax disclosure	Consider mandating tax-adjusted metrics in fund reporting

Source: own elaboration.

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