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Understanding a Tax-Aware Defensive Equity Long-Short Strategy

Executive Summary

We describe a hypothetical Tax-Aware Defensive Equity Long-Short (TADELS) strategy, including its construction and pre-tax and after-tax performance. TADELS closely replicates the pre-tax performance of a similar hypothetical tax-agnostic strategy and has the potential to achieve a meaningful tax benefit for a taxable investor. TADELS tax benefit remains even when accounting for liquidation taxes. We show that TADELS is attractive in both up- and down-market periods and can diversify typical hedge fund allocations. Moreover, TADELS tax benefit has the potential to make an investor's entire portfolio more tax-efficient.

Nathan Sosner
Principal
Specialized Investments Group

Ted Pyne
Principal
Tax Aware Solutions

Joseph Liberman
Vice President
Specialized Investments Group

Steven Liu
Analyst
Specialized Investments Group

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Contents

Introduction

In this paper we construct and study the performance of a hypothetical Tax-Aware Defensive Equity Long-Short strategy, hereafter abbreviated as TADELS. Although this strategy is not intended to replicate the performance of any of the strategies managed by AQR, it is designed to represent a class of strategies that have a moderate level of market beta that go long low-risk, high-quality, cheap stocks while at the same time shorting higher-risk, low-quality, expensive stocks. Where relevant, we compare TADELS to another hypothetical strategy—a tax-agnostic Defensive Equity Long-Short strategy, abbreviated as DELS. DELS is similar to TADELS in all aspects of portfolio construction except for tax-aware rebalancing.

We show that TADELS has the potential to serve multiple purposes in investors' portfolios. First, it may be suitable for investors who desire an equity beta and a high active return but prefer a more defensive posture to their equity allocation. Notably, Frazzini, Kabiller, and Pedersen (2018) show that a strategy that has a moderate level of market beta and exposure to low beta, quality, and value factors, would have achieved a higher Sharpe ratio than any US mutual fund over a more than 40-year period from 1976 to 2017.

Second, we find that TADELS can help investors diversify their hedge fund portfolios by providing exposure to defensive factors underrepresented in a typical hedge fund portfolio. And our finding is not unique. Asness, Ilmanen, Israel, and Moskowitz (2015) show that many HFR hedge fund indices either do not load or load negatively on a Defensive factor they construct in their paper. Similarly, Blitz (2018) shows that hedge fund indices provided by HFR and Credit Suisse tend to load negatively on various low-risk factors.[1]

Third, TADELS might be attractive to investors looking to improve the tax efficiency of their hedge fund allocations. Short-term capital losses realized by the strategy potentially can offset short-term capital gains realized by other less tax efficient hedge funds.[2] This is consistent with the ability of long-short strategies to realize stable and sustainable short-term losses previously discussed in Sialm and Sosner (2018) and Sosner, Krasner, and Pyne (2019).

1 The finding that hedge funds might not have sufficiently exploited historically profitable low-risk investing is puzzling. The low-risk anomaly is often explained by limits to arbitrage imposed by leverage constraints, short-selling constraints, and benchmark-relative investing. However, hedge funds generally don't face such constraints.

2 We caution our readers that this topic is complex and, therefore, they would be well-advised to discuss it with their tax advisors.

The Rationale for Defensive Equity Investing

In historical data, stocks that rank high on defensive characteristics outperform, on a risk-adjusted basis, stocks that rank low on defensive characteristics. For example, Frazzini, Friedman, and Kim (2012) show that stocks' volatility increases with their equity market beta while their expected returns remain approximately the same. More specifically, whereas the average return of the lowest beta stocks is a little higher than that of the highest beta stocks, their volatility is less than half of the volatility of the highest beta stocks. This means that low-beta (defensive) stocks provide a significantly more attractive risk-return tradeoff than high-beta stocks. Asness, Frazzini, and Pedersen (2014) show that this effect is not purely an industry or sector bet—e.g., Consumer Staples versus Information Technology—and that it exists both within and across industries.

Various explanations of the low-beta effect have been offered in the literature. Frazzini and Pedersen (2014) propose and find strong empirical support for a leverage constraints hypothesis—investors who are constrained in their ability to invest on margin access risk through high-beta stocks rather than through leverage, which in turn bids up prices (and reduces expected returns) of high-beta stocks. Baker, Bradley, and Wurgler (2011) propose a "benchmarks as limits to arbitrage" hypothesis. According to this hypothesis, institutional investors managing long-only benchmark-relative mandates with an objective to outperform a benchmark might find low-beta/high-alpha stocks less suitable for achieving this objective than high-beta/low-alpha stocks, thus leading to high-beta stocks being overvalued due to the high demand by institutional benchmark-relative managers. Both the leverage constraints and the "benchmarks as limits to arbitrage" hypotheses suggest two things about the low-beta anomaly. First, investors who don't face leverage and long-only constraints should be able to take advantage of this anomaly. Second, the anomaly is hard to arbitrage away because it exists due to pervasive structural inefficiencies.[3]

Asness, Frazzini, and Pedersen (2019) find that although stocks of high-quality (defensive) firms do command higher prices than stocks of low-quality firms, stock prices do not fully incorporate the firms' quality characteristics. As a result, stocks of high-quality firms exhibit higher risk-adjusted returns than stocks of low-quality firms. Similar results were found by Hsu, Kalesnik, and Kose (2019).

Interestingly, Frazzini, Kabiller, and Pedersen (2019) show that the use of leverage and exposure to low-beta high-quality stocks largely accounts for the legendary performance of Warren Buffett's Berkshire Hathaway. Based on their statistical analysis, Frazzini, Kabiller, and Pedersen (2019) argue that "Buffett's returns appear to be neither luck nor magic but, rather, a reward for leveraging cheap, safe, high-quality stocks." As we explain below, TADELS implements a similar approach to investing by going long cheap, low-risk, high-quality stocks and short expensive, high-risk, low-quality stocks.

3 Blitz, Falkenstein, and van Vliet (2014) provide an overview of alternative explanations for the low-volatility effect which range from option value maximization to preference for skewness (or lottery-like payoffs) to attention-grabbing stocks.

What is a TADELS Strategy?

Characteristics of the TADELS Portfolio[4]

We construct TADELS as a long-short strategy that reflects a defensive investment approach—it goes long low-risk, high-quality stocks and short higher-risk, low-quality stocks. We measure the relative risk of stocks using market beta—low-beta stocks are defined as relatively safe while high-beta stocks are defined as relatively risky. Whereas quality might include multiple dimensions,[5] for the sake of simplicity, in this study we use only one dimension of quality—profitability. We measure profitability using the gross-profit-over-assets (GPOA) ratio.

In order to account for the fact that some low-risk, high-quality stocks might be priced too rich relative to their fundamentals, while some higher-risk, low-quality stocks might be attractively cheap, TADELS also makes a moderate allocation (20% of its total risk budget) to the value investment theme. We use a simple and the most-studied measure of value—the book-to-price (BP) ratio.[6]

To summarize, TADELS goes long low-risk, high-quality stocks at reasonable prices and short higher-risk, low-quality, expensive stocks. In Appendix B, we explain the potential advantages of the long-short approach to defensive investing.

TADELS invests in a universe of global large-capitalization stocks in developed markets similar to the MSCI World index universe[7] and targets an active risk of 10% and a 0.5 beta to the global developed equity market index—MSCI World index. Due to the 0.5 beta exposure to the MSCI World index,[8] the appropriate benchmark for TADELS is comprised of 50% MSCI World index and 50% US 3-month Treasury bills. The active portfolio of TADELS achieves its 10% target risk via relative value bets on individual stocks that are approximately beta-neutral to countries and industries.[9]

Although, the active stock-selection portion of TADELS is constructed to be beta-neutral, TADELS exhibits a substantial net long notional exposure. On average, for a $100 NAV, TADELS has a gross notional exposure of $491—$308 long and $183 short.

The net notional exposure of $124 comes from two sources. First, the 0.5 beta exposure of TADELS results in $50 of long exposure. Second, since the long leg of the TADELS portfolio contains relatively

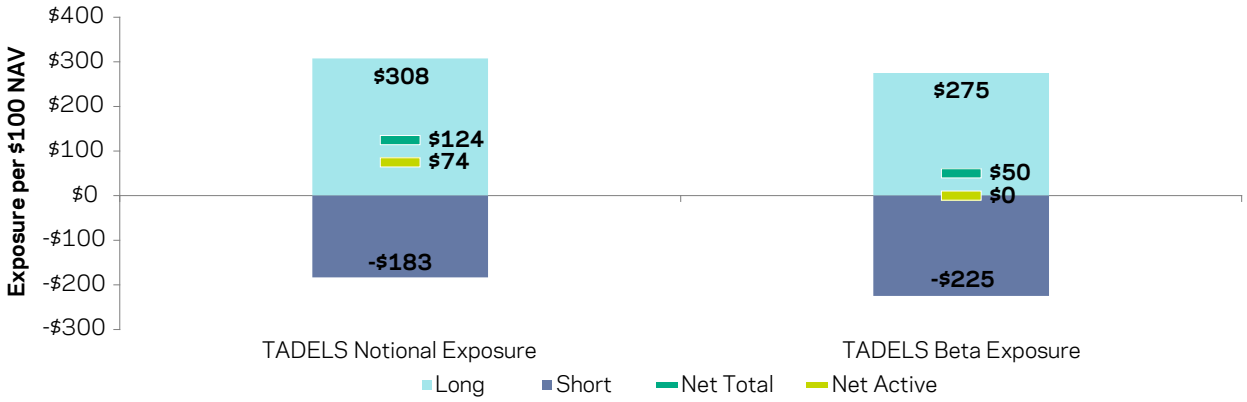
4 See Appendix A for further details on TADELS methodology.
5 See, for example, the quality-minus-junk factor construction in Asness, Frazzini, and Pedersen (2019).
6 As in Asness and Frazzini (2013), we use the most recent available price in the denominator of the book-to-price ratio.
7 For TADELS universe construction, we start with all stocks in MSCI World universe and apply the following filters: exclude stocks with price above $100,000; exclude REITs; exclude stocks that IPO-ed in the last 18 months; for multiple share classes of the same company, retain only the share class with the highest trading volume. After all the filters are applied, we retain approximately 90% of the MSCI World index constituents.
8 This level of beta is roughly consistent with the beta of long-short equity hedge fund indices such as HFRI Equity Hedge (Total) Index and Credit Suisse Long/Short Equity Index.
9 As we already mentioned above, Asness, Frazzini, and Pedersen (2014) find that low-beta strategies work both within and across industries, although an industry-neutral strategy, like the one we model here, exhibits stronger performance.

low-beta stocks while the short leg of the portfolio contains relatively high-beta stocks, the long leg needs to be levered up relative to the short leg to achieve a beta-neutral active portfolio. This results in an additional $74 of net long exposure.

Exhibit 1 illustrates an average TADELS portfolio exposure in notional and beta units over a 26-year period from January 1994 to December 2019.[10]

Exhibit 1

Average TADELS Portfolio Exposure in Dollar and Beta Units for $100 NAV, 1994-2019



Source: AQR. Data from January 1, 1994, to December 31, 2019. See Appendix A for details on the simulation. TADELS is a hypothetical strategy benchmarked to a custom benchmark comprised of 50% MSCI World index and 50% US 3-month Treasury bills. Beta is with respect to the MSCI World index. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

Tax-Aware Rebalancing of TADELS Portfolio

What makes TADELS tax-aware? Tax awareness pertains to the way TADELS portfolio is rebalanced. In this study, every month the portfolio is adjusted to reflect more closely current defensive and value factor exposures, the target active risk of 10%, and the target equity market beta of 0.5.

At the time of portfolio rebalance, prospective position changes are evaluated based simultaneously on their economic and tax implications. From a tax perspective, every trade that would result in a realized gain is considered a tax penalty, while every trade that would result in a realized loss is considered a tax benefit. Character of the potential gain or loss is also taken into account: Trades that result in a short-term capital gain are more punitive than those that result in a long-term capital gain, whereas trades that result in a short-term capital loss are more beneficial than those that result in a long-term capital loss.

On balance, those potential trades which yield a relatively large increase in the desired economic exposure and short-term losses tend to be executed, whereas trades

10 A somewhat nuanced point relates to currency hedging. Although TADELS active portfolio is beta neutral, it has a net long notional exposure which implies that TADELS portfolio is generally net long all developed markets. The 0.5 beta results in an additional long notional exposure to the developed markets. A notional exposure to a foreign equity market represents a simultaneous exposure to performance of the country's equity and currency. Whereas the exposure to foreign equities is intentional, the exposure to foreign currency is unintended. As a result, when strategies like TADELS are managed in practice, a manager might choose to hedge out currency exposures. To simplify TADELS simulations, we do not perform such currency hedging. However, when we manage investment strategies for AQR clients, we do implement currency hedging.

which yield a relatively small increase in the desired economic exposure and short-term gains tend to be avoided.

TADELS Expected Pre-Tax Performance

Based on empirical analysis in the next section, we expect TADELS to exhibit a long-term pre-tax information ratio of 0.5-0.6.[11] At the target risk of 10%, this information ratio translates into 5 to 6% expected annual active return, computed as 0.5-0.6 information ratio times 10% active risk.[12] Given that current expectations of equity premium are in the 4 to 5% range,[13] a 0.5 beta to the market gives an additional 2 to 2.5% of excess return, i.e. return in excess of the risk-free rate. As a result, for TADELS, a reasonable expectation of long-term pre-tax return in excess of the risk-free rate is in the 7 to 8.5% range.

After-Tax TADELS Returns

As we will see in this section, an important component of after-tax performance is potential expected *tax benefit*. Tax benefits increase attractiveness of a strategy for taxable investors. A tax benefit occurs when a strategy realizes a favorable mix of gains and losses thereby reducing the overall tax burden of the investor's larger investment portfolio.

For the purpose of calculating the tax benefit, we assume that realized losses can be used immediately to offset capital gains of the same character elsewhere in the investor's portfolio. Thus, the results in this paper are most relevant for investors who realize sufficient short-term capital gains from other investments. The benefits of tax losses are lower for investors who do not have any short-term capital gains realized elsewhere in their portfolios.

Recent Returns of TADELS

We first verify that TADELS recent performance is consistent with performance of defensive strategies. It is well-documented that in the past decade defensive-type strategies exhibited strong pre-tax performance and in Exhibit 2 we confirm that this result holds for TADELS.[14] In the past 10 years, TADELS exhibited pre-tax returns ranging from 16.0% for the 2010-2019 period to 23.4% in 2019. In addition to pre-tax returns, we also show TADELS after-tax performance. The average after-tax returns of the strategy are also high—from 21.2% over the last 10 years to 31.3% in 2019.[15]

Whereas some of TADELS return was contributed by its 0.5 beta exposure to MSCI World, the active returns of TADELS shown

11 Information ratio is a measure of risk-adjusted active return of a strategy and is computed as the strategy's return in excess of the relevant risky benchmark return dividend by the strategy's tracking error to the benchmark.

12 Note that in TADELS we only use three factors—BAB for low beta, GPOA for quality, and BP for value. A richer defensive model like the one described, for example, in Asness, Frazzini, and Pedersen (2019) has the potential to increase the expected information ratio above the 0.5-0.6 level assumed here and thereby also increase the expected active return.

13 See, for example, AQR Alternative Thinking (2020).

14 The simulation of TADELS returns and tax benefits begins on January 1, 1994. Here we just show the last 1, 3, 5, and 10 years of that simulation, respectively.

15 Note that after-tax performance may vary from investor to investor. Investors should consult their tax-advisors regarding applicability of a strategy's tax benefits to their specific situation.

in the bottom panel of Exhibit 2 are also high and positive. On its 10% active risk target, TADELS realized a 10.5% average return in the last 10 years and 9.6% in 2019, with average after-tax return of 16.1% and 18.3% for the corresponding 10- and 1-year periods.

Exhibit 2
Hypothetical Recent Period Returns of TADELS, Ending in December 2019

	1 Year	3 Years	5 Years	10 Years
TADELS Total Annual Return				
Pre-Tax	23.4%	21.7%	18.9%	16.0%
Tax Benefit	7.8%	6.4%	5.3%	5.2%
After-Tax	31.3%	28.1%	24.2%	21.2%
TADELS Active Annual Return				
Pre-Tax	9.6%	14.5%	13.6%	10.5%
Tax Benefit	8.6%	7.0%	5.9%	5.7%
After-Tax	18.3%	21.5%	19.5%	16.1%

Source: AQR. Data from January 1, 2010, to December 31, 2019. The simulation of hypothetical TADELS returns and tax benefits begins on January 1, 1994. The table shows the last 1, 3, 5, and 10 years of that simulation, respectively. See Appendix A for details on the simulation. TADELS is benchmarked to a custom benchmark comprised of 50% MSCI World index and 50% US 3-month Treasury bills. Tax benefit is the potential federal tax benefit (liability if negative). Active tax benefit is the potential incremental federal tax benefit (liability if negative) relative to the custom benchmark. Potential federal tax benefits and after-tax returns assume no state taxes and assume that the tax payer has sufficient business or other income, long-term capital gains, and short-term capital gains from sources outside this portfolio to offset any net deductions, long-term capital losses, and short-term capital losses, respectively, realized by TADELS. Hypothetical returns are net of transaction and financing costs but gross of management fees. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

To be clear, we show the recent TADELS performance not because it affects the performance expectations for TADELS going forward but merely because we want to confirm that TADELS exhibits pre-tax results consistent with recent experience of investors in defensive strategies. On a forward-looking basis, the best pre-tax performance estimate for TADELS would still be informed by its long-term performance expectations: a total annual pre-tax return in excess of the risk-free rate in the 7 to 8.5% range, as explained in the previous section.

Comparison of TADELS and DELS

To demonstrate the importance of tax-aware portfolio management, in Exhibit 3 we compare two defensive strategies—TADELS and DELS. These two hypothetical strategies target identical levels of leverage, active risk, market beta, and turnover. The only difference between the strategies is that DELS ignores tax implications of trading whereas TADELS employs tax-aware rebalancing as described above.

As can be seen in Exhibit 3, the pre-tax returns of both TADELS and DELS are high and positive. During the 1994-2019 sample period, both strategies produced an annual pre-tax *active* return of approximately 7% and an annual pre-tax *total* return of approximately 12.5%.

Importantly, tax awareness does not detract from the pre-tax performance of TADELS. The average pre-tax returns of TADELS and DELS, as well as their pre-tax Sharpe ratios and information ratios,[16] are similar

16 Sharpe ratio is a measure of risk-adjusted *total* return of a strategy and is computed as the strategy's total return in excess of risk-free rate divided by the strategy's volatility. Information ratio is a measure of risk-adjusted *active* return of a strategy and is computed as the strategy's return in excess of the relevant risky benchmark return dividend by the strategy's tracking error to the benchmark. When computing after-tax Sharpe and information ratios we use after-tax risk-free rate and after-tax benchmark return, respectively.

and, as we show in the bottom row of Exhibit 2, the pre-tax return correlation between the two strategies is 0.98.

Interestingly, even the tax-agnostic DELS strategy is quite tax-efficient. Exhibit 3 shows that it realizes a small total tax benefit of 0.4% and an active tax benefit of 1.2%.[17] In addition, as shown in Sialm and Sosner (2018), long-short strategies are particularly well-suited for tax-aware management. This conclusion also holds for TADELS, which realizes a total tax benefit of 7.6% and an active tax benefit of 8.4%, thereby increasing the tax benefit by about 7% compared to DELS.[18]

Notably, the additional tax benefits of TADELS are achieved without modifying the overall leverage or turnover of the strategy. As we show in Exhibit 3, both TADELS and DELS have identical levels of notional exposure and overall portfolio turnover.

In sum, DELS has a high and positive after-tax total return of 12.9% coming from both its strong pre-tax performance and tax efficiency. TADELS starts from this foundation and, by adding tax awareness to the portfolio management process, increases the after-tax return by an additional 7% thus producing a total after-tax return of 19.9%.

Exhibit 3
Hypothetical Pre-Tax and After-Tax Returns of TADELS and DELS, 1994-2019

	TADELS	DELS
Total Annual Return		
Pre-Tax	12.3%	12.5%
Tax Benefit	7.6%	0.4%
After-Tax	19.9%	12.9%
Total Annual Risk		
Pre-Tax	13.0%	12.9%
After-Tax	13.4%	12.9%
Sharpe Ratio		
Pre-Tax	0.75	0.77
After-Tax	1.37	0.88
Notional Value, % of NAV		
Long	308	305
Short	183	183
Gross	491	488
Pre-Tax Return Correlation of TADELS and DELS		
Total Return Correlation	0.98	

	TADELS	DELS
Active Annual Return		
Pre-Tax	6.8%	6.9%
Tax Benefit	8.4%	1.2%
After-Tax	15.1%	8.1%
Active Annual Risk		
Pre-Tax	11.6%	11.5%
After-Tax	11.9%	10.8%
Information Ratio		
Pre-Tax	0.59	0.61
After-Tax	1.27	0.76
Turnover		
% of NAV	863	859
% of GNV	176	176
Pre-Tax Return Correlation of TADELS and DELS		
Active Return Correlation	0.98	

Source: AQR. Data from January 1, 1994, to December 31, 2019. See Appendix A for details on the simulation. TADELS and DELS are hypothetical strategies benchmarked to a custom benchmark comprised of 50% MSCI World index and 50% US 3-month Treasury bills. Tax benefit is the potential federal tax benefit (liability if negative). Active tax benefit is the potential incremental federal tax benefit (liability if negative) relative to the custom benchmark. Potential federal tax benefits and after-tax returns assume no state taxes and assume that the tax payer has sufficient business or other income, long-term capital gains, and short-term capital gains from sources outside this portfolio to offset any net deductions, long-term capital losses, and short-term capital losses, respectively, realized by TADELS and DELS. Hypothetical returns are net of transaction and financing costs but gross of management fees. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

17 The tax-efficiency of even tax-agnostic long-short style factor strategies has been previously discussed by us in Sosner, Pyne, and Chandra (2017), Sialm and Sosner (2018), and Liberman, Sialm, Sosner, and Wang (2019).

18 We emphasize once again that tax benefits may vary from investor to investor. Investors should consult their tax-advisors regarding applicability of a strategy's tax benefits to their specific situation.

Sources of Tax Benefits of TADELS

What is the source of such a high tax benefit of TADELS? Let's first examine DELS. Exhibit 4 shows that even the tax-agnostic DELS tends to realize gains as long-term and losses as short-term. In an average year, it realizes a short-term capital loss amounting to 6.7% of the NAV and a long-term capital gain amounting to 8.6% of the NAV.[19] DELS also has some amount of unrealized gains in an average year equal to 6.9% of the NAV.

TADELS, through tax-aware rebalancing, encourages realization of short-term capital losses and deferral of capital gains. Thus, as can be seen in Exhibit 4, compared to DELS, in an average year, TADELS realizes a much higher annual short-term capital loss of 27.5% of the NAV and retains a much larger annual unrealized gain of 22.0% of the NAV.

Since, as of 2020, at the federal level long-term capital gains are taxed a lower rate of 23.8% while short-term losses provide an offset against short-term capital gains taxed at 40.8%, a combination of a 14.4% of long-term gain and 27.5% of short-term loss translates into a current-year[20] tax benefit of 7.8% which accounts for all the 7.6% tax benefit of TADELS reported in Exhibit 3.[21]

Importantly, even if we were to apply a tax penalty to unrealized gains at, say, a 10% tax rate, as in Sosner, Krasner, and Pyne (2019), this would reduce the tax benefit by 2.2% to a still meaningful tax benefit of 5.4%.[22] Another way of accounting for the tax burden of unrealized gains is through calculating the potential tax liability resulting from strategy liquidation. We do so in Appendix C. There we show that both TADELS and DELS far outpace the benchmark in their ability to create after-tax post-liquidation wealth. Moreover, due to its tax benefits, TADELS ends up creating 40% more after-tax post-liquidation wealth than DELS.[23]

In Appendix D we provide further considerations that should help potential investors choose between TADELS and DELS. There we explain why US taxable investors, even those investors who don't have short-term capital gains from other investments, will generally find that TADELS has the potential to compound their after-tax wealth more quickly than DELS.

19 This feature of long-short style-factor strategies has been previously discussed in Sosner, Pyne, and Chandra (2017) and Sialm and Sosner (2018).

20 A current-year tax benefit means that investors enjoy a reduction in their tax burden in the current year but might face a higher tax burden in future years when they liquidate the strategy. Importantly, these tax outcomes may vary from investor to investor. Investors should consult their tax-advisors regarding applicability of a strategy's tax benefits and liquidation tax burden to their specific situation.

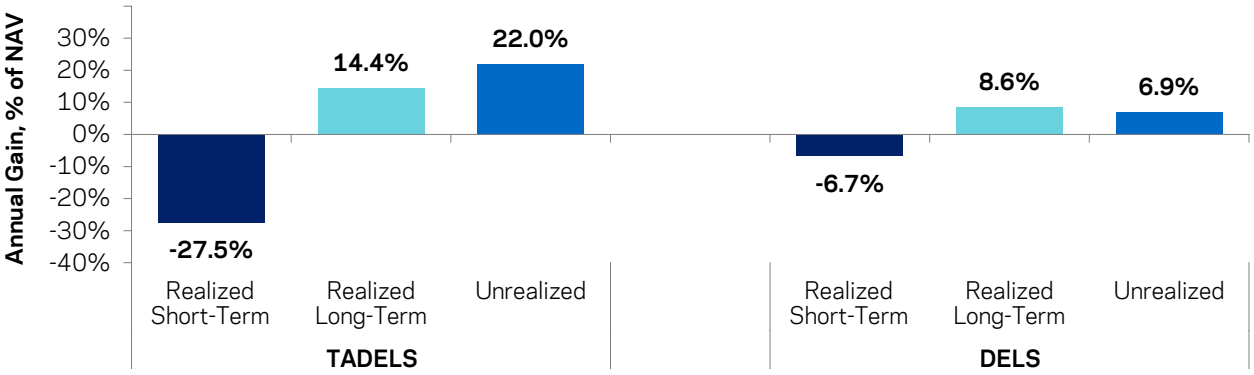
21 The 20 bps of tax cost is a net result of qualified dividend income on long positions, interest income on cash holdings, expense for in-lieu dividend on short positions, and financing expense for leverage and shorting.

22 Conceptually, this tax rate reflects the present value of the expected future liquidation tax liabilities arising from the eventual realization of unrealized gains. It accounts for the probability of timing the liquidation of gain positions in the years when there are offsetting losses from other investments, and for the probability of step-up in the cost basis at death. Sosner, Krasner, and Pyne (2019) provide further explanations for their choice of 10% tax rate applied to unrealized gains.

23 As for the size of the unrealized gain, although the 22.0% average annual unrealized gain might at first sight appear surprisingly high, it is less surprising when we consider the fact that TADELS is levered almost 5 times (approximately, 310% longs and 180% shorts). Per unit of 490% gross notional exposure, the 22.0% unrealized gain becomes a much more modest 4.5% gain. The large total size of levered TADELS positions effectively allows it to systematically retain a substantial amount of unrealized gains as a fraction of the NAV.

Exhibit 4

Hypothetical Realized and Unrealized Annual Gains of TADELS and DELS, 1994-2019



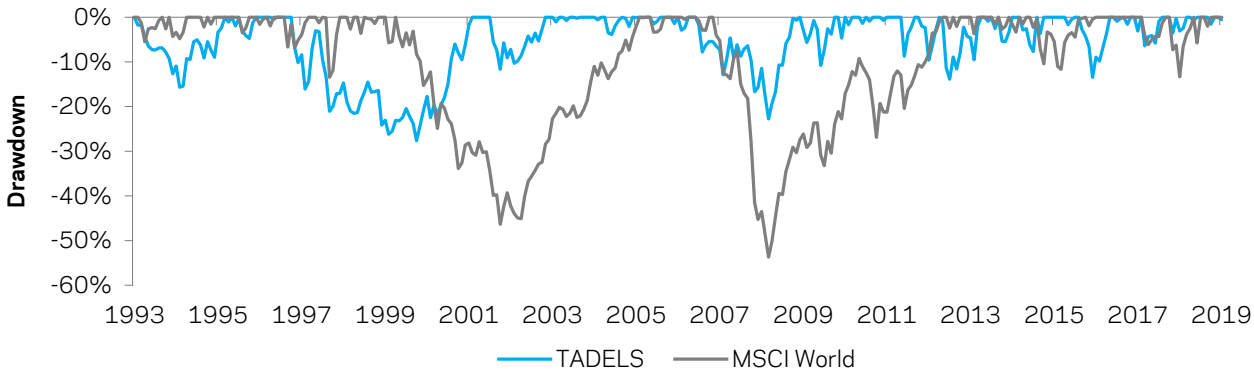
Source: AQR. Data from January 1, 1994, to December 31, 2019. TADELS and DELS are hypothetical strategies. See Appendix A for details on the simulation. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

Drawdowns of TADELS

Whereas TADELS is not immune to drawdowns, Exhibit 5 shows that during the 1994-2019 sample period its drawdowns are more muted than market drawdowns and do not always overlap with market drawdowns. For example, the strategy experienced its worst drawdown during the dot-com bubble but had relatively little exposure to the large market drawdown occurring in the wake of the dot-com bubble burst. It also exhibited less than half of the market drawdown during the global financial crisis. This is not surprising given that TADELS has only a 0.5 beta to MSCI World and targets a 10% active risk uncorrelated to market performance.[24]

Exhibit 5

Hypothetical Drawdowns of TADELS and MSCI World Index



Source: AQR and MSCI, Inc. Data from January 1, 1994, to December 31, 2019. See Appendix A for details on the TADELS simulation. TADELS hypothetical returns are net of transaction and financing costs but gross of management fees. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

24 Although in historical simulations TADELS drawdowns tend to be smaller than the market drawdowns, investors considering defensive strategies like TADELS should keep in mind that, as any risky investment, these strategies might be prone to prolonged drawdowns. For example, as we see in Exhibit 5, over a 3-year period from September 1997 to September 2000, TADELS lost about 30% of its value and did not recover the losses until the beginning of 2002. Adding insult to injury, the September 1997 to September 2000 TADELS drawdown occurred during the time when the MSCI World index climbed by approximately 50%. This example shows that there can be periods, like the tech boom of the late 1990s, when high-risk, low-quality stocks, which TADELS shorts, significantly outperform low-risk, high-quality stocks, which TADELS longs.

Clearly, recoveries of the hypothetical TADELS investment in Exhibit 5 are only possible if the strategy is not liquidated during the drawdown. To avoid liquidation at a disadvantageous time at the bottom of a drawdown, potential investors in TADELS need to be comfortable with such levels of drawdowns before they invest. Adding TADELS to a well-diversified portfolio of investments, rather than concentrating risk in this one strategy, has the potential to go a long way in increasing the investor's tolerance to the strategy's downside risk.

TADELS in Up and Down Markets

In Exhibit 6 we report Morningstar's upside/downside capture ratios for TADELS. The ratios are computed as follows:

$$\text{Downside Capture Ratio} = \frac{\text{Average Monthly } \textit{Strategy} \text{ Return for Months When Benchmark is Down}}{\text{Average Monthly } \textit{Benchmark} \text{ Return for Months When Benchmark is Down}}$$

$$\text{Upside Capture Ratio} = \frac{\text{Average Monthly } \textit{Strategy} \text{ Return for Months When Benchmark is Up}}{\text{Average Monthly } \textit{Benchmark} \text{ Return for Months When Benchmark is Up}}$$

The downside capture ratio shows that in both the full 1994-2019 and the recent 2010-2019 sample periods TADELS exhibits similarly strong returns in the months when the benchmark is down—the ratio is just above 30% in both periods.[25] The full period upside capture ratio is 114%, which indicates that TADELS outperforms the benchmark when benchmark return is positive, but the outperformance is modest. Interestingly, in the recent period, the upside capture ratio has improved substantially and reached the value of 153%.[26]

Exhibit 6
Hypothetical Upside and Downside Capture Ratios of TADELS

	TADELS Capture Ratio	
Sample Period	Downside	Upside
1994-2019	31%	114%
2010-2019	33%	153%

Source: AQR and MSCI, Inc. Data from January 1, 1994, to December 31, 2019. The 2010-2019 sample is the last 10 years of the simulation that starts on January 1, 1994. See Appendix A for details on the simulation. TADELS is a hypothetical strategy benchmarked to a custom benchmark comprised of 50% MSCI World index and 50% US 3-month Treasury bills. TADELS hypothetical returns are net of transaction and financing costs but gross of management fees. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

Capture ratios are informative, but they don't show return levels. We provide this additional information in Exhibit 7 where we show returns for up- and down-market months. Panel A shows the data for the full 1994-2019 period and Panel B shows the data for the last ten years from 2010 to 2019. We annualize average monthly returns in down, up, and all market environments.

During the full period starting in 1994, in down markets, on a pre-tax basis, TADELS realizes a -5.3% annualized return. Its benchmark, comprised of 50-50% allocations to MSCI World

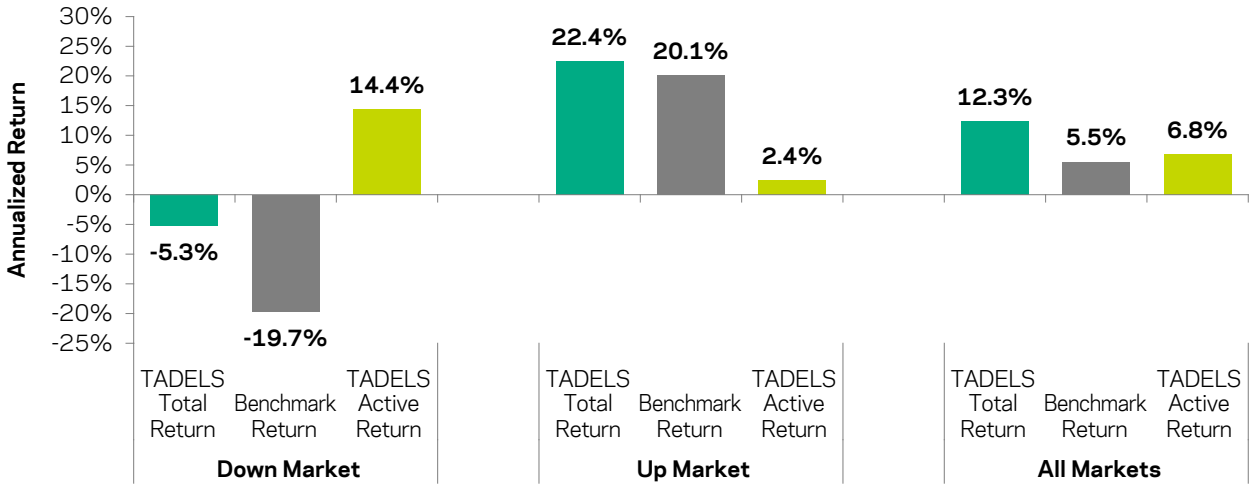
25 The 2010-2019 sample is the last 10 years of the simulation that starts on January 1, 1994.
26 Benchmark up months are about twice as frequent as down months during the 1994-2019 sample period.

and 3-Month US Treasury bills, contributes a -19.7% annualized return while TADELS active return contributes 14.4%. In up markets, TADELS realizes 22.4% annualized return, 20.1% of which comes from the benchmark and 2.4% from active return. These results hold broadly in the 10-year sample period starting in 2010 as is summarized in Panel B of Exhibit 7.

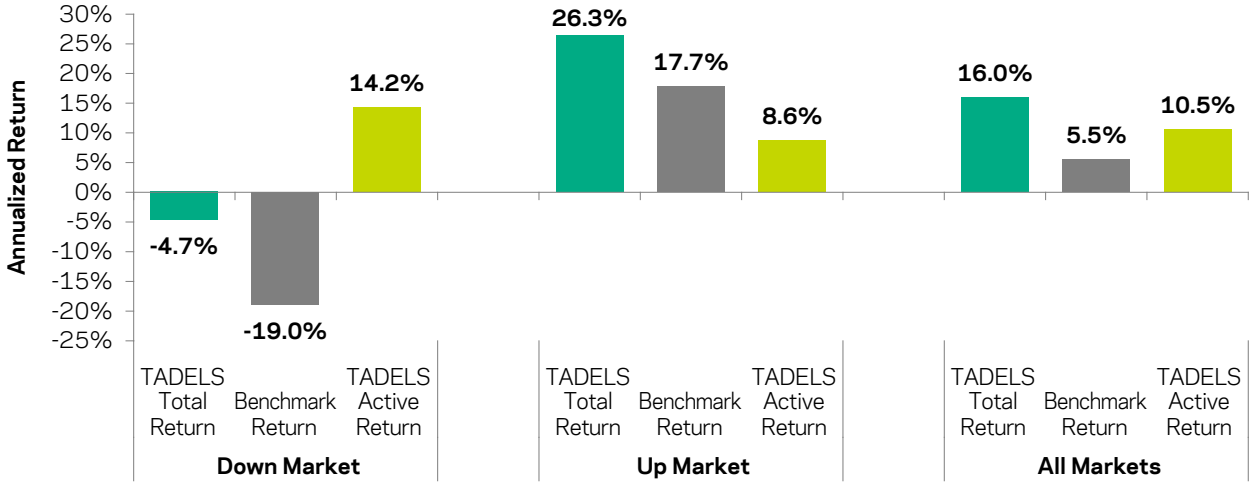
Exhibit 7

Hypothetical Pre-Tax Returns of TADELS and Benchmark

Panel A. 1994-2019 Sample Period



Panel B. 2010-2019 Sample Period

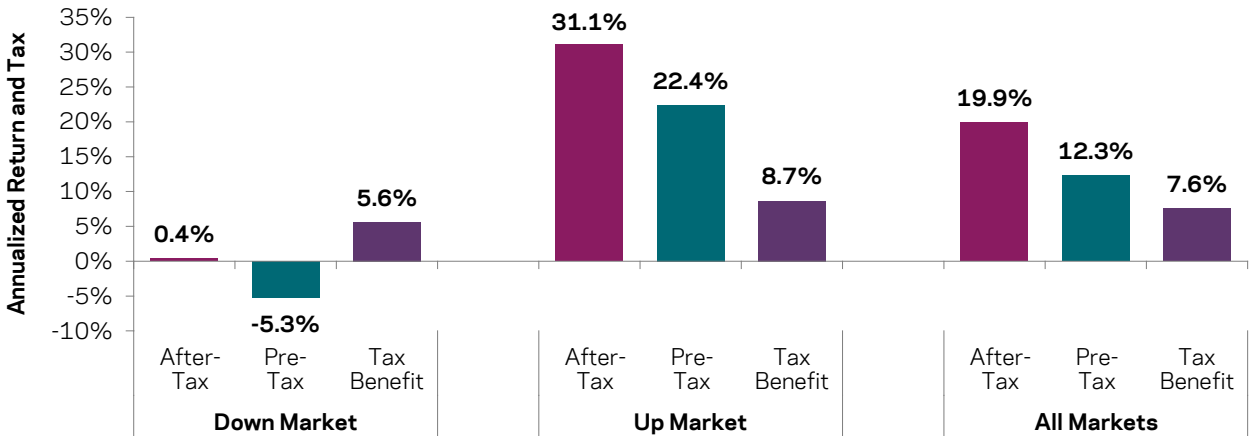


Source: AQR and MSCI, Inc. Data from January 1, 1994, to December 31, 2019. The 2010-2019 sample is the last 10 years of the simulation that starts on January 1, 1994. See Appendix A for details on the simulation. TADELS is a hypothetical strategy benchmarked to a custom benchmark comprised of 50% MSCI World index and 50% US 3-month Treasury bills. TADELS hypothetical returns are net of transaction and financing costs but gross of management fees. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

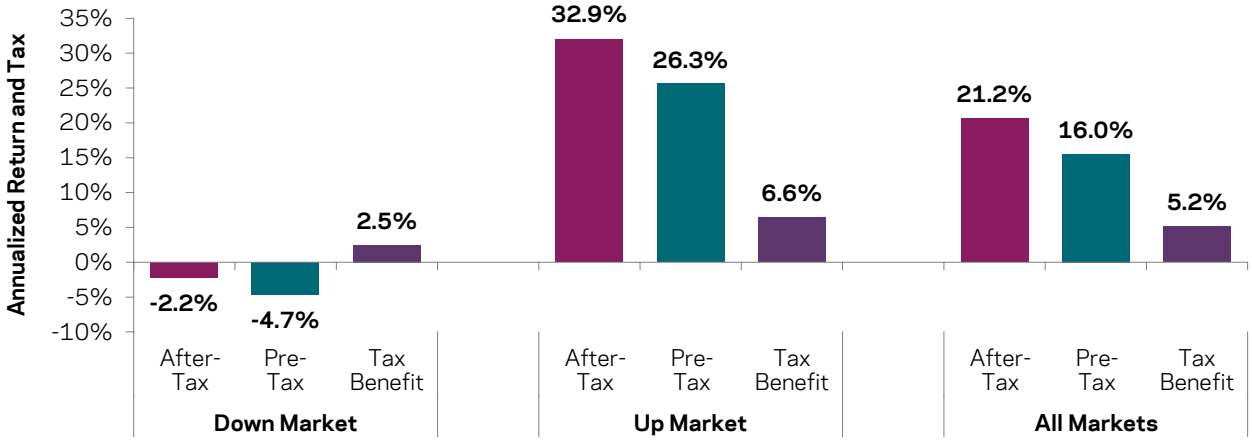
Exhibit 8 shows the decomposition of after-tax annualized returns of TADELS into pre-tax return and tax benefit contributions. The patterns are remarkably similar across the full 1994-2019 period shown in Panel A and the recent 2010-2019 period shown in Panel B. Tax benefits provide a significant tailwind to the after-tax returns of TADELS in both up and down markets. In both the full and recent periods, TADELS realizes a close to 0% after-tax return in down markets and an annualized after-tax return in excess of 30% in up markets.[27]

Exhibit 8
Hypothetical After-Tax Returns of TADELS

Panel A. 1994-2019 Sample Period



Panel B. 2010-2019 Sample Period



Source: AQR. Data from January 1, 1994, to December 31, 2019. The 2010-2019 sample is the last 10 years of the simulation that starts on January 1, 1994. TADELS is a hypothetical strategy. See Appendix A for details on the simulation. Tax benefit is the potential federal tax benefit (liability if negative). Potential federal tax benefits and after-tax returns assume no state taxes and assume that the tax payer has sufficient business or other income, long-term capital gains, and short-term capital gains from sources outside this portfolio to offset any net deductions, long-term capital losses, and short-term capital losses, respectively, realized by TADELS. Hypothetical returns are net of transaction and financing costs but gross of management fees. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

27 We emphasize once again that tax benefits may vary from investor to investor. Investors should consult their tax-advisors regarding applicability of a strategy's tax benefits to their specific situation.

Does TADELS Add Value to Hedge Fund Allocations?

In this section we study the ability of TADELS strategy to add value to a typical hedge fund portfolio. The full complexity of the value added of tax benefits is outside of the scope of this paper and are partially addressed in Appendix D.[28] The pre-tax value added is easier to estimate and it will be the focus of this section.

To answer the question whether TADELS can enhance performance of a typical portfolio of hedge funds, we consider the pre-tax alpha of the strategy with respect to different hedge-fund indices. We use both broad-based indices, such as the Hedge Fund Research (hereafter HFR) Fund Weighted Composite index and the Credit Suisse Hedge Fund index, and specialized indices more closely resembling TADELS, such as long-short equity and market-neutral equity indices provided by HFR and Credit Suisse.

To estimate the alpha of TADELS we estimate the following regression model for each of the hedge fund indices in question:

$$TADELS\ pretax\ return_t - rf_t = \alpha + \beta_1 \times (hedge\ fund\ index\ return_t - rf_t) + \beta_2 \times (market\ return_t - rf_t) + \epsilon_t$$

We use monthly returns over the 1994-2019 sample period. For the market we use the MSCI World index return and for the risk-free rate, denoted by rf_t, we use the US 3-month Treasury bill rate.

We summarize our results in Exhibit 9 where we show the annualized alpha estimates from the regression model above and the t-statistic of those alpha estimates. We show the results for the full sample and the most recent 10 years, alternatively. In all cases, whether we use broad indices or more specialized equity fund indices, TADELS achieves a highly economically and statistically significant alpha with respect to those indices.

Exhibit 9
Annualized Hypothetical Alpha of TADELS with respect to Hedge Fund Indices

	1994-2019		2010-2019	
	TADELS Alpha	T-Statistic	TADELS Alpha	T-Statistic
HFRI Fund Weighted Composite Index	8.2%	3.5	10.8%	2.9
HFRI Equity Hedge (Total) Index	8.7%	3.8	9.2%	2.6
HFRI EH: Equity Market Neutral Index	6.6%	2.8	10.9%	2.8
Credit Suisse Hedge Fund Index	7.2%	3.1	10.7%	2.7
Credit Suisse Long/Short Equity Index	7.5%	3.2	10.6%	2.7
Credit Suisse Equity Market Neutral Index	7.4%	3.2	10.3%	2.6

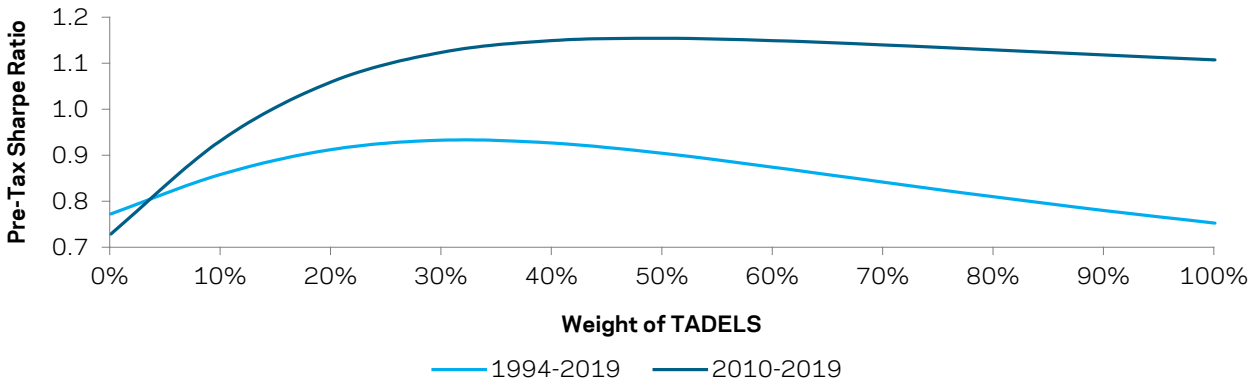
Source: AQR, HFR, and Credit Suisse. Data from January 1, 1994, to December 31, 2019. The 2010-2019 sample is the last 10 years of the simulation that starts on January 1, 1994. TADELS is a hypothetical strategy. See Appendix A for details on the simulation. TADELS returns are net of transaction and financing costs but gross of management fees. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

28 Investors should consult their tax advisors before acting on any tax-related information provided in this paper. Estimates shown in this paper are for information purposes only and are computed under a particular set of assumptions outlined in the paper. The actual tax outcomes will vary based on investor-specific situation.

To visualize how the alpha of TADELS shown in Exhibit 9 might help an investor achieve a better pre-tax performance, in Exhibit 10 we plot pre-tax Sharpe ratios of allocations to the HFRI Fund Weighted Composite index and TADELS. We vary the allocation to TADELS from 0 to 100% along the horizontal axis. It is clear from Exhibit 10 that an allocation to TADELS improves the overall pre-tax Sharpe ratio. Over the full sample, the maximum Sharpe ratio is achieved at a 30% allocation to TADELS. Over the last 10 years, when TADELS had a substantially stronger performance than the hedge fund index, the maximum Sharpe ratio is achieved at a 50% allocation.

Exhibit 10

Hypothetical Sharpe Ratio of an Allocation to the HFRI Fund Weighted Composite Index and TADELS



Source: AQR and HFR. Data from January 1, 1994, to December 31, 2019. The 2010-2019 sample is the last 10 years of the simulation that starts on January 1, 1994. TADELS is a hypothetical strategy. See Appendix A for details on the simulation. TADELS returns are net of transaction and financing costs but gross of management fees. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

One caveat of the results presented in this section is that the hedge-fund index returns are net-of-fees whereas TADELS returns are gross of fees. Since TADELS is not an actual commercial product, we refrain from speculating about the level of fees such a strategy would command. However, we believe that, if a defensive strategy similar to TADELS were offered commercially, its value added would not be canceled by its fees.[29]

Conclusion

We construct and study a TADELS strategy that can help mitigate equity risk while enhancing returns through active exposure to low-risk, high-quality, cheap stocks. We find this active exposure to be under-represented in hedge funds. Thus, TADELS might be an attractive diversifier for a typical hedge fund portfolio. Furthermore, TADELS may provide tax benefits through allocating short-term capital losses that may offset short-term capital gains from other hedge funds in the investor's portfolio. In sum, TADELS may be a valuable addition to many investor portfolios from both a pre-tax and tax perspective.

29 More specifically, net of fees the alphas in Exhibit 9 would remain positive and statistically significant and the Sharpe ratio maximizing allocations between HFRI Fund Weighted Composite Index and TADELS in Exhibit 10 would remain similar.

Appendix A. TADELS Simulation and Factor Methodology

This section describes the methodology used for constructing the factors and strategies discussed in the main text. All the results in the paper are reported gross of management fees.

Alpha Model

The portfolio construction process begins with an alpha model that yields a relative ranking of stocks in the cross-section. The model is built over a global large-cap universe similar to the universe of MSCI World constituents and combines low-beta, quality, and value investment themes with risk-weights of 40%, 40% and 20%, respectively.

For the universe construction, we start with all stocks in MSCI World universe and apply the following filters: exclude stocks with prices above $100,000; exclude REITs; exclude stocks that IPO-ed in the last 18 months; for multiple share classes of the same company, retain only the share class with the highest trading volume. After all the filters are applied, we retain approximately 90% of the MSCI World index constituents.

For investment themes, we use the betting-against-beta (BAB) factor to represent low-beta, gross-profit-over-assets (GPOA) profitability factor to represent quality, and book-to-price (BP) factor to represent value. Following Asness and Frazzini (2013), BP is defined as the book value of a firm scaled by the most recent market capitalization of the firm.

All the factors are long-short factors beta-neutralized with respect to the MSCI World index. The factors are also country- and industry-adjusted, and thus represent relative stock-specific bets on stocks within countries and industries.

Portfolio Construction

The strategies are rebalanced monthly over the period from January 1994 to December 2019. During each rebalance of the portfolio based on the alpha model above we target an active risk of 10% and a 0.5 beta with respect to the MSCI World index.

The short and long leverage are maintained at approximately 180% and 300%, respectively, but could be lower during periods of high volatility such as the burst of the dot-com bubble and the global financial crisis. The turnover as a percent of gross notional exposure is approximately 15% per rebalance, or 180% per annum.[30]

TADELS incorporates tax implications of liquidating positions into the portfolio rebalancing process. For DELS the tax consequences of rebalancing are ignored.

Transaction and Financing Costs

Transaction costs are assumed to be 20 bps per dollar traded and financing costs are assumed to be 30 bps per unit of gross leverage per annum.

30 We used this turnover target in our previous research on tax-aware strategies (see Sialm and Sosner (2018)).

Tax Accounting and Tax Rate Assumptions

We assume that realized losses can be used immediately to offset capital gains of the same character elsewhere in the investor's portfolio. Thus, the results in this paper are most relevant for investors who realize sufficient short-term capital gains from other investment sources. We caveat that the benefits of tax losses are smaller if the investor does not have any short-term capital gains realized elsewhere in the portfolio.

Since the effects of tax lot accounting are not central to our conclusions and have been analyzed elsewhere, we use the highest-in first-out, or HIFO, tax lot accounting method throughout the paper.

The tax rates we use correspond to the federal tax rates for a US individual in the top federal marginal income tax bracket in 2020: 23.8% on long-term capital gains and qualified dividend income and 40.8% on short-term capital gains and ordinary income.[31] Gains on short positions are treated as short-term capital gains, regardless of the holding period of the short position.

All dividends received on long positions are assumed to be qualified and therefore taxed at a 23.8% rate. This assumption is consistent with strategies using relatively long holding periods, as does TADELS. All in-lieu dividends paid on short-positions are treated as an expense offsetting ordinary investment income taxed at 40.8%.

The tax rates are assumed to remain constant throughout the simulation period.

Appendix B. Why Long-Short Portfolio Construction?

In the past, our colleagues have discussed long-only defensive equity strategies (see Frazzini, Friedman, and Kim (2012)). They showed that over the sample period from 1984 to 2011 a long-only US Defensive Equity strategy combining low-beta and quality characteristics had a lower risk, a higher return, and a higher risk-adjusted return (measured by Sharpe ratio) than the Russell 1000 index.

Compared to a hypothetical long-only defensive strategy, a hypothetical long-short defensive strategy yields additional pre-tax and tax benefits thus resulting in a higher expected after-tax return, albeit at the cost of complexity and potentially higher management fees.

Pre-tax, a hypothetical long-short strategy is expected to generate a significantly higher return than a hypothetical long-only strategy, even after higher fees. This is for two main reasons. First, a hypothetical long-short strategy has the potential to achieve a substantially higher active risk than a hypothetical long-only strategy. For example, in Frazzini, Friedman, and Kim (2012) the long-only US Defensive Equity strategy realizes a 4.4% tracking error to the Russell 1000 index,[32] whereas TADELS targets an active risk of 10%.

31 Note that many states impose additional taxes on capital gains and income, which are not included in these rates.

32 We compute this using the strategy statistics provided in Frazzini, Friedman, and Kim (2012), Figure 5. We use the following formula active risk= $\sqrt{(\text{strategy risk}^2 - \text{beta}^2 \times \text{market risk}^2)} = \sqrt{(12.5\%^2 - 0.76^2 \times 15.4\%^2)} = 4.4\%$.

Second, a hypothetical long-short strategy is expected to achieve a higher active return (i.e., a return in excess of benchmark) per unit of active risk than a hypothetical long-only strategy. In general, whereas long-only strategies are limited in their ability to express negative views on stocks due to the long-only constraint,[33] long-short strategies can reflect those negative views with a high precision, thus improving the expected performance.[34] Since both the active risk and the active return per unit of active risk are expected to be higher for a hypothetical long-short strategy, a long-short strategy is expected to realize a materially higher active return than a hypothetical long-only strategy.

From a tax perspective, the long-short approach is also potentially more beneficial than a long-only approach. We've written extensively in the past about the advantages of long-short and market-neutral portfolio construction for taxable investors.[35] In those studies, we showed that long-short factor-based equity strategies are tax-efficient even when managed without explicit tax considerations and can be made even more tax-efficient through tax-aware management.

Appendix C. Adjusting for Liquidation Taxes

In Exhibit C we compare after-tax accumulation of wealth on the hypothetical initial investment of $100 made on 12/31/1993. We assume that the tax savings obtained through the tax benefits of the strategies are reinvested at a 5% after-tax rate of return.

We also assume that TADELS and DELS are managed in hedge fund vehicles, and thus appropriately make the following adjustments. First, when an investor's cost basis in the hypothetical fund is reduced to zero, short-term losses in excess of long-term gains are suspended until liquidation, at which point they become available to the investor as short-term capital losses.[36]

Second, the liquidation gain realized at the end of the period on 12/31/2019 is treated as a long-term capital gain. This is consistent with Sosner and Balzafiore (2020) who explain why liquidation gains of hedge funds that use lot-layering method of accounting depend only on the investor's holding period in the fund.

It is clear from Exhibit C that, even when liquidation taxes are accounted for, TADELS outperforms both DELS and the benchmark in terms of the ability to create after-tax post-liquidation wealth.

33 For example, in the Russell 1000 index the weight of an average stock is 10 bps, i.e. 1 divided by 1,000. The maximum long-only portfolio overweight for an average stock is 100% minus 10 bps, this is when the entire portfolio is invested in this one stock. At the same time, the maximum underweight is only 10 bps, this is when the portfolio doesn't hold the stock.

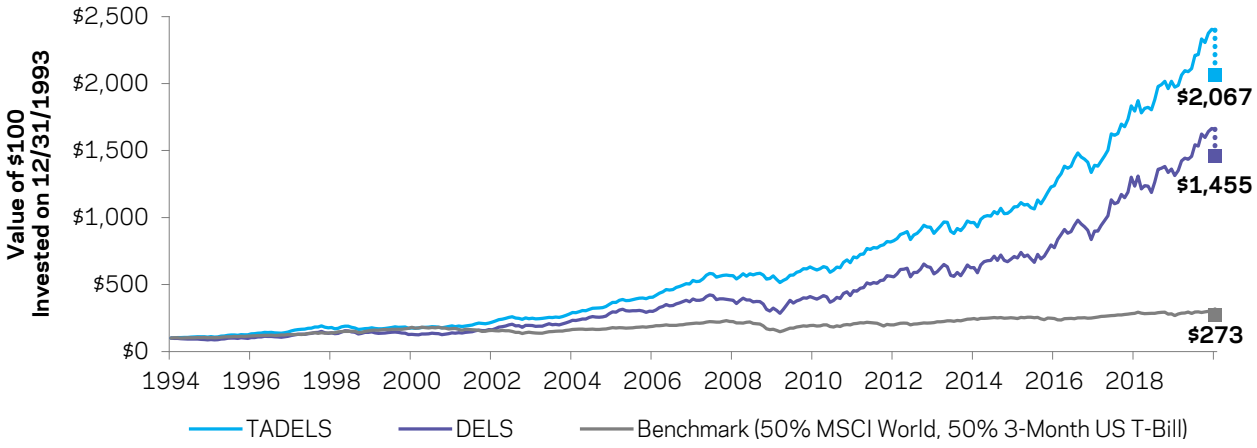
34 This has been demonstrated in the context of relaxed-constraint strategies which allow shorting by Clarke, deSilva, and Thorley (2004) and Ang, Michalka, and Ross (2017), among others. Although TADELS portfolio construction is different from relaxed-constraint, the principle that removing the long-only constraint improves the implementation efficiency of alpha signals applies in a similar way.

35 See Sosner, Pyne, and Chandra (2017), Sialm and Sosner (2018), and Liberman, Sialm, Sosner, and Wang (2020). Although these studies describe market-neutral zero-beta strategies while the TADELS strategy described here has a beta of 0.5, the 0.5 beta exposure is small relative to the gross notional exposure (see Exhibit 1), and thus the strategy is expected to exhibit tax characteristics that are similar to those of market-neutral strategies.

36 See Sosner, Balzafiore and Du (2018) for further details on the topic of suspended losses.

Exhibit C

Hypothetical Cumulative After-Tax Post-Liquidation Wealth Created by TADELS and DELS, 1994-2019



Source: AQR and MSCI, Inc. Data from January 1, 1994, to December 31, 2019. See Appendix A for details on the simulation. TADELS and DELS are hypothetical strategies benchmarked to a custom benchmark comprised of 50% MSCI World index and 50% US 3-month Treasury bills. Tax benefit is the potential federal tax benefit (liability if negative). Potential federal tax benefits and after-tax returns assume no state taxes and assume that the tax payer has sufficient business or other income, long-term capital gains, and short-term capital gains from sources outside this portfolio to offset any net deductions, long-term capital losses, and short-term capital losses, respectively, realized by TADELS and DELS. Tax benefits are reinvested at 5% after-tax rate. The liquidation gain is considered a long-term capital gain. Hypothetical returns are net of transaction and financing costs but gross of management fees. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. No representation is being made that any investment will achieve performance similar to those shown. Not representative of an actual portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed herein.

Appendix D. How to Choose between TADELS and DELS?

The short answer to this question is that foreign investors investing through off-shore vehicles and US investors investing in tax-exempt accounts can invest in DELS, whereas US individual investors in taxable accounts should generally prefer TADELS. By any investor we mean an investor with either short-term capital gains from other strategies, or only long-term capital gains from other strategies, or no gains from other strategies at all. Here is why.

First, DELS will likely increase capital gains tax liabilities of an investor with only long-term capital gains or no capital gains, whereas TADELS likely will not. As we saw in Exhibit 4, although both strategies tend to realize capital gains as long-term and losses as short-term, TADELS realizes a *net capital loss* whereas DELS realizes a *net capital gain*. To clarify, net gain (or loss) is simply the total of all capital gains minus the total of all capital losses. Now, consider an investor with only long-term gains from other strategies. If such an investor invests in TADELS, she might be able to offset long-term gains from other strategies with TADELS's net loss. On the other hand, the tax-agnostic DELS will only add more long-term capital gains to the investor. Alternatively, consider an investor with no capital gains from other strategies. For such an investor,

TADELS, which realizes a net loss, will not create a capital gains tax liability, whereas DELS, which realizes a net gain, will result in an additional capital gains tax liability.[37]

Second, strategies like TADELS and DELS are impractical to manage in separate accounts due to potentially high costs and complexity. Typically, they will be managed in a comingled fund organized as a limited partnership (LP) or a limited liability company (LLC). The method of partnership allocations used by the fund may have a large impact on the character of liquidation gain. If the fund uses a lot-layering method of partnership allocations described in Sosner and Balzafiore (2020), an investor with a holding period in excess of one year will experience a long-term liquidation gain. On the other hand, if the fund uses one of the standard methods of partnership allocations, the liquidation gain will be a mix of long-term and short-term capital gains, and, in fact, can be predominantly a short-term gain. As explained in Sosner and Balzafiore (2020), lot layering is costly, and thus less likely to be implemented by funds whose investors are exclusively or predominantly tax-exempt. For example, at AQR we utilize lot-layering in tax-aware funds but not in tax-agnostic funds. As a result, we expect the character of redemption gain to be more beneficial for TADELS than for DELS.

Third, a fund implementing lot layering will achieve a higher precision of partnership allocations than a fund implementing one of the standard methods of partnership allocations. The importance of precision in partnership allocations for taxable investors cannot be underestimated. The beneficial consequences of such precision are that new fund investors do not step into built-in gains accumulated by existing fund investors and that continuing investors do not inherit built-in capital gains accumulated by redeeming investors.[38]

Finally, in the world of limited resources, managers who run a strategy for mostly tax-exempt investors may not be able to pay particularly close attention to the strategy's tax results or try to share estimates of these results with investors in a timely manner. The partnership allocations described in the previous two paragraphs is only one issue that needs to be closely monitored for enhancing tax efficiency, and there are many others that require close attention. These include prevention of wash sales and tax straddles, potential optimization of interest income and expense items in light of the business interest expense limitation under the TCJA of 2017, and timely resolution of various tax-related issues as they arise. Moreover, managers who manage tax-aware strategies for taxable investors are more likely to provide ongoing after-tax reporting to their clients, as, for example, AQR does for AQR's tax-aware funds.[39]

To conclude, whereas even strategies like DELS can be relatively tax efficient, US taxable investors, even those investors who don't have short-term capital gains from other investments, will generally find strategies like TADELS to create more after-tax value for them. This is because of its mix of gains and losses, character of redemption gain, precision of partnership allocations, the overall precision of tax work, and more timely reporting of tax estimates.

37 Generally, this logic applies even when liquidation tax liabilities are accounted for, assuming that the investor holds the strategy for longer than a year and therefore is subject to long-term capital gain treatment upon liquidation.
38 The topics outlined in this and the previous paragraphs are advanced and are described in more detail in Sosner and Balzafiore (2020).
39 See Sosner, Sullivan, and Urrutia (2018) for an example of such after-tax reporting.

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Disclosures

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AQR Capital Management, LLC Two Greenwich Plaza, Greenwich, CT 06830 **P** +1.203.742.3600 **F** +1.203.742.3100