Enhanced Active Equity Strategies

Relaxing the long-only constraint in the pursuit of active return.

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Long-only portfolios are constrained in their ability to underweight securities by more than the securities' benchmark weights. The maximum attainable underweight for a security in a long-only portfolio is equal to the security's weight in the underlying benchmark index. This underweight is achieved by not holding any of the security in the portfolio. Because the weights of most securities in most benchmarks are very small, there is extremely limited opportunity to profit from underweighting unattractive securities in long-only portfolios.

Consider the typical equity portfolio, which is constructed and managed relative to an underlying benchmark. The benchmark is defined in terms of its constituent securities and their percentage weights, and the portfolio is defined in terms of its constituent securities and their percentage weights. Active equity portfolios have *active weights*—that is, the securities' percentage weights in the portfolio differ from their weights in the benchmark. Active weights give rise to *active returns*, which can be measured as the differences between the returns of the actively managed equity portfolio and the returns of its benchmark.[1]

An actively managed portfolio generally overweights the securities that are expected to perform above the benchmark and underweights the securities that are expected to perform below the benchmark. Any security can be overweighted to achieve a significant positive active weight, but most securities cannot be underweighted enough to achieve significant negative active weights.

For instance, there are only about 15 stocks in the Standard & Poor's 500, the Russell 1000, or the Russell 3000 that have an index weight greater than 1%. This

means that only about 15 stocks in any of these indexes can be under–weighted by 1% or more. Fully half the stocks in the S&P 500 have an index weight below 0.10%; half the stocks in the Russell 1000 have an index weight below 0.03%; and half the stocks in the Russell 3000 have an index weight below 0.01%.

One can benefit very little from a negative view about a stock if the stock can be underweighted by only 0.10% (or 0.01%). Imagine if one could overweight a stock by only 0.10%, no matter how attractive its expected return.

Relaxing the long-only constraint to allow short-selling gives the investor more flexibility to underweight overvalued stocks and enhances the actively managed portfolio's ability to produce attractive active equity returns. At the same time, short-selling also reduces the portfolio's equity market exposure. Market exposure can be restored by matching the amount of stock sold short with additional purchases of stock held long.

With modern prime brokerage structures (known generically as enhanced prime brokerage), these additional long purchases can be accomplished without borrowing on margin (an important point for tax-exempt investors, as we explain later). These structures permit a management style we term *enhanced active equity*. Enhanced active equity advances the pursuit of active equity returns by relaxing the long-only constraint while maintaining full portfolio exposure to market return and risk.

We compare the enhanced active equity approach with traditional long-only passive and active approaches to portfolio management. We then discuss the enhanced active approach, including portfolio construction and performance, the mechanics of the prime brokerage structure underlying the approach, and some operational considerations. We also compare the enhanced active approach with other long-short approaches, including market–neutral and equitized long-short.

APPROACHES TO EQUITY MANAGEMENT

Enhanced active equity differs in some fundamental ways from both the long-only strategies and the long-short strategies with which many investors have become familiar. Exhibit 1 compares enhanced active equity with indexed and enhanced indexed, active long-only, and

E X H I B I T   1
Characteristics of Various Equity Investment Approaches

	Indexed Equity	Enhanced Indexed Equity	Active Equity	Enhanced Active Equity	Market-Neutral Long-Short Equity
Expected Active Return	No	Yes	Yes	Yes	Yes
Expected Residual Risk	No	<2%	No Rigid Constraint	No Rigid Constraint	No Rigid Constraint
Short-Selling	No	No	No	Yes	Yes
Market Exposure	Yes	Yes	Yes	Yes	No

market-neutral long-short portfolios. The similarities and differences are discussed in more detail below.

Indexed equity is a passive management style. An indexed equity portfolio is designed to track an underlying benchmark—whether a broad index such as the S&P 500 or the Russell 3000, or a style benchmark such as the Russell 1000 Growth or Value index.[2]

The indexed portfolio's residual risk is constrained to be close to zero—accomplished by holding securities in weights nearly identical to the weights in the underlying benchmark. With portfolio construction relegated to computer algorithms, and with significant trading required only to accommodate cash flows or when changes are made in the index's composition, management and transaction costs are minimal for indexed equity. Absent residual risk, however, the portfolio has no active return. As a result, an indexed equity portfolio may underperform the benchmark after these costs are considered.

Enhanced indexed portfolios are designed to provide an index-like performance plus some excess return after costs. Active return is pursued through relaxation of the constraint on residual risk. That is, enhanced indexed portfolios are allowed to slightly overweight securities that are expected to perform well and slightly underweight securities that are expected to perform poorly.[3]

While enhanced indexing allows the portfolio to incur residual risk, the level of that risk is tightly controlled. Typically, the portfolio's anticipated residual risk is not allowed to exceed 2%. As we show in Jacobs and Levy [1996], such artificial constraints on residual risk may lead to suboptimal results, because the risk constraint applies regardless of the return opportunities available in the market. As a result, managers may settle for portfolios that fall within the 2% residual risk limit, even though there are other portfolios that can deliver higher returns at slightly higher risk levels. And investors may settle for

managers that constrain portfolio risk to within 2%, even though there are other, more skillful, managers that can deliver higher returns at slightly higher risk levels.

Active equity management places no hard constraint on the portfolio's residual risk. Rather, the portfolio can seek a natural level of residual risk based on the return opportunities available and consistent with the investor's level of risk tolerance. The aim of most active equity portfolios is to generate attractive risk-adjusted returns.

In removing the rigid constraint on residual risk, active equity investing offers greater return potential than enhanced index equity investing (depending, of course, on the quality of the manager's insights). Nevertheless, active equity investing is still limited by the long-only constraint.
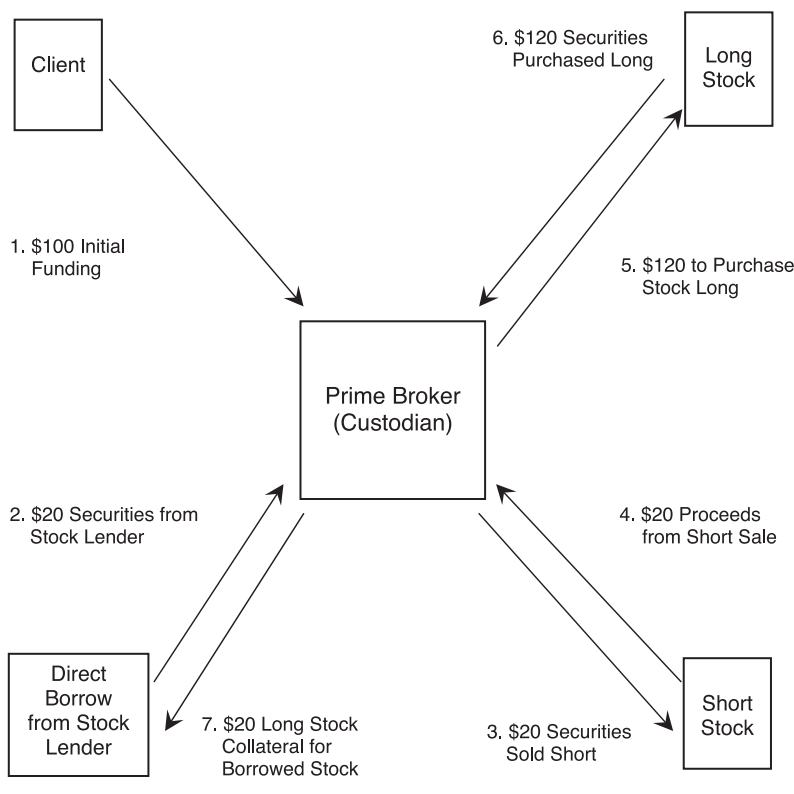
ENHANCED ACTIVE EQUITY PORTFOLIOS

Enhanced active equity portfolios seek to improve upon the performance of actively managed long-only portfolios by allowing for short-selling and reinvestment of the entire short sales proceeds in incremental long positions. For instance, an investor could sell short $20 of securities and use the $20 proceeds, along with $100 of capital, to purchase $120 of long positions; this results in a 120-20 portfolio. The portfolio has a net equity exposure of $100, so capital is fully exposed to the market. Alternatively, the investor could sell short $30 and buy long $130, to build a 130-30 portfolio. In similar fashion, the investor could create a 150-50 or a 200-100 portfolio.

Exhibit 2 illustrates the typical mechanics of an enhanced active equity portfolio. For a 120-20 portfolio, the investor deposits $100 in an account with a prime broker. The broker arranges for the investor to borrow directly from the stock lender the $20 worth of securities that the investor sells short. The $20 in proceeds from the short sales, plus the initial $100, are used to purchase $120 of securities the investor wants to hold long; long positions amounting to $20 collateralize the borrowed stocks, which are held in a stock loan account.

The investor could combine a 20-20 market-neutral long-short portfolio with a long-only (100-0) portfolio instead of a single 120-20 portfolio (although that might

EXHIBIT 2
Mechanics of Enhanced Active Equity

require $120 of capital to implement, $20 of capital for 20-20 and $100 of capital for the long-only portfolio). As we have shown in Jacobs, Levy, and Starer [1998 and 1999], however, combining two separate portfolios is suboptimal. Optimal security weights can be obtained only from an integrated optimization that considers all long and short positions simultaneously.

In an enhanced active equity portfolio, optimization integrates the long and short positions relative to benchmark weights. For integrated optimization allowing for short-selling, see Jacobs, Levy, and Markowitz [2005 and 2006].[4]

If an enhanced active equity portfolio is constructed properly, using integrated portfolio optimization, the performance of the long and short positions cannot be meaningfully separated. With integrated optimization, some or all of a short or long position may reflect a hedge of a related long or short position; it is not meaningful to analyze such a position in isolation, just as it is not meaningful to look at a single stock within a portfolio as a separate entity, irrespective of its interactions with the other stocks in the portfolio.

Furthermore, the short positions in an enhanced active equity portfolio are likely to be the smaller-capitalization stocks in the benchmark, as these are the securities that cannot be meaningfully underweighted unless they are sold short. The enhanced active equity portfolio's short positions will thus generally have a lower average capitalization than the underlying benchmark. In order to hedge the smaller-than-benchmark short positions, the long positions in the portfolio will also generally have a lower average capitalization than that of the underlying benchmark.[5]

Market capitalization risk can be controlled by establishing long and short positions that, on a net basis, approximate the underlying benchmark's average capitalization. The underlying benchmark provides a fair gauge of the portfolio's performance *only* when the portfolio is considered in its entirety.

Relaxing the constraint on short-selling can be expected to enhance the opportunities over a long-only active equity portfolio. This reflects the greater opportunity to benefit from insights on overvalued securities. As noted, half the stocks in the S&P 500 and half the stocks in the Russell 3000 can be underweighted by, at most, 0.10% or 0.01% in a long-only portfolio.

These underweight constraints, inherent in long-only portfolios, are relaxed in an enhanced active equity portfolio. For instance, in a portfolio that is allowed to sell short in an amount equal to 20% of capital, the underweight of 80 stocks can be augmented by an average of 0.25% each, or that of 40 stocks by 0.50% each. Thus the enhanced active equity portfolio could underweight the median stock in the S&P 500 by 0.35% or 0.60%, versus the 0.10% underweight attainable in a long-only portfolio. And the enhanced active portfolio could underweight the median stock in the Russell 3000 by 0.26% or 0.51%, versus a minimal underweight in long-only. Even greater underweights of some securities could be achieved by allocating more short capital to those names.[6]

Because one can achieve more meaningful underweights of overvalued stocks, the enhanced active equity portfolio can also benefit from greater diversification across the opportunities provided by the individual stocks in the benchmark. For instance, for a Russell 3000 portfolio, the enhanced active equity portfolio can significantly underweight many unattractive names, even when those names are not meaningful weights in the index. Greater diversification across underweighted and overweighted opportunities should result in greater consistency of performance relative to the benchmark.[7]

The advantage of being able to sell stocks short may be amplified by certain non-linearities between overvalued and undervalued securities. Suppose, for example, that earnings disappointments have a stronger impact on prices than positive earnings surprises. If they can augment security underweights with short positions, investors skilled at anticipating earnings disappointments can better exploit their information.[8]

Freed from constraints on underweighting securities, the enhanced active equity portfolio is expected to perform better than an active equity long-only portfolio that cannot achieve meaningful underweights of many of the securities in its underlying benchmark. Clarke, de Silva, and Sapra [2004] have shown this to be the case.

Performance: An Illustration

Exhibit 3 compares enhanced active equity with various long-only and market-neutral long-short approaches in terms of their active weights and active returns. Here, 1% of the capital of a hypothetical portfolio is allocated to seven securities drawn from a broad universe, ranging from attractive to unattractive securities. The first column gives the expected active return for each security, and the second column gives the security's benchmark index weight, which is proportional to its capitalization. The expected returns increase in magnitude as security benchmark weight declines; as the highest and lowest expected returns come from the smallest-capitalization securities, the effects of the short-sale constraint (and the resulting limits on underweighting small-capitalization securities) become more apparent.

The indexed equity portfolio does not under- or overweight any security. The portfolio devotes zero capital to active weights and expects no increment to the benchmark's returns.

The enhanced indexed equity portfolio can take small active positions. Approximately 0.30% of portfolio capital is devoted to active weights in the seven securities; this represents 30% of the 1% of capital allocated to these securities.

Note that the sum of the positive active weights in the enhanced indexed equity portfolio (0.30%) equals the sum of the negative active weights (also 0.30%). For any portfolio, the sum of the security overweights relative to the benchmark will equal the sum of the underweights, as the underweights free up capital to fund the overweights.

EXHIBIT 3
Representative Security Active Weights and Active Returns for Various Equity Investment Approaches

Security Expected Active Return (%)	Security Benchmark Index Weight (%)	Indexed Equity Weight in Portfolio (%)	Active Weight (%)	Expected Contribution to Active Return (bp)	Enhanced Indexed Equity Weight in Portfolio (%)	Active Weight (%)	Expected Contribution to Active Return (bp)	Active Equity Weight in Portfolio (%)	Active Weight (%)	Expected Contribution to Active Return (bp)	Enhanced Active Equity Weight in Portfolio (%)	Active Weight (%)	Expected Contribution to Active Return (bp)	Market-Neutral Long-Short Equity Weight in Portfolio (%)	Active Weight (%)	Expected Contribution to Active Return (bp)
3.00	0.05	0.05	0.00	0.00	0.20	0.15	0.45	0.45	0.40	1.20	0.55	0.50	1.50	0.60	0.60	1.80
2.00	0.10	0.10	0.00	0.00	0.20	0.10	0.20	0.25	0.15	0.30	0.30	0.20	0.40	0.30	0.30	0.60
1.00	0.20	0.20	0.00	0.00	0.25	0.05	0.05	0.30	0.10	0.10	0.35	0.15	0.15	0.10	0.10	0.10
0.00	0.30	0.30	0.00	0.00	0.30	0.00	0.00	0.00	-0.30	0.00	0.00	-0.30	0.00	0.00	0.00	0.00
-1.00	0.20	0.20	0.00	0.00	0.05	-0.15	0.15	0.00	-0.20	0.20	0.00	-0.20	0.20	-0.10	-0.10	0.10
-2.00	0.10	0.10	0.00	0.00	0.00	-0.10	0.20	0.00	-0.10	0.20	-0.05	-0.15	0.30	-0.30	-0.30	0.60
-3.00	0.05	0.05	0.00	0.00	0.00	-0.05	0.15	0.00	-0.05	0.15	-0.15	-0.20	0.60	-0.60	-0.60	1.80
WACW*	0.20	0.20			0.18			0.11			0.12			0.00		
WACW Longs											0.11			0.08		
WACW Shorts											0.06			0.08		
Active Weights as % of Capital			0.00			0.30			0.65			0.85			1.00	
% of Capital Long		1.00			1.00			1.00			1.20			1.00		
% of Capital Short		0.00			0.00			0.00			0.20			1.00		

*Weighted-average capitalization weight.

The enhanced indexed portfolio overweights the most attractive stock by 0.15%, for a 0.45 basis point contribution to expected active portfolio return, but the portfolio's ability to underweight the most unattractive stock is constrained by the stock's benchmark weight. The portfolio can underweight this stock by only 0.05%, despite the fact that the stock has the same magnitude of expected active return as the most attractive stock. The limited underweight of this stock contributes only 0.15 basis points to the portfolio's expected active return.

The active equity portfolio devotes 65% of its capital to active weights. It overweights the two most attractive stocks by 0.40% and 0.15%, respectively, allowing for expansion of the contribution to expected active portfolio return—1.20 versus 0.45 basis points for the most attractive stock and 0.30 versus 0.20 basis points for the second-most attractive stock. The underweights of the two most unattractive stocks are constrained to their benchmark weights of 0.05% and 0.10%. These two stocks can contribute no more to the active equity portfolio's return than they contribute to the enhanced indexed portfolio's return.[9]

It is also worth noting that, with the enhanced indexed and active equity portfolios, the constraint against short-selling hampers the ability to overweight stocks. Neither of these portfolios can take larger underweight positions in the two most unattractive stocks; not holding these stocks at all frees only a minuscule amount of capital for overweighting attractive stocks. Instead, much of the capital for these portfolios' overweighted positions comes from underweighting an only slightly unattractive stock or a neutrally ranked stock.

The enhanced active equity portfolio differs significantly from the active equity and enhanced indexed portfolios. It has sold short securities equal to 20% of capital and purchased long positions equal to 120% of capital, so its total investment equals 140% of its capital (and 140% of the investment in the indexed equity and in the active equity portfolios). Furthermore, the additional 20% sold short and 20% invested long are all in active weights.

The enhanced active equity portfolio can take larger underweight and larger overweight positions than the enhanced indexed or active portfolios *because* it can sell short. Fully 85% of the portfolio's positions are active weights—20 percentage points more than the 65% active weights of the active equity portfolio.[10]

The enhanced active portfolio can take larger overweight positions than the active portfolio—0.50% and 0.20% for the two most attractive stocks, versus 0.40% and 0.15% for active equity. It is thus able to increase the contribution to expected active return—1.50 and 0.40 basis points from the most and the second-most attractive stocks, respectively. It can underweight the two most unattractive stocks by much more than their weights in the benchmark—with active underweights of 0.20% and 0.15%, respectively. This increases their contributions to portfolio expected active return to 0.60 and 0.30 basis points, respectively. Now the most unattractive, as well as the most attractive, securities can add meaningfully to portfolio expected active return.

We noted earlier, with regard to enhanced active equity portfolio performance, that the average capitalizations of the long and short positions in the enhanced portfolio would likely be below the benchmark capitalization. This is illustrated in Exhibit 3. The weighted-average capitalization weight of the short positions is below that of the benchmark (and below that of the long positions in the portfolio) (see the appendix). The difference reflects the fact that short positions are likely to be concentrated in smaller-capitalization securities, as the investor does not have to short larger-capitalization securities in order to achieve meaningful underweights.[11]

The more symmetric the implementation of overweighting and underweighting, the more fully investors can exploit the security expected return information. This is reflected in Exhibit 3, with the market-neutral long–short portfolio. A market-neutral portfolio invests 100% of capital long and sells 100% short. The long and short positions neutralize market exposure, so the portfolio has no market benchmark risk or return; 100% of the portfolio is active weights, and in this case the weighted-average capitalization weight of the long positions equals that of the short positions (and is less than that of the benchmark).

As Exhibit 3 shows, the portfolio can achieve full symmetry between long and short positions, taking short positions that are equal in percentage terms to the long positions and that capture the equivalent amount of expected return. Of course, the portfolio has no exposure to the underlying benchmark, and hence will not capture market return or risk.

The Enhanced Prime Brokerage Structure

Enhanced active equity portfolios depend on relatively new prime brokerage structures that allow investors to establish a stock loan account with a broker. In this case the investor is not a customer of the prime broker, as would be the case with a regular margin account, but rather a counterparty in the stock loan transaction.[12]

This is an important distinction, for at least four reasons. First, investors can use the stock loan account to borrow directly the shares they want to sell short (the short sales are not included in public short interest data). The shares the investor holds long serve as collateral for the shares borrowed.

In a margin account, by contrast, the broker is an intermediary between the stock lender and the investor. In that case, the investor places with the lenders cash collateral equal to the value of the shares sold short; this requires that the investor surrender the proceeds from the short sale of the securities. In the stock loan account, however, the *broker* arranges the collateral for the securities' lenders, providing cash, cash equivalents, securities, or letters of credit. This means that the proceeds from the short sales are available to the investor to purchase securities long.[13]

Second, in a margin account, where the investor is a customer, the broker arranges to borrow the shares the investor wants to sell short. These borrowed shares are known as customer shorts, and they are marked to market daily. If the borrowed shares rise in price, the investor must provide the lenders additional cash collateral equal to the negative marks to market; if the short positions fall in price, the lenders return cash to the investor. The investor with a margin account must generally retain a cash buffer to meet such demands. Such a buffer can use up to 10% of capital, capital that does not generate investment returns (although it does earn interest).

In a stock loan account, the shares borrowed are collateralized by securities the investor holds long, rather than by the short sale proceeds. This eliminates the need for a cash buffer. All the proceeds of short sales and any other available cash can thus be redirected toward long purchases. In a 120–20 portfolio funded with $100, for instance, the investor can sell short $20 of securities (20% of capital), and use the proceeds to buy $20 of securities long as well as using the entire $100 of initial cash to purchase securities long.

In exchange for its lending services (arranging for the shares to borrow and handling the collateral), the prime broker charges an annual fee equal to about 0.50% of the market value of the shares shorted. (Fees may be higher for harder-to-borrow shares or smaller accounts.) For a 120–20 portfolio, with 20% of capital shorted, the fee as a percentage of capital is thus about 0.10%. The broker also generally obtains access to the shares the investor holds long, up to the dollar amount the investor has sold short, without paying a lending fee to the investor. The broker can lend these shares to other investors to sell short; the investor, in turn, can borrow the shares the broker can hypothecate from other investors, as well as the shares the broker holds in its own accounts and the shares it can borrow from other lenders.

Third, a stock loan account in contrast to a margin account provides critical benefits for a tax-exempt investor. In general, one would expect a margin loan would be needed with a long position of 120% of capital. The otherwise tax-exempt investor that profits from positions established with borrowed funds is subject to taxes on Unrelated Business Taxable Income (UBTI). In an enhanced active equity structure, however, the long positions established in excess of the investor's capital are financed by the proceeds from the investor's sale of short positions; the longs are not purchased with borrowed funds.[14]

Finally, as the investor is a counterparty in a stock loan account, rather than a customer of the broker in an equity margin account, the investor's borrowing of shares to sell short is not subject to Federal Reserve Board Regulation T, which specifies that an equity margin account be at least 50% collateralized, limiting leverage to two-to-one. Instead, the investor's leverage is limited by the broker's own internal lending policies. In theory, the enhanced active equity investor could run a 200–100 portfolio holding long positions equal to 200% of capital and selling short positions equal to 100% of capital, or maintain an even more highly levered structure.[15]

Operational Considerations

Enhanced active equity portfolios are leveraged in that the investments long and short exceed the investor's capital. A 120–20 portfolio has $140 at risk for every $100 of capital. The 20% leveraged long portion of the portfolio, however, is offset by the 20% sold short.

Netting the portfolio's positions provides a 100% exposure to the market, so the 120–20 structure does not leverage systematic risk or return. The leveraging of capital, however, can be expected to increase risk and return over the benchmark. The portfolio construction process should ensure that incremental residual risk is taken only when there is a compensating increase in expected active return.

Portfolio turnover will reflect the amount of leverage in the portfolio. With $140 in positions in a 120–20 portfolio for every $100 of capital, versus $100 in positions in a long-only portfolio, turnover can be expected to be about 40% higher. Again, the portfolio construction process should explicitly consider trading costs so that

trades occur only when the expected active return exceeds the cost of trading.

In an enhanced active equity portfolio, some trading may also result from the need to rebalance. Suppose, for example, that prices move adversely so that the long positions lose $2 and the short positions lose $3, causing capital to decline from $100 to $95. The portfolio now has long positions of $118 and short positions of $23. To maintain portfolio exposures of 120% of capital as long positions and 20% of capital as short positions, the investor must rebalance by selling $4 of longs and using the proceeds to cover $4 of shorts. The resulting portfolio restores the 120–20 proportions (as the $114 long and $19 short are 120% and 20% of $95, respectively).

An enhanced active equity portfolio is likely to entail higher management fees than an enhanced indexed equity or active equity portfolio, reflecting the leverage in the enhanced active portfolio. At the same time, enhanced active, with shorting, devotes a significantly higher percentage of assets to active weights.

Exhibit 3 shows that higher active weights translate into higher potential active returns. The investor deciding between strategies should compare management fees per dollar of active positions, rather than merely fees per dollar of capital.[16]

The more intensive use of capital in an enhanced active equity strategy uses up a manager's asset capacity at a faster rate. The manager contemplating enhanced active equity needs to assess this capacity on the basis of the actual demand for securities, both long and short, rather than clients' capital commitments. The manager should take into account that stocks sold short (and held long) are less liquid than the average benchmark stock, because they are typically smaller in capitalization than the benchmark average.

Finally, investments in enhanced active equity strategies may have an impact on market prices. That is, the short-selling undertaken in conjunction with enhanced active equity strategies may tend to reduce the prices of overvalued securities more than the additional investment in securities bought long increases the prices of undervalued securities. This is because securities in general may tend to be overvalued more than they are undervalued.

The underweighting constraint of long-only portfolios, the limited amount of short-selling that does take place, and the tendency of brokers to favor buy recommendations over sell recommendations all suggest that overvaluation may be more common, and of greater magnitude, than undervaluation (see Jacobs and Levy

[1993] and Miller [2001]). If enhanced active equity strategies do reduce security overvaluation, market efficiency would improve and society's resources may be better allocated.

Comparison to Other Long-Short Strategies

How does enhanced active equity compare with one of the more popular long-short strategies—market-neutral equity investing? A market-neutral portfolio sells short securities that are expected to underperform and purchases an equal amount of securities that are expected to outperform. Assuming the longs and shorts are properly structured, the offsetting positions effectively cancel out market risk and return. There is thus no need for the portfolio to converge to any particular benchmark weights in order to control portfolio risk. Every position in a market-neutral portfolio is active in the sense of providing active return or reducing residual risk (see Jacobs and Levy [2005]).[17]

Because market risk and return cancel out, market-neutral portfolios should perform the same whether the underlying market falls or rises. Unlike enhanced active equity or the other equity strategies discussed, market-neutral equity investing is an absolute-return strategy that provides the spread between the securities held long and sold short plus the short rebate rate provided by the prime broker (typically the federal funds rate minus about 0.25%).

By combining stock index futures or exchange-traded funds (ETFs) with a market-neutral long-short portfolio, the investor can reestablish an equity market exposure, while retaining the active return benefits of market-neutral long-short.[18] This may sound similar to a 200–100 enhanced active equity portfolio, which has 200% of capital long and 100% short, retaining full exposure to the underlying equity benchmark, but there are some significant differences.

Establishing an equity market exposure with futures involves moving either cash from the short sale proceeds or Treasury bills (purchased with the cash proceeds) to the futures account to meet the futures margin requirement. About 5% of the futures value in T-bill margin or cash is needed, and the investor would pay a stock loan fee of about 50 basis points on this amount.

The futures would be expected to provide a return approximating the return on the underlying market. In general, this return can be expected to be lower than the actual index return by an amount that reflects the difference between the LIBOR implicit in the futures value and the short rebate the investor earns on the short sale

proceeds. This differential has recently averaged about 40 basis points. The investor also incurs transaction costs to establish and roll the futures position.

Another way to obtain equity market exposure is to invest the cash proceeds from short sales in ETFs. In this case, there would be a stock loan fee of 50 basis points, applied to the amount invested. The investor receives the relevant stock index return, less the transaction costs and management fees associated with the ETF.

The expected return on the overlay of futures contracts or ETFs is essentially passive; the investor cannot expect to receive a return beyond the return on the underlying index, and will generally receive a return that is somewhat lower after costs. A 200–100 strategy is more active—full market exposure is established not by a passive stock index overlay, but with the 100% net long investment in active equities. For each $100 of capital, there are $300 in stock positions the investor can use in pursuit of active return and control of risk. The cost of the active equity overlay will be the stock loan fee of 50 basis points, applied to the value of the shorted securities.

CONCLUSION

As in any stock selection strategy, one incurs risk relative to the benchmark in departing from benchmark weights to pursue active returns. Enhanced active equity can be expected to incur higher turnover and higher transaction costs as a percentage of capital than long-only strategies. Management fees as a percentage of capital may also be higher, the more that investment positions are leveraged.[19]

Yet the progressive relaxation of portfolio constraints as one moves from indexed equity to enhanced indexed to active equity to enhanced active equity can be expected to produce progressive improvement in portfolio performance, given the increasing flexibility for implementing investment insights, *provided* the insights are good ones. Relaxing the long-only constraint, by permitting meaningful security underweights that would not otherwise be achievable, allows investors to take fuller advantage of security valuation insights and can enhance portfolio performance.

APPENDIX

Weighted-Average Capitalization Weights

To derive the weighted-average capitalization weights, suppose that a strategy s uses N securities. Let the capitalization weights of the securities be w_i for $i = 1, \ldots, N$. These weights are shown in the column labeled Security Benchmark Index Weight (%) in Exhibit 3. Let the portfolio holdings of the i-th security in strategy s be x_i^s. Then, the weighted-average capitalization weight (WACW), $\bar{w}^s$, for strategy s is:

$$\bar{w}^s = \frac{1}{k^s} \sum_{i=1}^{N} x_i^s w_i$$

where $k^s = \sum_{i=1}^{N} x_i^s$ is a normalization constant. The quantity $\bar{w}^s$ is displayed in the row labeled WACW in Exhibit 3. In the case of the benchmark index, $x_i^s = w_i$, and we refer to the quantity $\bar{w}^s$ as the *benchmark-weighted-average capitalization weight*. In the case of other strategies, we refer to this quantity as the *portfolio-weighted-average capitalization weight*.

In the rows labeled WACW Longs and WACW Shorts in Exhibit 3, we show the long and short contributions to the averages. The long contribution, WACW Longs, is:

$$\bar{w}_L^s = \frac{1}{k_L^s} \sum_{i \in L} x_i^s w_i$$

where L is the set of securities held long; i.e., $L = \{i: x_i^s > 0\}$, and $k_L^s = \sum_{i \in L} x_i^s$. The short contribution, WACW Shorts, is:

$$\bar{w}_S^s = -\frac{1}{k_S^s} \sum_{i \in S} x_i^s w_i$$

where S is the set of securities sold short; i.e., $S = \{i: x_i^s < 0\}$, and $k_S^s = -\sum_{i \in S} x_i^s$.

ENDNOTES

[1]Benchmark indexes allow for disciplined, risk-controlled portfolios that fit within a client's overall investment guidelines. See Jacobs and Levy [1998].

[2]Ennis [2001] asserts that a style portfolio is suboptimal compared to a whole stock portfolio that takes advantage of a broad universe of securities. One can think of style portfolios as universe-constrained, although style portfolios are the specialty of some managers. Style portfolios can also benefit from relaxation of the long-only constraint.

[3]Alternatively, enhanced indexing may involve securities other than stocks. The enhanced indexed manager might purchase stock index futures to provide benchmark exposure and aim for excess return by investing in bonds with some credit or duration risk.

[4]For enhanced active equity portfolios, for the general case of a (100 + x)% long and x% short portfolio, two constraints are needed: 1) the sum of the long position weights is (100 + x)%, and 2) the sum of the short position weights is x%.

[5]To the extent that smaller-capitalization stocks are priced less efficiently, this migration down the capitalization spectrum for both long and short positions can result in higher active returns.

[6]Furthermore, the investor can underweight stocks that are not constituents of the underlying benchmark. Note that while investors can overweight non-benchmark stocks simply by buying them, in the absence of short-selling investors cannot underweight non-benchmark stocks, because such stocks have zero weight in the benchmark. Short-selling enlarges the investor's selection universe by allowing for the underweighting of non-benchmark names.

[7]The breadth of a portfolio, or the sheer number of different opportunities it expects to profit from, is critical to active portfolio performance. See Grinold [1989]. Another benefit of diversification of the short positions is in risk control. The risk of short positions is theoretically unbounded. That is, while a security's price can go to zero but not below, the price can theoretically rise without limit, leading to unlimited losses on a short position. This risk can be mitigated in enhanced active equity portfolios if shorts are diversified across many positions, and each position size is a small percentage of the portfolio, because short positions can generally be covered as their prices rise to keep the positions within prescribed individual short position limits.

[8]The advantage of being able to short will also be amplified to the extent that inefficiencies are greater among overvalued stock (candidates for short sale) than among undervalued stock (candidates for purchase). The likelihood of greater inefficiencies on the short side is supported by the limited extent of actual short-selling in the marketplace, among other factors. See Jacobs and Levy [1993] and Miller [2001] for a discussion of short-side inefficiency and its potential causes.

[9]Note that the enhanced indexed portfolio's limit on residual risk limits the active weights it can take, so the portfolio's overweights of the most attractive securities are not much greater than its underweights of the most unattractive securities. There is much more asymmetry between the over- and underweights of the active equity portfolio; with the ability to take more residual risk, this portfolio can overweight the most attractive stocks more than the enhanced indexed portfolio can, but its ability to underweight the most unattractive stocks is as limited as the enhanced index's.

If the active equity portfolio were allowed to short, it would require more shorting, relative to the enhanced indexed portfolio, in order to achieve more symmetry between over- and underweights. In general, the ability to short becomes more desirable as portfolio active weights (residual risk) increase, because more shorting is needed to balance the portfolio's exploitation of under- and overvalued stocks.

[10]All the short positions represent new active weights, as the investor would only short stocks the portfolio does not own (that is, stocks that could not be further underweighted because they were already not held). In order to hedge or reduce risk, the investor may use some portion of the short sale proceeds to reduce active underweights. In that case, the investor would not have that portion available to use for active overweights, and the percentage of the portfolio in active weights (and the difference in active weights between the enhanced active and active equity portfolios) would be smaller.

[11]Exhibit 3 also reflects an implicit assumption that inefficiencies (hence opportunities) are more prevalent in smaller-capitalization stocks. This is evident in the enhanced indexed and active equity portfolios, too, in that their weighted-average capitalization weights are below the benchmark's, reflecting their active concentrations in securities with smaller-than-benchmark capitalizations. The investor could constrain the portfolio to have a capitalization weight closer to the capitalization of the benchmark, but that constraint would result in diminished expected returns. To constrain the enhanced active equity portfolio, the investor would ensure that the portfolio's net capitalization (120% of the capitalization weight of the long positions minus 20% of the capitalization weight of the short positions) equals the benchmark's capitalization.

[12]To establish a stock loan account with a prime broker, the manager must meet the criteria for a Qualified Professional Asset Manager. For a registered investment advisor, this means more than $85 million of client assets under management and $1 million of shareholders' equity.

[13]In practice, securities' lenders generally demand collateral equal to more than 100% of the value of the shares lent. In either margin or stock loan accounts, the additional collateral is generally supplied by the broker.

[14]Legal opinion generally holds that the purchase of additional longs with proceeds from the short sale does not give rise to acquisition indebtedness; hence it does not give rise to UBTI for a tax-exempt investor. Also, while the investor does borrow the shares to sell short, borrowing shares to short does not give rise to UBTI (see Jacobs and Levy [1997]).

[15]In the case of long positions, the investor subject to Reg T can borrow as much as 50% of the value of the position from the broker. In the case of a short position, the customer does not borrow money from the broker; the margin requirement is a collateral requirement. The Reg T margin requirement for shorts is stated as 150%—of which 100% out of 150% is supplied by the proceeds of the sale of the borrowed stock. Note that the Reg T requirements are for "initial margin"—the equity required in the account to establish initial positions. Reg T does not constrain the value of the positions maintained after they are established, but the exchanges and brokers impose maintenance margins.

[16]The complement to active weight is passive benchmark weight; for instance, the enhanced active portfolio has 85% active weights, hence 15% passive weights. Passive weights are often called deadweight because they do not add to a portfolio's active return.

[17]Market–neutral long-short portfolios have traditionally been managed in a margin account, with a cash buffer of 10% typically maintained to meet the daily marks on the short positions. An enhanced prime brokerage structure using a stock loan account obviates the need for a cash buffer.

[18]Market-neutral long-short strategies are sometimes referred to as *portable alpha* strategies, because the active return (alpha) can be transported to various asset classes by way of derivatives. See Jacobs and Levy [1999].

[19]With stock loan accounts, traditional investment advisers are placed on more of an equal footing with hedge funds, which have long enjoyed the benefits of counterparty status with prime brokers. From the investor's viewpoint, traditional investment advisers may offer some advantages over hedge funds. These include greater transparency of the investment process, portfolio holdings, and security pricing; the ability to redeem invested funds more readily; a benchmark for performance measurement; and, typically, lower management fees.

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