READEING 27: EQUITY PORTFOLIO MANAGEMENT

A- The Role of the Equity Portfolio

Inflation hedging ability, and the growth role they play in a portfolio are sought-after characteristics in equities. However, the fact that tax rates are not indexed to inflation could lower returns to investors. Also, some companies will find it difficult to pass on inflation to customers depending on the competitive landscape where they are operating.

B- Approaches to Equity Investments

- **Passive management.** The investor does not attempt to reflect his investment expectations through changes in security holdings. The dominant passive approach is indexing, which involves investing in a portfolio that attempts to match the performance of some specified benchmark. Indexed portfolios are periodically adjusted and rebalanced. Investors who believe that an equity market is efficient will usually favor indexing because they think that equity research will not provide a sufficient increment in return to overcome their research and transaction costs.

- **Active management.** An active manager seeks to outperform a given benchmark portfolio by identifying which stocks she thinks will perform comparatively well versus the benchmark portfolio, buying or holding those, and avoiding stocks she believes will underperform the benchmark. Active investors believe that the equity market is often inefficient and that good research will allow them to outperform the market net of all costs.

- **Semiactive management** (also called enhanced indexing or risk-controlled active management) and is in reality a variant of active management. The manager seeks to outperform a given benchmark, as do active managers in general. A semiactive portfolio manager, however, worries more about tracking risk than an active manager does and will tend to build a portfolio whose performance will have very limited volatility around the benchmark’s returns. Enhanced indexers fall somewhere between the two, believing that they can extract information about companies that has not been embedded in stock prices, but attempting to do so in a way that limits tracking risk.

- **Active return** is the portfolio’s return in excess of the return on the portfolio’s benchmark.

- **Tracking risk,** the annualized standard deviation of active returns, measures active risk (risk relative to the portfolio’s benchmark).

- **The information ratio** equals a portfolio’s mean active return divided by tracking risk and represents the efficiency with which a portfolio’s tracking risk delivers active return.

<table>
<thead>
<tr>
<th></th>
<th>Indexing</th>
<th>Enhanced Indexing</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected active return</td>
<td>0%</td>
<td>1%–2%</td>
<td>2%+</td>
</tr>
<tr>
<td>Tracking risk</td>
<td>&lt;1%</td>
<td>1%–2%</td>
<td>4% + r</td>
</tr>
<tr>
<td>Information ratio</td>
<td>0</td>
<td>0.75</td>
<td>0.50</td>
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C- Passive Equity Investing

Indexing has advantages in a broad range of equity market segments. The relatively high informational efficiency of prices in large-cap equity markets favors indexing.

- In typically less efficient market segments, such as small cap, the supply of active investment opportunities may be larger but transaction costs are higher.
- Indexing is also a logical choice to gain exposure to markets with which an investor may be unfamiliar, because active investing when one may be at an informational disadvantage is usually ill-advised.

1- Equity Indices

In addition to their role as portfolio management benchmarks, stock indices are also used to measure the returns of a market or market segment, as the basis for creating an index fund, to study factors that influence share price movements, to perform technical analysis, and to calculate a stock's systematic risk (or beta).

Four choices determine a stock index’s characteristics:
1) the boundaries of the index’s universe,
2) the criteria for inclusion in the index,
3) how the stocks are weighted, and
4) how returns are calculated. The computational method, includes variations such as price only and total return series that include the reinvestment of dividends. Only total return series capture the two sources of equity returns, capital appreciation and dividends.

a. Index Weighting Choices

- **Price weighted.** In a price-weighted index, each stock in the index is weighted according to its absolute share price. A price-weighted index is biased toward shares with the highest price.
- **Value weighted (or market-capitalization weighted).** In a value-weighted index, each stock in the index is weighted according to its market capitalization. A subset of the value-weighted method is the float-weighted method, which adjusts value weights for the floating supply of shares. A value- or float-weighted index is biased toward the largest market cap companies, which may reflect positive valuation errors. Floatweighting facilitates the minimization of tracking risk and portfolio turnover and results in indices that well represent asset-class performance.
- **Equal weighted.** In an equal-weighted index, each stock in the index is weighted equally. An equal-weighting methodology introduces a small-company bias because such indices include many more small companies than large ones. Moreover, to maintain equal weighting, this type of index must be rebalanced periodically. Frequent rebalancing can lead to high transaction costs in a portfolio tracking such an index. Another limitation of equal-weighted indices as indexing benchmarks is that not all components in such an index may have sufficiently liquid markets to absorb the demand of indexers.
b. Equity Indices: Composition and Characteristics of Major Indices

An indexer’s choice of index to track has important consequences. Committee-determined indices tend to have lower turnover than those reconstituted regularly according to an algorithm. Thus indexing on the former type of index may have transaction cost and tax advantages. On the other hand, indices that are not reconstituted regularly may drift away from the market segment they are intended to cover. The indexer should also be aware of liquidity differences among the component securities of the various indices that cover the same market segment. On the other hand, investing in less liquid shares may allow the indexer to capture an illiquidity premium. **In choosing the index to replicate, a fund must evaluate the trade-off between differences in transaction costs and differences in return premiums among the indices.**

2. Passive Investment Vehicles

The major choices for specific passive investment vehicles include are:

- Investment in an indexed portfolio;
- A long position in cash plus a long position in futures contracts on the underlying index, when such markets are available and adequately liquid; and
- A long position in cash plus a long position in a swap on the index. The investor pays a fixed rate of interest on the swap’s notional principal and in return receives the return on the index.

a. Indexed Portfolios

The three most important categories of indexed portfolios are:

- conventional index mutual funds;
- exchange-traded funds (ETFs), which are based on benchmark index portfolios; and
- separate accounts or pooled accounts, mostly for institutional investors, designed to track a benchmark index.

- The most obvious difference between conventional index mutual funds and ETFs is that shareholders in mutual funds usually buy shares from the fund and sell them back to the fund at a net asset value determined once a day at the market close. ETF shareholders buy and sell shares in public markets anytime during the trading day. Dealers can create and redeem ETF shares with in-kind deposits and withdrawals at each day’s market close.

- The principal difference between index mutual funds and exchange-traded funds on the one hand, and indexed institutional portfolios, on the other hand, is cost. Indexed institutional portfolios managed as separate accounts with a single shareholder or, increasingly, as pooled accounts, are extremely low-cost products. Depending on the nature of the securities used in the portfolio, total annual expenses may be as low as a few basis points. Occasionally, where securities with an active lending market are involved, the revenue from securities lending can equal or exceed total portfolio management and custody expenses. Conventional index mutual funds can vary greatly in their cost structure and returns.
Other differences among index funds become apparent when exchange-traded funds are added to the range of choices. At least four economically significant differences separate conventional index mutual funds from indexed exchange-traded funds:

1) **Shareholder accounting** at the fund level can be a significant expense for conventional mutual funds in some markets, but ETFs do not have fund level shareholder accounting.

2) Exchange-traded funds generally pay much **higher index license fees** than conventional funds.

3) Exchange-traded funds are often much **more tax-efficient** than conventional funds.

4) Users of exchange-traded funds pay **transaction costs including commissions** to trade them, but for their ongoing shareholders, ETFs provide inherently **better protection from the cost of providing liquidity to shareholders who are selling fund shares**.

5) At the fund level, the most significant **tax difference between conventional funds and ETFs is in the process by which fund shares are redeemed**.

If an index contains less than, say, 1,000 stocks, and the stocks are liquid, the index fund manager will usually attempt to manage the portfolio with **full replication** of the index—that is, every issue in the index will be represented in the portfolio, and each portfolio position will have approximately the same weight in the fund as in the index. As the number of issues in the index passes 1,000, it is increasingly likely that the manager will construct the portfolio using either **stratified sampling** (also called **representative sampling**) or **optimization**. In some cases, the preferred method depends on portfolio size and the availability of active trading in an index basket by means of portfolio trades.

**Full replication** minimizes tracking risk and has the advantage of being **self-rebalancing**. Self-rebalancing is a desirable characteristic because it implies that **trading is needed only for the reinvestment of dividends and to reflect changes in index composition**.

Typically, the return on a full replication index fund may be less than the index return by an amount equal to the sum of:

- The **cost of managing and administering the fund**;
- The **transaction costs** of portfolio **adjustments** to reflect changes in index composition;
- The **transaction costs** of **investing** and disinvesting **cash flows**; and
- In upward-trending equity markets, the **drag on performance from any cash positions**.

Attempting to fully replicate an index containing a large proportion of illiquid stocks will usually result in an index portfolio that underperforms the index. This phenomenon occurs because indices do not have to bear transaction costs but a real portfolio does. These transaction costs include brokerage commissions, bid–offer spreads, taxes, and the market impact of trades. There are two ways to build an index-tracking portfolio using a subset of stocks in the index: **stratified sampling** and **optimization**.

Using **stratified sampling**, a portfolio manager **divides the index along a number of dimensions**, creating **multidimensional cells**. Each index stock is placed into the cell that best describes it. Next, she would characterize all stocks in the index in this way and determine the weight of each cell in the index by totaling the market cap for all stocks in that cell. The manager would then build a portfolio by
selecting a random sample of stocks from each cell and ensuring that the sum of the weights of the stocks purchased from each cell corresponds to the cell’s weight in the index.

Another technique commonly used to build portfolios containing only a subset of an index’s stocks is optimization. Optimization is a mathematical approach to index fund construction involving the use of:

- A multifactor risk model, against which the risk exposures of the index and individual securities are measured, and
- An objective function that specifies that securities be held in proportions that minimize expected tracking risk relative to the index subject to appropriate constraints.

An advantage of optimization compared with stratified sampling is that optimization takes into account the covariances among the factors used to explain the return on stocks. The stratified sampling approach implicitly assumes the factors are mutually uncorrelated.

Optimization has several drawbacks as an approach to indexation:

- First, even the best risk models are likely to be imperfectly specified. That is, it is virtually impossible to create a risk model that exactly captures the risk associated with a given stock, if only because risks change over time and risk models are based on historical data.
- Furthermore, the optimization procedure seeks to maximally exploit any risk differences among securities, even if they just reflect sampling error (this is the problem known as overfitting the data).
- Even in the absence of index changes and dividend flows, optimization requires periodic trading to keep the risk characteristics of the portfolio lined up with those of the index being tracked.

As a result of these limitations, the predicted tracking risk of an optimization-based portfolio will typically understate the actual tracking risk. That said, indexers have found that the results of an optimization approach frequently compare well with those of a stratified sampling approach, particularly when replication is attempted using relatively few securities. With either stratified sampling or optimization, the indexer may fully replicate (purchase in index-weight proportions) the largest stocks and create an optimized/sampled portfolio for the rest.

b. Equity Index Futures

A portfolio trade is simply a basket of securities traded as a basket or unit, whereas a traditional security trade is done one share issue at a time. A portfolio trade is made when all of the stocks in the basket are traded together under relatively standardized terms.

The limited life of a futures contract and the fact that the most active trading in the futures market is in the nearest expiration contract means that a futures position must be rolled over periodically to maintain appropriate market exposure. Trading a basket of stocks can be relatively cumbersome at times, particularly on the short side where any uptick rule historically impeded basket transactions in U.S. markets. (Uptick rules require that a short sale must not be on a downtick relative to the last trade at a different price.) Exchange-traded funds historically have been exempt from the uptick rule for
short sales. This fact, and their lack of an expiration date, has made ETFs instruments of choice for many indefinite-term portfolio hedging and risk management applications.

c. Equity Total Return Swaps

Today, most equity swap applications are motivated by differences in the tax treatment of shareholders domiciled in different countries or by the desire to gain exposure to an asset class in asset allocation. The tax-oriented applications focus primarily on differences in tax treatment accorded domestic and international recipients of corporate dividends in many countries. Dividend withholding taxes, and an often cumbersome process for obtaining appropriate relief from part of the withholding tax, give many cross-border investors an incentive to use an equity total return swap. They receive the total return of a nondomestic equity index in return for an interest payment to a counterparty that holds the underlying equities more tax-efficiently. Although many crossborder tax differences have been reduced, as long as tax differences persist, equity swaps can provide significant tax-saving opportunities to many large crossborder investors.

Equity swaps have another important application: asset allocation transactions. A manager can use equity swaps to rebalance portfolios to the strategic asset allocation. Total costs to rebalance by trading the underlying securities may exceed the cost of an equity swap. Consequently, effecting the asset allocation change with a swap is often more efficient. Equity swaps are used in tactical asset allocation for similar reasons.

D- Active equity Investing

1. Equity Styles

An investment style is a natural grouping of investment disciplines that has some predictive power in explaining the future dispersion of returns across portfolios. A traditional equity style contrast is between value and growth disciplines. Market oriented is often specified as an intermediate grouping for investment disciplines that cannot be clearly categorized as value or growth. Furthermore, the market-capitalization segment(s) in which an equity investor operates is frequently specified in describing an investor’s style.

a. Value Investment Styles

All else being equal, value investors are more concerned about buying a stock that is deemed relatively cheap in terms of the purchase price of earnings or assets than about a company’s future growth prospects. The main risk for a value investor is that he has misinterpreted a stock’s cheapness. Value investors also face the risk that the perceived undervaluation will not be corrected within the investor’s investment time horizon.

Questions that the value investor should ask include the following:
  * How long is it expected to take for price to rise to reflect the shares’ perceived higher intrinsic value?
- What catalyst (triggering event or change) will make the price rise?
- Is the expected timeframe for the price to correct acceptable?

The value investing style has at least three substyles:

- **Low P/E**: low P/E investor will look for stocks that sell at low prices to current or normal earnings. Such stocks are generally found in industries categorized as defensive, cyclical, or simply out-of-favor. The investor buys on the expectation that the P/E will at least rise as the stock or industry recovers.

- **Contrarian**: a contrarian investor will look for stocks that have been beset by problems and are generally selling at low P/Bs, frequently below 1. Such stocks are found in very depressed industries that may have virtually no current earnings. The investor buys on the expectation of a cyclical rebound that drives up product prices and demand.

- **High yield**: a yield investor focuses on stocks that offer high dividend yield with prospects of maintaining or increasing the dividend, knowing that in the long run, dividend yield has generally constituted a major portion of the total return on equities.

b. Growth Investment Styles

Growth investors are more concerned with earnings, their underlying assumption is that **if a company can deliver future growth in earnings per share and its P/E does not decline, then its share price will appreciate at least at the rate of EPS growth.** Growth investors generally will pay above-market earnings multiples for companies that have superior growth rates. They also tend to invest in companies in growth industries, such as technology, health care, and consumer products. Growth stocks have high sales growth relative to the overall market and tend to trade at high P/Es, P/Bs, and price-to-sales ratios (P/Ss).

The major risk facing growth investors is that the forecasted EPS growth does not materialize as expected. In that event, P/E multiples may contract at the same time as EPS, amplifying the investor’s losses.

The growth style has at least two substyles:

- **Consistent growth**: Companies with consistent growth have a long history of unit-sales growth, superior profitability, and predictable earnings. They tend to trade at high P/Es and be the leaders in consumer-oriented businesses.

- **Earnings momentum**: Some growth investors also include price momentum indicators such as relative strength indicators in their investment disciplines, relying on possible patterns of price persistence for certain time horizons.

The growth investor who buys a stock at a premium to the overall market is counting on the market to continue paying a premium for the earnings growth that a company has been providing and may continue to deliver. During an economic expansion, earnings growth is abundant—even in the depressed stocks preferred by a value investor—which may cause this premium to above-average growth to shrink or vanish. By contrast, when companies with positive earnings momentum become
scarce, as in a slowing economy, earnings growth becomes a scarce resource commanding a higher price, and growth investors may do relatively well.

c. Other Active Management Styles

Market-oriented investors do not restrict themselves to either the value or growth philosophies. The term “market-oriented style” (also sometimes called a blend or core style) gathers an eclectic group of approaches, with the common element that the valuation metrics of market-oriented portfolios resemble those of a broad market index more than those of a value or growth index, averaged over a full market cycle. Market-oriented investors may be willing to buy stocks no matter where they fall on the growth/value spectrum, provided they can buy a stock below its perceived intrinsic value. They might use a discounted cash flow model or other discipline to estimate intrinsic value. Market-oriented style investors might buy a stock with a high P/E provided the price can be justified through future growth expected in EPS. They might also buy a depressed cyclical issue provided that they foresee some recovery in product pricing in the future. The potential drawback of a market-oriented active style is that if the portfolio achieves only market-like returns, indexing or enhanced indexing based on a broad equity market index will likely be the lower-cost and thus more effective alternative.

Among the recognized subcategories of market-oriented investors are

- **Market-oriented with a value bias**, Value bias and growth bias investors tilt their portfolios toward value and growth respectively, but not so distinctively as to clearly identify them as value or growth investors. They typically hold well-diversified portfolios.
- **Market-oriented with a growth bias**, Value bias and growth bias investors tilt their portfolios toward value and growth respectively, but not so distinctively as to clearly identify them as value or growth investors. They typically hold well-diversified portfolios.
- **Growth-at-a-reasonable-price** investors favor companies with above-average growth prospects that are selling at relatively conservative valuation levels compared with other growth companies. Their portfolios are typically somewhat less well diversified than those of other growth investors.
- **Style rotators** invest according to the style that they believe will be favored in the marketplace in the relatively near term.

Small-capitalization equity investors (also called small-cap or small-stock investors) focus on the lowest market-capitalization stocks in the countries in which they invest. The underlying premise of this style is that more opportunity exists to find mispriced stocks through research in the small-cap universe than in the less numerous and more intensely researched universe of large-cap blue chip firms. Another rationale is that smaller companies tend to have better growth prospects because their business is starting from a smaller base and their product line tends to be more focused. Also, the chance of earning a very high rate of return on one’s money is much better if the starting market capitalization is small. Small-cap investors can also focus on value, growth, or market-orientation within the small-cap universe.
d. Techniques for Identifying Investment Styles

Two major approaches to identifying style are returns-based style analysis, which relies on portfolio returns, and holdings-based style analysis (also called composition-based style analysis), which relies on an analysis of the characteristics of individual security holdings. The analyst can use the information from either technique to identify a manager’s style for performance attribution purposes and/or to formulate expectations about the manager’s future performance.

1) The first technique of style identification was Sharpe’s returns-based style analysis. This technique focuses on characteristics of the overall portfolio as revealed by a portfolio’s realized returns. It involves regressing portfolio returns (generally monthly returns) on return series of a set of securities indices. In principle, these indices are:
   - Mutually exclusive;
   - Exhaustive with respect to the manager’s investment universe; and
   - Distinct sources of risk (ideally they should not be highly correlated).

Returns-based style analysis involves a constraint that the coefficients or betas on the indices are nonnegative and sum to 1. That constraint permits us to interpret a beta as the portfolio’s proportional exposure to the particular style (or asset class) represented by the index. Once we get an overall good fit we can benchmark the portfolio’s returns against such and index. This benchmark is referred to as the normal portfolio. A manager’s normal portfolio or normal benchmark in effect represents the universe of securities from which a manager normally might select securities for his portfolio. We can use a returns-based style analysis to calculate a coefficient of determination measuring style fit. The quantity 1 minus the style fit equals selection, the fraction of return variation unexplained by style. The error term in the style analysis equation—the difference between the portfolio’s return and a passive asset mix with the same style as the portfolio—represents selection return (the return from active security selection ability).

2) The second major broad approach to style identification is holdings-based style analysis, which categorizes individual securities by their characteristics and aggregates results to reach a conclusion about the overall style of the portfolio at a given point in time. For example, the analyst may examine the following variables:
   - Valuation levels. A value-oriented portfolio has a very clear bias toward low P/Es, low P/Bs, and high dividend yields. A growth-oriented portfolio exhibits the opposite characteristics. A market-oriented portfolio has valuations close to the market average.
   - Forecast EPS growth rate. A growth-oriented portfolio will tend to hold companies experiencing above-average and/or increasing earnings growth rates (positive earnings momentum). Typically, trailing and forecast EPS growth rates are higher for a growth-oriented portfolio than for a value-oriented portfolio. The companies in a growth portfolio typically have lower dividend payout ratios than those in a value portfolio, because growth companies typically want to retain most of their earnings to finance future growth and expansion.
• **Earnings variability.** A value-oriented portfolio will hold companies with greater earnings variability because of the willingness to hold companies with cyclical earnings.

• **Industry sector weightings.** Industry sector weightings can provide some information on the portfolio manager’s favored types of businesses and security characteristics, thus furnishing some information on style. In many markets, value-oriented portfolios tend to have larger weights in the finance and utilities sectors than growth portfolios, because of these sectors’ relatively high dividend yields and often moderate valuation levels. Growth portfolios often have relatively high weights in the information technology and health care sectors, because historically these sectors have often included numerous high-growth enterprises.

A security may be assigned:
- to value exclusively or to growth exclusively in all instances;
- to value exclusively or to growth exclusively but only if the value of some characteristic exceeds or is less than a specified threshold value; or
- in part to growth and in part to value.

Threshold values must be specified in order to make exclusive assignments.

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### Exhibit 15: Two Approaches to Style Analysis: Advantages and Disadvantages

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<thead>
<tr>
<th></th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
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</table>
| **Returns-based style analysis** | - Characterizes entire portfolio  
- Facilitates comparisons of portfolios  
- Aggregates the effect of the investment process  
- Different models usually give broadly similar results and portfolio characterizations  
- Clear theoretical basis for portfolio categorization  
- Requires minimal information  
- Can be executed quickly  
- Cost effective | - May be ineffective in characterizing current style  
- Error in specifying indices in the model may lead to inaccurate conclusions |
| **Holdings-based style analysis** | - Characterizes each position  
- Facilitates comparisons of individual positions  
- In looking at present, may capture changes in style more quickly than returns-based analysis | - Does not reflect the way many portfolio managers approach security selection  
- Requires specification of classification attributes for style; different specifications may give different results  
- More data intensive than returns-based analysis |

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e. **Equity Style Indices**

Style index publishers use growth and value either as categories (no overlap) or as quantities (with overlap). If MSCI, a categorizer, assigns a stock to the growth or value category, the company will be
labeled as either growth or value and is never divided between the two. In contrast, index providers that treat growth and value as quantities will often assign a stock partly to growth and partly to value. This split allocation recognizes that some stocks do not fit neatly into either growth or value. Morningstar confronts this issue most directly by explicitly distinguishing three mutually exclusive categories (value, core, and growth). The two-category value/growth split of other index families reflects the consideration that most active equity mandates specifying style are an order for the portfolio manager to manage according to one of these two styles (value or growth).

f. The Style Box

Today, the style box is probably the most popular way of, literally, looking at style. The most widely recognized version of the style box is probably Morningstar’s because of that firm’s high-profile use of the 3×3-style box to categorize mutual funds and, more recently, individual common stocks. The Morningstar style box, divides a fund portfolio or stock universe by market capitalization, and style, creating a total of nine boxes.

![Exhibit 18: Morningstar Style Box for Vanguard Mid-Cap Growth Fund](chart)

The market-oriented category is characterized by a mix of growth and value characteristics in a portfolio and usually reflects an inability to clearly categorize a stock or a portfolio as definitively growth or value in nature. In rare cases, a technique makes a deliberate attempt to define a group of stocks as being neither growth nor value. An alternative interpretation is that the group constitutes a blend of growth and value characteristics. The numbers in each box represent the percentage of this fund’s portfolio value consisting of stocks that fall in that style box (using Morningstar’s own index classification).

g. Style Drift

Professional investors view inconsistency in style, or style drift, as an obstacle to investment planning and risk control.

2- Socially Responsible Investing

Socially responsible investing, also called ethical investing, integrates ethical values and societal concerns with investment decisions.
SRI stock screens include negative screens and positive screens. Negative SRI screens apply a set of SRI criteria to reduce an investment universe to a smaller set of securities satisfying SRI criteria. SRI criteria may include:

- industry classification, reflecting concern for sources of revenue judged to be ethically questionable (tobacco, gaming, alcohol, and armaments are common focuses); and
- corporate practices (for example, practices relating to environmental pollution, human rights, labor standards, animal welfare, and integrity in corporate governance).

Positive SRI screens include criteria used to identify companies that have ethically desirable characteristics.

3- Long–Short Investing

In a market-neutral long–short strategy, however, the value added can be equal to two alphas. This is because the portfolio manager can use a given amount of capital to purchase a long position and to support a short position. One alpha can come from the long position and another from the short position. In addition, a market-neutral strategy is constructed to have an overall zero beta and thus show a pattern of returns expected to be uncorrelated with equity market returns. As discussed later, the alpha from such a strategy is portable—that is, it can be added to a variety of different systematic (beta) risk exposures.

In the basic long–short trade, known as a pairs trade or pairs arbitrage, an investor is long and short equal currency amounts of two common stocks in a single industry, and the risks are limited almost entirely to the specific company risks. Even such a simple convergence trade can go terribly wrong, however, if the value of the short position surges and the value of the long position collapses.

Probably the greatest risk associated with a long–short strategy involves leveraging.

a. Price Inefficiency on the Short Side

Some investors believe that more price inefficiency can be found on the short side of the market than the long side for several reasons.

- First, many investors look only for undervalued stocks, but because of impediments to short selling, relatively few search for overvalued stocks. These impediments prevent investor pessimism from being fully expressed.
- Second, opportunities to short a stock may arise because of management fraud, “window-dressing” of accounts, or negligence. Few parallel opportunities exist on the long side because of the underlying assumption that management is honest and that the accounts are accurate. Rarely do corporate managers deliberately understate profits.
- Third, sell-side analysts issue many more reports with buy recommendations than with sell recommendations. One explanation for this phenomenon is related to commissions that a recommendation may generate: Although most customers may be potential buyers of a stock, only those who already own shares or who are short sellers—usually a smaller group—can sell
it. Moreover, those customers who already own a stock may become angry when an analyst issues a sell recommendation because it can cause them to lose money.

- Fourth, sell-side analysts may be reluctant to issue negative opinions on companies’ stocks for reasons other than generic ones such as that a stock has become relatively expensive. Most companies’ managements have a vested interest in seeing their share price rise because of personal shareholdings and stock options. After an analyst issues a sell recommendation, therefore, he can find himself suddenly cut off from communicating with management and threatened with libel suits. His employer may also face the prospect of losing highly lucrative corporate finance business.

Long–short strategies can make better use of a portfolio manager’s information because both rising and falling stocks offer profit potential. Rather than simply avoiding a stock with a bad outlook, a long–short manager can short it, thereby earning the full performance spread.

b. Equitizing a Market-Neutral Long–Short Portfolio

A market-neutral long–short portfolio can be equitized (given equity market systematic risk exposure) by holding a permanent stock index futures position (rolling over contracts), giving the total portfolio full stock market exposure at all times. In carrying out this strategy, the manager may establish a long futures position with a notional value approximately equal to the value of the cash position resulting from shorting securities. Equitizing a market-neutral long–short portfolio is appropriate when the investor wants to add an equity-beta to the skill-based active return the investor hopes to receive from the long–short investment manager. The rate of return on the total portfolio equals the sum of the gains or losses on the long and short securities positions, the gain or loss on the long futures position, and any interest earned by the investor on the cash position that results from shorting securities, all divided by the portfolio equity.

Depending on carrying costs and the ability to borrow ETF shares for short selling, ETFs may be a more attractive way than futures to equitize or de-equitize a long–short alpha over a longer period than the life of a single futures contract.

A long–short spread can be transported to various asset classes. An investment with no systematic risk should earn the risk-free rate. Therefore, a market-neutral portfolio’s performance should be measured against a nominally risk-free rate such as a Treasury bill return, provided the portfolio is truly market neutral rather than simply leveraged equity. If the long–short portfolio has been equitized, then it should be treated as equity, with returns benchmarked against the index underlying the equitizing instrument.

c. The Long-Only Constraint

Long–short strategies have an inherent efficiency advantage over long-only portfolios which is the ability to act on negative insights that the investor may have. This can never be fully exploited in a long-only context and therefore the investor’s opportunity set is not symmetric.
A true long–short portfolio, built around a cash benchmark, solves this problem of symmetry. Subject to borrowing constraints and other risks, a long–short portfolio allows an investor to fully exploit both positive and negative views on a stock. One significant caveat exists, however. The investor needs to have both positive and negative insights about stocks in the investment universe. Stocks excluded from further research because they fail to pass some preliminary screen are not necessarily good candidates for shorting.

d. Short Extension Strategies

Short extension strategies (also known as partial long–short strategies) modify equity long-only strategies by specifying the use of a stated level of short selling. These strategies attempt to benefit from a partial relaxation of the long-only constraint while controlling risk by not relaxing it completely. In contrast to market-neutral long–short strategies which specify long and short positions of equal value and an overall market beta of zero, short extension strategies are generally designed to have a market beta of one with long positions of 100 percent + x percent and short positions of x percent of capital invested. The costs of a short extension strategy include trade execution costs and stock loan fees paid to brokers lending securities for short sale.

The idea behind short extension strategies is that the partial relaxation of the long-only constraint allows the portfolio manager to make more efficient use of his or her information. In a long-only portfolio, the manager’s maximum response to negative information is to avoid holding the stock. With a short extension strategy, the manager can also go short the stock. This shorting activity has the follow-on effect of releasing money with which to take on larger long positions than would otherwise be possible.

A short extension strategy has several potential advantages:

- In contrast to a long–short market neutral portfolio that is equitized using futures or swaps, a short extension strategy can be established even in the absence of a liquid swap or futures market.
- Another advantage is that relaxing the long-only constraint even to the extent of 20 percent to 30 percent can result in an appreciable increase in the proportion of a manager’s investment insight that is incorporated in the portfolio. The long-only constraint’s effects on the portfolio manager’s opportunity set are more serious in the case of negative information about small and mid-sized companies than they are in the case of such information about large-sized companies, given that the manager’s benchmark is market capitalization weighted. Therefore, relaxing the long-only constraint helps the portfolio manager first in the place where the long-only constraint is most limiting, namely, stocks with small market capitalizations.

A disadvantage of short extension strategies is that they gain their market return and earn their alpha from the same source. By contrast, with an equitized long–short market neutral portfolio, it is possible to earn the market return from one source and the alpha from another. This is an appealing feature to investors because it gives them flexibility to pursue alpha wherever it may be found without having to adjust their strategic asset allocation.
Short extension strategies also differ from long–short market neutral strategies in how investors tend to perceive them. Because they are beta zero, long–short market neutral strategies are typically seen by investors as an alternative investment (even if the underlying investments are equities). Short extension strategies, however, are often seen as a substitute for long-only strategies in an investor’s portfolio largely because of their inherent market exposure.

4- Sell Disciplines/Trading

Several recognized categories of selling disciplines exist.

- First, an investor can follow a strategy of substitution. In this situation, the investor is constantly looking at potential stocks to include in the portfolio and will replace an existing holding whenever a better opportunity presents itself. This strategy revolves around whether the new stock being added will have a higher risk-adjusted return than the stock it is replacing net of transaction costs and taking into account any tax consequences of the replacement. Such an approach may be called an opportunity cost sell discipline. Based on the portfolio manager’s ongoing review of portfolio holdings, the manager may conclude that a company’s business prospects will deteriorate, initiating a reduction or elimination of the position. This approach may be called a deteriorating fundamentals sell discipline.

- Another group of sell disciplines is more rule driven. A value investor purchasing a stock based on its low P/E multiple may choose to sell if the multiple reaches its historical average. This approach may be called a valuation-level sell discipline. Also rule based are down-from-cost, up-from-cost, and target price sell disciplines. As an example of a down-from-cost sell discipline, the manager may decide at the time of purchase to sell any stock in the portfolio once it has declined 15 percent from its purchase price; this strategy is a kind of stop-loss measure. An up-from-cost may specify at purchase a percent or absolute gain that will trigger a sale. At the time of purchase, the manager may specify a target price, representing an estimate of intrinsic value, and the stock reaching that price triggers a sale.

- The manager may use a combination of sell disciplines. Sales typically generate realized capital gains or losses. Thus, the implications of a sell discipline need to be evaluated on an after-tax basis for tax-sensitive investors such as private wealth investors and certain institutional investors such as insurance companies.

E- Semiactive Equity Investing

Semiactive strategies (also known as “enhanced index” or “risk-controlled active” strategies) are designed for investors who want to outperform their benchmark while carefully managing their portfolio’s risk exposures. An enhanced index portfolio is designed to perform better than its benchmark index without incurring much additional risk. The portfolio manager creates such a portfolio by making use of his investment insights while neutralizing the portfolio’s risk characteristics inconsistent with those insights. Although tracking risk (also called active risk) will increase, the enhanced indexer believes that the incremental returns more than compensate for the small increase in risk. Such a portfolio is expected to perform better than the benchmark on a risk-adjusted basis.
Semiactive equity strategies come in two basic forms:

- **Derivatives based** (also called synthetic). Derivatives-based semiactive equity strategies intend to provide exposure to the desired equity market through a derivative and the enhanced return through something other than equity investments. A common and straightforward derivatives-based semiactive equity strategy is to equitize a cash portfolio and then attempt to add value by altering the duration of the underlying cash.

- **Stock based.** Enhanced indexing strategies based on stock selection attempt to generate alpha by identifying stocks that will either outperform or underperform the index. Risk control is imposed in order to limit the degree of individual stock underweighting or overweighting and the portfolio’s exposure to factor risks and industry concentrations. The resulting portfolio is intended to look like the benchmark in all respects except in those areas on which the manager explicitly wishes to bet.

In addition to a high degree of risk control, another reason for the popularity of enhanced index portfolios can be explained in terms of Grinold and Kahn’s *Fundamental Law of Active Management*. The law states that

\[
IR \approx IC \sqrt{Breadth}
\]

Translated, this means that the information ratio (IR) is approximately equal to what you know about a given investment (the information coefficient or IC/The information coefficient is more formally defined as the correlation between forecast return and actual return. In essence, it measures the effectiveness of investment insight) multiplied by the square root of the investment discipline’s breadth, which is defined as the number of independent, active investment decisions made each year. Therefore, a lower-breadth strategy necessarily requires more accurate insight about a given investment to produce the same IR as a strategy with higher breadth. Well-executed enhanced indexed strategies may have a relatively high combination of insight and breadth, resulting from the disciplined use of information across a wide range of securities that differ in some important respects.

A semiactive stock-selection approach has several possible limitations.

- The first is that any technique that generates positive alpha may become obsolete as other investors try to exploit it. A successful enhanced indexer is always innovating.

- Also, quantitative and mathematical models derived from analysis of historical returns and prices may be invalid in the future. Markets undergo secular changes, lessening the effectiveness of the past as a guide to the future.

- Markets also occasionally undergo shocks that, at least temporarily, render forecasting or risk models ineffective.

**Note:**
Contrast stock-based and derivative-based semiactive investment strategies.

- A stock-based semiactive approach involves controlled under- and overweighting of securities relative to their index weights. This approach attempts to pick up active return through equity insights.
By contrast, a derivative-based semiactive approach involves using derivatives to equitize cash and attempting to pick up active return by adjusting the duration of the fixed-income position.

F- Managing a Portfolio of Managers

When developing an asset allocation policy, the investor seeks an allocation to asset classes that maximizes expected total return subject to a given level of total risk. The framework of optimizing allocations to a group of managers takes a parallel form, but with the investor now maximizing active return for a given level of active risk determined by his level of aversion to active risk:

\[
\text{Maximize by choice of Managers } \quad U_A = r_A - \lambda_A \sigma_A^2
\]

Where,
\[
U_A = \text{expected utility of the active return of the manager mix}
\]
\[
r_A = \text{expected active return of the manager mix}
\]
\[
\lambda_A = \text{the expected trade-off between active risk and active return; measures risk aversion in active return terms}
\]
\[
\sigma_A^2 = \text{variance of the active return}
\]

The efficient frontier specified by this objective function is drawn in active risk and active return space, because once active or semiactive managers are potentially in the mix, the investor’s trade-off becomes one of active return versus active risk. How much active risk an investor wishes to assume determines the mix of specific managers.

The active return for the overall portfolio is a weighted average of the active returns for the individual managers.

\[
\text{Portfolio active return } = \sum_{i=1}^{n} h_{Ai} r_{Ai}
\]

Where,
\[
h_{Ai} = \text{weight assigned to the } i^{th} \text{ manager}
\]
\[
r_{Ai} = \text{active return of the } i^{th} \text{ manager}
\]

Active risk is a bit more complex, assuming active returns are uncorrelated, the portfolio active risk is the square root of the weighted sum of the individual managers’ variances:

\[
\text{Portfolio active risk } = \sqrt{\sum_{i=1}^{n} h_{Ai}^2 \sigma_{Ai}^2}
\]

Where,
\[
h_{Ai} = \text{weight assigned to the } i^{th} \text{ manager}
\]
\[ \sigma_{Ai} = \text{active risk of the } i^{th} \text{ manager} \]

1- **Core-Satellite**

The objective of core-satellite portfolios is to anchor a strategy with either an index portfolio or an enhanced index portfolio and to use active managers opportunistically around that anchor to achieve an acceptable level of active return while mitigating some of the active risk associated with a portfolio consisting entirely of active managers. The index or enhanced index portfolios used in the core generally should resemble as closely as possible the investor’s benchmark for the asset class. The satellite portfolios may also be benchmarked to the overall asset class benchmark, but there is greater latitude for them to have different benchmarks as well.

Investors often wish to consider managers that are either value or growth and perhaps specialize within a given range of market capitalization. To evaluate such managers, it is useful to divide their total active return into two components:

1) Manager’s return – Manager’s normal benchmark = Manager’s “true” active return
2) Manager’s normal benchmark – Investor’s benchmark = Manager’s “misfit” active return

- The manager’s normal benchmark (normal portfolio) represents the universe of securities from which a manager normally might select securities for her portfolio.
- The term investor’s benchmark refers to the benchmark the investor uses to evaluate performance of a given portfolio or asset class.

The standard deviation of “true” active return is called manager’s “true” active risk; the standard deviation of “misfit” active return is manager’s “misfit” risk. The manager’s total active risk, reflecting both “true” and “misfit” risk, is

\[ \text{Manager’s total active risk} = \left[ (\text{Manager’s “true” active risk})^2 + (\text{Manager’s “misfit” active risk})^2 \right]^{1/2} \]

The most accurate measure of the manager’s risk-adjusted performance is the IR computed as

\[ \frac{\text{Manager’s “true” active return}}{\text{Manager’s “true” active risk}} \]

The “true”/ “misfit” distinction has two chief uses: One relates to performance appraisal, and the other relates to optimizing a portfolio of managers. By disaggregating the active risk and return into two components, it is possible to create optimal solutions that maximize total active return at every level of total active risk and that also allow for the optimal level of “misfit” risk. Although it may seem that no “misfit” risk is desired, a nonzero amount may actually be optimal, because a high level of “true” active return may more than compensate for a given level of “misfit” risk.

2- **Completeness Fund**

The aggregate portfolio of active managers may have any number of risk exposures or biases, such as sector underweighting or overweighting, relative to the investor’s overall equity benchmark. The
portfolios of bottom-up stock pickers often evidence industry concentrations as an outcome of their stock selection processes rather than intentional macro bets.

In such cases, the fund sponsor should consider establishing a completeness fund for the equity portfolio. A completeness fund, when added to active managers’ positions, establishes an overall portfolio with approximately the same risk exposures as the investor’s overall equity benchmark. The completeness portfolio may be managed passively or semiactively. This portfolio needs to be re-estimated periodically to reflect changes in the active portfolios.

One drawback of completeness portfolios is that they essentially seek to eliminate misfit risk. As stated above, a nonzero amount of misfit risk may be optimal. In seeking to eliminate misfit risk through a completeness fund, a fund sponsor may be giving up some of the value added from the stock selection of the active managers.

3- Other Approaches: Alpha and Beta Separation

A typical long active equity portfolio provides an investor with exposure to the market (beta) as well as to the active manager’s stock selection ability (alpha). Alpha and beta separation allows the investor to manage the market and active risks more effectively than if dealing solely with long-only managers. In doing so, the investor can also very clearly understand the fees being paid to capture market (inexpensive) and active (costly) returns. That said, certain markets may constrain the ability to manage long–short alpha-generating strategies. Short positions may be very costly to establish in smaller or emerging markets. Also, investors need to realize that not all long–short strategies that appear to be market neutral really are. Some may have a degree of market risk.

G- Identifying, Selecting, and Contracting with Equity Portfolio Managers

1- Developing a Universe of Suitable Manager Candidates

Consultants employ various tools to determine which managers have talented individuals and truly add value in their investment style. They use both qualitative and quantitative factors in evaluating investment managers. The qualitative factors include

- the people and organizational structure,
- the firm’s investment philosophy,
- the decision-making process, and
- the strength of its equity research.

The quantitative factors include

- performance comparisons with benchmarks and peer groups, as well as
- the measured style orientation and valuation characteristics of the firm’s portfolios.

2- The Predictive Power of Past Performance

Investors and their consultants place considerable weight on an equity manager’s investment process and the strength of the manager’s organization. A good investment record achieved by the same set of
managers over a long period, following consistent investment disciplines, is more likely to indicate future satisfactory results for the client than a record with comparable statistics but an underlying history of manager turnover and shifts in investment orientation.

3- Fee Structures

Fees are typically set in one of two basic ways:

- **Ad valorem.** Ad valorem fees are calculated by multiplying a percentage by the value of assets managed and they are also called assets under management (AUM) fees. Ad valorem fees have the advantage of simplicity and predictability.

- **Performance based.** A simple performance-based fee is usually specified by a combination of a base fee plus sharing percentage. Performance-based fees can also include other features such as fee caps and “high-water marks.” A fee cap limits the total fee paid regardless of performance and is frequently put in place to limit the portfolio manager’s incentive to aim for very high returns by taking a high level of risk. A high-water mark is a provision requiring the portfolio manager to have cumulatively generated outperformance since the last performance-based fee was paid. Performance-based fees are typically quite involved, as every term of the performance-based fee must be precisely defined. But performance-based fees—particularly symmetric incentive fees that reduce as well as increase compensation—may align the plan sponsor’s interests with those of the portfolio manager by spurring the manager to greater effort.

4- The Equity Manager Questionnaire

A typical equity manager questionnaire examines five key areas: organization/people, philosophy/process, resources, performance, and fees. The questionnaire creates a formal basis for directly comparing different investment firms.

H- Structuring Equity Research and Security Selection

1- Top-Down versus Bottom-Up Approaches

Although top-down investors build portfolios from individual stocks, they want those stocks to reflect their macro insights.

A more complex top-down example might involve a global portfolio. The investor might wish to identify:

1) Themes affecting the global economy;
2) The effect of those themes on various economic sectors and industries;
3) Any special country or currency considerations; and
4) Individual stocks within the industries or economic sectors that are likely to benefit most from the global themes.
Bottom-up investors have little interest in the state of the economy or other macro factors but rather try to put together the best portfolio of stocks based on company-specific information. A more complex bottom-up example might also involve a global portfolio. The investor might approach the problem by:

1) Identifying factors with which to screen the investment universe (e.g., stocks in the lowest P/E quartile that also have expected above-median earnings growth);
2) Collecting further financial information on companies passing the screen; and
3) Identifying companies from this subset that may be potential investments based on other company-specific criteria.

2- Buy-Side versus Sell-Side Research

The terms “buy side” and “sell side” refer to the source of the equity research. Buy side refers to those who do research with the intent of assembling a portfolio, such as investment management firms. Sell side refers either to independent researchers who sell their work, or to investment banks/brokerage firms that use research as a means to generate business for themselves.

3- Industry Classification

Many equity research departments are organized along industry or sector lines. Given the need to do sector/industry research across many countries, it is important to have a system for like companies to be classified in the same categories.