The following is a review of the Equity Portfolio Management principles designed to address the learning outcome statements set forth by CFA Institute. This topic is also covered in:

**EQUITY PORTFOLIO MANAGEMENT**

Study Session 11

**EXAM FOCUS**

Don’t be misled. Candidates expect to see equity security valuation with lots of math and models, like Level II. This topic is equity portfolio management and covers a wide range of issues, mostly non-mathematical. There is a little math to know, but pay attention to all the softer discussion issues. For example, there is a long discussion of index construction methodologies; the math could be tested, but the implications of the methodologies is as likely to be important. There is repetition of other topic areas on active versus passive management styles and benchmarks, as these are common exam topics. Also important are discussions of style and style analysis.

There is a lot of terminology and often passing references to complex techniques and issues which are not explained. A common mistake of Level III candidates is to fixate on things not explained in the CFA text thinking they must understand anything mentioned in passing because it could be on the exam. This is a mistake. Yes, it could be on the exam because virtually anything is possible. However, it is the odd question that cannot be reasonably anticipated. The common focus has been on a working knowledge of terminology, the ability to assess the pros and cons of alternatives, and calculations that are taught. Pay attention to what is covered and less to passing references that are not covered by the curriculum.

**EQUITIES IN A PORTFOLIO**

**LOS 27.a:** Discuss the role of equities in the overall portfolio.

*CFA® Program Curriculum, Volume 4, page 181*

Equities are a substantial portion of the investment universe, and U.S. equity typically constitutes about half of the world’s equity. The amount of equity in an investor’s portfolio varies by location. For example, U.S. institutional investors often exceed 50% of their portfolio invested in equities, while their European counterparts may be under 25% invested in equities. Regardless of these starting allocations, investing internationally provides diversification as well as the opportunity to invest in companies not available in the investor’s home market.

An inflation hedge is an asset whose nominal returns are positively correlated with inflation. Bonds have been a poor inflation hedge because their future cash flows are fixed, which makes their value decrease with increased inflation. This drop in price reduces or eliminates returns for current bondholders. The historical evidence in the United States and in other countries indicates that equities have been a good inflation hedge. There are some important qualifiers, however. First, because corporate income
and capital gains tax rates are not indexed to inflation, inflation can reduce the stock investor’s return, unless this effect was priced into the stock when the investor bought it. Second, the ability of an individual stock to hedge inflation will depend on its industry and competitive position. The greater the competition, the less likely the firm will be able to pass inflation on to its consumers, and its stock will be a less effective hedge.

Examining the historical record in 17 countries from 1900–2005, equities have had consistently positive real returns. Equities have also had higher real returns than bonds in all 17 countries.

ACTIVE, PASSIVE, AND SEMIACTIVE STRATEGIES

LOS 27.b: Discuss the rationales for passive, active, and semiactive (enhanced index) equity investment approaches and distinguish among those approaches with respect to expected active return and tracking risk.

Passive equity managers do not use forecasts to influence their investment strategies. The most common implementation of passive management is indexing, where the manager invests so as to mimic the performance of a security index. Though indexing is passive in the sense that the manager does not try to outperform the index, the execution of indexing requires that the manager buy securities when the security’s weight increases in the index (e.g., the security is added to the index or the firm sells new stock) or sell stock when the security’s weight decreases in the index (e.g., the security is dropped from the index or the firm repurchases stock). Indexing has grown in popularity since the 1970s and often constitutes an investor’s core holding.

Active equity management is the other extreme of portfolio management. Active managers buy, sell, and hold securities in an attempt to outperform their benchmark. Even with the growth of indexing, active management still constitutes the vast majority of assets under management.

The middle road between the two previous approaches is semiactive equity management (a.k.a. enhanced indexing or risk-controlled active management). A semiactive manager attempts to earn a higher return than the benchmark while minimizing the risk of deviating from the benchmark.

There are not really three approaches, but a scale from pure passive to full blown unrestricted active management. The more a portfolio moves towards active management, the higher the expected active return should be, but the higher return will carry higher tracking risk. Where a portfolio falls on the scale is often reflected in how high or low the active return. This scale is summarized in Figure 1.

Active return is the excess return of a manager relative to the benchmark. Tracking risk is the standard deviation of active return and is a measurement of active risk (i.e., volatility relative to the benchmark).

Figure 1: Active Return and Tracking Risk for Equity Investment Approaches

<table>
<thead>
<tr>
<th>Passive Management</th>
<th>Semiactive Management</th>
<th>Active Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Expected Active Return</td>
<td>High</td>
</tr>
<tr>
<td>Low</td>
<td>Tracking Risk</td>
<td>High</td>
</tr>
</tbody>
</table>

The information ratio combines expected active return and tracking risk into one risk-adjusted return measure. It is the expected active return divided by the tracking risk, so it shows the manager’s active return per unit of tracking risk (a.k.a. tracking error). Historically, it has been highest for semiactive management and lowest for passive management with active management falling in the middle.

Example: Computing and interpreting information ratios

Suppose there are two managers, Cirrus Managers and Cumulus Managers. Calculate their information ratios and comment on their relative performance.

<table>
<thead>
<tr>
<th></th>
<th>Cirrus Managers</th>
<th>Cumulus Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active return</td>
<td>0.40%</td>
<td>0.62%</td>
</tr>
<tr>
<td>Tracking risk</td>
<td>5.60%</td>
<td>9.20%</td>
</tr>
</tbody>
</table>

Answer:

The information ratio for Cirrus Managers is $0.40% / 5.60% = 0.071$.

The information ratio for Cumulus Managers is $0.62% / 9.20% = 0.067$.

Even though Cumulus has the higher active return, on a risk-adjusted basis, it slightly underperforms Cirrus as its information ratio is lower. For every 1% in tracking risk, Cirrus Managers delivered 0.071% in active return, whereas Cumulus delivered 0.067%.
THE IPS, MARKET EFFICIENCY, AND EQUITY STRATEGIES

LOS 27.c: Recommend an equity investment approach when given an investor’s investment policy statement and belief’s concerning market efficiency.

*CFA® Program Curriculum, Volume 4, page 184*

For the Exam: You should notice how well this material fits with constructing a portfolio for an individual investor as presented in Study Session 4. You are likely to see questions related to recommending the appropriate investment approach in a morning case for either a wealthy individual investor or an institutional investor or even in a stand-alone essay question or item set on equity portfolio management.

If an investor’s investment policy statement (IPS) states that the investor is taxable, the asset allocation is more likely to favor passive management. This is because active management requires higher portfolio turnover such that capital gains and their associated taxes are realized more frequently. Additionally, each particular investor will have required liquidity, time horizon, and/or ethical investing concerns that will provide direction on which investment strategy to follow.

If an investor believes that markets are efficient, he is likely to choose a passive strategy because he does not believe the returns of active management will justify the costs of research and trading. Historical data suggests that such investors would be justified in their thinking because active management, on average, does not outperform passive management after consideration of expenses. The level of active manager underperformance is about the same as their average expenses, which suggests that active manager performance before expenses is about the same level as passive management.

Passive strategies are appropriate in a wide variety of markets. When investing in large-cap stocks, indexing is suitable because these markets are usually informationally efficient. In small-cap markets, there may be more mispriced stocks, but the high turnover associated with active strategies increases transaction costs. In international equity markets, the foreign investor may lack information that local investors have. In this case, active investing would be futile and the manager would be wise to follow a passive strategy.

EQUITY INDEX WEIGHTING SCHEMES

LOS 27.d: Distinguish among the predominant weighting schemes used in the construction of major equity share indices and evaluate the biases of each.

*CFA® Program Curriculum, Volume 4, page 186*

Stock indices are used to benchmark manager performance, provide a representative market return, create an index fund, execute technical analysis, and measure a stock’s beta. The weighting schemes for stock indices are price-weighted, value-weighted, float-weighted, and equally weighted.
A *price-weighted index* is simply an arithmetic average of the prices of the securities included in the index. Computationally, a price-weighted index adds together the market price of each stock in the index and then divides this total by the number of stocks in the index. The divisor of a price-weighted index is adjusted for stock splits and changes in the composition of the index (i.e., when stocks are added or deleted), so the total value of the index is unaffected by the change. A price-weighted index implicitly assumes the investor holds one share of each stock in the index.

The primary advantage of a price-weighted index is that it is computationally simple. There is also a longer history of data for price-weighted indices, so they can provide a long record of performance.

A *market capitalization-weighted index* (or just *value-weighted*) is calculated by summing the total market value (current stock price times the number of shares outstanding) of all the stocks in the index. The value-weighted index assumes the investor holds each company in the index according to its relative weight in the index. This index better represents changes in aggregate investor wealth than the price-weighted index.

Unlike the price-weighted index where a stock’s representation is determined by its price, the representation of a stock in the value-weighted index is determined by the stock’s total market value. This method thus automatically adjusts for stock splits of individual firms so that high priced firms are not overrepresented in the index.

A subtype of a value-weighted index is the *free float-adjusted market capitalization index*. The portion of a firm’s outstanding shares that are actually available for purchase is known as the *free float*. A problem with some equity benchmarks is that market capitalization weighting can overstate the free float. For example, a large fraction of a firm’s shares may be closely held by a small number of investors. This means that not all of the firm’s shares are truly investable from the viewpoint of outside investors. A free float-adjusted market capitalization index is adjusted for the amount of stock that is actually available to the public.

For the Exam: Free float is also discussed in LOS 29.a of Topic Review 29.

A free float-adjusted market cap-weighted (e.g., value-weighted) index assumes the investor has bought all the publicly available shares of each company in the index. The major value-weighted indices in the world have been adjusted for free-float. The float-adjusted index is considered the best index type by many investors because it is more representative and can be followed with minimal tracking risk.

In an *equal-weighted index*, all stock returns are given the same weight (i.e., the index is computed as if an investor maintains an equal dollar investment in each stock in the index). These indices must be periodically rebalanced to maintain equal representation of the component stocks.

**Biases in the Weighting Schemes**

The price-weighted index has several biases. First, higher priced stocks will have a greater impact on the index’s value than lower priced stocks. Second, the price of a stock
is somewhat arbitrary and changes through time as a firm splits its stock, repurchases stock, or issues stock dividends. As a stock's price changes through time, so does its representation in the index. Third, the price-weighted index assumes the investor purchases one share (or the same number of shares) of each stock represented in the index, which is rarely followed by any investor in practice.

The primary bias in a value-weighted index and the free float-adjusted market capitalization index is that firms with greater market capitalization have a greater impact on the index than firms with lower market capitalization. This feature means that these indices are biased toward large firms that may be mature and/or overvalued. Another bias is that these indices may be less diversified if they are overrepresented by large-cap firms. Lastly, some institutional investors may not be able to mimic a value-weighted index if they are subject to maximum holdings and the index holds concentrated positions.

The equal-weighted index is biased toward small-cap companies because they will have the same weight as large-cap firms even though they have less liquidity. Many equal-weighted indices also contain more small firms than large firms, creating a further bias toward small companies. Secondly, the required rebalancing of this index creates higher transactions costs for index investors. Lastly, the emphasis on small-cap stocks means that index investors may not be able to find liquidity in many of the index issues.

The Composition of Global Equity Indices

The best-known price-weighted index in the United States is the Dow Jones Industrial Average. It was created in 1896 and has undergone many changes in composition through time. The Nikkei Stock Average is also a price-weighted index, and it contains 225 stocks listed on the Tokyo Stock Exchange.

There are many examples of value-weighted indices, and most of them are float-adjusted. They include the Standard & Poor's 500 Index Composite and the Russell Indices. International indices that are value-weighted include the Morgan Stanley Capital International Indices. Non-U.S. indices include the Financial Times Actuaries Share Indices, which represents stocks on the London Stock Exchange, and the Tokyo Stock Exchange Price Index (TOPIX). European examples include the CAC 40 in France and the DAX 30 in Germany.

An example of an equal-weighted index is the Value Line Composite Average, which is an equally weighted average of approximately 1,700 U.S. stock returns.

Regardless of the weighting scheme, the investor should be aware of differences in methodologies across indices. Index reconstitution refers to the process of adding and deleting securities from an index. Indices that are reconstituted by a committee will have lower turnover, and hence, lower transactions costs and taxes for the index investor. These indices may drift from their intended purpose, though, if they are reconstituted too infrequently. In contrast, an index regularly reconstituted by a mechanical rule will have more turnover and less drifting. Another difference in index methodologies concerns minimum liquidity requirements. The presence of small-cap stocks may create liquidity problems but also offers the index investor a potential liquidity risk premium.
METHODS OF PASSIVE INVESTING

**LOS 27.e:** Compare alternative methods for establishing passive exposure to an equity market, including indexed separate or pooled accounts, index mutual funds, exchange-traded funds, equity index futures, and equity total return swaps.

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**Index Mutual Funds and Exchange-Traded Funds**

There are five main differences between index mutual funds and exchange-traded funds (ETFs). First, index mutual funds are less frequently traded. In the United States, a mutual fund’s value (as calculated using the net asset value) is typically only provided once a day at the end of the day when trades are executed. In contrast, an ETF trades throughout the day.

Second, ETFs do not have to maintain recordkeeping for shareholders, whereas mutual funds do. These expenses can be significant, especially if the fund has many small shareholders. As a consequence, some mutual funds charge expenses to shareholders based on the amount they have invested. Note, however, that there are trading expenses associated with ETFs because they trade through brokers like ordinary shares.

Third, index mutual funds usually pay lower license fees to Standard & Poor’s and other index providers than ETFs do.

Fourth, ETFs are generally more tax efficient than index mutual funds. Typically, when an investor wants to liquidate their ETF shares, they sell to another investor, which is not a taxable event for the ETF, or when an ETF redeems a large number of ETF shares for an institutional investor, the ETF may exchange the shares for the actual basket of stocks underlying the ETF. This also is not a taxable event for the ETF. In an index mutual fund, redemptions by shareholders might require the sale of securities for cash, which could be a taxable event for the mutual fund that is passed on to shareholders. The bottom line is that an ETF structure is more tax efficient for the investor than a mutual fund structure.

Fifth, although ETFs carry brokerage commissions, the costs of holding an ETF long-term is typically lower than that for an index mutual fund. Due to the differences in redemption described previously, the management fees arising from taxes and the sale of securities in an ETF are usually much lower than that for a mutual fund. Thus, an ETF investor does not pay the cost of providing liquidity to other shareholders the way a mutual fund investor does.

**Separate or Pooled Accounts**

Indexed institutional portfolios may be managed as separate or pooled accounts. Pooling is advantageous to smaller funds, which cannot afford a dedicated manager. The drawback for these smaller funds is it is difficult to differentiate the performances of the separate, pooled funds and the manager may have to hold excess cash to provide liquidity for all the pooled funds. The firm managing these accounts may also be responsible for the management of ETFs and index mutual funds. Comparing indexed institutional portfolios against both index mutual funds and ETFs, the former have lower management
costs. The expenses could be just a few basis points, and sometimes securities are lent out to other investors, which may offset or exceed expenses. The lending of securities to offset expenses can also be utilized by index mutual funds, which partially accounts for performance differences of as much as 2% amongst index mutual funds.

Professor's Note: As the names suggest, the difference between separate and pooled accounts is the way they are managed. In a pooled account, the indexed portfolio is combined (pooled) with others under one manager rather than each portfolio being managed by a separate manager.

Equity Futures

The most popular equity index future in the United States is the contract based on the S&P 500. There are also futures contracts on a variety of global indices. The growth of equity futures contracts has been driven partly by the availability of portfolio trades (a.k.a. basket or program trades), where a basket of stocks is traded all at the same time.

Compared to ETFs, equity futures have two disadvantages. First, the futures contracts have a finite life and must be periodically rolled over into a new contract, at potentially less attractive terms. Second, using basket trades and futures contracts in combination for risk management may be problematic because a basket may not be shorted if one of the components violates the uptick rule. The uptick rule states that a security may not be shorted if the last price movement was a decline. ETFs are not usually subject to the uptick rule.

Professor's Note: Although mentioned in the curriculum, the uptick rule was eliminated as of July 6, 2007. Its successor, SEC Rule 201, also known as the “alternative uptick rule,” became effective in February 2011. It requires a halt to short selling for the remainder of the day for any stock that falls 10% from its previous day’s close.

Equity Total Return Swap

In an equity total return swap, an investor typically exchanges the return on an equity security or an interest rate for the return on an equity index. By doing so, the investor can synthetically diversify a portfolio in one transaction. This portfolio rebalancing can often be performed more cheaply than trading in the underlying stocks. Their lower costs makes equity swaps ideal for tactical asset allocation.

There are also tax advantages to equity swaps. Suppose a U.S. investor wanted to buy European stocks but did not want to be responsible for the withholding taxes on them. The investor would exchange the return on a security for the return on the foreign portfolio. The swap dealer would be responsible for the tax payments and may be tax-advantaged relative to the investor.

For the Exam: In Topic Review 28, equity swaps are discussed as part of a potential moral hazard problem with upper management. They are discussed in more depth in Topic Review 38.
INDEXING A PORTFOLIO

LOS 27.f: Compare full replication, stratified sampling, and optimization as approaches to constructing an indexed portfolio and recommend an approach when given a description of the investment vehicle and the index to be tracked.

CFA® Program Curriculum, Volume 4, page 197

Full Replication

To create an indexed portfolio using full replication, all the stocks in the index are purchased according to the weighting scheme used in the index. Full replication is more likely to be used when the number of stocks in the index is less than 1,000 and when the stocks in the index are liquid. A prime example of an index that can be replicated is the S&P 500. Replication is also more likely when the manager has more funds to invest.

The advantage of replication is that there is low tracking risk and the portfolio only needs to be rebalanced when the index stocks change or pay dividends. The return on a replicated fund should be the index returns minus the administrative fees, cash drag, and transactions costs of tracking the index. Cash drag results because a fund must set aside cash for shareholder redemptions. Transactions costs arise due to reinvesting dividends and changes in index composition. Note that a replicated fund will underperform the index to a greater extent when the underlying stocks are illiquid and, thus, have higher trading costs. The index does not bear the trading costs that the replicating fund does.

Stratified Sampling

As the number of stocks in the index increases and as the stocks decrease in liquidity, stratified sampling or optimization become more likely. In stratified sampling (a.k.a. representative sampling), the portfolio manager separates the stocks in an index using a structure of two or more dimensions. For example, the dimensions might be industry, size, and price-earnings ratio. The market caps for each cell in a matrix are calculated given the total market cap of all the stocks in that cell. Within each cell, the manager picks a few representative stocks and makes an investment in them equaling the total market cap for that cell.

The advantage of stratified sampling is that the manager does not have to purchase all the stocks in an index. This is particularly useful when the number of stocks in an index is large and/or when the stocks are illiquid. The tracking risk from stratified sampling decreases as the number of cells increases in the structure (i.e., the cells are differentiated into finer divisions). Note that some government regulations restrict funds from investing too much in any one security. A stratified sampling process can be used to mimic the performance of concentrated positions within an index without taking the actual concentrated positions.

For the Exam: Stratified sampling is also discussed as an enhanced indexing strategy for bond portfolio managers in Topic Review 23.
Optimization

An optimization approach uses a factor model to match the factor exposures of the fund to those of the index. It can also incorporate an objective function where tracking risk is minimized subject to certain constraints. The advantage of an optimization is that the factor model accounts for the covariances between risk factors. In a stratified sampling procedure, it is implicitly assumed that the factors (e.g., industry, size, price-earnings ratios) are uncorrelated.

There are three main disadvantages of the optimization approach. First, the risk sensitivities measured in the factor model are based on historical data and may change once the model is implemented. Second, optimization may provide a misleading model if the sample of data is skewed by a particular security or time period of data. Third, the optimization must be updated to reflect changes in risk sensitivities, and this leads to frequent rebalancing.

Despite the complexity of optimization, it generally produces even lower tracking risk than stratified random sampling. Both optimization and stratified random sampling could be combined with replication. To do this, the largest security positions in the index would be replicated. The balance of the index would be mimicked with either optimization or stratified random sampling. This also tends to reduce tracking risk even further. Regardless of its limitations, the optimization approach leads to lower tracking risk than a stratified sampling approach. This is particularly true when optimization is combined with replication. In this case, a few of the largest securities are purchased and the rest of the securities in the index are mimicked using an optimization approach.

**EQUITY STYLE**

**LOS 27.g:** Explain and justify the use of equity investment–style classifications and discuss the difficulties in applying style definitions consistently.

*CFA® Program Curriculum, Volume 4, page 202*

**LOS 27.h:** Explain the rationales and primary concerns of value investors and growth investors and discuss the key risks of each investment style.

*CFA® Program Curriculum, Volume 4, page 204*

For the Exam: Equity style, equity style benchmarks, and tracking risk are important topics for the Level III exam. They are discussed in multiple study sessions.

There are three main categories of investment style: value, growth, and market-oriented. A value investor focuses on stocks with low price multiples [e.g., low price-earnings (P/E) ratio or low price-to-book value of assets (P/B) ratio]. A growth investor favors stocks with high past and future earnings growth. Market-oriented investors cannot be
easily classified as value or growth. Equity investment styles can also be defined using market cap.

It is important to define a manager’s style so that performance measurement is conducted fairly. It is generally more informative to compare a value manager to other value managers and a growth manager to other growth managers. However, the differentiation between a value and a growth manager is often not clear. For example, a stock may have respectable earnings growth that is expected to increase in the future. The current P/E ratio may be low because the market hasn’t yet recognized the stock’s potential. Based on the P/E ratio, it appears to be a value stock, but based on expectations, it appears to be a growth stock.

Value Investing

Value investors focus on the numerator in the P/E or P/B ratio, desiring a low stock price relative to earnings or book value of assets. The two main justifications for a value strategy are: (1) although a firm’s earnings are depressed now, the earnings will rise in the future as they revert to the mean; and (2) value investors argue that growth investors expose themselves to the risk that earnings and price multiples will contract for high-priced growth stocks.

The philosophy of value investing is consistent with behavioral finance, where investors overreact to the value stock’s low earnings and price them too cheaply. Market efficiency proponents argue, however, that the low price of value stocks reflects their risk. Still others argue that value stocks are illiquid and that the excess return earned by value investors is actually a liquidity risk premium. Regardless of the explanation, a value investor must realize that there may be a good reason why the stock is priced so cheaply. The value investor should consider what catalyst is needed for the stock to increase in price and how long this will take.

There are three main substyles of value investing: high dividend yield, low price multiple, and contrarian. Value investors favoring high dividend yield stocks expect that their stocks will maintain their dividend yield in the future. The dividend yield has constituted a major part of equity return through time. Low price multiple investors believe that once the economy, industry, or firm improves, their stocks will increase in value. Contrarian investors look for stocks that they believe are temporarily depressed. They frequently invest in firms selling at less than book value.

Growth Investing

Growth investors focus on the denominator in the P/E ratio, searching for firms and industries where high expected earnings growth will drive the stock price up even higher. The risk for growth investors is that the earnings growth does not occur, the price-multiple falls, and stock prices plunge. Growth investors may do better during an economic contraction than during an expansion. In a contraction, there are few firms with growth prospects, so the growth stocks may see their valuations increase. In an expansion, many firms are doing well, so the valuation premiums for growth stocks decline.

There are two main substyles of growth investing: consistent earnings growth and momentum. A consistent earnings growth firm has a historical record of growth that
is expected to continue into the future. Momentum stocks have had a record of high past earnings and/or stock price growth, but their record is likely less sustainable than that of the consistent earnings growth firms. The manager holds the stock as long as the momentum (i.e., trend) continues, and then sells the stock when the momentum breaks.

Market-Oriented Investing

The term market-oriented investing is used to describe investing that is neither value nor growth. It is sometimes referred to as blend or core investing. Market-oriented investors have portfolios that resemble a broad market average over time. They may sometimes focus on stock prices and other times focus on earnings. The risk for a market-oriented manager is that she must outperform a broad market index or investors will turn to lower cost indexing strategies.

The substyles of market-oriented investing are market-oriented with a value tilt, market-oriented with a growth tilt, growth at a reasonable price (GARP), and style rotation. Value and growth tilting is not full-blown value or growth, and these investors hold diversified portfolios. GARP investors search for stocks with good growth prospects that sell at moderate valuations. Style rotators adopt the style that they think will be popular in the near future.

Market Capitalization-Based Investing

Besides the three previous characterizations of investment style, investors can also be classified by the market cap of their stocks. Small-cap investors believe smaller firms are more likely to be underpriced than well-covered, larger cap stocks. They may also believe that small-cap stocks are likely to have higher growth in the future and/or that higher returns are more likely when an investor is starting from a stock with a small market cap. Micro-cap investors focus on the smallest of the small-cap stocks. Mid-cap investors believe that stocks of this size may have less coverage than large-cap stocks but are less risky than small-cap stocks. Large-cap investors believe that they can add value using their analysis of these less risky companies. Investors in the different capitalization categories can be further classified as value, growth, or market-oriented.

Style Identification

LOS 27.i: Compare techniques for identifying investment styles and characterize the style of an investor when given a description of the investor’s security selection method, details on the investor’s security holdings, or the results of a returns-based style analysis.

One method of determining a portfolio manager’s style is to ask the manager to explain their security selection methods. For example, if the manager focuses on stocks with minimal analyst coverage that are underpriced relative to their earnings, we would characterize the manager as a small-cap value manager.
However, managers do not always invest as stated. For this reason, we may want to examine a manager's portfolio returns or holdings to determine style. Style can be identified using either returns-based style analysis or through an examination of an investor's holdings. These methods can be used for performance evaluation or to predict a manager’s future performance.

For the Exam: We strongly recommend that you are able to discuss returns-based style analysis, as well as interpret the regression output to characterize a manager’s style or to compare managers.

Returns-Based Style Analysis

In returns-based style analysis, the returns on a manager’s fund are regressed against the returns for various security indices (e.g., large-cap value stocks, small-cap value stocks). The regression coefficients, which represent the portfolio’s exposure to an asset class, are constrained to be nonnegative and to sum to one.

To demonstrate the use of returns-based style analysis, we regress the returns on a manager's portfolio against the returns on four indices: a small-cap growth index; a large-cap growth index; a large-cap value index; and a small-cap value index. As with any regression, the coefficients on the independent variables indicate the change in the dependent variable (in this case the return on the portfolio) given changes in the returns on the independent variables (in this case the returns on the four indices).

Assume an analyst has run the following regression:

\[
R_p = b_0 + b_{1SCG} + b_{2LCG} + b_{3SCV} + b_{4LCV} + e
\]

where:
- \(R_p\) = returns on our manager’s portfolio
- \(SCG\) = returns on a small-cap growth index
- \(LCG\) = returns on a large-cap growth index
- \(SCV\) = returns on a small-cap value index
- \(LCV\) = returns on a large-cap value index

output: \(b_1 = 0; b_2 = 0; b_3 = 0.15; b_4 = 0.85\)

\((SCG\) (LCG) (SCV) (LCV)\)

From the values of the regression coefficients, we would conclude that the manager’s portfolio has no exposure to growth stocks (\(b_1 = 0\) and \(b_2 = 0\)). The manager is primarily a large-cap value manager (\(b_4 = 0.85\)) with an exposure to small-cap value stocks (\(b_3 = 0.15\)). We would construct a custom benchmark for this manager consisting of 85% large-cap value stocks (i.e., a large-cap value index) and 15% small-cap value stocks (i.e., a small-cap value index). This custom benchmark is often called the manager’s normal portfolio or benchmark.

The security indices used in the regression should be mutually exclusive of one another, be exhaustive in the sense that all the manager’s exposures are represented, and represent distinct, uncorrelated sources of risk. If the indices don’t have these characteristics, then the results of the returns-based style analysis can be misleading. In the previous example,
if we had omitted the small-cap indices and just used the large-cap value and growth indices, then the regression might force the coefficient on the large value index to equal one. Using this misspecified regression, we could have mistakenly concluded that the investor had no exposure to small-cap stocks, when in fact he did.

Suppose that instead of four indices in the regression, we just used two broad indices: large-cap stocks and small-cap stocks. In this case, the regression would show some exposure to both indices, but there would be no indication as to whether the manager was a value manager or a growth manager. In that case, the indices (i.e., independent variables) are not well specified and the regression will not provide much useful information.

From the regression, we are also provided with the coefficient of determination \((R^2)\). This provides the amount of the investor's return explained by the regression's style indices. It measures the style fit. One minus this amount indicates the amount unexplained by style and due to the manager's security selection. For example, suppose the style fit from the regression is 79%. This would mean that 21% of the investor's returns were unexplained by the regression and would be attributable to the manager's security selection (i.e., the manager made active bets away from the securities in the style indices). The error term in the regression, which is the difference between the portfolio return and the returns on the style indices, is referred to as the manager's selection return.

Professor's Note: Selection return is the excess or surplus return earned by selecting superior investments (e.g., undervalued or overvalued securities) and trading accordingly.

One of the benefits of returns-based style analysis is that it helps determine if the manager's reported style and actual style are the same. For a mutual fund, the investment objective of the manager is contained in the fund's prospectus, and in some cases the investment objective can be determined by the fund's name. However, not all aggressive growth funds invest in the same asset categories or even in the same proportions. Returns-based style analysis helps to determine the reality—not what the manager says, but what she does.

Figure 2 shows the returns-based style analysis of two hypothetical funds, ABC and PDQ, which claim to be large-cap growth funds. The first column shows the indices (benchmarks) against which the portfolio returns were regressed. The second and third columns show the weights each manager has in each category. These are the coefficients from the regression analysis.
The results show that although ABC has exposure to large-cap growth, it also has substantial exposure to large-cap value and mid-cap stocks. PDQ's main exposure is to large-cap growth (86%) and some exposure to large-cap value (9%).

Both ABC and PDQ funds claim to be large-cap growth funds. However, ABC fund has substantial exposure to large-cap value and mid-cap stocks. PDQ fund, on the other hand, has style exposure more consistent with its investment objective.

Multi-Period Returns-Based Style Analysis

A single regression in a returns-based style analysis provides the average fund exposures during the time period under analysis. A series of regressions can be used to check the style consistency of a manager. That is, does the manager pursue the same style consistently over time?

Consider a hypothetical fund—Spark Growth and Income Fund. There are five years of monthly data from January 2007 to December 2011 (i.e., $T = 60$ monthly data points).

We use 36 months in each regression analysis and form 25 overlapping samples of 36 months each:

- The first sample starts at $t = 1 \) (January 2007) and ends at $t = 36 \) (December 2009).
- The second sample starts at $t = 2 \) (February 2007) and ends at $t = 37 \) (January 2010) and so forth.
- The last sample starts at $t = 25 \) (January 2009) and ends at $t = 60 \) (December 2011).

For each of the data samples, we run the returns-based style analysis regression and compute the weights (exposures) of each of the style asset categories. Thus, there are 25
regressions in total. Results for the first and the last samples are shown in Figure 3. Figure 4 shows the plot of all the changes in exposure over the five years, using the results of the 25 regressions.

**Figure 3: 5-Year Rolling 36-Month Returns-Based Style Analysis**

<table>
<thead>
<tr>
<th>Style Category</th>
<th>Sample 1 (t = 1 to 36) Weight %</th>
<th>Sample 25 (t = 25 to 60) Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-cap growth</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Large-cap value</td>
<td>62</td>
<td>49</td>
</tr>
<tr>
<td>Mid-cap value</td>
<td>20</td>
<td>37</td>
</tr>
<tr>
<td>Cash</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Figure 4: Style Consistency of Spark Growth and Income Fund**

The heights (thickness) of the colored bands indicate that the fund's exposures have changed over time. The exposures to large-cap growth and large-cap value have declined, while the exposure to mid-cap value increased, and the exposure to cash stayed the same. This type of analysis helps to check the manager's style consistency over time. If the manager was hired to focus on large-cap investments, the investor should be concerned about the manager's increasing focus on mid-cap stocks.

**Holdings-Based Style Analysis**

A second method of verifying a portfolio manager's style is to evaluate the characteristics of the securities in the manager's portfolio. This method is referred to as holdings-based
style analysis or composition-based style analysis. The manager would characterize securities based on the following attributes:

*Value or growth:* Does the manager invest in low P/E, low P/B, and high dividend yield stocks? If so, the manager would be characterized as a value manager. A manager with high P/E, high P/B, and low dividend yield stocks would be characterized as a growth manager. A manager with average ratios would be characterized as market-oriented.

*Expected earnings per share growth rate:* Does the manager have a heavy concentration in firms with high expected earnings growth? If so, the manager would be characterized as a growth manager.

*Earnings volatility:* Does the manager hold firms with high earnings volatility? If so the manager would be characterized as a value manager because value managers are willing to take positions in cyclical firms.

*Industry representation:* Value managers tend to have greater representation in the utility and financial industries because these industries typically have higher dividend yields and lower valuations. Growth managers tend to have higher weights in the technology and health care industries because these industries often have higher growth. Although industry representation can be used as a guide, it should be used with the other characteristics described here. Individual firms within industries do not always fit the industry mold, and the value/growth classification of an industry will vary as the business cycle varies.
Example: Identifying a fund's style

In the following table, the characteristics of a mutual fund and a broad market index are provided. Using only the data provided, identify the style of the fund.

<table>
<thead>
<tr>
<th>Investment Characteristics for a Mutual Fund and Broad Market</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mutual Fund</strong></td>
</tr>
<tr>
<td>P/E ratio</td>
</tr>
<tr>
<td>P/B ratio</td>
</tr>
<tr>
<td>Dividend yield</td>
</tr>
<tr>
<td>EPS growth for 1 year</td>
</tr>
<tr>
<td>EPS growth for 5 years</td>
</tr>
<tr>
<td>Median market cap ($ billion)</td>
</tr>
</tbody>
</table>

*Industry Weight*

<table>
<thead>
<tr>
<th>Industry</th>
<th>Mutual Fund</th>
<th>Broad Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic industries</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Business services</td>
<td>7%</td>
<td>5%</td>
</tr>
<tr>
<td>Consumer goods</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td>Consumer services</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>Energy</td>
<td>3%</td>
<td>10%</td>
</tr>
<tr>
<td>Financials</td>
<td>37%</td>
<td>21%</td>
</tr>
<tr>
<td>Information technology</td>
<td>7%</td>
<td>17%</td>
</tr>
<tr>
<td>Health</td>
<td>2%</td>
<td>13%</td>
</tr>
<tr>
<td>Media</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Utilities</td>
<td>15%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
The manager appears to be a value manager because the P/E and P/B ratio are below that of the broad market, and we would expect the portfolios of value managers to have higher dividend yields than that of the broad market. The manager is also invested in stocks with lower EPS growth and overweighted in financials and utilities, which is also characteristic of a value style. The manager is underweighted in technology and healthcare stocks, which are favored by growth managers. Additionally, we would conclude that the manager has a small-cap focus, because the median market cap is much lower than that of the broad market.

Returns-based style analysis is compared to holdings-based style analysis in Figure 5. Note that both methods can be performed on the same portfolio. By doing so, the analyst can gain further insight into the portfolio manager’s processes and holdings. For example, whereas returns-based analysis is useful for easily characterizing an entire portfolio, it will not detect changes in style (i.e., style drift) as quickly as holdings-based analysis. The reason is that the regression in returns-based analysis typically uses monthly returns over the past several years. Thus, a portion of the analysis is based on data that may no longer reflect the manager’s emphasis. In contrast, holdings-based style analysis uses the portfolio’s current contents to characterize the portfolio and provides a more up-to-date picture of the portfolio’s contents.

**Figure 5: Advantages/Disadvantages of Returns-Based Analysis and Holdings-Based Style Analysis**

<table>
<thead>
<tr>
<th>Advantages of Returns-Based Analysis</th>
<th>Advantages of Holdings-Based Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characterizes an entire portfolio</td>
<td>Characterizes each security</td>
</tr>
<tr>
<td>Enables comparisons of entire portfolios</td>
<td>Enables comparisons of securities</td>
</tr>
<tr>
<td>Summarizes the result of the investment process</td>
<td>Can detect style drift more quickly than returns-based analysis</td>
</tr>
</tbody>
</table>

Methodology backed by theory

Low information requirements

Different models usually result in the same conclusions

Low cost and can be executed rapidly

<table>
<thead>
<tr>
<th>Disadvantages of Returns-Based Analysis</th>
<th>Disadvantages of Holdings-Based Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>May be inaccurate due to style drift</td>
<td>Is not consistent with the method used by many managers to select securities</td>
</tr>
<tr>
<td>Misspecified indices can lead to misleading conclusions</td>
<td>Requires subjective judgment to classify securities</td>
</tr>
<tr>
<td></td>
<td>Requires more data than returns-based analysis</td>
</tr>
</tbody>
</table>
For the Exam: Be able to identify a manager’s style when given portfolio weights or the output from a returns-based style analysis and be able to contrast the two methods of style analysis as well as discuss their advantages and disadvantages.

EQUITY STYLE INDICES

LOS 27.j: Compare the methodologies used to construct equity style indices.

There are several providers of style indices, each of whom competes to earn the business and licensing fees of ETFs and others who would like to create a financial product based on their index. Some providers differentiate their style using just a few variables whereas others use several. Style may be differentiated using price multiples, earnings growth rates, dividends, and other variables. Most indices use holdings-based style analysis to characterize securities.

There are three different methods used to assign a security to either a value or growth index. In the first method the stock is assigned to value or growth. In the second method, the stock can be assigned to value, growth, or to a third neutral category. In the third method, a stock can be split between categories. For example, if its predominant characteristics are value but there are also some features of the stock that suggest growth, the stock may be classified as 70% value and 30% growth. In the first two methods, style is perceived as a category, whereas in the third method style is perceived as a quantity.

Viewing style as a category means that there will be no overlap when a style index is constructed (i.e., an individual security will be assigned to only one style). Viewing style as a quantity means that there will be overlap. Some of a stock’s market cap may be assigned to value and another part could be assigned to growth. This occurs when a stock is not clearly value or growth.

Examples of style indices with style overlap are the Russell value and growth indices, where the growth ranking is determined by the price/book ratio as well as by a long-term growth estimate. There is no neutral category, just value or growth. Some stocks are split between the growth and value indices, with, for example, 20% of the stock’s market capitalization in the Russell Growth and 80% in the Russell Value Index.

Most indices are constructed with no overlap. Additionally, most indices have just two categories, value and growth (i.e., there is no neutral style index). The justification for just two categories is that many investment managers have a clear value or growth directive they must follow.

Another distinguishing characteristic among index methodologies is the presence of buffering. When an index has buffering rules, a stock is not immediately moved to a different style category when its style characteristics have changed slightly. The presence of buffering means there will be less turnover in the style indices and, hence, lower transactions costs from rebalancing for managers tracking the index.
THE EQUITY STYLE BOX AND STYLE DRIFT

LOS 27.k: Interpret the results of an equity style box analysis and discuss the consequences of style drift.

Another method of characterizing a portfolio’s style is to use a style box. This method is used by Morningstar to characterize mutual funds and stocks. In this approach, a matrix is formed with value/growth characteristics across the top and market cap along the side. Morningstar uses holdings-based style analysis to classify securities.

In Figure 6, we have provided the Morningstar style box for a hypothetical small-cap value fund. The numbers in each cell represent the percent of the fund’s market cap in each category (total of the cells = 100%). Note that most of the fund’s component stocks are classified as small-cap value, although other categories are represented as well.

Figure 6: Morningstar Style Box for a Hypothetical Small-Cap Value Fund

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Core</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-cap</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Mid-cap</td>
<td>17%</td>
<td>12%</td>
<td>1%</td>
</tr>
<tr>
<td>Small-cap</td>
<td>60%</td>
<td>5%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Categorizing portfolios by size is fairly standard in that market cap is the usual metric for evaluating size. However, different providers use different categorizations of value and growth attributes. For this reason, the categorization of portfolios can differ a great deal depending on the provider. Usually, price multiples are used to define value stocks, whereas earnings or sales growth rates are used to define growth stocks.

Style drift is when a portfolio manager strays from his original, stated style objective. There are two reasons why this can be problematic for an investor. First, the investor will not receive the desired style exposure. This is a concern because value and growth stocks will perform quite differently over time and over the course of business cycles. Second, if a manager starts drifting from the intended style, she may be moving into an area outside her expertise.

As mentioned previously, returns-based style analysis and holdings-based style analysis can both be used to evaluate style drift, with holdings-based style analysis considered to be the more effective of the two methods. To determine whether a manager has drifted using holdings-based style analysis, we would evaluate the same factors mentioned earlier (i.e., the portfolio’s value or growth characteristic, expected earnings growth, earnings volatility, and industry representation).
SOCIA LLY RESPONSIBLE INVESTING

LOS 27.1: Distinguish between positive and negative screens involving socially responsible investing criteria and discuss their potential effects on a portfolio’s style characteristics.

Socially responsible investing (SRI), also known as ethical investing, is the use of ethical, social, or religious concerns to screen investment decisions. The screens can be negative, where the investor refuses to invest in a company they believe is unethical; or positive, where the investor seeks out firms with ethical practices. An example of a negative screen is an investor who avoids tobacco and alcohol stocks. An example of a positive screen would be when the investor seeks firms with good labor and environmental practices. Most SRI portfolios utilize negative screens, some use both negative and positive screens, and even less use only positive screens. An increasing number of portfolio managers have clients with SRI concerns.

For the Exam: Look for socially responsible investing in developing the IPS for an individual or institutional investor.

A SRI screen may have an effect on a portfolio’s style. For example, some screens exclude basic industries and energy companies, which typically are value stocks. SRI portfolios thus tend to be tilted toward growth stocks. SRI screens have also been found to have a bias toward small-cap stocks. There are two main benefits to monitoring the potential style bias resulting from SRI screens. First, the portfolio manager can take steps to minimize the bias, if it is inconsistent with the investor’s risk and return objectives. Second, with knowledge of the portfolio’s style bias, the manager can determine the appropriate benchmark for the SRI portfolio. Returns-based style analysis can detect the presence of style bias and monitor the success of its remedy.

LONG-SHORT AND LONG-ONLY INVESTMENT STRATEGIES

LOS 27.m: Compare long-short and long-only investment strategies, including their risks and potential alphas, and explain why greater pricing inefficiency may exist on the short side of the market.

Long-only strategies focus on using fundamental analysis to find undervalued stocks. In contrast, long-short strategies focus on exploiting the constraints many investors face. Specifically, many investors such as institutions are unable to take short positions, which may lead to overvalued stocks.

Whereas long-only strategies can only buy undervalued stocks and avoid overvalued stocks, long-short strategies can both buy undervalued stocks and short overvalued stocks. In essence, the long-short strategy can earn two alphas, one on long positions...
and one on short sales. A long-only strategy can only earn the long alpha through security selection (the excess return relative to its benchmark).

Another way of viewing the advantage of long-short strategies is to consider an investor who is attempting to outperform a market index. If he would like to express a negative view of an index security in a long-only strategy, he is limited to avoiding the stock. For example, if a stock’s market cap constitutes 4% of an index, the minimum possible underweighting is 4%, created by not holding the stock. Here the active weight is −4%. If the investor wanted an active weight of 6%, on the other hand, the investor would overweight the stock, and it would constitute 10% of the market cap in the investor’s portfolio. Thus, the distribution of potential active weights in a long-only portfolio is asymmetric (i.e., underweighting is limited to the security’s weight in the portfolio, whereas overweighting is unlimited).

In contrast, a long-short investor can create a symmetric distribution of active weights, provided there is sufficient information regarding the stock’s under or overvaluation. The long-short investor can create as short a position as desired (i.e., he is not limited to just avoiding the stock).

In regard to risk, a long-only investor is potentially exposed to both systematic and unsystematic risk. In contrast, the long-short investor can eliminate expected systematic risk by using a pair trade (also known as pairs arbitrage) in a market neutral strategy. In a pair trade, the investor buys one stock and shorts another in the same industry, thus eliminating exposure to marketwide risk. Systematic risk can be added, if desired, through the use of equity futures or ETFs, which is discussed in the next LOS. The investor, however, still has company specific risk, and if the short position rises in value while the long falls, the results could be disastrous for the long-short investor.

The potential returns and risks of a long-short trade are also magnified by leverage (borrowed funds). Many long-short investors, for example hedge funds, will use leverage of two to three times their capital in a long-short trade. Leverage increases the investor’s potential alpha but also increases the likelihood that an investor will have to unwind her position early and at a loss in order to satisfy a margin call.

For the Exam: Hedge fund managers often employ market neutral strategies to enable them to capitalize on their abilities to identify over- and under-priced securities. See Topic Review 31, Book 4.

Pricing Inefficiencies on the Short Side

There are four reasons for pricing inefficiencies on the short side of equity trades:

1. There are barriers to short sales that do not exist for long trades. Because of these barriers, some investors do not pursue short strategies. One barrier is that to short a stock, the short seller must find someone who will lend the shares. When the lender requests the shares to be returned, the short seller may have to buy the shares in the open market at an adverse price.
2. Firm management is more likely to promote their firm’s stock through accounting manipulations and other means than they are to disparage it. Thus, stock is more likely to be overvalued than undervalued.

3. Analysts on the sell-side are more likely to issue buy recommendations than sell recommendations. The reason is that there is a larger pool of potential buyers of a stock than sellers. Potential sellers are limited to those investors who already own the stock or short sellers. Additionally, analysts will anger large stockholders if they issue a sell recommendation.

4. Sell-side analysts face pressure from firm management against issuing sell recommendations because managers often have stock holdings and options in their firm and may threaten analysts with a cutoff of communications and lawsuits, if the analysts issue sell recommendations. The analyst’s firm may also be shut out from investment banking and other corporate finance business if the analyst issues a sell recommendation. Note that such corporate actions are inconsistent with the Best Practice Guidelines Governing Analyst/Corporate Issue Relations supported by the CFA Centre for Financial Market Integrity and the National Investor Relations Institute. Additionally, CFA members, candidates, and charterholders are bound to independence and objectivity by Standard I(B) of the Code of Ethics and Standards of Professional Conduct.

**EQUITIZING A LONG-SHORT PORTFOLIO**

**LOS 27.n: Explain** how a market-neutral portfolio can be “equitized” to gain equity market exposure and **compare** equitized market-neutral and short-extension portfolios.

Recall that a properly implemented long-short strategy with stocks in the same industry can have no systematic risk. An investor may, however, wish to add systematic risk to the market neutral strategy to earn a higher return. This can be established by taking a long position in an equity futures contract with a notional principal equal to the cash from the short sales. The investor’s total profit is then the net profit or loss from the long and short position, the profit or loss from the futures contract, and interest earned on the cash from the short sale. To calculate a return, we would divide this amount by the equity the investor has put up for the transaction.

*Professor’s Note: Two things. First, the proceeds from the short sale are usually deposited with the broker and placed in Treasuries. Interest on the Treasuries that is not paid to the lender of the shares as a fee is passed onto the short seller. The portion received by the short seller is referred to as the “short rebate.” Next, pairs trading is a relative value strategy. That is, the manager purchases undervalued shares and shorts overvalued shares with approximately the same market sensitivity (i.e., equal betas). The manager’s primary goal is profiting from security selection. If the manager feels the overall market will gain or lose ground, he can buy or sell equity futures, respectively. Thus, pair trades and trading equity futures represent two separate strategies.*
A market neutral strategy can also be equitized using ETFs. ETFs may be more cost effective and convenient than futures contracts. ETFs do not expire like futures contracts, so they don’t have to be rolled over. They also have low expenses and are usually available for shorting, if the investor wants to de-equitize after having added them.

Because a long-short, market neutral strategy has no systematic risk, its benchmark should be the risk-free rate (i.e., the return on T-bills). If the strategy is equitized, the benchmark is the index underlying the futures contract or the ETF. Note that a market-neutral strategy need not always be equitized. The strategy can be exposed to the risk of other asset classes (e.g., fixed income) using the derivative contracts for other assets.

**Professor’s Note:** Market-neutral strategies are often employed by hedge fund managers and other arbitrageurs. As such, the market generally considers market neutral strategies to be alternative investments.

### Short Extension Strategies

Short extension strategies (also called partial long-short strategies) are seen by the market as extensions to long-only investing. In a short extension strategy, the manager shorts an amount of securities equal to a set percentage of his long portfolio and then purchases an equal amount of securities. For example, in a 120/20 short extension strategy on a $100 million portfolio, the manager would purchase 120% of $100 million in long stock positions and short 20% of $100 million in stocks for a net investment of $100 million. The long positions would be under- or neutral-valued stocks and the short positions would be over-valued stocks.

This is not market-neutral or hedging, an important distinction because it leads to the strategy being classified and evaluated versus long-only equity portfolios and not against hedge funds which are typically classified as alternative investments. To illustrate the distinction, a market-neutral portfolio might have equal betas and position sizes in long and short positions for a zero beta and no systematic risk exposure. In contrast, a short-extension strategy (extension meaning it is just a small variation from long only equity) will typically have a beta of 1.0. The manager could be long 120% at a beta of 1.0 and short 20% at 1.0 for a portfolio weighted average beta of 1.0. Just like a long-only stock portfolio, the manager could choose to have a higher or lower beta. For example, if the manager is bullish on the market, the manager could go long 120% with a beta of 1.1 and short 20% with a beta of .9 for a weighted average beta of \( (1.20 \times 1.1) + (-.2 \times .9) = 1.14 \). Inherently short-extension strategies tend to have a beta of 1.0 while market-neutral strategies tend to have a beta closer to 0.0.

Advantages of short-extension strategies include:

- Perceived as an equity strategy, not as an alternative investment.
- Lets a manager better exploit information; under-valued securities can be purchased and over-valued can be shorted. Long only portfolios can avoid buying over-valued stocks but cannot short them.
- The short position frees up additional funds for investing in under-valued positions (120% of capital in our 120/20 example). The long only manager can only invest 100%.
Short-extension strategies can be implemented without a derivatives market. Many market-neutral strategies utilize futures or swaps for part of their execution.

The short-extension strategy is a more efficient and coordinated portfolio of long and short positions. Long positions are only taken in under-valued (or at least neutral-value) stocks and short positions are in over-valued stocks. In contrast, a separate 100/0 plus 20/20 strategy would first invest 100% of capital in the market portfolio (and nothing short, hence the 100/0 designation). Then it would take 20% of capital in offsetting long and short positions in under- and over-valued stocks (the 20/20). There is inherent inefficiency in this approach as the 100% long market portion will involve buying some of the same over-valued stocks which are shorted in the 20% short position.

There are also inherent disadvantages versus other approaches:

- Higher transaction costs due to the larger quantity of trades executed—120% of capital long and 20% of capital short in our example. In addition, there are borrowing fees on stocks borrowed to cover the short position versus a long only portfolio.
- All of the potential added value comes from the managers’ ability to identify under- and over-valued stocks. In contrast, equitizing a market-neutral long-short portfolio (EMNLSP) earns returns from the gain/loss on long and short positions, long futures positions, and interest on the cash equivalent collateral (the long futures are generally 100% collateralized with cash). EMNLSP inherently has more varied sources of return and often allows positions in assets other than stocks. As a market-neutral strategy, EMNLSP is generally compared to cash equivalent returns while short-extension strategies are compared to equity returns.

Professor’s Note: It can be tricky to remember each of the various approaches. Too many candidates try to remember everything and their scores suffer as the result. A better strategy is to grasp the basic concept of each approach—what makes it different from the others? Past questions have often focused on just that issue. Then, remember whatever details possible.

SELL DISCIPLINES

**LOS 27.o: Compare the sell disciplines of active investors.**

An investor may need to sell holdings to rebalance the portfolio, to alter the asset allocation for liquidity, or to update the portfolio’s security selection. The use of various strategies can help the investor decide when to sell.

**Substitution** is replacing an existing security with another with brighter prospects. Considering the transactions costs and tax consequences of the sale of the existing security and the purchase of the new security, this approach is referred to as an opportunity cost sell discipline. After careful research, a manager may also conclude that a firm’s business will worsen in the future. This is referred to as a deteriorating fundamentals sell discipline.
Other, more technical, selling disciplines are based on rules. For example, in a *valuation-level sell discipline*, a value investor may sell a stock if its P/E or P/B ratio rises to the ratio’s historical mean. In a *down-from-cost sell discipline*, the manager may sell a stock if its price declines more than say 20% from the purchase price. In an *up-from-cost sell discipline*, the manager may sell a stock once it has increased, for example, either a percentage or a dollar amount from the purchase price. In a *target price sell discipline*, the manager determines the stock’s fundamental value at the time of purchase and later sells the stock when it reaches this level.

These sell disciplines are not mutually exclusive within an investor’s portfolio, as different stocks may call for different disciplines. Also, the consequences of sell disciplines should be appraised on an after-tax basis according to the investors’ tax status.

The frequency of buying and selling in a portfolio is driven by the manager’s style. Value investors are typically long-term investors, who buy undervalued stocks and hold them until they appreciate. Annual turnover for value managers varies from 20% to 80%. Growth managers base their decisions on earnings growth and are less patient. They often sell after the next quarterly, semiannual, or annual earnings statement comes out (the frequency of the statements depends on the country of the firm’s incorporation). Thus, it is not unusual to see annual turnover of 60% to several hundred percent for these investors.

**ENHANCED INDEXING**

Los 27.p: Contrast derivatives-based and stock-based enhanced indexing strategies and justify enhanced indexing on the basis of risk control and the information ratio.

As discussed previously, semiactive or enhanced indexing strategies attempt to earn an active return (a return greater than a benchmark) while minimizing deviations in performance from the benchmark (tracking risk or active risk). Enhanced indexing strategies have resulted in higher information ratios (active return divided by tracking risk) than passive or active strategies.

**Stock-Based and Derivatives-Based Enhanced Indexing Strategies**

An enhanced indexing strategy can be executed using either actual stocks or derivative contracts such as equity futures. Using a *stock-based enhanced indexing strategy*, the manager underweights or overweight index stocks based on beliefs about the stocks’ prospects. Risk is controlled by monitoring factor risk and industry exposures. The portfolio resembles the index, except where the manager has a specific belief about the value of an index security.
To understand a stock-based enhanced indexing strategy, it may help to compare it to full-blown active management. If the manager does not have an opinion about an index stock in full-blown active management, she doesn’t hold the stock. If the manager does not have an opinion about an index stock in a stock-based enhanced indexing strategy, she holds the stock at the same level as the benchmark.

In a derivatives-based enhanced indexing strategy, the manager obtains an equity exposure through derivatives. A common method of doing so is to equitize cash. Here the manager holds a cash position and a long position in an equity futures contract. The manager can then attempt to generate an excess return by altering the duration of the cash position. If the yield curve is upward sloping, the manager invests longer-term, if she thinks the higher yield is worth it. If, on the other hand, the yield curve is flat, the manager invests in short-duration, fixed-income securities because there would be no reward for investing on the long end. In these derivative-based strategies, the value added (alpha) is coming from the non-equity portion of the portfolio and the equity exposure is coming through derivatives.

For the Exam: Using equity futures contracts to equitize a position in cash is discussed in Topic Review 36, Book 5.

There are two limitations to enhanced indexing in general. First, successful managers will be copied and their alpha will disappear, unless they change their strategy through time. Second, models obtained from historical data may not be applicable to the future, if the economy changes.

The Fundamental Law of Active Management

The fundamental law of active management states that an investor’s information ratio (IR) is a function of his depth of knowledge about individual securities (the information coefficient—IC) and the number of investment decisions (the investor’s breadth—IB). ²

More formally:

\[
\text{IR} \approx \text{IC}/\sqrt{\text{IB}}
\]

where:

- IR = information ratio
- IC = information coefficient
- IB = investor breadth

For the Exam: The LOS asks you to justify enhanced indexing on the basis of the information ratio, so you may need to use this calculation on the exam. In any case, be sure you are familiar with the concepts and the components of the equation. You will know which information ratio is referenced by the data provided.

The IC is measured by comparing the investor’s forecasts against actual outcomes. The closer they are, the higher the correlation between them, and the greater the IC. More skillful managers will have a higher IC.

Note that investor breadth measures the number of independent decisions an investor makes, which does not necessarily increase with the number of securities followed. For example, if an investor buys ten energy stocks because she thinks the sector will do well, the IB equals one, not ten.

The narrower an investor’s breadth, the greater her knowledge of each security must be to produce the same information ratio. Unfortunately, it is difficult for most investors to realize a high IC. A stock-based enhanced indexing strategy can produce higher information ratios because the investor can systematically apply her knowledge to a large number of securities, each of which would have different attributes requiring independent decisions.

Example: Using the fundamental law of active management

Manager X follows the stocks in a broad market index and has made independent forecasts for 400 of them. Her IC is 0.05.

Manager Y has made independent forecasts for 150 stocks. His IC is 0.07.

Which manager has the best performance as measured by the information ratio?

Answer:

The information ratio for each manager can be approximated as:

\[
\text{IR}_X = 0.05 \times \sqrt{400} = 1.00
\]

\[
\text{IR}_Y = 0.07 \times \sqrt{150} = 0.86
\]

Although manager X’s depth of knowledge is not as great, she has better performance because she has a greater breadth of decisions. Performance here is measured by the information ratio, so Manager X earns more excess return per unit of active risk.

Note that a derivatives-based enhanced indexing strategy will have less breadth than a stock-based enhanced indexing strategy because the investor uses a derivatives contract to gain exposure to equity and earns an excess return with non-equity strategies (duration management by moving out the yield curve in the previous discussion) using the duration strategy described earlier. Due to its lower breadth, it will require a higher information coefficient to earn as high an information ratio as a stock-based strategy.
ALLOCATING TO MANAGERS

LOS 27.q: Recommend and justify, in a risk-return framework, the optimal portfolio allocations to a group of investment managers.

Given funds to invest, an investor has a series of decisions to make. The investor must first decide which asset classes to allocate the funds to and in what weights. At this level, the focus is on maximizing expected return for a given level of risk.

Once an equity allocation is made, the investor needs to focus on choosing passive or active equity management. Passive equity management has zero active return and zero active risk. Think of passive equity management as the baseline. As one moves from passive management to enhanced indexing to active management, the expected active return and active risk increase.

So just as in asset allocation, the investor must choose the tradeoff between risk and return. However, once the investor has made a decision to invest in equity, the tradeoff focuses on active risk and active return.

The gist of the steps to follow is that the investor must decide how much active risk he is willing to accept and what the best combination of equity managers is to achieve that active risk while maximizing active return.

In the first step in deciding how much equity to allocate to a group of equity managers, the investor will want to maximize the utility of his active return. The utility function for active return is similar to the utility function for expected return. The utility of the active return increases as active return increases, as active risk decreases, and as the investor’s risk aversion to active risk decreases.

Next, given his utility function, the investor needs to investigate the performance characteristics of available equity managers. An efficient frontier analysis is useful here, except instead of using expected return and risk, this efficient frontier plots expected active return and active risk using combinations of available equity managers.

Investors are usually more risk averse when facing active risk than they are when dealing with total risk for the following three reasons. First, if an investor were willing to accept zero active return, it would be easy enough to just index. However, to believe that a positive active return is possible, the investor must think that an active manager can deliver an active return, and the investor must believe they can pick that active manager. Second, an investor who must answer to a superior (e.g., a pension plan) for their equity managers’ performance will be judged relative to a passive benchmark. It is difficult to produce a positive alpha, and investors are reluctant to take risk positions away from the index. Third, if an investor wants higher active return positions, they must be willing to invest more in the highest active return manager. This results in less diversification across managers. Most institutional investors have an active risk target in the range of 1.5% to 2.5%.

CORE-SATELLITE AND COMPLETENESS FUND APPROACHES

LOS 27.r: Explain the core-satellite approach to portfolio construction and discuss the advantages and disadvantages of adding a completeness fund to control overall risk exposures.

In a core-satellite approach to managing active equity managers, the investor has a core holding of a passive index and/or an enhanced index that is complemented by a satellite of active manager holdings. The idea behind a core-satellite approach is that active risk is mitigated by the core, while active return is added by the satellites. The core is benchmarked to the asset class benchmark, whereas the satellites are benchmarked to a more specific benchmark.

A core-satellite approach can be executed using an informal approach or using a more formal approach as described in LOS 27.q. As part of the latter process, a manager targets an active risk and return and then uses optimization to find the best mix of equity managers to deliver that performance. In the following example, the manager has a 50% core in the passive index and the enhanced indexed portfolio, with satellites of 25%, 15%, and 10% in the active managers.

Professor's Note: This example specifically states that the correlation between manager's active returns is zero. If nothing were said, this should be the default assumption. It is likely that there is positive correlation between manager returns; in other words, most managers do well or do poorly at the same time because each manager's return is related to how well the market is doing. But, it is likely that active returns are uncorrelated (0,0). Active return is return less a benchmark return and it is likely that some managers are generating positive active return and others are generating negative active return. That would be a zero correlation of active return. This is even more true among a group of managers pursuing the same style or approach.
Example: Applying the core-satellite approach

The investor has an active risk target of no more than 1.75% and a target information ratio of at least 0.9. The investor can choose from passive management, enhanced indexing, or three active managers (X, Y, and Z) in the figure below. Given the targeted active risk, the investor makes the allocations to maximize return. Note that, by definition, the active return and risk to passive indexing is 0%. Assume that the correlations between the equity managers’ active returns are zero.

Active Return, Active Risk, and Allocations to Equity Managers

<table>
<thead>
<tr>
<th></th>
<th>Expected Active Return</th>
<th>Expected Active Risk</th>
<th>Allocations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive index</td>
<td>0.00%</td>
<td>0.00%</td>
<td>10%</td>
</tr>
<tr>
<td>Enhanced indexing</td>
<td>1.40%</td>
<td>2.20%</td>
<td>40%</td>
</tr>
<tr>
<td>Active Manager X</td>
<td>1.70%</td>
<td>2.80%</td>
<td>25%</td>
</tr>
<tr>
<td>Active Manager Y</td>
<td>3.00%</td>
<td>5.10%</td>
<td>15%</td>
</tr>
<tr>
<td>Active Manager Z</td>
<td>3.70%</td>
<td>7.00%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Calculate the investor’s active return given the above allocations. Determine if the investor has met the targeted active risk and information ratio.

Answer:

To calculate the investor’s active return given the equity manager allocations listed in the figure above, we would calculate a weighted average return using the following formula. Note that it is similar to the formula for portfolio expected return except now we use active return instead of total return.

\[
\text{expected active portfolio return} = \sum_{i=1}^{n} w_{a,i} (\hat{R}_{a,i})
\]

where:
\[
w_{a,i} = \text{weight invested with } i\text{th manager}
\]
\[
\hat{R}_{a,i} = \text{expected active return of } i\text{th manager}
\]

Using the active returns and allocations in the figure above, we calculate an expected active portfolio return of 1.81%:

\[
\text{expected active portfolio return} = (0.10 \times 0%) + (0.40 \times 1.4%) + (0.25 \times 1.7%) + (0.15 \times 3.0%) + (0.10 \times 3.7%) = 1.81%
\]
To calculate the portfolio active risk, we assume that the correlations between the equity managers’ active returns are zero. Assuming zero correlation, the formula for portfolio active risk is:

\[
\text{portfolio active risk} = \sqrt{\sum_{i=1}^{n} w_{a,i}^{2} \sigma_{a,i}^{2}}
\]

Using the active risks and allocations, we calculate the portfolio active risk:

\[
\text{portfolio active risk} = \sqrt{(0.10)^{2}(0.0)^{2} + (0.40)^{2}(0.022)^{2} + (0.25)^{2}(0.028)^{2} + (0.15)^{2}(0.051)^{2} + (0.10)^{2}(0.07)^{2}} \\
= \sqrt{0.000234} = 0.0153 = 1.53\%
\]

The investor’s information ratio is \(1.81\% / 1.53\% = 1.18\). The investor has satisfied the active risk target of no greater than 1.75% and the information ratio of at least 0.9.

The Completeness Fund Approach

In contrast to the formalized process followed for the core-satellite approach, many managers use a less exact approach. Given that the resulting portfolio will still be benchmarked against a broad market index, the manager’s portfolio will have a number of industry or other biases relative to the benchmark. This is particularly true when examining the portfolios of bottom-up managers, where industry exposures are not given a priority in stock selection.

To minimize the differences in risk exposures between the portfolio and the benchmark, the investor can use a completeness fund. The completeness fund is combined with the active portfolio, so that the combined portfolios have a risk exposure similar to the benchmark. The advantage of the completeness fund approach is that the active return from the managers can be maintained while active risk is minimized. The completeness fund must be rebalanced regularly as the active manager’s exposures change. The fund can be managed passively or semiactively.

The disadvantage of a completeness fund is that it may result in a reduction of active returns arising from misfit risk. (As described in the next LOS, misfit risk results from differences between the manager’s normal portfolio and the broader asset class benchmark.)
COMPONENTS OF TOTAL ACTIVE RETURN

LOS 27.s: Distinguish among the components of total active return (“true” active return and “misfit” active return) and their associated risk measures and explain their relevance for evaluating a portfolio of managers.

Recall that a manager’s normal portfolio or normal benchmark reflects the securities she normally chooses from for her portfolio. It is an appropriate benchmark for the manager, because it reflects the manager’s style. For example, the normal portfolio for a value manager might be an index of value stocks.

In contrast, an investor who hires a manager may use a broad-based benchmark for the manager’s asset class that does not reflect the manager’s style. This portfolio would be referred to as the investor’s benchmark.

Using these two benchmarks, we can then decompose the manager’s total active return into two parts, the true active return and the misfit active return, as follows:

- manager’s true active return = manager’s total return - manager’s normal portfolio return
- manager’s misfit active return = manager’s normal portfolio return - investor’s benchmark return

The true active return is true in the sense that it measures what the manager earned relative to the correct benchmark. The misfit active return is misfit in the sense that it measures that part of the manager’s return from using a benchmark that is not suited to the manager’s style.

Using these components of return, we can decompose the manager’s total active risk into the true risk and misfit risk. The total active risk is the volatility of the manager’s portfolio relative to the investor’s benchmark.

\[
\text{total active risk} = \sqrt{\left(\text{true active risk}\right)^2 + \left(\text{misfit active risk}\right)^2}
\]

Using the true active return and true active risk, we can define an information ratio that better represents the manager’s skills:

\[
\text{true information ratio} = \frac{\text{true active return}}{\text{true active risk}}
\]

There are two uses of the decomposition of the manager’s performance into true and misfit components. The first use is to more accurately evaluate the manager’s performance using the manager’s true return as in the following example.
Example: Decomposing performance into true and misfit components

Bob Davis is a small-cap growth manager who invests in U.S. equities. He was hired by a pension fund that benchmarks him against a broad U.S. market index. Using the information in the following figure, calculate the manager's information ratio that most accurately reflects his abilities.

### Decomposing Active Risk and Return

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manager return</strong></td>
<td>18.0%</td>
</tr>
<tr>
<td><strong>Broad market return</strong></td>
<td>15.0%</td>
</tr>
<tr>
<td><strong>Normal portfolio return</strong></td>
<td>20.0%</td>
</tr>
<tr>
<td><strong>Total active risk</strong></td>
<td>5.0%</td>
</tr>
<tr>
<td><strong>Misfit active risk</strong></td>
<td>3.5%</td>
</tr>
</tbody>
</table>

**Answer:**

Comparing the manager’s return to the broad market, the manager appears to have generated an excess return of 3% (18% - 15%). That is an inappropriate benchmark. If one uses the normal portfolio as the benchmark, the manager has actually underperformed the appropriate benchmark by 2% (18% - 20%). The true and misfit active returns are measured as follows:

\[
\text{true active return} = 18\% - 20\% = -2\%
\]
\[
\text{misfit active return} = 20\% - 15\% = 5\%
\]

The true active risk is backed out of the total and misfit risk:

\[
\text{total active risk} = \sqrt{(\text{true active risk})^2 + (\text{misfit active risk})^2}
\]
\[
5\% = \sqrt{(\text{true active risk})^2 + (3.5\%)^2}
\]
\[
(5\%)^2 = (\text{true active risk})^2 + (3.5\%)^2
\]
\[
(5\%)^2 - (3.5\%)^2 = (\text{true active risk})^2
\]
\[
\sqrt{(5\%)^2 - (3.5\%)^2} = \text{true active risk}
\]
\[
\text{true active risk} = 3.57\%
\]

The true information ratio demonstrates underperformance as it is negative, resulting from the negative true active return:

\[
\text{true information ratio} = \frac{-2\%}{3.57\%} = -0.56
\]
The decomposition of the total active performance into true and misfit components is also useful for optimization. The objective is to maximize the total active return for a given level of total active risk while allowing for an optimal amount of misfit risk. Note that misfit risk is not optimized at zero because a manager may be able to generate a level of true active return for some level of misfit risk. In other words, if you let the manager concentrate in the style he is familiar with, the manager is more likely to generate an excess return relative to his normal portfolio.

**ALPHA AND BETA SEPARATION**

**LOS 27.t:** Explain alpha and beta separation as an approach to active management and demonstrate the use of portable alpha.

*CFA® Program Curriculum, Volume 4, page 237*

In an alpha and beta separation approach, the investor gains a systematic risk exposure (beta) through a low-cost index fund or ETF, while adding an alpha through a long-short strategy. This strategy may be particularly suitable for markets that are highly efficient and difficult to generate an alpha from.

For example, the investor may pick up a beta exposure in an S&P 500 index fund. The stock prices in this large-cap index are highly efficient with respect to information, and it would be difficult to generate an alpha with this index. The investor could pick up alpha by hiring a manager who specializes in long-short strategies in less efficient small-cap markets. If the manager decides to take a different index exposure, she could keep the small-cap alpha and pick up the beta exposure in some index (e.g., an MSCI World Index ETF). This strategy is referred to as a portable alpha strategy.

An advantage of this approach is that the investor can gain access to equity styles and asset classes outside of a systematic risk class. The investor can also better understand and manage the risks in an alpha and beta separation approach because they are more clearly defined. In contrast, in a long-only strategy, the risks are not as clearly delineated. Lastly, by partitioning the alpha and beta, the investor has a better idea of the costs of investing. A passive beta exposure is typically cheaper than an active alpha exposure.

A limitation of the alpha and beta separation approach is that it may be difficult or costly to implement short positions in markets such as emerging markets or small-cap markets. Secondly, some long-short strategies are not truly market neutral and may have a degree of systematic risk. Lastly, long-short investing may be off-limits to some investors. These investors, however, could create an alpha and beta separation approach exposure using equity futures. For example, suppose the investor wants a beta from large-cap U.S. stocks and an alpha from European equities. The investor can take a long position in the S&P 500 index futures contract and invest with a European equity manager to generate the alpha. To become market neutral in the European equity market, the investor would then short a futures contract based on European equities.
SELECTING EQUITY MANAGERS

LOS 27.u: Describe the process of identifying, selecting, and contracting with equity managers.

The process of selecting investment managers is particularly important for institutions and high net worth individuals. The process may be performed in-house or by outside consultants. Consultants research performance records and interview investment managers to determine which managers are worthy of consideration. Qualitative considerations are the strength of the firm's investment approach and research as well as the manager's personnel. Quantitative considerations include the manager's fees, performance, and style. The manager should also have consistency between stated and actual investment approaches.

Past Performance

Past performance is often no guarantee of future performance. In fact, a contrarian strategy often works as well with managers as it does with stocks. Although consistency in superior performance is rare, managers with poor historical performance are unlikely to be hired. That is, without some evidence that a manager can generate an alpha, the investor will passively index. Additionally, a manager who achieves superior performance with a consistent staff and investment philosophy is more likely to be hired.

Manager Questionnaires

In the hiring process, a manager questionnaire is used to screen potential managers. If the manager's responses to the questionnaire are promising, the questionnaire will be followed by personal interviews with the manager.

There are five sections of the questionnaire. The first section regards the manager's staff and organizational structure. Investing is a labor-intensive process, and having the right people and compensation structure in place is key to a manager's potential success. This part of the questionnaire also covers topics such as the vision of the firm, the qualifications and experience of the staff, and how long the staff has worked as a team.

The second section of the questionnaire concerns investment philosophy and procedures. This section provides details on the firm's investment philosophy, how it intends to capture alpha, how research is conducted, how risk is managed and monitored, the firm's stock selection techniques, and how portfolios are composed.

The third section focuses on resources and how research is conducted and used. Other details provided here include portfolio turnover, how quantitative models are utilized, and how trading functions.
The fourth section concerns performance: the manager’s benchmark, the expected alpha, the sources of risk, and portfolio holdings.

The fifth section provides details on the fee schedule, which are discussed in the next section.

For the Exam: Don’t worry about which part of the questionnaire contains what. Just be familiar with the information provided by the questionnaire.

Fee Schedules

Fees can be charged on an *ad valorem* basis or based on performance. Ad valorem fees are also referred to as asset under management fees (AUM) and are charged based on the asset value managed and may be on a sliding schedule (e.g., 0.50% for the first $10 million managed and 0.40% for asset amounts over $10 million).

A *performance-based fee* is often charged as a base fee plus some percentage of the alpha. For example, the fee may be 0.40% of all assets managed plus 10% of any profit above the benchmark. The performance-based fee may also include *fee caps* and *high water marks*. A fee cap specifies a maximum performance fee. The intent is to prevent managers from undertaking too much risk to earn higher fees. A high water mark is designed to prevent the manager from collecting a performance fee twice for the same outperformance. For example, in period one a manager generates positive incremental performance and is paid an incentive fee. In period two, the manager generates negative incremental performance. The manager still receives their base fee but no incentive fee. In period three, any incremental performance must first earn back the negative incremental return of period two before performance fees are paid on the new incremental performance.

The advantage of ad valorem fees is that they are straightforward and known in advance. This is useful when the investor is budgeting investment fees. Their *disadvantage* is that they do not align the interests of managers and investors the way performance-based fees do.

Performance-based fees have two *disadvantages*. First, performance-based fees are more complicated and require detailed specifications. Second, they also increase the volatility of the manager’s compensation, which may create problems for a manager attempting to retain staff and provide consistent performance. This is particularly true in years when the manager has underperformed its competitors.

The advantage of performance-based fees is that they align the interests of the manager and the investor, especially if they are *symmetric* (i.e., contain penalties for poor performance and rewards for good performance). This should motivate the manager to work harder on the investor’s behalf.
STRUCTURING EQUITY RESEARCH

LOS 27.v: Contrast the top-down and bottom-up approaches to equity research.

Some investors begin their investment process by examining an economy to determine its future state. If, for example, the investor determines the economy is going to expand, cyclical stocks would be favored. Next, specific firms within cyclical industries are examined for attractiveness. This approach is known as a top-down approach because the investor starts at the economy level and works her way down. Using a global perspective, the investor would also look at global economic factors and the projections for currencies.

In a bottom-up approach, the investor starts at the individual stock level. Stocks are chosen on the basis of their individual characteristics and valuation. For this type of approach, the investor is more concerned with security and industry conditions and less concerned with macro and overall economic conditions.

Some investors use a combination of the two approaches. For example, the investor forecasting an economic expansion may select cyclical stocks based on their valuations.

Another way to differentiate investment approaches is by whether the research is conducted by sell-side or buy-side analysts. A buy-side analyst works for and builds a portfolio for an investment management firm. The analyst in this case usually must present recommendations to and get approval from a committee. Buy-side research is not usually available to those outside the firm because this is how the firm hopes to establish their competitive advantage.

In contrast, sell-side analysts often work for an investment bank that uses the research to promote stocks the bank is selling. Sell-side research is also conducted by independent firms available for hire by investment managers. Thus, sell-side research is available to those outside the firm. It is the research that the public is most familiar with, as sell-side analysts often appear in the financial news or on investment television shows. This research is often organized by industry or sector and provides a buy, sell, or hold recommendation.
**KEY CONCEPTS**

**LOS 27.a**
Equities are a good inflation hedge, especially when firms can pass inflation on to the consumer. Equities have had consistently positive real returns and higher real returns than bonds in 17 countries over 106 years.

**LOS 27.b**
Passive managers do not use forecasts to influence their investment strategies. The most common implementation of passive management is indexing, where the manager invests so as to mimic the performance of a security index.

Active managers buy, sell, and hold securities in an attempt to outperform their benchmark. Even with the growth of indexing, active management still constitutes the vast majority of assets under management.

Semiactive (enhanced indexing) managers attempt to earn a higher return than the benchmark while minimizing the risk of deviating from the benchmark.

Active return is the excess return of a manager relative to the benchmark. Tracking risk is the standard deviation of active return and is a measurement of active risk. Passive managers have the lowest active return and tracking risk whereas active managers have the highest, with semiactive managers between the two.

**LOS 27.c**
Passive strategies may be preferable when the investor is taxable, has an informational disadvantage in global markets, is investing in informationally efficient large-cap markets, or wants to avoid the high transactions costs in small-cap markets. The evidence is that the returns to active management do not justify their higher costs.

**LOS 27.d**
A price-weighted index is an arithmetic average of the prices of the securities included in the index. Computationally, a price-weighted index adds together the market price of each stock in the index and then divides this total by the number of stocks in the index. The divisor of a price-weighted index is adjusted for stock splits and changes in the composition of the index, so that the total value of the index is unaffected by the change. A price weighted index assumes the investor holds one share of each stock in the index. A bias of the price-weighted index is that higher priced stocks are overrepresented in the index.

A value-weighted index is calculated by summing the total market cap of all the stocks in the index. A free float-adjusted market capitalization index is adjusted for the amount of stock that is actually available to the public, and it is considered the best index type because it is the most representative of what an investor could achieve. The primary bias of these indices is that large-cap, possibly mature and/or overvalued firms are overrepresented in the index. These indices can also be less diversified and contain stocks in proportions that are unavailable to investors subject to maximum holdings restrictions.

In an equal-weighted index, all stock returns are given the same weight. Its bias is that it favors small-cap companies. Tracking this index also requires costly periodic rebalancing and exposure to illiquid stocks.

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LOS 27.e
In the United States, a mutual fund's value (as calculated using the net asset value) is typically only provided once a day, at the end of the day, when trades are executed. In contrast, an ETF trades throughout the day. ETFs do not have to maintain recordkeeping for shareholders, whereas mutual funds do. These expenses can be significant, especially if the fund has many small shareholders. Index mutual funds usually pay lower license fees than ETFs pay to Standard & Poor’s and other index providers.

ETFs are generally more tax efficient than index mutual funds. Typically, when an investor wants to liquidate their ETF shares, they sell to another investor, which is not a taxable event for the ETF. In an index mutual fund, redemptions typically involve a sale of the underlying securities for cash, which is a taxable event that is passed on to shareholders.

The costs of holding an ETF long-term are typically lower than that for an index mutual fund. The management fees and taxes from the sale of securities in an ETF are usually much lower than that for a mutual fund. Indexed institutional portfolios may be managed as separate or pooled accounts. In a pooled account, the indexed portfolio is combined (pooled) with others under one manager rather than each portfolio being managed by a separate manager. Comparing indexed institutional portfolios against both index mutual funds and ETFs, the former have lower management costs.

The most popular equity index future in the United States is the contract based on the Standard & Poor’s 500. There are also futures contracts on a variety of global indices.

Compared to ETFs, equity futures have two disadvantages. First, futures contracts have a finite life and must be periodically rolled over into a new contract. Second, using basket trades and futures contracts in combination for risk management can be problematic because a basket may not be shorted if one of the components violates the uptick rule.

In an equity total return swap, an investor typically exchanges the return on an equity security or an interest rate for the return on an equity index. Portfolio rebalancing using swaps can often be performed more cheaply than trading in the underlying stocks. There may also be tax advantages to equity swaps, if the swap dealer is responsible for the tax payments and is in a more favorable tax position.

LOS 27.f
Full replication, where all the stocks in an index are purchased, is more appropriate for smaller indices when the index stocks are liquid and when the manager has more funds to invest. The advantage of replication is that there is low tracking risk and the portfolio only needs to be rebalanced when the index stocks change or pay dividends.

In stratified sampling, the manager chooses stocks to match the index using two or more dimensions. Stratified sampling is more appropriate when the number of stocks in the index is large and/or the stocks are illiquid.

Optimization uses a factor model to match the factor exposures of the index. It accounts for the covariances between the risk factors, but the risk sensitivities may change through time. It may also provide misleading results and lead to frequent rebalancing. An optimization approach, however, leads to lower tracking risk than stratified sampling.
LOS 27.g
There are three main categories of investment style: value, growth, and market-oriented.
- A value investor focuses on stocks with low price multiples (e.g., P/E ratio, P/B ratio).
- A growth investor favors stocks with high past and future earnings growth.
- Market-oriented investors cannot be easily classified as value or growth.

The differentiation between a value and a growth manager is often not clear. The current P/E ratio can be low because the market hasn’t yet recognized the stock’s potential. Based on the P/E ratio, it appears to be a value stock, but based on expectations, it appears to be a growth stock.

LOS 27.h
Value investors focus on the numerator in the P/E or P/B ratio, desiring a low stock price relative to earnings or book value of assets. A value investor must realize that there can be a good reason why the stock is priced so cheaply.

Growth investors focus on the denominator in the P/E ratio, searching for firms and industries where high expected earnings growth will drive the stock price up even higher. The risk for growth investors is that the earnings growth does not occur, the price-multiple falls, and stock prices plunge.

The term market-oriented investing is used to describe investing that is neither value nor growth. It is sometimes referred to as blend or core investing. The risk for a market-oriented manager is that she must outperform a broad market index or investors will turn to lower cost indexing strategies.

Investors can also be classified by the market cap of their stocks. Small-cap investors believe smaller firms are more likely to be underpriced than well-covered, larger cap stocks. They might also believe that small-cap stocks are likely to have higher growth in the future. Mid-cap investors believe that stocks of this size may have less coverage than large-cap stocks but are less risky than small-cap stocks. Large-cap investors believe that they can add value using their analysis of these less risky companies.

LOS 27.i
Style can be identified using either returns-based style analysis or through examination of an investor’s holding using a holdings-based style analysis. In returns-based style analysis, the returns on a manager’s fund are regressed against the returns for various security indices (e.g., large-cap value stocks, small-cap value stocks). The regression coefficients, which represent the portfolio’s exposures to the asset classes, are constrained to be nonnegative and to sum to one. The security indices used in the regression should be mutually exclusive, be exhaustive in the sense that all the manager’s exposures are represented, and represent distinct, uncorrelated sources of risk.

From the regression, we are also provided with the coefficient of determination ($R^2$), which provides the amount of the investor’s return explained by the regression’s style indices. It measures the style fit. One minus this amount indicates the amount unexplained by style and due to the manager’s security selection.
Holdings-based style analysis evaluates portfolio characteristics using the following attributes: value or growth, expected earnings growth, earnings volatility, and industry representation. Returns-based style analysis has the advantage of being a low cost, quick, and consistent method of characterizing an entire portfolio. Its disadvantages are that it may lead to misleading results if misspecified, and it may detect style changes slowly. Holdings-based style analysis has the advantage that it can characterize individual securities and will detect style changes more quickly than returns-based analysis. Its disadvantage is that it subjectively classifies securities, requires more data, and is not consistent with how most managers invest.

**LOS 27.j**

There are three different methods used to assign a security to either a value or growth index. In the first method, the stock is assigned to value or growth. In the second method, the stock can be assigned to value, growth, or to a third neutral category. In the third method, a stock can be split between categories.

Viewing style as a category means that there will be no overlap when a style index is constructed (i.e., an individual security will be assigned to only one style). Viewing style as a quantity means that there will be overlap.

Most indices are constructed with no overlap. Additionally, most indices have just two categories: value and growth (i.e., no neutral category). Another distinguishing characteristic among index methodologies is the presence of buffering. When an index has buffering rules, a stock is not immediately moved to a different style category when its style characteristics have changed slightly.

**LOS 27.k**

A style box is a method of characterizing a portfolio’s style. Morningstar uses holdings-based style analysis to classify securities. The Morningstar style box for a hypothetical small-cap value fund is shown below. The numbers in each cell represent the percent of the fund’s market cap in each category (total of the cells = 100%).

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Core</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-cap</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Mid-cap</td>
<td>17%</td>
<td>12%</td>
<td>1%</td>
</tr>
<tr>
<td>Small-cap</td>
<td>60%</td>
<td>5%</td>
<td>2%</td>
</tr>
</tbody>
</table>

**Style drift** is when a portfolio manager strays from his original stated style objective. There are two reasons why this can be problematic for an investor. First, the investor will not receive the desired style exposure. This is a concern because value and growth stocks will perform quite differently over time and over the course of business cycles. Second, if a manager starts drifting from the intended style, they may be moving into an area outside their expertise.

**LOS 27.1**

Socially responsible investing (SRI), also known as ethical investing, is the use of ethical, social, or religious concerns to screen investment decisions. The screens can be negative, where the investor refuses to invest in a company they believe is unethical; or positive, where the investor seeks out firms with ethical practices.
An SRI screen may have an effect on a portfolio’s style. For example, some screens exclude basic industries and energy companies, which typically are value stocks. SRI portfolios thus tend to be tilted toward growth stocks. SRI screens have also been found to have a bias toward small-cap stocks.

**LOS 27.m**

Long-only strategies focus on using fundamental analysis to find undervalued stocks. In contrast, long-short strategies focus on exploiting the constraints many investors face. Specifically, many investors are unable to take short positions, which may lead to overvalued stocks.

Whereas long-only strategies can only buy undervalued stocks and avoid overvalued stocks, long-short strategies can both buy undervalued stocks and short overvalued stocks. In essence, the long-short strategy can earn two alphas, one on long positions and one on short sales. A long-only strategy can only earn the long alpha through security selection (the excess return relative to its benchmark).

A long-only investor is potentially exposed to both systematic and unsystematic risk. In contrast, the long-short investor can eliminate expected systematic risk by using a pair trade (also known as pairs arbitrage) in a market neutral strategy. In a pair trade, the investor buys one stock and shorts another in the same industry, thus eliminating exposure to market-wide risk.

The reasons for pricing inefficiencies on the short side of equity trades include impediments to short sales, management is more likely to promote the firm’s stock, analysts are more likely to issue buy recommendations than sell recommendations, and the pressure analysts face from management against issuing sell recommendations.

**LOS 27.n**

A long-short strategy in the same industry has no systematic risk. An investor may, however, wish to add systematic risk to the market neutral strategy to earn a higher return. This can be established by taking a long position in equity futures.

A market neutral strategy can also be equitized using ETFs. ETFs may be more cost effective and convenient than futures contracts. ETFs do not expire like futures contracts, so they don’t have to be rolled over. They also have low expenses and are usually available for shorting.

In a short extension strategy, the manager shorts an amount of securities equal to a set percentage of his long portfolio and then purchases an equal amount of securities. For example, in a 120/20 short extension strategy, the manager shorts an amount of securities equal to 20% of the market value of the long portfolio and then purchases an equal amount of stocks.

In a market neutral strategy, the manager ends up with zero market exposure and can only add such an exposure with futures, swaps, etc. In a short extension strategy, the manager shorts a percentage of stocks, goes long that same percentage in other stocks, and needs no other position to gain exposure to market factors.
LOS 27.o

Substitution is replacing an existing security with another that has brighter prospects. Considering the transactions costs and tax consequences of the sale of the existing security and the purchase of the new security, this approach is referred to as an opportunity cost sell discipline. After careful research, a manager may also conclude that a firm’s business will worsen in the future. This is referred to as a deteriorating fundamentals sell discipline.

Other more technical selling disciplines are based on rules. For example, in a valuation-level sell discipline, a value investor may sell a stock if its P/E or P/B ratio rises to the ratio’s historical mean. In a down-from-cost sell discipline, the manager may sell a stock if its price declines more than say 20% from the purchase price. In an up-from-cost sell discipline, the manager may sell a stock once it has increased, for example, either a percentage or a dollar amount from the purchase price. In a target price sell discipline, the manager determines the stock’s fundamental value at the time of purchase and later sells the stock when it reaches this level.

LOS 27.p

In a stock-based enhanced indexing strategy, the manager uses analysis to underweight or overweight index stocks and controls risk by monitoring factor risk and industry exposures. In a derivatives-based enhanced indexing strategy, the manager may take a long position in an equity futures contract and earn an excess return by altering the duration of the cash position.

The limitations to enhanced indexing are that successful managers’ alpha will be competed away, and models obtained from historical data may not be applicable to the future.

The fundamental law of active management states that an investor’s information ratio is a function of their depth of knowledge and the number of independent investment decisions. More formally, \( IR \approx IC/\sqrt{Nb} \). Enhanced indexed strategies can produce higher information ratios because the investor can apply his knowledge to a large number of securities.

LOS 27.q

The equity investment decision focuses on the trade-off between active risk and active return. Investors are usually more risk averse when facing active risk than they are when facing total risk.

The investor must decide how much active risk they are willing to accept and what the best combination of equity managers is to achieve that active risk while maximizing active return.

In the first step in deciding how much equity to allocate to a group of equity managers, the investor will want to maximize the utility of their active return. The utility function for active return is similar to the utility function for expected return. The utility of the active return increases as active return increases, as active risk decreases, and as the investor’s risk aversion to active risk decreases. Next, given their utility function, the investor needs to investigate the performance characteristics of available equity managers. An efficient frontier analysis is useful here, except instead of using expected return and risk, this efficient frontier plots expected active return and active risk using combinations of available equity managers.
LOS 27.r
In a core-satellite approach to managing active equity managers, the investor has a core holding of a passive index and/or an enhanced index that is complemented by a satellite of active manager holdings. The idea behind a core-satellite approach is that active risk is mitigated by the core, while active return is added by the satellites. The core is benchmarked to the asset class benchmark, whereas the satellites are benchmarked to a more specific benchmark.

To minimize the differences in risk exposures between the portfolio and the benchmark, the investor can use a completeness fund. The completeness fund complements the active portfolio so that the combined portfolios have a risk exposure similar to the benchmark. The advantage of the completeness fund approach is that the active return from the managers can be maintained while active risk is minimized. The completeness fund must be rebalanced regularly as the active manager’s exposures change. The fund can be managed passively or semiactively.

The disadvantage of a completeness fund is that it may result in a reduction of active returns arising from misfit risk (see LOS 27.s).

LOS 27.s
We can decompose the manager’s total active return into two parts: the true and misfit portions. The true active return is true in the sense that it measures what the manager earned relative to the correct, normal benchmark. The misfit active return is misfit in the sense that it measures that part of the manager’s return from using a benchmark that is not suited to the manager’s style. The decompositions are as follows:

\[
\text{true active return} = \text{manager’s total return} - \text{manager’s normal portfolio return}
\]

\[
\text{misfit active return} = \text{manager’s normal portfolio return} - \text{investor’s benchmark return}
\]

\[
\text{total active risk} = \sqrt{(\text{true active risk})^2 + (\text{misfit active risk})^2}
\]

The true and misfit decomposition allows a more accurate evaluation of the manager’s performance by using the true information ratio:

\[
\text{true information ratio} = \frac{\text{true active return}}{\text{true active risk}}
\]

LOS 27.t
In an alpha and beta separation approach, the investor gains a systematic risk exposure (beta) through a low-cost index fund or ETF, while adding an alpha through a long-short strategy. This strategy may be particularly suitable for markets that are highly efficient and difficult to generate an alpha from.

For example, the investor may pick up a beta exposure in an S&P 500 index fund. The investor could pick up alpha by hiring a manager who specializes in long-short strategies in less efficient small-cap markets. If the manager decides to take a different index exposure, she could keep the small-cap alpha and pick up the beta exposure in some index (e.g., a MSCI World Index ETF). This strategy is an example of a portable alpha strategy.
LOS 27.u
Selecting investment managers involves both qualitative and quantitative considerations. Qualitative considerations are the strength of the firm’s investment approach and research as well as the manager’s personnel. Quantitative considerations include the manager’s fees, performance, and style.

Though past performance is no guarantee of future performance, managers with poor performance are unlikely to be hired. A manager who achieves superior performance with a consistent staff and investment philosophy is more likely to be hired.

There are five sections of the manager questionnaire: staff and organizational structure, investment philosophy and procedures, resources and research utilization, performance, and fee schedule.

Fees can be charged on an ad valorem basis or performance-based. The former is straightforward and known in advance. Performance-based fees are more complicated but align the interests of the manager and investor.

LOS 27.v
In a top-down approach, investors begin their investment process by examining an economy to determine its future state. If, for example, the investor determines the economy is going to expand, cyclical stocks would be favored. Next, specific firms within cyclical industries are examined for attractiveness. Using a global perspective, the investor would also look at global economic factors and the projections for currencies.

In a bottom-up approach, the investor starts at the individual stock level. Stocks are chosen on the basis of their individual characteristics and valuation. For this type of investor, macroeconomic and industry conditions are not as important.
CONCEPT CHECKERS

1. Is there any historical evidence to suggest that bonds might be a better long-term investment than equities?

2. Many U.S. media outlets have recommended investing in global stocks because there may be more opportunities to exploit mispriced stocks. Identify the conditions under which this advice would be correct.

3. A market-value weighted index is considered the most representative of market conditions, especially when it is adjusted for free float. Some practitioners, however, have suggested moving away from this weighting scheme to one based on fundamentals such as the price-earnings ratio. Explain their reasoning.

4. Suppose a taxable investor has a large amount to invest and would like to invest long term. Would he be more likely to use an ETF or an index mutual fund?

5. A manager would like to create a fund that tracks the performance of a prominent developed and emerging country European index. There are 1,500 stocks in the index. The manager has $10 million initially to invest. Should the manager use replication, stratified sampling, or optimization?
6. Many researchers have found that value stocks have higher returns than growth stocks, on average over time. What would market efficiency proponents say about this performance differential?

7. An analyst wants to evaluate a manager who claims that she invests in mid-cap value stocks. The analyst uses both returns-based style analysis and holdings-based style analysis.

Explain why the manager would pursue these stocks. Describe the indices the analyst should include in the returns-based style analysis. Describe the expected characteristics using the holdings-based style analysis.

8. A manager’s portfolio has gradually shifted from high P/E, high P/B, and high earnings growth rate stocks into stocks with more moderate levels of the variables. Discuss the problem with this movement.

9. Describe the potential style bias in socially responsible portfolios.

10. Explain how a pair trade can go awry.

11. Why would an investor want to equitize a long-short portfolio?
12. Manager A has made independent forecasts for 450 stocks. Her IC is 0.03.
Manager B has made independent forecasts for 200 stocks. His IC is 0.05.
Which manager has the better performance as measured by the information ratio?

13. Are investors more risk averse when facing total risk or active risk? Explain why.

14. An investor uses a core-satellite approach to allocate funds amongst equity managers. The equity manager’s active risk, active return, and allocations are shown as follows.

<table>
<thead>
<tr>
<th>Expected Active Return</th>
<th>Expected Active Risk</th>
<th>Allocations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive Index</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Enhanced Indexing</td>
<td>1.70%</td>
<td>2.50%</td>
</tr>
<tr>
<td>Active Manager X</td>
<td>1.90%</td>
<td>3.00%</td>
</tr>
<tr>
<td>Active Manager Y</td>
<td>3.30%</td>
<td>5.50%</td>
</tr>
<tr>
<td>Active Manager Z</td>
<td>3.90%</td>
<td>7.20%</td>
</tr>
</tbody>
</table>

Describe the investor’s core. Calculate the investor’s active return, active risk, and information ratio given the above allocations. Assume that the correlations between the equity managers’ active returns are zero.
15. Using the following figures, evaluate the manager’s performance.

<table>
<thead>
<tr>
<th>Manager return</th>
<th>15.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investor's benchmark</td>
<td>11.0%</td>
</tr>
<tr>
<td>Normal portfolio return</td>
<td>8.0%</td>
</tr>
<tr>
<td>Total active risk</td>
<td>5.2%</td>
</tr>
<tr>
<td>Misfit active risk</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

16. An investor has a position with a successful small-cap growth manager. The investor would like to separate the alpha and beta and pick up the beta in less risky large-cap U.S. stocks. The investor is restricted from investing in long-short managers. Explain how the investor could separate the alpha and beta.

17. Describe what a compensation schedule with high water marks does for investment manager motivation.

18. Maria Castillo is an investment manager who is promoting the Japanese equity market to her investment management committee because she forecasts that the Japanese economy is finally rebounding from a decade long slump. She also thinks the Japanese yen will stay strong relative to other major currencies. What type of investment approach is Castillo using?
ANSWERS – CONCEPT CHECKERS

1. No. Using 106 years of data, equities have had higher returns than bonds in 17 countries. Equities have also had consistently positive real returns in 17 countries over 106 years. Bonds are poor inflation hedges.

2. This advice would be correct if the U.S. investor or her portfolio manager can gain access to the same information that investors have in the country they are considering. This may difficult to achieve. Additionally, smaller cap markets typically have higher transactions costs. The investor should be sure that the higher transactions costs in these markets do not offset the potentially higher returns.

For these reasons, the U.S. investor may want to consider a passive indexing strategy in these markets.

3. A value-weighted index may overweight overvalued stocks because the overvalued stocks will have a higher market cap. By weighting by price-earnings ratio, these practitioners hope to avoid overweighting overvalued stocks. Stocks with high price-earnings ratios would have lower weights in such an index.

4. The large investor would be more likely to use an ETF because in a mutual fund, he would pay record-keeping costs for smaller investors. Given that the investor pays taxes, an ETF would be more appropriate because there are fewer taxes realized that are passed on to shareholders. If they are a long-term investor, they are more likely to use ETFs because in a mutual fund, they would pay for the costs of supplying liquidity to shorter-term investors.

5. Given that there are 1,500 stocks, the manager should consider a method other than replication. Furthermore, the manager has only $10 million to invest and many of the stocks, especially in the emerging countries, are likely to be illiquid.

Optimization will provide lower tracking risk compared to stratified sampling, but it requires more frequent rebalancing. If tracking risk is not highly important, the manager may want to consider stratified sampling since the trading costs in some emerging countries can be particularly high. Stratified sampling also does not require or depend on the use of a model.

6. Market efficiency proponents would argue that these stocks have higher returns because investors expect their risk to be higher. As such, they have lower prices and the higher future returns (on average) are compensation for the increased risk.

Indeed, the risk for value investors is that these stocks' low prices are justified (i.e., their weak earnings never recover). The value investor must have an expectation of how and when these stocks will recover before he invests in them.

7. The manager would pursue mid-cap stocks because mid-cap stocks may have less coverage than large-cap stocks but are less risky than small-cap stocks. Value stocks have excess returns on average over time, but the manager must understand that these stocks may be priced cheaply for a reason (i.e., they have higher risk).

The analyst should include six indices for the returns-based style analysis: value and growth indices for small-, mid-, and large-cap stocks. This will help identify if the manager has any exposure to growth or to other capitalization stocks.
From the holdings-based style analysis for the mid-cap value manager, the manager should expect low P/E and P/B ratios, below-average expected earnings growth, higher earnings volatility, and representation in the financial and utility industries. The manager should also find a market cap that reflects mid-cap.

8. The manager's style is drifting. The portfolio is shifting from a growth orientation into a market orientation. When a manager's style drifts, the investor does not receive the intended exposure and the manager moves outside his area of expertise.

9. Socially responsible portfolios have a potential bias towards growth stocks because they tend to shun basic industries and energy stocks, which are typically value stocks. Socially responsible portfolios also have a bias towards small-cap stocks.

10. A pair trade can go awry if the stock that was shorted rises in price and the stock that was bought decreases in price. The probability of a pair trade performing poorly increases if the investor uses leverage, receives a margin call, and has to liquidate the position early at adverse prices.

11. An investor would equitize a long-short portfolio if she thought the stock market was going to do well in the future. A market neutral strategy has no systematic risk, but a broad market exposure can be added by taking a long position in a futures contract, index fund, or an ETF. Note that exposures to other asset classes can also be added using an index security for them.

12. The approximate information ratio for each manager is:

   \[ IR_A = 0.03 \sqrt{450} = 0.64 \]
   \[ IR_B = 0.05 \sqrt{200} = 0.71 \]

Manager B's depth of knowledge is greater, which accounts for his greater information ratio.

13. Investors are more risk averse when facing active risk. To obtain an active return—a return higher than a passive benchmark—the investor must accept active risk. To believe that an active return is possible, the investor must believe that there are active managers who can produce it and that the investor will be able to pick those successful managers. Second, an active equity style will also be judged against a passive benchmark. It is difficult to generate alpha and those who don't face pressure from their superiors. Lastly, higher active returns mean that more is invested with the high return active manager, and this results in less diversification.

14. The investor has a core of 15% passive equity and 45% enhanced indexed funds for a total core of 60%. The satellites are 25%, 10%, and 5% around the core.

The investor's active return is calculated as a weighted average return:

\[
\text{expected active portfolio return} = (0.15 \times 0\%) + (0.45 \times 1.7\%) + (0.25 \times 1.9\%) + (0.10 \times 3.3\%) + (0.05 \times 3.9\%) = 1.77\%
\]
To calculate the portfolio active risk, we use the active risks and allocations:

portfolio active risk

\[
= \sqrt{(0.15)^2(0.025)^2 + (0.25)^2(0.03)^2 + (0.10)^2(0.055)^2 + (0.05)^2(0.072)^2}
\]

\[
= \sqrt{0.000226} = 0.0150 = 1.50\%
\]

The investor’s information ratio is then: 1.77% / 1.50% = 1.18.

15. The manager’s style (as measured by the normal portfolio) underperformed the investor’s benchmark by 3% (8% – 11%). But the manager outperformed the normal portfolio by 7% (15% – 8%). We use this true active return of 7% to more accurately evaluate the manager. More formally:

true active return = 15% - 8% = 7%

misfit active return = 8% - 11% = -3%

The true active risk is backed out of the total and misfit risk:

total active risk = \sqrt{(true active risk)^2 + (misfit active risk)^2}

5.2% = \sqrt{(true active risk)^2 + (3.8%)^2}

true active risk = 3.55%

The manager’s performance generates a true information ratio of:

true information ratio = \frac{7%}{3.55%} = 1.97

16. To separate the alpha and beta, the investor could pick up the desired beta by taking a long position in a large-cap U.S. equity index futures contract, such as the S&P 500 contract. To create the market-neutral alpha, the investor would then short a small-cap growth equity index futures contract.

17. If a high water mark feature is in a compensation plan, which is a performance-based fee, the manager must make up poor past performance with superior performance before they receive performance-based compensation. This is a one-sided performance-based fee similar to a call option to the investment manager. A performance-based fee can also be viewed as being symmetric in that bad performance is penalized and good performance is rewarded. The symmetry of the compensation should motivate the manager to work harder on the investor’s behalf.

18. Castillo is using a top-down approach. She starts at the top of the economy to determine its prospects before moving down to the individual stock level.
The following is a review of the Equity Portfolio Management principles designed to address the learning outcome statements set forth by CFA Institute. This topic is also covered in:

**CORPORATE PERFORMANCE, GOVERNANCE AND BUSINESS ETHICS**

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**EXAM FOCUS**

This topic review discusses the various stakeholders who have an interest in the company as well as the principal-agent relationship problems that lead to business ethics violations. It lends itself to an item set or part of an item set testing recall of what was stated. A random, short, constructed response question is also possible.

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**PROBLEMS IN ETHICS**

Problems with business ethics are not new and neither are the consequences for society. The scandals and bankruptcies of the 2000s were just the latest round of such misbehavior. Corporate governance is a system designed to minimize ethics problems and address the underlying cause of problems in business ethics, the principal-agent relationship.

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**Stakeholders**

**LOS 28.a:** Compare interests of key stakeholder groups and explain the purpose of a stakeholder impact analysis.

Stakeholders are groups with an interest or claim in the underlying company. The stakeholders can be internal or external to the company, but in both cases, they make necessary contributions to the company, and the company must consider their interests and offer inducements to receive their continued support.

Key internal stakeholders are:

- **Stockholders** are a unique stakeholder and some argue the most important because they supply the risk capital which supports the business. While the returns to stockholders can be substantial, stockholders can also lose their entire investment. This is an unfortunate outcome often linked to severe lapses in business ethics. In many countries, the company has a legal obligation to maximize shareholder value and act in their best interests. If dissatisfied, shareholders can sell their shares and refuse to provide new equity capital.
• Employees look to the company for compensation in exchange for labor. They seek immediate compensation as well as stability and growth in compensation. They generally have considerable ability to disrupt the company if dissatisfied. They can quit, strike, disrupt work, or otherwise withhold support.
• Managers are also employees but they enjoy a substantial, asymmetric information advantage that can lead to significant problems in the principal-agent relationship. At the executive level there is considerable opportunity to enrich their own self-interest at the expense of the company and other stakeholders (more to come on this issue).
• Members of the board of directors should monitor and evaluate the performance of the senior managers of the company and look out for the best interests of the shareholders. Directors also share in the asymmetric information advantage and risk becoming too close to managers, which can lead to favoring the interest of the managers they should be overseeing. (This should sound very familiar as the principal agent problem covered elsewhere in the curriculum.)

External stakeholders are:
• Customers buy company products, seek product choices, and seek a stable, dependable relationship with the company they are buying the products from. But they also seek lower prices. The desire for product and an ongoing relationship will be consistent with the company’s desire for profits but the lower price goal will not be. If dissatisfied, the customers can stop buying.
• Suppliers also seek stable, long-term relationships, but also want higher prices from the company, which will reduce company profits. If dissatisfied, they can stop supplying the company.
• Creditors are essentially just another supplier, but one which supplies debt capital and is paid in interest. They value stable credit quality from the company.
• Unions are viewed as an external stakeholder representing internal employees. They generally seek higher wages and compensation with potentially excessive negative implications for short-run profits and long-run survivability for the company. The power to strike can be very disruptive.
• Governments provide rules and regulation. They expect compliance. Local communities provide infrastructure and expect good citizenship. The general public also provides infrastructure to the firm in exchange for an increased quality of life due to the existence of the firm. All three groups can disrupt the company’s activities.

RECONCILING INTERESTS AND THE STAKEHOLDER ANALYSIS

In theory, all stakeholders’ long-run best interests are served by maximizing (or at least achieving a reasonable level of) profitability and company growth. In practice, numerous conflicts exist between stakeholders in the short run. Stakeholders compete. Employees and suppliers want the company to grow and survive but also want to be paid more, which lowers company profitability. Even in the long-run it is not easy to reconcile the competing claims. All groups want the company to survive, but each wants a larger share of the benefits.
The purpose of the stakeholder impact analysis (SIA) is to force the company to make choices among the stakeholders and identify which groups are most critical to the company. The SIA should:

- Identify the relevant stakeholders.
- Identify the critical interests and desires of each group.
- Identify the demands of each group on the company.
- Prioritize the importance of various stakeholders to the company.
- Provide a business strategy to meet the critical demands.

Stockholders are unique stakeholders who supply the risk capital that supports the business. They seek immediate return in the form of dividends and growth to supply increasing dividends and stock price. Return on invested capital (ROIC) and growth in profits are arguably the best tools with which to measure the ability of the company to satisfy shareholders and the other stakeholders' demands. Of course return and growth must be maximized while in compliance with laws and regulations. Illegal activities will have severe consequences for the company.

The two goals of ROIC and growth also involve tradeoffs. Excess attention to growth would lead to investment in less-attractive business lines and lower ROIC. However, excess attention to maximizing ROIC leads to ignoring growth opportunity that would produce future profits. In general there is some middle ground between highest and lowest growth that maximizes shareholder and stakeholder value.

Stakeholders are not always in conflict. Many stakeholders are also shareholders. The general public can be shareholders, as are many employees. Employee stock ownership programs (ESOPs) in the U.S. increased the ownership by employees in their employer’s stock. Even when there is conflict between stakeholders, the twin strategy of maximizing ROIC and growth maximizes the funds available for division among the stakeholders. While not minimizing the real conflicts among stakeholders, all are best served by a dual focus on ROIC and growth.

**THE PRINCIPAL-AGENT RELATIONSHIP**

**LOS 28.b:** Discuss problems that can arise in principal-agent relationships and mechanisms that may mitigate such problems.

The principal-agent relationship (PAR) arises when one group delegates decision making or control to another group. PAR can create problems because the group receiving the power (the agent) generally has an asymmetric information advantage over the group making the delegation (the principal). The PAR problem begins if the agent uses the information advantage for their own best interests to the detriment of the interests of the principal. It is compounded as the asymmetric information makes it difficult for the principal to know enough to detect the problem and evaluate the agent’s actions.

Modern corporations are built on shareholders (principals) who delegate authority to run the business to executive officers of the company (agents). The board of directors is intended to oversee the executives and look out for the interests of the shareholders.
(Hint: this has been covered at all levels of the curriculum as the principal-agent problem [PAP]. Those discussions focused on the directors as agents of the shareholders who should oversee the actions of the company executives and the temptation of the directors to become overly aligned with the interests of the executives.)

The PAR problem between shareholders and executives compounds when senior executive officers delegate authority to additional officers who report to them. At each delegation, the asymmetric information advantage will arise with the potential for more PAR problems. In each case, the agent has incentives to exploit the information for improper personal gain. To illustrate:

- CEOs can enjoy on-the-job consumption in the form of excessive corner offices or lavish travel that is passed off as a necessary business expense.
- CEOs can manipulate the board of directors for excessive compensation packages. A Business Week survey in the U.S. showed that in 1980 the average CEO earned 42 times more than what the average blue-collar worker earned. By 2006 this had increased to the average CEO earning more than 350 times the average blue-collar worker's pay. Unfortunately, the studies do not show a link between rising compensation ratios and company performance.
- Executives seek status by expanding the business (empire building) through acquisitions that do not benefit the existing shareholders. Company size has been strongly linked to executive compensation.

**CONTROLLING PAR PROBLEMS**

Principals should develop corporate governance procedures that:

- Affect the behavior of agents by setting goals and principals of behavior.
- Reduce the asymmetry of information.
- Remove agents who misbehave and violate ethics.

**ETHICS AND STRATEGY**

Common examples of unethical behavior include:

- **Self-dealing** when agents convert corporate funds to personal use.
- **Information manipulation** such as misleading financial information or hiding a health risk created by the company.
- **Anticompetitive behavior** in pursuit of monopoly power. Even if legal, it is unethical.
- **Opportunistic exploitation** of suppliers or distributors in violation of negotiated terms when it is believed they will not have the power to resist.
- **Substandard working conditions** imposed on employees.
- **Environmental degradation** of society’s resources through pollution or improper use of resources.
- **Corruption** using bribery to gain illegal advantage.
ROOTS OF UNETHICAL BEHAVIOR

LOS 28.c: Discuss roots of unethical behavior and how managers might ensure that ethical issues are considered in business decision making.

Unethical behavior arises from:

- Agents whose personal ethics are flawed are more likely to violate business ethics. Strong personal ethics will likely lead to good business ethics.
- A simple failure to realize an issue may lead to an ethics violation. Asking whether each decision has ethical implications will encourage business ethics.
- A culture focused only on profit and growth. Asking if it is ethical and profitable will encourage business ethics.
- A flawed business culture where top management sets unrealistic goals leads to ethics violations. Management must communicate that ethical behavior is expected.
- Unethical leadership will set the tone and lead to violations. Ethical leadership formulates and communicates expectations that include sound ethical behavior.

Good business ethics and governance are important. Managers who act unethically and illegally can harm or destroy the company. Unethical behavior, even if legal, can harm the business. Nike came under severe criticism from the public and customers for outsourcing production to independent suppliers who were alleged to subject employees to poor and dangerous working conditions. All of Nike’s actions, and often those of the independent suppliers, were legal in their respective countries, but Nike took steps to develop and enforce ethical standards applicable to both Nike and the suppliers in order to protect the value of Nike’s business.

Various stakeholders have rights that the company must respect. Stockholders are entitled to timely, accurate reporting, as are governments. Suppliers, including employees, can expect contractual obligations to be met. Society can expect adherence to environmental and other regulations. Others argue that business ethics must extend beyond these basics to encompass noblesse oblige. This term encompasses the notion that those who benefit most from society, in this case successful businesses, have an obligation to make contributions back to society.

PHILOSOPHIES UNDERLYING BUSINESS ETHICS

LOS 28.d: Compare the Friedman doctrine, Utilitarianism, Kantian Ethics, and Rights and Justice Theories as approaches to ethical decision making.

The Friedman Doctrine. Milton Friedman has added to the modern debate on business ethics. He narrowly addresses the social responsibility of business (not business ethics) and concluded the only social responsibility is to increase profits “within the rules of the game,” meaning through “open and fair competition without deception or fraud.” Others argue that his inclusion of the caveat to follow the rules of the game moves his
Comments into the realm of business ethics but that his assertion is flawed. When law, regulation, and the rules of the game are poorly defined (such as Nike's use of off-shore suppliers with substandard labor and environmental standards) ethics requires more than profits.

Other philosophies that precede the Friedman doctrine include:

**Utilitarianism** argues business must weigh the consequences to society of each of their actions and seek to produce the highest good for the largest number of people. Modern cost-benefit analysis is an application of this principal. The flaws of this philosophy include that many costs and benefits of actions are difficult to measure. In addition, utilitarianism fails to consider that justice as the greatest good for the many could come at the expense of exploiting a smaller subgroup.

**Kantian ethics** argue that people are different from other factors of production. They are more than just an economic input and deserve dignity and respect. This argument is widely accepted but not sufficient to be a complete philosophy.

**Rights theories** argue that all individuals have fundamental rights and privileges. The greatest good of utilitarianism cannot come in violation of the rights of others. Further, managers must have a moral compass, a personal sense of right and wrong, recognizing that their rights impose an obligation to protect the rights of others. Even if an action such as sweatshop labor is legal, it may violate fundamental rights and be unethical.

**Justice theories** focus on a just distribution of economic output. John Rawls argued that justice is met if all participants would agree the rules are fair if the results would be acceptable when decided under a "veil of ignorance." In other words, participants will not know what results they will personally receive ahead of time. Instead, they agree to rules and that whatever the personal results to themselves, the results are fair.

Justice theories begin with political liberty, encompassing the right of free speech and to vote, and extend to issues of society's division of wealth and income. They recognize unequal divisions of wealth and income may be acceptable under the *differencing principal*, which holds the unequal division must benefit the least-advantaged members of society. Consider the earlier discussion of production outsourced to independent suppliers. Substandard conditions for the workers of those suppliers can be argued as being just, if it is an improvement in those workers' standard of living. The veil of ignorance would be the appropriate test of whether the actions are ethical. Under this standard it is difficult to conceive that members of society would argue in favor of displacing existing domestic jobs into foreign jobs with dangerous and toxic conditions knowing they would not want to work in those jobs themselves.

The veil of ignorance does appear to be a useful tool for managers who must make ethical decisions requiring difficult tradeoffs.
ACTIONS IN PURSUIT OF ETHICAL BEHAVIOR

Managers can pursue seven steps to further ethical behavior:

*Step 1:* Hire and promote those with strong personal and business ethics (a sound moral compass). Psychological testing and careful review of past employment can help reveal these individuals.

*Step 2:* Build an organization and culture that value highly ethical behavior. This must include: explicitly stating that ethical behavior is required, employing leaders who continually emphasize the necessity of highly ethical behavior, and promote those who act ethically and sanction those who do not.

*Step 3:* Select leaders who will implement #2.

*Step 4:* Establish a systematic decision process that incorporates a moral compass, rights theory, and Rawls's theory of justice. Then turn this process into a series of yes or no decision tools such as:
  - Does this decision meet our code of ethics and standards?
  - Am I willing to have this decision widely reported to stakeholders and the press?
  - Would others whose opinion I value, respect and approve of this decision?

*Step 5:* Appoint ethics officers who articulate, propose, train, monitor, and revise a code and behavior.

*Step 6:* Establish strong corporate governance procedures that include:
  - A majority of the board of directors are independent, outside, knowledgeable members of high integrity.
  - The chairman and CEO positions are held by separate individuals with the chairman an independent, outside director.
  - The compensation committee is made up exclusively of independent, outside directors.
  - The board should retain outside auditors with no conflicts of interest (such as also providing consulting services to the company).

*Step 7:* Show moral courage by supporting managers who make tough decisions consistent with good business ethics, even at the expense of short-term profits.

Acting ethically is not simple or easy, but it is good business.
KEY CONCEPTS

LOS 28.a
Key internal stakeholders are:
- Stockholders supply the risk capital, which supports the business and seek a positive return on their investment.
- Employees look to the company for compensation in exchange for labor.
- Managers are also employees who have been delegated authority to run the business by the shareholders. At the executive level there is considerable opportunity to enrich their own self-interest at the expense of the company and other stakeholders.
- Members of the Board of Directors are intended to monitor and evaluate the performance of the senior managers of the company and look out for the best interests of the shareholders.

External stakeholders are:
- Customers buy company products, seek product choices, and seek a stable, dependable relationship with the company they are buying the products from. But they also seek lower prices.
- Suppliers also seek stable, long-term relationships but also want higher prices from the company, which will reduce company profits.
- Creditors are essentially just another supplier, but one which supplies debt capital and is paid in interest. They value stable credit quality from the company.
- Unions are viewed as an external stakeholder representing internal employees. They generally seek higher wages and compensation with potentially excessive negative implications for short-run profits and long-run survivability for the company.
- Governments provide rules and regulation. They expect compliance. Local Communities provide infrastructure and expect good citizenship. The general public also provides infrastructure to the firm in exchange for an increased quality of life due to the existence of the firm.

The purpose of the stakeholder impact analysis (SIA) is to force the company to make choices among the stakeholders and identify which groups are most critical to the company. The SIA should:
- Identify the relevant stakeholders.
- Identify the critical interests and desires of each group.
- Identify the demands of each group on the company.
- Prioritize the importance of various stakeholders to the company.
- Provide a business strategy to meet the critical demands.

LOS 28.b
The principal-agent relationship (PAR) arises when one group delegates decision making or control to another group. PAR can create problems because the group receiving the power (the agent) generally has an asymmetric information advantage over the group making the delegation (the principal). The PAR problem begins if the agent uses the information advantage for their own best interests to the detriment of the interests of the principal. Modern corporations are built on shareholders (principals) who delegate authority to run the business to executive officers of the company (agents). The Board of Directors is intended to oversee the executives and look out for the interests of the shareholders.

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Principals should develop corporate governance procedures that:
• Affect the behavior of agents by setting goals and principals of behavior.
• Reduce the asymmetry of information.
• Remove agents who misbehave and violate ethics.

LOS 28.c
Unethical behavior arises from:
• Agents whose personal ethics are flawed are more likely to violate business ethics. Strong personal ethics will likely lead to good business ethics.
• A simple failure to realize an issue may lead to an ethics violation. Asking whether each decision has ethical implications will encourage business ethics.
• A culture focused only on profit and growth. Asking if it is ethical and profitable will encourage business ethics.
• A flawed business culture where top management sets unrealistic goals leads to ethics violations. Management must communicate that ethical behavior is expected.
• Unethical leadership will set the tone and lead to violations. Ethical leadership formulates and communicates expectations that include sound ethical behavior.

LOS 28.d
The Friedman Doctrine narrowly addresses the social responsibility of business (not business ethics) and concluded the only social responsibility is to increase profits “within the rules of the game,” meaning through “open and fair competition without deception or fraud.” Some argue the inclusion of the caveat to follow the rules of the game moves into the realm of business ethics but that Friedman’s assertion is flawed.

Utilitarianism argues business must weigh the consequences to society of each of their actions and seek to produce the highest good for the largest number of people. Modern cost-benefit analysis is an application of this principal. The flaws of this philosophy include that many costs and benefits of actions are difficult to measure. In addition, utilitarianism fails to consider that justice as the greatest good for the many could come at the expense of exploiting a smaller subgroup.

Kantian ethics argues that people are different from other factors of production. They are more than just an economic input and deserve dignity and respect. This argument is widely accepted but not sufficient to be a complete philosophy.

Rights theories argue that all individuals have fundamental rights and privileges. The greatest good of utilitarianism cannot come in violation of the rights of others. Further, managers must have a moral compass, a personal sense of right and wrong recognizing that their rights impose an obligation to protect the rights of others. Even if an action, such as sweatshop labor, is legal, it may violate fundamental rights and be unethical.

Justice theories focus on a just distribution of economic output. John Rawls argued that justice is met if all participants would agree the rules are fair if the results would be acceptable when decided under a “veil of ignorance.” In other words, participants will not know what results they will personally receive ahead of time. Instead, they agree to rules and that whatever the personal results to themselves, the results are fair. Justice theories begin with political liberty, encompassing the right of free speech and to vote, and extend to issues of society’s division of wealth and income. They recognize unequal divisions of wealth and income may be acceptable under the differenting principal, which holds the unequal division must benefit the least-advantaged members of society. The
veil of ignorance would be the appropriate test of whether the actions are ethical. Under this standard, it is difficult to conceive that members of society would argue in favor of displacing existing domestic jobs into foreign jobs with dangerous and toxic conditions, knowing they would not want to work in those jobs themselves.
CONCEPT CHECKERS

1. The purpose of the stakeholder impact analysis can best be described as determining who the stakeholders are and:
   A. the best way to address their needs.
   B. meeting the needs of the most important stakeholders.
   C. operating the firm to meet all stakeholder needs in a profitable manner.

2. Describe the principal-agent problem and three ways to mitigate it.

3. Which of the following is least likely a root cause of unethical behavior observed in businesses?
   A. Agents whose personal ethics are flawed.
   B. A culture focused only on profit and growth.
   C. A business culture where top management sets a profitability goal.

4. Describe the following approaches to ethical decision making: the Friedman doctrine, Utilitarianism, Kantian Ethics, the Rights theories, and Justice theories.
ANSWERS – CONCEPT CHECKERS

1. B The purpose of the stakeholder impact analysis (SIA) is to force the company to make choices among the stakeholders and identify which groups are most critical to the company. Answer A is not wrong but it is very vague. With a better choice available, it is not acceptable. C is incorrect because it is not reasonable to expect to meet all needs, priorities must be set.

2. The principal-agent problem can be described as agents of the company, which are the managers of the company, not acting in a way that achieves the goals of the principals of the company who are the owners or shareholders of the company. In the principal-agent problem agents act in their own best interests. Ways to mitigate the problem is for management to: (1) shape the behavior of agents so their actions are in alignment with the goals of the principals, (2) reduce the asymmetry of information between the agents who have more information about the business and the principals who have less information regarding the business, and (3) implement methods to be able to remove and replace agents who violate the ethical standards of the company.

3. C A and B are root causes of unethical behavior. A management goal of earning a reasonable profit is fundamental to any for profit business. An excessive and unrealistic focus on profit that encourages employees to “cut corners” would be a root cause.

4. The Friedman Doctrine:
   • Addresses the social responsibility of business (not business ethics) by concluding the only social responsibility of businesses is to increase profits “within the rules of the game,” meaning through “open and fair competition without deception or fraud.”
   • Friedman’s assertion is flawed from the standpoint of not fully addressing business ethics since “within the rules of the game” is too vague and broad.

Utilitarianism:
• Business must weigh the consequences to society of each of their actions and seek to produce the highest good for the largest number of people.
• The flaw of this philosophy is that many costs and benefits of actions are difficult to measure. It also fails to consider that justice as the greatest good for the many could come at the expense of exploiting a smaller subgroup.

Kantian ethics:
• That people are different from other factors of production and are more than just an economic input and deserve dignity and respect.
• Not sufficient to be a complete philosophy.

Rights theories:
• All individuals have fundamental rights and privileges.
• The greatest good of utilitarianism cannot come at the expense of violating of the rights of others.

Justice theories:
• Focus on a just distribution of economic output.
• That justice is met if all participants agree the rules are fair if the results are acceptable when decided under a “veil of ignorance”: participants will not know what results they will personally receive ahead of time, they agree to rules and that whatever the personal results to themselves, the results are fair.
Justice theories begin with political liberty, encompassing the right of free speech and to vote, and extend to issues of society's division of wealth and income.

Recognize that unequal divisions of wealth and income may be acceptable under the *differencing principal*, which holds that the unequal division must benefit the least advantaged members of society.

The veil of ignorance would be the appropriate test of whether the actions are ethical. Under this standard, members of society would not argue in favor of displacing existing domestic jobs into foreign jobs with dangerous and toxic conditions.
The following is a review of the Equity Portfolio Management principles designed to address the learning outcome statements set forth by CFA Institute. This topic is also covered in:

**INTERNATIONAL EQUITY BENCHMARKS**

**Study Session 12**

**EXAM FOCUS**

The composition and tracking of international equity benchmarks are discussed in this review. International equity indices have unique characteristics that make tracking them a challenge. For the exam, be able to explain why float, liquidity, reconstitution, crossing, objectivity, and transparency are all critical measures for the portfolio manager to consider. As you read this material, think about how the concepts relate to the emerging markets material in the Level III curriculum.

**FLOAT ADJUSTMENT**

**LOS 29.a: Discuss the need for float adjustment in the construction of international equity benchmarks.**

*CFA® Program Curriculum, Volume 4, page 287*

For the Exam: Benchmarks continue to be emphasized in the Level III curriculum. Questions relating to this material could show up in an equity item set in the afternoon or an equity essay question in the morning. Alternatively, it could show up as an item set or an essay dedicated to benchmarking that includes fixed-income and equity indices, both from a domestic and an international perspective.

A problem with equity benchmarks (international or domestic) is determining the capitalized weight of included firms. Oftentimes, the cap weight overstates the true, tradable value of the firm. For example, a corporation might hold a controlling interest in another firm, or a portion of that other firm’s shares are closely held. This means that not all the firm’s shares are available for trade among investors (portfolio managers). Another example is including two firms in an index, when each holds shares in the other. This *cross-holding* creates double counting when the total values of both firms are considered.

The portion of the outstanding shares of a firm that are actually available for purchase is known as the *float* or *free float*. When calculating the capitalization of the firm in a market cap-weighted index, only those shares that are freely traded should be included. In this fashion, the index reflects the market capitalization that more closely reflects the tradable value of the firm.

*Professor’s Note: Float adjustment is important for any international equity index, but even more so in emerging or developing markets. Float percentages, however, are not always easily determined for emerging market companies.*

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INTERNATIONAL INDICES: TRADE-OFFS

LOS 29.b: Discuss trade-offs involved in constructing international indices, including 1) breadth versus investability, 2) liquidity and crossing opportunities versus index reconstitution effects, 3) precise float adjustment versus transactions costs from rebalancing, and 4) objectivity and transparency versus judgment.

CFA® Program Curriculum, Volume 4, page 288

Breadth vs. Investability

The breadth of an index is a measure of its coverage (i.e., the percentage of all firms in the market or sector that are included in the index). Managers prefer greater breadth because the greater the breadth, the better the index represents the market.

Investability is a liquidity measure (i.e., how easy it is for the manager to move in and out of the index components). Managers also prefer greater liquidity due to the costs associated with trading to construct and rebalance a portfolio.

With international indices, liquidity can be a concern because the shares of small-cap firms and firms with a large proportion of closely held shares can be illiquid (i.e., they have very low float). This means international indices face a trade-off; they can increase breadth only by reducing investability.

Liquidity and Crossing Opportunities vs. Reconstitution Effects

Index reconstitution refers to the process of adding and deleting securities from an index. Popular indices (those that are followed widely) are most liquid and generate correspondingly lower transaction costs for portfolio managers following them. Crossing refers to the process where a money manager matches buy and sell orders of different customers without using a broker and without incurring the resulting transaction cost.

Liquidity is critical for both program traders and portfolio managers following indices. Program trading (i.e., buying and selling entire portfolios) is performed at lower costs with more liquid index portfolios. Also, portfolios tracking popular indices tend to have lower transaction costs due to the speed and lower transaction costs associated with buying and selling securities in the index.

When indices add a security, they generate upward price pressure on that security. Similarly, deleted securities suffer from downward price pressure. Both of these actions result in a real cost (reconstitution effect) for portfolios tracking the indices, as they have to sell deleted securities at reduced prices and buy added securities at increased prices. The price pressure from index reconstitution is lower for less popular indices, but such indices have lower liquidity and lower crossing opportunities.

Precise Float Adjustment vs. Transactions Costs From Rebalancing

Some index managers continually adjust the float and resulting market cap of firms in their indices. This precise float adjustment results in frequent rebalancing with
accompanying high transactions costs for portfolios tracking those indices. Instead of making precise float adjustments, other indices use a band adjustment. The managers of the index create ranges that they feel capture the true percentage of the firm’s market cap that is free floating (e.g., 65% to 85%). As long as the firm’s estimated free float stays within that band, they do not adjust the firm’s weight in the index.

Objectivity and Transparency vs. Judgment

Objectivity refers to the use of a fixed set of criteria to determine what securities should be included in an index. Transparency refers to the availability of those criteria to interested portfolio managers. Objectively (and transparently) constructing an index makes predicting the contents of the index easier and allows for more efficient trading, with lower associated costs.

Using subjective judgment for deciding on index composition (e.g., a committee for S&P 500), makes the index construction process less transparent. Due to the resulting tendency toward frequent index reconstitution, this imposes additional transactions costs on those who track the index. Note that if the index is popular enough (highly liquid), the additional liquidity tends to offset the lack of objectivity.

COUNTRY CLASSIFICATION: EMERGING VS. DEVELOPED

LOS 29.c: Discuss the effect that a country’s classification as either a developed or an emerging market can have on market indices and on investment in the country’s capital markets.

CFA® Program Curriculum, Volume 4, page 290

For a country at the margin, classification as emerging or developed can have significant consequences for both the country and the index of which it is a member. When an emerging country (economy) has reached a considerable size, for example, it becomes a major component in the emerging markets index (i.e., a large frog in a small pond). The overall index, therefore, is unduly affected by this country. That is, due to its size and outperformance relative to other countries in the index, it comprises a considerable proportion of the index, which affects the average size of the countries in the index as well as the average performance. In other words, inclusion of the country in an emerging market index can cause distorted (i.e., upward biased) results.

When the country is moved to a developed market index, it becomes a “small frog in a large pond.” Its effect on the index is more in keeping with its economic size and growth and, since developed countries’ equities are more widely traded, its stock becomes more readily available for international trading. Thus, the move to a developed index can actually mean the inflow of more international currency, which in turn helps the country develop further.

Professor’s Note: An emerging market index denoted as Free (i.e., EMF Index) is one in which international investors are not hindered. That is, they do not experience the restrictions (particularly those that apply to currency exchange and movement) that are placed on foreign investors by some developing countries.
KEY CONCEPTS

LOS 29.a
Float refers to the portion of a company’s outstanding shares that is freely traded. International equity markets have large cross-holdings between companies, and many shares are restricted for a variety of reasons. Both of these characteristics cause a reduction in the float. Float adjustment is the downward adjustment of the capitalized weight of companies in an index to reflect the reduced number of shares that are freely traded.

LOS 29.b
Managers tracking international indices need to be aware of four trade-offs:
• Large coverage (breadth of the index) versus the costs of investing in a large number of securities, some of which may be illiquid.
• Liquidity of popular indices versus the cost of altering a portfolio tracking a popular index every time the index is reconstituted.
• Making a precise float adjustment versus the cost of reconstituting a portfolio that is tracking an index that makes precise float adjustments.
• Investing in a popular index, which offers the highest liquidity versus the cost of lack of objectivity in construction of the index.

LOS 29.c
If an emerging country has become too large for an emerging markets index, it will artificially inflate both the average performance and size of countries in the index. When an emerging country is reclassified as developed, the country’s equities become more widely traded, which can help increase the rate of development.
CONCEPT CHECKERS

1. Float adjustment is required because of all of the following except:
   A. shares of some companies are closely held.
   B. some markets have a large proportion of cross-holdings of stock.
   C. the breadth of some international equity markets can be extensive.

2. Rob Schweigert is the portfolio manager for an emerging market international portfolio. His benchmark index is MQM emerging markets index. MQM is a relatively new index and has not yet gained wide acceptance. MQM is marketed as a very broad index with 95% coverage of the market. If Rob tries to track the index completely, his portfolio will most likely have which of the following characteristics?
   A. Poor breadth, poor liquidity.
   B. Good breadth, good liquidity.
   C. Good breadth, poor liquidity.

3. Allied Metals, Inc.’s defined benefit plan trustees are in the process of selecting managers for the international equity component of the pension fund assets. They hired Excel Advisors, Inc. as consultants to screen all the potential money managers specializing in international equity. The search process yielded Arthur Green and Associates as desirable money managers. Arthur Green, a principal of the firm, made a presentation for the trustees suggesting that the fund try to follow passive investing with broad diversification and low transaction costs and management fees. During the presentation, Green suggested the benchmark for the fund should be the ABT EAE index. ABT EAE index is a broad international equity index with coverage of 65% of the European, Asian, and Emerging markets. This index is very popular and is widely followed. ABT EAE makes precise float adjustments. Other international indices are available that cover 90% of the markets but are not as widely followed and only have broad bands for float adjustments. ABT EAE also selects the constituent securities very carefully utilizing an advanced proprietary model. Other competing indices utilize only publicized market capitalization cutoff rules for selection of the constituent securities.

In his recommendation of ABT EAE, Green makes two statements that are questioned by the trustees:
Statement 1: Because ABT EAE makes precise float adjustment, transaction costs will be lower in tracking it.
Statement 2: The transparency of the ABT EAE is lower, resulting in lower transaction costs due to rebalancing.

Regarding Green’s statements:
A. neither statement is correct.
B. both statements are correct.
C. only one statement is correct.
Sharon Higgins, CFA, manages a GDP-weighted emerging markets index that is used as a benchmark by many portfolio managers. Continually increasing trade in stocks of one of the countries in the benchmark has led her to analyze that country’s economy. She has decided to reconstruct the index, including removal of any stocks issued by firms in that country. Explain how the performance of a country in an emerging market index can lead to its reclassification and removal from the index.
ANSWERS – CONCEPT CHECKERS

1. **C** Float adjustment is required because of the large number of securities that are closely held and because of cross-holdings of securities. The breadth of the market refers to the number of different firms, not their cap weights, and is irrelevant to float adjustment.

2. **C** Because MQM is a new index and has not yet gained wide acceptance, it probably has poor liquidity. The coverage of 95% means that it has good breadth (high coverage).

3. **A** Neither statement is correct. Precise float adjustment results in frequent rebalancing and hence increases transaction costs. Because the index construction model is proprietary, the index’s transparency is low. This actually increases the transaction costs because managers are unable to predict index reconstitution.

4. When an emerging economy increases in size to the point where it can be reclassified as developed, leaving it in an emerging markets index can lead to distorted index construction and misleading risk-adjusted performance measures. The now developed economy becomes very large compared to the other economies in the index, which places over-emphasis on the developed economy (i.e., the country becomes a very large component of GDP-weighted indices and portfolios using them as benchmarks).

   At this point, the index can no longer be considered a pure emerging markets index. The average size of the economies in the index is increased, and performance results are not purely those of emerging markets. Whether the nominal performance of the index is positively or negatively biased will depend upon the performance of the other economies in the index relative to the performance of this larger economy.

   The smaller, truly emerging economies in the index should be more volatile than the larger, misclassified economy. Then, since the misclassified economy is considerably larger than the others, the volatility of the index could be negatively biased (reduced) compared to other emerging markets indices.
The following is a review of the Equity Portfolio Management principles designed to address the learning outcome statements set forth by CFA Institute. This topic is also covered in:

**EMERGING MARKETS FINANCE**

**Study Session 12**

**EXAM FOCUS**

You should know that as a segmented market transitions to an integrated market, developing country equities increase in price and decrease in expected return. An economy can be liberalized but not fully integrated with the rest of the world. The changes that accompany liberalization and the issues unique to investing in emerging markets are also important for the exam.

**MARKET INTEGRATION**

**LOS 30.a:** Discuss the process of financial liberalization and explain the expected impact on pricing and expected returns as a segmented market evolves into an integrated market.

*CFA® Program Curriculum, Volume 4, page 299*

*Professor’s Note: When considering integrated versus segmented, think in terms of the degree to which the individual market is part of and interacts fully with the global market. A completely segmented market could be viewed as standing alone and not interacting with other countries. A fully integrated market would interact freely with global trading partners. There would be absolutely no barriers of any kind that would inhibit free trade. It is clear, then, that few if any countries would be classified as completely segmented or fully integrated.*

**Financial and Economic Market Integration**

In the developmental economics literature, financial liberalization refers primarily to domestic liberalization, which is often characterized by the privatization of firms and bank reform.

In the context of the discussion here, effective financial liberalization and complete market integration occurs when there is unrestricted free flow of capital so that domestic investors can invest in foreign markets and foreign investors can invest in domestic markets. From a finance perspective, markets are completely integrated when assets of the same risk offer the same expected return.
Changes Resulting From Market Integration

The opposite of an integrated market is a segmented market. A market is segmented when capital does not flow freely into or out of it, and foreign investors face restrictions on investing in the country’s equities. Segmented markets are more common in developing countries, whereas most developed markets are integrated.

If a market is segmented, its valuation depends on investor risk aversion and the market’s expected payoff and variance. If instead the market is integrated, its prices depend on its covariance with the world market. This is because investors are now able to include the country’s equities in a global portfolio, and in a well-diversified portfolio, covariance risk (measured by beta) is the only priced risk.

Professor’s Note: When a developing market becomes integrated, its equity prices increase because its covariance with world markets is lower than its stand-alone variance. There is evidence that emerging markets are at least partially segmented with low correlations with developed markets. Thus, their contribution to portfolio risk is not as great as would be expected from a stand-alone basis.

Equity prices and liquidity increase when the government announces a liberalization policy and the greater the credibility of the announcement, the greater the price increases. That is, when the announcement is made, investors analyze both the impact of the liberalization policy and the probability that it will be fully implemented. Initial price increases will benefit local investors only, since foreign investors will only be allowed in the market after liberalization has taken place.

As mentioned above, the expected return for the newly liberalized market should decline due to its covariance being less than its variance. This implies that the cost of capital for local firms should decrease, which should result in increased economic activity and increased initial public offerings. As a result, competition in the market should increase.

In summary, as a segmented market evolves into an integrated market, equities increase in price as expected returns decrease.

Professor’s Note: The comparison of variance and covariance indicates the way the asset is priced by the global market. The more segmented a market, the more it is viewed, and priced, in a stand-alone framework. In that case, the market’s required return will be based on its total risk (i.e., variance). Its covariance with the global market (i.e., its beta with the global market) will be low. As the market becomes more and more integrated with the global market, it begins to be valued from (its risk assessed from) more of a global portfolio perspective. Its covariance with the global market increases, evidenced by the increase in its global beta, but its risk is less than when measured stand-alone. Think in terms of measuring required return using \( \sigma \) (CML) and using \( \beta \) (SML). When \( \sigma \) includes both systematic and unsystematic risk, the required return using the CML is greater than the required return using the SML.
For the Exam: This material on changes resulting from moving from a segmented to an integrated market is important for the exam. Just remember that the resulting low risk (from a diversification standpoint) is the cause of higher prices and increased economic activity.

Market Liberalization

LOS 30.b: Explain benefits that may accrue to an emerging market economy as a result of financial liberalization.

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Market Liberalization vs. Market Integration

The difference between market liberalization and market integration is that an economy can be liberalized but not fully integrated with the rest of the world due to various impediments. In other words, the two concepts are related but not necessarily the same in the real world. The presence of one does not guarantee the presence of the other. Liberalization is a slow and intricate process. Integration is difficult to measure, and there are various degrees of integration.

For example, a market can be accessible through American Depository Receipts (ADRs) or through closed-end country mutual funds before the government begins the liberalization process. In this case, the market is partially integrated.

Alternatively, the government can begin the liberalization process when the country is not fully integrated. Legal barriers to investment, such as taxes and restrictions on the amount of foreign owned stock, can prevent a market from becoming integrated. Other barriers are less obvious but still prevent foreign investment. These include deficiencies in information, investor protection, and accounting standards. There are also risks specific to emerging markets, such as political risk and liquidity risk, that prevent foreign investment. Research has verified the importance of these barriers and risks to investors, which demonstrates that governmental efforts at liberalization do not ensure market integration.

In addition, although a government may have stated intentions to liberalize a market, their efforts do not immediately become credible with investors. So investors might not immediately invest in the emerging market. Investors might also shun the emerging market because they have a home country bias, where they invest a disproportionate amount in their home market and less in foreign markets.

Financial Effects of Liberalization

The financial changes due to liberalization are reflected in the country’s financial markets in the form of its stock market performance, capital flows, political risk, and diversification benefits.
Stock market performance. When a country’s financial markets are liberalized, global investors bid up the prices of equities previously unavailable to them. After liberalization, stock returns decline, due to reduced capital costs (required returns). These country level results are also confirmed by examining ADR returns, assuming that the ADR listing is liberalization on a small scale.

Liberalization can increase return variability if greater information flow results in greater return reactivity or if speculative capital flows increase. On the other hand, there should not be as much deviation from fundamental value, so return variability may decline. The empirical evidence, however, demonstrates that liberalization does not affect the volatility of returns. Over the long run, return variability should decline as the economy matures.

As the market becomes more integrated, liberalization leads to higher correlations with world markets and higher global betas. The results for volatility, correlations, and beta hold even after controlling for other country events.

Capital flows. Liberalization results initially in increased capital flows into a country and higher stock prices. This can produce lower costs of capital for the country’s firms, but it is disputed as to whether the price increases are permanent or temporary. Nonetheless, the presence of reduced dividend yields in developing countries after liberalization suggests that the reduction in the cost of capital is permanent.

Professor’s Note: Assuming aggregate dividend payouts remain about the same, reduced dividend yields would indicate increased prices. This is seen as an indication of permanent reductions in capital costs.

The capital flows themselves first increase sharply with liberalization as foreign investors add the market to their portfolios and then decline (see For the Exam below). Foreign capital is not found to destabilize a country’s capital markets. Although the volatility of capital flows tends to increase with liberalization, it is perhaps not surprising given the absence of capital flows before liberalization. Furthermore, capital flow volatility is actually higher in developed countries, relative to developing countries.

For the Exam: Topic Review 19 discusses how macroeconomic stability is important for economic growth, which can result in a favorable investment environment. You should be able to integrate topic reviews 19 and 30 and recognize that capital flows do not become more volatile post-liberalization, even though it is commonly thought that they do. Liberalization can therefore be favorable for emerging market investors.

Political risk. Political risk declines with liberalization. Lower political risk results in higher stock prices because political risk is priced by investors (i.e., a political risk premium is included in firms’ required returns). Lower political risk is reflected in part by a government’s willingness to open its markets and pursue market-oriented changes such as the privatization of state-owned industries.
Diversification benefits. Despite their higher stand-alone risk, emerging markets offer diversification benefits because of their low correlations with the developed world. These benefits can be obtained by investing in ADRs and open-end mutual funds, and to a lesser extent from investing in closed-end funds. However, there is disagreement among academicians as to whether the benefits still exist after controlling for transactions costs and short-sale constraints.

Liberalization should reduce the diversification benefits from emerging markets, because the markets become more integrated with the rest of the world. However, research has found that the increase in correlations after liberalization is small.

Economic Effects of Liberalization

Liberalization has also been found to have beneficial effects for the economy at large in the form of improved firm efficiency, GDP growth, and other macroeconomic changes.

Firm efficiency. As discussed previously, liberalization should result in lower cost of capital for developing country firms. As more capital is invested in an economy, economic growth should increase. Although some have argued that foreign capital is squandered, it has been found that investment increases after liberalization while consumption stays constant. Furthermore, it has been found that liberalization increases firm efficiency, perhaps due to the improved corporate governance demanded by foreign investors.

Growth in GDP. It has also been found that financial liberalization increases GDP, even after controlling for other factors that could affect growth such as macroeconomic reforms. The relationship between liberalization and growth also holds after controlling for financial market reforms such as the increased enforcement of insider trading laws.

Other macroeconomic effects. Some postulate that the increased capital flows following liberalization results in a bubble economy. Contrary to this belief, however, volatility in economic growth and consumption does not increase post-liberalization. In fact, it is found that the volatility of consumption actually decreases post-liberalization.

It has also been found that liberalization is followed by an expansion of trade, less country debt, decreased inflation, and decreased currency volatility.

Issues for Emerging Market Investors

LOS 30.c: Discuss issues confronting emerging market investors, including excess correlations during times of crisis (contagion), corporate governance, price discovery, and liquidity.

It has been found that the actual portfolio allocations of U.S. investors in emerging markets outperform several typical benchmarks. However, investing in emerging markets entails many issues and associated risks that are not present in the developed world.
These include contagion, returns that are not normally distributed, less efficient markets, changes in the cost of capital, and weaker corporate governance.

**Contagion.** If a country tries to maintain its currency value to a peg while at the same time engaging in lax fiscal and monetary policies, its currency can come under speculative attack. The result is that the currency value declines and foreign investors suffer as the values of their investments decline. Unfortunately, however, it does not appear that currency crises are predictable enough for investors to avoid them.

Contagion occurs when a crisis spreads to other countries. Contagion in currencies may occur for one of five reasons:

1. A country might devalue its currency to keep its exports competitive with another country who devalued.
2. A country might see its exports to countries in crisis decline, causing its own economy to contract as its customers’ economy contracts.
3. The initial devaluation might serve as a wake-up call to investors that other countries’ currencies have weaknesses.
4. A crisis in one country creates a credit crunch in others.
5. The initial crisis causes investors to liquidate their investments in other countries.

Of these explanations, the first two (trade-based) explanations have the most empirical support.

Although there is disagreement on what constitutes contagion in equity markets, there is evidence that extreme negative movements in one market coincide with the same in others. Note that the mere presence of increased correlations between markets during crisis periods does not suffice as evidence of contagion because correlations increase as volatility increases due simply to the statistical properties of the correlation measure.

Indeed, research has shown that once these properties are controlled for, there was no contagion during recent crises. Other research shows that the July 1997 Asian crisis resulted in contagion, but the December 1994 Mexican crisis did not.

**For the Exam:** In Study Session 8 Topic Review 22, LOS 22.g, we discussed how correlations between markets can increase during periods of crisis. Be ready to discuss how contagion is possible in emerging markets and how this would weaken the benefit from diversifying into emerging markets. This would most likely appear as a short constructed response question on the morning section of the exam.

**Non-Normal Return Distributions**

It is well documented that returns are not normally distributed in emerging markets. Furthermore, historical data often contain structural breaks. For example, when
liberalizations occur, the pattern of stock returns dramatically changes. If a country is expected to undergo a structural change in the future, then historical data are not very useful for prediction.

Professor’s Note: The standard mean-variance analysis, where we find the portfolios with the lowest risk for a given amount of return, assumes that asset returns are distributed normally. The distributions of emerging market stock returns actually have fat tails (leptokurtic distributions), and large negative returns are more frequent (negative skew) than under a normal distribution. This can weaken the case for investing in emerging markets.

Market Efficiency and Market Microstructure

The microstructure of a market affects its efficiency because a condition of efficient markets is that information is quickly reflected in security prices. A microstructure that facilitates efficient markets is one in which transactions costs are low, liquidity is high, and transactions are executed quickly. These conditions should facilitate security prices that reflect the fundamental value of the security and are immune to manipulation by a large trader.

It is usually the case that market reforms will result in a better microstructure. For example, the Moroccan stock market was once state owned. Once the economy was liberalized and the exchange was privatized, liquidity and volume increased. However, this does not mean that bid-ask spreads decrease. In fact, it has been found that spreads actually increase post-liberalization, possibly because new, less experienced foreign investors are exploited by the local dealers.

Market Efficiency and Price Discovery

The efficiency of a market can also be evaluated using the pricing of individual securities. If a market is efficient, information should be reflected quickly in security prices, and differences in expected returns should be solely attributable to risk. In inefficient markets, however, investor reactions to information can seem irrational.

It has been found that security prices do not fully react to publicly released information in Mexico, for example, because there is leakage of information and that information is already partially reflected in security prices when the announcement is made. Furthermore, it appears that foreign investors trade on the information later than local investors, indicating that foreigners are at an informational disadvantage.

Some of the security return patterns found in developed markets have also been documented in emerging markets. The value effect, where stocks with low price multiples (value stocks) outperform high valuation stocks (growth stocks), has been documented in emerging markets. The small firm effect (higher returns for small-cap stocks) and the momentum effect (persistence in returns over time) have also been documented. These return differences are not attributable to differences in risk and exist even after considering transactions costs.
Privatizations and the Cost of Capital

As noted earlier, the cost of capital in emerging markets decreases post-liberalization because security prices increase and expected returns decrease. Likewise, when firms that were formerly government owned are privatized, the government signals its intent to reduce its interference in the economy and investors become more willing to invest in risky assets. Hence expected returns and cost of capital fall in the economy.

Privatizations also increase investment opportunities which allows for better performing portfolios. This also increases investors’ willingness to hold risky assets and reduces the cost of capital.

Potentially offsetting these effects, some investors in the developed world exhibit a home country bias where they shun foreign securities, especially emerging markets securities. In this case, the cost of capital will not be reduced as much because the demand for emerging securities will not be as great.

For the Exam: As a Level III portfolio manager, you should recognize that a lower cost of capital can result in lower financing costs for firms, greater economic growth, and higher long-run stock returns in an economy. The link between economic growth and stock returns is more fully explored in Topic Review 19.

Corporate Governance

Corporate governance practices vary widely in emerging markets. In most emerging countries, however, corporate governance practices and the enforcement of shareholder rights have traditionally been weak. Although corporate governance practices are improving as more emerging firms seek cheaper foreign capital, the following are some of the negative attributes of corporate governance in emerging countries:

- Management often has greater voting power, and this results in the firm’s shares selling at a greater discount.
- The frequency of takeovers that could discipline poor management is negligible.
- Firm shares may be owned by another firm that concentrates control of the firm.
- The government may impose capital controls that benefit favored firms.
- Some countries have strong creditor rights that result in a greater frequency of bankruptcy filings.
- Firms with weaker corporate governance are more likely to suffer during emerging market crises.
- Firms with high degrees of insider control have less CEO turnover after poor performance, so poor management is left in place.

Corporate governance in emerging countries can be improved, however, with the following mechanisms:

- Outside shareholders with a large degree of control who have a strong incentive to monitor management.
- A higher level of debt issued by the firm, especially when it is issued internationally, because debtholders can help monitor management.
• The firm lists its stock as an ADR, which requires stricter adherence to corporate
governance standards. This improves firm valuation especially when the firm is
domiciled in a country with weak shareholder rights.
• The firm’s analyst coverage increases, which improves firm valuation, especially
when the firm is controlled by family and management and when the firm is from a
country with poor shareholder rights.
• Greater press coverage.

Professor’s Note: Shareholder rights are generally stronger in countries with a legal
system established under English common law (this occurs most frequently in
countries that were once a British colony (e.g., the United States)).

For the Exam: Be ready to integrate your knowledge of Topic Review 28 on
corporate governance with the information presented here, perhaps as part of a short
constructed response question. You should be able to distinguish between good and
bad corporate governance practices, how some emerging firms are deficient in this
area, and how practices can be improved.

Emerging Market Bonds

Emerging market bond investors should be aware that defaults are not uncommon.
Higher credit risk in an emerging country is associated with lower GDP and higher
population growth. Additionally, the correlation between emerging market equities
and emerging market bonds is quite high, perhaps because higher credit risk bonds
frequently behave similarly to equity.
**KEY CONCEPTS**

**LOS 30.a**
Effective financial liberalization and complete market integration occur when there is unrestricted free flow of capital so that domestic investors can invest in foreign markets and foreign investors can invest in domestic markets. From a finance perspective, markets are completely integrated when assets of the same risk offer the same expected return.

A market is segmented when capital does not flow freely in or out of it and foreign investors face restrictions on investing in the country’s equities. A segmented market’s valuation depends on investor risk aversion and the market’s expected payoff and variance. If instead the market is integrated, its prices depend on its covariance with the world market.

Equity prices and liquidity increase when the government announces a liberalization policy. Any increase in prices will initially benefit local investors only since foreign investors will not be allowed in the market until liberalization has taken place. The expected return for the newly liberalized market should decline due to its covariance being less than its variance. As a segmented market evolves into an integrated market, equities increase in price as expected returns decrease.

**LOS 30.b**
The difference between market liberalization and market integration is that an economy can be liberalized, but not fully integrated with the rest of the world due to various impediments. In other words, the two concepts are related, but not necessarily the same in the real world. The presence of one does not guarantee the presence of the other. Liberalization is a slow and intricate process. Integration is difficult to measure and there are various degrees of integration. For example, a market can be accessible through American Depository Receipts (ADRs) or closed-end country mutual funds before the government begins the liberalization process. In this case, the market is partially integrated. Or the government can begin the liberalization process, but the country is not fully integrated.

The financial changes due to liberalization are reflected in the country’s financial markets in the form of its stock market performance, capital flows, political risk, and diversification benefits. Liberalization has also been found to have beneficial effects for the economy at large in the form of improved firm efficiency, GDP growth, and other macroeconomic changes. Liberalization is followed by an expansion of trade, less country debt, decreased inflation, and decreased currency volatility.
LOS 30.c
Contagion occurs when a crisis spreads to other countries. There is evidence that extreme negative movements in one market coincide with the same in others. The mere presence of increased correlations between markets during crisis periods does not suffice as evidence of contagion because correlations increase as volatility increases due simply to the statistical properties of the correlation measure.

In most emerging countries corporate governance practices and the enforcement of shareholder rights have traditionally been weak. Corporate governance practices are improving as more emerging firms seek cheaper foreign capital.

The efficiency of a market can also be evaluated using the pricing of individual securities. If a market is efficient, information should be reflected quickly in security prices and differences in expected returns should be solely attributable to risk. In inefficient markets, however, investor reactions to information can seem irrational.

A microstructure that facilitates efficient markets is one in which transactions costs are low, liquidity is high, and transactions are executed quickly. These conditions should facilitate security prices that reflect the fundamental value of the security and are immune to manipulation by a large trader.
CONCEPT CHECKERS

1. Explain the link between liberalization and a reduced cost of capital in emerging countries.

2. Discuss the effect of liberalization on the diversification benefit of emerging markets.

3. Discuss the problem to investors of contagion and excess correlation during contagion.
ANSWERS – CONCEPT CHECKERS

1. In a newly liberalized market, the emerging market will be priced according to its covariance risk instead of its variance risk because investors will now be able to include the country’s equities in a portfolio. The expected return for the emerging market should decline due to its covariance being less than the variance. This implies that the cost of capital for local firms should decrease, which should result in increased economic activity.

Expected returns and the cost of capital also decline in newly liberalized countries because political risk declines. When firms that were formerly government owned are privatized, the government signals its intent to reduce its interference in the economy and investors become more willing to invest in risky assets. Privatizations also increase investment opportunities, which allows for better performing portfolios. This also increases investors’ willingness to hold risky assets in the country and reduces the cost of capital.

The presence of reduced dividend yields in developing countries after liberalization suggests that the reduction in the cost of capital is permanent.

2. Liberalization may reduce diversification benefits from emerging markets because the markets become more integrated with the rest of the world and their correlations and betas should increase. However, research has found that the increase in correlations after liberalization is very small.

3. Investing in emerging markets offers diversification benefits due to the lower correlation between developed and emerging markets. During times of crisis in an emerging country a contagion can occur in which the crisis spreads to other emerging countries and neighboring developed countries. During these economic crises the correlation of stock market returns of the countries involved tend to increase at the precise moment when investors need diversification the most (uncorrelated investments). A contagion can take several different forms in which it may or may not spread to other emerging countries or developed countries. Due to a statistical property of correlation as volatility increases correlation will also increase appearing as though the correlation between countries has increased when in fact the true correlation has not increased.
Use the following information for Questions 1 through 6.

Kathy Berg is the private wealth adviser to Caroline Corbin, a woman in her 40s who has recently come into a large inheritance. Corbin feels her age enables her to take on significant risk, so Berg has suggested a fairly substantial equity allocation to the portfolio.

Berg and Corbin have assessed a variety of approaches to equity investing, both passive and active. They have now reached the point of beginning to identify, assess, select, and contract with the appropriate equity managers to implement their strategic asset allocation.

Berg explains to Corbin that she investigated a variety of managers for potential addition to the portfolio stable of managers. She explains, “Managers should be considered on both qualitative and quantitative considerations. Qualitative considerations include the strength of the firm’s investment approach and research, the manager’s personnel, and the firm’s investment style. Quantitative considerations include the manager’s fees and performance record.”

Berg elaborates that she also considers it important that the manager’s style not conflict with her own analytic views. “Because I start my asset allocation process by assessing the overall economy, I don’t want our asset managers to make their own economic decisions. I want asset managers who focus on individual securities and don’t use overall macroeconomic analysis. I want them to ignore the big picture and start with the top line for the individual company. For that reason, I only considered managers who use a top-down approach to research.”

Berg informed Corbin that she initially investigated a wide range of managers and narrowed the field by assessing them with a manager questionnaire. Berg provided Corbin with the following list of topics included in the manager questionnaire:

Topic 1: Staff and organizational structure, including staff resumes and how long the staff has worked together as a team.

Topic 2: Investment philosophy and procedures, including how it intends to capture alpha, how risk is managed and monitored, and how portfolios are composed.

Topic 3: Manager performance, including benchmark, expected alpha, and portfolio holdings.

Topic 4: Competitive position in the investment management industry, including comparative analysis of firm performance against leading competitive firms, decomposed into alpha and beta.

Topic 5: Fees, including performance-based components, with fee caps and high water marks, if any.
Corbin specifies, “I want to make sure that any manager we consider has a strong performance history. Even though we all know that past performance is no guarantee of future results, statistics show that the managers with the best recent performance are most likely to outperform going forward.” She also adds, “We should only hire managers who charge fees on an ad-valorem basis. I prefer to pay for performance and not merely for the value of assets under management.”

Corbin asks Berg about implementing an alpha and beta separation in the portfolio. She says, “I want to have exposure to large-cap U.S. equities, like the S&P 500, but I am unconvinced that a manager will be able to add alpha to such an efficient market. Instead, I'd prefer to have the beta of the S&P 500 through a passive index and pick up alpha by hiring a manager who specializes in long-short strategies in a less efficient sector of the market, such as micro-cap equities.”

Berg argues against such an approach, pointing out, “The risks in an alpha and beta separation approach are less clearly defined than the risks in a long-only active strategy.” She recommends instead that Corbin consider equitizing a long-short portfolio.

1. Is Berg correct in her description of a top-down research approach and of the quantitative/qualitative considerations in hiring an investment manager?
   A. Berg is correct regarding both statements.
   B. Berg is incorrect regarding both statements.
   C. Berg is incorrect regarding only one of the statements.

2. Of the topics in Berg’s manager questionnaire, the topic that is least likely to be found in a typical manager questionnaire is:
   A. Topic 4, competitive position.
   B. Topic 2, investment philosophy.
   C. Topic 1, staff and organizational structure.

3. Which of the following statements about manager fee schedules is least accurate?
   A. The principal purpose of a fee cap is to prevent managers from taking unnecessary risk in order to enhance fees.
   B. The principal disadvantage of ad-valorem fees is that they do not effectively align the interests of managers and investors.
   C. A principal advantage of performance-based fees is that they help managers retain staff since they reward good performance.

4. Is Corbin correct in her descriptions of manager fees and the likelihood that managers who performed best recently will perform best going forward?
   A. Corbin is correct regarding both statements.
   B. Corbin is incorrect regarding both statements.
   C. Corbin is incorrect regarding only one of the statements.

5. Are Corbin and Berg correct in their description of an alpha and beta separation approach?
   A. Only one is correct.
   B. Both Berg and Corbin are correct.
   C. Both Berg and Corbin are incorrect.
6. Which of the following statements about equitizing a long-short portfolio is least accurate?

A. The benchmark for the equitized strategy should be the index underlying the futures contract or ETF.

B. It can be accomplished by taking a long position in an equity futures contract with a notional principal equal to the cash from the short sales.

C. The investor’s total return equals the net profit or loss from the long/short position plus the profit or loss from the futures contract, all divided by the equity the investor put up for the transaction.
SELF-TEST ANSWERS: EQUITY PORTFOLIO MANAGEMENT

1. B Berg is incorrect about both. A top-down approach to research begins with economic analysis. A manager who considers only the individual securities and not the overall economy is using a bottom-up approach. Qualitative considerations are strength of the firm’s investment approach and research and the manager’s personnel. Quantitative considerations are the manager’s fees, performance record, and style.

2. A Topic 4, competitive position, is not typically included in a manager questionnaire. The section not listed in Berg’s questionnaire that would usually be listed is resources and research.

3. C A principal disadvantage of performance-based fees is that the increased volatility of a manager’s compensation can create problems with retaining staff. The other statements are accurate.

4. B Corbin is incorrect on both points. A contrarian strategy (e.g., investing in recent losers) often works as well with managers as it does with stocks. Ad-valorem fees are also referred to as asset under management (AUM) fees and depend on asset value managed, not manager performance.

5. A Berg is incorrect because the risks are more clearly defined in an alpha and beta separation approach than in a long-only strategy. Corbin is correct that an alpha and beta separation strategy could be implemented by taking a long passive position in an index such as the S&P 500 for beta and picking up alpha in a long-short active strategy in a less efficient market.

6. C An investor’s total return equals the net profit or loss from the long/short position plus the profit or loss from the futures contract, plus the interest earned on the cash from the short sale, all divided by the equity the investor put up for the transaction. The other statements are accurate.
Formulas

Portfolio effective duration:
\[ D_p = \sum_{i=1}^{n} w_i D_i = w_1 D_1 + w_2 D_2 + w_3 D_3 + \ldots + w_n D_n \]

dollar duration of a bond or portfolio:
\[ DD = -(\text{modified or effective duration})(\text{decimal change in interest rates})(\text{price}) \]

Portfolio dollar duration:
\[ DD_p = \sum_{i=1}^{n} DD_i = DD_1 + DD_2 + DD_3 + \ldots + DD_n \]

Rebalancing ratio:
\[ \text{Rebalancing ratio} = \frac{\text{old DD}}{\text{new DD}} \]

\[ R_p = R_i + [(B / E) \times (R_i - c)] \]

Leveraged equity duration:
\[ D_E = \frac{D_{1,i} - D_{B,B}}{E} \]

target dollar duration:
\[ DD_T = DD_p + DD_{\text{Futures}} \]

dollar interest on a repo:
\[ \text{dollar interest on a repo} = (\text{loan amount})(\text{repo rate}) \left( \frac{\text{repo term}}{360} \right) \]

dollar duration of a futures contract:
\[ DD_f = \frac{DD_{CTD}}{\text{conversion factor}} \]

Number of contracts to adjust portfolio:
\[ DD = \frac{DD_T - DD_p}{DD_f} \]

Number of contracts for complete hedge:
\[ \frac{-DD_p}{DD_f} \]

Hedge ratio:
\[ \frac{DD_p}{DD_{CTD}} \times \text{conversion factor for the CTD} \times \text{yield beta} \]
**Book 3 – Fixed Income Portfolio Management, Fixed Income Derivatives, and Equity Portfolio Management**

**Formulas**

\[ OV = \max [(\text{strike} - \text{value}), 0] \]

\[ OV = \max [(\text{actual spread} - \text{strike spread}) \times \text{notional} \times \text{risk factor}, 0] \]

Payoff to a credit spread forward:

\[ FV = (\text{spread at maturity} - \text{contract spread}) \times \text{notional} \times \text{risk factor} \]

Approximate forward premium or discount: 

\[ f_{d,f} = \frac{(F - S_0)}{S_0} \approx \frac{c_d - c_f}{100} \]

Break-even yield change: 

\[ \frac{\% \Delta \text{price}}{\text{duration}} \times 100 = \Delta y \text{ in basis points} \]
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