# Chapter 32: Portfolio Management, Alpha, and Beta

## Demonstrate knowledge of smart beta strategies

### Recognize the distinguishing characteristics of smart beta strategies from active alpha-based strategies

Def smart beta: strategy of implementing a rules-based portfolio weighting scheme based on one or more characteristics in underlying assets that generates portfolio weights that differ from a market-capitalization weighting scheme

Smart beta strategies tend to be relatively broad and involve relatively stable portfolio weights. The range of smart beta strategies is limitless and even includes equally weighted portfolios, which would perform well in markets favoring small-cap stocks, as large-capitalization and small-capitalization stocks would have equal weights

There are no bright lines that distinguishes smart beta strategies from active alpha-based strategies. Generally smart beta strategies have portfolio weights that

1. Seek to capture an attractive systematic risk premium
2. Are based on fixed rules using measurable security char
3. Differ moderately from market-cap weights
4. Maintain broad portfolios rather than highly concentrated portfolios

### Describe the objectives of smart beta strategies

Smart beta strategies utilize portfolio weights that are objectively linked to one or more measurable characteristics of the underlying assets

## Demonstrate knowledge of factors involved in the estimation of alpha and beta.

### Discuss the challenges of estimating alpha and beta

Alpha and beta are generally unobservable and usually need to be estimated based on historical data. However, using past data to measure alpha and beta leads to estimation risk; another major problem is: true alpha and beta being measured may be changing through time

Further alpha may shift through time. For example, an arbitrage strategy may generate substantially higher alpha during periods in which markets transition from a period of high market stress to a period of market calm and prices converge toward their traditional relationships

## Demonstrate knowledge of the concept of separating alpha and beta

This section discusses 2 key items regarding alpha and beta: 1) distinguishing alpha and beta; 2) separating alpha and beta

### Describe the concept of the separation of alpha and beta

Def **distinguishing** **alpha** **and** **beta**: involves measurement and attribution and the process of identifying how much of an asset’s return is generated by alpha and how much is generated by beta

Def **separating alpha and beta**: involves portfolio management and refers to attempts to independently manage a portfolio’s alpha and its exposure to beta, each toward desired levels

The separation of alpha and beta may be viewed both as a portfolio strategy and as a portfolio management capability

For example, a manager with a benchmark of S&P 500 index may seek to maximize alpha by investing in a portfolio of securities that appear to offer abnormally high risk-adjusted return

## Demonstrate knowledge of portable alpha.

### Demonstrate how to transfer risk with appropriately sized positions in derivatives

Def **portable** **alpha**: closely related to concept of separation of alpha and beta. It is the ability of a particular investment product and strategy to be used in separation of alpha and beta.

Portable alpha is the ability to exploit alpha by investing in an alpha-producing strategy while simultaneously managing a target beta exposure. The manager can add the alpha of the strategy to the existing portfolio without substantially altering the final beta of the portfolio. Derivatives are the primary tool for controlling beta while porting alpha

For example, by using derivatives, portable alpha can have small-cap non-systematic risk + large cap equity systematic risk

For example, US small-cap position can be hedged with a short position in future contracts on Russell 200. Simultaneously, the manager could establish long position in futures contract on S&P 500.

### Apply the concept of notional value to determine futures positions designed to transfer risk

Notional value for hedging = value of position to be hedged x Beta

For example, to hedge a $10MM portfolio with a beta of 1.2 relative to XYZ index requires a notional value of futures contract of $12MM

Number of contracts = futures contract notional value / (Index value x multiplier)

Multiplier: number of deals per contract

Index value: price of an index. For example, index value of $2000

### Discuss the application of portable alpha using futures contracts

Small cap investors to have large-cap risk by using portable alpha

1. Using futures, the investor invests cash in small cap strategy for positive alpha; takes a short position in a small-cap index, such as Russell 2000; takes a long position in a derivative on S&P 500 => return is a combination of S&P 500 and active small cap fund relative to Russell 2000 index (alpha)
2. It can also be achieved by using swap and cash positions

### Discuss challenges with porting alpha

Implementing a portable alpha program is a complex process: requires identification of favorable alpha to be ported, estimation of beta of strategy to be hedged; and the construction of hedge that offsets beta risk of manager’s strategy and takes on be beta risk of benchmark

Betas can be difficult to predict

## Demonstrate knowledge of asset allocation using the concepts of alpha and beta.

### Describe the process of traditional asset allocation

In an informationally efficient market, active management focuses on issues other than alpha, such as risk management, liquidity, taxes and transaction costs

### Explain strategic and tactical asset allocation

In traditional approach to portfolio allocation, the top-level decision is a long-term target allocation decision (strategic asset allocation decision) <- major decision

For active investment managers, tactical decisions are also important decisions. Tactical asset allocation is the process of making portfolio decisions to alter the systematic risks of the portfolio through time in an attempt to earn superior risk-adjusted returns. Even though tactical decisions emphasize short-term management of a portfolio’s beta, it may be argued that these tactical decisions are an attempt to earn alpha from the market timing of beta exposures

The traditional approach to portfolio allocation may not be optimal from a risk return trade-off standpoint if the strategic and tactical asset allocation decisions are made with little regard for alpha opportunities.

### Describe the new investment model

In the **new investment model**, investments are allocated with flexibility and in the explicit context of alpha and beta management

Beta is sought through investment products that cost-effectively offer returns driven by beta so that the endowment obtains efficient economic exposure to market risk and can earn the expected risk premiums associated with bearing systematic risks

Alpha is sought independently of beta

In the new investment model, alpha and beta are simultaneously and efficiently managed. A high priority is attached to pursuing alpha, and tolerance for bearing idiosyncratic risks from pursuing alpha should be applied to those investment products that offer the most potential for alpha per unit of idiosyncratic risk

### Discuss active risk and active returns for traditional investment products

A passively managed portfolio seeks to match the return of an index or a benchmark without engaging in active trading that attempts to generate improved performance

Def **active** **risk** is the risk that an actively managed portfolio contains as the portfolio manager endeavors to beat the returns of a benchmark

Index products take little or no active risk, extract no added value, and are not expected to generate active return

**Enhanced** **index** **products** are designed to take slightly more risk than index within tightly controlled parameters and offer a little extra return, usually on a large pol of capital => small, consistent alpha is their objective

**Traditional long-only active manager:** just slightly above the enhanced indices in terms of idiosyncratic risk

### Evaluate the proposition that alpha is a zero-sum game

Def **zero-sum game**: market, environment, or situation in which any gains to one party must be equally offset by losses to one or more other parties

In addition to gains from efficiencies, it is important to note that entities can become better off even when total market value remains constant

Sufficient conditions to make alpha a zero-sum game include the following:

* Investors have the same investment horizon.
* Investors have the same level of risk tolerance.
* Investors are allowed the same access to all asset classes (there is no market segmentation).
* Investors pay the same tax rate, or, equivalently, there is no tax.
* Investors have the same expectations about return and asset class risk premiums.
* Investments can be divided and traded without cost

In summary, the greatest benefits from asset allocation can be derived from the explicit consideration of ex ante alpha and beta in strategic and tactical planning. Viewing alpha and beta as distinct attributes may allow the management of alpha and beta to be optimized. The separation of the management of alpha and beta is facilitated by portable alpha: the ability to pursue a particular alpha strategy while transforming the total beta exposure to meet the preferences of the investor. Portable alpha facilitates a new investment model in which alpha can be pursued in non-traditional investments that derive alpha from those markets in which alpha can be most effectively sought, while managing beta using those products that deliver beta as cost-effectively as possible