

Passive Equity Investing

14.1. BM.

BM for equity investment strategies must be

- 1) rule-based
- 2) transparent
- 3) investable

Considerations for choosing BM:

1) Market & Risk Exposures

2) Identifying methods used in constructing & maintaining an index.

method can be exhaustive (every stock in the universe) OR selective (a subset)

methods include:

large-cap bias.

1) Market-cap weighted (most commonly based on free-floating shares (i.e. outstanding shares available for trading by market participants)).

2) Price weighted

- Bias to high-priced stock.

- like holding equal amt of shares in port.

/ /

	Jan 1	Feb. 1.
ABC .	100	105
EFG	90	100
HIJ	80.	90
Index	$(100 + 90 + 80) \div 3$ = 90.	$(105 + 100 + 90) \div 3$ = 100.

3) Equal weighted

- Reduces concentration risk; slow to change sector exposure
- Small-cap bias; greater volatility + lower liquidity
- Requires regular rebalancing

4) Fundamental weighted

(e.g. 3% of all the dividends paid by the index companies will have 3% weight)

Measuring Stock Concentration w/
Herfindal - Hirschman Index (HHI) :

$$HHI = \sum w_i^2$$

($\frac{1}{n}$ for equally weighted portfolio, 1 for a 1-stock index)

$$\text{Effective no. of stock} = (HHI)^{-1}$$

/ /

Rebalancing: adjusting portfolio weights

Reconstitution: removing & replacing stocks

Practices to reduce trading costs:

- 1) Buffering: establish a threshold that the chg in rank. that must be met before moving it from one index to another
(e.g. large cap. index = top 200, mid-cap = 201 - 500, a comp. needs to jump to 150 to get lumped into large-cap)
- 2) Packeting: move half the portfolio position of qualified stock in 1st reconstitution date, move the rest on 2nd if still qualified

14.b. Compare passive factor-based strategies to market-cap-weighted indexing.

3 types of passive factor-based strategies:

- 1) return-oriented

- dividend yield
- momentum
- fundamentally weighted

2) risk-oriented

- volatility weighting
- minimum-var investing

3) diversification-oriented

- equal-weighting
- maximum diversification strategy

Advantages:

- less costly but still allow diff risk exposure.

Disadvantages:

- Higher management fee than passive cap-weighted investing



MODULE QUIZ 14.1

1. Which of the following is a necessary characteristic for an equity index to have in order to use it as a benchmark for a passively managed equity portfolio?
 - Selective.
 - Investable.
 - Flexible.
2. A small-cap, high P/E factor-based investment strategy is best classified as:
 - risk oriented.
 - return oriented.
 - diversification oriented.

1. B / should be rule-based, transparent & investable.

2. B / Fundamentally weighted factor exposure strategies are considered to be return-oriented b/c such strategies focus on factors that have determined diff in return.

Module 14.2. Approaches to Passive Investments

1) Pooled Investments

- e.g. open-end mutual funds & ETFs.
- Advantage: trade intraday
- disadvantage: high transaction fee, possible illiquidity

2) Derivative-based strategies

- derivatives used to recreate risk/return of an index.
- may use derivatives to adjust risk exposure (i.e. overlay positions)
- Advantages:
 - Can be used to quickly adjust
 - trade in liquid market
 - easy to leverage the portfolio
- Disadvantages:
 - Derivative positions have finite expirations & must be rolled over
 - Some contracts have position limits.
 - Specialty portfolio needs might not be met by existing offering
 - OTC derivatives introduce counterparty risk
 - Basis risk can increase tracking errors.

3) Separately managed index-based portfolio.

- holds all the constituent stocks in portfolio or a representative sample.

14.d. Ways to construct passively managed index-based equity portfolio

1) Full Replication

can be costly w/ large no. of stocks & liquidity is limited

2) Stratified Sampling

- divide index stocks into strata/subsets based on key risk characteristics
- Random samples of stocks within each strata are selected for inclusion

3) Optimization

- use mean-variance analysis to minimize tracking error (i.e. maximize returns while minimize variances).
- explicitly consider covariance b/w constituent stocks.

Drawbacks:

- relies on historic data, subject to chg
- can create portfolios that are mean-variance efficient.

Advantage

- minimizes tracking error

4) Blended Approach



MODULE QUIZ 14.2

1. Discuss two advantages and two disadvantages of using equity index derivatives versus cash-based strategies for passive equity investing.
2. Discuss the advantages and disadvantages of using ETFs to implement a passive equity investing strategy.
3. As the number of constituent stocks in an index increases, the tracking error of a passively managed portfolio that uses the index as a benchmark will most likely:
 - A. increase.
 - B. decrease.
 - C. first decrease and then eventually increase.

1. Advantages
- 1: liquidity ✓ 1. quick and efficient way to adjust exposure.
 - 2: easy to replicate 2. trade in liquid market.

Disadvantages 1 : transaction cost / frequency of roll-over

- 2 : position limit 1. finite expiration & had to be rolled over

2. position limits.

3. specificity need portfolio might not be satisfied by exchange-traded deriv.

4. Counterparty risk

5. basis risk increases tracking error.

Advantages: ETF handle Creation/redemption more quickly & efficiently

2. Advantages: no

Disadvantages: tracking error x illiquid, spread

3. C ✓ Adding to sample size w/ liquid stock reduces tracking error, but as less liquid stocks are added, the cost of tracking error increase.

Module 14.3. Tracking Error

Causes:

- Management fees
- Commission on trades
- Sampling - compared to full replication, sampling typically increases tracking error.
- Intraday trading (b/c index returns are based on closing prices)
- Cash drag - portfolios may hold balance that reduce return in rising markets (as cash returns differ from index returns)

Controlling Tracking Error : tradeoff b/w high trading costs & tracking error

Sources of Return & Risk :

- Attribution Analysis
- Securities Lending
- Proxy Voting (might be costly to do research & fulfill the fiduciary duty).

 MODULE QUIZ 14.3

1. Explain what cash drag is and how it results in tracking error.
2. Explain why tracking error is a better measure of a passive equity manager's skill than excess return.
3. Explain how securities lending can reduce tracking error in passively managed index portfolios.

1. holding cash in portfolio of that leads to tracking error b/c cash doesn't produce return
2. Excess return doesn't ~~x~~ The goal is to consistently match the index performance of tracking error indicates a perfect match.
3. securities lending will generate fee income of cover portfolio expenses.