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:
1) Market-cap weighted
2) price weighted
3) equal weighted
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):

$$HHI = \sum_{1}^{N} w_i^2$$

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

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
2) risk-oriented
3) diversification-oriented

Advantages:
- less costly but still allow diff risk exposure.

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?
   A. Selective.
   B. Investable.
   C. Flexible.
2. A small-cap, high P/E factor-based investment strategy is *best* classified as:
   A. risk oriented.
   B. return oriented.
   C. 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 iliquidity

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).
- drawback = relies on historic data., subject to chg.
- 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 ✓
   2: easy to replicate

1. quick and efficient way to adjust exposure.
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. specicility 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 & 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 retu 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 fudiciary 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 & that leads to tracking error b/c cash doesn't produce return
2. Excess return doesn't ✗ The goal is to consistently match the index performance & 0 tracking error indicates a perfect match.

3. securities lending will generate fee income & cover portfolio expenses..