

Concepts	Description
Passive Equity Investing	
Characteristics of an equity index	1. Rules-based : rules (i.e.: including / excluding stocks, weighting scheme, rebalancing frequency) must be consistent, objective and predictable 2. Transparent : underlying rules are public, clearly stated and understandable 3. Investable : Investors can replicate the risk and return of the index
Considerations when choosing a benchmark	1. Market segment : broad market vs. focus to certain sectors ; domestic vs. international ; developed vs. emerging vs. frontier markets 2. Capitalisation (size factor) : Large-cap vs Mid-cap vs. Small-cap (Small-cap has higher risk and expected returns) 3. Growth vs. value (style factor) : growth stocks (high P/E, P/B) vs. value stocks (low P/E, P/B)
Method for Constructing Index	1. Stock selection : - Exhaustive method : every stocks in a defined universe (e.g.: CRSP US Total Market Index) - Selective method : subset of sotcks within a universe (e.g.: S&P 500) 2. Stock weighting : - Market-cap weighting method : weight each stock in the portfolio as % of its capitalisation / index capitalisation + Large-cap stocks have higher liquidity → can be thought as liquidity-weighted + Free-float weighting : stock market cap exclude closely-held shares not available to market participants (held by insiders, promoters, goverments) - Price weighting method : weight each stock by its price - Equal weighting method : weight each stock equally + Reduce concentration risk + Slow to change sector exposures + Small-cap bias → more volatile + Small-cap bias → lower liquidity → limited investment capacity + Require regular balancing - Fundamental weighting method : weight each stock based on fundamental factors (e.g.: revenue, income, dividends) 3. Stock concentration : used to calculated the effective number of stocks in the portfolio, in order to replicate the index. Stock concentration is calculated using HHI $HHI = \sum_{i=1}^n w_i^2$ <i>effective number of stocks</i> = $1/HHI$ <i>w_i</i> = weight of stock <i>i</i>
Method for Maintaining Index	1. Rebalancing : update stock weight in the index to reflect chage in market cap 2. Reconstitution : remove / replace stocks that no longer fit the index market exposure ; add new stocks that fit in
Passive factor-based strategy	Passive factor-based strategy (smart beta) : create a portfolio with same exposures to a set of risk factors as the index. Common risk factors include : - Growth factor : stocks with high P/E , P/B , above-average net income growth - Value factor : mature stocks with low P/E , P/B , stable net income , high dividend yield - Size factor : stocks with low market caps - Yield factor : high dividend-yield stocks - Momentum factor : stocks with recent above-average returns - Quality factor : stocks with consistent earnings + dividend growth, high CF-to-earnings, low debt-to-equity - Volatility factor : stocks with low standard deviation of return Types of passive factor-based strategy : - Return-oriented : include dividend yield ; momentum ; fundamentally-weighted strategies ; etc. - Risk-oriented : include volatility weighting (weight are inverse of price volatility) ; minimum-variance investing ; etc. + Advantage : simple, provide risk reduction + Disadvantage : based on historical data → may not reflect future conditions - Diversification-oriented : equally-weighted ; maximum diversification ; etc. Advantages of passive factor-based strategy : - Less costly than active management - Still offer factor exposure based on investor's view of the market Disadvantages of passive factor-based strategy : - Higher management fees and trade commissions than passive cap-weighted investing