

P R I S T I N E

Analysis of Equity Investments - I

- Characteristics of Stock Market Indexes.
- Global Stock Indexes, Bond Indexes, Composite stock-bond indexes.
- Correlation between Global Markets.

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Stock Market Indices

- Uses:
 - Measuring portfolio returns over time.
 - Construction of index portfolio.
 - Evaluating variables that affect security prices.
 - Aiding market technicians in investment decisions.
 - Helping Beta calculation and portfolio studies.
- To construct an Index:
 - Sample selected must represent the population.
 - Decide the weighing of the sample items. Can be weighed on :
 - Price (or)
 - Total value (or)
 - Equal weighted.
 - AM, GM or Base period weighing.

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Stock Market Indices: Types

- **Price Weighed Index**

- A price-weighted index is the arithmetic average of current security prices.

PWI = sum of stock prices / number of stocks in index (adj. for splits)

- Ex: DJIA (30 stocks), Nikkei Dow Jones Stock Average (225 stocks). High priced stocks have a greater impact on the index than low priced stocks. Also the numerator needs to be adjusted for stock splits.

- **Market value-weighted Index**

MVWI = $\frac{\sum [(\text{price today}) * (\text{number of shares o/s})]}{\sum [(\text{price base}) * (\text{number of shares o/s})]}$ * base year index value

- Ex: S&P 500 Index. Firms with greater M-cap have greater impact than lower m-cap.

- **Unweighted Index**

- Gives no weights at all to the stock prices or the market value.

- Change in value of an unweighted index can be calculated using AM or GM.

- None of the indexes mentioned take into account dividends while measuring returns. Total Return Index is a kind of index which takes into account dividend reinvestment.

Stock Market Indices: Biases

- **Price-Weighting bias:** Need to change index denominator when stocks are split; denominators have to be reduced. Places a downward bias on the index.
- **Value weighting bias:** Large M-cap stocks result in a greater impact on the index and large movements can be attributed to only a few stocks.
- **Unweighted indexes:** GM will be lesser than AM unless equal returns. Use of GM results in a downward bias of the index.
- Some Examples of such calculations:

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- **Domestic Equity indexes:** Example - DJIA in USA.
- **Global Equity Indexes:** Created to remove comparability problems. Examples are Financial Times/S&P Actuaries World Index, MSCI Indexes. Dow Jones World Stock Index.
- **Bond indexes:** are recent ad bonds are difficult to be indexed.
 - Bond universe is much larger.
 - Constant change due to new issues, maturity, calls etc.
 - Price volatility constantly changes. Duration changes with maturity and yield.
 - Lack of continuous trade data.
- Three major types:
 - Investment Grade Bond Index (provided by Merrill Lynch, Ryan Treasury): Co-relation is 0.95 as largely driven by interest rate changes.
 - High Yield Bond Index (First Boston, Merrill Lynch): Correlation is much lower.
 - Global Bond Indexes (Merrill Lynch, JPMorgan): These show long run risk return performance differences, low correlation between countries, and exchange rate effect on correlations and volatility.

- **Composite stock-bond Indexes:** To measure the performance of all securities in a country.
- **Style Indexes:** Reflect the investment style used by portfolio managers. It can be based on market capitalisation i.e. Small-cap/mid-cap just like the Mutual fund schemes or on the investment style like investing in growth stocks or value stocks. The performance of the mutual fund or the Portfolio manager is judged by comparing his returns with the returns of the style index of that particular manager.

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- Studies indicate low correlation between the various indexes discussed above within a country and between countries. This provides for a case of diversification, domestically and globally.
- As seen before the correlation between the securities in Investment Grade Bond Index is very high (about 0.95) and one cannot reap any benefits out of diversification. Instead if one goes in for international diversification by investing in world bonds, it will result in risk reduction benefits.

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