Alpha Vee American Century Diversified International Equity Index Methodology

Methodology Guide for the Alpha Vee American Century Diversified International Equity Index

2018-10-04

1. Index Overview and Description

The Index is designed to select securities of large- and mid-capitalization international companies with attractive growth, valuation, and quality fundamentals. The universe of the Index is comprised of large- and mid-capitalization equity securities of global issuers in developed and crossover markets, excluding the United States. Crossover markets are defined as Taiwan, South Korea, Hong Kong & China. To construct the index, the index provider first screens the underlying universe for securities, excluding those with lower profitability, return on assets, return on equity, and gross margins. The index provider next determines a growth score and a value score for each selected security. The growth scores are based on sales, earnings, operating income, profitability and cash flows. The value scores are based on value, earnings yield, dividend yield, and cash flow metrics. The scores are used to construct a growth sub-portfolio, a value sub-portfolio and a crossover market sub-portfolio that are blended to form the final portfolio. Though component securities of the Index may change from time to time, the index typically consists of 300–500 securities and, as of May 31, 2018, the market capitalization range of the Index was approximately $5 billion and larger.

The index is made up of three sub-portfolios:

- A portfolio for developed markets value stocks.
- A portfolio for developed markets growth stocks.
- A portfolio for crossover markets growth stocks.

The three sub-portfolios are created using custom, rules-based security selection criteria and portfolio construction methodology.

The index combines the three sub-portfolios using the following weighting calculation:

- Crossover Markets growth 8%
- Developed Markets value and growth are dynamically blended based on their return & volatility and comprise of the other 92% of the index.

The index is rebalanced monthly and reconstituted every 3 months (End Feb, May, Aug and Nov). The rebalance & reconstitution operations are effective as of the open on the 6th business day of the next month.
The Index is calculated to capture price appreciation and total return, which assumes dividends are reinvested into the Index. The Index is calculated using primary market prices and are generally calculated in U.S. dollars.

2. Membership Criteria

2.1 Developed Markets Universe

The initial universe[1] is filtered further to create the Developed Market universe.

- Minimum Market Capitalization of $5 billion or corresponding value for the 77th percentile (from the top) of the initial universe, the lower of the two.
- Minimum Average Daily Volume of $5 million
- Minimum Free-Float of 15%.
- Registered in one of the following countries:
  Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom.

Reconstitution occurs every 3 months at end of Feb, May, Aug and Nov.

2.2 Crossover Universe

The initial universe is filtered further to create the Crossover universe.

- Minimum Market Capitalization of $5 billion or corresponding value for the 77th percentile (from the top) of the initial universe, the lower of the two.
- Minimum Average Daily Volume of $5million
- Minimum Free-Float of 15%.
- Registered in one of the following countries:
  China (H Shares and ADR's only), Hong Kong, South Korea, Taiwan.
  China and HK securities are further filtered to include only securities with less than 50% state ownership.

Reconstitution occurs every 3 months at end of Feb, May, Aug and Nov.

---

[1] Initial universe

- Minimum Market Capitalization of $2 billion.
- Minimum Average Daily Volume of $500 thousand
- Trading for at least 35 months
- In the event a component company issues multiple classes of shares of common stock, the primary share class or the one with the highest average daily volume (in case the primary share cannot be determined) will be included.
- Registered in one of the following countries:
- Australia, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Russia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom.

The universe is ranked by the USD free float market capitalization and the top 1800 securities are included. Reconstitution occurs every 6 months at end of Dec and end of Jun

3. Parent Universe Definition

The following parent universes are used to apply constraints to the sub-portfolios.

3.1 Developed Markets Parent Universe

The initial universe is filtered to the list of countries in the Developed Markets universe to create the Developed Markets Parent Universe. The following regions are defined:

- Europe ex-UK: Austria, Belgium, Denmark, France, Germany, Finland, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland.
- UK
- Japan
- Canada
- Australia
- Asia Pacific ex Japan & Australia: New Zealand, Singapore

Securities are reconstituted every 6 months at end of Dec and Jun and are cap weighted.

3.2 Crossover Parent Universe

The initial universe is filtered to the list of countries in the Crossover universe to create the Crossover Markets Parent Universe.

The following regions are defined:

- China: China & Hong Kong.
- South Korea
- Taiwan

Securities are reconstituted every 6 months at end of Dec and Jun and are cap weighted.

4. Stock Grading:

The following attributes are used for grading in three groups: Quality, Value and Growth.

4.1 Quality

- Profitability :
  - Free Cash Flow over Assets Turnover
  - Gross Margin
  - Gross Profitability
  - ROA
  - ROE
  - Operating Margin
- Earnings Quality :
  - Accruals - Balance Sheet Statement
  - Accruals – Cash Flow Statement
  - Cash Earnings to Earnings Variability in Sales
  - Variability in Earnings
  - Variability in Cash Flows
  - Variability of EPS Estimates to Price
- Investment Quality :
  - Asset Growth
  - Issuance Growth
  - Capital Expenditure Growth
- Leverage :
  - Financials ex-insurance: Tangible Assets/Tangible Common Equity
  - Utilities: Net Debt/Total Capital
  - Insurance: Total Debt/Total Capital
  - All others: Net Debt/EBITDA
- Momentum :
  - 3-month EPS estimate revision
  - 1-month EPS estimate revision
  - 6-month price momentum adjusted by the volatility (SD)
  - 12-month (lagged by 1m) price momentum adjusted by the volatility (SD)
  - Residual Price Momentum

4.2 Value

- For companies that are not in the financial and real estate sectors:
  - Value
    - Price/Book
    - Price/Sales
  - Current Value
    - Price/Earnings
    - EV/EBITDA
  - Cash Flow Value

        - Price/FCFPS
        - Price/OCFPS
    - Dividend yield
- Financials:
    - Price/Tangible Book
    - Price/Earnings
    - Dividend Yield
- Real Estate:
    - Price/FFO
    - Dividend Yield

4.3 Growth

- Historical Growth:
    - 5-year SPS Growth
    - 5-year EPS Growth
    - 5-year FCFPS Growth
- Expected Growth:
    - IBES Long Term EPS Forecast Growth Rate YOY%
    - EPS forecast growth FY2 vs FY1 %
    - EPS forecast growth FY2 vs FY0 %
- Profitability (defined in the Quality section above)
- Momentum (defined in the Quality section above)

5. Sorting and Scoring

5.1 Quality Score

- Securities in the developed markets and crossover markets will be ranked by each quality attribute relative to their universe.
- Each attribute will be normalized to a relative grade between 0-100 using the following percentiles: 5%, 50%, 95% and all attribute scores will be combined to a weighted quality score.
- Companies that meet the following criteria will be eliminated from the developed and crossover markets universes prior to portfolio construction:
    - Quality Score is in the bottom 20% of the Developed Markets universe
    - Quality Score is in the bottom 20% of the crossover universe
    - Quality Score is in the bottom 20% of the business sectors for the Developed Markets universe
    - Quality Score is in the bottom 20% of the countries for the crossover universe

5.2 Value Score

- The universe used for the value sub-portfolio is the universe after the above quality filtering is applied.
- Securities in the developed markets will be ranked by each value attribute relative to the business sector they belong to.
- Each attribute will be normalized to a relative grade between 0-100 using the following percentiles: 5%, 50%, 95% and all attribute scores will be combined to a weighted value score.

5.3 Growth Score

- The universe used for the growth sub-portfolio is the universe after the above quality filtering is applied. In addition, the bottom 20% of securities scored by growth attributes will be eliminated.
- Securities in the developed markets and crossover markets will be ranked by each growth attribute relative to their universes.
- Each attribute will be normalized to a relative grade between 0-100 using the following percentiles: 5%, 50%, 95% and all attribute scores will be combined to a weighted growth score.

6. Portfolio Construction

Three sub-portfolios will be constructed: Developed Markets Value, Developed Markets Growth and Crossover Growth.

6.1 Developed Markets Value constraints

The constraints below are relative to the developed markets value sub-portfolio.

- Portfolio level constraints
    - Security count between 200-300 names
    - Max one-way turnover is 20% per quarter (soft)
    - Country active exposure (relative to the Developed Markets parent universe) has an upper limit weight of 150 bps .
    - Region active exposure (relative to the Developed Markets parent universe) between -5% and 5%
    - Business Sector active exposure (relative to the Developed Markets parent universe) has an upper limit weight of 150 bps
    - Sector active exposure (relative to the Developed Markets parent universe) between -5% and 5%
    - Weighted average market capitalization greater than the 40th percentile.
    - Beta range: 0.8 to 1.1 (soft)
- Asset level constraints:
    - Individual stock weights >= 25 bps
    - The companies are grouped on their size and volatility scores and combined into 11 tiers. Companies that fall in the top tier would have a max weight of 300 bps and the max weight is reduced by 25 bps down the tiers until the last tier would have a max weight of 50 bps.
- The Developed Markets Value sub-portfolio is constructed to maximize the Value Score subject to the constraints specified above.

6.2 Developed Markets Growth constraints

The constraints below are relative to the developed markets growth sub-portfolio.

- Portfolio level constraints
    - Security count between 200-300 names
    - Max one-way turnover is 20% per quarter (soft)

- Country active exposure (relative to the Developed Markets parent universe) has an upper limit weight of 150 bps.
- Region active exposure (relative to the Developed Markets parent universe) between -5% and 5%
- Business Sector active exposure (relative to the Developed Markets parent universe) has an upper limit weight of 150 bps
- Sector active exposure (relative to the Developed Markets parent universe) between -5% and 5%
- Weighted average market capitalization greater than the 40th percentile
- Beta range: 0.9 to 1.1 (soft)

- Asset level constraints:
  - Individual stock weights >= 25 bps
  - The companies are grouped on their size and volatility scores and combined into 11 tiers. Companies that fall in the top tier would have a max weight of 300 bps and the max weight is reduced by 25 bps down the tiers until the last tier would have a max weight of 50 bps.

- The Developed Markets Growth sub-portfolio is constructed to maximize the Growth Score subject to the constraints specified above.

6.3 Crossover Growth Constraints

The constraints below are relative to the crossover markets growth sub-portfolio.

- Portfolio level constraints
  - Security count between 25 to 50
  - Max one-way turnover is 20% per quarter (soft)
  - Country active exposure (relative to the crossover parent universe) between -5% and 5%
  - Weighted average market capitalization greater than the 40th percentile
  - Beta range 0.9 to 1.1

- Asset level constraints:
  - Individual stock weights >= 25 bps
  - The companies are grouped on their size and volatility scores and combined into 3 tiers. Companies that fall in the top tier would have a max weight of 900 bps and the max weight is reduced by 300 bps down the tiers until the last tier would have a max weight of 300 bps (weights are relative to the crossover markets sub-portfolio and not the index)

- The Crossover Growth sub-portfolio is constructed to maximize the Growth Score subject to the constraints specified above.

6.4 Dynamic Blending of Developed Markets Value and Developed Markets Growth

Every month, the following is calculated for each sub-portfolio:
Blend Coefficient (BC) = Annualized mean of daily returns / Annualized standard deviation daily returns.
The blend coefficient is calculated for the following back-looking periods (lagged by 3 working days) and the average of all values is taken: 20 days, 40 days, 60 days and 120 days.

The weight of each sub-portfolio is then determined by comparing the BC of each. The sub-portfolio with the higher BC will have 10% added to its previous weight and the one with the lower BC will have 10% deducted from its previous weight. The weights are limited to 35% lower bound and 65% upper bound.

These weights comprise of 92% of the final portfolio with Crossover Growth making up the other 8%.

7. Calculation of the Index

7.1 Index formula

The Index Value on a Business Day at the relevant time is calculated in accordance with the following formula:

$$Index_t = \sum_{i=1}^{n} \frac{(x_{i,t} \times p_{i,t} \times f_{i,t})}{D_t}$$

With:

$x_{i,t}$ = Number of Index Shares of the Index Component i on Trading Day t
$p_{i,t}$ = Price of Index Component i on Trading Day t
$f_{i,t}$ = Foreign exchange rate to convert the Price of Index Component i on Trading Day t into the Index Currency
D_t = Divisor on Trading Day t

The initial Divisor on the Start Date is calculated according to the following formula:

$$D_t = \frac{\sum_{i=1}^{n}(p_{i,t} \times f_{i,t} \times x_{i,t})}{100}$$

After the close of trading on each Adjustment Day t, the new Divisor is calculated as follows:

$$D_{t+1} = \frac{\sum_{i=1}^{n}(p_{i,t} \times f_{i,t} \times x_{i,t+1})}{Index_t}$$

This Divisor is valid starting the immediately following Business Day.

7.2 Accuracy

- The value of the Index will be rounded to 2 decimal places.
- Divisors will be rounded to six decimal places.

7.3 Adjustments

Indices need to be adjusted for systematic changes in prices once these become effective. This requires the new Number of Index Shares of the affected Index Component and the Divisor to be calculated on an ex-ante basis.

Following the Committee's decision, the Index is adjusted for distributions, capital increases and stock splits.

This procedure ensures that the first ex quote can be properly reflected in the calculation of the Index. This ex-ante procedure assumes the general acceptance of the Index calculation formula as well as open access to the parameter values used. The calculation parameters are provided by the Index Calculator.

7.4 Dividends and other distributions

Dividend payments and other distributions are included in the Index. They cause an adjustment of the Divisor. The new Divisor is calculated as follows:

$$D_{t+1} = D_t \times \frac{\sum_{i=1}^{n}(p_{i,t} \times f_{i,t} \times x_{i,t}) - (x_{i,t} \times y_{i,t} \times g_{i,t})}{\sum_{i=1}^{n}(p_{i,t} \times f_{i,t} \times x_{i,t})}$$

With:

$x_{i,t}$ = Number of Index Shares of the Index Component i on Trading Day t

$y_{i,t}$ = Distribution of Index Component i with ex-date $t + 1$ multiplied by the Dividend Correction Factor

$p_{i,t}$ = Price of Index Component i on Trading Day t

$f_{i,t}$ = Foreign exchange rate to convert the Price of Index Component i on Trading Day t into the Index Currency

$g_{i,t}$ = Foreign exchange rate to convert the amount of the distribution of Index Component i on Trading Day t into the Index Currency

D_t = Divisor on Trading Day t

D_{t+1} = Divisor on Trading Day $t + 1$

7.5 Corporate actions

Principles

Following the announcement by an issuer of Index Components of the terms and conditions of a corporate action, the Index Calculator determines whether such corporate action has a dilutive, concentrative or similar effect on the price of the respective Index Component.

If this should be the case, the Index Calculator shall make the necessary adjustments that are deemed appropriate in order to take into account the dilutive, concentrative or similar effect and shall determine the date on which this adjustment shall come into effect.

Amongst other things, the Index Calculator can take into account the adjustment made by an Affiliated Exchange as a result of the corporate action with regard to option and futures contracts on the respective share traded on this Affiliated Exchange.

Capital increases

In the case of capital increases with ex-date $t + 1$, the Index is adjusted as follows:

$$x_{i,t+1} = x_{i,t} \times \frac{1 + B}{1}$$

With:

$x_{i,t}$ = Number of Index Shares of the Index Component i on Trading Day t
$x_{i,t+1}$ = Number of Index Shares of the Index Component i on Trading Day $t+1$
B = Shares received for every share held

$$p_{i,t+1} = \frac{p_{i,t} + s \times B}{1 + \mathrm{B}}$$

With:

$p_{i,t}$ = Price of Index Component i on Trading Day t
$p_{i,t+1}$ = Hypothetical price of Index Component i on Trading Day $t+1$
s = Subscription Price in the Index Component currency
B = Shares received for every share held

$$D_{t+1} = D_t * \frac{\sum_{i=1}^{n}(p_{i,t} \times f_{i,t} \times x_{i,t}) + \sum_{i=1}^{n}[(x_{i,t+1} \times p_{i,t+1} \times f_{i,t}) - (x_{i,t} \times p_{i,t} \times f_{i,t})]}{\sum_{i=1}^{n}(p_{i,t} \times f_{i,t} \times x_{i,t})}$$

With:

$x_{i,t}$ = Number of Index Shares of the Index Component i on Trading Day t
$x_{i,t+1}$ = Number of Index Shares of the Index Component i on Trading Day $t+1$
$p_{i,t}$ = Price of Index Component i on Trading Day t
$p_{i,t+1}$ = Hypothetical price of Index Component i on Trading Day $t+1$
$f_{i,t}$ = Foreign exchange rate to convert the Price of Index Component i on Trading Day t into the Index Currency
D_t = Divisor on Trading Day t
D_{t+1} = Divisor on Trading Day $t+1$

Share splits
In the case of share splits with ex-date on Trading Day $t+1$, it is assumed that the prices change in ratio of the terms of the split. The new Number of Index Shares is calculated as follows:

$$x_{i,t+1} = x_{i,t} \times \mathrm{B}$$

With:

$x_{i,t}$ = Number of Index Shares of the affected Index Component on Trading Day t
$x_{i,t+1}$ = Number of Index Shares of the affected Index Component on Trading Day $t+1$
B = Shares after the share split for every share held before the split

Stock distributions
In the case of stock distributions with ex-date on Trading Day $t+1$, it is assumed that the prices change according to the terms of the distribution. The new Number of Index Shares is calculated as follows:

$$x_{i,t+1} = x_{i,t} \times (1 + \mathrm{B})$$

With:

$x_{i,t}$ = Number of Index Shares of the Index Component i on Trading Day t
$x_{i,t+1}$ = Number of Index Shares of the Index Component i on Trading Day $t + 1$
B = Shares received for every share held

7.6 Miscellaneous

Recalculation
Solactive AG makes the greatest possible efforts to accurately calculate and maintain its indices. However, the occurrence of errors in the index determination process cannot be ruled out. In such cases Solactive AG adheres to its publicly available Correction Policy.

Market Disruption
In periods of market stress Solactive AG calculates its indices following predefined and exhaustive arrangements set out in its publicly available Disruption Policy.

8. Changes in calculation method

The application by the Index Calculator of the method described in this document is final and binding. The Index Calculator shall apply the method described above for the composition and calculation of the Index. However, it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require changes to be made to this method. The Index Calculator may also make changes to the terms and conditions of the Index and the method applied to calculate the Index that it deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The Index Calculator is not obliged to provide information on any such modifications or changes. Despite the modifications and changes, the Index Calculator will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.