S&P China A-Share Quality Value Index Consultation Results

BEIJING, DECEMBER 9, 2019: S&P Dow Jones Indices (“S&P DJI”) has conducted a consultation with members of the investment community on potential changes to the S&P China A-Share Quality Value Index.

In an effort to enhance the quality and value factors for purposes of index stability, as well as reduce turnover during index rebalancings, S&P DJI will implement the methodology changes described below and on the following pages.

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<td>Liquidity</td>
<td>Stocks must have a minimum three-month average daily value traded of CNY 20 million (CNY 18 million for current constituents).</td>
<td>Stocks must have a minimum three-month average daily value traded of CNY 50 million (CNY 45 million for current constituents).</td>
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<tr>
<td>Return on Equity (&quot;ROE&quot;) Screening</td>
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<td>Stocks must have an ROE ratio that is greater than the median of the ROE ratio of the index universe.</td>
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</table>
| Accruals Ratio Calculation | This is computed using the change of a company’s net operating assets (“NOA”) over the last year divided by its average NOA over the last two years:  

\[
\text{Accruals Ratio} = \frac{(NOA_t - NOA_{t-1})}{(NOA_t + NOA_{t-1})/2}
\]

| |
| | This is computed using the change of a company’s NOA over the last year divided by the average of the absolute value of its NOA over the last two years:  

\[
\text{Accruals Ratio} = \frac{(NOA_t - NOA_{t-1})}{(|NOA_t| + |NOA_{t-1}|)/2}
\]
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<td>Outlier fundamental ratios are winsorized to ensure that the average values used to calculate the overall quality score are less distorted by extreme values.</td>
<td><strong>Return on Equity and Accruals Ratio.</strong> For a given fundamental variable, the values for all securities are first ranked in ascending order. Then, for securities that lie above the 97.5 percentile rank or below the 2.5 percentile rank, their value is set as equal to the value of the 97.5 percentile ranked or the 2.5 percentile ranked security, whichever is applicable. If the underlying data points for a given stock’s ROE are both negative, leading to a positive ROE, its ROE value will be excluded and the stock will be assigned an ROE z-score set as equal to the ROE z-score value of the 2.5 percentile ranked security.</td>
<td></td>
<td>Return on Equity. If the earnings per share and BVPS for a given stock are both negative, leading to a positive ROE, the stock will be assigned an ROE as equal to the lowest ROE in the universe.</td>
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<td><strong>Financial Leverage Ratio.</strong> The values for all securities are first ranked in ascending order. Then, for securities that lie above the 97.5 percentile rank or below the 2.5 percentile rank, their value is set as equal to the value of the 97.5 percentile ranked or the 2.5 percentile ranked security, whichever is applicable. If the underlying data point for a given stock’s BVPS is negative, leading to a negative Leverage, its Leverage value will be excluded and the stock will be assigned a Leverage ratio as equal to the highest Leverage ratio in the universe.</td>
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<tr>
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<td>Outlier fundamental ratios are winsorized to ensure that the average values used to calculate the overall value score are less distorted by extreme values. For a given fundamental variable, the values for all securities are first ranked in ascending order. Then, for securities that lie above the 97.5 percentile rank or below the 2.5 percentile rank, their value is set as equal to the value of the 97.5 percentile ranked or the 2.5 percentile ranked security, whichever is applicable.</td>
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**INDEX ANNOUNCEMENT**
**Quality Score Computation.** Computing a z-score is a widely adopted method of standardizing a variable in order to combine it with other variables that may have a different scale or unit of measurement. After winsorizing all the three fundamental ratios, the z-score for each of the three ratios for each security is calculated using the mean and standard deviation of the relevant variable within each of the index universes.

**Average Z-score Computation.** For each security, the average z-score is computed by taking a simple average of the three scores. Where there is a missing value, the average z-score is computed by taking a simple average of the remaining two scores. A security must have at least one z-score for it to be included in the index.

**Outlier Handling and Winsorization.** Outlier average z-scores are winsorized to ensure that the overall quality scores are less distorted by extreme values. To do this, for a given average z-score, the values for all securities are first ranked in ascending order. Then, for securities that lie above 4 or below -4, their value is set as equal to 4 or -4, whichever is applicable.

**Quality Score Computation.** Using the winsorized average z-scores, a quality score is computed for each of the securities. For a given security, if its winsorized average z-score is above 0, then its quality score will be the addition of 1 and the average z-score. On the other hand, if its winsorized average score is below 0, then its quality score will be the result of the reciprocal of 1 subtracted by its average z-score.

- If average $Z > 0$, Quality Score $= 1 + Z$
- If average $Z < 0$, Quality Score $= (1 / (1 - Z))$
- If average $Z = 0$, Quality Score $= 1$

For each of the three fundamental ratios (ROE, Accruals, and Financial Leverage), percentile scores are calculated as follows:

$$P_i = \frac{R_i}{N + 1}$$

where:

- $P_i$ = Constituent percentile score
- $R_i$ = Constituent fractional rank
- $N$ = Number of constituents

**Note:** For the ROE Ratio, higher ranking constituents ($R_i$) are the constituents with higher underlying values. For the Accruals and Financial Leverage Ratios higher ranking constituents ($R_i$) are the constituents with lower underlying values.

Each of the three percentile scores are then transformed into z-scores using the inverse of the normal cumulative distribution function with a mean of zero and a standard deviation of 1.

The average z-score is computed by taking a simple average of the three underlying z-scores which have been derived from the percentile scores. Where there is a missing value, the average z-score is computed by taking a simple average of the remaining two scores. A security must have at least one z-score for it to be included in the index.

Finally, the quality score is calculated as follows:

- If average $Z > 0$, Quality Score $= 1 + Z$
- If average $Z < 0$, Quality Score $= (1 / (1 - Z))$
- If average $Z = 0$, Quality Score $= 1$
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| Value Score Computation | Z-score Computation. Computing a z-score is a widely adopted method of standardizing a variable in order to combine it with other variables that may have a different scale or unit of measurement. After winsorizing all the three fundamental ratios, the z-score for each of the three ratios for each security is calculated using the mean and standard deviation of the relevant variable within each of the index universes. | For each of the three fundamental ratios (Book Value-to-Price, Earnings-to-Price, and Sales-to-Price, percentile scores are calculated as follows:  
\[ P_i = \frac{R_i}{N + 1} \]  
where:  
\[ P_i = \text{Constituent percentile score} \]  
\[ R_i = \text{Constituent fractional rank} \]  
\[ N = \text{Number of constituents.} \]  
**Note:** Higher ranking constituents \((R_i)\) are the constituents with higher underlying values.  
Each of the three percentile scores are then transformed into z-scores using the inverse of the normal cumulative distribution function with a mean of zero and a standard deviation of 1.  
The average z-score is computed by taking a simple average of the three underlying z-scores which have been derived from the percentile scores. Where there is a missing value, the average z-score is computed by taking a simple average of the remaining two scores. A security must have at least one z-score for it to be included in the index.  
Finally, the value score is calculated as follows:  
If average \(Z > 0\), Value Score = \(1 + Z\)  
If average \(Z < 0\), Value Score = \((1 / (1 - Z))\)  
If average \(Z = 0\), Value Score = 1 |

Outlier Handling and Winsorization.  
Outlier average z-scores are winsorized to ensure that the average values used to calculate the overall value score are less distorted by extreme values. To do this, for a given average z-score, the values for all securities are first ranked in ascending order. Then, for securities that lie above 4 or below -4, their value is set as equal to 4 or -4, whichever is applicable. |

Average Z-score Computation. For each security, the average z-score is computed by taking a simple average of the three scores. Where there is a missing value, the average z-score is computed by taking a simple average of the remaining two scores. A security must have at least one z-score for it to be included in the index. |

Value Score Computation. Using the winsorized average z-scores for the three value factors, a value score is computed for each of the securities. For a given security, if its winsorized average z-score is above 0, then its value score will be the addition of 1 and the average z-score. On the other hand, if its winsorized average score is below 0, then its value score will be the result of the reciprocal of 1 subtracted by its average z-score. |

If average \(Z > 0\), Value Score = \(1 + Z\)  
If average \(Z < 0\), Value Score = \((1 / (1 - Z))\)  
If average \(Z = 0\), Value Score = 1 |

These changes will become effective prior to the market open on Monday, December 23, 2019, in conjunction with the December rebalancing.  
For more information about S&P Dow Jones Indices, please visit [www.spdji.com](http://www.spdji.com).
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