# Guide for IDX Sharia Growth

(Appendix of IDX Announcement No. Peng-00258/BEI.POP/10-2022 dated 24 Oktober 2022)

## 1. INDEX INFORMATION

### 1.1. General Information

| | |
|---|---|
| **Index Name** | **IDX Sharia Growth** |
| **Index Code** | IDXSHAGROW |
| **Description** | An index that measures price performance of 30 sharia stocks with high liquidity and good corporate fundamentals that selected based on the trend of corporate revenue and earnings. |
| **Methodology** | Capped Adjusted Free Float Market Capitalization Weighted<br><br>On each periodic review, the constituent weight is capped so the highest weight in the index is no more than 15%. |
| **Base Date** | June 1, 2016 (Base Value = 100) |
| **Launch Date** | October 31, 2022 |

### 1.2. General Selection Criteria

| | |
|---|---|
| **Universe** | Jakarta Islamic Index (JII70) Constituents |
| **Eligibility** | Stocks that are eligible to be selected in the index selection are filtered based on the following criteria:<br>1) Booked net profit,<br>2) Stocks with extreme price-to-earnings ratio (PER) are not considered |
| **Selection** | 30 sharia stocks with the highest scores of $PER_{trend}$ and $PSR_{trend}$ will be selected into the index. |
| **Selection Data** | The calculation of the *price-to-earnings* growth trend ($PER_{trend}$) and the *price-to-sales* growth trend ($PSR_{trend}$) refers to the latest and last 3 years previous issued financial statements. Net profit and sales are calculated trailing for the last 12 months. |



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## 2. INDEX MAINTENANCE

### 2.1. Periodic Evaluation

| | Major Evaluation | Minor Evaluation |
|---|---|---|
| **Evaluation Period** | May and November | February and August |
| **Effective Date** | First trading day of June and December | First trading day of March and September |
| **Process / Purposes** | Select the stocks of index constituents. | |
| | - To adjust of changes in the number of listed shares.<br>- Adjust stock weights based on their free float ratios.<br>- Adjust stock weights based on their tilt Subscription Coverage factor.<br>- Adjust the stock weights based on the cap. | |
| **Announcement** | 5 exchange days or later prior to the effective date, depends on announcement date of Sharia Securities List from the Financial Services Authority. | |

### 2.2. Incidental Evaluation

Besides the routine evaluation, incidental evaluation can be done at any time if there are significant changes in the number of shares, delisting, or if there is any other information that has significant impact on an index constituent.

## 3. CONSTITUENT SELECTION PROCESS

### 3.1. Universe

Stock selection universe used for IDX Sharia Growth index are constituents of the Jakarta Islamic Index (JII70), with the following conditions:

- May Major Evaluation: using JII70 constituents that will be effective in June.
- November Major Evaluation: using JII70 constituents that will be effective in December.



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### 3.2. Process of Determining Selected Constituents

#### 3.2.1. Calculation of PER

The *price-to-earnings* or PER ratio of each stock is calculated as follows:

$$\text{PER} = \frac{\text{P}}{\text{EPS}}$$

Where:

| | | |
|---|---|---|
| P | = | Price stock based on the cut-off date specified |
| EPS | = | Calculation of EPS uses earnings data calculated over the trailing 12 months based on the latest published financial statements. |

#### 3.2.2. Calculation of PSR

The *price-to-sales* or PSR ratio of each stock is calculated as follows:

$$\text{PSR} = \frac{\text{P}}{\text{SPS}}$$

Where:

| | | |
|---|---|---|
| P | = | Price stock based on the cut-off date specified, |
| SPS | = | Calculation of SPS uses sales data calculated over the trailing 12 months based on the latest published financial statements. |

#### 3.2.3. Calculation of $PER_{trend}$

Growth trend of price-to-earnings ratio ($PER_{trend}$), current and historical period for the last 3 years, calculated as follows:

$$\text{PER}_{\text{trend}} = \frac{\text{b}}{\widetilde{\text{PER}}}$$

$$\text{PER}_t = \text{a} + \text{b} \,.\, \text{t}$$

$$\widetilde{\text{PER}} = \sum_{t=1}^{n} \frac{|\text{PER}_t|}{\text{n}}$$

Where:

| | | |
|---|---|---|
| $PER_{trend}$ | = | The ratio of the slope value of b to $\widetilde{PER}$, |
| $PER_t$ | = | PER value in period t |
| $\widetilde{PER}$ | = | PER value in period t |
| a | = | intercept of the regression model between the value of $PER_t$ to t |
| b | = | slope of the regression model between the value of $PER_t$ to t |
| t | = | financial statement year period (current and 3-year historical period are defined: 3,2,1,0) |



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| | | |
|---|---|---|
| n | = | the number of financial statement periods included in the calculation |

Example:

Stock ABD has current and past 3 years PE Ratio as follows:

| Date | Period | $PER_t$ | t |
|---|---|---|---|
| 24 Jan 2019 | Current period | 14,45 | 3 |
| 31 Des 2017 | Previous 1 year | 15,46 | 2 |
| 31 Des 2016 | Previous 2 years | 12,10 | 1 |
| 31 Des 2015 | Previous 3 years | 10,99 | 0 |

The calculation will be done as follows:

$$\widetilde{\text{PER}} = \frac{|14{,}45|+|15{,}46|+|12{,}10|+|10{,}99|}{4} = 13{,}25$$

Model of regression of $PER_t$ with regards to t as follows:

$$\text{PER}_t = 11{,}16 + 1{,}34 \cdot t$$

Then:

$$\text{PER}_{\text{trend}} = \frac{1{,}34}{13{,}25} = 10{,}11\%$$

### 3.2.4. Calculation of $PSR_{trend}$

Growth trend of price-to-sales ratio ($PSR_{trend}$), current and historical period for the last 3 years, calculated as follows:

$$\text{PSR}_{\text{trend}} = \frac{b}{\widetilde{\text{PSR}}}$$

$$\text{PSR}_t = a + b \cdot t$$

$$\widetilde{\text{PSR}} = \sum_{t=1}^{n} \frac{|\text{PSR}_t|}{n}$$

Dimana:

| | | |
|---|---|---|
| $PSR_{trend}$ | = | The ratio of the slope value of b to $\widetilde{PSR}$, |
| $PSR_t$ | = | PSR value in period t |
| $\widetilde{PSR}$ | = | PSR value in period t |
| a | = | intercept of the regression model between the value of $PSR_t$ to t |
| b | = | slope of the regression model between the value of $PSR_t$ to t |
| t | = | financial statement year period (current and 3-year historical period are defined: 3,2,1,0) |



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| | | |
|---|---|---|
| n | = | the number of financial statement periods included in the calculation |

Example:

Stock ABD has current and past 3 years PS Ratio as follows:

| Date | Period | $PSR_t$ | t |
|---|---|---|---|
| 24 Jan 2019 | Current period | 3,36 | 3 |
| 31 Des 2017 | Previous 1 year | 2,81 | 2 |
| 31 Des 2016 | Previous 2 years | 2,52 | 1 |
| 31 Des 2015 | Previous 3 years | 2,88 | 0 |

The calculation will be done as follows:

$$\widetilde{PSR} = \frac{|3{,}36|+|2{,}81|+|2{,}52|+|2{,}88|}{4} = 2{,}89$$

Model of regression of $PSR_t$ with regards to t as follows:

$$PSR_t = 2{,}63 + 0{,}17 \cdot t$$

Then:

$$PSR_{trend} = \frac{0{,}17}{2{,}89} = 5{,}88\%$$

### 3.2.5. Calculation of Variable Z-score

After obtaining the $PER_{trend}$ dan $PSR_{trend}$ variable form each stock, then the standardization process is carried out using the Z-score. Standardization ensures that these variables can be compared with each other.

In the process of calculating the Z-score, the winsorization rule is applied to limit the extreme values or outliers. Winsorization is carried out at to limit the of $PER_{trend}$ and $PSR_{trend}$ extreme value at 5% percentile and 95% of all stocks included in the selection process.

The shares are ranked based on each factor and then carried out a winsorization based on the number of eligible. For example, if the number of universe is 70, then the 5% and 95% percentiles are stocks with the 4th and 67th rankings. The shares are ranked based on each factor and then it is determined that the shares ranked 1-4 have the same factor value as the 4th stock. and stocks ranked 67-70 have the same factor value as the 67th stock. Then the Z-score of each stock is calculated by standardization using the average value and standard deviation of each factor.



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Example:

Top 4 Stocks with highest $PSR_{trend}$:

| *Rank* | Stocks | $PSR_{trend}$ | $PSR_{trend}$ after *winsorizing* |
|---|---|---|---|
| 1 | A | 91,18% | 55,26% |
| 2 | B | 73,26% | 55,26% |
| 3 | C | 62,01% | 55,26% |
| 4 | D | 55,26% | 55,26% |

Afterwards, the z-score of $PER_{trend}$ and $PSR_{trend}$ variables are calculated using the following formula:

$$Z_i = \frac{(x - \mu_i)}{\sigma_i}$$

Where:

| | | |
|---|---|---|
| $Z_i$ | = | Z-score of particular stock of variable i |
| $x$ | = | the value of variable i of particular stock |
| $\mu_i$ | = | the average value of variable i |
| $\sigma_i$ | = | the standard deviation value of variable i |

### 3.2.6. Calculation of Aggregate Z-score

After obtaining the z-score of each variable (zi), the aggregate z-score (Z) is then calculated as follows:

$$Z_{aggregate} = \frac{\sum_{i=1}^{n} Z_i}{n}$$

Where:

| | | |
|---|---|---|
| $Z_i$ | = | Z-score of particular stock of variable i |

### 3.2.7. Determination of Selected Constituents

After sorted by on the largest Aggregate Z-score, then 30 stocks are selected using 3 stages, namely:

1) Stocks with both positive *Z-score* $PE_{trend}$ and *Z-score* $PS_{trend}$ will be eligible selected as index members. If the number of stocks with both positive *Z-score* $PE_{trend}$ and *Z-score* $PS_{trend}$ is more than 30, then they are ranked based on $Z_{aggregate}$ and select 30 stocks with the highest $Z_{aggregate}$.
2) If the number of stocks selected in stage 1 is less than 30, remaining stocks will be selected based on the largest $Z_{aggregate}$ to meet the number of constituents.



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After obtaining the Z-score of each variable, then the process of determining the selected constituents is carried out by rank the Z-score and follow the buffer rule. This method aims to reduce the turnover during the major evaluation by providing an opportunity for index constituents in the previous period to continue to enter the index calculation in the evaluation period.

## 4. METHODOLOGY OF INDEX CALCULATION

### 4.1. Index Calculation Formula (Weighting Method)

The index uses "Capped Adjusted Free Float Market Capitalization Weighted" methodology. This method adds another factor besides the free float market capitalization, namely the average daily transaction. Moreover, the weight capping process of the index constituents is also applied. The average daily transaction factor define as Subscription Coverage tilt factor is calculated based on the Z-score value relative to the weight of the shares multiplied by 100 units against the median daily average of stock transactions for the last 12 months. Index calculation formula is as follows:

$$\text{Index} = \frac{\sum_{i=1}^{n} (\text{Market Cap}_i \times \text{Free Float Ratio}_i \times \textit{Subs Coverage} \text{ Tilt Factor}_i)}{\text{Base Market Cap}} \times 100$$

Where:

| | | |
|---|---|---|
| $\text{Market Cap}_i$ | = | Total listed shares × market price of stock i |
| $\text{Free Float Ratio}_i$ | = | Ratio of number of free float shares to the total listed shares of stock i |
| Subs Coverage $\text{Tilt Factor}_i$ | = | Subscription Coverage tilt factor of stock i |
| n | = | Number of index constituents |
| $\text{Base Market Cap}_i$ | = | Market capitalization on the Base Date (adjusted in the evaluation period if there are any changes in the number of shares for the index) |

### 4.2. The Stage Calculation of Subscription Coverage Tilt Factor

#### 4.2.1. Calculation of Z-score

Subscription coverage (subs coverage) factored of each stock is calculated as follow:

$$\text{MCFF}_i = \text{P}_i \text{ x } \text{S}_i \text{ x } \text{FF}_i$$

$$\text{Bobot}_i = \frac{\text{MCFF}_i}{\sum_{i=1}^{n} MCFF_i}$$

$$\textit{Subs Coverage}_i = \frac{\textit{Bobot}_i \text{ x } 100}{NTR_i}$$



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Where:

| | | |
|---|---|---|
| $P_i$ | = | Price of stock i |
| $S_i$ | = | Total listed shares of stock i |
| $FF_i$ | = | Free float ratio of stock i |
| $MCFF_i$ | = | Free float adjusted market capitalization of stock i |
| $\sum_{i=1}^{n} MCFF_i$ | = | Total free float adjusted market capitalization of all constituents |
| $Bobot_i$ | = | Weight for stock index i |
| $NTR_i$ | = | Daily transactions in regular market (NTR) for the last 12 month of stock i* |

*) NTR for each stock is calculated based on LQ45 Index methodology.

Afterwards, the Z-score of subs coverage variable is calculated using the following formula:

$$Z_i = -\frac{(x - \mu_i)}{\sigma_i}$$

Where:

| | | |
|---|---|---|
| $Z_i$ | = | Z-score of particular stock of variable i |
| $x$ | = | the value of variable i of particular stock |
| $\mu_i$ | = | the average value of variable i |
| $\sigma_i$ | = | the standard deviation value of variable i |

### 4.2.2. Calculation of Subscription Coverage Tilt Factor

After obtaining Z-score of subs coverage, the Subscription Coverage tilt factor is then calculated as follows:

$$Subs\ Coverage\ \ TF_i = \begin{cases} 1 + Z_i, if\ Z_i \geq 0 \\ \dfrac{1}{1 - Z_i}, if\ \ Z_i < 0 \end{cases}$$

Where:

| | | |
|---|---|---|
| $Subs\ Coverage\ TF_i$ | = | *tilt factor* of stock i |
| $Z_i$ | = | *Z-score* of stock i |

Furthermore, the Subscription Coverage tilt factor value is rounded up to two decimal places.

### 4.3. Process of Adjusting Stock Weight Based on Free Float Ratio and Subscription Coverage Tilt Factor

At each evaluation period, the weight of each stock is evaluated based on the value of the free float ratio. There is no technical difference in weight adjustment between major



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evaluation and minor evaluation. In the major evaluation, this process is preceded by the selection of the index constituents. Furthermore, adjustments to the quality factor will be made using the quality score.

### 4.3.1. Calculation of Free Float

The free float ratio of each stock is calculated based on the ratio of the free float to the total listed shares. The free float definition used follows the definition in Rule Number I-A concerning the Listing of Shares and Equity-Type Securities Other Than Stock Issued By The Listed Company. Afterwards, the percentage value of the free float ratio is rounded to two decimal places.

### 4.3.2. Calculation of Free Float Adjusted Market Capitalization

The free float adjusted market capitalization of each stock is calculated as follows:

$$MC_i = P_i \times S_i \times FF_i \times TF_i$$

Where:

| | | |
|---|---|---|
| $MC_i$ | = | Free float adjusted market capitalization of stock i |
| $P_i$ | = | Price of stock i |
| $S_i$ | = | Total listed shares of stock i |
| $FF_i$ | = | Free float ratio of stock i |
| $TF_i$ | = | Tilt factor of stock i |

### 4.3.3. Calculation of Stock Weight

The weight of each stock is calculated as follows:

$$\text{Weight}_i = \frac{MC_i}{\sum_{i=1}^{n} MC_i}$$

Where:

| | | |
|---|---|---|
| $MC_i$ | = | Free float adjusted market capitalization of stock i |
| n | = | Number of constituents |
| $\sum_{i=1}^{n} MC_i$ | = | Total free float adjusted market capitalization of all constituents |

## 4.4. Stock Weight Capping

On the evaluation period, both major evaluation and minor evaluation, the number of shares is also adjusted to ensure the weight of a stock in the index does not exceed the specified cap.



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If there is no constituent that has a weight exceed the cap, then this step is not necessary. But if there is one or several stocks that have a weight of more than the cap, then the process of adjusting stock weight by capping is applied as follows:

### 4.4.1. Determining the Number of Capped Stocks

In this process, the number of stocks with weights above the cap are determined. The number of capped stocks is equal to s and the number of uncapped stocks = t = 1-s.

### 4.4.2. Calculating the Total Free Float Adjusted Market Capitalization of Capped Stocks

If $MC_s$ is the total free float adjusted market capitalization of capped stocks and c is the cap, then:

$$MC_s = \frac{s \times c}{1 - (s \times c)} \times MC_t$$

Where:

| | | |
|---|---|---|
| $MC_s$ | = | Total free float adjusted market capitalization of all capped stocks |
| $MC_t$ | = | Total free float adjusted market capitalization of all uncapped stocks |
| s | = | Number of capped stocks |
| c | = | Cap |

### 4.4.3. Calculating the Capped Free Float Adjusted Market Capitalization

If $MC_{i\,s}$ is the capped free float adjusted market capitalization of a capped stock, then:

$$MC_{i.s} = \frac{1}{s} \times MC_s$$

### 4.4.4. Calculating the Number of Shares for the Index

The adjusted number of shares for index (Adj. $S_i$) of a stock is calculated by rounding the stock's free float adjusted market capitalization divided by the stock price, as the following formula:

$$\text{Adj. } S_i = \left[\frac{MC_i}{P_i}\right]_{\text{rounded}}$$

If a stock is a capped stock, $MC_i$ is equal to $MC_{i.s}$.

### 4.4.5. Calculating Final Stock Weight

The final weight of each stock is calculated as follows:

$$\text{Weight}_i = \frac{\text{Adj. } MC_i}{\sum_{i=1}^{n} \text{Adj. } MC_i}$$



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$$\text{Adj. } MC_i = \text{Adj.} S_i \times P_i$$

Where:

| | | |
|---|---|---|
| $\text{Weight}_i$ | = | Weight for stock index i |
| $\text{Adj. } MC_i$ | = | Market capitalization of stock i after adjustment of free float ratio and capping. |
| $\sum_{i=1}^{n} \text{Adj. } MC_i$ | = | Total market capitalization of all stocks after adjustment of free float ratio and capping. |
| n | = | Number of constituents |

The weight adjustment process is complete if each index constituent does not exceed the cap. The adjustment process should be repeated if there is still any stock that have a weight of more than the cap as a result of the preceding weight adjustment in other stocks.



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