



## **Ground Rules for SET Index Series**

**Fixed Income and Other Product Department**

**The Stock Exchange of Thailand**

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## 1. Overview

### 1.1. Index created by The Stock Exchange of Thailand (SET)

The Stock Exchange of Thailand has created Index Series to correspond with capital market development that has been happening at various periods of time and respond to various investors' needs. The index series can be used for many purposes, i.e. to reflect the price movements of securities traded on SET, to be the benchmark for investment performance, or to use as underlying index of such financial instruments as derivatives, mutual funds and exchange-traded fund (ETF), etc. In any case, the Index Series created by SET is a proprietary SET's trademark, owned by SET.

### 1.2. Index Operation Framework

SET Index Operation Framework comprises of index calculation and dissemination, index information service, and selection of index constituents according to the pre-defined criteria. SET clearly specifies operational criteria and guidelines, with internal audit function to ensure accurate and continuous index dissemination.

In case of any major adjustment, amendment or addition of SET Index Series' Ground Rules which have significant impact on the SET's stakeholders such as listed companies, brokerage firms, asset management companies, etc., SET may consider their opinions by discussing with them, listening to their views or taking their views and/or opinions into consideration as deemed suitable to ensure that the Rules are in accordance with the situation and needs of the index users.

### 1.3. Groups of Index created by SET

The index created by SET can be divided into 4 main groups as follows:

1. SET Index Series, consisting of
  - 1.1 SET Index
  - 1.2 SET Industry Group Index and SET Sector Index
  - 1.3 SET50 Index
  - 1.4 SET100 Index
  - 1.5 sSET Index

2. SET Thematic Index Series, consisting of:
  - 2.1 SETCLMV Index (SET CLMV Exposure Index)
  - 2.2 SETHD Index (SET High Dividend 30 Index)
  - 2.3 SETTHSI Index (SET THIS Index)
  - 2.4 SETWB Index (SET Well-Being Index)
  
3. mai Index Series, consisting of:
  - 3.1 mai Index
  - 3.2 mai Industry Group Index
  
4. Total Return Index (TRI) is an index that measures all kinds of return on securities investment, consisting of:
  - 4.1 SET TRI
  - 4.2 SET50 TRI
  - 4.3 SET100 TRI
  - 4.4 sSET TRI
  - 4.5 SETCLMV TRI
  - 4.6 SETHD TRI
  - 4.7 SETTHSI TRI
  - 4.8 SETWB TRI
  - 4.9 mai TRI
  - 4.10 Industry TRI
  - 4.11 Sector TRI

## **2. SET Index Committee**

SET has established the SET Index Committee to set policy on index development so as to respond to the need of users and make it comparable to the common practice used internationally. In addition, the SET Index Committee is responsible for approving the result of index constituent selection according to the set criteria, using its judgment as specified in the criteria, making any change to the criteria or taking other suitable measures to ensure that the Index effectively reflect the market condition. The SET Index Committee's duty is also to give advice on various issues related to index operation. All these are carried out to ensure that the operations are in line with SET's objectives.

### 3. Index Calculation

Index created by SET is calculated as Price Index and Total Return Index.

#### 3.1. Price Index

Price Index is an index that reflects price movement of securities which are constituents of the index.

3.1.1. The index, created by SET is market capitalization weighted index. The price index consists of SET Index Series and mai Index Series.

Price Index formula:

$$Index = \frac{Current\ Market\ Value}{Base\ Market\ Value} \times Base\ Value$$

Where:

Current Market Value (CMV) = total market value of constituents at calculation date

Base Market Value (BMV) = total market value of constituents at base date

Base Value = Base point of the index

3.1.2. The index, created by SET is market capitalization weighted and adjusted with other variables.

Price Index formula:

$$Index = \frac{Adjusted\ CMV}{Adjusted\ BMV} \times Base\ Value$$

Where:

Adjusted CMV = total market value of constituents at calculation date weighted with other variables

Adjusted BMV = total market value of constituents at base date weighted with other variables

Base Value = Base point of the index

SETCLMV Index formula:

$$Index = \frac{\sum_{i=1}^n (Price_{it} \times Listed Share_{it} \times CLMV Exposure Factor_{it} \times Adjustment Factor_{it})}{Adjusted BMV} \times Base Value$$

Where:

Price<sub>it</sub> = Market price of each constituent at calculation date

Listed Share<sub>it</sub> = Number of listed shares of each constituent at calculation date

CLMV Exposure Factor<sub>it</sub> = CLMV Exposure Factor at the calculated date

Adjustment Factor<sub>it</sub> = Cap-weight rate for each constituent at calculated date, used for distributing the excess constituent weight (higher than 5% of the index) to the constituent, having the weight less than 5% of the index, quarterly re-calculate

Adjusted BMV = Total market value of the index at base date, weighted by CLMV Exposure and adjustment factor

Base Value = Base point of the index

The CLMV Exposure Factors for each security are calculated by

$$CLMV Exposure Factor_i = \frac{CLMV Revenue_i}{\sum_{i=1}^n (CLMV Revenue_i)} + \frac{CLMV Revenue_i}{Total Revenue_i}$$

Where

CLMV Revenue<sub>i</sub> = Revenue from CLMV countries (Cambodia, Laos, Myanmar and Vietnam) of each constituent

Total Revenue<sub>i</sub> = Total revenue of each constituent

$\sum_{i=1}^n (CLMV Revenue_i)$  = CLMV revenue of all constituent on SET

SETHD Index formula:

$$Index = \frac{\sum_{i=1}^n (Price_{it} \times Listed Share_{it} \times Dividend Yield_{it} \times Adjustment Factor_{it})}{Adjusted BMV} \times Base Value$$

Where:

Price<sub>it</sub> = Market price of each constituent at calculation date

Listed Share <sub>it</sub>	=	Number of listed shares of each constituent at calculation date
Dividend Yield <sub>it</sub>	=	Dividend yield of each constituent of the index, at calculation date, capped at 15%.
Adjustment Factor <sub>it</sub>	=	Cap-weight rate for each constituent at calculated date, used for distributing the excess constituent weight (higher than 10% of the index) to the constituent, having the weight less than 10% of the index, quarterly re-calculate
Adjusted BMV	=	total market value of the index at base date weighted by dividend yield and adjustment factor
Base Value	=	Base point of the index

SETTHSI Index formula:

$$Index = \frac{\sum_{i=1}^n (Price_{it} \times Listed\ Share_{it} \times Adjustment\ Factor_{it})}{Adjusted\ BMV} \times Base\ Value$$

Where

Price <sub>it</sub>	=	Market price of each constituent at calculation date
Listed Share <sub>it</sub>	=	Number of listed shares of each constituent at calculation date
Adjustment Factor <sub>it</sub>	=	Cap-weight rate for each constituent at calculated date, used for distributing the excess constituent weight (higher than 5% of the index) to the constituent, having the weight less than 5% of the index, quarterly re-calculate
Adjusted BMV	=	total market value of the index at base date, weighted by CLMV Exposure and adjustment factor
Base Value	=	Base point of the index

SETWB Index formula:

$$Index = \frac{\sum_{i=1}^n (Price_{it} \times Listed\ Share_{it} \times Adjustment\ Factor_{it})}{Adjusted\ BMV} \times Base\ Value$$

Where

Price <sub>it</sub>	=	Market price of each constituent at calculation date
Listed Share <sub>it</sub>	=	Number of listed shares of each constituent at calculation date
Adjustment Factor <sub>it</sub>	=	Cap-weight rate for each constituent at calculated date, used for distributing the excess constituent weight (higher than 10% of the index) to the constituent, having the weight less than 10% of the index, quarterly re-calculate
Adjusted BMV	=	total market value of the index at base date, weighted by adjustment factor
Base Value	=	Base point of the index

Summary of base date and base point of Price Index is as follows:

Name of Price Index	Base Date	Base Points
SET Index	April 30, 1975	100 points
mai Index	September 2, 2002	100 points
SET Industry Group Index	December 31, 2003*	100 points
SET Sector Index	April 30, 1975*	100 points
mai Industry Group Index	December 30, 2014*	100 points
SET50 Index	August 16, 1995	1,000 points
SET100 Index	April 30, 2005	1,000 points
sSET Index	December 30, 2016	1,000 points
SETCLMV Index	June 29, 2018	1,000 points
SETHD Index	June 30, 2011	1,000 points
SETTHSI Index	June 29, 2018	1,000 points
SETWB Index	March 29, 2019	1,000 points

\*Please see details via [SET's Industry Group and Sector classification](#).



### 3.2 Total Return Index (TRI)

Total Return Index (TRI) is an index that measures all kinds of return on securities investment including capital gain/loss and dividends. It is based on the additional assumption that dividends are reinvested in securities.

TRI formula:

$$TRI_t = TRI_{t-1} * (1 + \text{Daily Total Return}_t)$$

Where:

$TRI_t$	=	Total return index at calculation date
$TRI_{t-1}$	=	Total return index at previous date
Daily Total Return <sub>t</sub>	=	Daily total return at calculation date

Daily total return is calculated by using the following formula:

3.2.1 Daily Total Return formula, calculated by the Market Capitalization Weighted Index at calculation date, used for SET Index Series and mai Index Series

$$\text{Daily Total Return}_t = \frac{\text{Index Value}_t + \left( \frac{\text{Total Dividend Payment}_t}{BMV_t} \right)}{\text{Index Value}_{t-1}} - 1$$

Where:

Index Value <sub>t</sub>	=	Price index value at calculation date
Index Value <sub>t-1</sub>	=	Price index value at previous date
BMV <sub>t</sub>	=	Base market value of total securities at base date
Total Dividend Payment <sub>t</sub>	=	Total dividend payment of all constituents of the index at calculation date

3.2.2 Daily Total Return formula, calculated by the Market Capitalization Adjusted-Weighted Index at base date, used for SETCLMV, SETHD, SETTHSI and SETWB Index Series

$$Daily\ Total\ Return_t = \frac{Index\ Value_t + \left( \frac{Adjusted\ Total\ Dividend\ Payment_t}{Adjusted\ BMV_t} \right)}{Index\ Value_{t-1}} - 1$$

Where:

- Index Value<sub>t</sub> = Price index value at calculation date
- Index Value<sub>t-1</sub> = Price index value at previous date
- Adjusted BMV<sub>t</sub> = Base market value of total securities, weighted by other variables at calculation date
- Adjusted Total Dividend Payment<sub>t</sub> = Total dividend payment of all constituents of the index, weighted by the other variables at calculation date

Adjusted Total Dividend Payment<sub>t</sub> formula:

$$Adjusted\ Total\ Dividend\ Payment_t = \sum_{i=1}^n (Total\ Dividend\ Payment_{it} \times other\ variable_{it})$$

Where

- Total Dividend Payment<sub>it</sub> = Total dividend payment of all constituents of the index at calculation date
- Others Variables<sub>it</sub> = Other variables for the weighted calculation of each securities at calculation date

Other variables used for the calculation in the Adjusted Total Dividend Payment<sub>t</sub> for each security in the TRI index can be summarized as shown in the table below.

Name of Total Return Index	Adjusted Total Dividend Payment
SETCLMV TRI	CLMV Exposure Factor × Adjustment Factor
SETHD TRI	Dividend Yield × Adjustment Factor
SETTHSI TRI	Adjustment Factor
SETWB TRI	Adjustment Factor

The dividend figure used here is the amount that the company announced to pay. The types of dividends used are as follows:

- Normal Cash Dividend is paid from net profit of a firm's current performance or from retained earnings.
- Special / Extra Dividend is paid apart from normal cash dividend. Extra dividend occurs when a firm has income from special events.
- Capital Repayment is an event where a firm pays capital back to shareholders.

Remark: Stock Dividend is not included because it is not in the form of cash that can be reinvested.

Timing of reinvestment is based on the assumption that the dividends will be reinvested on the day the constituent is posted the signs. If a constituent has no trading on that date, SET will take dividends into TRI calculation on the first day that the constituent is traded.

Summary of base date and base point of Total Return Index is as follows:

Name of Total Return Index	Base Date	Base Point
SET TRI	January 2, 2002	1,000 points
mai TRI	September 2, 2002	1,000 points
SET Industry Group TRI	December 31, 2003*	1,000 points
SET Sector TRI	January 5, 2004*	1,000 points
mai Industry Group TRI	December 30, 2014*	1,000 points
SET50 TRI	January 2, 2003	1,000 points
SET100 TRI	April 29, 2005	1,000 points
sSET TRI	December 30, 2016	1,000 points
SETCLMV TRI	June 29, 2018	1,000 points
SETHD TRI	July 4, 2011	1,000 points
SETTHSI TRI	June 29, 2018	1,000 points
SETWB TRI	March 29, 2019	1,000 points

\* Please see details via [SET's Industry Group and Sector classification](#) .

### 3.3 Adjustment of Index Base Value

In order to make the index truly reflect the price movement of the Index constituents, SET will adjust index base value based on the following principle:

Index after adjustment = Index before adjustment

$$\frac{CMV_n}{BMV_n} = \frac{CMV_0}{BMV_0}$$

$$BMV_n = BMV_0 \times \frac{CMV_n}{CMV_0}$$

Where:

$CMV_n$  = Current market value after adjustment

$BMV_n$  = Base market value after adjustment

$CMV_0$  = Current market value before adjustment

$BMV_0$  = Base market value before adjustment

SET will make adjustments in index calculation according to the following events:

- 1) When a new index constituent is added as a result of:
  - New Issue
  - Resumed trading of suspended securities by solving the causes of such suspension
  - Change of market
  - New constituent at periodic review or between periodic review
  - Change of Industry group or Sector for only Industry group Index or Sector Index, etc.
- 2) When an existing index constituent is removed as a result of:
  - Delisting
  - Securities which are suspended for a period of 3 months
  - Change of market
  - Constituent removed at periodic review or between periodic review
  - Change of Industry group or sector for only Industry group Index or Sector Index, etc.

- 3) When there are changes in number of shares of index constituents due to capital increase, capital decrease, conversion of debentures to common stocks, exercise of warrants, etc. Exceptional cases are as follows:
- Split: no adjustment is made to the base market value, due to the fact that the stock split increases number of listed shares and makes stock price decrease in the same proportion. Thus, market value of such security is unchanged.
  - Stock dividend: no adjustment is made to the base market value since it is just a transfer of retained earnings to paid-up capital.

Examples of index calculation are in Appendix A.

### 3.4 Capped weight adjustment of the Index

SET will operate the capped weight adjustment of the Index at the first day of each quarter (day T) by using the previous 3 business days' data (T-3) to calculate the Adjustment Factor for distributing the excess constituent weight.

In the case, where the capped weight is not met the criteria, SET Index Committee will consider such event and the decision of SET Index Committee is final.

The capped weight Index can summarize as following

Name of Index	Maximum weighted capped per securities
SETCLMV	5% maximum
SETHD	10% maximum
SETTHSI	5% maximum
SETWB	10% maximum

## 4. Criterion for Constituents Selection for SET, SET industry group, SET Sector, mai and mai Industry group Index

### 4.1. Basic qualifications for securities in the Index

The eligible securities must be the common stocks that have been listed for incorporating in Thailand (Thai stocks) or listed for incorporating in other countries (foreign stocks). In the case of consideration for the foreign stocks, foreign stocks can either be listed only on SET (primary listed) or listed on

SET and other stock exchanges (Dual listed). In addition, the eligible stocks also include the Property Fund & Real Estate Investment Trust (PFUND & REITs) and Infrastructure Fund.

#### 4.2 **Trading Suspension Rule**

The security that has been suspended from trading and flagged as “SP” sign for a period of 3 months will be removed from the indices calculations. If the company is able to solve the problems that lead to such trading suspension, SET will include such security in the indices calculations at the end of that resumption date

### **5. Criteria for Constituents Selection for SET50, SET100, sSET, SETB, SETCLMV, SETHD, SETCLMV and SETTHSI Index**

#### 5.1. **Index Review Period**

The index review is conducted every 6 months: in June (for index calculation during the second half of each year) by using data from June 1 of the previous year until May 31 of the year in review, and in December (for index calculation during the first half of the following year) by using data from December 1 of previous year until November 30 of the year in review.

#### 5.2. **Basic qualifications for securities in the Index**

5.2.1. The eligible securities must be stocks that have been listed for incorporating in Thailand (Thai stocks), or listed for incorporating in other countries (foreign stocks) which has been listed on SET only (primary listed) and has been listed on SET for a minimum of 6 months except stocks being selected according to the SET criteria between periodic reviews.

5.2.2. The eligible stocks must not be any of the followings:

5.2.2.1. Likely to be delisted according to SET regulations

5.2.2.2. Undergoing delisting process

5.2.2.3. Being currently suspended (SP) from trading for a long period

5.2.2.4. Having tendency to be suspended for an extended period of time (such as 3 months due to not being able to submit financial statement, etc.)

5.2.2.5. Being stocks of companies that defaulted and/or fail to pay debt yet which may significantly have impact on the financial position of the companies.

5.2.2.6. Being stocks of companies that are bankrupt, in the rehabilitation process, or liquidated.

5.2.2.7. Being stocks of companies with auditors' opinion on the latest financial statement indicating "disclaimer of opinion" or "adverse opinion" which include the comments for amending and special auditing on the latest or non-specific period of financial statement, from other related regulators.

### **5.3. Constituents of SET50 Index and SET100 Index in each periodic review**

- 5.3.1. The eligible stocks must be in the top 200 stocks in terms of average daily market capitalization for the past 3 months. For the stocks selected according to Criteria for Changing of Constituent between the Periodic Review and traded for less than 3 months, the average daily market capitalization from the first trading day will be considered.
- 5.3.2. The eligible stocks must maintain their free-float of no less than 20% of the listed company's paid-up capital, by considering the latest data in the index review period.
- 5.3.3. The eligible stocks must have an average monthly trading value of at least 50% of the average monthly trading value of all common stocks in the same month for at least 9 out of the 12 months or at least three-fourths of the securities being traded for less than 12 months but more than 6 months. In the case of the security that has been selected in accordance with the set criteria during the periodic review, the trading value must have also passed such criteria for at least three-fourths of its trading period. However, the trading value will exclude the months that such security was included in the Market Surveillance measure list.
- 5.3.4. The eligible stocks must have a monthly turnover ratio of at least 2% of its total listed shares in the same month that the trading value complies with the condition in section 5.3.3.,
- 5.3.5. If the number of eligible stocks is less than 105, SET will take the following criteria:
- 5.3.5.1. Reduce the percentage of trading value from 50% by 5% at a time. However, the limit will not be less than 20%.
- 5.3.5.2. Reduce the number of months by 1 month at a time, but not less than 6 months.  
There is an exception for the new stock being added between the periodic review.
- 5.3.5.3. Reduce the percentage of trading shares from 2% by 0.5% at a time, but not less than 1%.

However, the SET Index Committee may consider reducing the percentage of trading value, or the percentage of trading shares in order to get a total of 105 stocks and to ensure that the Index reflects current market condition appropriately.

The top 50 stocks ranked by average daily market capitalization will be chosen for the calculation of the SET50 Index. The top 100 stocks, which include all those in the SET50 Index together with the next 50 stocks, will be used in calculating the SET100 Index.

#### Reserve List

- Securities ranked # 51 - 55 will be the reserve stocks for the SET 50 Index.
- Securities ranked # 101 - 105 will be the reserve stocks for the SET 100 Index.

#### **5.4. Constituents of sSET Index in each periodic review**

- 5.4.1. The eligible stocks must have cumulative market capitalization coverage between 90%-98% of those of all common stocks on SET that are sorted in descending order by average daily market capitalization for the past 3 months. For the stocks selected according to Criteria for Changing of Constituent between the Periodic Review and traded for less than 3 months, the average daily market capitalization from the first trading day will be considered.
- 5.4.2. The eligible stocks must not be the constituents of the SET 100 Index in the same period.
- 5.4.3. The eligible stocks must maintain their free-float of no less than 20% of the listed company's paid-up capital, by considering the latest data in the index review period.
- 5.4.4. The eligible stocks must have a monthly turnover ratio of at least 0.5% of its total listed shares for at least 9 out of the 12 months, or at least three-fourths of the trading period for stocks traded less than 12 months. However, the turnover ratio will exclude the months that such security was included in the Market Surveillance measure list.

All stocks that have passed the above criteria will become sSET Index constituents.

#### **5.5. Constituents of SETCLMV Exposure Index in each periodic review**

- 5.5.1. The eligible stocks must have the revenue from CLMV countries (Cambodia, Laos, Myanmar, and Vietnam) at least 10% of the company's total revenue, or must have the revenue from CLMV countries of at least THB 100 million, taking into consideration published data in the appendix of the latest financial statement, the latest 56-1 form and the data of SET surveys showing revenue of Thai listed companies operating in CLMV.
- 5.5.2. The eligible stocks must have the minimum average daily market capitalization at 5,000 million Baht for the past 3 months. For the stocks selected according to Criteria for Changing of Constituent between the Periodic Review and traded for less than 3 months, the average daily market capitalization from the first trading day will be considered.
- 5.5.3. The eligible stocks must maintain their free-float of no less than 20% of the listed company's paid-up capital, by considering the latest data in the index review period.
- 5.5.4. The eligible stocks must have a monthly turnover ratio of at least 0.5% of its total listed shares for at least 9 out of the 12 months, or at least three-fourths of the trading period but



not less than 6 months for stocks traded less than 12 months. However, the turnover ratio will exclude the months that such security was included in the Market Surveillance measure list.

All stocks that have passed the above criteria will become SET CLMV Exposure Index constituents.

#### **5.6. Constituents of SET High Dividend 30 Index in each periodic review**

5.6.1. The eligible securities must be the constituents of the SET 100 Index in the same period.

5.6.2. The eligible securities must be stocks that have paid dividends continuously, by taking into consideration their financial data of 3 accounting periods, as follows:

5.6.2.1. As a listed company, cash dividends (excluding special dividends) are paid continuously for the last three years.

5.6.2.2. Average 3-year dividend payout ratio is no more than 100%.

5.6.3. If the number of eligible stocks is less than 35, SET will decrease the number of years from 3 years by 1 year at a time. However, the minimum year must not be less than 1 year.

In order to get a total of 35 stocks, SET may implement any other criteria that the SET Index Committee deems appropriate.

The stocks that have passed the above criteria will be ranked in descending order by the average daily dividend yield for the past 3 months during the periodic review. The top 20 constituents will be included in the calculation of the SET High Dividend 30 Index. The next 10 constituents are then selected from rankings # 21-40. The existing constituents of SET High Dividend 30 Index will get the first priority. After that the rest in ranking will be considered until there are 30 constituents.

Reserve lists are securities ranked # 31 – 35.

#### **5.7. Constituents of SET THSI Index in each periodic review**

5.7.1. The eligible stocks must be in the latest Thailand Sustainability Investment (THSI) list.

5.7.2. The eligible stocks must have the minimum average daily market capitalization at 5,000 million Baht for the past 3 months. For the stocks selected according to Criteria for Changing of Constituent between the Periodic Review and traded for less than 3 months, the average daily market capitalization from the first trading day will be considered.

5.7.3. The eligible stocks must maintain their free-float of no less than 20% of the listed company's paid-up capital, by considering the latest data in the index review period.

5.7.4. The eligible stocks must have a monthly turnover ratio of at least 0.5% of its total listed shares for at least 9 out of the 12 months, or at least three-fourths of the trading period but

not less than 6 months for stocks traded less than 12 months. However, the turnover ratio will exclude the months that such security was included in the Market Surveillance measure list.

All stocks that have passed the above criteria will become SET THSI Index constituents.

#### **5.8. Constituents of SET Well-Being Index (SETWB) in each periodic review**

5.8.1. The eligible stocks must be in these 7 sectors; Agribusiness, Commerce, Fashion, Food and Beverage, Health Care Service, Tourism & Leisure and Transportation & Logistics.

5.8.2. The eligible stocks must maintain their free-float of no less than 20% of the listed company's paid-up capital, by considering the latest data in the index review period.

5.8.3. The eligible stocks must have a monthly turnover ratio of at least 0.5% of its total listed shares for at least 9 out of the 12 months during the evaluation period, or at least three-fourths of the trading period but not less than 6 months for stocks traded less than 12 months. However, the turnover ratio will exclude the months that such security was included in the Market Surveillance measure list.

5.8.4. The eligible securities must be profitable for at least 2 out of 3 years, taking into consideration the consolidated financial statements in the past three years.

5.8.5. If the number of eligible stocks is less than 35, SET will decrease the number of the trading months by 1 month at a time, but not less than 6 months.

In order to get a total of 35 stocks, SET may implement any other criteria that the SET Index Committee deems appropriate.

The top 30 stocks ranked by the daily average market capitalization for 1 – 30 will be selected as constituents for the calculation of the SETWB Index.

#### **Reserve List**

- Securities ranked # 31 - 35 will be the reserve stocks for the SET WB Index.

## **5.9. Criteria for Changing of Constituents between the Periodic Review**

### **5.9.1. New Issue**

5.9.1.1. A new listed company will be included in SET50 Index or SET 100 Index calculation between the periodic review, if the new listed company is large in size, for example, its market capitalization is expected to be greater than 1% of SET Index's total market capitalization, or it is expected to be as large as one of the top 20 of the SET50 or SET100 constituents.

5.9.1.2. The New Issue does not include the new listed company which results from restructuring, merger & acquisition with the existing listed company as shown in section 5.9.2.

5.9.1.3. The new company will be included in the index effective on its third business day (T+3) after the first trading day (T). In this process, the stock with lowest ranking by market capitalization will be removed to the reserve list.

5.9.1.4. There is no adjustment for sSET Index, SETCLMV Index, SETHD Index, SETTHSI and SETWB Index

### **5.9.2. Mergers & Acquisitions, Takeovers, and Complex Corporate Restructurings**

5.9.2.1. If the above corporate events are carried out between the stocks in the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index the company resulting from the events will remain in the same index. The reserve list will be selected to maintain the number of constituents in the SET50 Index, SET100 Index, SETHD Index and SETWB Index.

5.9.2.2. In case the above corporate events are carried out between the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index and non-constituents:

5.9.2.2.1. If the existing constituent of the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index is still a listed stock, it can still be in the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index as before.

5.9.2.2.2. If the existing constituent of the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index is not a listed stock anymore, the resulting company that applies for listing will replace such constituent in the SET50 Index or SET100

Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index at the end of its first trading day.

5.9.2.3. If the restructuring of the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index constituent has caused split or spin off into two or more companies and the constituent of the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index is still a listed stock, it can still be in the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index as before.

5.9.2.4. If any constituent resulting from 5.9.2 has free float less than 20%, it will be removed from the index calculations and be replaced by the reserve list so as to maintain the number of constituents in the SET50 Index, SET100 Index, SETHD Index and SETWB Index.

5.9.2.5. Any other cases will be considered by the SET Index Committee.

#### 5.9.3. Trading Suspension for Long Period

If a constituent of the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index is suspended from trading (SP sign) for 20 business days or more, SET will review monthly and remove that constituent from the index calculation.

#### 5.9.4. Constituents that will be removed from the index calculation of SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index.

If a constituent of the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index is one of the followings, SET will remove the constituent by notifying the date of change in advance.

5.9.4.1. Being stocks of companies that defaulted and/or fail to pay debt yet which may significantly have impact on the financial position of the companies.

5.9.4.2. Being stocks of companies that are bankrupt, in the rehabilitation process, or liquidated.

5.9.4.3. Being stocks of companies with auditors' opinion on the latest financial statement indicating "disclaimer of opinion" or "adverse opinion" which include the comments for amending and special auditing on the latest or non-specific period of financial statement, from other related regulators.

## **5.10. Undertaking due to Changing of Constituent between the Periodic Review**

- 5.10.1. When the stock is added as a constituent in SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index, causing the removal of constituent from such index to the reserve list, SET will take out the constituent with the smallest market capitalization at closing price of the third business day before the day of removing the constituent from the calculations. The removed SET100 Index stock will not be added in the sSET Index calculation.
- 5.10.2. Selection from the reserve list to replace the removed constituent to maintain the number of constituents in the index.
- 5.10.2.1. SET will choose the reserve stock of SET50 index or SET100 index or SETWB Index with highest market capitalization at the closing date 3 business days before removing the constituent from the calculations.
- 5.10.2.2. SET will choose the reserve stock of SETHD Index with highest dividend yield calculated at the latest periodic review.
- 5.10.2.3. If reserve stocks are not enough, it will be under the consideration of the SET Index Committee in order to maintain the number of constituents in the index.
- 5.10.2.4. If the reserve list of SET100 Index becomes the constituent of such Index, the stock will be removed from the sSET Index calculation.
- 5.10.3. SET will announce the change in the constituents of the SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index in advance of implementation.

In any event that the selection of SET50 Index or SET100 Index or sSET Index or SETCLMV Index or SETHD Index or SETTHSI Index or SETWB Index needs interpretation of the pre-defined criteria; or that the criteria is not completely specified or do not cover, SET Index Committee will consider such event and the decision of SET Index Committee is final.

### **Definition of Key Terms**

SET defines important definition in Key Statistics and Financial Ratio Manual Guideline so that investors can use for making investment decision.

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## Appendix A – Examples of Index Calculation

### Day 1. Base date

Assumption: There are 3 listed companies.

Stock A: 100,000 shares, par value = THB100, market price = THB110

Stock B: 300,000 shares, par value = THB100, market price = THB160

Stock C: 200,000 shares, par value = THB100, market price = THB120

$$\begin{aligned}\text{Base Index} &= \frac{CMV}{BMV} \times 100 \\ &= \frac{\sum_{i=1}^n P_{it} Q_{it}}{\sum P_{io} Q_{io}} \times 100 \\ &= \frac{(110 \times 100,000) + (160 \times 300,000) + (120 \times 200,000)}{(110 \times 100,000) + (160 \times 300,000) + (120 \times 200,000)} \times 100 \\ &= \frac{83,000,000}{83,000,000} \times 100 \\ &= 100\end{aligned}$$

### Day 2. Change in market prices

The market prices of A, B and C change to THB 120, THB 170 and THB 110, respectively. The Index then becomes:

$$\text{Index (2)} = \frac{CMV_n}{BMV_n} \times 100$$

$$\begin{aligned}
&= \frac{(120 \times 100,000) + (170 \times 300,000) + (110 \times 200,000)}{83,000,000} \times 100 \\
&= \frac{85,000,000}{83,000,000} \times 100 \\
&= 102.41
\end{aligned}$$

### Day 3. New listing of stock D

The market prices of A, B and C change to THB 110, THB 170 and THB 120, respectively. In addition, stock D is a newly listed stock today, with 150,000 shares and closing price of THB 140.

When a new stock is listed or any stock is added in the Index, the number of listed stocks and the market value will be affected. SET will adjust the Base Market Value (BMV) by using the closing price of that stock on the first trading day. However, the price movement of stock D is not included in the index during the first trading day. At the end of Day 3, the Index then becomes:

$$\begin{aligned}
\text{Index (3)} &= \frac{CMV_n}{BMV_n} \times 100 \\
&= \frac{(110 \times 100,000) + (170 \times 300,000) + (120 \times 200,000)}{83,000,000} \times 100 \\
&= \frac{86,000,000}{83,000,000} \times 100 \\
&= 103.61
\end{aligned}$$

Then, the BMV for Index on Day 4 will be:



$$\begin{aligned}
BMV_n &= BMV_0 \times \frac{CMV_n}{CMV_0} \\
&= 83,000,000 \times \frac{(110 \times 100,000) + (170 \times 300,000) + (120 \times 200,000) + (140 \times 150,000)}{(110 \times 100,000) + (170 \times 300,000) + (120 \times 200,000)} \\
&= 83,000,000 \times \frac{107,000,000}{86,000,000} \\
&= 103,267,441
\end{aligned}$$

The comparison of Index between before and after the adjustment is as follows:

$$\frac{CMV_n}{BMV_n} = \frac{CMV_0}{BMV_0}$$

$$\frac{107,000,000}{103,267,441} = \frac{86,000,000}{83,000,000}$$

$$103.61 = 103.61$$

#### Day 4. Change in market prices

The market prices of A, B, C and D change to THB120, THB180, THB120 and THB130, respectively. The Index then becomes:

$$\begin{aligned}
\text{Index (4)} &= \frac{CMV_n}{BMV_n} \times 100 \\
&= \frac{(120 \times 100,000) + (180 \times 300,000) + (120 \times 200,000) + (130 \times 150,000)}{103,267,441} \times 100 \\
&= \frac{109,500,000}{103,267,441} \times 100 \\
&= 106.04
\end{aligned}$$

Effective on Day 5, company C will be delisted. When any stock is delisted or listed shares of a stock decreases, the number of listed shares and the market value will be affected. SET will adjust the Base Market Value (BMV) on the day prior to the effective date by using the closing price of the stock on that day.

The BMV for Index on Day 5 will then be:

$$\begin{aligned} BMV_n &= BMV_0 \times \frac{CMV_n}{CMV_0} \\ &= 103,267,441 \times \frac{(120 \times 100,000) + (180 \times 300,000) + (130 \times 150,000)}{(120 \times 100,000) + (180 \times 300,000) + (120 \times 200,000) + (130 \times 150,000)} \\ &= 103,267,441 \times \frac{85,500,000}{109,500,000} \\ &= 80,633,481 \end{aligned}$$

#### Day 5. Delisting of Stock C

Stock C is delisted on Day 5.

The market prices of A, B and D change to THB130, THB180 and THB140, respectively.

So, the Index value in Day 5 is:

$$\begin{aligned} \text{Index (5)} &= \frac{CMV_n}{BMV_n} \times 100 \\ &= \frac{(130 \times 100,000) + (180 \times 300,000) + (140 \times 150,000)}{80,633,481} \times 100 \\ &= \frac{88,000,000}{80,633,481} \times 100 \\ &= 109.14 \end{aligned}$$

#### Day 6. Par splitting

Effective on Day 6, Stock A will split its par value from THB100 to THB 50. Such event increases the number of shares but the price decreases in the same proportion. Therefore, the base value of index will not be adjusted.

The market prices of A, B and D change to THB75, THB180 and THB150, respectively. The Index on Day 6 is:

$$\begin{aligned}
 \text{Index (6)} &= \frac{CMV_n}{BMV_n} \times 100 \\
 &= \frac{(75 \times 200,000) + (180 \times 300,000) + (150 \times 150,000)}{80,633,481} \times 100 \\
 &= \frac{91,500,000}{80,633,481} \times 100 \\
 &= 113.48
 \end{aligned}$$

Day 7. Capital increase by rights offering to existing shareholders (Ex-right day)

Company D will raise its capital by 150,000 shares through the rights offering to the existing shareholders, where the Ex-right day is set on Day 7. Shareholders are offered the rights to buy a new share at an exercise price of THB100 for each share they hold. (XR 1:1 @ THB100)

On Day7, closing prices of A, B and D change to THB80, THB170 and THB130, respectively.

When any stock increases its capital through a rights offering, the BMV adjustment will depend on the value of rights. In case where the rights is in-the-money (subscription price is lower than prior closing price), shareholders will exercise the rights. Then, SET will adjust the Base Market Value (BMV) at end of day (EOD) on the ex-rights date by using the Subscription Price and the new issued shares. The formula is as follow:

$$BMV_n = BMV_0 \times \frac{CMV_n}{CMV_n - (\text{Subscripti on Price} \times \text{New Shares Issued})}$$

On the other hand, when the rights are at-the-money (subscription price is equal to prior closing price) or out-of-the money (subscription price is higher than prior closing price), shareholders will not exercise the rights because they can purchase shares at the current market price which is lower than subscription price. SET will take no adjustment to BMV on the ex-rights (XR) date. However, the Base Market Value (BMV) will be adjusted when the additional shares are listed by using the same adjustment as Public Offerings (PO).

For this case, the rights is considered as in-the-money (THB100 < THB150). The BMV for index calculation will then be:

$$\begin{aligned}
 BMV_n &= BMV_0 \times \frac{CMV_n}{CMV_n - (\text{Subscription Price} \times \text{New Shares Issued})} \\
 &= 80,633,481 \times \frac{(80 \times 200,000) + (170 \times 300,000) + (130 \times 300,000)}{[(80 \times 200,000) + (170 \times 300,000) + (130 \times 300,000)] - (100 \times 150,000)} \\
 &= 80,633,481 \times \frac{106,000,000}{91,000,000} \\
 &= 93,924,714
 \end{aligned}$$

The Index value in Day 7 is

$$\begin{aligned}
 \text{Index (7)} &= \frac{CMV_n}{BMV_n} \times 100 \\
 &= \frac{(80 \times 200,000) + (170 \times 300,000) + (130 \times 300,000)}{93,924,714} \times 100 \\
 &= \frac{106,000,000}{93,924,714} \times 100 \\
 &= 112.86
 \end{aligned}$$

#### Day 8. Public Offerings (PO) and Private Placements (PP)

Company B raises its capital by 100,000 shares through Private Placement (PP). The share allotment is carried out as follows: 50,000 shares for company's customers and at THB150 and other 50,000 shares for directors and employees at THB100.

Closing prices of A, B and D change to THB80, THB160 and THB140, respectively.

When company increases its shares through the public offering or private placement, SET will adjust the Base Market Value (BMV) when additional shares are firstly traded by using the prior price of that stock and applying the following formula.

$$BMV_n = BMV_0 \times \frac{CMV_n}{CMV_n - (\text{Prior Price} \times \text{New Shares Issued})}$$

BMV for Index calculation on Day 8 is as follows:

$$\begin{aligned} BMV_n &= BMV_0 \times \frac{CMV_n}{CMV_n - (\text{Prior Price} \times \text{New Shares Issued})} \\ &= 93,924,714 \times \frac{(80 \times 200,000) + (160 \times 400,000) + (140 \times 300,000)}{[(80 \times 200,000) + (160 \times 400,000) + (140 \times 300,000)] - (170 \times 100,000)} \\ &= 93,924,714 \times \frac{122,000,000}{105,000,000} \\ &= 109,131,572 \end{aligned}$$

The Index value in Day 8 is:

$$\begin{aligned} \text{Index (8)} &= \frac{CMV_n}{BMV_n} \times 100 \\ &= \frac{(80 \times 200,000) + (160 \times 400,000) + (140 \times 300,000)}{109,131,572} \times 100 \\ &= \frac{122,000,000}{109,131,572} \times 100 \\ &= 111.79 \end{aligned}$$

#### Day 9. Change in market prices

Closing prices of A, B and D change to THB 85, THB 150 and THB 135, respectively. The Index value then becomes:

$$\text{Index (9)} = \frac{CMV_n}{BMV_n} \times 100$$

$$\begin{aligned}
&= \frac{(85 \times 200,000) + (150 \times 400,000) + (135 \times 300,000)}{109,131,572} \times 100 \\
&= \frac{117,500,000}{109,131,572} \times 100 \\
&= 107.67
\end{aligned}$$

Effective on Day 10, Company D will reduce its capital by decreasing its number of listed shares by 100,000 shares. In this case, SET will adjust the Base Market Value (BMV) on the day prior to the effective date by using the closing price of that stock on that day (the last day of trading such listed shares).

In case of rights offering, when the newly enlarged capitalization of the company is not fully paid, it is necessary to adjust the Base Market Value (BMV) by reducing the number of shares which is not subscribed. Such case has the same practice as the case of reducing capital. The Base Market Value (BMV) will be adjusted at the end of the day prior to the first trading day of additional shares by using the last closing price.

BMV for index calculation on Day10:

$$\begin{aligned}
BMV_n &= BMV_0 \times \frac{CMV_n}{CMV_0} \\
&= 109,131,572 \times \frac{(85 \times 200,000) + (150 \times 400,000) + (135 \times 300,000) - (135 \times 100,000)}{(85 \times 200,000) + (150 \times 400,000) + (135 \times 300,000)} \\
&= 109,131,572 \times \frac{104,000,000}{117,500,000} \\
&= 96,593,050
\end{aligned}$$

#### Day 10. Capital decrease

Market prices of A, B and D change to THB 80, THB 160 and THB 100, respectively. Company D reduces its capital by decreasing its number of listed shares by 100,000 shares. The Index value then becomes:

$$\text{Index (10)} = \frac{CMV_n}{BMV_n} \times 100$$

$$\begin{aligned}
&= \frac{(80 \times 200,000) + (160 \times 400,000) + (100 \times 200,000)}{96,593,050} \times 100 \\
&= \frac{100,000,000}{96,593,050} \times 100 \\
&= 103.53
\end{aligned}$$

Effective on Day 11, Company M will upgrade its listing status from mai to SET. Stock M is traded on mai on Day 10 for the last day with 150,000 listed shares at a closing price of THB 50.

When a stock moves from mai to SET on Day 11, SET will instantly include that stock into the SET Index from its first trading day on SET onward. Accordingly, SET will adjust the Base Market Value (BMV) for the SET Index at end of day (EOD) on the last day it traded on mai by using the closing price as adjusted price. For mai Index, that stock will be treated as delisted stock.

Likewise, the change of stock from one industry group or sector to another also uses the same method but the adjustment will be taken to the relevant industry group or sector only.

BMV for index calculation on Day11:

$$\begin{aligned}
BMV_n &= BMV_0 \times \frac{CMV_n}{CMV_0} \\
&= 96,593,050 \times \frac{(80 \times 200,000) + (160 \times 400,000) + (100 \times 200,000) + (50 \times 150,000)}{(80 \times 200,000) + (160 \times 400,000) + (100 \times 200,000)} \\
&= 96,593,050 \times \frac{107,500,000}{100,000,000} \\
&= 103,837,528
\end{aligned}$$

#### Day 11. Change market

Market prices of A, B and D change to THB 85, THB 150 and THB 120, respectively.

Market price of M which moves from mai to SET changes to THB 65.

The Index value then becomes:

$$\begin{aligned}\text{Index (11)} &= \frac{CMV_n}{BMV_n} \times 100 \\ &= \frac{(85 \times 200,000) + (150 \times 400,000) + (120 \times 200,000) + (65 \times 150,000)}{103,837,528} \times 100 \\ &= \frac{110,750,000}{103,837,528} \times 100 \\ &= 106.66\end{aligned}$$

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