



Swiss Exchange

SIX Swiss Exchange Indices

Guide Governing SMI Risk Control Indices

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1 Index Structure

1.1 Concept

A target volatility concept is applied to the SMI (TR) Index (CH0000222130). Whereas the risk profile of the SMI (TR) Index is the uncontrolled outcome of the existing market-cap weighted index concept, the Risk Control Index controls for risk by aiming for a target volatility of 5% (10%, 15%, 20%). In order to control for risk, the index shifts between a risk free money market investment (measured via SARON) and a risky part (measured by the SMI (TR) Index).

1.2 General principles

In order to achieve the stated index objective SIX Swiss Exchange defines the general principles that govern the index methodology. SIX Swiss Exchange publishes the index objective and rules for all indices.

- **Representative:**
The development of the market is represented by the index.
- **Tradable:**
The index components are tradable in terms of company size and market.
- **Replicable:**
The development of the index can be replicated in practise with a portfolio.
- **Stable:**
High index continuity
- **Rules-based:**
Index changes and calculations are rule-based.
- **Projectable:**
Changes in rules are with appropriate lead time (usually at least 2 trading days) – no retrospective rule changes.
- **Transparent:**
Decisions are based on public information.

1.3 Index Commission

The Management Committee of SIX Swiss Exchange is supported by the Index Commission (advisory board) in all index-related matters, notably in connection with changes to the index rules and adjustments, additions and exclusions outside of the established review and acceptance period.

The Index Commission convenes at least twice a year. It provides valuable input on how existing products can be improved and new ones created.

1.4 Review of index concept

The validity of the index concepts and rules is reviewed on a regular basis. In exceptional cases a broad market consultation can be conducted. The changes to the index rules are publicly announced with appropriate lead time (usually 3 months).

1.5 Termination of the index calculation

A decision to discontinue will be publicly announced by SIX Swiss Exchange with appropriate lead time.

In case of existing financial products linked to the index, of which SIX Swiss Exchange is aware, a market consultation is conducted in advance and a transition period is introduced before the definitive termination.

1.6 Review frequency

The composition of the SMI Risk Control indices is reviewed on a daily basis.

1.7 Ongoing rebalancing

If on a daily basis the risk of the current SMI Risk Control Index composition is below the targeted risk of 5% (10%, 15%, 20%), the allocation will be adjusted towards the risky asset, in case the current risk profile is above the targeted 5% (10%, 15%, 20%), the allocation will be adjusted towards the risk free component (SARON).

1.8 Additional features

To avoid extreme leveraged positions, a maximum exposure of 150% towards the risky asset is introduced.

A tolerance level of 5% is implemented to avoid high allocation turnover due to minimal deviations from the targeted risk.

2 Index Calculation

2.1 Calculation method

$$IndexTR_t = IndexTR_{t-1} \times \left[1 + w_{t-1} \times \left(\frac{SMI_t}{SMI_{t-1}} - 1 \right) + (1 - w_{t-1}) \times \left(SARON_{t-1} \frac{Diff(t-1,t)}{360} \right) \right]$$

$$IndexER_t = IndexER_{t-1} \times \left(1 - SARON_{t-1} \frac{Diff(t-1,t)}{360} \right) \times \left[1 + w_{t-1} \times \left(\frac{SMI_t}{SMI_{t-1}} - 1 \right) + (1 - w_{t-1}) \times \left(SARON_{t-1} \frac{Diff(t-1,t)}{360} \right) \right]$$

Where:

$IndexER_t$	Excess Return Index Level on Index Level Determination Date t
$IndexER_{t-1}$	Excess Return on Index Level Determination Date t-1
$IndexTR_t$	Total Return on Index Level Determination Date t
$IndexTR_{t-1}$	Total Return on Index Level Determination Date t-1
w_{t-1}	Equity Weight on Index Level Determination Date t-1
SMI_t	Level of the SMI (TR) (CH0000222130) on Index Level Determination Date t
SMI_{t-1}	Level of the SMI (TR) (CH0000222130) on Index Level Determination Date t-1
$SARON$	The SARON rate on the Index Level Determination Date t
$Diff(t-1,t)$	Difference between t-1 and t measured in calendar days

2.2 Determination of the target weight (Tgtw)

On any Index Level Determination Date t , the Target Weight shall be determined as follows:

$$Tgtw_t = \frac{TgtVol}{Max\ RealizedVol_{t,(20,60)}}$$

Where:

$TgtVol$ 10%

$Max\ Realized\ Vol_{20,60}$ is the maximum of the realized volatilities measured over 20 days and 60 days

$$RealizedVol_{t,n} = \sqrt{\frac{252}{n} * \sum_s \left[\log\left(\frac{SMI_s}{SMI_{s-1}}\right) \right]^2}$$

Where

n 19 (59)

s ranging from $t-18$ to t ($t-58$ to t)

2.3 Determination of the equity weight (w) and index rebalancing days

The Equity Weight on the Index Start Date shall be equal to the Target Weight at the Index Start Date,

$$w_0 = Min(Cap, Tgtw_0)$$

On any Index Level Determination Date t subsequent to the Index Start Date, the Equity Weight shall be determined as follows:

(i) If:

$$abs\left\{1 - \frac{w_{t-1}}{Tgtw_{t-1}}\right\} > Tolerance$$

then the Index Level Determination Date t will be an Index Rebalancing Day and:

$$w_t = Min(Cap, Tgtw_{t-1})$$

(ii) Otherwise, Index Level Determination Date t will not be an Index Rebalancing Day and:

$$w_t = w_{t-1}$$

where:

$Tolerance$ --> 5%

$w_{t/t-1}$ Equity Weight on Index Level Determination Date t / $t-1$

$Tgtw_{t-1}$ Target Weight on Index Level Determination Date t

Cap 150%

2.4 Information on index events

Any relevant forthcoming extraordinary corporate events that result in an adjustment to the indices are published by e-mail via Investor Service.

The registration form is available on the [SIX Swiss Exchange Website](#). SIX Swiss Exchange accepts no liability for Investor Service Equity.

2.5 Trade suspensions and market distortions

Should a data source (for example a price source) not be available as result of challenging economic conditions or other market distortions the last available data will normally be used.

In extreme cases a deviation from the rules defined in this rulebook can occur, for example, shifting the schedule of a regular index review.

All changes will be publicly announced at least two trading days in advance.

2.6 Index corrections

Index corrections distinguish between calculation errors and incorrect input data.

Calculation errors detected within a trading day are corrected immediately. Intraday tick data are not corrected retrospectively.

Calculation errors that are older or based on erroneous input data are corrected if technically possible and economically viable. If significant differences exist, index values can also be corrected retrospectively.

Interested parties may subscribe to an e-mail notifications service on the website. SIX Swiss Exchange distributes notifications over this channel on

- Changes in corporate actions and dividends
- Updates to the periodic index reviews
- Problems and error in the index calculation
- The launch of new indices
- General information on SMI indices



3 Trademark Protection, Use And Licensing

3.1 Protection

The [SIX Swiss Exchange Indices Trademarks](#) are internationally registered trademarks of SIX Swiss Exchange.

3.2 Licensing

3.2.1 Free usage

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3.2.2 Usage subject to licence

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Offering prospectuses must include the disclaimer which is available on the [SIX Swiss Exchange Website](#).

4 Contact

Information concerning the indices of SIX Swiss Exchange (index adjustments, announcements etc.) is available at the following Internet address:

http://www.six-swiss-exchange.com/indices_en.html

Any requests with respect to the indices may be directed to the following address:

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P.O. Box
CH-8021 Zurich

Email: indexsupport@six-group.com

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5 Static Data

A current list of all indices calculated by SIX Swiss Exchange is accessible at the SIX Swiss Exchange Website:

www.six-swiss-exchange.com/.../calculated_indices.xls

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