

OSLO BORS INDICES CONSULTATION PAPER

Introduction

Euronext would like to present and consult changes to be made as part of the migration of equity indices towards the Euronext Optiq® platform. The scope of the paper includes changes to the portfolio of the indices that will be calculated as well as the main changes to the methodology of the indices.

All changes presented will be effective as of finalization of the migration of equity indices to the Euronext Optiq® platform.

The Paper will describe the changes, including where relevant some more background information on the presented changes. Stakeholders are invited to comment on the proposed changes to the indices before 1st of June 2020.

Sectorial Index classification

Currently Oslo Bors uses GICs as the basis for the classification system, while Euronext uses FTSE ICB as the classification system. Following the migration FTSE ICB will be used for Oslo Bors indices as well. As an impact all selection criteria for indices that make use of GICs will be amended to the corresponding sector based on the FTSE ICB classification.

Following the migration of Oslo Bors Indices towards Euronext, all sectorial indices currently based on the GICS classification system will be terminated as of the migration date. New indices will be launched, on the basis of the ICB classification system on the migration date. Indices will be launched on industry level only.

The following sector indices will be available after migration:

Name	Family	MNEMO
OBX Technology GR	OBX Sector and All Share	OTECG
OBX Technology NR	OBX Sector and All Share	OTECN
OBX Technology PR	OBX Sector and All Share	OTECP
OBX Telecommunications GR	OBX Sector and All Share	OTELG
OBX Telecommunications NR	OBX Sector and All Share	OTELN
OBX Telecommunications PR	OBX Sector and All Share	OTELP
OBX Health Care GR	OBX Sector and All Share	OHCG
OBX Health Care NR	OBX Sector and All Share	OHCN
OBX Health Care PR	OBX Sector and All Share	OHCP
OBX Financials GR	OBX Sector and All Share	OFING

OBX Financials NR	OBX Sector and All Share	OFINN
OBX Financials PR	OBX Sector and All Share	OFINP
OBX Real Estate GR	OBX Sector and All Share	OREG
OBX Real Estate NR	OBX Sector and All Share	OREN
OBX Real Estate PR	OBX Sector and All Share	OREP
OBX Consumer Discretionary GR	OBX Sector and All Share	OCDG
OBX Consumer Discretionary NR	OBX Sector and All Share	OCDN
OBX Consumer Discretionary PR	OBX Sector and All Share	OCDP
OBX Consumer Staples GR	OBX Sector and All Share	OCSG
OBX Consumer Staples NR	OBX Sector and All Share	OCSN
OBX Consumer Staples PR	OBX Sector and All Share	OOSP
OBX Industrials GR	OBX Sector and All Share	OING
OBX Industrials NR	OBX Sector and All Share	OINN
OBX Industrials PR	OBX Sector and All Share	OINP
OBX Basic Materials GR	OBX Sector and All Share	OBMG
OBX Basic Materials NR	OBX Sector and All Share	OBMN
OBX Basic Materials PR	OBX Sector and All Share	OBMP
OBX Energy GR	OBX Sector and All Share	OENG
OBX Energy NR	OBX Sector and All Share	OENN
OBX Energy PR	OBX Sector and All Share	OENP
OBX Utilities GR	OBX Sector and All Share	OUTG
OBX Utilities NR	OBX Sector and All Share	OUTN
OBX Utilities PR	OBX Sector and All Share	OUTP

Oslo Axess Indices

Following the migration to Optiq the current Axess GICS indices will be discontinued. The Axess All share indices will continue to be calculated with the same components as before.

Creation of index families

The following already existing Indices will be migrated, the indices will be grouped in different families as described in this table.

For the equity and index instruments, the current Symbol/Ticker will be replaced by the field Mnemonic in Optiq® MDG. The maximum length of the mnemonic field is 5 characters, which is less than what is currently available in the Symbol/Ticker field in Millennium Exchange. Additionally, the mnemonic field must be unique across all the Euronext markets.

For indices, some Tickers/Symbols will change due to these limitations.

Pre-migration Ticker	ISIN	Name	Family (exact naming TBC)	MNEMO (post migration)
OBX	NO0000000021	OBX Total Return Index	OBX Family	OBX
OBXP	NO0007035376	OBX Price Index	OBX Family	OBXP
OBXU	NO0010865173	OBX Uncapped Total Return Index	OBX Family	OBXU
OSEBX	NO0007035327	Oslo Børs Benchmark Index_GI	OBX Family	OSEBX
OSEBXNR	NO0010865249	OSEBX Benchmark_NR	OBX Family	OSEBN
OSEBXPR	NO0010865256	OSEBX Benchmark_PR	OBX Family	OSEBP
OSEFX	NO0007035335	Oslo Børs Mutual Fund Index_GI	OBX Family	OSEFX
OSEFXNR	NO0010865264	OSEFX Mutual Fund_NR	OBX Family	OSEFN
OSEFXPR	NO0010865272	OSEFX Mutual Fund_PR	OBX Family	OSEFP
OSEMX	NO0010735640	Oslo Børs Mid Cap Index	OBX Family	OSEMX
OSEMXNR	NO0010865280	OSEMX Mid Cap_NR	OBX Family	OSEMN
OSEMXPR	NO0010865298	OSEMX Mid Cap_PR	OBX Family	OSEMP
OSESX	NO0007035343	Oslo Børs Small Cap Index_GI	OBX Family	OSESX
OSESXNR	NO0010865306	OSESX Small Cap_NR	OBX Family	OSESN
OSESXPR	NO0010865314	OSESX Small Cap_PR	OBX Family	OSESP
OSEAX	NO0007033900	Oslo Børs All-share Index_GI	OBX Sector and All Share	OSEAX
OSEAXNR	NO0010865223	OSE All share_NR	OBX Sector and All Share	OSEAN
OSEAXPR	NO0010865231	OSE All share_PR	OBX Sector and All Share	OSEAP
NEW	-	OBX Technology GR	OBX Sector and All Share	OTECG
NEW	-	OBX Technology NR	OBX Sector and All Share	OTECN
NEW	-	OBX Technology PR	OBX Sector and All Share	OTECN
NEW	-	OBX Telecommunications GR	OBX Sector and All Share	OTELG
NEW	-	OBX Telecommunications NR	OBX Sector and All Share	OTELN
NEW	-	OBX Telecommunications PR	OBX Sector and All Share	OTELP
NEW	-	OBX Health Care GR	OBX Sector and All Share	OHCG
NEW	-	OBX Health Care NR	OBX Sector and All Share	OHCN
NEW	-	OBX Health Care PR	OBX Sector and All Share	OHCP
NEW	-	OBX Financials GR	OBX Sector and All Share	OFING
NEW	-	OBX Financials NR	OBX Sector and All Share	OFINN
NEW	-	OBX Financials PR	OBX Sector and All Share	OFINP
NEW	-	OBX Real Estate GR	OBX Sector and All Share	OREG
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NEW	-	OBX Real Estate PR	OBX Sector and All Share	OREP
NEW	-	OBX Consumer Discretionary GR	OBX Sector and All Share	OCDG
NEW	-	OBX Consumer Discretionary NR	OBX Sector and All Share	OCDN
NEW	-	OBX Consumer Discretionary PR	OBX Sector and All Share	OCDP

NEW	-	OBX Consumer Staples GR	OBX Sector and All Share	OCSG
NEW	-	OBX Consumer Staples NR	OBX Sector and All Share	OCSN
NEW	-	OBX Consumer Staples PR	OBX Sector and All Share	O CSP
NEW	-	OBX Industrials GR	OBX Sector and All Share	OING
NEW	-	OBX Industrials NR	OBX Sector and All Share	OINN
NEW	-	OBX Industrials PR	OBX Sector and All Share	OINP
NEW	-	OBX Basic Materials GR	OBX Sector and All Share	OBMG
NEW	-	OBX Basic Materials NR	OBX Sector and All Share	OBMN
NEW	-	OBX Basic Materials PR	OBX Sector and All Share	OBMP
NEW	-	OBX Energy GR	OBX Sector and All Share	OENG
NEW	-	OBX Energy NR	OBX Sector and All Share	OENN
NEW	-	OBX Energy PR	OBX Sector and All Share	OENP
NEW	-	OBX Utilities GR	OBX Sector and All Share	OUTG
NEW	-	OBX Utilities NR	OBX Sector and All Share	OUTN
NEW	-	OBX Utilities PR	OBX Sector and All Share	OUTP
OAAX	NO0007035384	Oslo Axxess All-share index_GI	Oslo Axxess All-share	OAAX
OAAXPR	NO0010865330	Oslo Axxess All-share Index_PR	Oslo Axxess All-share	OAAXP
OAAXNR	NO0010865322	Oslo Axxess All-share Index_NR	Oslo Axxess All-share	OAAXN
OBOSX	NO0010590086	Oslo Børs OBX Oil Service Index	Investable Sector Indices	OBOSX
OBSFX	NO0010760663	Oslo Børs Seafood Index	Investable Sector Indices	OBSFX
OBSHX	NO0010771934	Oslo Børs Shipping Index	Investable Sector Indices	OBSHX
OBSFXNR	NO0010865181	OBSFX Seafood_NR	Investable Sector Indices	OBSFN
OBSFXPR	NO0010865199	OBSFX Seafood_PR	Investable Sector Indices	OBSFP
OBSHXNR	NO0010865207	OBSHX Shipping_NR	Investable Sector Indices	OBSHN
OBSHXPR	NO0010865215	OBSHX Shipping_PR	Investable Sector Indices	OBSHP
NEW	-	OBOSX Oil Service PR	Investable Sector Indices	OBOSP
OSLENX	NO0010580590	OSLO Energy Index	Strong Sector Indices	SSENX
OSLSFX	NO0010580624	OSLO Seafood Index	Strong Sector Indices	SSSFX
OSLSHX	NO0010580640	OSLO Shipping Index	Strong Sector Indices	SSSHX
OSEEX	NO0000000062	Oslo Børs Equity Certificate Index	Equity Certificate Indices	OSEEX
NEW	-	Oslo Børs Equity Certificate Index PR	Equity Certificate Indices	OSEEP
OSEBXG	NO0010865363	OSEBXG Index	Custom Indices	OSEBG
OSEEXR	NO0010865371	OSEEXR Index	Custom Indices	OSEER
NAVIG	NO0010865348	Navigator Index	Custom Indices	NAVIG
OSEBX_STB	NO0010865355	OSEBX_STB Index	Custom Indices	OSEBS

Review Cycle Harmonization

Euronext applies for its indices a harmonized review cycle for most of its indices. After the migration semi-annual reviews are applied based on the following schedule:

Review Effective date: After the close of the third Friday of June and December

Review Cut-off date: After the close of the penultimate Friday of May and November

Review Announcement Date: The Review announcement date, on which the changes relating to the periodical review are announced.

This means that for the following Index Families the data, in terms of Free Float Factor, number of shares, market capitalization etc. is based on the same date in order to have a harmonized approach between companies in different indices:

- OBX Family
- Investable Sector Indices
- Custom Indices

Publication Frequency

Currently all the Oslo Børs indices are published in real-time, following the migration to Optiq this will no longer be the case. Indices will be published by Euronext either every 15 seconds or every second, the following indices will be published every second:

ISIN	Name	Family	MNEMO (post migration)
NO0000000021	OBX Total Return Index	OBX Family	OBX
NO0007035327	Oslo Børs Benchmark Index_GI	OBX Family	OSEBX
NO0007035335	Oslo Børs Mutual Fund Index_GI	OBX Family	OSEFX
NO0007033900	Oslo Børs All-share Index_GI	OBX Sector and All Share	OSEAX
NO0010590086	Oslo Børs OBX Oil Service Index	Investable Sector Indices	OBOSX
NO0010760663	Oslo Børs Seafood Index	Investable Sector Indices	OBSFX
NO0010771934	Oslo Børs Shipping Index	Investable Sector Indices	OBSHX

For indices that are published on a every second basis, in case the index level does not change compared to the previously broadcast message no new message will be disseminated. There will be at least one message every 15 seconds.

All other indices will be published every 15 seconds.

Total Return Formula

Oslo Bors uses a different formula for Total Return indices than Euronext does, the difference is related to the timing of re-investment of dividends. Where Euronext considers dividends to be re-invested at the close of the ex-date whereas the current Oslo Bors method assumes dividends to be re-invested at the close of the cum-date.

Following a simulation done by Euronext, the conclusion is that the difference in performance of the Index is < 0.01% over 14 years between these two methodologies.

As of the migration date, the formula used to compute Oslo Bors indices that are calculated on a total return basis will be harmonized to the Euronext Total Return formula. The Euronext total return formula is as follows:

$$RI_t = RI_{t-1} * \left(\frac{PI_t + XD_t}{PI_{t-1}} \right)$$

Where:

RI: Return Index Level

t: Time of calculation

PI: Underlying Price Index Level

XD: Dividend effect

$$XD_t = \sum_{i=1}^N \frac{Q_{i,t} F_{i,t} C_{i,t} G_{i,t}}{d_t}$$

Where:

G: Ordinary dividend trading "Ex-dividend"

VWAP Index

The currently computed index OBXW, which is based on the VWAP of the Index constituents, will no longer be calculated as a separate index. Instead the end of day VWAP price will disseminated on the OBX record.

Free Float Definition

Euronext uses a Harmonized definition of the Free Float Factor for all equity indices. It is proposed to apply this formula for Oslo indices as well, the definition of Free Float for Euronext indices, is as follows:

The Free Float Factor is the percentage representing all listed securities of the selected line of the relevant company eligible for index inclusion (as described in section 5.2), minus any shareholdings that are considered non-free float. The Free Float Factor is based on public information available on the Review Cut-Off Date. The Free Float Factor will be rounded to the nearest 5%.

The following shareholdings are considered non-free float (based on public information available on the Review Cut-Off Date):

- *Any single shareholder who holds 5% or more of the listed securities in the selected line eligible for index inclusion, with the exception of collective entities or pension funds.*
Collective entities are those entities that fulfill all the following criteria:
 - i. *are open for investment to investors or tradable on the market; and*
 - ii. *have a diversified portfolio; and*
 - iii. *have an open ended structure.**Collective entities include mutual funds and other open end-funds.*
- *Collective entities or pension funds that hold 5% or more of the listed securities in the selected line eligible for index inclusion and are represented in any governing body of the company in question.*
- *Parties acting in concert that collectively hold 5% or more of the listed securities in the selected line eligible for index inclusion.*
- *Employee shareholding plans, employee pension plans, individual employees, management or members of the board of directors of the relevant company when their cumulative shareholding is 5% or more of the listed securities in the selected line eligible for index inclusion.*
- *Shares held by the relevant company that represent 5% or more of the listed securities in the selected line eligible for index inclusion (e.g. treasury shares).*

It is proposed to have apply the Euronext definition of the Free Float Factor as of the migration to Optiq, for all Oslo Bors indices that use free float.

Preliminary Free Float Factors

For the national blue-chip families, Euronext currently has a process in place where preliminary Free Float Factors are published the first trading day after Review Cut-Off Date. Stakeholders will have one week to react to these preliminary factors before they become final. Final Free Float Factors will be announced after the period and before the review results will be published.

Following the migration to Optiq, Euronext will release preliminary Free Float Factors for the OBX Family.

Number of Shares: Treasury Shares

Euronext considers, the basis for the weighting of its indices to be based on the actual number of outstanding shares including treasury shares given that there is limited information available on the exact number of treasury shares, the number is often quite small and under the Euronext definition treasury shares are considered non-free float in case they represent more than 5% of the outstanding share capital.

Number of Shares: Secondary Listings

Oslo Børs distinguishes between primary or secondary listing. For secondary listings, only the part of the outstanding shares which is registered in VPS (the Norwegian Central Securities Depository) is eligible for inclusion. Whereas Euronext considers the full actual number of outstanding shares for index inclusion for all securities (secondary or not). It is proposed that as of the migration date secondary listed companies are also included with their actual outstanding shares instead of only that which is registered in VPS.

Adjustments for Special Dividends

Currently Oslo Børs does not adjust the (price return) Indices for special dividends, while Euronext does adjust for this. Following the migration the Corporate Action policies will be harmonized, and thus the Oslo Børs price return indices will also be adjusted for special dividends, the relevant rules of an special dividend will be as follows:

The price index will be adjusted for dividends that are special. The following criteria will be applied to decide whether a dividend should be considered a special dividend:

- a) The declaration of a company of a dividend additional to those dividends declared as part of the company's normal results and dividend reporting cycle; merely an adjustment to the timing of the declaration of a company's expected dividend would not be considered as a special dividend circumstance; or*
- b) The identification of an element of a dividend paid in line with a company's normal results and dividend reporting cycle as an element that is unambiguously additional to the company's normal payment.*

For the purpose of clarification, no adjustment will be made for the following situations:

- 1. Payment of ordinary dividends, irrespective of how they are financed;*
- 2. Issue of redeemable shares or any other entitlement in lieu of an ordinary dividend; or*
- 3. Unexpected increase or decrease, resumption or cessation, or change in frequency to an ordinary dividend.*

Adjustment for special dividend

The adjustment of the index takes place by a reduction of the closing price of the share in question. Subsequently the divisor will be adapted in order to maintain the index level. The adjustments will be based on gross amounts.

Rights Issue treatment

Following the migration Corporate Action Policies will be harmonized, for free float market cap weighted indices the treatment for rights issues will be as follows.

In the event of a rights issue the new shares will be included in the index on the ex-date of the rights issue and an adjusted closing price will be applied as calculated by Index Operations.

The adjustment will be made based on the shares currently in the index. The divisor will be adapted in such a way that the level of the index remains the same. The new shares are only added if less than 0.4 share is issued for every share that is currently held and if the new shares are fungible with the existing line of shares (e.g. no dividend disadvantage). Otherwise the index is adjusted based on the value of the rights only.

The index will be adjusted only if the rights represent a positive value.

The index will also be adjusted if a value can be attributed to a subscription right for convertible bonds, bonds with warrants or warrants with preferential rights for shareholders or similar situations.

The main difference between the Euronext Methodology and the Oslo Bors method is related to the adjustment of the number of shares in case more than 0.4 shares are offered. Euronext applies this methodology because in these cases it considers that given the shares are often not listed on the ex-date of the rights issue, increasing the weight on the ex-date can give problems in terms of trackability of the index for large rights issues.