Oslo Børs Mutual Fund Feed

Technical Specification

ISSUE 2.1.7

19 MAY 2023

OSLO BØRS

DISCLAIMER

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CHANGE LOG

This document can be updated at any time, and has been through the following iterations:

Issue	Date	Description
2.1	30.11.2013	New document layout. No other changes from previous version 2.0.1
2.1.1	08.09.2015	Added field "activeshare" in Basic data module.
2.1.2	28.09.2015	Added field "activesharedate" in Basic data module.
2.1.3	25.11.2016	Added field "exDate NAV" in Dividend subscription module.
2.1.4	31.08.2020	Added fields "isindex", "isnetclass" and "currencyhedge" in Basic data module.
2.1.5	01.11.2021	Added field "riskclass" in Basic data module.
2.1.6	28.02.2023	Renamed a value in the fields "securitytypeid" and "securitytypename" in the Basic data module. New value Likviditetsfond in both fields.
2.1.7	19.05.2023	Added field "sfdr" in Basic data module.

Please note that only the latest issue of this document will be available from the Oslo Børs website.

CONTENT

1   INTRODUCTION

Oslo Børs distributes on daily and monthly basis price information and historic calculations on fund returns and risk measures.

Norwegian Mutual Fund Association (NMFA) has developed classification standards for its member funds. Oslo Børs supports the recommendations made by NMFA for presenting fund information on a daily basis in this product.

1.1   PURPOSE

This is a document aimed at the client side system developer to provide the necessary information for implementing a client system for receiving mutual fund data from the Oslo Børs Mutual Fund feed.

1.2   DEFINITIONS, ABBREVIATIONS AND ACRONYMS

Abbreviation	Description
FTP	File Transfer Protocol
NAV	Net Asset Value. Fund price excluding redemption fee or sales charge
NMFA/ VFF	Norwegian Mutual Fund Association / Verdipapirfondenes Forening
OBI	Oslo Børs Informasjon AS
OMFF	Oslo Børs Mutual Fund Feed

1.3   REFERENCES

1. Bransjestandarder for verdipapirfond: Klassifisering og informasjon mai 2000
2. Standards for Mutual Funds: Classification and information May 2000
3. ISO 3166 / S.W.I.F.T. handbook, standard defining currency codes.

1.4   SUPPORT, CALENDAR AND CORE HOURS

Subscribers to OMFF may choose between receiving the files three times a day, at approximately 10:00 CET, 18:00 CET and 20:00 CET each trading day, or continuously every time Oslo Børs receive a price update. The exception is the Historic Return Series Module which is produced and distributed on a monthly basis.

Additionally, there will be a rerun on previous day's data before 10:15 in order to catchup with funds reporting prices after Oslo Børs' deadlines.

Monthly Return Series will be produced on the first business day every month.

Oslo Børs provides a manned technical services desk in the hours specified below, excluding exchange holidays, unless advised otherwise.

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Personnel and queries covered	Hours (CET)	Telephone	E-mail
Technical support and operational issues	07:00-21:00	+47 22 34 19 90	products@oslobors.no
Product and commercial issues	07:30-18:00	+47 22 34 18 02	products@oslobors.no

1.5 NEW RELEASES

New fields will be appended to the field definitions where possible in which case it will be possible to keep older versions of programs compatible with the new format.

1.6 NOTIFICATION POLICY

- Major changes - three months
- Minor changes - one month
- Addition of new fields in the xml-files – one week
- New modules not affecting other modules – at given date.
- New modules affecting other modules, the above policies of large or minor changes apply.

1.7 INFORMATION ROLES

Oslo Børs feed customers are strongly encouraged to register contact information with Oslo Børs using "roles" rather than personal contact. Names, telephone and fax number, postal address and e-mail addresses are necessary for the following roles:

Managers - managers that are handling subscription fees, functionality in large, and that are to receive information on management level concerning the OMFF.

Developers/maintainers - personnel that implement the OMFF client system(s) and that are to receive information about implementation/specification changes.

Operators - operational personnel that need to be informed about OMFF configuration changes, day-to-day issues, production problems and so on. This applies to network administration and surveillance functions.

2   OVERVIEW

The mutual fund feed product range consists of the following subscription modules:

2.1   PRODUCED ON A DAILY BASIS

2.1.1   BASIC SUBSCRIPTION

This module contains mainly fixed data and price information for funds.
Correction of historic prices will be handled by the daily production of the subscription module historic price, which is part of basic subscription.

2.1.2   RETURN SUBSCRIPTION (BASIC SUBSCRIPTION + RETURN DATA)

The additional information in this module is return calculations. Returns are calculated on the basis of corresponding calendar dates. Benchmark indices are also included in this module.

2.1.3   DIVIDEND SUBSCRIPTION (BASIC + RETURN SUBSCRIPTION + DIVIDEND DATA)

The additional information in this module is latest dividend payment.
The module historic price with dividend is used in the event of an initial load of prices and dividends.

2.1.4   RISK SUBSCRIPTION (BASIC + RETURN + DIVIDEND SUBSCRIPTION + RISK MEASURES)

The additional information in this module is measures such as volatility (standard deviation), Sharpe Index, differential return, relative volatility and information ratio, based on monthly differentials between the fund's return and benchmark return.

2.1.5   TIME SERIES SUBSCRIPTION (INDEPENDENT MODULE)

This module contains normalized price information including dividend reinvestments and splits etc. The information in this module is based on a rolling five day period to correct any recent price changes. New subscribers need to purchase the full time series for all funds. In the event of subsequent price corrections beyond this period or initial load of new funds, amendments and deletions in the original time series will be delivered.

2.1.6   COMPOSITE INDEX DETAILS MODULE

This module contains information about the elements of a composite index, identifying each composite index member and its weight.

2.2   PRODUCED ON A MONTHLY BASIS:

2.2.1   RETURN SERIES SUBSCRIPTION (INDEPENDENT MODULE)

Month-end return series.

3   PRESENTATION AND ENCODING OF DATA

3.1   SUBSCRIPTION CATEGORIES

3.1.1   BASIC SUBSCRIPTION

The file is encoded as an XML-file. For specification of the file, se link to xsd-file on this web-page: https://www.oslobors.no/ob_eng/Oslo-Boers/Products-and-services/Market-data/Mutual-Fund-Feed.

This module contains data for all groups of funds. Indices are also defined in this module, but are omitted for basic subscription only.

Field name	Data type	VFF STD	Description
sid	Integer		Unique number identifying the security.
navdate	Date	X	Registration data for the nav price
proddate	Date		Date of Production
sysexectime	DateTime		Date and time for the production of the file
cid	Integer		Unique number identifying Fund Manager
compshortname	Char (16)		Fund Manager short name
companylongname	Char (40)		Fund Manager name
symbol	Char (16)		Security symbol
security_name	Char (40)	X	Full name of security
country_code	Char (2)		Registration country for the fund
isin	Char(12)		The security ISIN code. May be empty if not set.
quotationcurrency	Char(3)	X	Quotation currency for price information (ISO 3166)
rootgroupid	Integer		Unique number identifying the root group
rootgroupname	Char (40)		Root group name
groupid	Integer		Unique number identifying the group
groupname	Char (40)	X	The group names will include NMFA´s classification standards for member funds. Other groups will be defined for non-members.
securitytypeid	Integer	(X)	Number identifier for Security types: 1 – Aksjefond (equity fund) 2 – Kombinasjonsfond (balanced fund) 3 – Likviditetsfond (money market fund) 4 – Obligasjonsfond (bond fund) 5 – Aksjeindeks (share index) 6 – Obligasjonsindeks (bond index) 7 – Andre VP-fond (other funds) 8 – Sammensatt indeks (composite index) 9 – Andre rentefond
securitytypename	Char (16)		Text description of Security Types: Aksjefond, Kombinasjonsfond, Likviditetsfond, Obligasjonsfond, Aksjeindeks, Obligasjonsindeks, Andre VP-fond, Sammensatt or Andre rentefond.
price	Decimal (10)	X	Net asset value for funds. Index close price for indices.

Field name	Data type	VFF STD	Description
pricechange	Decimal(2)		The change in price since the previous day. Null if there is no price data for the previous day.
pricechangepct	Decimal(2)		The change in price since the previous day, in percent.
benchmarksymbol	Char (16)	X	Symbol of the fund´s benchmark index.
benchmarkname	Char (40)		Name of benchmark index
maxsalescharge	Decimal (2)	X	Maximum sales charge (%)
maxredemptfee	Decimal (2)		Maximum redemption fee (%)
mgmtcommision	Decimal (2)	X	Annual management fee (%)
minsubscramntcurr	Char(3)		Currency code for minSubscrAmnt (ISO 3166).
minsubscramnt	Bigint	X	Minimum subscription amount.
vffclassified	Char (1)	(X)	Values 'Y' or 'N'. True if classified by the NMFA according to the classification standards for mutual funds.
nocreditrisk	Char (1)	X	Values 'Y' or 'N'. True if the fund only allows for investments in Government bonds/bills. This is only applicable for bond funds and money market funds.
currencyrisk	Char (1)	X	Values 'Y' or 'N'. True if the fund is exposed to foreign exchange risk. The fund is exposed to foreign exchange risk if changes in terms of the currency in which the fund is quoted are directly reflected in the fund´s price. This is only applicable for bond funds and money market funds.
maxmodduration	Decimal (2)	X	Maximum interest rate risk. Represented as "modified duration". Applicable only for money market funds and bond funds.
minmodduration	Decimal (2)	X	Minimum interest rate risk. Represented as "modified duration". Applicable only for money market funds and bond funds.
isprofitshare	Char (1)	x	Values 'Y' or 'N'. True if the fund has profit sharing.
totcostfmdate	Date	x	Total Cost Date (changed 2 times a year)
totcost	Decimal(10)	x	Total Cost for funds excluding profit sharing
isindex	Char (1)		Values 'Y' or 'N'. True if the fund is an index fund.
isnetclass	Char (1)		Values 'Y' or 'N'. True if the fund is not does not allow retrocessions (kickbacks) to fund distributors.
currencyhedge	Char (1)		Values 'Y' or 'N'. True if the fund is currency hedged to NOK.
riskclass	Decimal (1)		Synthetic Risk and Reward Indicator (SRRI). Risk-class 1 to 7, based on ESMA the (CESR) guidelines.
totcostshare	Decimal(10)	x	Total cost for funds included profit sharing. Only applicable for funds with profit sharing.
activesharedate	Date		The latest Active Share date

Field name	Data type	VFF STD	Description
activeshare	Decimal(10)		Active Share (%)
adjfactdate	Date		The latest adjustment factor date.
adjfact	Decimal(10)		The latest accumulated adjustment factor.
yield	Decimal (2)	X	Yield in %. Applicable only for money market funds and bond indices.
modduration	Decimal (2)		Duration / (1 + Yield). Applicable only for bond funds and bond indices.
sfdr	Decimal (1)		Sustainable Finance Disclosure Regulation (SFDR). 6 – Article 6 (Do not promote environmental or social characteristics) 8 – Article 8 (Promote environmental or social characteristics) 9 – Article 9 (Sustainability as objective)

3.1.1.1   BASIC SUBSCRIPTION – HISTORIC PRICE

This file is encoded as a txt-file. Fields are separated by TABS. This module will on a daily basis contain NAV for the last five trade days in case of recent price corrections. In the event of an initial data load on a per customer basis, this record format will be used as a batch update for all funds.

Field name	Data type	Description
tradeDate	Date	Trade Date
securityId	Integer	Unique number identifying the security.
ISIN	Char(12)	The security ISIN code. May be empty if not set.
Price	Decimal (2)	NAV

3.1.2   RETURN SUBSCRIPTION (BASIC SUBSCRIPTION + RETURN COLUMNS)

The file is encoded as an XML-file. For specification of the file, se link to xsd-file on this web-page: https://connect2.euronext.com/en/data/client-specifications.

This module contains data for all groups of funds and indices.

Field name	Data type	VFF STD	Description
rety2d	Decimal (2)	X	Total return (%) year to date
ret1week	Decimal (2)		Total return (%) 1 week
ret1m	Decimal (2)		Total return (%) 1month
ret3m	Decimal (2)		Total return (%) 3 months
ret6m	Decimal (2)		Total return (%) 6 months
retyr0-1	Decimal (2)	X	Total return (%) 1 year
retyr1-2	Decimal (2)	X	Total return (%) between year 1 and year 2
retyr2-3	Decimal (2)	X	Total return (%) between year 2 and year 3
retyr3-4	Decimal (2)	X	Total return (%) between year 3 and year 4
retyr4-5	Decimal (2)	X	Total return (%) between year 4 and year 5

Field name	Data type	VFF STD	Description
retyr5-6	Decimal (2)	X	Total return (%) between year 5 and year 6
retyr6-7	Decimal (2)	X	Total return (%) between year 6 and year 7
retyr7-8	Decimal (2)	X	Total return (%) between year 7 and year 8
retyr8-9	Decimal (2)	X	Total return (%) between year 8 and year 9
retyr9-10	Decimal (2)	X	Total return (%) between year 9 and year 10
retyr10-11	Decimal (2)	X	Total return (%) between year 10 and year 11
retyr11-12	Decimal (2)	X	Total return (%) between year 11 and year 12
retyr12-13	Decimal (2)	X	Total return (%) between year 12 and year 13
retyr13-14	Decimal (2)	X	Total return (%) between year 13 and year 14
retyr14-15	Decimal (2)	X	Total return (%) between year 14 and year 15
retyr15-16	Decimal (2)	X	Total return (%) between year 15 and year 16
retyr16-17	Decimal (2)	X	Total return (%) between year 16 and year 17
retyr17-18	Decimal (2)	X	Total return (%) between year 17 and year 18
retyr18-19	Decimal (2)	X	Total return (%) between year 18 and year 19
retyr19-20	Decimal (2)	X	Total return (%) between year 19 and year 20
retgavg1yr	Decimal (2)	X	1 year geometric average return (%)
retgavg2yr	Decimal (2)	X	2 year geometric average return (%)
retgavg3yr	Decimal (2)	X	3 year geometric average return (%)
retgavg4yr	Decimal (2)	X	4 year geometric average return (%)
retgavg5yr	Decimal (2)	X	5 year geometric average return (%)
retgavg7yr	Decimal (2)	X	7 year geometric average return (%)
retgavg10yr	Decimal (2)	X	10 year geometric average return (%)
retgavg15yr	Decimal (2)	X	15 year geometric average return (%)
retgavg20yr	Decimal (2)	X	20 year geometric average return (%)
retannyr1	Decimal(2)	X	Annual return year 1 (%)
retannyr2	Decimal(2)	X	Annual return year 2 (%)
retannyr3	Decimal(2)	X	Annual return year 3 (%)
retannyr4	Decimal(2)	X	Annual return year 4 (%)
retannyr5	Decimal(2)	X	Annual return year 5 (%)
retannyr6	Decimal(2)	X	Annual return year 6 (%)
retannyr7	Decimal(2)	X	Annual return year 7 (%)
retannyr8	Decimal(2)	X	Annual return year 8 (%)
retannyr9	Decimal(2)	X	Annual return year 9 (%)
retannyr10	Decimal(2)	X	Annual return year 10 (%)
retannyr11	Decimal(2)	X	Annual return year 11 (%)
retannyr12	Decimal(2)	X	Annual return year 12 (%)
retannyr13	Decimal(2)	X	Annual return year 13 (%)
retannyr14	Decimal(2)	X	Annual return year 14 (%)
retannyr15	Decimal(2)	X	Annual return year 15 (%)
retannyr16	Decimal(2)	X	Annual return year 16 (%)
retannyr17	Decimal(2)	X	Annual return year 17 (%)
retannYr18	Decimal(2)	X	Annual return year 18 (%)
retannyr19	Decimal(2)	X	Annual return year 19 (%)
retannyr20	Decimal(2)	X	Annual return year 20 (%)

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3.1.2.1 CALCULATION OF RETURNS

Periodic Returns / Total Returns are calculated between the day of production and the corresponding calendar date n weeks, months or years prior to this date. If a price is not found at this date, the program searches backward for a maximum of five trade-days to locate a price. The returns are adjusted for dividend payments. Dividends are reinvested to the last inclusive dividend price with the subject dividend subtracted. Annual returns are calculated between year end price observations. In case the production date is the last trade date of the month, all monthly and yearly returns are based on month end prices.

Net Asset Value (NAV) is used for calculation of returns for funds. Close price is used for indices.

All returns are calculated in NOK. NAV, dividends and indices quoted in foreign exchange are converted to NOK prior to return calculations. Norges Bank daily closing currency mid rates (14:30 GMT) are used to convert prices for funds and indices.

Total Return is calculated according to the following formula:

$$r_{t_0,t} = \left(\frac{P_t}{P_{t_0}} \cdot \prod_{d=1}^{n} \left(1 + \frac{D_d}{P_{d-1} - D_d} \right) \right) - 1 \quad , \quad \text{where}$$

$r_{t_0,t}$ = total return for period $t_0 - t$

P_t = adjusted price at time t

D_d = adjusted dividend at ex-date d. All dividends with ex-dates within the time

frame $< t_0, t]$ are included

P_{d-1} = adjusted price last inclusive dividend date

Geometric Average Returns are reported for periods exceeding one year. The returns are annualised according to the following formula:

$$Rgavg_n = \left(\left(1 + r_n \right)^{\frac{12}{n}} \right) - 1 \quad , \text{where}$$

$Rgavg_n$ = Geometric Average Return calculated by annualising an n-month total return.

r_n = total return for n months

3.1.3 DIVIDEND SUBSCRIPTION (RETURN SUBSCRIPTION + DIVIDEND COLUMNS)

The file is encoded as an XML-file. For specification of the file, se link to xsd-file on this web-page: https://connect2.euronext.com/en/data/client-specifications.

This module contains data for all groups of funds and indices.

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Field name	Data type	Description
exDate	Date	Dividend ex-date.
div	Decimal(10)	Most recent dividend (within 365 days from Trade Date)
exDate NAV	Decimal(10)	NAV on last ex-date

3.1.3.1   DIVIDEND SUBSCRIPTION – HISTORIC PRICE WITH DIVIDENDS

The file is encoded as a txt-file. Fields are separated by TABS. In the event of an initial data load on a per customer basis, this record format will be used as a batch update for all funds.

Field name	Data type	Description
date	Date	Trade date / Ex date dividend
sid	Integer	Unique number identifying the security.
isin	Char (12)	The security ISIN code. May be empty if not set.
price	Decimal (10)	NAV
div	Decimal (10)	Dividend

3.1.4   RISK SUBSCRIPTION (DIVIDEND SUBSCRIPTION + RISK COLUMNS)

The file is encoded as an XML-file. For specification of the file, se link to xsd-file on this web-page: https://connect2.euronext.com/en/data/client-specifications.

This module contains data for all groups of funds and indices.

Field name	Data type	VFF STD	Description
volatility1yr	Decimal (2)		Volatility 1 year
volatility2yr	Decimal (2)		Volatility 2 years
volatility3yr	Decimal (2)	X	Volatility 3 years
volatility4yr	Decimal (2)		Volatility 4 years
volatility5yr	Decimal (2)	X	Volatility 5 years
volatility7yr	Decimal (2)		Volatility 7 years
volatility10yr	Decimal (2)		Volatility 10 years
volatility15yr	Decimal (2)		Volatility 15 years
volatility20yr	Decimal (2)		Volatility 20 years
sharperatio1yr	Decimal (2)		Sharpe Ratio 1 year
sharperatio2yr	Decimal (2)		Sharpe Ratio 2 years
sharperatio3yr	Decimal (2)		Sharpe Ratio 3 years
sharperatio4yr	Decimal (2)		Sharpe Ratio 4 years
sharperatio5yr	Decimal (2)		Sharpe Ratio 5 years
sharperatio7yr	Decimal (2)		Sharpe Ratio 7 years
sharperatio10yr	Decimal (2)		Sharpe Ratio 10 years
sharperatio15yr	Decimal (2)		Sharpe Ratio 15 years
sharperatio20yr	Decimal (2)		Sharpe Ratio 20 years
diffret1yr	Decimal (2)		Differential return 1 year
diffret2yr	Decimal (2)		Differential return 2 years

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Field name	Data type	VFF STD	Description
diffret3yr	Decimal (2)		Differential return 3 years
diffret4yr	Decimal (2)		Differential return 4 years
diffret5yr	Decimal (2)		Differential return 5 years
diffret7yr	Decimal (2)		Differential return 7 years
diffret10yr	Decimal (2)		Differential return 10 years
diffret15yr	Decimal (2)		Differential return 15 years
diffret20yr	Decimal (2)		Differential return 20 years
relvol1yr	Decimal (2)		Relative volatility 1 year
relvol2yr	Decimal (2)		Relative volatility 2 years
relvol3yr	Decimal (2)	X	Relative volatility 3 years
relvol4yr	Decimal (2)		Relative volatility 4 years
relvol5yr	Decimal (2)	X	Relative volatility 5 years
relvol7yr	Decimal (2)		Relative volatility 7 years
relvol10yr	Decimal (2)		Relative volatility 10 years
relvol15yr	Decimal (2)		Relative volatility 15 years
relvol20yr	Decimal (2)		Relative volatility 20 years
ir1yr	Decimal (2)		Information ratio 1 year
ir2yr	Decimal (2)		Information ratio 2 years
ir3yr	Decimal (2)		Information ratio 3 years
ir4yr	Decimal (2)		Information ratio 4 years
ir5yr	Decimal (2)		Information ratio 5 years
ir7yr	Decimal (2)		Information ratio 7 years
ir10yr	Decimal (2)		Information ratio 10 years
ir15yr	Decimal (2)		Information ratio 15 years
ir20yr	Decimal (2)		Information ratio 20 years

3.1.4.1   RISK MEASURES

Volatility (standard deviation):

- Volatility is based on monthly returns. Month-end return series are used if the production date is the last trade date of the month. Otherwise, the monthly returns are based on corresponding calendar dates.
- Not calculated if less than seven observations.
- The volatility is annualised.
- The sample standard deviation (σ_{n-1}) is used.

Relative volatility:

- Calculated only if benchmark is dividend adjusted (net or gross).
- The relative volatility is based on monthly differentials between the fund's return and benchmark return.
- If benchmark is computed monthly, the calculation is based on month end returns are used for fund and benchmark.
- Otherwise the same calculation rules apply as for Volatility

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Sharpe ratio:

- Calculated only if benchmark is dividend adjusted (net or gross).
- The Government bond index "NOGOVD3M" with fixed duration of three months is used as an estimate for the risk-free rate.
- NOT calculated if more than 10% missing returns.
- If benchmark is computed monthly, the calculation is based on month end returns are used for fund and benchmark.
- Calculated for Equity funds, balanced funds and indices.

Formula:

$$Sharpe\,Ratio_a = \frac{Rdiff_{(a,rf)}}{Volatility_a} \,,\, where\,rf\,is\,the\,risk\,free\,rate.$$

Differential return (between securities a and b):

Calculated only if benchmark is dividend adjusted (net or gross).

Formula:

$$Rdiff_{(a,b)} = Rgavg_a - Rgavg_b, if\,return\,period \geq one\,year$$
$$Rdiff_{(a,b)} = r_a - r_b,\,otherwise$$

Information ratio (IR):

Calculated only if differential return and relative volatility values are available, according to the rules specified above.

Formula:

$$IR = Rdiff\,/\,RelVol$$

3.1.5 NORMALISED TIME SERIES SUBSCRIPTION

The file is encoded as a txt-file. Fields are separated by TABS.

This module contains data for all groups of funds and indices. Normally, normalised prices between the last five trade days are distributed. This should be sufficient to take care of the most recent price corrections.

Field name	Data type	Description
tradeDate	Date	Trade Date
securityId	Integer	Unique number identifying the security.
Symbol	Char(12)	Security Symbol
ISIN	Char (12)	The security ISIN code. May be empty if not set.
NormalisedPrice	Decimal(2)	Normalised Net Asset Value or Normalised index close price

From a given start-date, 30.12.89, the normalised NAV for all securities are set to 100.00. NAV for securities having more recent initial date than this date are set to 100.00 for their specific starting-date.

Initially all normalised NAV for the entire period are produced. From then on, on a daily basis, normalised NAV for the last five trading days are produced. In the event of correction of prices outside of this range, the whole time series will be reproduced for this security.

Formula:

$$norm_t = norm_{t-1} * (1 + r_{(t-1,t)}), \text{ where}$$

$norm_t$ = normalised NAV price for day t

$norm_{t-1}$ = normalised NAV price for the day prior to t

$r_{(t-1,t)}$ = return from day t-1 to day t

3.1.5.1   AMENDED TIME SERIES

Field name	Data type	Description
tradeDate	Date	Trade Date
securityId	Integer	Unique number identifying the security.
Symbol	Char(12)	Security Symbol
ISIN	Char (12)	The security ISIN code. May be empty if not set.
normalisedPrice	Decimal(2)	Normalised Net Asset Value or Normalised index close price
NAV	Decimal(2)	Net Asset Value

Include changes beyond the five trade-day period - amended entries.

3.1.5.2   OBSOLETED TIME SERIES

Field name	Data type	Description
tradeDate	Date	Trade Date

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securityId	Integer	Unique number identifying the security.
symbol	Char(12)	Security Symbol
ISIN	Char (12)	The security ISIN code. May be empty if not set.
normalisedPrice	Decimal(2)	Normalised Net Asset Value or Normalised index close price
NAV	Decimal(2)	Net Asset Value

3.1.6 MONTHLY RETURN SERIES SUBSCRIPTION

The file is encoded as a txt-file. Fields are separated by TABS.

This module contains data for all groups of funds and indices. They are presented by rows, group by group. The file has one line as heading containing all months.

Field name	Data type	Description
tradeMonth	MonthOfYear	Trade Month

The following rows contain security and group identifiers followed by a return series vector.

Field name	Data type	Description
securityId	Integer	Unique number identifying the security.
symbol	Char(16)	Security Symbol
ISIN	Char (12)	The security ISIN code. May be empty if not set.
securityName	Char (34)	Full name of security
groupId	Integer	Unique number identifying the group
groupName	Char (34)	The group names will replicate NMFA´s classification standards for member funds. Other groups will be defined for non-members.
returnSeries	Decimal(10)	Total monthly return series vector (decimal values)

Note: It is not possible to replicate Normalised Time Series in case of missing observations in return module.

- Returns for a given fund are calculated between the last price observations in a given month, and the last price observation in the previous month.
- Returns for months with missing price observations are indicated as blank (null). One missing price observation will result in at least two missing returns.
- All the return-values in a given column are returns from the previous month to the month indicated in the tradeMonth column.
- The formula applied is the same as for Returns.

3.1.7 COMPOSITE INDEX DETAILS SUBSCRIPTION

This module contains details about the composition of a composite index, identifying each member and their weight. The file is encoded as an XML-file.

Sample file:

```xml
<?xml version="1.0" encoding="iso-8859-1" ?>
<CompositeIndices>
  <CompositeIndex id="54008">
    <Symbol><![CDATA[COMP01]]></Symbol>
    <Member id="798">
      <Symbol><![CDATA[OSEBX]]></Symbol>
      <Weight>50.00</Weight>
    </Member>
    <Member id="9028">
      <Symbol><![CDATA[ST1X]]></Symbol>
      <Weight>50.00</Weight>
    </Member>
  </CompositeIndex>
  </CompositeIndices>
```

The table below explains each element.

Field name	Data type	Description
CompositeIndices	Element	Sequence of zero or more CompositeIndex elements
CompositeIndex	Element	The composition for a single composite index.
CompositeIndex/@id	Integer	Uniquely identifies the composite index.
Symbol	String	The index symbol associated with the parent element.
Member	Element	The details for a single index that is part of a composite index. There are at least two Member elements per composite index.
Member/@id	Integer	Uniquely identifies the index that is part of the composite index.
Member/Weight	Decimal	The index member's weight, in percent. The sum of all the weights for a single composite index is 100.0.

3.2 FILE NAMES

Module	File names
Basic Subscription	omff_xmlbasicsubscription.xml basic-hist_2_0.txt compindices_2_0.xml omff.xsd
Return Subscription	omff_xmlreturnsubscription.xml basic-hist_2_0.txt compindices_2_0.xml omff.xsd
Dividend Subscription	omff_xmldividendsubscription.xml div-hist_2_0.txt compindices_2_0.xml omff.xsd
Risk Subscription	omff_xmlrisksubscription.xml div-hist_2_0.txt compindices_2_0.xml omff.xsd
Normalised Timeseries	norm-timeseries_2_0.txt omff_ct_amended_2_0.txt omff_ct_obsoleted_2_0.txt
Monthly Returns	monthly-returns_2_0.txt