Guideline relating to

Solactive Moody's Analytics IG EUR Select Credit Index

Version 1.2 dated June 28th, 2018

Contents

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Introduction

This document is to be used as a guideline with regard to the composition, calculation and management of the Solactive Moody's Analytics IG EUR Select Credit Index. Any changes made to the guideline are initiated by the Committee specified in section 1.6. The Solactive Moody's Analytics IG EUR Select Credit Index is the sole property of Solactive AG. The Solactive Moody's Analytics IG EUR Select Credit Index is calculated and published by Solactive AG. The name "Solactive" is copyrighted.

1 Index specifications

The Solactive Moody's Analytics IG EUR Select Credit Index ("**the Index**") is intended to reflect the total return performance of a selection of 100 bonds from the Solactive Euro IG Corporate Index ("**the Benchmark**"). The bond selection is based on credit measures provided by Moody's Analytics ("**MA**"). It aims at selecting an equal weighted portfolio of 100 bonds that, according to the quantitative measures provided by MA, appear undervalued and have relatively low predicted probabilities of default, among a liquid subset of the benchmark. Furthermore, the selection matches the interest rate exposure (matching of the weight of duration buckets), and sector exposure (matching of the weights of the Financial and Non-Financial sectors) of the Benchmark.

Credit measures provided by MA:

- **EDF™ (Expected Default Frequency)**: a forward-looking measure of probability of default based on the Moody's Analytics public firm **EDF™** model[1], a structural Merton model, where the assessment of default risk is driven by the market information contained in the firm's stock price, as well as its balance sheet (therefore only public companies can have public firm **EDF™** measures).

- **FVS™ (Fair-value spread*):*** a modelled valuation spread of a bond calculated based on the issuer's **EDF™**, the bond's maturity, the bond's expected Loss Given Default, the market risk premium, and the size of the issuer. This measure quantifies the spread that a bond "deserves" in light of its expected default probability and other factors, and allows investors to identify bonds that are potentially overvalued or undervalued.

Outline of the selection methodology:

- Bonds are eligible for inclusion if they:
  - belong to the Benchmark
  - have a minimum outstanding amount of €750m
  - are not perpetual
  - have a minimum of 1.5 year expected remaining life
- Eligible bonds are then split into subsets of similar duration/sector and then inside each of these subsets:
  - the top 25% of the bonds with the highest probability of default according to the EDF™ measure are removed
  - remaining bonds are ranked by a valuation measure which is equal to the spread between their OAS of the bond and their FVS™
  - starting with the cheapest bond based on the above valuation measure, bonds are added to the Solactive Moody's Analytics IG EUR Select Credit Index until the weight of the subset matches the weight of the same subset of bonds in the Benchmark index
- The total number of bonds in the index at rebalancing is 100
- A maximum of 5 bonds of the same issuer can be elected to the Index at any given time
- Buffering techniques are applied to reduce the overall turnover of the index
- The selection is reviewed quarterly in March, June, September and December during the Quarterly Selection Days
- A monthly maintenance of the Index is performed on the Monthly Selection Days

The complete description of the Index methodology is detailed over the next sections of the document.

[1] Moody's Analytics also publishes EDF metrics for privately held firms. These are from the RiskCalc platform, and are based on a different modeling approach. All references to "EDFs" in this methodology are to public firm metrics.

1.1 Name and ISIN

The Index is distributed under the following identifiers:

Name	ISIN	WKN	Reuters RIC	Bloomberg Ticker
Solactive Moody's Analytics IG EUR Select Credit Index	DE000SLA44G9	SLA44G	.SOLMASCR	SOLMASCR Index

1.2 Initial value

The index will be calculated every Business Day starting on November 22, 2017. The index was based on 100 as at the close of trading on the 29th of December 2006.

1.3 Distribution

The Solactive Moody's Analytics IG EUR Select Credit Index is published via the price marketing services of Boerse Stuttgart AG and is distributed to all affiliated vendors.

1.4 Prices and calculation frequency

The Solactive Moody's Analytics IG EUR Select Credit Index is calculated based on the Evaluated Bid Price (see 4.2 Further Definitions) of the respective Index Components, whereas newly added bonds are added at the Evaluated Ask Price. The index is calculated and distributed once every Business Day. Bond and index analytical values are calculated each Business Day using the Last Evaluated Price.

Updated index values and other statistics will not be distributed. In the event that the data required for index calculation purposes is not available or that there are troubles regarding the price marketing of Boerse Stuttgart AG, the index cannot be distributed.

1.5 Weighting

On the Quarterly Selection Day, Index Components are assigned equal weights.

On the Monthly Selection Day, the bonds that are added as replacements for the bonds that are excluded from the Benchmark on an "as-needed", 1-to-1 basis, receive a weight capping factor such that:

- Each of the Non-Financial bonds entering the Index receives a weight equal to:
  (Sum of the weight of Non-Financial bonds leaving the Index) / (Nb of Non-Financial bonds leaving the Index)
- Each of the Financial bonds entering the Index receives a weight equal to:
  (Sum of the weight of Financial bonds leaving the Index) / (Nb of Financial bonds leaving the Index)

For the bonds that are in the Index prior to the rebalancing following the Monthly Selection Day, the weight capping factors as of the last Quarterly Selection Day are not re-adjusted.

The weighting methodology may be amended by the Committee if required due to the governing legal framework.

1.6 Decision-making bodies

The Solactive Moody's Analytics IG EUR Select Credit Index is a rules-based index. Solactive AG is responsible for applying the rules as described in this index guideline.

Only in case of an Extraordinary Event a Committee composed of Solactive AG employees (hereinafter referred to as the "**Committee**" or the "**Index Committee**") will decide about the future composition of the Solactive Moody's Analytics IG EUR Select Credit Index. The Committee will meet and decide on how to treat the Extraordinary Event in the index based on the information available. An extraordinary adjustment will only be implemented if the majority of the Committee supports the suggested treatment. As soon as a decision has been taken all parties related to the index are informed about the Extraordinary Event as well as the decided treatment and date of implementation. For further information on the treatment of Extraordinary Events see chapter 2.3.

The Committee can also make amendments to the index rules if required. As an example, if the index does not meet legal or regulatory requirements (for the index itself or related financial products) anymore the Committee reserves the right to adjust the rules to meet these requirements. This may affect selection criteria or weighting rules. If there are any changes to the rules, all parties related to the index are informed and the new rulebook will be published on the company website www.solactive.com.

1.7 Publication

All specifications and information relevant for calculating the index are made available on the http://www.solactive.com web pages and sub-pages.

1.8 Historical data

Historical data will be maintained from the 29th of December 2006.

1.9 Licencing

Licences to use the index as the underlying value for derivative instruments are issued to stock exchanges, banks, financial services providers and investment houses by Solactive AG.

2 Composition of the Index

2.1 Selection of the Index Components

2.1.1 Determination of the set of eligible bonds to the Index

On the Quarterly or Monthly Selection Day, the bonds which meet the requirements of the Selection Pool according to (a)-(f) as defined under 4.1 and have at least 18 months of Effective Time to Maturity, constitute the Liquid Selection.

The probability of default for each bond in the Liquid Selection is assessed using the Expected Default Frequency on 1-year horizon (1-Year EDF) measure. The bonds with the highest probability of default according to the **EDF™** measure are excluded from the set of eligible bonds to the index by applying the Credit Quality Filter.

The Credit Quality Filter is applied separately within duration buckets defined as follows inside Financials and Non-Financials sub-groups of the Liquid Selection:

Bucket 1: D <= 3 years
Bucket 2: 3 < D <= 4 years
Bucket 3: 4 < D <= 5 years
Bucket 4: 5 < D <= 6 years
Bucket 5: 6 < D <= 7 years
Bucket 6: D > 7 years

where D is the modified bid duration.

The bonds are ranked by their **EDF™** measures and the Pi % of the bonds (rounded up) with the lowest values of **EDF™** inside each sector-duration bucket constitute the set of eligible bonds to the Index on the Quarterly or Monthly Selection Day, called Quality Selection.

The bonds from the Quality Selection are ranked according to the Valuation Spread measure inside each sector-duration bucket, starting from the highest VS spread:

$$VS = OAS - FVS$$

2.1.2 Limiting the number of bonds in the Index to a fixed target K

On the Quarterly Selection Day, a target number of bonds per sector-duration bucket is computed. The objective of this step is to get a constant number of bonds K in the Index portfolio, while matching the duration and Financials/Non-Financial exposures to those of the Benchmark.

The Benchmark portfolio is divided into two sub-portfolios, corresponding to Financials and Non-Financials bonds. Each sub-portfolio is further divided into six duration buckets, as specified above, and the market-capitalization weight of each duration bucket within each sub-group is determined as follows:

Weight of duration bucket i in Financials sector: $$\boldsymbol{w_{Fi}} = \sum_{\substack{D_j \in Bucket\ i \\ S_j \in Financials}} \boldsymbol{w_j}$$

Weight of duration bucket i in Non-Financials sector: $$\boldsymbol{w_{NFi}} = \sum_{\substack{D_j \in Bucket\ i \\ S_j \in Non-Financials}} \boldsymbol{w_j}$$

where i = 1,…,6, Dj is the duration of the bond j and Sj is the sector classification of bond j.

Weight of Non-Financial sector: $w_{NF} = \sum_{i=1}^{i=6} w_{NFi}$

Weight of Financial sector: $w_F = \sum_{i=1}^{i=6} w_{Fi}$

By construction, $\sum_i w_{Fi} + w_{NFi} = 1$.

A set of target number of bonds $\{n_{Fi}, n_{NFi}\}$ per duration bucket i is calculated for Financials and Non-Financials groups.

$n_{Fi} = w_{Fi} \cdot K$
$n_{NFi} = w_{NFi} \cdot K,$
$K_{NF} = round(w_{NF} \cdot K)$
$K_F = K - K_{NF}$

where K is the target total number of bonds in the Index portfolio.

To get integer numbers $\{n_{Fi}, n_{NFi}\}$ and match precisely the total of K bonds, a three-step process is used:

1) Compute $n*_{F1}, n*_{F2} \dots n*_{F6}$ and $n*_{NF1}, n*_{NF2} \dots n*_{NF6}$
 with $n*_{Fi} = floor(w_{Fi} \cdot K)$ and $n*_{NFi} = floor(w_{NFi} \cdot K)$

2) Compute $K_{NF}*$ and K_F*
 with $K_{NF}* = \sum_{i=1}^{i=6} n*_{NFi}$ and $K_F* = \sum_{i=1}^{i=6} n*_{Fi}$

3) Compute $n_{NF1}, n_{NF2} \dots n_{NF6}$
- For the $(K_{NF} - K_{NF}*)$ buckets with the highest residual $(K_{NF}. w_{NFI} - n*_{NFI})$
- $n_{NFI} = n*_{NFI} + 1$
- For the remaining buckets: $n_{NFI} = n*_{NFI}$

4) Compute $n_{F1}, n_{F2} \dots n_{F6}$
- For the $(K_F - K_F*)$buckets with the highest residual $(K_F. w_{FI} - n*_{FI})$
- $n_{FI} = n*_{FI} + 1$
- For the remaining buckets: $n_{FI} = n*_{FI}$

2.1.3 Initial Portfolio at Index Inception

On the 29th of December 2006, the *Initial Portfolio* is built as follows. Start from the set of eligible bonds determined as described in section 2.1.1 (*Quality Selection*, ranked by the VS measure) and repeat the following routine:

1) Initialize the *Adjusted Value Selection* that at this first step is equal to the *Quality Selection* ordered by the VS spread measure. Initialize the Initial Portfolio as an empty set.

2) Repeat the following steps K times:
   a) Add to the *Initial Portfolio* a bond from the *Adjusted Value Selection* having the highest VS spread. Eliminate this bond from the *Adjusted Value Selection*.
   b) Check if after this addition the *Initial Portfolio* has saturated its duration-sector constraint (i.e. if the number of bonds in any of the sector-duration buckets of the *Initial Portfolio* is equal to the target number of bonds for this particular

bucket $\{n_{Fi}, n_{NFi}\}$ (see the step 2.1.2). If this is the case, eliminate from the *Adjusted Value Selection* the remaining bonds that correspond to the filled duration buckets.

c) Check if after the addition of the new bond the Issuer constraint is saturated. The Issuer constraint limits the total number of bonds per issuer to I bonds in the Index Portfolio. If at this step there appears to be an issuer in the *Initial Portfolio* with exactly I bonds, delete all the remaining bonds of this issuer from the *Adjusted Value Selection*.

2.1.4 Quarterly Portfolio Rebalancing

In order to reduce portfolio turnover, the Index portfolio is not re-initialized at each quarterly rebalancing. Instead, it is modified using the following procedure on the Quarterly Selection Day:

The bonds that are included in the pre-rebalancing quarterly Index portfolio might become non-qualifying and thus shall be deleted if they:

- do not belong anymore to the Benchmark at the rebalancing date
- have expected remaining effective time to maturity of less than 15 months at the rebalancing date
- have a VS value strictly below the Sc % percentile of bonds (rounded up) with the highest VS inside their duration bucket at the rebalancing date. The duration buckets are constructed within Financials and Non-Financials sub-groups of the *Extended Liquid Selection* (defined below).
- have an **EDF™** value strictly above the Pc % percentile of the bonds (rounded up) with the lowest **EDF™** inside the duration buckets at the rebalancing date. The duration buckets are constructed within Financials and Non-Financials sub-groups of the *Extended Liquid Selection.*

The *Extended Liquid Selection* is the *Liquid Selection* completed with bonds having:

- less than 18 months but more than 15 months of Effective Time to Maturity AND
- an Amount Outstanding of at least 750 million EUR

The selection of bonds from the previous Index portfolio that are still eligible according to the above rules is divided into the sector-duration buckets. If inside any duration bucket the number of bonds is greater than the new target number of bonds ($\{n_{Fi}, n_{NFi}\}$ + B) (the target number of bonds being determined at the step 2.1.2), some additional bonds have to be deleted from this selection. B is the buffer that allows a small departure from the target number of bonds in order to reduce the rebalancing turnover. The bonds inside the concerned duration buckets are sorted by their VS values, determined at the rebalancing date, and the bonds with the lowest VS values are deleted, such as to bring the number of bonds in the bucket down to ($\{n_{Fi}, n_{NFi}\}$ + B). If after performing this procedure the number of eligible bonds in one of the sectors exceeds the target number of bonds per sector (K_F or K_{NF}), the bonds with the lowest VS values are removed to bring the total number of bonds in the respective sector to the target. The obtained selection of bonds is referred to as the *Core Index portfolio*.

At this step there are K_0 bonds in total in the Index portfolio and there are K_{F0} in the Financial sub-group (defined as the set of bonds having a Financial Weight >= 0.5) and K_{NF0} in the Non-Financial sub-group (defined as the set of bonds having a Financial Weight < 0.5) of the Index portfolio. To complete the portfolio, $(K_F - K_{F0})$ bonds within the Financial sub-group of the *Quality Selection* and $(K_{NF} - K_{NF0})$ bonds within the Non-Financial sub-group of the *Quality Selection* are selected that satisfy the following additional constraints:

- the bonds do not belong to the group of *Core Index portfolio*
- the bonds are not issued by issuers that are already represented by I bonds in the *Core Index portfolio*
- the bonds have durations different from those that correspond to already completed sector-duration buckets (i.e. at least $\{n_{Fi}, n_{NFi}\}$ bonds are already present in the *Core Index portfolio*)

More precisely, the following routine is repeated separately for Financials and Non-Financials sub-groups on the Quarterly Selection Day:

1) Initialize the *Adjusted Value selection* that at this first step is equal to the *Quality Selection* minus the *Core Index portfolio* for bonds in the sector sub-group.
2) Initialize the *Final Portfolio* as the *Core Index portfolio.*
3) Check if the *Final Portfolio* has saturated its duration-sector or Issuer constraint and adjust the *Adjusted Value Selection*:
   a) Check if the *Final Portfolio* has saturated its duration-sector or Issuer constraint. For this, split the *Final Portfolio* into sector-duration buckets and determine in any buckets there is a number of bonds at least equal to the target number of bonds for this bucket $\{n_{Fi}, n_{NFi}\}$. After, count the number of bonds per issuer in the Final Portfolio and determine whether there are issuers having exactly I bonds.
   b) Adjust the Adjusted Value Selection by eliminating:
      i) all bonds of the issuers that have at this step already I bonds in the *Final Portfolio*;
      ii) all bonds that correspond to the sector-duration buckets that are already filled in the *Final portfolio*.
4) Repeat the following steps $(K_F - K_{F0})$ times for the Financials sub-group or $(K_{NF} - K_{NF0})$ times for the Non-Financials sub-group:
   a) Add to the Final Portfolio the bond from the *Adjusted Value Selection* having the highest VS spread.
   b) Check if after this addition the *Final Portfolio* has saturated its duration-sector or Issuer constraint. For this split the *Final Portfolio* into sector-duration buckets and determine in any buckets there is a number of bonds equal to the target number of bonds for this bucket $\{n_{Fi}, n_{NFi}\}$. After, count the number of bonds per issuer in the *Final Portfolio* and determine whether there are issuers having exactly I bonds.
   c) Adjust the *Adjusted Value Selection* by eliminating:
      i) the bond that has been added to the *Final Portfolio* at the step 4.a) ;
      ii) all bonds of the issuer that have at this point already I bonds in the Final Portfolio;
      iii) all bonds that correspond to the sector-duration buckets that are already filled in the *Final portfolio*.

2.1.5 Monthly Index maintenance

On the Monthly Selection Day, index maintenance takes place with the following steps:

- Check that all the Index constituents still belong to the Base Universe (the Benchmark)
- Constituents which don’t belong anymore to the Base Universe are removed from the Index
- Initialize the *Final Portfolio Adjusted Value selection* as the current Index constituents adjusted for removed constituents

At this step there are K_1 bonds in total in the Index portfolio and there are K_{F1} in the Financial sub-group (defined as the set of bonds having a Financial Weight >= 0.5) and K_{NF1} in the Non-Financial sub-group (defined as the set of bonds having a Financial Weight < 0.5) of the Index portfolio.

To ensure that the index still has K constituents $(K - K_1)$ replacement bonds are chosen with the following process which is repeated separately for Financials and Non-Financials sub-groups:

1) Initialize the *Quality Selection and the Maintenance Adjusted Value Selection* that at this first step is equal to the *Quality Selection* minus the *Final Portfolio* (adjusted for removed constituents) for bonds in the sector sub-group.
2) Check if the *Final Portfolio* has saturated its duration-sector or Issuer constraint and adjust the *Maintenance Adjusted Value Selection*:
   a) Check if the *Final Portfolio* has saturated its duration-sector or Issuer constraint. For this split the *Final Portfolio* into duration buckets and determine in any buckets there is a number of bonds at least equal to the target number of bonds

for this bucket $\{n_{Fi}, n_{NFi}\}$. After, count the number of bonds per issuer in the Final Portfolio and determine whether there are issuers having exactly I bonds.

b) Adjust the *Maintenance Adjusted Value Selection* by eliminating:
   i) all bonds of the issuers that have at this step already I bonds in the *Final Portfolio*;
   ii) all bonds that correspond to the sector-duration buckets that are already filled in the *Final portfolio*.

3) Repeat the following steps $(K_1 - K_{F1})$ times for the Financials sub-group or $(K_1 - K_{NF1})$ times for the Non-Financials sub-group:
   a) Add to the Final Portfolio the bond from the *Maintenance Adjusted Value Selection* having the highest VS spread.
   b) Check if after this addition the Final Portfolio has saturated its duration-sector or Issuer constraint. For this split the Final Portfolio into sector-duration buckets and determine if in any buckets there is a number of bonds equal to the target number of bonds for this bucket $\{n_{Fi}, n_{NFi}\}$. After, count the number of bonds per issuer in the Final Portfolio and determine whether there are issuers having exactly I bonds.
   c) Adjust the Maintenance Adjusted Value Selection by eliminating:
      i) the bond that has been added to the Final Portfolio at step 3.a.;
      ii) all bonds of the issuer that have at this point already I bonds in the Final Portfolio;
      iii) all bonds that correspond to the sector-duration buckets that are already filled in the Final portfolio.

2.1.6 Default bond selection logic

If on any Monthly or Quarterly Selection Day a bond is to be selected from a sector-duration bucket but no bond satisfying all selection criteria is available, the bond from the Liquid Selection with the lowest **EDF™** in the corresponding sector-duration bucket is selected instead.

2.2 Ordinary adjustment

The composition of the Index is ordinarily adjusted on the Adjustment Day. Additionally, cash (e.g. resulting from coupon payments or corporate actions) is reinvested on the Adjustment Day.

The composition of the Index is ordinarily reviewed on the Quarterly and Monthly Selection Day. The Quarterly Selection Day is a Business Day 3 Business Days prior to the Adjustment Day in March, June, September and December, whereas the Monthly Selection Day is a Business Day 3 Business Days prior to the Adjustment Day on a month other than March, June, September and December.

2.3 Extraordinary adjustment

Indices need to be adjusted for systematic changes in prices once these become effective. The Committee will decide from time to time if the Solactive Moody’s Analytics IG EUR Select Credit Index needs to be adjusted.

The following Extraordinary Events will result in changes or adjustments to an index as indicated below between Adjustment Days:

1) Early Redemption or Full Call: The bond proceeds will be held as “Paid Cash” and reinvested into the index on the following Adjustment Day. For the avoidance of doubt a Tender must be mandatory, the pure offer to tender a bond will not lead to an adjustment of the index.*

2) Flat Trading: A bond is flat trading if the bond issuer will not meet its coupon payment obligation which means that the buyer of a bond is not responsible for paying the interest that has accrued since the last payment. If a bond is defined to be “flat trading” between two Adjustment Days the respective accrued interests and coupons will be set to 0. The bond will not be removed until the next Adjustment Day.

3) Defaulted Bonds: If the status of a bond changes to “In Default”, the bond will remain as part of the index or portfolio at the last available evaluated price provided by the pricing source until the next regular index Adjustment Day.

4) Exchange Offers:
   a) Optional Exchange Offers: Optional Exchange Offers will not result in an adjustment of the index. *
   b) Mandatory Exchanges Offers:
      i. In the case when less than 90% of the Amount Outstanding is exchanged the exchange will not be considered to be an event that affects the relevant bond’s position in the index.
      ii. In case more than 90% of the Amount Outstanding is exchanged the exchange will be considered in the index calculation by exchanging the relevant bonds, so that the new bond will receive the weight of the old exchanged bond.

   The capping factor of the new bond is calculated based on the following formula:

$$CapFactor_{t,new} = \frac{(\Pr ice_{t,old} + ACCInt_{t,old}) * Amount_{SD,old} * Cap_{SD,old}}{(\Pr ice_{t,new} + ACCInt_{t,new}) * Amount_{t,new}}$$

5) Fungible Bonds:
   a) The parent bond and the sub-tranche are both index constituents: Both bonds are kept in the index until the next Adjustment Day. On the next Adjustment Day, the new bond will be removed and the Amount Outstanding of the parent bond will be increased by the amount of the new bond issue.
   b) The parent bond is an index constituent and the sub-tranche is not: on the next Adjustment Day the Amount Outstanding of the parent bond will be increased by the amount of the sub-tranche.
   c) The parent bond is not an index constituent but the sub-tranche is: on the next Adjustment Day the sub-tranche leaves the index and the parent bond enters the index including the Amount Outstanding added from the sub-tranche (assuming that it meets the requirements of the Selection Pool).

6) Payment-in-Kind Bonds: These bonds pay interest in additional bonds rather than in cash. Assuming the additional bonds will be sold immediately and the proceeds will be reinvested in the index, payments-in-kind are therefore considered as cash in the Paid Cash component in all Total Return calculations.

7) Ex-dividend Bonds: “Ex-dividend” means that the next coupon is detached from the bond several days in advance of the coupon payment date. Between ex-date and pay-date a buyer of the bond does not get the right to receive the next coupon. Therefore, accrued interest is negative during that period. However, the coupon will be paid to the original bondholder, i.e. if a bond is already in the index the next coupon payment is held separate in the Variable Coupon Adjustment Factor CPAdji,t. If the bond enters the index during the ex-dividend period CPAdji,t is zero as the next coupon payment will not accrue to the index.

*For the avoidance of doubt, an optional tender or exchange offer may lead to an index adjustment after the end of the submission period. In case the tender or exchange has been successful for at least 90% of the Amount outstanding, the bond will be removed from the index/exchanged into the relevant bond.

In case of an Extraordinary Event that is not covered by the standard treatments mentioned above the Committee will meet and decide on how to treat the Extraordinary Event in the index based on the information available. An extraordinary adjustment will only be implemented if the majority of the Committee supports the suggested treatment. As soon as a decision has been taken all parties related to the index are informed about the Extraordinary Event as well as the decided treatment and date of implementation.

3 Calculation of the Index

3.1. Index formula

The Solactive Moody's Analytics IG EUR Select Credit Index is a Total Return Index with coupon payments and other types of paid cash being reinvested in the index every last business day of the month pro-rata in the index. The index value reflects the relative changes in bond values. Total return index calculation is performed according to the standard rules applied by Solactive:

As a formula:

$$Index_t = Index_n \frac{MarketValue_t + PaidCash_t}{BaseValue_n}$$

$$MarketValue_t = \sum_{i=1}^{a} (DirtyPrice_{i,t} + CPAdj_{i,t}) \cdot Amount_{i,n} \cdot Capfactor_{i,n}$$

$$PaidCash_t = \sum_{i=1}^{a} Coupon_{i,t} \cdot Amount_{i,n}$$

$$BaseValue_n = \sum_{i=1}^{a} (DirtyPrice_{i,n} + CPAdj_{i,n}) \cdot Amount_{i,n} \cdot Capfactor_{i,n}$$

Whereas:

$Index_t$ = Value of the index on Business Day t.

$Index_n$ = Value of the index on the last Adjustment Day n.

$CapFactor_n$ = Weighting Factor that results from an equal weighting of the composition on the selection day.

$CPAdj_{i,t}$ = Variable Coupon Adjustment Factor i on Business Day t is 0 if a bond enters the index during an ex-dividend period. If the bond is already in the index during the ex-dividend period, the Variable Coupon Adjustment Factor equals the coupon amount.

$DirtyPrice_{i,t}$ = Dirty Price of the bond i on Business Day t, whereas Dirty Price t is the sum of the clean price of the bond i on Business Day t and the accrued interest on Business Day t.

$DirtyPrice_{i,n}$ = Dirty Price of the bond i on the last Adjustment Day n, whereas Dirty Price is the sum of the clean price of the bond i on the last Adjustment Day n and the accrued interest on the last Adjustment Day n.

$Amount_{i,n}$ = Amount Outstanding of the respective bond as defined on the last Adjustment Day n.

$PaidCash_t$ = a) Value of the coupon payments between Adjustment Days.

b) If a bond i will be removed from the index between Adjustment Days, the resulting payment of the bond will be included in the Paid Cash component of the index.

On the next Adjustment Day "Paid Cash" will be reinvested in the index.

$Coupon_{i,t}$ = Coupon payment of bond i between payment date and Adjustment Day n. In case there is no coupon payment, Coupon i,t is 0.

3.2 Accuracy

The value of the index will be rounded to two decimal places.

According to the terms of the bond, the Index Calculator will take the following conventions into account:
Act/Act
Act/360
Act/365
30/360
ISMA 30/360

The index does not take into account taxes and assumes gross coupon payments.

Accrued Interest is calculated with settlement convention t+0. If a bond does not pay any coupons (e.g. zero coupon bonds) the Accrued Interest as well as the coupon payment will be set to 0.

4. Definitions

4.1 index-specific definitions

The "Selection Pool" of the Solactive Moody's Analytics IG EUR Select Credit Index comprises bonds that fulfill the following conditions:

(a) Bonds that are part of the Selection Pool of the Solactive Euro IG Corporate Index. (the Base Universe)
(b) Bonds for which Moody's Analytics provides **EDF™** and **FVS™** and Financial Weights data. (the Moody's Analytics Universe)
(c) Perpetuals are excluded.
(d) Bonds issued by issuers domiciled in the following countries: Austria, Belgium, Canada, Denmark, Estonia, France, Finland, Germany, Great Britain, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Slovakia, the United States
(e) Amount Outstanding of at least 750 million EUR.
(f) Bonds that lack public information on the underwriting entity (lead manager, or book runner) and can be reasonably considered as private are excluded.
(g) The bond must be priced from the Bond Pricing Provider.
(h) Effective time to maturity of at least 18 months for new issues entering the index. The minimum effective time to maturity for bonds in the index is 15 months.

4.2 Further definitions

"Adjustment Day" is the last Business Day every month.

The **"Adjusted Value Selection"** is the pool of bonds that is gradually scanned for additions of new bonds to the index until the number of bonds in the Final Index Portfolio is equal to K. Initially, it corresponds to the Quality Selection on the 29th of December 2006 and to the Quality Selection minus the Core Index Portfolio on every other Selection Day. Iteratively, the bond with the highest VS spread from the Adjusted Value Selection is added to the Final Index Portfolio and subsequently deleted from the Adjusted Value Selection. Before and after each addition from the Adjusted Value Selection to the Final Index Portfolio, the Adjusted Value Selection is adjusted by deleting all bonds of issuers that have already I bonds in the Final Index Portfolio and deleting all bonds belonging to sector-duration buckets that are already filled in the Final Index Portfolio.

"Amount Outstanding" is the face value of the respective bond.

"B" is a buffer for the matching of the number of bonds in the sector-duration buckets. It is set to 1.

The "**Base Universe"** of the index encompasses all the bonds belonging to the Benchmark.

"Bond Price Provider" is Interactive Data Corporation part of the ICE group.

A **"Business Day**" in relation to the index is each day Monday to Friday except common European banking holidays. Common European banking holidays are Good Friday, Easter Monday, Christmas Day, Boxing Day and New Year's Day.

A **"Credit Event"** is the suspension of debt service, insolvency or failure to pay.

The **"Core Index Portfolio"** is the pool of bonds that are included in the pre-rebalancing Index portfolio after deletion of bonds that have become non-qualifying and deletion of excess bonds inside overweighted duration buckets.

"D" Modified Bid Duration

"Early Redemption" includes every event that leads to a redemption of a bond before the actual maturity date.

“Effective Time to Maturity” is the minimum of the next call or put date and the final maturity date.

“Exchange Offer” means that the holder of a bond is invited to exchange the existing bond to another debt security.

In particular, an **“Extraordinary Event”** is:

- an early redemption of the bond
- a credit event

The **“Extended Liquid Selection”** is the **“Liquid Selection”** completed with bonds having less than 18 months but more than 15 months of Effective time to maturity.

“**Financial weight”** is the financial weight of a bond issuer which is determined by a firm’s financial business segments sales and assets relative to all business segments sales and assets by Moody’s Analytics.

The **“Final Index Portfolio”** is the pool of the index components.

A bond is **“Flat Trading”** if the bond issuer does not meet its coupon payment obligation which means that the buyer of a bond is not responsible for paying the interest that has accrued since the last payment.

“I” is the maximum number of bonds allowed per Issuer in the Index. It is set to 5.

A bond is “**In Default**” once the issuer is not able to fulfil its bond payment obligations anymore after the 30 days grace period.

The **“Index Currency”** is EUR

“Issuer” is the issuing entity of the respective bond.

“K” is the fixed total number of bonds in the **“Final Index portfolio”** equal to 100.

"Last Evaluated Ask Price" the last available evaluated Ask price by the designated Pricing Provider.

"Last Evaluated Bid Price" the last available evaluated Bid price by the designated Pricing Provider.

The **“Liquid Selection”** is the pool of bonds according to (a)-(f) of the definition of the **“Selection Pool”**, excluding bonds with less than 18 months of Effective time to maturity.

The **“Market Value”** of a bond is defined as the sum of the Last Evaluated Price and Accrued Interest multiplied by the Amount Outstanding.

“Monthly Selection Day” is a Business Day 3 Business Days prior to the Adjustment Day of each month other than March, June, September and December.

The “**Moody’s Analytics Universe”** is the list of all bonds for which Moody’s Analytics provides **EDF™**, **FVS™**, and Financial Weight data.

“{nFi, nNFi}“ is the set of target number of bonds per duration bucket i for the Financials and Non-Financials group.

“Quarterly Selection Day” is a Business Day 3 Business Days prior to the Adjustment Day in March, June, September and December. If the Selection Day happens to be Christmas Eve the new composition is fixed 1 Business Day in advance.

“Tender Offer” means that a holder of a bond is invited to tender the bond for a specific price at a specific time before the actual maturity date.

“OAS” is the Option Adjusted Spread.

“Pi” is the percentile (rounded up) of the bonds in each sector-duration bucket of the **“Liquid Selection”**, ranked by increasing **EDF^{TM}** eligible for inclusion in the **“Quality Selection”**. It is set to 75%.

“Pc” is the percentile (rounded up) of the bonds in each sector-duration bucket of the **“Extended Liquid Selection”**, ranked by increasing **EDF^{TM}** (ascending order), eligible for inclusion in the **“Core Index Portfolio”**. It is set to 85%.

The **“Quality Selection”** comprises the **Pi (75%)** of the bonds inside each sector-duration bucket with the lowest values of **EDF^{TM}** from the **“Liquid Selection”**.

“Sector-duration buckets” are defined as follows inside Financials and Non-Financials sub-groups separately:

Bucket 1:	D <= 3 years
Bucket 2:	3 < D <= 4 years
Bucket 3:	4 < D <= 5 years
Bucket 4:	5 < D <= 6 years
Bucket 5:	6 < D <= 7 years
Bucket 6:	D > 7 years

“Sc” is the percentile of the bonds (rounded up) in each sector-duration bucket of the **“Extended Liquid Selection”**, ranked by decreasing Valuation Spread (descending order), below which bonds are removed from the **“Core Index Portfolio”**. It is set to 75%.

“VS” is the Valuation Spread, i.e. the difference between a bond’s OAS and **FVS^{TM}**.

5 Appendix

5.1 Contact data

Information regarding the Solactive Moody's Analytics IG EUR Select Credit Index concept

Solactive AG
Guiollettstraße 54
60325 Frankfurt am Main
Tel.: +49 69 719 160 00
Fax: +49 69 719 160 25
indexing@solactive.com

5.2 Calculation of the Index – change in calculation method

The application by the index calculator of the method described in this document is final and binding. The index calculator shall apply the method described above for the composition and calculation of the index. However, it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require changes to be made to this method. The index calculator may also make changes to the terms and conditions of the index and the method applied to calculate the index, which he deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The index calculator is not obliged to provide information on any such modifications or changes. Despite the modifications and changes the index calculator will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.

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