Global Fixed Income Committee

Day Count Convention Description Enhancements

[February 27, 2015]

[Revision 0.4]

Proposal Status: Approved~~Public Comment~~

For Global Technical Committee Governance Internal Use Only

Submission Date	February 19, 2015	Control Number	EP200
Submission Status	~~Public Comment~~Approved	Ratified Date	May 25, 2015
Primary Contact Person	Werner Striegler, Deutsche Boerse	Release Identifier	5.0 SP3

r3.1

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Document History

Revision	Date	Author	Revision Comments
0.1	December 19, 2014	Werner Striegler	Initial draft
0.2	January 09, 2015	Werner Striegler	Updated format
0.3	January 23, 2015	Werner Striegler	Updated version incorporating review comments from Yuval Cohen, Hanno Klein and Lisa Taikitsadaporn
0.4	February 27, 2015	Werner Striegler	Updated version incorporating review comments from Global Technical Committee (19 February 2015): added issue regarding differentiation of 1/1 Day Count method and Flat Bonds
	Oct. 9, 2015	GTC PMO	ASBUILT created

1 Introduction

The purpose of this gap analysis is to enhance the FIX Protocol to update the naming and description of day count methods to harmonize with the ISDA 2006 definitions, which are the most reliable standard in the market.

Additionally the list of day count methods is enhanced by the introduction of the Act/364 method and a flat identifier.

2 Business Requirements

The definition, standardization and documenting of day count conventions is not centralized. Unfortunately for the same convention multiple terms are used in the market, even the same term may be used for different conventions.

The FIX and FpML standards have already incorporated the classification of day count conventions by ISDA, which is the most commonly used reference. In order to further improve the standardization of day count conventions, description and reference is improved based on the ISDA 2006 definitions.

3 Issues and Discussion Points

3.1 Day Count Method 1/1

Issue:

Should Day Count Method '1/1' (*CouponDayCount*, tag 1950, = '0') be distinguished from Flat Bonds as proposed by this Gap Analysis.

Discussion:

Day Count Method 1/1:

The calculation of a day count fraction (DCF) using the application of day count method 1/1, as any other day count method, assumes that accrued interest is calculated.

The only reliable resource for Day Count Method "1/1" is the official ISDA definition; other sources refer to ISDA.

See for example:

http://www.opengamma.com/sites/default/files/interest-rate-instruments-and-market-conventions.pdf

My current understanding is the following:

In general the accrued interest amount (AI) is calculated using the following formula:

In general the accrued interest amount (*AI)* is calculated using the following formula:

$$AI = Qty * CR * DCF$$

Where:

- Qty: Nominal amount of the trade
- CR: Coupon rate valid for the coupon period
- DCF: Day Count Fraction
-

In case of 1/1 day count convention: DCF would be 1, AI would be > 0.

Flat Bonds:
For Flat Bonds no accrued interest is calculated; This can be the case due to various reasons, but not because the day count method equals 1/1.

See for example:

http://www.businessdictionary.com/definition/flat-bond.html

Resolution:

Removal of term “Flat. No accrued interest. ” from elaboration of existing valid value 0 = “1/1”. No new value for “Flat” is needed which may be implied by absence of the field CouponDayCount(1950). Add additional description to field's description to reflect this.

4 Proposed Message Flow

No changes.

5 FIX Message Tables

No changes.

6 FIX Component Blocks

No changes.

7 Category Changes

No changes

Appendix A - Data Dictionary

Tag	FieldName	Action	Datatype	Description	FIXML Abbreviation	Add to / Deprecate from Message type or Component block
1950	CouponDayCount	CHANGE	int, Reserved 100Plus	The day count convention used in interest calculations for a bond or an interest bearing security. Absence of this field for a bond or an interest bearing security transaction implies a "flat" trade, i.e. no accrued interest determined at time of the transaction. Valid Values: 0 = 1/1 (Elaboration: ~~Flat. No accrued interest~~. If parties specify the Day Count Fraction to be 1/1 then in calculating the applicable amount, 1 is simply input into the calculation as the relevant Day Count Fraction.~~)~~ **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (a).)** 1 = 30/360 (30U/360 or Bond Basis) (Elaboration: Mainly used in the US with the following date adjustment rules: (1) If the investment is End-Of-Month and Date1 is the last day of February and Date2 is the last day of February, then change Date2 to 30; (2) If the investment is End-Of-Month and Date1 is the last day of February, then change Date1 to 30; (3) If Date2 is 31 and Date1 is 30 or 31, then change Date2 to 30; (4) If Date1 is 31, then change Date1 to 30. **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (f).**) 2 = 30/360 (SIA) (Elaboration: A variant of "30/360" - when Date1 and Date2 are both Feb. 28th or 29th convert them to 30th using the same logic in the conversion of 31st to 30th.)		

Tag	FieldName	Action	Datatype	Description	FIXML Abbreviation	Add to / Deprecate from Message type or Component block
				3 = 30/360M (Elaboration: Commonly used day count convention for US mortgage backed securities. Feb 28th (or 29th in a leap year) is always considered as a 30th for a start date. As a comparison, in the regular 30/360 day count as used by most US agency and corporate bonds, a start date of Feb 28th (or 29th in a leap year) is still considered as the 28th (or 29th) day of a month of 30 days. 4 = 30E/360 (Eurobond Basis) (Elaboration: Also known as 30/360.ISMA, 30S/360, or Special German. Date adjustment rules are: (1) If Date1 falls on the 31st, then change it to the 30th; (2) If Date2 falls on the 31st, then change it to the 30th.) **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (g).)** 5 = 30E/360 (ISDA) (Elaboration: Date adjustment rules are: (1) if Date1 is the last day of the month, then change Date1 to 30; (2) if D2 is the last day of the month (unless Date2 is the maturity date and Date2 is in February), then change Date2 to 30. **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (h).)** 6 = Act/360 (Elaboration: The actual number of days between Date1 and Date2, divided by 360. **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (e).)** 7 = Act/365 (FIXED) ~~(Act/360)~~ (Elaboration: The actual number of days between Date1 and Date2, divided by 365. **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (d).)** 8 = Act/Act (AFB)		

Tag	FieldName	Action	Datatype	Description	FIXML Abbreviation	Add to / Deprecate from Message type or Component block
				(Elaboration: ~~Calculated in accordance with the "base exact/exact" day count as defined by the "Definitions Communes plusieurs Additifs Techniques" published by the Association Francaise des Banques." Source: ISDA~~. The actual number of days between Date1 and Date2, the denominator is either 365 (if the calculation period does not contain the 29th February) or 366 (if the calculation period includes 29th February). **See also AFB Master Agreement for Financial Transactions – Interest Rate Transactions (2004) in Section 4. Calculation of Fixed Amounts and Floating Amounts, paragraph 7 Day Count Fraction, subparagraph (i).)** 9 = Act/Act (ICMA) ~~(Act/Act)~~ (Elaboration: The denominator is the actual number of days in the coupon period multiplied by the number of coupon periods in the year. ~~The ISMA-99 normal method.~~ Assumes that regular coupons always fall on the same day of the month where possible. ~~May also be referred to as "Actual/Actual", "ISMA-99", "ISMA-99 Normal", "Act/Act.ISMA"".~~ **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (c).)** 10 = Act/Act (IC~~S~~MA Ultimo) (Elaboration: The Act/Act (ICMA Ultimo) differs from Act/Act (ICMA) method only that it assumes that regular coupons always fall on the last day of the month. 11 = Act/Act (ISDA) (Elaboration: ~~May also be referred to as "Act/365.ISDA". Refer to ISDA 2006 Definitions.~~ The denominator varies depending on whether a portion of the relevant calculation period falls within a leap year. For the portion of the calculation period falling in a leap year, the denominator is 366 and for the portion falling outside a leap year, the denominator is 365. **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (b).)**		

Tag	FieldName	Action	Datatype	Description	FIXML Abbreviation	Add to / Deprecate from Message type or Component block
				12 = BUS/252 (Elaboration: Used for Brazilian Real swaps, which is based on business days instead of calendar days. The number of business days divided by 252.) 13 = 30E+/360 (Elaboration: Variation on 30E/360. Date adjustment rules: (1) If Date1 falls on the 31st, then change it to the 30th; (2) If Date2 falls on the 31st, then change it to 1 and increase Month2 by one, i.e. next month.) 14 = Act/365L (Elaboration: The number of days in a period equal to the actual number of days .The number of days in a year is 365, or if the period ends in a leap year 366. Used for Sterling floating rate notes. May also be referred to as ISMA-Year. **See also 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (i).)** 15 = NL365 (Elaboration: The number of days in a period equal to the actual number of days, with the exception of leap days (29th February) which are ignored. The number of days in a year is 365, even in a leap year.) 16 = NL360 (Elaboration: This is the same as Act/360, with the exception of leap days (29th February) which are ignored.) 17~~TBD~~ = Act/364 (Elaboration: The actual number of days between Date1 and Date2, divided by 364.)		

Tag	FieldName	Action	Datatype	Description	FIXML Abbreviation	Add to / Deprecate from Message type or Component block
				100+ reserved for bilaterally agreed values		

Valid Value	Name of Day Count Method	Alternate Name	Elaboration
0	1/1		**Per FIX Protocol Definitions:** ~~Flat. No accrued interest.~~ If parties specify the Day Count Fraction to be 1/1 then in calculating the applicable amount, 1 is simply input into the calculation as the relevant Day Count Fraction. **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (a)**: if "1/1" is specified, 1.
1	30/360	Bond Basis	**Per FIX Protocol Definitions:** Mainly used in the US with the following date adjustment rules: (1) If the investment is End-Of-Month and Date1 is the last day of February and Date2 is the last day of February, then change Date2 to 30; (2) If the investment is End-Of-Month and Date1 is the last day of February, then change Date1 to 30; (3) If Date2 is 31 and Date1 is 30 or 31, then change Date2 to 30; (4) If Date1 is 31, then change Date1 to 30. **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (f)**: where: • "D1" is the first calendar day, expressed as a number, of the Calculation Period or Compounding Period, unless such number would be 31, in which case D1 will be 30; and • "D2" is the calendar day, expressed as a number, immediately following the last day included in the Calculation Period or Compounding Period, unless such number would be 31 and D1 is greater than 29, in which case D2 will be 30.
2	30/360 (SIA)		**Per FIX Protocol Definitions:** A variant of "30/360" - when Date1 and Date2 are both Feb. 28th or 29th convert them to 30th using the same logic in the conversion of 31st to 30th. **Per 2006 ISDA Definitions:** N/A

Valid Value	Name of Day Count Method	Alternate Name	Elaboration
3	30/360M		**Per FIX Protocol Definitions:** Commonly used day count convention for US mortgage backed securities. Feb 28th (or 29th in a leap year) is always considered as a 30th for a start date. As a comparison, in the regular 30/360 day count as used by most US agency and corporate bonds, a start date of Feb 28th (or 29th in a leap year) is still considered as the 28th (or 29th) day of a month of 30 days. **Per 2006 ISDA Definitions:** N/A
4	30E/360	Eurobond Basis (Special) German	**Per FIX Protocol Definitions:** Also known as 30/360.ISMA, 30S/360, or Special German. Date adjustment rules are: (1) If Date1 falls on the 31st, then change it to the 30th; (2) If Date2 falls on the 31st, then change it to the 30th. **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (g)**: where: • "D1" is the first calendar day, expressed as a number, of the Calculation Period or Compounding Period, unless such number would be 31, in which case D1 will be 30; and • "D2" is the calendar day, expressed as a number, immediately following the last day included in the Calculation Period or Compounding Period, unless such number would be 31, in which case D2 will be 30.

Valid Value	Name of Day Count Method	Alternate Name	Elaboration
5	30E/360 ISDA		**Per FIX Protocol Definitions:** Date adjustment rules are: (1) if Date1 is the last day of the month, then change Date1 to 30; (2) if D2 is the last day of the month (unless Date2 is the maturity date and Date2 is in February), then change Date2 to 30. **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (h)**: where: • "D1" is the first calendar day, expressed as a number, of the Calculation Period or Compounding Period, unless (i) that day is the last day of February or (ii) such number would be 31, in which case D1 will be 30; and • "D2" is the calendar day, expressed as a number, immediately following the last day included in the Calculation Period or Compounding Period, unless (i) that day is the last day of February but not the Termination Date or (ii) such number would be 31, in which case D2 will be 30.
6	Act/360	French A/360	**Per FIX Protocol Definitions:** The actual number of days between Date1 and Date2, divided by 360. **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (e):** if "Actual/360", "Act/360" or "A/360" is specified, the actual number of days in the Calculation Period or Compounding Period in respect of which payment is being made divided by 360;
7	Act/365 (FIXED)	English A/365F	**Per FIX Protocol Definitions:** The actual number of days between Date1 and Date2, divided by 365. **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (d):** If "Actual/365 (Fixed)", "Act/365 (Fixed)", "A/365 (Fixed" or "A/365F" is specified, the actual number of days in the Calculation Period or Compounding Period in respect of which payment is made divided by 365.

Valid Value	Name of Day Count Method	Alternate Name	Elaboration
8	Act/Act (AFB)		**Per FIX Protocol Definitions:** The actual number of days between Date1 and Date2, the denominator is either 365 (if the calculation period does not contain the 29th February) or 366 (if the calculation period includes 29th February). ~~Calculated in accordance with the "base exact/exact" day count as defined by the "Definitions Communes plusieurs Additifs Techniques" published by the Association Francaise des Banques." Source: ISDA~~. **Per AFB Master Agreement for Financial Transactions – Interest Rate Transactions (2004) in Section 4. Calculation of Fixed Amounts and Floating Amounts, paragraph 7 Day Count Fraction, subparagraph (i):** "Actual/Actual AFB/FBF Master Agreement)"means the fraction whose numerator is the actual number of days elapsed during the Calculation Period or Compounding Period and whose denominator is 365 (or 366 if 29 February falls within the Calculation Period or Compounding Period). If the Calculation Period or Compounding Period is a term of more than one year, the basis shall be calculated as follows: (a) the number of complete years shall be counted back from the last day of the Calculation Period or Compounding Period and (b) this number shall be increased by the fraction for the relevant period calculated as shown above.
9	Act/Act (ICMA)	ISMA-99 Normal	**Per FIX Protocol Definitions:** The denominator is the actual number of days in the coupon period multiplied by the number of coupon periods in the year. ~~The ISMA-99 normal method.~~ Assumes that regular coupons always fall on the same day of the month where possible. May also be referred to as "Actual/Actual", "ISMA-99", "ISMA-99 Normal", "Act/Act ISMA". **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (c):** Under the Act/Act (ICMA) method, the denominator is the actual number of days in the coupon period multiplied by the number of coupon periods in the year (subject to exceptions in relation to irregular coupon periods).

Valid Value	Name of Day Count Method	Alternate Name	Elaboration
10	Act/Act (~~ISMA~~ ICMA Ultimo)	ISMA-99 Ultimo	**Per FIX Protocol Definitions:** The Act/Act (ICMA Ultimo) differs from Act/Act (ICMA) method only that it assumes that regular coupons always fall on the last day of the month. **Per 2006 ISDA Definitions:** N/A
11	Act/Act (ISDA)		**Per FIX Protocol Definitions:** The denominator varies depending on whether a portion of the relevant calculation period falls within a leap year. For the portion of the calculation period falling in a leap year, de denominator is 366 and for the portion falling outside a leap year, the denominator is 365. ~~May also be referred to as "Act/365.ISDA". Refer to ISDA 2006 Definitions.~~ **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (b):** Under the Act/Act (ISDA) approach, however, the denominator varies depending on whether a portion of the relevant calculation period falls within a leap year. For the portion of the calculation period falling in a leap year, de denominator is 366 and for the portion falling outside a leap year, the denominator is 365 – the actual number of days in the relevant portions is used as the numerator and the two fractions are added together.
12	BUS/252		**Per FIX Protocol Definitions:** Used for Brazilian Real swaps which is based on business days instead of calendar days. The number of business days divided by 252. **Per 2006 ISDA Definitions:** N/A
13	30E+/360		**Per FIX Protocol Definitions:** Variation on 30E/360. Date adjustment rules: (1) If Date1 falls on the 31st, then change it to the 30th; (2) If Date2 falls on the 31st, then change it to 1 and increase Month2 by one, i.e. next month. **Per 2006 ISDA Definitions:** N/A

Valid Value	Name of Day Count Method	Alternate Name	Elaboration
14	Act/365L	Act/365 Sterling ISMA-Year	**Per FIX Protocol Definitions:** The number of days in a period equal to the actual number of days .The number of days in a year is 365, or if the period ends in a leap year 366. Used for Sterling floating rate notes. May also be referred to as ISMA-Year. **Per 2006 ISDA Definitions, Section 4.16. Day Count Fraction, paragraph (i):** If "Act/365L" is specified, the actual number of days in the Calculation Period or Compounding Period in respect of which payment is being made divided by 365 (or, if the later Period End Date of the Calculation Period or Compounding Period falls in a leap year, divided by 366).
15	NL365	actual/365 no leap Actual/365 JGB (NL) Actual/365 Japanese	**Per FIX Protocol Definitions:** The number of days in a period equal to the actual number of days, with the exception of leap days (29th February) which are ignored. The number of days in a year is 365, even in a leap year. **Per 2006 ISDA Definitions:** N/A
16	NL360		**Per FIX Protocol Definitions:** This is the same as Act/360, with the exception of leap days (29th February) which are ignored. **Per 2006 ISDA Definitions:** N/A
TBD	Act/364		**Per FIX Protocol Definitions:** The actual number of days between D1 and D2, divided by 364. **Per 2006 ISDA Definitions:** N/A

Appendix B - Glossary Entries

Term	Definition	Field where used

Appendix C - Abbreviations

Term	Proposed Abbreviation	Proposed Messages, Components, Fields where used

Appendix D - Usage Examples

[Examples may be entered below this line]