swapsdata

SwapsValue 0.1 – Swap Portfolio Valuation
Input Data

February 2006

Contents

1. Introduction 3
2. IMS Format 1....4
   Field Description 4
   Input Fields 4
   Validation Rules 6
3. Creating the Yield Curve....10
   Swapsdata Yield Curve Format 10
   Guidelines on Choice of Yield Curve Data 10
4. Interest Rate File....11
   Swapsdata Rate Format....11
5. Holiday Calendar File 12
   Swapsdata Holiday Format 12

Copyright © 2005 Swapsdata Ltd.

1. Introduction

The purpose of this document is to describe the input data required to operate SwapsValue. Three data files are necessary in addition to the trade details. These three files can be inputted in various ways which will be described here. The trades to be valued must be entered in IMS format which will also be detailed here.

The following data is required in order to value a portfolio of interest swaps

1. IMS Format 1 trades – The parametric representation of the interest rate swap trade details.
2. Yield Curves – A file containing yield curves details for all relevant currencies.
3. Interest Rate File – A file containing a full year of interest rates.
4. Holiday Calendar – A list of the holidays in the different financial centres.

Copyright © 2005 Swapsdata Ltd.

2. IMS Format 1

IMS Format 1 is used as a way of describing Interest Rate Swap Portfolios. Where as with FpML or SWIFT a single trade takes an entire file that may be viewed as several pages of text, IMS Format 1 displays a trade as a single line. In this way a user can easily manipulate the large number of trades found in their portfolio.

IMS Format 1 is based on a csv 'Spreadsheet'. In the csv file the columns are used to describe the different trade attributes and the each is an individual trade.

IMS Format 1 was originally designed as the file that is loaded into IMS v1.0. It can also used for a range of other Swapsdata products including:-

1. Swapsgen
2. SwapsValue

This format is explained in 2 sections

1. Field Description – The trade attributes that make up the columns of the csv file.
2. Validation Rules – The rules associated with each of the fields of the csv file.

Field Description

IMS Format 1 consists of the following fields to describe vanilla Interest Rate Swaps.

Input Fields

The table below shows the fields that are included on the input into IMS.

	Start of General Trade Information
g_OurRef	Trade Reference
g_SwapType	The type of interest you and your counterpart pay Eg FIXEDFLOAT = Party A Pays Fixed and receives Float
g_IMM	IMM indicator Y – This is an IMM trade N – This is not an IMM trade
g_TradeDate	The date the traders agreed to the Swap
g_EffectiveDate	The date the trade becomes effective and interest begins to accrue
g_TerminationDate	The unadjusted date that the trade terminates
g_BusDayConv	The business day convention applied to the termination date in order to calculate the final accrual period
g_Currency	The currency of the swap
g_Notional	The Notional amount of the Swap
g_PartyA	The BIC of the Party A (the sender)
g_PartyB	The BIC of the Party B (the receiver)
	Start of Amounts Payable by Party A
p_FloatRateOpt	In the case that Party A pays FLOAT The floating rate option eg USD-LIBOR-BBA

Copyright © 2005 Swapsdata Ltd.

p_Spread	In the case that Party A pays FLOAT The spread that is applied to the floating rate, given as a percentage
p_Rate	In the case that Party A pays FIXED The fixed rate, given as a percentage
p_PeriodEnd	Period End Adjustment indicator Y – Interest is adjusted in line with the adjusting of Pay dates N – Interest is not adjusted in line with the adjusting of the pay dates
p_DayCountFrac	The Day Count Fraction used to calculate interest between any two dates on the pay leg
p_BusDayConv	The business day convention applied to the pay dates using the financial centres supplied in p_FinancialCentre on the pay leg
p_FinancialCentre	The financial centres to be used for the pay leg
p_DesignatedMat	The frequency in months or years between payments on the pay leg Eg 6M, 1Y
	Start of amounts Receivable by Party A
r_FloatRateOpt	In the case that Party A receives FLOAT The floating rate option eg USD-LIBOR-BBA
r_Spread	In the case that Party A receives FLOAT The spread that is applied to the floating rate, given as a percentage
r_Rate	In the case that Party A receives FIXED The fixed rate, given as a percentage
r_PeriodEnd	Period End Adjustment Indicator Y – Interest is adjusted in line with the adjusting of Pay dates N – Interest is not adjusted in line with the adjusting of the pay dates
r_DayCountFrac	The Day Count Fraction used to calculate interest between any two dates on the receive leg
r_BusDayConv	The business day convention applied to the pay dates using the financial centres supplied in r_FinancialCentre on the receive leg
r_FinancialCentre	The financial centres to be used for the receive leg
r_DesignatedMat	The frequency in months or years between payments on the receive leg Eg 6M, 1Y
	Additional General Information
g_RollDate	The day of the month that the trade rolls In the case that this is a month end roll trade must be set to 31
p_CurrentPeriodFloatResetDate	Payside date of the interest rate reset on the current floating leg.
p_CurrentPeriodFloatRate	Payside interest rate on the current floating leg.
p_CurrentPeriodFloatAccrualDays	Payside number of interest accrual days on the current floating leg.
r_CurrentPeriodFloatResetDate	Receive side date of the interest rate reset on the current floating leg.

Copyright © 2005 Swapsdata Ltd.

r_CurrentPeriodFloatRate	Receive side interest rate on the current floating leg.
r_CurrentPeriodFloatAccrualDays	Receive side number of interest accrual days on the current floating leg.

Validation Rules

Field	Validation Rules	Error Code
g_OurRef	Must be non-empty. Truncated to the first 16 characters if longer.	BG01
g_SwapType	Must be one of the following Values FIXEDFLOAT FLOATFIXED FLOATFLOAT	BG02
g_IMM	Must be one of the following values Y N	BG03
g_TradeDate	Must be a valid Date Either YYYYMMDD or DD/MM/YYYY	BG04
g_EffectiveDate	Must be a valid Date Either YYYYMMDD or DD/MM/YYYY	BG05
g_TerminationDate	Must be a valid Date Either YYYYMMDD or DD/MM/YYYY	BG06
g_BusDayConv	Must be one of the following values FOLLOWING FRN – Rejected from v0.2.1 onwards MODIFIEDF PRECEDING	BG08
g_Currency	Must be one of the following values ATS, AUD, BEF, CAD, CHF, COM, CZK, DEM, DKK, EUR, ESP, FIM, FRF,GBP, HKD, IDR, ITL, JPY, LUF, MYR, NOK, NLG, NZD, PTE, SEK, SGD, SPP, THB, USD, ZAR	BG09
g_Notional	Must be Numeric	BG10
g_PartyA	Must consist of 8 or 11 characters	BG11
g_PartyB	Must consist of 8 or 11 characters	BG12
p_FloatRateOpt	In the case that SwapType is FLOATFIXED or FLOATFLOAT : must be present In the case that SwapType is FIXEDFLOAT : must be empty	BP01
p_Spread	In the case that SwapType is FLOATFIXED or FLOATFLOAT : must be present (0 must be used to represent no spread) In the case that SwapType is FIXEDFLOAT : must be empty	BP02
p_Rate	In the case that SwapType is FIXEDFLOAT : must be present In the case that SwapType is FLOATFIXED or FLOATFLOAT : must be empty	BP03

Copyright © 2005 Swapsdata Ltd.

p_PeriodEnd	Must be one of the following values Y N	BP04
p_DayCountFrac	Must be one of the following values ACT/365, AFI/365, ACT/360, 360/360, 30E/360, EXA/EXA	BP05
p_BusDayConv	Must be one of the following values FOLLOWING MODIFIEDF PRECEDING	BP06
p_FinancialCentre	Must consist of a sequence of one or more four-character codes separated by a space. The codes themselves are not validated	BP07
p_DesignatedMat	The right-most character must be one of the following characters M Y The remaining characters must be numeric	BP08
r_FloatRateOpt	In the case that SwapType is FIXEDFLOAT or FLOATFLOAT : must be present In the case that SwapType is FLOATFIXED : must be empty	BR01
r_Spread	In the case that SwapType is FIXEDFLOAT or FLOATFLOAT : must be present (0 must be used to represent no spread) In the case that SwapType is FLOATFIXED : must be empty	BR02
r_Rate	In the case that SwapType is FLOATFIXED : must be present In the case that SwapType is FIXEDFLOAT or FLOATFLOAT : must be empty	BR03
r_PeriodEnd	Must be one of the following values Y N	BR04
r_DayCountFrac	Must be one of the following values ACT/365, AFI/365, ACT/360, 360/360, 30E/360, EXA/EXA	BR05
r_BusDayConv	Must be one of the following values FOLLOWING MODIFIEDF PRECEDING	BR06
r_FinancialCentre	Must consist of a sequence of one or more four-character codes separated by a space. The codes themselves are not validated	BR07
r_DesignatedMat	The right-most character must be one of the following characters M Y The remaining characters must be numeric	BR08
G_RollDate	In the case that g_IMM = “Y” then	BG07

Copyright © 2005 Swapsdata Ltd.

	No validation carried out In the case that g_IMM = “N” then Must be a number between 1 and 31	
g_IMM g_EffectiveDate g_TerminationDate g_RollDate p_DesignatedMat r_DesignatedMat	After the adjustment of the Effective and Termination Date the distance between the two dates in months must be a whole multiple of the pay and receive designated maturity in months. This validation is only performed if all of the input fields are valid.	BG13
g_TerminationDate Registration Date / Valuation Date / Today’s Date	The Termination Date must be after the Registration Date (For Backloading), Valuation Date (For Swap Valuation) or Today’s Date (For Swap Confirmation) This validation is only performed if all of the input fields are valid	BG14
g_EffectiveDate g_TerminationDate	The Termination Date must be after the Effective Date This validation is only performed if all of the input fields are valid.	BG15
p_CurrentPeriodFloatResetDate	If g_SwapType = “FLOATFIXED” or “FLOATFLOAT” Must be a valid Date (YYYYMMDD, DD/MM/YYYY) If g_SwapType = “FIXEDFLOAT” then must be empty	SVP01
p_CurrentPeriodFloatRate	If g_SwapType = “FLOATFIXED” or “FLOATFLOAT” Must be a valid number If g_SwapType = “FIXEDFLOAT” then must be empty	SVP02
p_CurrentPeriodFloatAccrualDays	If g_SwapType = “FLOATFIXED” or “FLOATFLOAT” Must be a valid number If g_SwapType = “FIXEDFLOAT” then must be empty	SVP03
r_CurrentPeriodFloatResetDate	If g_SwapType = “FIXEDFLOAT” or “FLOATFLOAT” Must be a valid Date (YYYYMMDD, DD/MM/YYYY) If g_SwapType = “FLOATFIXED” then must be empty	SVR01
r_CurrentPeriodFloatRate	If g_SwapType = “FIXEDFLOAT” or “FLOATFLOAT” Must be a valid number If g_SwapType “FLOATFIXED” then must be empty	SVR02
r_CurrentPeriodFloatAccrualDays	If g_SwapType =“FIXEDFLOAT” or “FLOATFLOAT” Must be a valid Date (YYYYMMDD, DD/MM/YYYY) If g_SwapType = “FLOATFIXED” then must be empty	SVR03

Copyright © 2005 Swapsdata Ltd.

Copyright © 2005 Swapsdata Ltd.

3. Creating the Yield Curve

This is the most important of the three input data files as the choice of yield curves will determine the valuation achieved. There are two ways to provide the yield curve information needed to value the portfolio, either using the Swapsdata Format or supply an LCH.Clearnet SwapClear yield curve.

Swapsdata Yield Curve Format

Create a text file containing data points which together represent the zero coupon yield curves for the required countries. Only 3 fields are required and no column headings, these fields are detailed in the table below:

Field	Description	Example
Currency	The three letter ISO currency code for the instrument	AUD
MaturityDate	The maturity date in DD/MM/YYYY format	03/06/2010
Yield	The yield to maturity in decimal form - this is as of the valuation date	0.061881306

Thus, a typical line of the text file might take the following form:

```
AUD     03/06/2010  0.061881306
```

The order of the points within the file is not important.

Guidelines on Choice of Yield Curve Data

If the user is going to create their own yield curve file some guidelines on choice of data may be useful.

The data will tend to be derived from instruments including bonds and FRAs with the appropriate zero coupon yields being obtained by bootstrapping methods. The yield curve data must be valid at the date the portfolio is to be valued as of. This may be the present date or a past or future date.

Any number of data points may be used to define the yield curve for each currency with a figure of around 20 being perhaps the most appropriate. This will depend on how far the curve extends and the nature of its shape. Appropriate choices of maturity for the yield curve instruments might be 1 day, 1 week, 1 month, 2 months, 3 months, 6 months, 9 months, 1 year, 18 months, 2 years, 3 years, 4 years, 5 years, 6 years, 7 years, 8 years, 9 years, 10 years, 12 years, 15 years, 20 years, 25 years and 30 years.

Copyright © 2005 Swapsdata Ltd.

4. Interest Rate File

The interest rate file allows SwapsValue 0.1 to fix rates for cashflows if those rates have already been set. The user can use the same rate file that is used for IMS, which is the SwapClear Report 3. If all current rates are provided in the 'Trades' sheet an interest rate file is not necessary. Alternatively the user can extract the rates from their system in the Swapsdata Format.

Swapsdata Rate Format

The first line of the file must read 'RATES' and the columns are tab delimited.

This report has eight fields as described in the following table:

Field	Description	Example
Currency	The three letter ISO currency code for the rate	USD
Index name	The code for the index name	LIBOR
Regulatory Body	The body governing the rate in question	BBA
Tenor unit in months	The designated maturity of the rate.	1
Fixing date	The date the rate was set	15/09/2003
Effective date	The date the rate applies from	17/09/2003
Index rate	The interest rate in percentage form	1.12

Example

RATES

USD LIBOR BBA 1 15/09/2003 17/09/2003 1.12

Copyright © 2005 Swapsdata Ltd.

5. Holiday Calendar File

The holiday file enables SwapsValue 0.1 to take account of holidays when calculating payment dates. The user should use the Holiday Calendar File that is used IMS, which is the SwapClear Report 6. Alternatively the user can extract the holidays from their system in the Swapsdata Format.

Swapsdata Holiday Format

The first line of the file must read 'HOLIDAY' and the columns are tab delimited.

This file has two fields as described in the following table:

Field	Description	Example
Financial centre code	The ISO code for the financial centre in which the holiday applies.	AUSY
Holiday date	The date of the holiday in DD/MM/YYY format.	10/04/1998

Example

HOLIDAY

GBLO 25/12/2005

Copyright © 2005 Swapsdata Ltd.