



**Title: Risk Based Capital  
Process for Capturing and Utilizing Interest Rates Files**

Revision Approved By: Joseph B. Bennett

Date: 12/14/05

**I. Purpose:**

The purpose of this guideline is to set forth the process used by OFHEO to obtain the interest rate information required to run the Risk-Based Capital (RBC) stress test for capital classification and other purposes. Historical interest rates are used in the RBC stress test to calculate cash flows, to simulate the performance of mortgages and other financial instruments, and to calculate the RBC requirement. OFHEO also provides the data to the Enterprises to use in replicating results with OFHEO. The values for indexes found in Table 3-18, "Interest Rate and Index Inputs" of the RBC regulation, must be updated each quarter.

**II. Scope:**

This guideline applies to OFHEO employees. The information generated by the process set forth in this guideline is used by OFHEO, the Enterprises and the public in the production of RBC stress test simulations. OFHEO uses these simulations to determine the quarterly RBC classifications.

The OFHEO Director may amend this guideline at his or her discretion.

**III. Authority And References:**

12 U.S.C. 4611  
12 CFR Part 1750  
Appendix A, section 3.1.3 and section 3.3.

**IV. Effective Date:**

This guideline is effective immediately upon approval by the Director of OFHEO.

**V. Policy:**

It shall be the policy of OFHEO to determine the RBC requirement for each Enterprise at least quarterly.



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**VI. Process:**

In order to conduct the Risk-Based Capital Stress Test for quarterly capital classification purposes, interest rates shall be obtained on the first business day of the second month after the end of the quarter for which the RBC Stress Test is being conducted. The timing of the creation of this file does not impair the ability of the Enterprises to compile RBC Report data.

In order to conduct the Risk-Based Capital Stress Test at any other time, rates can be extracted at any time after quarter end (such as the sixth business day). However, if rates are obtained before the first business day of the second month after quarter end, adjustments must be made to compensate for data lags for individual series. For instance, if downloading on the sixth business day, it is generally not possible to calculate the average FHLB 11th District Cost of Funds for the month prior to the beginning of the Stress Test because this particular series is usually published with a lag of at least one month. If, due to a data lag for any interest rate series, insufficient data are available to compute the monthly average for the month immediately preceding the start of the Stress Test, utilize the monthly average for the most recently available month.

**1) Download Data**

To construct the interest rate indexes, obtain the interest rate data from the sources listed in Table 3-18 for two full years prior to the start of the Stress Test, with the exception of (a) the ten-year CMT and (b) the 30-year CMT (see paragraph 4 of this 'Process' section, on page 4, for special instruction on the 30-year CMT). For the ten-year CMT, data should be obtained for three full years prior to the start of the Stress Test.

OFHEO obtains historical interest rate data from the Bloomberg Professional Service via a Bloomberg terminal and the Federal Reserve H.15 Release for the Constant Maturity Treasury (CMT) yields. The Bloomberg Professional Service database product is an alternative source to the same information as the H.15 Release; the appropriate Bloomberg "Tickers" for the CMT yield series are given in the following table:



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<i>CMT Index</i>	<i>Bloomberg Ticker</i>
<b>3 Month CMT</b>	H15T3M Index
<b>6 Month CMT</b>	H15T6M Index
<b>1 Year CMT</b>	H15T1Y Index
<b>2 Year CMT</b>	H15T2Y Index
<b>3 Year CMT</b>	H15T3Y Index
<b>5 Year CMT</b>	H15T5Y Index
<b>10 Year CMT</b>	H15T10Y Index
<b>20 Year CMT</b>	H15T20Y Index
<b>30 Year CMT</b>	H15T30Y Index

Additionally, the Bloomberg Professional Service database "tickers" for several Federal Agency Cost of Funds indexes occasionally change. The current tickers are provided in the following chart:

<i>Federal Agency Cost of Funds (COF) Index</i>	<i>Bloomberg Ticker</i>
<b>2-Year Federal Agency COF</b>	C0842Y Index
<b>3-Year Federal Agency COF</b>	C0843Y Index
<b>5-Year Federal Agency COF</b>	C0845Y Index
<b>10-Year Federal Agency COF</b>	C08410Y Index
<b>30-Year Federal Agency COF</b>	C08430Y Index

2) Download Swap Indexes

Obtain swap rates for two full years prior to the start of the Stress Test in order to calculate cash flows for certain instruments. The Bloomberg Professional Service database "tickers" for these swap indexes are found in the following table. These rates are calculated in the stress test in the same manner as other non-Treasury rates, based on the same maturity CMT.



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<i>Swap Index</i>	<i>Bloomberg Ticker</i>
<b>2-Year U.S. Dollar Swap Rates</b>	USSWAP2 Index
<b>3-Year U.S. Dollar Swap Rates</b>	USSWAP3 Index
<b>5-Year U.S. Dollar Swap Rates</b>	USSWAP5 Index
<b>10-Year U.S. Dollar Swap Rates</b>	USSWAP10 Index
<b>30-Year U.S. Dollar Swap Rates</b>	USSWAP30 Index

3) Calculate Rates

Prior to inclusion of interest rates in calculations, convert all interest rates from percent basis to decimal basis.

Obtain all interest rate data at a daily frequency, then compute monthly averages of the interest rates from the daily data, (excluding holidays and weekends) with equal weight given to each observation in the monthly average.

4) Special instructions for the 30-year CMT

Because the publication of the 30-year CMT ceased on February 15, 2002, the Risk-Based Capital Stress Test uses daily estimates of the 30-year CMT for periods after February 15, 2002. In the period between February 15, 2002 and May 31, 2004, the Long-Term Average Rate was used to obtain the daily estimates of the 30-year CMT. Starting June 1, 2004 the method to obtain these daily estimates was changed again and the 20-year CMT is used to obtain the estimates.<sup>1</sup> The estimates are constructed in a manner consistent with a procedure devised by the United States Department of the Treasury. The estimates should be computed as follows:

1. Obtain the Department of the Treasury's "Twenty-year constant maturity Treasury yield (20-year CMT)" daily estimate rates starting June 1, 2004 up until the end of the month prior to the first month of the Stress Test. For example, for the Stress Test pertaining to the first

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<sup>1</sup> On August 3, 2005 the U.S. Treasury announced that it will again sell 30 Year Treasury Bonds. The first long-bond auction is scheduled for February 2006. While it is premature to amend this Guideline in anticipation of the change, OFHEO acknowledges that the existing methodology will be adjusted at the appropriate time.



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quarter of 2005, daily values of the "Twenty-year constant maturity Treasury yield" should be obtained from June 1, 2004 to March 31, 2005.

2. Obtain daily "linear extrapolation factors" from the Department of the Treasury at the website address <http://www.ustreas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex.html> for the same time period over which the "Twenty-year constant maturity Treasury yield" was extracted.
3. Compute the daily 30-year CMT estimates by summing together the twenty-year constant maturity Treasury yield and the linear extrapolation factor for each day. Calculate the monthly averages of the daily rates as described above.

5) Format Rates

Once monthly averages of the daily rates are computed, format according to the following data dictionary for use in the RBC Model. All interest rates are rounded to six (6) decimal places at the end of the process by rounding the sixth digit to the right of the decimal up one number if the seventh digit to the right of the decimal is five or greater. Otherwise, do not round up.

Field Name	Field Description	Column Name	Allowable Values	Format	Length
Year	The four-digit year indicating when the interest rates were in effect.	year	Any valid number.	Number	4
Index	The name of the rate index.	idx_cde	FF1W - 1 week Federal Funds FF6M - 6 week Federal Funds FFOV - Overnight Federal Funds  MCON - Conventional Mortgage Rate  COF11 - FHLB 11 District Cost of Funds  FA001 - 1 Month Federal Agency Cost of Funds FA003 - 3 Month Federal Agency Cost of Funds FA006 - 6 Month Federal Agency Cost of Funds FA012 - 12 Month Federal Agency Cost of Funds FA024 - 24 Month Federal Agency Cost of Funds FA036 - 36 Month Federal Agency Cost	Char	5



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			of Funds FA060 – 60 Month Federal Agency Cost of Funds of Funds FA120 – 120 Month Federal Agency Cost of Funds FA360 – 360 Month Federal Agency Cost of Funds  LB001- 1 Month LIBOR LB003- 3 Month LIBOR LB006- 6 Month LIBOR LB012- 12 Month LIBOR  M15FR- 15 Year Fixed Mortgage Rate  PRIME – Prime Rate  TR001- 1 Month Treasury Bill TR003- 3 Month CMT TR006- 6 Month CMT TR012- 12 Month CMT TR024- 24 Month CMT TR036- 36 Month CMT TR060- 60 Month CMT TR120- 120 Month CMT TR240- 240 Month CMT TR360- 360 Month CMT  SW024 - 2-Year U.S. Dollar Swap Rate SW036- 3-Year U.S. Dollar Swap Rate SW060- 5-Year U.S. Dollar Swap Rate SW120- 10-Year U.S. Dollar Swap Rate SW360- 30-Year U.S. Dollar Swap Rate		
Month	The numeric month indicating when the rate was in effect.	month	1,2,3,4,5,6,7,8,9,10,11, and 12	Number	2
Rate	The rate that is in effect for the month and year.	rate	Any valid number > 0. Must be in decimal format (5.57% is 0.0557).	Decimal	9.6
Report Date	The date for which the data are reported.	rpt-dte	YYYY0331 YYYY0630 YYYY0930 YYYY1231	Date/time	

**VII. Responsibilities:**

**Office of Capital Supervision (OCS)** – downloads the historical interest rate data quarterly from Bloomberg; calculates rates; updates tickers and reviews data as needed; sends data in spreadsheet file to OTIM.

**Office of Technology and Information Management (OTIM)** – loads the historical data into the database in model-ready format; sends copy of file to the Enterprises for replication testing purposes.



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**V.III Types of Records Created:**

- Quarterly interest rate files.

This Guideline was last updated on: 10/23/02