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FIXED INCOME CLEARING CORPORATION
GOVERNMENT SECURITIES DIVISION
SCHEDULE OF INDICATIVE HAIRCUT RATES AND RISK FACTOR RATES
May 2024
(Updated monthly)

The VaR charge is one of a number of components of a GSD Member's margin requirement to FICC, and usually comprises the largest component. For most positions, the VaR charge is based on the potential price volatility of unsettled positions using a sensitivity-based Value-at-Risk (VaR) methodology. However, for some positions with insufficient requisite data used to employ the sensitivity approach, the applicable VaR charge is determined by applying a haircut method. *This schedule is designed to be used to approximate this haircut-based VaR charge.*

NOTE: Any result obtained using the indicative haircuts rates and/or risk factor rates listed in this schedule should only be used as a general estimate of the applicable VaR charge. The degree of variation and the final, total VaR charge that a GSD Member may owe on any particular day is contingent upon its total portfolio composition.

I. <u>To approximate VaR charges for Treasury and Agency securities</u>

VaR charges for positions in Treasury and Agency Securities may be approximated by -

First, apply the applicable haircut rates below to the securities net exposure per benchmark index.

Benchmark Index Description	Haircut Rates (bps)
U.S. Treasury: 1-3 Year	54.9
U.S. Treasury: 3-5 Year	126.4
U.S. Treasury: 5-7 Year	169.0
U.S. Treasury: 7-10 Year	227.9
U.S. Treasury: 10-20 Year	311.2
U.S. Treasury: 20+ Year	401.7
TIPS Notes: 1-10 Year	160.5
TIPS Notes: 10+ Year	470.7

Second, where applicable, calculate the haircut from the joint correlation matrix below and the net price risk determined above for each benchmark index.

Joint Correlation Matrix

The joint correlation matrix is used to reflect risk diversification across tenor buckets based on historical observations.

	U.S. Treasury: 1-3 Year	U.S. Treasury: 3-5 Year	U.S. Treasury: 5-7 Year	U.S. Treasury: 7-10 Year	U.S. Treasury: 10-20 Year	U.S. Treasury: 20+ Year	TIPS Notes: 1-10 Year	TIPS Notes: 10+ Year
U.S. Treasury: 1-3 Year	100%	94%	87%	79%	66%	57%	57%	46%
U.S. Treasury: 3-5 Year	94%	100%	98%	92%	80%	73%	65%	59%
U.S. Treasury: 5-7 Year	87%	98%	100%	98%	89%	83%	68%	67%
U.S. Treasury: 7-10 Year	79%	92%	98%	100%	95%	91%	66%	72%
U.S. Treasury: 10-20 Year	66%	80%	89%	95%	100%	97%	58%	76%
U.S. Treasury: 20+ Year	57%	73%	83%	91%	97%	100%	52%	75%
TIPS Notes: 1-10 Year	57%	65%	68%	66%	58%	52%	100%	81%
TIPS Notes: 10+ Year	46%	59%	67%	72%	76%	75%	81%	100%

All Treasury and Agency securities with remaining time to maturities less or equal to one year have no correlation offset against any other maturities in the calculation of the total haircut from all buckets.

Benchmark Index Description	Haircut Rates (bps)
U.S. Treasury: 0 - 6 Month	14.90
U.S. Treasury: 7 - 12 Month	28.10
TIPS Notes: 0 - 12 Month	50.00

II.   To approximate VaR charge for mortgage-backed securities ("MBS")

VaR charges for positions in mortgage-backed securities ("MBS") may be approximated by multiplying the risk factor rate for the Fannie Mae/Freddie Mac/UMBS 30-year ("outright risk factor"), which constitutes the majority of the TBA market, by the absolute value of the net position across all MBS products, plus the aggregate sum of each risk factor rate multiplied by the absolute value of its corresponding position mapped to the respective TBA benchmarks.

TBA Benchmark	Risk Factor Rates (bps)
Fannie Mae/Freddie Mac/UMBS: 30 Year	124.90
Fannie Mae/Freddie Mac/UMBS: 15 Year	52.77
Ginnie Mae: 30 Year	50.00
Ginnie Mae: 15 Year	60.95

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EXAMPLE:

To illustrate, let's consider the following sample portfolio and parameters. Please note below example and attached template are for the illustrative purpose and parameters may be different than ones that are being updated on a monthly basis in this document. The attached template will enable user to update hypothetical positions in market value column and risk factors in "Haircuts" tab to estimate VaR.

Security Type	Net Market Value	Haircut & Risk Factor Rates (bps)
U.S. Treasury: 7 - 12 Month	$100.0MM	25bps
U.S. Treasury: 1-3 Year	($100.0MM)	50bps
U.S. Treasury: 3-5 Year	$100.0MM	120bps
Fannie Mae/Freddie Mac/UMBS: 30 Year	$100.0MM	125bps
Fannie Mae/Freddie Mac/UMBS: 15 Year	($80.0MM)	50bps

Joint Correlation Matrix	U.S. Treasury: 1-3 Year	U.S. Treasury: 3-5 Year
U.S. Treasury: 1-3 Year	100%	95%
U.S. Treasury: 3-5 Year	95%	100%

VaR charge approximated for such portfolio would be:

1) $100.0MM net long in U.S. Treasury: 7 - 12 Month x 25bps = $250K. Positions in Treasury securities with remaining time to maturities less or equal to one year doesn't provide offsets against any other maturities.

plus

2) Calculation of the haircut on the remaining Treasury securities:
    a. The net price risk of each security type -

    U.S. Treasury: 1-3 Year: -$100.0MM x 50bps = -$0.5MM
    U.S. Treasury: 3-5 Year: $100.0MM x 120bps = $1.20MM

    b. Application of the correlations between these securities to account for the diversification benefit -

    Multiplying net price risks for these two maturities by the applicable percentage from the joint correlation matrix, where correlation between these securities is 95%

    Step 1: Perform matrix multiplication of -$500K & $1.2MM by 2x2 correlation matrix of:

Joint Correlation Matrix	U.S. Treasury: 1-3 Year	U.S. Treasury: 3-5 Year
U.S. Treasury: 1-3 Year	100%	95%
U.S. Treasury: 3-5 Year	95%	100%

    Step 2: Above multiplication would result in $640K & $725K [-$500K+$1.14MM & -$475K + $1.2MM].

    Step 3: Perform another matrix multiplication of $640K & $725K by transposed value of -$500K and $1.2MM [($640K x -$500K)+($725K*$1.2MM)], which will result in $550.00BN.

    Step 4: Take the square root of ($550.00BN) = $742K

plus

3) Absolute value of the net position in 30-year UMBS plus 15-year UMBS ($100MM - $80MM = $20MM) x125bps risk factor rate, plus $80MM in absolute value of the net position in 15-year UMBS x 50bps risk factor rate = 650K.

The approximated VaR charge for this portfolio is $1.642MM, which is the sum of the three calculations ($250K + $742K+ $650K) shown above.