



Association of Mutual Funds in India

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135/BP/ 103 /2022-23

October 12, 2022

To,

All AMFI Members

Dear Members,

AMFI Best Practice Guidelines Circular No.103 /2022-23
Stress testing by Debt schemes of MFs

Please refer to AMFI Best Practice Guidelines Circular No. 51 dated September 12, 2014 on Stress Testing of Money Market Mutual Funds and Liquid Funds.

Background

1. The current stress testing methodology as prescribed in the above referred AMFI Best Practices Circular issued in September 2014 is static in nature. The three parameters (Interest Rate Risk, Credit Risk and Liquidity Risk) are tested based on scenarios prescribed by AMFI and the same has not been updated / reviewed in terms of evolving debt market scenario.
 - a. SEBI circular dated April 30, 2015 was applicable only for Liquid Fund and Money Market Mutual Fund Schemes. Subsequently, vide SEBI circular dated November 6, 2020, all open-ended debt schemes (except Overnight scheme) were mandated to conduct stress testing from December 1, 2020.
 - b. Currently, AMCs use different methodology to undertake stress testing and have different output measures (such as impact on NAV or days to recovery)
 - c. In view of above, it is proposed to prescribe a common methodology across the industry for stress testing with a common outcome i.e. impact on NAV as a result of the stress testing carried out by AMCs. Such a uniform stress testing approach for asset side will complement the already existing liability side stress testing which was prescribed by the expert Committee on liquidity risk management.

Stress testing parameters

2. Interest Rate Risk Parameter

For interest rate parameter, AMCs may subject the schemes at portfolio level to the following scenarios of interest rate movements and assess the impact on NAV:

- a. Highest increase in G-Sec yield in the last 120 months (1 year G-Secs or 10 Year G-Secs whichever is higher on month on month basis comparing max yield of one month to min yield of previous month)
- b. 2/3rd of highest increase in G-Sec yield in the last 120 months
- c. 1/3rd of highest increase in G-Sec yield in the last 120 months



The data for this exercise (i.e., the movement in 1 year and 10-year G-Sec yields to be considered for stress testing) will be shared by AMFI with all AMCs on a monthly basis. AMFI may use the services of Valuation agencies to provide this rolling 120 months historical data.

An illustration on stress testing for Interest Rate Risk Parameter is provided in the Annexure to these Guidelines.

3. Credit Risk Parameter

For credit risk parameter, AMCs may subject the securities held by the scheme to the following:

- 1) Calculate the probability of downgrade of each security. Since there are multiple downgrade scenarios (notches) possible for each security there will be several such probabilities. This probability table is annually published by rating agencies, which will be used for these inputs (AMFI will provide the same). Please note if the instrument has a rating below AAA, such as AA+, AA, AA-, the input available is for AA only. The same may be used for AA+ as well as AA-.
- 2) Further, each potential notched down rating will correspond to a change in valuation yield for that security corresponding to that change in rating. The delta change in valuation yields for the respective rating changes will be derived from the valuation matrix used by the valuation agencies.
- 3) The sum product of probability of downgrade within investment grade with change in yield on that downgrade of any security, will be then multiplied by the duration of that security and the weightage of that security in the portfolio. Separately the sum product of probability of downgrade below investment grade with haircut applicable on that downgrade of any security, will be multiplied with the weightage of that security in the portfolio. These two sum products will be added to get the aggregate potential impact at a security level.
- 4) The sum product of probability of downgrade with change in yield on that downgrade of any security, will be then multiplied by the duration of that security and the weightage of that security in the portfolio.
- 5) The summation of all these security level outputs will be the portfolio level credit impact.

AMFI will work with valuation agencies and rating agencies to make this data available to AMCs at least monthly or any other frequency as may be required. AMCs shall obtain such data from AMFI in a timely manner and use only updated data for monthly stress testing.

An illustration on stress testing for Credit Rate Risk Parameter is provided in the Annexure to these Guidelines.

4. Liquidity Risk Parameter

For liquidity risk parameter, following analysis is being undertaken:

Data for past periods of stress (for now it can be stress scenarios during the years 2008, 2013, 2018, 2020) will be reviewed by AMFI/Valuation Agencies and rise in yields for a given credit rating, type of security, etc. in respective matrices for the relevant duration bucket will be made available to AMCs by AMFI.



The change in median yield differential over G-Sec (for a given credit rating, matrix-based sector as provided in the matrix files and duration bucket of the relevant matrices), during stress period compared to the preceding normal period (normal period is a period starting 6 months prior to the start of the stress period and ending at the start of the stress period) shall be considered as rise in spread for the purpose of stress testing. AMCs can take yield spike as higher than the AMFI-specified values for stress testing based on market scenarios.

These calculations will again be done for individual securities basis their respective ratings, matrix-based sector as provided in the matrix files and duration bucket and aggregated at the portfolio level to get the portfolio level output.

An illustration on stress testing for Liquidity Rate Risk Parameter is available at Annexure to these Guidelines.

Additional Stress Testing Scenarios:

AMCs may additionally consider extreme stress scenarios of time bound liquidation (viz 5 days, 3 days and 1 day) of full portfolios and its impact on NAV by applying suitable haircuts.

Treatment of bespoke instruments held by the scheme

The definition of bespoke instrument shall be in line with that used for calculation of Risk-o-meter.

The yield spreads for bespoke instruments, for the calculation of Liquidity Risk, shall be higher than that specified above as most of the securities are held by a few subscribers. The matrix of additional spread due to bespoke transactions for each duration bucket and credit rating of the instrument shall be laid down by AMFI on an annual basis. AMCs may use a more stringent spread than the spread matrix provided by AMFI with the approval from Board of AMC/ Trustees.

5. Frequency of Stress Testing:

The stress test should be carried out internally at least on a monthly basis and if the market conditions require so, AMC should conduct more frequent stress test.

6. The above methodology for all three risk parameters shall be reviewed at least annually by AMFI to incorporate changes, if any.
7. AMFI and each AMC shall specify the thresholds of impact for all three risk parameters for all open-ended debt schemes. Both these thresholds need to adhere to the PRC buckets. Further, the AMC thresholds shall be approved by its Board of AMC and Trustees. Any breach of the thresholds (of either AMFI or AMC) shall require remedial action as prescribed below.
8. The stress test analysis report will be presented to the Investment Committee for its review pursuant to the conduct of the stress tests. Any breach of the thresholds (of either AMFI or AMC) shall be given a cure period of 15 days for Liquid Fund and 30 days for other debt funds. The IC may allow a further cure of upto 30 days basis a written justification. If the breach of threshold continues beyond the cure period, then it must be reported to the Board of AMC and Trustees in the ensuing meeting explaining the reasons for the continued breaches and the corrective action plan(s) taken in this regard. The Board of AMC and Trustees shall ensure that the investment strategy and the liquidity profile of the scheme remain aligned, especially in cases of liquidity stress.



9. With the above proposed stress testing circular in place, the overall Liquidity Risk Management practices will be complete in most respects. These practices be henceforth laid out in SIDs of all new Open Ended Debt Funds being filed, as well as update the SIDs of existing funds, which makes the investor understand how the Liquidity Risk in any Open-Ended Debt scheme will be measured and addressed. The Investment Committee, Board of AMC and Trustees should put in place contingency plans with an aim to ensure that any applicable liquidity management tools can be used where necessary, and if being activated, can be exercised in a prompt and orderly manner. An indicative list of liquidity management tools is as under:

Liquidity Management Tool	Brief Description
Potential Risk Matrix Circular & Risk-o-meter Circular	The maximum risk that a scheme will run as per design and a measurement of that risk on a regular basis. Remedial measures also in place in case any of the design boundaries are breached.
LRM Circular	Defines Liquidity Risk arising from the liability side and covers all potential liquidity risk scenarios upto 99% confidence interval. Has remedial measures both for managing this risk on an ongoing basis (LRaR & LCRaR) as well as action plan in case there is a difference between actual outcome and projected outcome.
Stress Testing Circular	Addresses the asset side risk from an Interest Rate, Credit and Liquidity Risk perspective at an aggregate portfolio level in terms of its impact on NAV.,
RMC Circular	The RMC circular brings in ALM requirement which addresses potential Liquidity requirement over a 90-day period and required relevant asset side liquidity to be maintained.
Swing Pricing Circular	In case of severe liquidity stress at an AMC level or a severe dysfunction at market level, the Swing Pricing guidelines get triggered which offers the contingency plan in case all else fails.

Members are requested to take note of the above for uniform implementation.

Members are also requested to place the same before their Trustee & AMC Boards for information at their next meeting.

With best regards,

B. M. Kini
Dy. Chief Executive



Annexure

Illustrations on Stress Testing

1. Interest Rate Risk Parameter

Security	% of NAV	Mod Dur	Rating
ABC	60%	2.00	AAA
EDF	30%	1.50	AA
GHI	9%	1.00	A
XYZ	1%	1.00	BB
Total	100%	1.75	

AMFI to provide these numbers on monthly basis

A	Highest increase in 1 year Gsec	2.50%	
B	Highest increase in 10 year Gsec	2%	
C	Higher of the two	2.50%	

	Scenario 1	Scenario 2	Scenario 3
	1/3 of C	2/3 of C	C
	0.83%	1.67%	2.50%
Annualised Impact	-532.3%	-1064.6%	-1596.9%

D rated securities will be excluded in this calculation, hence total can be below 100%



2. Credit Risk Parameter

Security	% of NAV	Mod Dur	Rating	Prob of downgrade to AA	Prob of downgrade to A	Prob of downgrade to BBB	Prob of downgrade to BB	Prob of downgrade to B	Prob of downgrade to C	Prob of downgrade to D	avg higher yld for AA	avg higher yld for A	avg higher yld for BBB	Applicable Haircut for BB	Applicable Haircut for B	Applicable Haircut for C	Applicable Haircut for D	Impact	Annualised Impact on NAV
ABC	60%	2.0	AAA	1.30%	0.00%	0.20%	0.05%	0.00%	0.00%	0.10%	0.40%	1.00%	2.00%	20%	40%	55%	75%	(0.062)	
EDF	30%	1.5	AA	0.00%	2.60%	0.13%	0.06%	0.0%	0.0%	0.02%		0.60%	1.00%	25%	50%	70%	100%	(0.018)	
GHI	9%	1.0	A	0.00%	0.00%	4.10%	0.29%	0.11%	0.07%	0.22%			1.25%	15%	25%	35%	50%	(0.023)	
XYZ	1%	1.0	BB	0%	0%	0%	0%	3.70%	0.11%	4.07%					25%	35%	50%	(0.030)	
Total	100%																	(0.133)	-48.63%

In case of D security prob of going to D and Mod Duration will be zero



3. Liquidity Risk Parameter

Security	% of NAV	Mod Dur	L T Rating	Change in median yield differential over G-Sec	Impact	Annualised Impact on NAV
ABC	60%	2.00	AAA	0.5000%	(0.60)	
EDF	30%	1.50	AA	0.7500%	(0.34)	
GHI	9%	1.00	A	1.0000%	(0.09)	
XYZ	1%	1.00	BB	3.0000%	(0.03)	
Total	100%	1.75			(1.03)	-375.04%

D rated securities will be excluded in this cal, hence total can be below 100%