

A thin vertical black line is positioned to the left of the text.

# **Structure Parameters & Dynamic Expressions**

# Structure Parameters

**Structure Parameters** are structural variables / features users can pre-define to be used in structuring the custom waterfall.

For example: Overcollateralization, YSOC, Date Trigger, Default Level Threshold...etc. can all be set to specific values or vectors.

PORTFOLIO

BONDS

SCENARIOS

REPORTS

BONDS

Tranches

Settings

Structure Parameters

Dynamic Expressions

Expenses

Reserves

Waterfall Table

Resec Table

Save Changes

|  | Category (Optional) | Name                    | Unit        | Value                   | Help Description                        |
|--|---------------------|-------------------------|-------------|-------------------------|-----------------------------------------|
|  | OC                  | OC Target               | Percentage  | 3                       | This is the OC level targeted over t... |
|  | YSOC                | Vector                  | Amount (\$) | 1:10000; 2:5000; 3:3000 | This adjusts the Collat Balance         |
|  | Triggers            | Date                    | Date        | 2018-01-11              |                                         |
|  | Triggers            | Default Level Threshold | Percentage  | 2                       |                                         |
|  |                     |                         | Amount (\$) |                         |                                         |
|  |                     |                         | Percentage  |                         |                                         |
|  |                     |                         | Date        |                         |                                         |
|  |                     |                         | Number      |                         |                                         |

Users can also apply **Category** labels to these parameters for better organization, and write **Descriptions** for easier identification.

# Structure Parameters

Once the parameters are set up, they will be stored under **\$structure** in the **Library** of the **Dynamic Expression Editor**. They can be recalled and referenced when writing expressions for **Limits** and **Conditions** in the **Waterfall Table**.

The screenshot shows the 'Dynamic Expression Editor' window. At the top, there's a header bar with the title 'Dynamic Expression Editor'. Below it, the 'Name' field is set to 'Default Trigger', and the 'Category (Optional)' is 'Triggers'. There's a checkbox for 'Sticky Condition' which is unchecked, and the 'Type' is 'Boolean'. The 'Help Description' field contains the text: 'This condition checks whether the current default amount exceeds threshold, after which the deal will pay sequential.' The 'Dynamic Expression' field contains the code: `1 $(built-in.loans_cf.default) > $(structure.Triggers.Default Level Threshold)`. At the bottom left, there's a 'Library' dropdown menu with a list of libraries: '\$built-in', '\$dynamic', and '\$structure' (which is selected). Below the library dropdown is a 'Category' dropdown menu with a list of categories: 'default', 'percentage OC Target', 'percentage Default Level Threshold' (which is selected), 'date Date', and 'amount Vector'. To the right of the library and category dropdowns is a 'Help for Default Level Threshold' section. At the bottom right, there are buttons for 'Validate', 'Clear', 'Cancel', and 'Save & Close'. There are three blue callout boxes with arrows pointing to specific parts of the interface: one pointing to the 'Category' dropdown menu, one pointing to the 'Help for Default Level Threshold' section, and one pointing to the 'Add New Condition' and 'Add New Limit' buttons.

Dynamic Expression Editor

Name: Default Trigger Category (Optional): Triggers ☐ Sticky Condition Type: Boolean

Help Description: This condition checks whether the current default amount exceeds threshold, after which the deal will pay sequential.

Dynamic Expression

```
1 $(built-in.loans_cf.default) > $(structure.Triggers.Default Level Threshold)
```

Library: ☒ \$structure

Category: Select category

- default
- percentage OC Target
- percentage Default Level Threshold
- date Date
- amount Vector

Help for Default Level Threshold

Validate Clear

Cancel Save & Close

Users can also filter the parameters by their preset categories

Descriptions entered for the parameters will be displayed in this area

The Dynamic Expression Editor pops up when you click

[Add New Condition](#)

[Add New Limit](#)

in the Waterfall Table and Resec Table

# Dynamic Expressions

**Dynamic Expressions** are used to create limits and conditions when structuring the waterfall. They are dynamic formulas composed of **Structure Parameters**, and other built-in parameters in the Library. A **Dynamic Expression** can even be used to compose another Dynamic Expression.

These expressions calculate various thresholds or triggers (e.g. limits for Reserve Release, Target OC, conditions for redemption...etc.) based on a user defined definition (calculation). Like **Structure Parameters**, **Dynamic Expressions** can also be set-up and saved for use in the Waterfall Table.

| BONDS                                                                               |                                                                                     |                      |                                   |                                           |         |                                                  | Dynamic Expression |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|-----------------------------------|-------------------------------------------|---------|--------------------------------------------------|--------------------|
| Tranches                                                                            |                                                                                     |                      |                                   |                                           |         |                                                  |                    |
| Settings                                                                            |                                                                                     |                      |                                   |                                           |         |                                                  |                    |
| Structure Parameters                                                                |                                                                                     |                      |                                   |                                           |         |                                                  |                    |
| Dynamic Expressions                                                                 |                                                                                     |                      |                                   |                                           |         |                                                  |                    |
| Expenses                                                                            |                                                                                     |                      |                                   |                                           |         |                                                  |                    |
| Reserves                                                                            |                                                                                     |                      |                                   |                                           |         |                                                  |                    |
| Waterfall Table                                                                     |                                                                                     |                      |                                   |                                           |         |                                                  |                    |
| Resec Table                                                                         |                                                                                     |                      |                                   |                                           |         |                                                  |                    |
|                                                                                     |                                                                                     | Category (Optional)  | Name                              | Expression                                | Type    | Help Description                                 |                    |
|  |  | Redemption Variables | Available Funds                   | SUM(\$(built-in.loans_cf.total),\$(bui... | Float   | The funds available to pay down the balanc...    |                    |
|  |  | Sequential Trigger   | Cumulative Default Event          | \$(dynamic.Sequential Trigger.Cum...      | Boolean | This evaluates to true when a cumulative de...   |                    |
|  |  | Sequential Trigger   | Cumulative Default Percentage     | \$(built-in.loans_cf.cumulative_def...    | Float   | This is the cumulative default expressed as ...  |                    |
|  |  | Redemption Variables | Full Reserve Release              | \$(built-in.reserve.Reserve 1.curren...   | Float   | Release the Full Reserve to pay down notes       |                    |
|  |  | Redemption Variables | Mandatory Redemption              | AND(\$(dynamic.38682ca61181430...         | Boolean | This condition evaluates true when a mand...     |                    |
|  |  | Sequential Trigger   | No Cumulative Default Event       | NOT(\$(dynamic.Sequential Trigger...      | Boolean | This evaluates to true when the current cu...    |                    |
|  |  | Principal Payment    | OC Required Amount                | \$(built-in.tranche.A.current_balan...    | Float   | OC Required Amount subject to YSOC adjus...      |                    |
|  |  | Principal Payments   | OC Required Amount st Floor       | MAX(\$(dynamic.Principal Payment...       | Float   | OC required amount subject to floor              |                    |
|  |  | Redemption Variables | Optional or Mandatory Redempti... | OR(\$(dynamic.Redemption Variabl...       | Boolean | Mandatory or Optional Redemption                 |                    |
|  |  | Principal Payment    | Principal Allocation \$ Amount    | \$(structure.Principal Payment.Prin...    | Float   | This is the \$ amount of cash that flows thro... |                    |
|  |  | Redemption Variables | Redemption Obligations            | SUM(\$(built-in.expense.Fee 1.expe...     | Float   | These are the obligations that must be paid...   |                    |
|  |  | Reserves             | Reserve Release                   | \$(built-in.reserve.Reserve 1.release)    | Float   | Reserve Release, limit                           |                    |
|  |  | Principal Payment    | YSOC Adjusted Balance             | \$(built-in.loans_cf.collat_balance_e...  | Float   | This is the Collateral Balance less the YSOC ... |                    |
|  |  |                      |                                   |                                           |         |                                                  |                    |

# Dynamic Expressions

To set up a new Dynamic Expression, click on

**+ Dynamic Expression**

in thin upper right corner of the page.

**Dynamic Expression Editor**

1 Name: Adjusted Collat Bal

2 Category (Optional): YSOC

3 Type: Float

4 Help Description: This the Collat Balance after giving effect to YSOC Vector

Dynamic Expression

5 1 `$(built-in.loans_cf.collat_balance_ending) - $(structure.YSOC.Vector)`

Tip: Start typing "\$" in this box will bring up the most recently used parameters and expressions

In this example, "Adjusted Collat Bal" is defined as:  
`$(built in.loans_cf.collat_balance_ending) - $(structure.YSOC.Vector)`  
The 1<sup>st</sup> parameter is pulled from the \$built-in library and the 2<sup>nd</sup> parameter is pulled from the \$structure library (pre-defined by the user earlier).

Library: Select library  
\$built-in  
\$dynamic  
✓ \$structure

Category: Select category

Enter text to search

- percentage OC Target
- percentage Default Level Threshold
- date Date
- amount Vector

6 Validate Clear

Help for Vector: This adjusts the Collat Balance

Tip: Double-clicking on a parameter would insert it into your expression

7 Cancel Save & Close

1. Name the expression
2. (Optional) Label **Category**
3. Select **Type**:  
**Float** – Outcome is a number (typically used in **Limits**)  
**Boolean** – Outcome is "True" or "False" (typically used in **Conditions**)
4. (Optional) Write a description (helps in defining it)
5. Write the expression using parameters in the Library.
6. **Validate** the expression
7. **Save & Close**

You can now recall the saved expression from the **\$dynamic library** when adding a new **Limit** or **Condition** in the **Waterfall Table**