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## SFW™ User Guide

*Revision 4.2*

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### Contact

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# Introduction

## About This Guide

This guide provides an overview of the Moody's Analytics SFW application.

## Organization of This Guide

The following chapters are provided in this guide:

Table 1.1 Chapters in This Guide

Chapter Title	Description
<a href="#">"Introduction" on page 1</a>	About this guide, system requirements, other available MWSA documentation, the intended audience, and installing and updating the application.
<a href="#">"Getting Started" on page 9</a>	Explanation of the basic features in SFW.
<a href="#">"Using SFW" on page 55</a>	Specific instructions for viewing cashflows, setting up the Economy files, running analyses
<a href="#">"The M3 Module" on page 87</a>	Comprehensive instructions on the M3 credit model
<a href="#">"The CMM Module" on page 107</a>	Comprehensive instructions on the CMM credit model
<a href="#">"The ABSROM Module" on page 117</a>	Comprehensive instructions on the ABS-ROM credit model

## Audience

This guide provides an explanation of the basic features, setup, and usage of the SFW application. The audience for this document is end users of the software with an understanding of the concepts of structured finance.

# Documentation

Before you begin, you may find it helpful to understand the various Moody's Analytics SFW documents that exist and the purpose each serves.

Table 1.2 Moody's Analytics SFW Documentation

Document Name	Description
SFW User Guide	The content in this guide is aimed at SFW end users who work with RMBS deals.
SFW User Guide for Student Loans	The content in this guide is aimed at SFW end users who have the Student Loan module installed.
COM API User Guide and Reference	The content in this guide is aimed at developers and SFW end users who have experience writing and using macros within the application.

# Typographic Conventions

Table 1.3 The following typographic conventions—fonts and other stylistic treatments applied to text—apply to the guide and code samples to help you locate and interpret information:

TABLE 1.4 Typographic Conventions

Convention	Description
<b>Bold</b>	Virtual buttons, radio buttons, check boxes, literal key names, menu paths, and information you type into the system appear in bold type — for example, “Click <b>Add</b> ” or “Press <b>Enter</b> .”
Courier	System messages appear in a courier typeface — for example, “The system displays the following message: Added Amazon.com to your portfolio.” Also, blocks of code display using this font type.
<i>Italic</i>	Emphasized definitions and words appear in italic type — for example, “Portfolio Tracker is a <i>portfolio tools</i> page.”
	Information you should note as you work with the system.
	Warning information that prevents you from damaging your system or your work.
	Additional information you can use to improve the performance of the system.

# System Requirements

Moody's Wall Street Analytics is a wholly owned subsidiary of Moody's Corporation and is a member of the Moody's Analytics family of businesses. For over 20 years, MWSA has produced specialized software and data tools for the structuring, analysis, management and servicing of structured debt instruments.

## Typical Physical Configuration

The SFW application is installed on a client machine. An Internet connection is required to download software and deal updates from the MWSA web site.

### On-demand Data Transfers

You initiate all data transfers at your convenience—data is not pushed. Deal updates, which are used in analysis, are available for download through the application interface. For more information, see the section of this manual on downloading deals from the Deal Library.

### One-time Access to Client's Network at Implementation

Typical installation requires only one-time access to client's network for product installation.

### Minimal Maintenance

Software product updates are available quarterly, and typically require only replacement of the executable. This can be performed by your IT personnel. In addition, no third-party scheduling software is required for maintenance.

## SFW Client Requirements

The following table provides you with additional information about the technical specifications of the software as well as the hardware requirements.

Table 1.5 Software and Hardware Requirements

Operating System	Microsoft Windows XP, Vista (required for .NET 3.5 installation)
Compatible Software Products	Microsoft Office, Adobe
Processor	600 megahertz (MHz) Pentium III-compatible or faster processor; 2.4 gigahertz (GHz) Pentium IV or faster processor recommended
Memory	512 megabytes (MB) of RAM or more; 1 gigabyte (GB) or more recommended
Hard Disk	4 GB or more recommended available hard disk space
Graphics card	XGA (1024 x 768 or higher)
Recommended hardware	CD-ROM drive, Printer

## The RMS License Server (RMS License Manager)

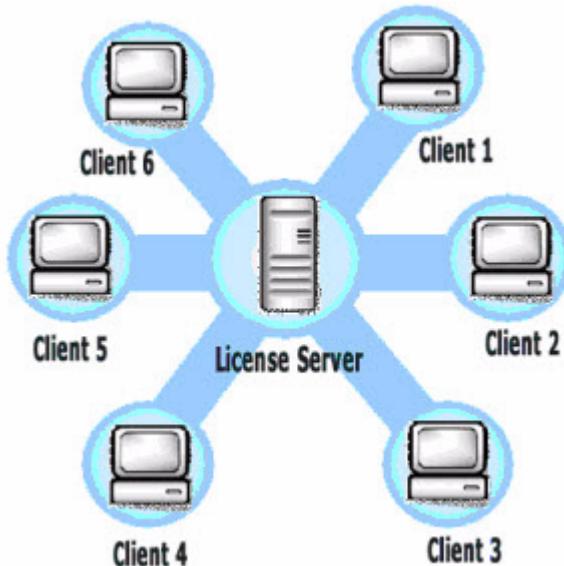
The RMS license server is a program that coordinates the use of a licensed application by multiple users and computers. This program usually runs on a computer that is located on the same subnet as any computer that needs to run the application.

The license server reads the licenses from the license file or can have them added into its memory. Each license identifies the valid uses of a single application or feature. There may be multiple licenses in a single license file.

Contact your MWSA representative for more information and assistance with setting up the license server.

## The Clients

The computers that run the application are called clients. When a licensed application is started on the client, it sends a request for a license across the network to the license server. The license server grants the request if possible and returns an authorization message back to the client.



You do not need to run a license server program on a file server system or any specific hardware server. Any computer that meets the requirements is acceptable. Realistically, a system running on Pentium Processor 3 (or higher), 550 MHz and having 128 MB RAM is a good choice for measuring stress data.

# Installing and Updating SFW

New and existing customers can follow these steps to install or update the SFW application:

1. Log in to the client site at [www.wsainc.com/clients](http://www.wsainc.com/clients) (contact your Financial Engineer for a user ID and password if you do not have one).
2. Click on My Files, browse to the Installation folder and download SFW Install.zip (right-click and choose Save Target As) to the C:\temp folder.

 These instructions use "c:\" as the local drive name, however, your local directory may use a different name.
3. Browse to the License Files folder and download SentinelSoftwareLicense Package - SFW .zip and kevrc\_SFW \_M M D D YY to the C:\temp folder.

 If you are an existing customer or have previously installed SFW on your computer, do not perform this step.
4. Extract SFW Install.zip in C:\temp, and double-click on setup.exe to run the installation.
5. Begin the installation and follow the InstallShield Wizard prompts to complete the installation. The application installs to the C:\Program Files\M W SA\SFW\directory by default. The table below shows the default directories that are created for user data during the installation:

Table 1.6 SFW User Data Directories by Operating System

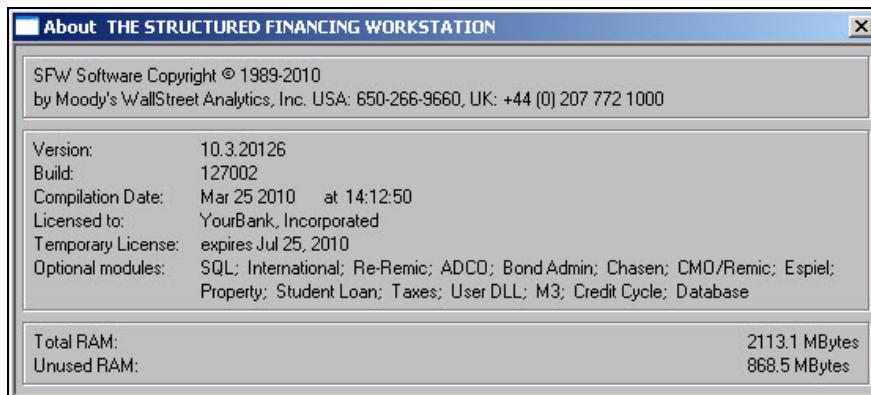
If your operating system is...	Then the ECONOMY, ISSUES, and DOCUMENTATION sub-directories install to ...
Microsoft Win2K and XP	c:\Documents and Settings\All Users\Application Data\MWSA\SFW
Microsoft Vista	c:\ProgramData\MWSA\SFW

6. Launch the SFW using one of the following methods:

- Browse to C:\Program Files\M W SA\SFW and double-click on sfw.exe, or...
- Double-click on the desktop icon , or...
- Select Start > Program Files > MWSA > SFW.

## Determining and Validating the Version of Your Executable

Select **About the SFW...** from the **Help** menu in the application. You see the **About The Structured Financing Workstation** dialog box.

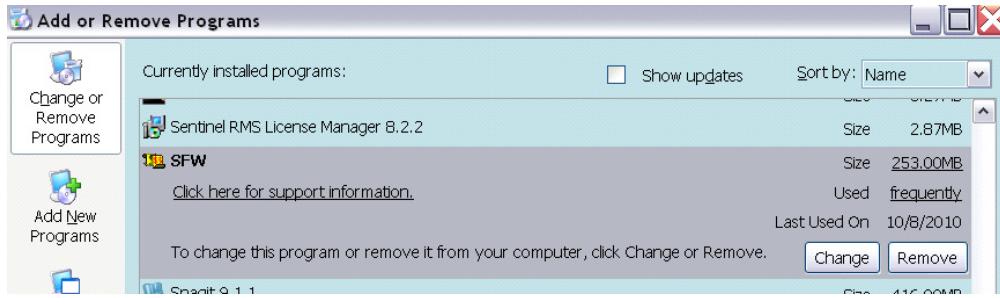


The information on this dialog box includes:

- **Version:** This number references the version of the software that is installed.
- **Build:** This number references the build version of the software that is installed. In most cases, if you need to contact your Financial Engineer, he or she may ask you for this number.
- **Compilation Date:** This is the date that the version of the executable file was compiled.
- **Licensed to:** The official name of the company this software was licensed to. It is also the name that appears on reports generated through the software.
- Licensing information (if applicable)
- **Modules:** The following modules are available (but not all may be enabled for use)
  - AFT: AFT Third-party credit model
  - Bond Admin: BAW Trustee module
  - CM O Remic Structuring module
  - CreditCycle CreditCycle Third-party module
  - Enhanced User Administration: Enhanced User Administration module
  - International International Display module
  - M 3: Moody's Mortgage Metrics Third-party credit model
  - SafeNet Licensing module
  - SFW Investor Investor module
  - StudentLoan: Student Loan module
  - Temporary: Beta feature for trial clients
  - User Administration: User Administration Module

New and existing clients can follow these steps to verify the proper version of the SFW application installation (Highly Recommended):

1. C:\Program Files\MWSA\SFW\SFW.exe has been updated by matching its timestamp with the one from the installation package [...\program files\MWSA\SFW].
2. Check that there is only one SFW component in **Control Panel -> Add/Remove Programs -> SFW**



- a. By clicking **Click here for support information**, it's version should match with the installation package.
3. If one of the 2 criteria above failed, manually uninstall through Control Panel->Add/Remove Programs->SFW->Remove. Then reinstall SFW Installation.



# Getting Started

## Downloading Deals from the Deal Library

Before you can download any deals from the Moody's ABS Deal Library, you must have a subscription and a login. If you do not have one, contact your MWSA Financial Engineer.

### Accessing and Downloading Deal Files

With the SFW Portfolio functionality, you can search for and group investments into portfolios. Once you have a login ID and password, select **File > Deal Library... > Portfolio** to display the login prompt.

#### Accessing Deal Library Portfolios

To access the portfolio functionality, either:

- Click the book icon on the taskbar, or



Figure 2.1 Deal Library Icon

- Select File > Deal Library... > Portfolios...

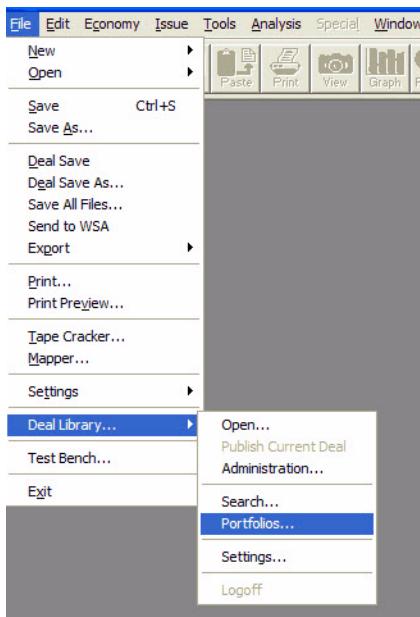


Figure 2.2 Opening the Deal Library Portfolios window from the File menu



At the prompt, enter the same username and password you use to log in to the Deal Library.

Once you log in to the Deal Library, you see the **ABS Deal Library Portfolios** dialog box.

Share Owned	Balance Owned	Tranche Label	Deal Name
1	25,025,434.00	M5	ACE SECURITIES CORP. HOME EQUITY LOAN TRUST SERIES 2001
1	26,370,000.00	M5	ASSET BACKED PASS-THROUGH CERTIFICATES SERIES 2005-R11
1	41,250,000.00	M5	ARGENT SECURITIES TRUST 2005-W2
1	23,719,000.00	M4	BEAR STEARNS ASSET BACKED SECURITIES I TRUST 2005-HE11
1	24,750,000.00	M5	CSFB HOME EQUITY ASSET TRUST 2005-8
1	15,675,000.00	M5	CWABS ASSET-BACKED CERTIFICATES TRUST 2005-BC5
1	32,425,000.00	M5	FIRST FRANKLIN MORTGAGE LOAN TRUST, SERIES 2005-FF12
1	26,376,000.00	M5	GSAMP TRUST 2005-HE4
1	18,350,384.00	M5	J.P. MORGAN MORTGAGE AQUISITION CORP. 2005-OPT1
1	41,336,000.00	M5	LONG BEACH MORTGAGE LOAN TRUST 2005-WL2
1	0.00	M5	MASTR ASSET BACKED SECURITIES TRUST 2005-NC2
1	58,184,000.00	M2	MERRILL LYNCH MORTGAGE INVESTORS TRUST SERIES 2005-AR
1	24,539,000.00	M5	MORGAN STANLEY ABS CAPITAL I INC. TRUST 2005-HE5
1	34,300,000.00	M5	NEW CENTURY HOME EQUITY LOAN TRUST 2005-4
1	12,829,000.00	M5	RESIDENTIAL ASSET MORTGAGE PRODUCT SERIES 2005-EFC4
1	22,770,000.00	M5	RASC SERIES 2005-KS11 TRUST
1	75,248,000.00	M2	SECURITIZED ASSET BACKED RECEIVABLES LLC TRUST 2005-HE
1	24,888,000.00	M5	STRUCTURED ASSET INVESTMENT LOAN TRUST 2005-HE3
1	22,565,000.00	M5	STRUCTURED ASSET SECURITIES CORPORATION SERIES 2005-W
1	17,219,000.00	M-5	SOUNDVIEW HOME LOAN TRUST 2005-A

Figure 2.3 ABS Deal Library Portfolios window

The window is divided into two main hubs: **Schema** and **Portfolio**. The sections enable you to organize and save searches and filters according to your preference.

The **Schema** section contains a collection of portfolios and filters. A **portfolio** is a group of investments that is created and stays static over time. In other words, the list of investments does not change over time unless investments are manually added or removed. A **filter** is a group of investments that changes dynamically over time based on the criteria set up in that filter and the information available in the Deal Library. For example, if the filter is set to only select investments rated AAA, then any investment matching that criteria will be returned from the Deal Library each time the filter is viewed. A **sub-filter** is a group of investments that matches the criteria for that sub-filter combined with the criteria of any filter above it in the hierarchy. In the example below, viewing Filter 4 returns results that match the criteria of Filter 1, Filter 2 and Filter 4 combined. Likewise, viewing Filter 2 will return the results that match the criteria of Filter 1 and Filter 2 combined. You can create new sub-filters using the right-click menu popup.

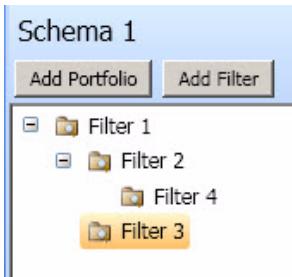


Figure 2.4 Portfolios Filter and Sub-Filter View in the Schema Section

The **Portfolio** section displays the details for a particular group of investments.

## Setting up Portfolios

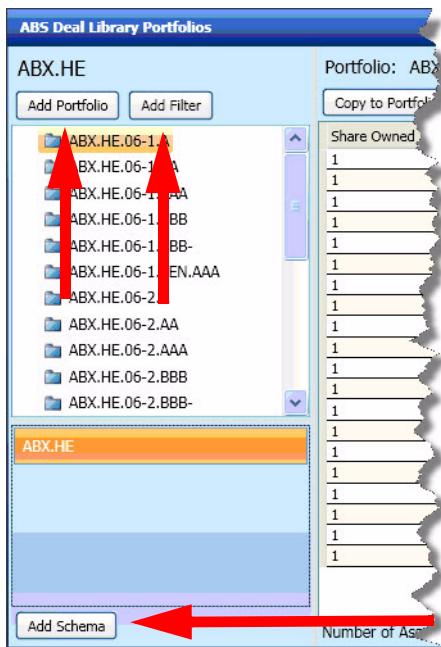


Figure 2.5 Setting up Portfolios

To set up a new portfolio, follow these steps:

1. Click the **Add Schema** button in the lower-left corner of the **ABS Deal Library Portfolio** dialog box to create a new portfolio group.
2. Click the **Add Portfolio** button to create a new portfolio within a schema. Portfolios hold a certain set of specified investments.
3. Click **Add Filter** to create a new search filter for the schema.

There are two ways to add investments to portfolios:

- Copy and paste investments between portfolios
- Search for investments using the **Find...** button and then drag-and-drop them from the search results window into the specified portfolio

To copy and paste investments between portfolios, follow these steps:

1. Highlight one or more investments in the right panel of the ABS Deal Library Portfolios window.
2. Click the **Copy to Portfolio** button. Highlighted investment display in blue.
3. Navigate to another portfolio and click the **Paste** button.



Duplicate investments do not paste to the portfolio.

To use the drag-and-drop functionality to add investments to a portfolio, follow these steps:

1. Click the **Find...** button on the **ABS Deal Library Portfolio** window. You see the **ABS Tranche Search** dialog box.

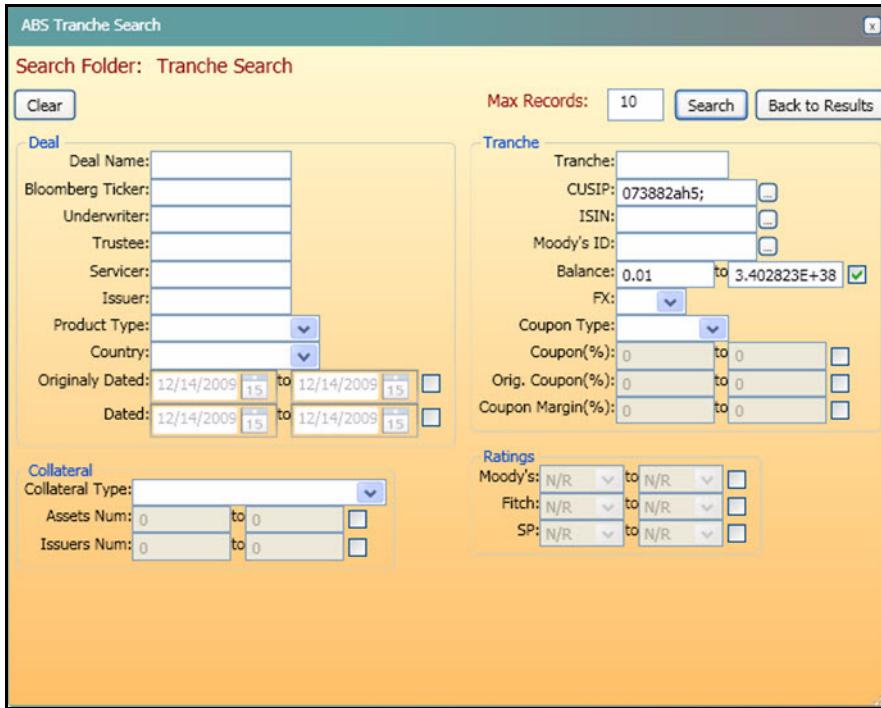


Figure 2.6 ABS Tranche Search dialog box

2. Enter a value into any of the search fields on the dialog box.
3. Click **Search**. A list of results displays.

ABS Tranche Search						
Search Folder: Tranche Search						
Copy to Portfolio				Show Filter Refresh		
Balance	FX	CUSIP	Tranche	Deal Name	Country	Collateral Typ
9,351,672.00	USD	12657FH40	1A14	CWALT, INC. MORTGAGE PASS-THI	U.S.	MBS - First M
9,352,367.00	USD	12667FH32	1A13	CWALT, INC. MORTGAGE PASS-THI	U.S.	MBS - First M
37,409,470.00	USD	12657FH24	1A12	CWALT, INC. MORTGAGE PASS-THI	U.S.	MBS - First M
18,960,190.00	USD	12667F97	M	CWALT, INC. MORTGAGE PASS-THI	U.S.	MBS - First M
10,723,180.00	USD	12667FG33	1A5	CWALT, INC. MORTGAGE PASS-THI	U.S.	MBS - First M
25,292,310.00	USD	12657FG25	1A4	CWALT, INC. MORTGAGE PASS-THI	U.S.	MBS - First M
37,841,220.00	USD	12667F363	3A1	CWALT, INC. MORTGAGE PASS-THI	U.S.	MBS - First M
23,097,710.00	USD	12667FH57	1A15	CWALT, INC. MORTGAGE PASS-THI	U.S.	MBS - First M
5,450,558.00	USD	12668AN92	M4	CWALT, INC. MORTGAGE PASS-THI	U.S.	HEL
12,113,000.00	USD	12668AN84	M3	CWALT, INC. MORTGAGE PASS-THI	U.S.	HEL
7,066,000.00	USD	12668AN76	M2	CWALT, INC. MORTGAGE PASS-THI	U.S.	HEL
28,956,280.00	USD	12668AN43	A3	CWALT, INC. MORTGAGE PASS-THI	U.S.	HEL
115,825,100.00	USD	12668AN27	A1	CWALT, INC. MORTGAGE PASS-THI	U.S.	HEL
48,260,750.00	USD	12668AN35	A2	CWALT, INC. MORTGAGE PASS-THI	U.S.	HEL
8,327,000.00	USD	12668AN68	M1	CWALT, INC. MORTGAGE PASS-THI	U.S.	HEL
1,997,576.00	USD	02148CAE2	B1	CWALT, INC. ALTERNATIVE LOAN 1		MBS - First M
401,399,300.00	USD	02148CA88	X	CWALT, INC. ALTERNATIVE LOAN 1		MBS - First M
10,738,610.00	USD	02148CA04	M	CWALT, INC. ALTERNATIVE LOAN 1		MBS - First M
423,661,500.00	USD	02148CAA0	A1	CWALT, INC. ALTERNATIVE LOAN 1		MBS - First M
1,461,824.00	USD	02148CAC6	PO	CWALT, INC. ALTERNATIVE LOAN 1		MBS - First M

Figure 2.7 ABS Tranche Search Results dialog box

4. Select the tranche you want to add to your portfolio. To select more than one tranche, press [Ctrl] and then select additional tranches.
5. Drag-and-drop the selected items from the **Deal Library Search** window, into the **ABS Deal Library Portfolios** window.

## Batch Download Sync Process

You can download and sync deals to your local directory at regular intervals. To complete this process, follow these steps:

1. Log in to the Deal Library using the steps above.
2. Click **Sync**. You see the **Deal Library Sync** dialog box.

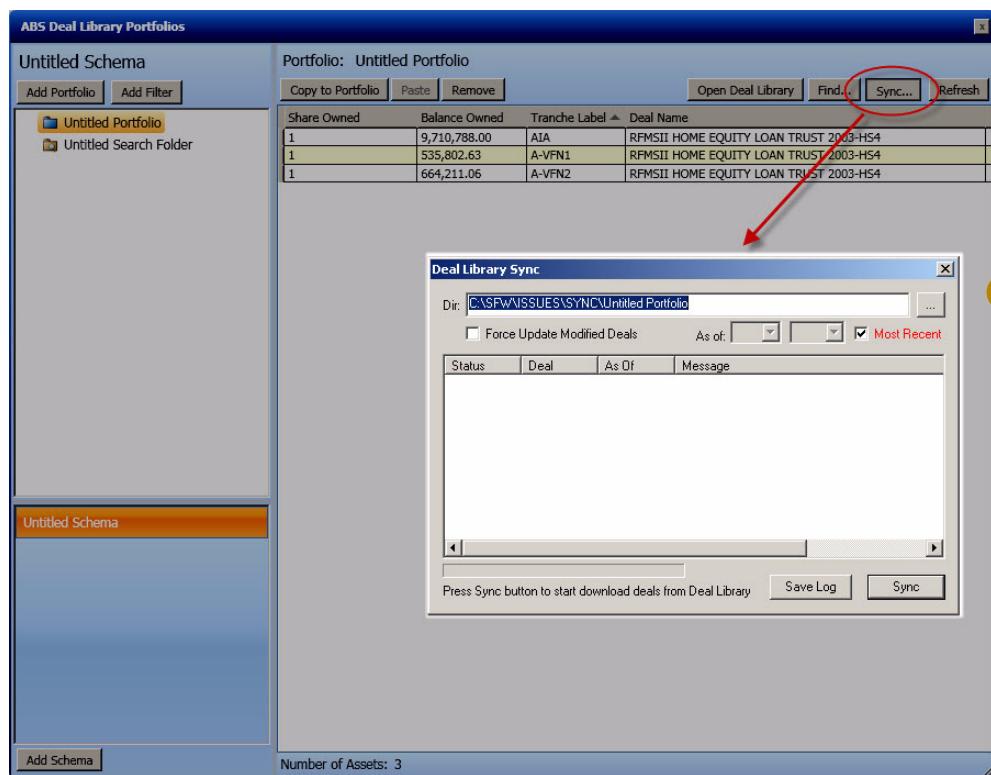


Figure 2.8 Deal Library Sync dialog box

3. Click the  button to open the **Browse for Folder** window.

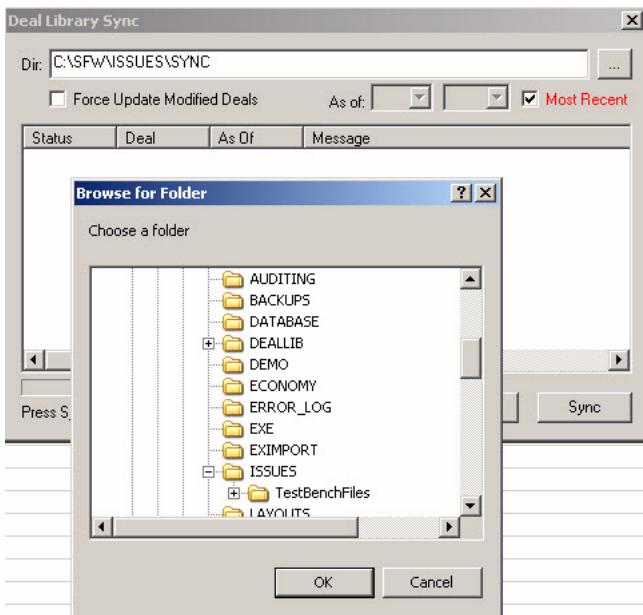


Figure 2.9 Browse for Folder dialog box

4. Navigate to and select the directory to download the deals.
5. Click **OK**. The directory path displays in the **Dir:** field.

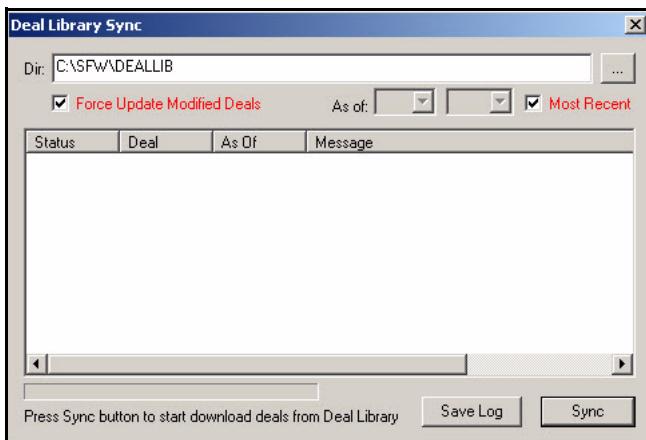


Figure 2.10 Deal Library Sync dialog box

6. Select the **Force Update Modified Deals** checkbox.



Selecting this checkbox syncs —and overwrites— files with the same name in this directory.

7. Click **Sync**. The application begins the download and results display in the **Deal Library Sync** window.

## Single Deal Download Process

If you only need a single deal, you can download just one to expedite the process. To complete this process, follow these steps:

1. Log in to the Deal Library using the steps above.
2. Double-click on an investment in a specific portfolio. You see a prompt to save your current files.
3. Click Yes to save and close the current files. The deal file you want to download opens.

## Additional Functionality

To perform additional operations on a portfolio, see the table below:

Table 2.1 Additional Functionality in the ABS Deal Library Portfolios Window

To...	Then...
Open the Deal Library	Click the <b>Open Deal Library</b> button.
Search for investments	Click the <b>Find...</b> button.
Display Deal Library information about a particular investment	Highlight the investment in the portfolio, right-click and select <b>Locate Deal</b> from the pop-up menu.
Access the soft interface on the display	Right-click anywhere on the column header and select <b>Soft Interface</b> from the pop-up menu.
Open a deal from the ABS Deal Library Portfolio window	<p>Either:</p> <ul style="list-style-type: none"> <li>• Double-click on an investment</li> <li>• Right-click in the right panel and select <b>Open Deal</b> from the pop-up menu</li> </ul> <p>The deal downloads from the Deal Library and opens in SFW.</p>
Sync the portfolio to the most current version of the Deal Library	<ol style="list-style-type: none"> <li>a. Click the <b>Sync...</b> button on the ABS Deal Library Portfolio window. You see the <b>Deal Library Sync</b> dialog box.</li> <li>b. Click the <b>Most Recent</b> checkbox and then <b>Sync</b>.</li> </ol>
Select all investments in a portfolio	Right-click in the right panel, and select <b>Select All</b> from the pop-up menu.
Copy the portfolio content to an Excel file or other application	<ol style="list-style-type: none"> <li>a. Right-click in the right panel, and select <b>Copy to Clipboard</b>.</li> <li>b. Select <b>Paste</b> from the application's file menu.</li> </ol>
Rearrange the order of the columns	Select a column in the right panel and drag it to the desired location.
Sort the investments by ascending or descending order of the values in a particular column	Click the column header.

Table 2.1 Additional Functionality in the ABS Deal Library Portfolios Window

To...	Then...
Change the value in the <b>Balance Owned</b> field	a. Click once in the <b>Share Owned</b> field of a particular investment. b. Change the value to an amount between 0 and 1. The <b>Balance Owned</b> value adjusts automatically.
Remove an investment from a portfolio	Select the investment from the list and click the <b>Remove</b> button.

## Alternate Methods for Accessing the MWSA Deal Library

Once you log in, you can either use the Deal Library filter and browse the list of results or search for specific tranches using the Tranche Search functionality.

To use the Deal Library filter and search the list of results, follow these steps:

1. Select **File > Deal Library... > Open** from the SFW File menu and log in to the Deal Library.
2. Click the filter icon (i.e. the funnel on the taskbar). The Filter window displays.



When the filter is on, the icon appears yellow.

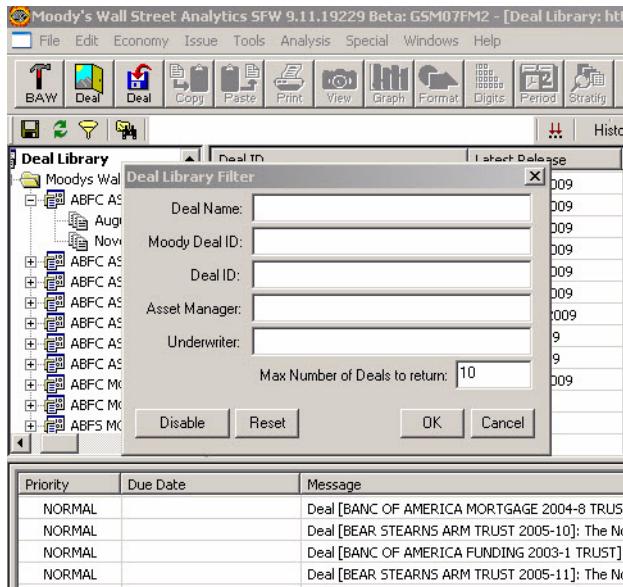


Figure 2.11 ABS Deal Library Filter

3. Enter your search criteria in the Search window, and click **OK**. The results display in the Deal Library window.

To use the Tranche Search feature, follow these steps:

1. In SFW, select File > Deal Library... > Search. You see the search ABS Tranche Search window.

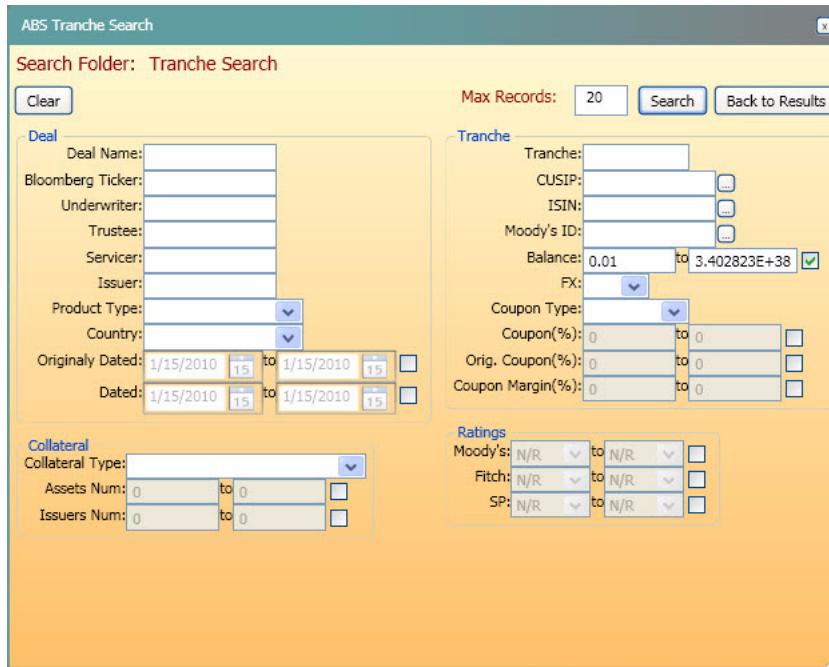


Figure 2.12 ABS Tranche Search dialog box

2. Enter any known deal information in the available empty fields.
3. Click **Search**. The results display in the bottom half of the window.
4. Scroll the results list and double-click on the specific tranche you want to download and view.

## Running and Saving Deals

You run deals from the main Bond Editor window. Make sure any Economy files (Interest Rate, Prepayment Model, or Scenario files) are loaded in the **Current Economic Models** dialog box. For more information on this module, see “[Economic Model](#)” on page 39. If they are properly loaded and saved the file name appears on the **Current Economic Models** dialog box. Change **Run at** to **Static**, **Scenario**, or **Individual**(for more information on this, see “Run at Modes” below). Click the **Run** button on the main toolbar to run the deal.

## Update and Issuance Modes

Both the Bond Editor and Collateral Editor store two sets of data for each loan: one for issuance and one for current/updated.

When a deal is in **Issuance mode**, the data reflects the original state of the deal when it closed. While in Issuance mode, you must activate and/or nullify the Pricing poolgroups in the Poolgroup Editor. Interest rates from on the Bond Editor Assumptions window are used.

When a deal is in **Update mode**, the data reflects the current status of the deal. While in Update mode, you must activate the aggregate or closing poolgroups. By default, deals open in this mode for SFW executables compiled for investors.

For more information on activating poolgroups, see the “[Poolgroup Editor](#)” on page 30.

## Run at Modes

When **Run at** mode on the **Structuring** tab of the **Bond Structuring Editor** is set to:

- **Static**: The whole deal runs at the prepayment rate/type and default rate/type set on the Bond Editor. The options for these settings are described below.
- **Scenario**: The whole deal runs at the prepayment rate/type and default rate/type set in the Scenario file.
- **Individual**: Each asset can be set to a unique prepayment rate/type and default rate/type. You can set this up on the asset level on the **Cashflow** tab. Additionally, you can select **Prepayments** and **Defaults** from the soft interface to view these fields at the poolgroup level.
- **Economy**: This displays when you have the M3 module installed. The deal runs at a set percentage of the imported quarterly M3 prepayment and default curves. For more information on this module, see “[The M3 Module](#)” on page 87.
- **CM M**: This displays when you have the CMM module installed. The CMM default option becomes available for use. By default, the system sets and runs the deal at 100 CPY (prepay) and 100 CMM (default). For more information on this module, see “[The CMM Module](#)” on page 107.

## Running Prepayments/Defaults

The table below includes the drop-down options on the **Prepays / Defaults** fields on Bond Editor and the **Vector** tab in the Economy file.

Table 2.2 MWSA System and Custom Prepayment and Default Types

Type Name	Description	Prepay	Default	Feature-Specific
ABS	Asset-Backed Securities (ABS): Used in ABS markets where prepayments differ significantly from standard mortgages. This model defines an increasing sequence of monthly prepayment rates which correspond to a constant absolute level of loan prepayments in all future periods.	X		
ADV	Prepayment method that applies immediate prepayment when its issue coupon is set to a specified percentage.	X		
CDR	Constant Default Rate (CDR): Default percentage expressed as an annually compounded rate.		X	
CDR3M	Weighted average of the historical 3 month CDR rates recorded in Poolgroup History.		X	
CMM	Available only on the Bond Editor window and when the CMM module is installed.		X	X

Table 2.2 MWSA System and Custom Prepayment and Default Types

Type Name	Description	Prepay	Default	Feature-Specific
CPR	Constant Prepayment Rate (CPR): Prepayment percentage expressed as an annually compounded rate.	X		
CPR3M	Weighted average of the historical 3 month CPR rates recorded in the Poolgroup History.	X		
CPY	Prepayments begin after contractual lockout and yield maintenance period, if any.	X		
HEP	Home Equity Prepayment: A measure of prepayments for closed-end, fixed rate HEL loans. This curve accounts for the faster seasoning ramp for home equity loans.	X		
M3	Available only on the Bond Editor window and when the M3 module is installed.	X	X	X
MHP	Manufactured Housing Prepayment: A measure of prepayment curves for manufactured housing.	X		
MHD	Manufactured Housing Default: A measure of default curves for manufactured housing.			X
MOD	Runs the model prepayments or defaults set up on <b>Prepayment or Defaults</b> tab in the Prepayment Model.	X	X	
MON	Prepays or defaults the entire performing balance of the loan in the month indicated as the rate (Example: 12 MON has a 100% SMM rate of prepayment or default in month 12 and a 0% rate of prepayment or default during all other months).	X	X	
NIS	Prepayment method for auto leases.	X		
PCT	Monthly prepayment or default rate as a percent of the original balance of the loan.	X	X	
PCTX	Used in instances where backloaded losses apply, this is a monthly default rate as a percent of the original balance of the loan that has been extended over the entire vector. This type enables you to halt the amortization and prepayments towards the end of the transaction to allow for the full amount of defaults to occur.  Selecting this default type changes, limits, or caps any prepayment vectors or amortization vectors to ensure that the desired default amount is applied to the underlying collateral before they are fully paid down.			X
<b>Note:</b> <i>This option is only available in the Default Vector of the Prepayment Model.</i>				

Table 2.2 MWSA System and Custom Prepayment and Default Types

Type Name	Description	Prepay	Default	Feature-Specific
PCT+	Monthly default rate as a percent of the original balance of the loan plus the amount of accrued interest that is capitalized at the end of the current Non-Payment Term.  <b>Note: This option is only available in the Default Vector of the Prepayment Model.</b>			X
PSA	Standard prepayment curve measure for prepayments in the residential mortgage market.	X	X	
RMP1	References the corresponding ramp set up on the vectors tab in the Prepayment Model.	X	X	
RMP2	References the corresponding ramp set up on the vectors tab in the Prepayment Model.	X	X	
RMP3	References the corresponding ramp set up on the vectors tab in the Prepayment Model.	X	X	
SDA	Standard default curve measure for defaults in the residential mortgage market.			X
SMM	Monthly prepayment or default rate	X	X	
VCPR1M	Weighted average of the historical 1 month voluntary CPR rates recorded in the Poolgroup History	X		
VCPR3M	Weighted average of the historical 3 month voluntary CPR rates recorded in the Poolgroup History	X		
VCPR6M	Weighted average of the historical 6 month voluntary CPR rates recorded in the Poolgroup History	X		
VCPR9M	Weighted average of the historical 9 month voluntary CPR rates recorded in the Poolgroup History	X		
VCPR12M	Weighted average of the historical 12 month voluntary CPR rates recorded in the Poolgroup History	X		
VCPR-LT	Weighted average of the historical voluntary CPR rates since issuance recorded in the Poolgroup History	X		

## Running a Deal with Static Prepayments

1. Set the Run At field to **Static**
2. Specify your prepay and prepay metric.
3. Specify your default and default metric.
4. Click **Run** to run the deal. The grey area next to **Average Life** shows the defaults/losses:
  - I = Interest Losses
  - P = Principal Losses
  - B = Both Principal and Interest Losses

5. Click View to view tranche cashflows.



You can also use the soft interface on this window to customize your view. For more information on this feature, see "Using the Soft Interface" on page 22.

## Bond and Poolgroup Editor Navigation

In both the Bond and Poolgroup Editor windows, functionality exists to help you modify certain views and edit data.

### Using the Soft Interface

You can add or remove fields that display on the Poolgroup or Bond Editor windows using the soft interface. Bring up the soft interface by right-clicking on the header for any of the fields currently on that tab. To add fields, highlight any of the fields listed in the **Available Fields** list on the left and click **Add**. To remove fields, highlight any of the fields in the **Visible Fields** list on the right and select **Remove**. To reset the default visible fields for that tab, click **Reset Defaults**.

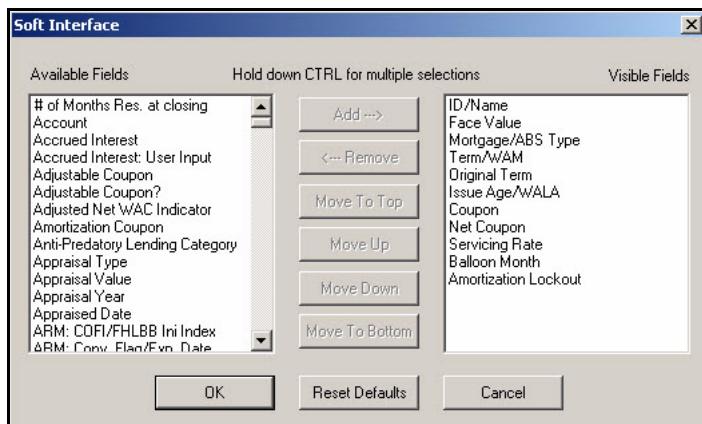


Figure 2.13 Soft Interface dialog box

### Using the Plgger Tool

You can use the plgger tool to add fields to the Bond or Poolgroup Editor. Open any asset and drag the yellow plgger icon at the top left of the window into any of the fields (i.e. not the field name) on the Asset window on the Poolgroup Editor. The field from the Asset window now displays as a column. Alternately, you can add fields using the plgger tool as follows:

1. Open the Collateral Editor and drill down to the asset level.
2. Arrange your view to display both the Pool Editor and Asset windows.
3. Click the plgger from the Pool Editor and drag it to the field on the Asset window.

To remove a field, drag its header box upward then release (the cursor changes to a trash can). To rearrange the order of the visible fields, drag any header box to the appropriate location.

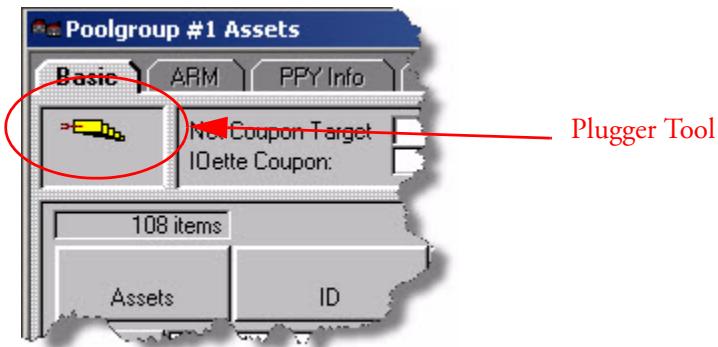


Figure 2.14 Plucker Tool Location

## Using the Keyboard Functionality

The table below provides a quick look-up for various keyboard functionality on some windows of SFW:

Table 2.3 Keyboard Functionality

To...	Then...
Add an asset, poolgroup, row, etc	Press [Ctrl-I].
Delete an asset, poolgroup, row, etc.	Press [Ctrl-D].
Create a copy of an asset, poolgroup, etc.	Press [Ctrl-W].
Move an asset, poolgroup, etc.	Drag the gray numbered box in the Asset column, and drop it in the appropriate location.
Customize the display of any of the fields available at the asset level on any of the tabs in the Poolgroup view	Use the plucker tool or soft interface.
Nullify a poolgroup	Press [Ctrl-N].

## Using the Copy / Paste Functionality with Excel

To copy the data in the poolgroup view to Excel or another external program, click the **Copy** button on the main toolbar (Ctrl-C). To paste in data from Excel or another external application, put the cursor in the box associated with the first data point and click the **Paste** button the main toolbar (Ctrl-V). Only one column of data can be pasted in at a time.

## Main Modules of SFW

### Bond Editor

The Bond Editor allows you to load, update, and view bond information.

Table 2.4 Bond Structure Editor Functionality

To...	Then...
Load current deal information	Switch to <i>Update</i> mode.
View what period this data corresponds to	Check Settles/Next Pay Date.
View additional available fields for the Bond Editor screen	Right-click on a column header to open the <b>Soft Interface</b> , which you can use to customize the display.
View more information about the deal	Click the <b>Assumptions...</b> button at the bottom of the window.
View quick stats on the Collateral/Bond Balance and Coupons	Check the information above the column headings.

Click the **Bonds** icon on the toolbar to open the Bond Editor.

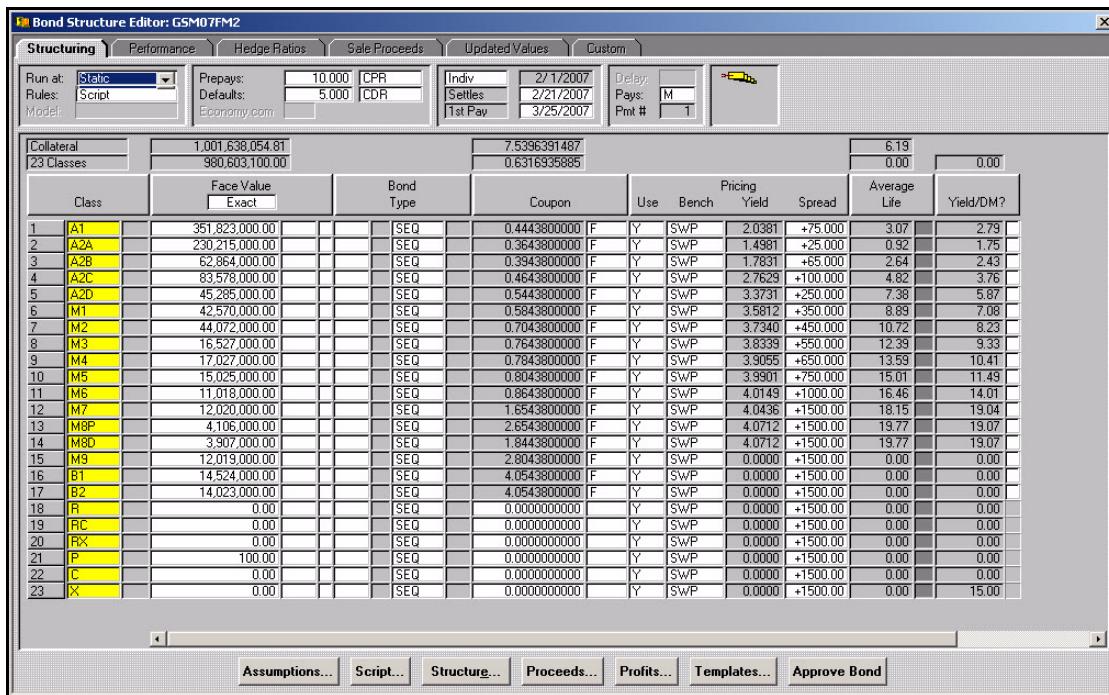


Figure 2.15 Bond Editor Dialog Box

## Dates

- Dated:** This represents the beginning of the bond accrual period for the current Distribution Date. If set to **Indiv** the deal has separate Individual Accrual Dates for each bond, which can be viewed in the **Dated Date** and **Delay Days** fields in the Bond Editor Soft Interface. You should not need to modify this date field.
- Settles:** Set this to the date you are running your valuation as of. All calculations are done back to this date (such as Average Life, Price, Yield, etc.). If this field is set to **Settles** then the application assumes the bond is being bought or sold, so it looks at the tranche record date to determine whether you are entitled to receive the next interest payment. If the field is set to **ASOF**, then the application assumes prior ownership of this tranche, and you receive the next interest payment regardless of the record date.
- 1st Pay / Next Pay:** This date should be the date of the first payment. In **Update** mode, this field is **Next Pay**; in **Issue** mode it is **1st Pay**. **Next Pay** indicates the next tranche payment date for the deal. We recommend that you do not change this date.
- Pays:** This field indicates the deal payment frequency.

## Other Useful Bond Editor Fields

- Class** - Indicates a unique class name for each bond.
- Face Value** - Displays the tranche balance. To change the display format, set the drop-down menu in the header to match the format of data that will be entered (\$1000, Percent, Dollars, or Exact).
- Coupon** - Indicates the bond's initial interest rate in this field. If the bond is a floating rate certificate, you can change the drop-down menu in this field to "F".
- Bond Calendar** - Indicates the interest accrual calendar (30/360, ACT/360, ACT/365, ACT/ACT, or 30E/360).
- Holiday Code** - Indicates adjustment for accrual periods. For example, **US** automatically adjusts accrual periods for weekends and US holidays, and **WEEK** adjusts only for weekends.
- Reserve Account Support** - The amount of support available through any reserve account.
- Insurance Account Support** - The amount of support available through any insurance account.
- Non-Collateral Credit Enhancement** - Insurance Account Support + Reserve Account Support.

## Accounts

The screenshot shows the 'Bond Structuring Assumptions' dialog box with the 'Accounts' tab selected. The 'Deal Accounts' section displays a table with three rows of data. The columns represent various account details such as ID, Type, Currency, Initial Balance, Update Balance, Calendar, Index, Margin, Fee, Account Default, and Present Value.

#	ID	Account Type	Currency	Initial Balance	Update Balance	Calendar	Index	Margin	Fee	Account Default	Present Value
1	RESERVE	Reserve	USD	1,000,000.00	Target	ACT/360	LIBOR 1MO	5,000,000	NO		
2	LIQ FAC	Liq Fac	USD		Max	ACT/360	LIBOR 1MO	2,000,000	7	YES	
3	INSURANCE	Insurance	USD			ACT/360	PRIME	0,000,000	6	NO	

Figure 2.16 Accounts Tab on the Bond Structuring Assumptions Dialog Box

Click the **Assumptions** button at the bottom of the Bond Editor, and then select the **Accounts** tab. For example, you can enter the name, currency, and initial balance for each of the reserve funds. In the **Account**

Type field choose **Reserve**, and then select [Ctrl-I] to insert a new account or [Ctrl-D] to delete an existing account fund.

You see the following fields on the **Accounts** tab:

- **Account Type**
  - **Reserve**: This feature allows you to run the deal as a reserve fund, which uses a separate fund as an additional layer of protection against losses.
  - **Liquidity Facility**: This feature allows you to run the deal as a Liquidity Facility, which uses a line of credit as an additional layer of protection against losses.
  - **Insurance**: This feature allows you to run the deal with wrap or certificate insurance either on (when the **Account Default** field is set to NO) or off (when the **Account Default** field is set to YES). See “Account Default” below.
- **Currency**
- **Initial**
  - **Balance**: Available only for reserve funds.
  - **Target**: Initial reserve fund target amount.
  - **Max**: Initial liquidity facility maximum draw.
- **Update**
  - **Balance**: Updated balance of a reserve fund or the outstanding draw on a liquidity facility or insurance account.
  - **Target**: Initial reserve fund target amount.
  - **Max**: Initial liquidity facility maximum draw.



You must be in *Issuance* mode to enable **Balance** fields for editing.

- **Reinvestment**: For liquidity facilities and insurance this amount will be capitalized onto the outstanding balance and due as part of the outstanding draw. For reserve funds, this amount of cash will be available to the deal.
  - **Calendar**: Interest accrual calendar.
  - **Index**: Blank option for setting a fixed rate in the **Margin** field.
  - **Margin**: Fixed rate or margin over index.
- **Fee**: Links the fee number on the **Fees** tab associated with the premium for the insurance or liquidity account.

- Account Default:** If the liquidity facility provider or insurance provider has defaulted this setting will turn off all claims, reimbursements, and premiums (as linked in the “fee” field) associated with this account.

Table 2.5 Account Default Field Settings

When the Account Default field is set to...	Then...
NO	The <b>Default Date</b> field is not enabled. The system looks to the Prepayment Model ( <b>Insurance Settings</b> tab) for the vector to apply. If no vectors have been set up for the insurer, the loss is covered at 100 percent. For more information on setting up insurance coverage vectors, see “ <a href="#">Insurance Settings</a> ” on page 70.
YES	The <b>Default Date</b> field becomes enabled allowing you to enter a current or future date. Before the deal reaches the Default Date, the system looks to the Prepayment Model ( <b>Insurance Settings</b> ) tab for the vector to apply. If no vectors have been set up for the insurer, the loss is covered at 100 percent. When the deal reaches the default date, the account will be 100% default, and the settings in the Prepayment model are not used anymore.

- Present Value:** Present value for withdrawals, deposits, and premiums for an insurance or liquidity facility account at the discount rate indicated at the top of this screen.

## Collateral Editor

Next, click the **Collat** icon on the main toolbar to open the Collateral Editor.

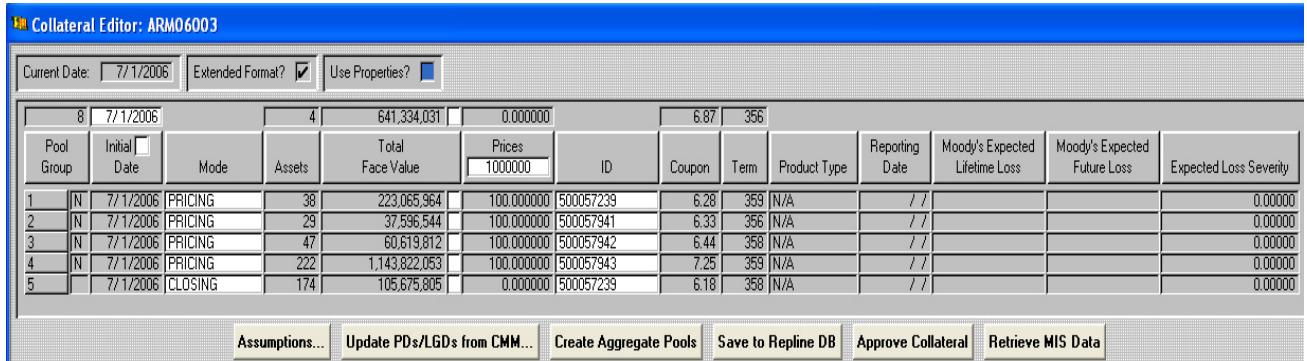


Figure 2.17 Collateral Editor Window (RMBS)

The Collateral Editor consists of three layers:

- Main Collateral Level:** This level appears when you first open the Collateral Editor. This is where each poolgroup is created.
- Poolgroup Level:** To see a detailed view of any poolgroup listed on the main collateral level, place the cursor in any open field in the desired poolgroup’s row and click **Enter** or double-click the gray numbered box in the **Poolgroup** column. For more information on working with poolgroups, see “[Poolgroup Editor](#)” on page 30.
- Asset Level:** The **Investments** window displays showing information for a specific asset in a poolgroup. For more information, see “[Investment-Level View](#)” on page 33.

## Other Collateral Editor Fields

The following fields appear on the Collateral Editor:

- **Poolgroup:** The number assigned on the Collateral Editor.
- **Initial Date:** Should be the same as the **Dated Date**.
- **Mode:**
  - **None** None of the options below.
  - **Pricing** Issuance replines provided by the prospectus supplement.
  - **Closing** Loan-level collateral detail (if available).
  - **Aggregate** Replines created from Moody's PDS data.
  - **Revolving** All of these assets within this pool will represent a percentage (100%) of the REVOLVING pool. For more information, see "["Reinvestment Pool \(BUY Assets\)" on page 126](#)".
- **Assets:** Total number of loans in the particular poolgroup.
- **Total Face Value:** Sum of the face value of non-nullified assets in the poolgroup.
- **Prices:** Weighted average price of the poolgroup based on the current face.
- **ID:** Unique identifier for the poolgroup.
- **Coupon:** Weighted average coupon of the poolgroup based on the current face.
- **Term:** Weighted average term of the poolgroup based on the current face.
- **Product Type:** Type of loan of the underlying poolgroup.
- **Reporting Date:** Date of reporting for the poolgroup.
- **Moody's Expected Lifetime Loss:** Expected loss over the whole lifetime of the poolgroup.
- **Moody's Expected Future Loss:** Expected loss of the remaining lifetime of the poolgroup.
- **Expected Loss Severity:** Expected loss displayed in terms of severity.
- **Pool Name:** Name of the poolgroup of the underlying deal.
- **Mortgage Type:** Type of mortgage loans of the underlying poolgroup

## Collateral Editor Assumptions Window

### Basic Tab

Click the **Assumptions** button on the Collateral Editor. By default, you see **Basic** tab on the **Collateral Assumptions** dialog box:

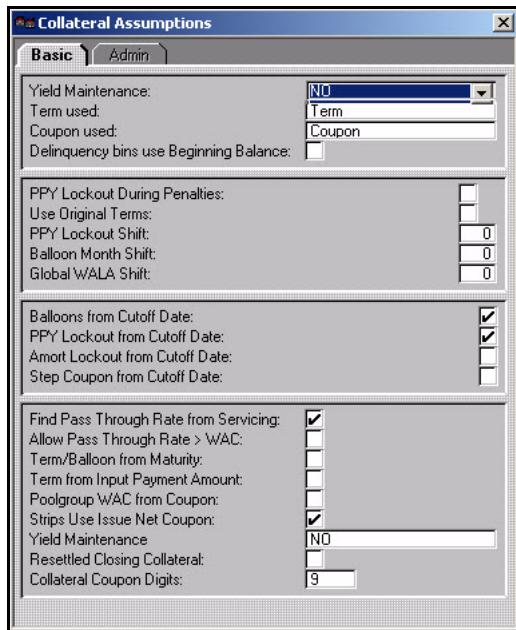


Figure 2.19 Collateral Assumptions Dialog Box (RMBS)

## Collateral Editor Retrieve MIS Data

Allows for retrieving MIS information such as Product Type, Reporting Date, Moody's Expected Lifetime Loss and Moody's Expected Future Loss.

Please check the Download Current MIS Rating Analysis Data checkbox in the Global Analysis Assumptions prior to running.

Must have server set up prior, otherwise an error message will appear.

## Poolgroup Editor

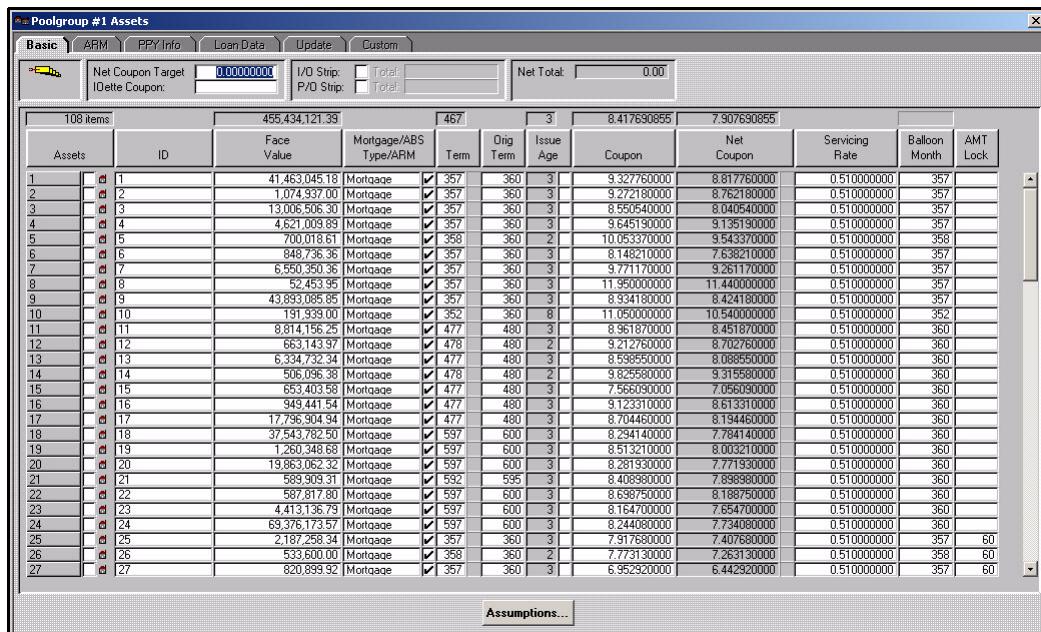


Figure 2.20 RMBS Poolgroup Editor Dialog Box

Follow these steps to access poolgroup level data:

1. Double-click the poolgroup number to open the Poolgroup Editor.
2. Modify the view of the data using the following functionalities:
  - **Sort icon:** Select a column and then click the Sort icon on the main toolbar to sort the data in ascending or descending order.
  - **Soft Interface:** Right-click to open the dialog box and add or remove fields from the view. for more information on this functionality, see “[Using the Soft Interface](#)” on page 22.

For more information on using keyboard commands to update poolgroup information, see “[Using the Keyboard Functionality](#)” on page 23.

### Sorting

To sort the assets, first select a field to sort by and click its header box to highlight that column (the column should turn yellow). Then, click the **Sort** button on the main toolbar once to sort in ascending order, and a second time to sort in descending order.

### Nullifying and Flagging Assets

You may want to ignore (nullify) certain assets or poolgroups when running the deal. To nullify an asset, select the checkbox in the **Asset** column on the Poolgroup editor to the left of the gray number box.

You may want to change any field of a subset of assets (including to nullify a specified group of assets). You use the flag feature to do this. To flag certain assets, click the **Flag** icon on the main toolbar. Change the **ALL** field to **IF** and enter an appropriate conditional statement. Additional conditions can be specified in the subsequent rows by changing the box on that row to **AND**. Click **Flag** or **Un-flag** to get the appropriate

assets flagged. To nullify or unnullify the flagged assets go to the **Operate on Flags** tab in the flagger and set **InactiveFlag** to YES to nullify or NO to unnullify.

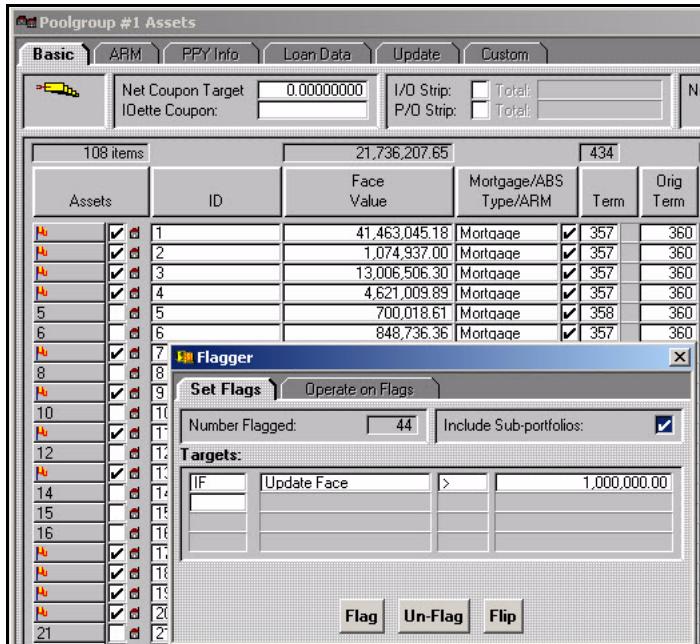


Figure 2.21 Flagger Dialog Box

To nullify an entire poolgroup, open the Collateral Editor and set the cursor on the line of the poolgroup you want to nullify. Select [Ctrl-N] to nullify the poolgroup. Select [Ctrl-N] again to unnullify the poolgroup.

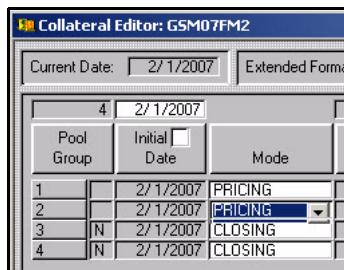


Figure 2.22 Nullifying Poolgroups

## Using the Stratifier

Right-click in a poolgroup and select **Stratify...** [Ctrl-T] to generate stratification data. Once in the stratifier, click **Canvas** button to open an empty asset window. Select a field to stratify by and drag the small plunger icon (located to the left of **Stratify by**) into that field on the Canvas. This field's name now appears under **Stratify by**. Insert or delete rows (using the [Ctrl-I] or [Ctrl-D] keyboard functionality), and then create the buckets for stratification in each of these rows. Right-click and select **Stratify** from the popup menu to stratify.

A few default statistics for each bucket are given (Number of Items, Percent of Items, Principal Balance, Percent of Bal), but there are also customizable statistics. To find the weighted average, maximum, minimum, or sum of another field for each bucket select Wtd Avg, Max, Min, or Sum respectively from the

drop-down menu of one of the columns to the right. Then, click and drag the box beneath this drop-down menu (initially reads – **none** –) into the appropriate field in the Canvas. Additional stratification of individual buckets can be done by pressing that row's ... button in the **Stratify by column**. To return to a higher level in the directory, click the <<< button next to **Canvas**.

Stratification files are saved separately from the deal files so they can be used across deals. To save a stratification file, right-click in the stratification window and select **Save** or **Save As** from the popup menu. Stratification files use \*.LST as the file extension.

To open a stratification file right-click in the stratification window and select **Open** from the popup menu.

To view a graph of the stratification click on the **Graph** tab in the stratifier. To export a stratification report to Excel, click on the **Batch Run** tab. Click the **List Reports** button to show all the stratification files saved in the directory shown on this tab. Check the flag next to each of the stratifications that should be included in the Excel file (each appears as a separate worksheet). Click the **Report** button, choose a name, and click **Save**.

To run the stratifier, follow these steps:

1. Double-click on a poolgroup to open the Poolgroup Editor.
2. Click the **Stratify** icon on the main menu to open the **Stratifier** window.
3. Drag the plugger into fields on **Poolgroup Editor** or **Canvas...** to select values by which to stratify.
4. Drag this flag to other fields to obtain extra statistics on these sub-stratifications. You can change which statistic is being shown.
5. Click the ... button to further stratify, using the keyboard commands to add or delete rows.
6. Right-click on the **Stratification** window to save or open stratification templates.

## Investment-Level View

The screenshot shows the 'Investment 1:3' dialog box with the 'Investment' tab selected. The interface is divided into several sections:

- Basic:** Contains fields for Current Face (11,058,229.72), Update Factor (0.92151914333333), Original Face (12,000,000.00), Payment Amt (69,990.63 checked), Payment Rate (0.01346109), Pool Factor (0.00000000), Deal Factor (0.00000000), Coupon (5.745000000), Net Coupon (5.683270000 checked), Servicing Rate (0.061730000), Var Servicing (\$ or \$), Max Coupon, Strip Type, and Bal/Wt Factor (0.000).
- Mortgage/Abs:** Contains fields for ID (3), CUSIP, MERS, Account, and Subpool ID (0).
- Property Values:** Contains fields for Coupon is CBE, Serial Mortgage, Accumulation, GPM/TPM, Rise, and Prefunding Month.
- Loan Data 1:** Contains fields for Maturity Date (4/1/2010), Term/Orig Term (52 / 360), Max Term? (52), Issue Age, Update Age (308), Dual Amort Term, and Paid Through (4/1/2010).
- Loan Data 2:** Contains fields for Balloon Month/Days Short (118 / 0.000000), Balloon Extension, Ext Type/Fee Delay, and Balloon Payment (10,118,570.87 checked).
- Borrower Info:** Contains fields for Borrower Name, Address, City, State, Zip, and Phone Number.
- UserFields:** Contains fields for UserField 1 through UserField 10.
- Analysis:** Contains fields for Analysis 1 through Analysis 10.

Figure 2.23 Investment-Level View (RMBS)

The following common Mortgage Asset fields appear on the **Investment** dialog box:

- **Label?:** User-defined field that allows you to create sub-groups of assets. It is often used with the prepayment model.
- **Investment type drop-down:** Enables you to define the investment type. Options include mortgage, lease, credit, and others.
- **Loan type drop-down:** Specifies the sub-type of the investment. Options are provided for mortgage and lease investment types.
- **Adjustable:** Indicates if the loan is adjustable. If this checkbox is selected, you will also see the **Adjustable** tab.
- **Modified:** Indication if the loan has been modified. If this checkbox is selected, you will also see the **Modified** tab.
- **Currency:** Specifies the currency of the asset.
- **Status:** Displays the performance status of the loan.



The *Delinquent*, *Foreclosed*, *REO*, and *Bankrupt* statuses can be considered non-performing. For more information on non-performing loans, see “[Delinquency Assumptions](#)” on page 61.

The *Defeased* status, which is a more costly method of prepaying a loan (usually a CMBS loan) that effectively replaces the borrower's loan payments with a government security with the same yield, excludes the loan from CMM projections. For more information, see “[The CMM Module](#)” on page 107.

- **Month:** Indicates the number of months the loan has existed in the *Delinquent*, *Foreclosed*, *REO*, or *Bankrupt* status. It is only enabled for these statuses.

## Tabs on the Mortgage ABS Investment View

The **Investment** dialog box includes the following tabs:

- **Basic:** Fields that are required to generate standard amortization. Includes such fields as current face, coupon, remaining term, original term.
- **Modification:** Activated when the modified check flag is on. Contains updated information about any modifications to loan.
- **Additional:** Contains advanced amortization features such as I/O term, prepay lockouts, and yield maintenance.
- **Adjustable:** Only displays when the Adjustable checkbox is selected. Contains information about the adjustable rate coupon.
- **Property Values:** Contains informational data fields about the property that does not affect cashflows regarding the property.
- **Loan Data 1 & 2:** Contains informational data fields that does not affect cashflows.
- **Borrower Info:** Contains information data fields that does not affect cashflows.
- **User Fields:** Contains a variety of alpha and numeric fields that users can specify.
- **Analysis:** Displays performance information.

## Waterfall Scripts

Click the **Waterf.** icon on the main toolbar or the **Script...** button at the bottom of the Bond Editor to access the script.

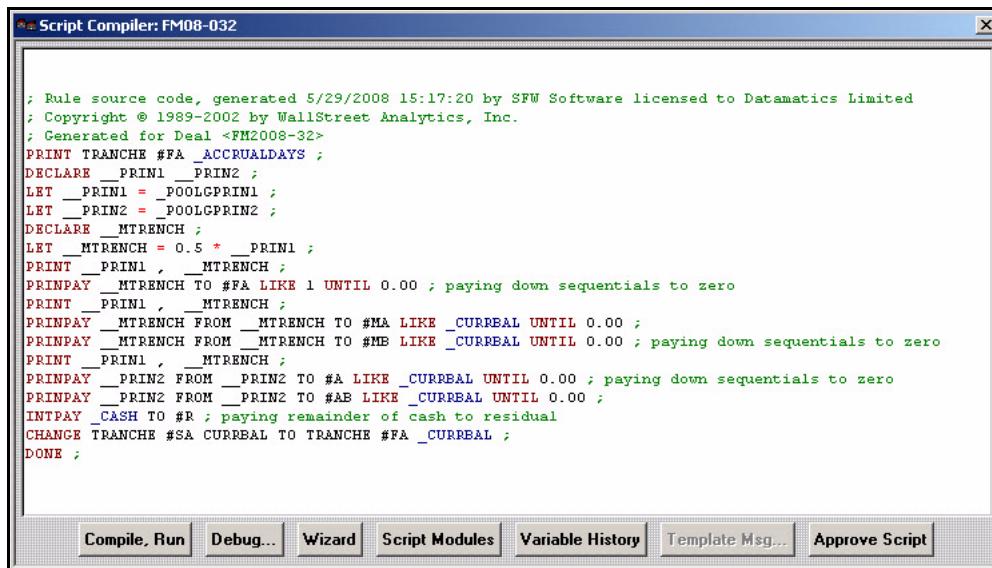


Figure 2.24 Script Compiler Dialog Box

## Basic Tips

The following are some basic tips to keep in mind when you work with the waterfall scripts:

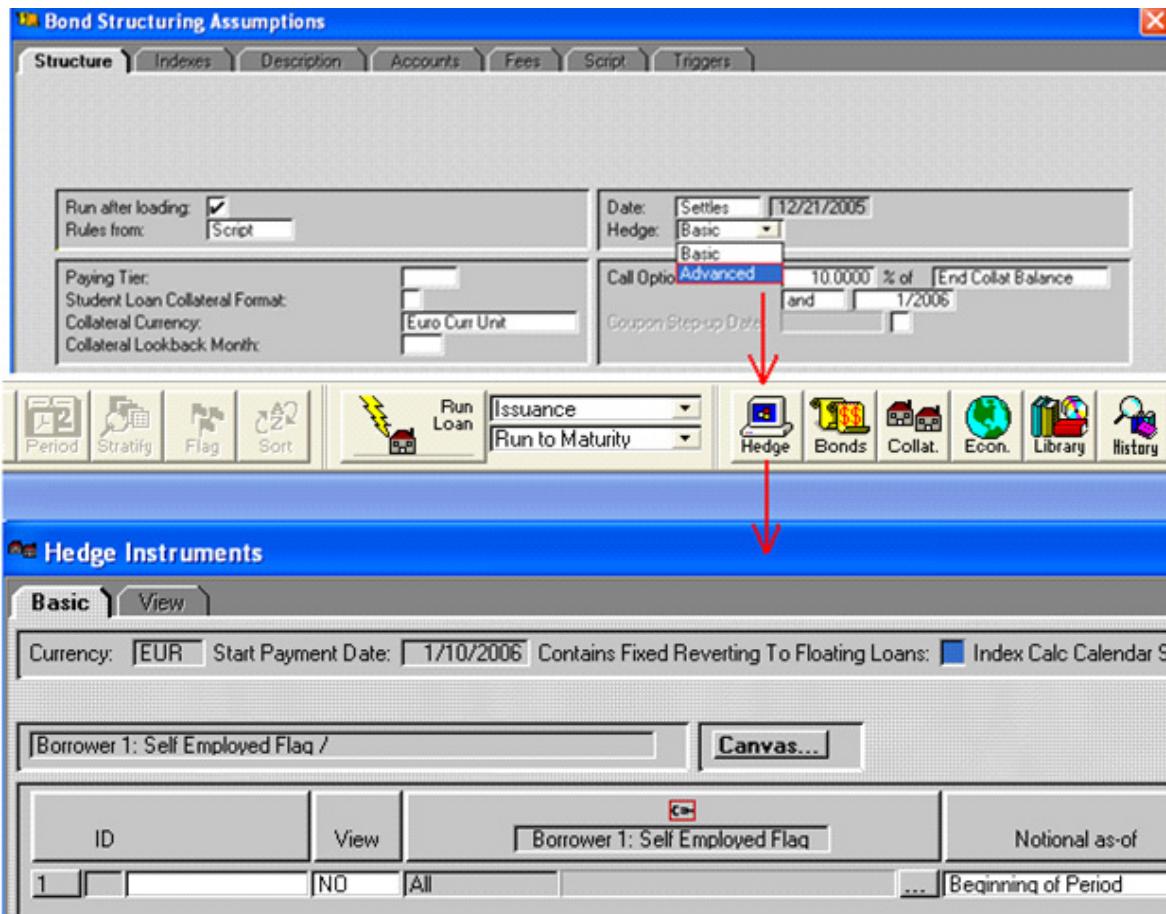
- All statements must end with a semi-colon.
- Everything after a semi-colon on a line is referred to as a `comment` and is ignored by the script compiler. Comment text is green.
- System variables appear in blue and begin with a single underscore (e.g. `_PGH_ACTUAL_INT`)
- System commands appear maroon. (i.e. `LET` , `PRINPAY` , `LOSSPAY` , `INTPAY`)
- System operators appear in red (e.g. `GT` , `EQ` , `AND` , `MIN` , `*` , `(` , `+` )
- System operators require spaces before and after to be recognized. Operators do not turn red if there is a space missing.
- User defined variables appear in black and have a double underscore before their names.
- User defined variables must be declared prior to their usage using the `DECLARE` command and are set using the `LET` command.
- Mathematical operations read from left to right, and the normal rules of multiplication before addition do not hold in the scripting language. For example:
  - `1 + 5 * 2` will normally equal `1 + 10 = 11`
  - `1 + 5 * 2` will equal `6 * 2 = 12` in the scripting language
  - `1 + ( 5 * 2 )` will equal `1 + 10 = 11` in the scripting language
- The script must end with a `DONE ;` statement.
- The script language is not case sensitive. However, the `Find` and `Replace` functions are case sensitive. Therefore, it is advised to use only all capital letters.
- You must click the **Compile**, **Run** button every time you make changes to the script in order for the changes to be included in the system calculations. If there is a syntax error, the script compiler often shows a compilation error. These errors must be corrected before the script can run properly.

## Debugging

Even when a script compiles there may still be logical errors, which may produce inaccurate results. To debug a script, use `PRINT` statements. For example, `PRINT __ADA ;` prints the available funds at the point in the script where this command appears. Click the **Debug** button to view all of the print commands. You can also choose to select which principal and interest payments to display depending on the option you select at the bottom of the debug window.

## Advanced Swap Editor

The advanced hedge allows SFW users to create a customized interest rate hedge which can be applied to specific sections of the collateral using an array of calculation variables. To view the advanced hedging tool go to the Assumptions tab under the Bond Editor, then click into the Hedge dropdown menu and select “Advanced”. With that selected, click the Hedge button on the main toolbar and the hedge editor will open.



Upon entering the hedge editor, the user has a series of options including creating, viewing, nullifying, or deleting hedges. After setting up the hedge(s), you must use the script to specify the location in the waterfall at which you wish to change the cash amount. Additionally, you may change parameters of any or all of the hedges if you wish to further customize the associated cash flow.

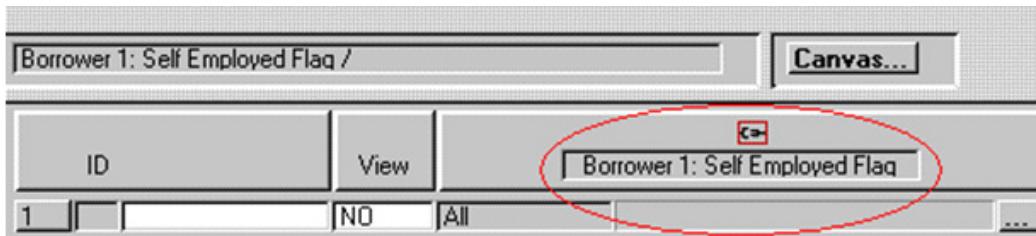
## Constructing a Hedge

There are two sides to the hedge, a paying and receiving. After determining the notional balance, the user will set up the payment calculation (amount to be paid to the swap counterparty) and the following:

- “ID” - Open text field where user can identify swap name for use in the script.
- Drag and drop field

When a field is dragged in, it acts as a filter to determine a group of loans. For example if the Index field is dragged in and set to “Libor 3MO” the notional balance will be equal to all loans who have an index set to Libor 3MO.

Notional amount can be overridden in script (details below).

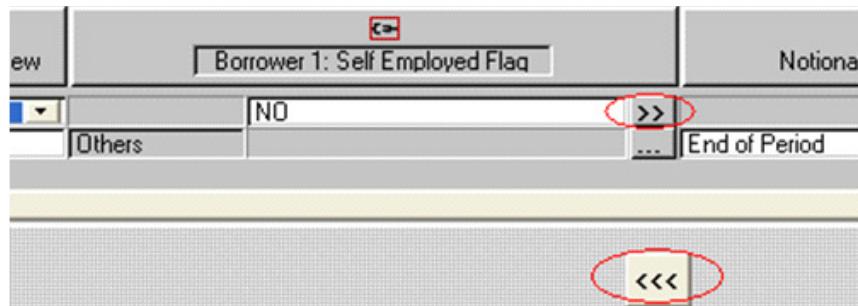


- Second Level

You can drill into any drag and drop field and create hedges within that filtration. When you click the icon on any row, you will be able to add a series of new hedges that are filtered first by the initial drag and drop field and then by the second.

For example, in the first field you can choose “Adjustable?” as the main filter and select Yes in row 1. Then drill into row 1 and select “Index” and separate the collateral pool by the index rate they are floating on. You then set up the hedges by index rate in the second level. In the first level you cannot set up anything in row 1 because you have multiple hedges in the second level, but you can set up a hedge for the loans which are not adjustable (by selected No under Adjustable?).

To drill into the second level, click the smaller button labeled below on the actual row of the hedge. To step back into the main hedge screen, click the lower button labeled below at the bottom of the hedge screen. If hedges have been set up in the second level, the button will switch from ... to >>.



- “Notional as-of” – Drop down menu which takes balance of loans filtered in Notional (Loan Group) as of a certain period in time or as a calculation of several points in time. The period referred to in the drop down menu is the periodicity of the deal itself.
- “Exclude Delinquencies” – Dual field with (1) a checkbox and (2) an open numerical input field

If the checkbox is not clicked, the second field will be grayed out and cannot be altered by the user.

If the checkbox is clicked, the second field will no longer be grayed out and will open up for the user to input a maximum of five positive integers.

Once the checkbox is clicked, all REO, Foreclosed, and Bankrupt loans will be excluded from the Notional Balance.

The integers entered will act as a parameter for filtering out loans with a loan status of Delinquent. All loans with an integer that is equal to or greater than the one entered in this field will be excluded from the Notional Balance. For example, if the

user inputs ‘3’, all loans which are 3+ months delinquent will be excluded from the notional balance of that particular hedge.

- “Calendar” – Drop-down menu with the standard calendar options for use in calculating the accrual period. In addition to the standard options, there is a Loan-Weighted option which will calculate the number of days in the accrual period based on actual weighted average accrual period of the loans in the specified notional balance.
- “Index” – Drop-down menu with standard index options for use in calculating the index rate applied to the balance. Left blank if calculation is based on a fixed rate.
- “Margin” – Blank field where user can input either margin on the index or the fixed rate.

Can be positive or negative

Margin can be overridden in script (syntax details below)

- “Index Calc” – Drop-down which determines the calculation method used for the previously selected index. Grayed out unless there has been a selection made (other than blank) in the Index field. The period is similar to calendar option only available if the index that has been selected is the Libor 1YR  
If Calendar is selected, user must drill into “Index Calc Calendar Schedule” to set up weights.
- “Payment Periodicity” – Drop-down with determines frequency of payment made by corresponding (Paying/Receiving) side of swap

## Viewing Cashflows

To view the cashflows of a specified hedge or series of hedges, select “Yes” under the View column for the hedges you would like to see. At the top of the Hedge Screen, click on View and then run the deal.

The screenshot shows a software interface titled "Hedge Instruments". At the top, there are two tabs: "Basic" and "View", with "View" being the active tab. Below the tabs is a table with four columns: "\$", "Ending", "Notional", and "Net Swap". The first three columns have sub-headings: "Mon" for "\$", "Date" for "Ending", and "Balance" for "Notional". The fourth column is labeled "Net Swap" with a sub-heading "Amount". There are four rows in the table. The first row is a header row with empty cells. The second row contains the word "Totals:". The third row contains the value "0". The fourth row contains the date "07/01/2006".

Hedge Instruments			
Basic	View		
\$	Ending	Notional	Net Swap
Mon	Date	Balance	Amount
	Totals:		
0	07/01/2006	0.00	

## Script Interaction

- “HEDGEDUE” – Net hedge balance either owed to swap counterparty (negative balance) or to be received from swap counterparty (positive balance).

PRINT \_HEDGEDUE

- “SWAPNOTIONAL” – Notional amount used in the calculation of a given hedge. Changing this variable will affect both the paying and receiving calculated amount and in turn affect the net hedge balance.

PRINT SWAPASSET #TEST1 \_SWAPNOTIONAL ;

CHANGE SWAPASSET#TEST1 SWAPNOTIONAL TO \_\_ENDBAL ;

- “PAYING” or “RECEIVING” – The amount on the paying or receiving side of a given hedge. Changing either of these variables will affect the net hedge balance.

```
PRINT SWAPASSET #TEST2 _PAYING ;  
CHANGE SWAPASSET #TEST2 RECEIVING TO 5,000,000 ;
```

- “PAYMARGIN” or “RECEIVEMARGIN” – Margin used on paying or receiving side of a given hedge. Changing either of these variables will affect the respective paying / receiving calculated amount and in turn also affect the net hedge balance.

```
PRINT SWAPASSET #TEST3 _PAYMARGIN ;  
CHANGE SWAPASSET #TEST3 RECEIVEMARGIN TO 5 ;
```

## Macro Syntax

Nullify	PayMargin
ID	PayIndex
SwapFieldName	PayPmtPeriod
ExcludeDelinquencies	PayCalendar
ExcludeDelinquenciesFlag	RecIndex
NotionalAsOf	RecMargin
RecPmtPeriod	StartPayDate
Currency	ContainsReverting
IndexSched (Format for Setting Weights: January=14.00; February=0.00; March=24.6)	

## Economic Model

For more information on using the Economic Model, see [“Setting up the Economy Files” on page 57](#).

### File Types

The following table provides the file types that are associated with certain Economy files.

Table 2.6 Economy Files

File Extension	Description
.WPM	Main Prepayment Model Economy File
.WLC, .WLD, .WLM, .WLP	Other Prepayment Model Economy Files
.WRC	Interest Rate File
.WRS	Scenario Economy File

### Economic Model Components

The Economic Model consists of the following three components:

- Interest Rates
- Prepayment Model
- Scenario

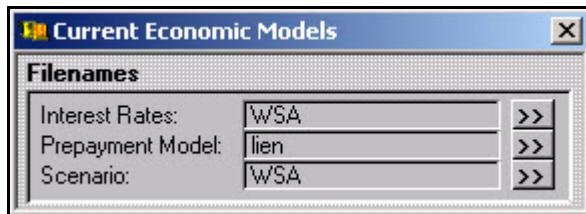


Figure 2.25 Current Economic Models Dialog Box

These files obtain and set the interest rates, the prepayment and default models, and specific scenarios which contains forward curves. The scenario file bases these curves off the interest rates set in the Interest file.

## Interest Rates

Select the >> button next to the **Interest Rates** field on the **Current Economic Models** dialog box. You see the **Current Rates** dialog box, showing the **Index Rates** tab by default. Click the **Currency** tab to access the fields on which you can set currency rates.

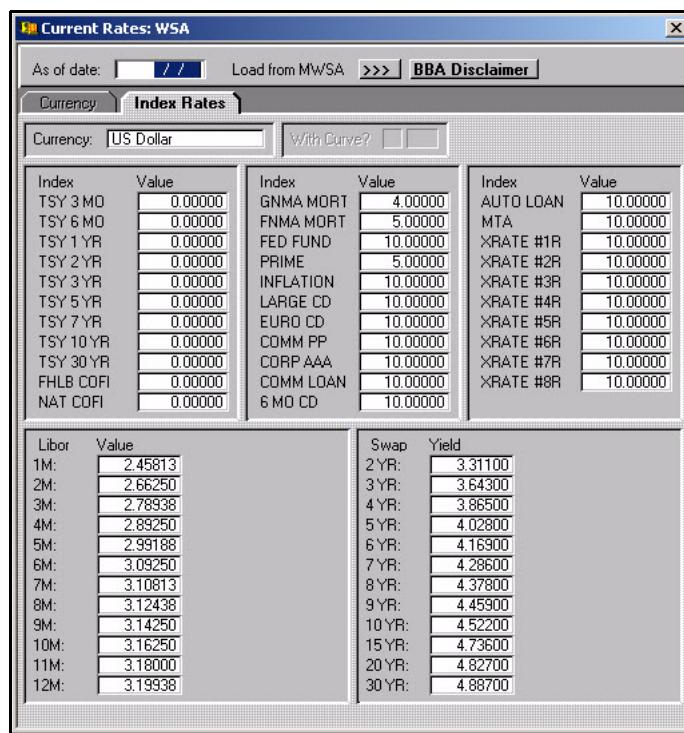


Figure 2.26 Current Rates Dialog Box

For more complete information on setting up interest rates in the Economy module, see [“Loading and Saving Interest Rates” on page 58](#).

## Prepayment Model

Select the >> button next to the Prepayment Model field on the Current Economic Models dialog box. You see the Prepays/Defaults dialog box, showing the Advanced Settings tab by default.

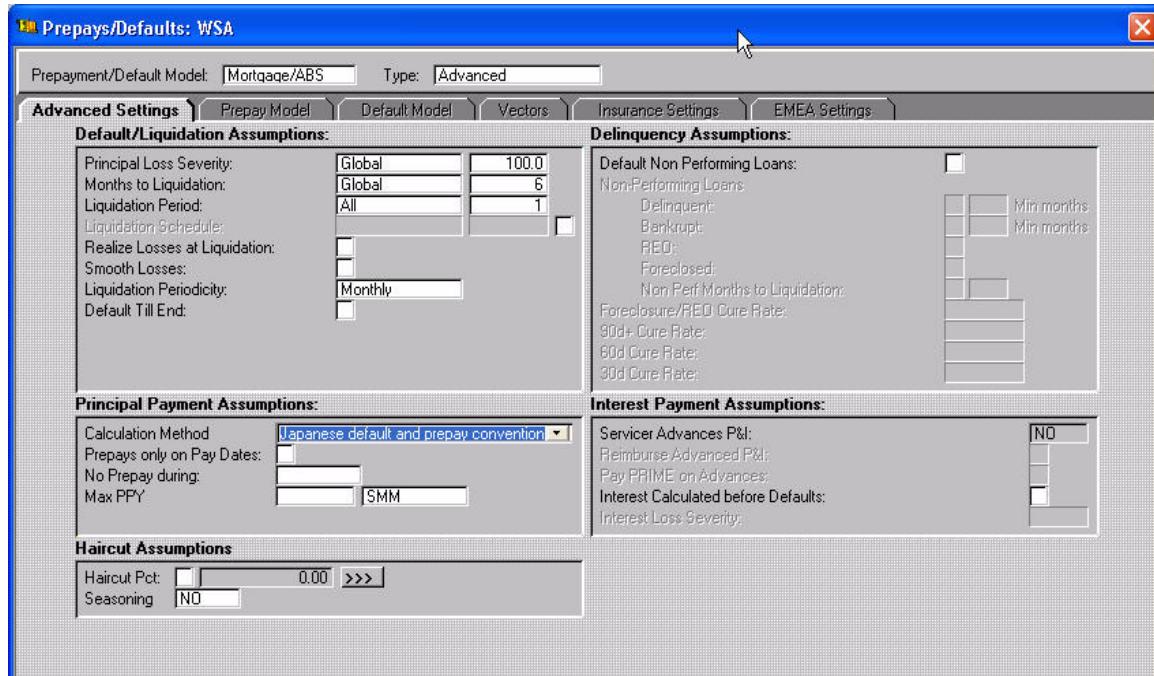


Figure 2.27 RMBS Prepays/Default Dialog BoxAdvanced Settings Tab (RMBS)

For more complete information on setting up prepayments and defaults, see “[Updating Prepayment Default Models](#)” on page 59.

## Scenario

The Scenario file contains information for global prepayment/default, index rates (the non-treasury forward curve information), and yield curves (the treasury curve information).

When running a deal in **Scenario** mode (which you set in the **Run At** field on the Bond Editor), the options set in the current Scenario file are used. This includes forward curve projections for each index rate. To use forward curves when running in other modes, select the **Always Scen RateShift** checkbox on the **Global Analysis Assumptions** window (select **Global Assumptions** from the **File > Settings** menu). If left unchecked, then a flat rate is applied when running in non-Scenario modes.

Select the >> button next to the Scenario field on the Current Economic Models dialog box. You see the Scenario dialog box, showing the **Global Prepays/Defaults** tab by default.

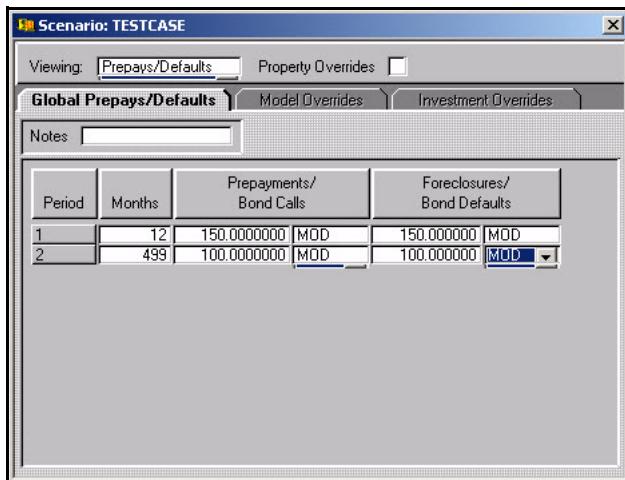


Figure 2.28 Scenario Dialog Box

For more complete information on setting up scenarios, see “[Setting Up Scenarios](#)” on page 72.

## Trigger Functionality

To allow users to access the trigger information more easily, a Trigger User Interface is created as an window accessible from the Bond Editor.

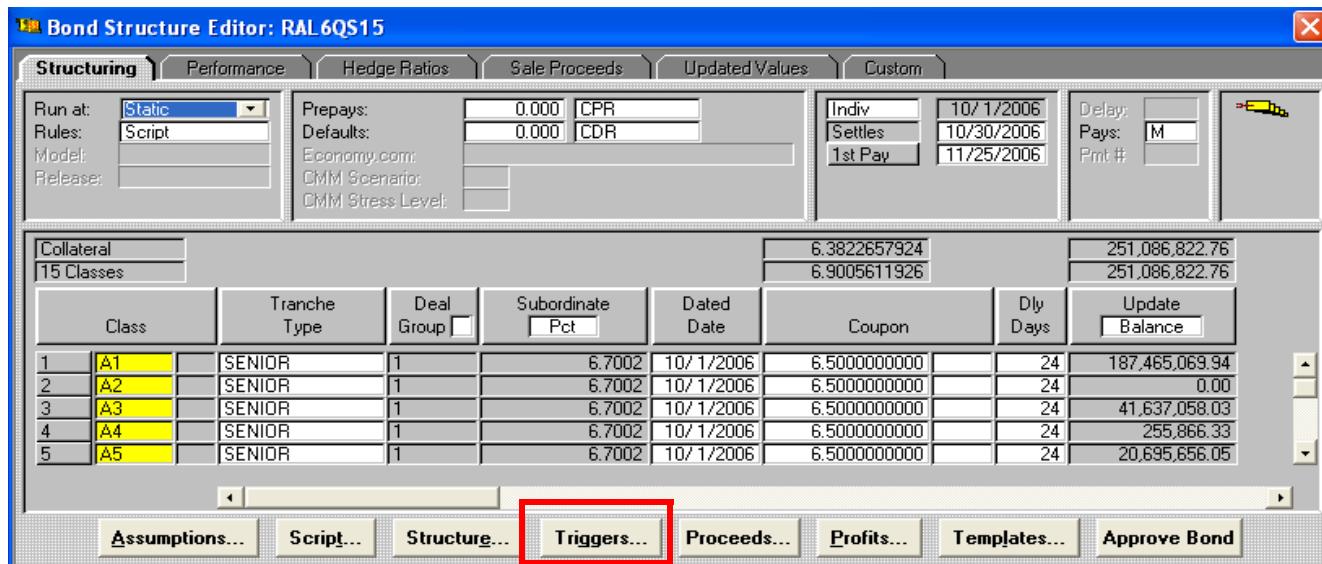


Figure 2.29 Trigger Button in Bond Editor

## Trigger Editor Window: Main Trigger

ID	Trigger Consequence	SubTrigger Logic	Sub ID
1	DEFER-A	Switch to Sequential	Any YES
			DEFER-A-1
			DEFER-A-2
2	DEFER-D	All YES	DEFER-D-1
			DEFER-D-2
			DEFER-D-3
			DEFER-D-4
3	RES1	Any YES	RES1-1
			RES1-2
			RES1-3
			RES1-4

Figure 2.30 Trigger Editor: Main Triggers

- “ID” – Indicates a unique name of the Main Trigger.
- “Trigger Consequence” – Describes the consequence of the Main Trigger becoming breached. Can either select a consequence from the dropdown menu or input a custom consequence.
- “Sub Trigger Logic” – Indicates whether a breach would result from (1) at least one of the Sub Triggers becoming breached (Any YES), or (2) all of the Sub Triggers becoming breached (All YES).

## Trigger Editor Window: Sub Triggers

Sub ID	Trigger Type	Moody's Trigger ID	Current Level	Trigger Condition Operator	Threshold	Breach Value	Durable	Override
DEFER-A-1	Defaults	3234435	0.0000	<=	75.0000	NO	YES	Always NO from
DEFER-A-2	Equity/Threshold Amount	8879797	0.0000	>=	1.0000	NO	YES	None
DEFER-D-1	Reserve Fund	7657676	0.0000	==	1.0000	NO	YES	None
DEFER-D-2	PDL	8678678	0.0000	==	2.0000	NO	YES	None
DEFER-D-3	Defaults	8088797	0.0000	<	2.5000	NO	YES	Always YES from
DEFER-D-4	DDB Collection	8575757	0.0000	==	1.0000	NO	YES	None
RES1-1	Affiliate Flows Test	7657575	0.0000	==	6.0000	NO	YES	None
RES1-2	DDB Collection	6765757	0.0000	!=	7.5000	NO	YES	Always YES from
RES1-3	DDB-DSCR Ratio	7576575	0.0000	>	8.0000	NO	YES	None
RES1-4	Foreclosures - Cumulative	5757575	0.0000	>=	4.0000	NO	YES	Always YES from

Figure 2.31 Trigger Editor: Sub Triggers

- “Sub ID” – Indicates a unique name of the Sub Trigger generated from the name of the Main Trigger.
- “Trigger Type” – Describes the type of Sub Trigger. Can either select a type from a the dropdown menu or input a custom consequence.
- “Moody’s Trigger ID” – Indicates the Moody’s ID used in the automated update process.
- “Current Level” – Indicates the current level of the trigger.

- “Operator” – Indicates the operator used in comparing the “Current Level” and the “Threshold”.
  - =
  - <
  - >
  - <=
  - >=
  - $\neq$  (not equal)
- Boolean
- “Trigger Threshold” – Indicates the Threshold required for the trigger to become breached. There is also a checkbox that can be used to input a schedule.
- “Breach: Value” – Indicates whether the Sub Trigger is currently breached or not.
  - YES (corresponding to “TRUE”)
  - NO (corresponding to “FALSE”)
- “Breach: Curable” – Indicates whether the Sub Trigger can become not breached at a later date once the Sub Trigger becomes breached.
- “Override” – A user can choose to set an override to each Sub Trigger and an associated start date. The trigger can be forced to be always breached from a certain date (Always YES from) or always not breached from a certain date (Always NO from).
- 

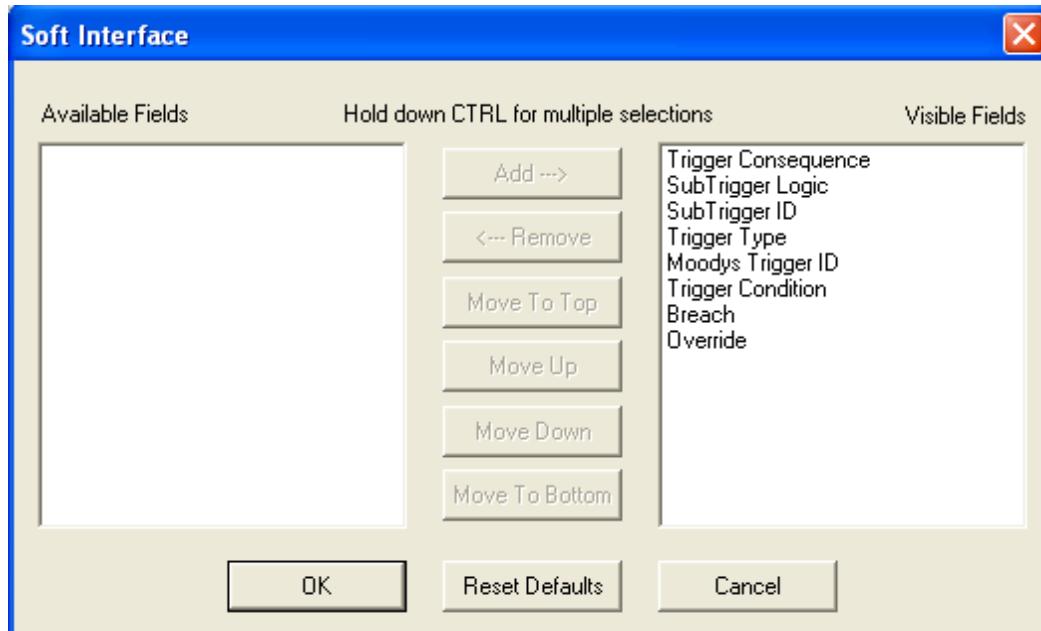


Figure 2.32 Trigger Editor: Soft Interface

- The Soft Interface can be opened by right click on the column names.

## Trigger Window: Inserting and Deleting Main and Sub Triggers

- To insert a Main Trigger above an existing Main Trigger, put a cursor in the existing Main Trigger (on the Main Trigger side of the User Interface), then press Ctrl + I.
- To insert a Sub Trigger above an existing Sub Trigger within the related Main Trigger, put a cursor in the existing Sub Trigger (on the Sub Trigger side of the User Interface), then press Ctrl + I.
- To delete a Main Trigger along with its related Sub Triggers, put a cursor in the existing Main Trigger (on the Main Trigger side of the User Interface), then press Ctrl + D.
- To delete a Sub Trigger, put a cursor in the existing Sub Trigger (on the Sub Trigger side of the User Interface), then press Ctrl + D.
- To copy an existing Main Trigger, put a cursor in the existing Main Trigger (on the Main Trigger side of the User Interface), then press Ctrl + C.
- To copy an existing Sub Trigger within the related Main Trigger, put a cursor in the existing Sub Trigger (on the Sub Trigger side of the User Interface), then press Ctrl + C.
- To move a Main Trigger above an existing Main Trigger, drag the ID number of an existing Main Trigger (on the Main Trigger side of the User Interface) and release in the desired location.

## Trigger Scripting Language

Variables in the script are based on the “ID” or “Sub ID”. To access the Main Trigger use the “TRIGGER” keyword followed by the unique ID. To access the Sub Trigger use “SUBTRIGGER” keyword followed by the unique Sub ID.

- Example Syntax: TRIGGER #SEQ ( SEQ is an “ID”)
- Example Syntax: SUBTRIGGER #SEQ-1 (SEQ-1 is a “Sub ID”)

Each Main Trigger or Sub Trigger has the follow system variables:

- \_CURRLEVEL – only works for a Sub Trigger, to indicate the current level of a Sub Trigger
  - At the beginning of the script, this variable will take the value in the “Trigger Current Level” field.
  - It works with the CHANGE command.
- \_THRESHOLD – only works for a Sub Trigger, to indicate the threshold of a Sub Trigger
  - At the beginning of the script, this variable will take the value in the “Trigger Threshold” field.
  - It works with the CHANGE command.
- \_BREACH – to indicate whether a Main or Sub Trigger is breached or not
  - For Sub Trigger -- If “Always NO” or “Always YES” is selected in the “Override” field, and the date is on or after the date in the “Override” field, then this variable would be “YES” if “Always YES” or “NO” if “Always NO” regardless of the next 2 statements below.
  - For Sub Trigger -- At the beginning of the script, this variable takes the value in the “Breach” field provided that there is no override.
  - Immediately after changing either CURRLEVEL or THRESHOLD within the script, the Sub Trigger’s BREACH changes based on the new value of CURRLEVEL and/or THRESH-

OLD provided that there is no override. The Main Trigger's BREACH changes accordingly provided that there is no override. (More detail in the Trigger Calculations section below).

It does NOT work with the CHANGE command.

Example Syntax: CHANGE SUBTRIGGER #SEQ-1 CURRLEVEL TO ACCOUNT #RESERVE \_DEFICIENCY ;

Example Syntax: CHANGE SUBTRIGGER #SEQ-1 THRESHOLD TO 0.00 ;

Example Syntax: PRINT SUBTRIGGER #SEQ-1 \_THRESHOLD;

Example Syntax: IF TRIGGER #SEQ\_BREACH EQ YES THEN PRINPAY \_\_PRIN FROM \_\_PRIN TO #A LIKE \_CURRBAL UNTIL 0 ;

## Trigger Calculations

### Sub Trigger

The value in the field "Trigger Value" is compared to the value in the "Trigger Threshold" field using the operator from the "Operator" field. The result is either "YES" or "NO". ("TRUE" is recorded as "YES". "FALSE" is recorded as "NO".)

Exception: If "Override" is set to "Always YES" and the current date is on or after the override date, the Sub Trigger would evaluate to "YES" regardless of the comparison mentioned above. If "Override" is set to "Always NO" and the current date is on or after the override date, the Sub Trigger would evaluate to "NO" regardless of the comparison mentioned above. If the Override is "None" or the current date is before the override date, then the Sub Trigger would evaluate normally.

### Main Trigger

Each of the related Sub Triggers are evaluated.

If the "Sub Trigger Logic" is "All YES", then the Main Trigger would be "YES" when all of the associated Sub Triggers are evaluated to be "YES". If at least one of the Sub Triggers are "NO", then the Main Trigger would be "NO".

If the "Sub Trigger Logic" is "Any YES", then the Main Trigger would be "YES" when at least one of the associated Sub Triggers are evaluated to be "YES". If all the Sub Triggers are "NO", then the Main Trigger would be "NO".

## Debug Screen

To display the Trigger Debug printouts, press the Trigger button at the bottom of the Script Debug Screen. The Trigger Debug printouts are displayed with the P&I printouts.

The screenshot shows the 'Script Debug Listing' interface. At the top, there's a toolbar with icons for Home, New, Open, Save, Print, and Help. Below the toolbar is a menu bar with 'File', 'Edit', 'View', 'Tools', and 'Help'. The main area displays a script log with several sections:

- Month #3:**
  - Rule:**

```
SubTrigger #DEFER-B-1      CURRLEVEL      0.0000      >      THRESHOLD      17.0000 Breach = NO (Operator)
SubTrigger #DEFER-B-2      CURRLEVEL 303780367.8000      >      THRESHOLD      0.0000 Breach = YES (Operator)
Trigger #DEFER-B                                Breach = NO (All YES)
```
  - SubTrigger #DEFER-C-1 CURRLEVEL 0.0000 > THRESHOLD 9.2000 Breach = NO (Operator)
SubTrigger #DEFER-C-2 CURRLEVEL 317380367.8000 > THRESHOLD 0.0000 Breach = YES (Operator)
Trigger #DEFER-C Breach = NO (All YES)**
  - SubTrigger #DEFER-D-1 CURRLEVEL 0.0000 > THRESHOLD 2.0200 Breach = NO (Operator)
SubTrigger #DEFER-D-2 CURRLEVEL 0.0000 > THRESHOLD 357130367.8000 Breach = NO (Operator)
Trigger #DEFER-D Breach = NO (All YES)**- Rule:**

```
Withdraw 18,169,740.00      from Account #2      RESERVE      Cash =      27,454,675.12      Balance =
SubTrigger #EOD-1                                Breach = NO (Input)
Trigger #EOD                                Breach = NO (Any YES)
```
- !!! Warning: Change subtrigger #EOD-1's CURRLEVEL after its breach has been set!!!
!!! Warning: Change subtrigger #EOD-1's THRESHOLD after its breach has been set!!!**
- Rule:**

```
Paying      0.00      Fee Payment to Item #1
```
- Rule:**

```
Paying      0.00      Fee Payment to Item #2
```
- Rule:**

```
Paying      0.00      Fee Payment to Item #3
```
- Rule:**

```
Paying      99,825.60      Interest to #1      A      Cash =      27,354,849.51
```

At the bottom of the screen, there are five buttons: Rules, Principal, Interest, Both P&I, and Trigger. The 'Trigger' button is highlighted, indicating it was used to display the debug output.

Figure 2.33 Trigger Debug Screen

The Trigger Debug printouts of the Main Trigger and the associated Sub Triggers display when the BREACH variable of the Main Trigger is used in the script. The Trigger printouts would include the ID, Current Level, Threshold, Breach, and the reason for the Breach for each Sub Trigger; and Breach, and the Sub Trigger Logic for each Main Trigger. The reason for the Breach could be “Operator”, “Input”, “Override”, or “Incurable”.

Warnings are displayed if the CURRLEVEL or THRESHOLD are changed after the BREACH variable of the related Sub Trigger or of the related Main Trigger has been used earlier in the script.

## View Screen

The projected values of all the Triggers are displayed in the last tab called “Triggers” in the main Cashflow View Screen.

		RES1	RES1-1	RES1-2	RES1-3
	Date	Breach	Breach	Breach	Breach
	Totals:				
0	04/20/2010	NO			NO
3	07/20/2010	YES	NO	NO	NO
6	10/20/2010	YES	NO	NO	NO
9	01/20/2011	YES	NO	NO	NO
12	04/20/2011	YES	NO	NO	NO
15	07/20/2011	YES	NO	NO	NO
18	10/20/2011	YES	NO	NO	NO
21	01/20/2012	YES	NO	NO	NO
24	04/20/2012	YES	NO	NO	NO
27	07/20/2012	NO	NO	NO	NO
30	10/20/2012	NO	NO	NO	NO
33	01/20/2013	NO	NO	NO	NO
36	04/20/2013	NO	NO	NO	NO
39	07/20/2013	NO	NO	NO	NO

Figure 2.34 Trigger View Screen

A Soft Interface is available for users to select which Main Triggers and/or Sub Triggers to display. The Format button can be used to display either (i) Breach; or (ii) a set of information including Breach, Sub Trigger Logic, Type of Breach, Current Level, Operator, and Threshold:

	RES1			RES1-1				RES1-2				
	Date	Breach	SubTrigger Logic	Breach	Type	CurrLevel	Operator	Threshold	Breach	Type	CurrLevel	Oper
	Totals:											
0	04/20/2010	NO	Any YES									
3	07/20/2010	YES										
6	10/20/2010											
9	01/20/2011											
12	04/20/2011											
15	07/20/2011											
18	10/20/2011											
21	01/20/2012											
24	04/20/2012											
27	07/20/2012	NO	Any YES	NO	Operator	0.00	>	0.00	NO	Operator	0.00	
30	10/20/2012	NO	Any YES	NO	Operator	0.00	>	0.00	NO	Operator	0.00	
33	01/20/2013	NO	Any YES	NO	Operator	0.00	>	0.00	NO	Operator	0.00	
36	04/20/2013	NO	Any YES	NO	Operator	0.00	>	0.00	NO	Operator	0.00	

Figure 2.35 Trigger View Screen: auto-fit

## Macro Language

There is a set of macro syntaxes that can be used with the Trigger User Interface. Users are able to automate the following actions via macro:

- Read and write all of the fields in the Trigger User Interface: ID, Consequence, Breach, Sub Trigger Logic, Sub ID, Moody's Trigger ID, Type,, Current Level, Operator, Threshold, Breach Value, Breach Curable, Override, and Override Date.
- Add or remove Main Trigger and Sub Triggers.
- Read the projected Trigger values: Current Level, Operator, Threshold, Breach Value, and Breach Curable.

For a complete list of macro syntaxes, please refer to the COM\_API\_DOC documentation.

## Running Reports

The MWSA Reports module allows you to generate historical data reports on a deal or portfolio of deals from the Deal Library.

To use the MWSA History Reporting functionality, follow these steps:

1. To open the login screen and access reporting functionality, select **MWSA Reports** from the **File** menu.

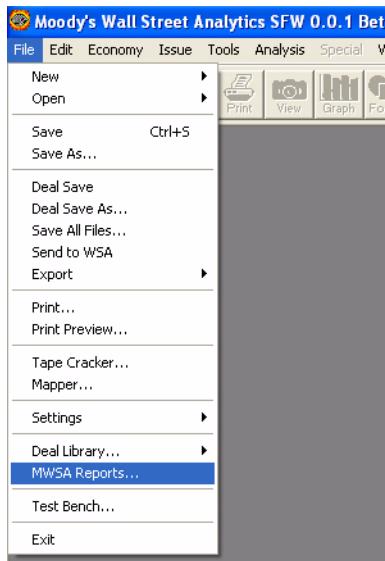


Figure 2.36 MWSA Historical Reports on the File Menu

2. Use your SFW Deal Library credentials to log-in.

 If you click the **CDO** button instead of **SFW**, you receive an error message.

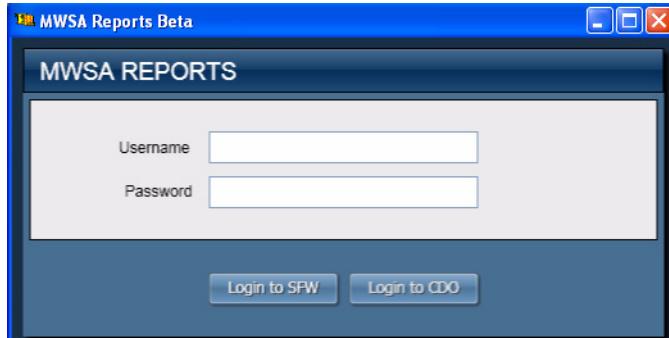


Figure 2.37 MWSA Historical Reports Login Screen

3. Enter a valid CUSIP in the CUSIP field and click Find.

The screenshot displays a search results table for the Aegis Asset Backed Securities Trust 2005-4. The table has three main sections: M4, M5, and M6. The M4 section has four columns: Period, Balance, Interest, and Principal. The M5 section has four columns: Balance, Interest, Principal, and Balance. The M6 section has four columns: Interest, Principal, Balance, and Interest. A red arrow points from the text 'CUSIP: 00764MGM3' in the search bar to the 'Find' button. Another red arrow points from the 'Find' button to the top right corner of the table.

Aegis Asset Backed Securities Trust 2005-4							
Reports		Charts		Find			
Period	M4			M5			M6
	Balance	Interest	Principal	Balance	Interest	Principal	Balance
200509	\$19,500,000.00	\$62,439.68	\$0.00	\$17,500,000.00	\$56,560.61	\$0.00	\$16,500,000.00
200510	\$19,500,000.00	\$69,587.92	\$0.00	\$17,500,000.00	\$63,014.58	\$0.00	\$16,500,000.00
200511	\$19,500,000.00	\$77,871.35	\$0.00	\$17,500,000.00	\$70,487.33	\$0.00	\$16,500,000.00
200512	\$19,500,000.00	\$83,091.67	\$0.00	\$17,500,000.00	\$75,191.67	\$0.00	\$16,500,000.00
200601	\$19,500,000.00	\$78,207.86	\$0.00	\$17,500,000.00	\$70,750.43	\$0.00	\$16,500,000.00
200602	\$19,500,000.00	\$91,698.75	\$0.00	\$17,500,000.00	\$82,935.42	\$0.00	\$16,500,000.00
200603	\$19,500,000.00	\$78,572.89	\$0.00	\$17,500,000.00	\$71,058.57	\$0.00	\$16,500,000.00
200604	\$19,500,000.00	\$85,109.79	\$0.00	\$17,500,000.00	\$76,944.47	\$0.00	\$16,500,000.00
200605	\$19,500,000.00	\$90,334.93	\$0.00	\$17,500,000.00	\$81,657.63	\$0.00	\$16,500,000.00

Figure 2.38 Entering a Valid CUSIP



You need to have a valid CUSIP in order to return results. If you leave the field blank or input an invalid CUSIP, an error message displays.

By default, the following CUSIP information displays:

- **Tranche Info:** Balance, Interest, Principal, and Cum Losses for the tranche that corresponds to the CUSIP you entered. You can choose to display additional tranche information and/or tranches.
- **Collateral Info:** Balance, Delinquent 1/2/3 Mo, REO, Bankrupt, and Foreclosed amounts for all poolgroups. You can select or deselect poolgroups and poolgroup properties.

4. Choose a display:

- Check the **Deal Content on top?** check box in the **Aggregation** section of the Settings panel to display the tranches and poolgroups in the first row header and the tranche and collateral properties in the second row header.

The screenshot shows a software application window titled "MWSA Reports Beta". At the top, there's a toolbar with icons for back, forward, and search, followed by the title "MWSA Reports" and the identifier "Aegis Asset Backed Securities Trust 2005-4". To the right of the title is a "CUSIP: 00764MGM3" field and a "Find" button. Below the title, there are two tabs: "Reports" (which is selected) and "Charts". On the left, a vertical "SETTINGS" panel is open, containing a "Aggregation" section with a checked checkbox labeled "Deal Content on top?". Other settings include "By Month" (selected), "Date Filters", "Tranches", "Tranche Properties", "Pool Groups", and "Pool Group Properties". The main area displays a table with three columns of headers: "M4", "M5", and "M6". The table contains data rows with columns for "Period", "Balance", "Interest", "Principal", and other financial metrics. The data spans from Period 200509 to 200710.

	M4			M5			M6	
Period	Balance	Interest	Principal	Balance	Interest	Principal	Balance	Inte
200509	\$19,500,000.00	\$62,439.68	\$0.00	\$17,500,000.00	\$56,560.61	\$0.00	\$16,500,000.00	\$54
200510	\$19,500,000.00	\$69,587.92	\$0.00	\$17,500,000.00	\$63,014.58	\$0.00	\$16,500,000.00	\$60
200511	\$19,500,000.00	\$77,871.35	\$0.00	\$17,500,000.00	\$70,487.33	\$0.00	\$16,500,000.00	\$67
200512	\$19,500,000.00	\$83,091.67	\$0.00	\$17,500,000.00	\$75,191.67	\$0.00	\$16,500,000.00	\$71
200601	\$19,500,000.00	\$78,207.86	\$0.00	\$17,500,000.00	\$70,750.43	\$0.00	\$16,500,000.00	\$67
200602	\$19,500,000.00	\$91,698.75	\$0.00	\$17,500,000.00	\$82,935.42	\$0.00	\$16,500,000.00	\$79
200603	\$19,500,000.00	\$78,572.89	\$0.00	\$17,500,000.00	\$71,058.57	\$0.00	\$16,500,000.00	\$67
200604	\$19,500,000.00	\$85,109.79	\$0.00	\$17,500,000.00	\$76,944.47	\$0.00	\$16,500,000.00	\$73
200605	\$19,500,000.00	\$90,339.93	\$0.00	\$17,500,000.00	\$81,657.63	\$0.00	\$16,500,000.00	\$77
200606	\$19,500,000.00	\$98,475.00	\$0.00	\$17,500,000.00	\$88,997.22	\$0.00	\$16,500,000.00	\$84
200607	\$19,500,000.00	\$93,032.60	\$0.00	\$17,500,000.00	\$84,054.69	\$0.00	\$16,500,000.00	\$80
200608	\$19,500,000.00	\$100,498.12	\$0.00	\$17,500,000.00	\$90,793.40	\$0.00	\$16,500,000.00	\$86
200609	\$19,500,000.00	\$99,480.21	\$0.00	\$17,500,000.00	\$89,879.89	\$0.00	\$16,500,000.00	\$85
200610	\$19,500,000.00	\$96,362.50	\$0.00	\$17,500,000.00	\$87,062.50	\$0.00	\$16,500,000.00	\$82
200611	\$19,500,000.00	\$105,820.00	\$0.00	\$17,500,000.00	\$95,608.33	\$0.00	\$16,500,000.00	\$91
200612	\$19,500,000.00	\$92,993.33	\$0.00	\$17,500,000.00	\$84,019.44	\$0.00	\$16,500,000.00	\$80
200701	\$19,500,000.00	\$96,687.50	\$0.00	\$17,500,000.00	\$87,354.17	\$0.00	\$16,500,000.00	\$83
200702	\$19,500,000.00	\$102,613.33	\$0.00	\$17,500,000.00	\$92,711.11	\$0.00	\$16,500,000.00	\$88
200703	\$19,500,000.00	\$89,786.67	\$0.00	\$17,500,000.00	\$81,122.22	\$0.00	\$16,500,000.00	\$77
200704	\$19,500,000.00	\$96,200.00	\$0.00	\$17,500,000.00	\$86,916.67	\$0.00	\$16,500,000.00	\$82
200705	\$19,500,000.00	\$96,200.00	\$0.00	\$17,500,000.00	\$86,916.67	\$0.00	\$16,500,000.00	\$82
200706	\$19,500,000.00	\$99,406.67	\$0.00	\$17,500,000.00	\$89,813.89	\$0.00	\$16,500,000.00	\$85
200707	\$19,500,000.00	\$96,200.00	\$0.00	\$17,500,000.00	\$86,916.67	\$0.00	\$16,500,000.00	\$82
200708	\$19,500,000.00	\$105,820.00	\$0.00	\$17,500,000.00	\$95,608.33	\$0.00	\$16,500,000.00	\$91
200709	\$19,500,000.00	\$95,899.37	\$0.00	\$17,500,000.00	\$86,627.43	\$0.00	\$16,500,000.00	\$82
200710	\$19,500,000.00	\$end 127.01	\$0.00	\$17,500,000.00	\$80.164.06	\$0.00	\$16,500,000.00	\$80

Figure 2.39 Displaying Deal Content on Top View

- Deselect the **Deal Content on top?** checkbox to display the tranche and collateral properties in the first row header and the tranche and poolgroup names in the second row header.

M4			M5		
Balance	Interest	Principal	Balance	Interest	Principal
\$19,500,000.00	\$62,439.68	\$0.00	\$17,500,000.00	\$56,560.61	\$0.00
\$19,500,000.00	\$69,587.92	\$0.00	\$17,500,000.00	\$63,014.58	\$0.00
\$19,500,000.00	\$77,871.35	\$0.00	\$17,500,000.00	\$70,487.33	\$0.00
\$19,500,000.00	\$83,091.67	\$0.00	\$17,500,000.00	\$75,191.67	\$0.00
\$19,500,000.00	\$78,207.86	\$0.00	\$17,500,000.00	\$70,750.43	\$0.00
\$19,500,000.00	\$91,698.75	\$0.00	\$17,500,000.00	\$82,935.42	\$0.00
\$19,500,000.00	\$78,572.89	\$0.00	\$17,500,000.00	\$71,058.57	\$0.00
\$19,500,000.00	\$85,109.79	\$0.00	\$17,500,000.00	\$76,944.47	\$0.00
\$19,500,000.00	\$90,339.93	\$0.00	\$17,500,000.00	\$81,657.63	\$0.00
\$19,500,000.00	\$98,475.00	\$0.00	\$17,500,000.00	\$88,997.22	\$0.00
\$19,500,000.00	\$93,032.60	\$0.00	\$17,500,000.00	\$84,054.69	\$0.00
\$19,500,000.00	\$100,498.12	\$0.00	\$17,500,000.00	\$90,793.40	\$0.00
\$19,500,000.00	\$99,480.21	\$0.00	\$17,500,000.00	\$89,879.89	\$0.00
\$19,500,000.00	\$96,362.50	\$0.00	\$17,500,000.00	\$87,062.50	\$0.00
\$19,500,000.00	\$105,820.00	\$0.00	\$17,500,000.00	\$95,608.33	\$0.00
\$19,500,000.00	\$92,993.33	\$0.00	\$17,500,000.00	\$84,019.44	\$0.00
\$19,500,000.00	\$96,687.50	\$0.00	\$17,500,000.00	\$87,354.17	\$0.00
\$19,500,000.00	\$102,613.33	\$0.00	\$17,500,000.00	\$92,711.11	\$0.00
\$19,500,000.00	\$89,786.67	\$0.00	\$17,500,000.00	\$81,122.22	\$0.00
\$19,500,000.00	\$96,200.00	\$0.00	\$17,500,000.00	\$86,916.67	\$0.00
\$19,500,000.00	\$96,200.00	\$0.00	\$17,500,000.00	\$86,916.67	\$0.00
\$19,500,000.00	\$99,406.67	\$0.00	\$17,500,000.00	\$89,813.89	\$0.00

Figure 2.40 Displaying Deal Content (Alternate View)

##### 5. Also on the **Settings** panel you can:

- Select a time frame of the last 6 months/1 year/2 years or custom in the **Date Filters** section.
- Select or deselect other tranches that belong to the same deal as the CUSIP you entered in the **Tranches** section.
- Select or deselect the tranche data you want to view in the **Tranche Properties** section.
- Select or deselect poolgroups in the **Pool Groups** section.
- Select or deselect collateral data you want to view in the **Pool Group Properties** section.

- Reorder columns in the data grid for any of these sections (except Date Filters) using the up and down buttons.



Figure 2.41 Reordering Content on the Display

- To view the charts, click on the **Charts** tab, and then on the chart icon next to the Tranche label to view each chart in the main charting window.

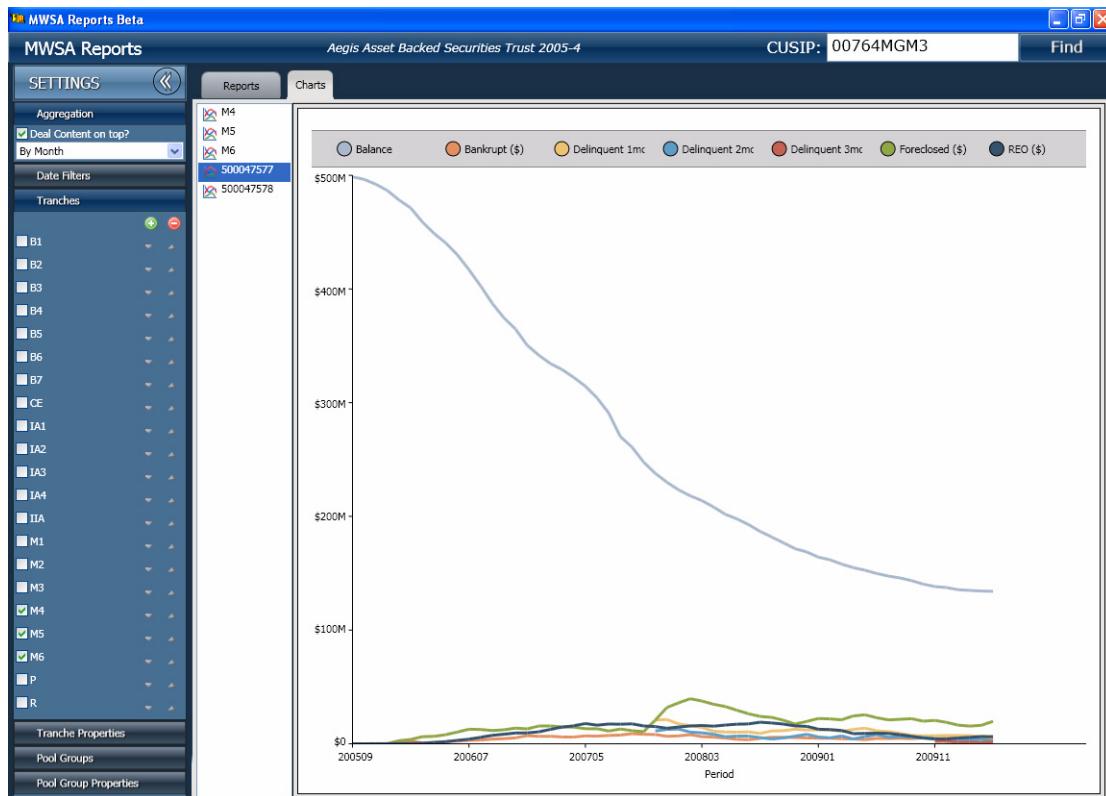


Figure 2.42 Displaying Deal Content (Alternate View)

- To export the data from the grid or charts to Microsoft Excel, select all the content, press [Ctrl C] and then paste the data in a new Excel worksheet.

## Macro Language

The SFW macro language is an essential tool for automating standard procedures in SFW. It enables you to significantly decrease the time spent running periodic updates, analytics and reports.

You can use macros to run multiple functions within the SFW, as well as export and import data to/from Excel files.

For information on the basic macro functionality, see “[Using the Macro Language](#)” on page 84.

# Using SFW

## Viewing Cashflows

To view aggregate tranche cashflows, follow these steps:

1. Click **RUN** on the main toolbar to run the deal.
2. Click the **View** button on the main toolbar. All deal cashflows from the Bond Editor display in the CMO/REMIC Flows window.

The screenshot shows the 'CMO/REMIC Flows' window with the 'Bondflows' tab selected. The window title bar includes tabs for 'Bondflows', 'Imputed Int.', 'Balance Sheet', 'Both', 'Hedge', 'Accounts', and 'PGH Flows'. The main table displays cashflow data for 'Class #1: A1' in USD. The columns are: Date, Balance, Interest, Principal, Coupon, and Balance. The data spans from 02/25/2007 to 11/25/2008, showing a decreasing trend in balance over time. At the bottom of the window are buttons for 'View Normal Layout' and 'View Dec Table'.

Class #1: A1					
	Date	Balance	Interest	Principal	Coupon
	Totals:	351,823,000.00	75,426,185.49	351,823,000.00	0.0000000000
0	02/25/2007	351,823,000.00	0.00	0.00	0.0000000000
1	03/25/2007	347,685,973.21	1,764,421.66	4,137,026.79	5.4710000000
2	04/25/2007	343,602,097.25	1,585,158.30	4,083,875.95	5.4710000000
3	05/25/2007	339,570,917.62	1,566,539.23	4,031,179.63	5.4710000000
4	06/25/2007	335,591,737.66	1,599,765.76	3,979,179.96	5.4710000000
5	07/25/2007	331,663,869.74	1,530,018.66	3,927,867.92	5.4710000000
6	08/25/2007	327,786,635.14	1,663,321.95	3,877,234.60	5.4710000000
7	09/25/2007	323,959,363.95	1,444,619.44	3,827,271.19	5.4710000000
8	10/25/2007	320,181,394.94	1,476,984.73	3,777,969.01	5.4710000000
9	11/25/2007	316,452,075.43	1,557,077.70	3,729,319.51	5.4710000000
10	12/25/2007	312,770,761.23	1,442,757.75	3,681,314.21	5.4710000000
11	01/25/2008	309,136,816.45	1,425,974.03	3,633,944.78	5.4710000000
12	02/25/2008	305,549,613.48	1,456,386.48	3,587,202.97	5.4710000000
13	03/25/2008	300,389,595.78	1,346,616.56	5,160,017.70	5.4710000000
14	04/25/2008	295,351,251.37	1,415,177.11	5,038,344.41	5.4710000000
15	05/25/2008	290,470,802.38	1,436,325.95	4,880,448.99	5.4710000000
16	06/25/2008	285,457,740.24	1,280,161.31	5,013,062.14	5.4710000000
17	07/25/2008	280,598,422.52	1,301,449.41	4,859,317.72	5.4710000000
18	08/25/2008	275,833,843.51	1,321,938.14	4,764,579.01	5.4710000000
19	09/25/2008	271,135,509.86	1,299,491.55	4,698,333.65	5.4710000000
20	10/25/2008	266,579,339.44	1,318,562.11	4,555,570.42	5.4710000000
21	11/25/2008	261,887,192.16	1,174,869.63	4,692,747.28	5.4710000000

Figure 3.1 Viewing Cashflows

3. Use the soft interface to customize each tab [Ctrl-F] to specify which fields to display.



Some tabs have a limited list of fields available for viewing. For example, the Bondflows tab only includes bond cashflows. All variables should be available on the Both tab, including user-defined script variables. You can change the way cashflows display by clicking the Format, Digits, and Period buttons on the main toolbar.

To copy the cashflows to Excel or another external program, follow these steps:

1. Click **Copy** on the main toolbar or select [Ctrl-C].
2. In a new Excel worksheet, select [Ctrl-V] to paste the data.

To view the cashflow of an individual asset, follow these steps:

1. Double-click a poolgroup on the **Collateral Editor**. You see the Poolgroup Editor window.

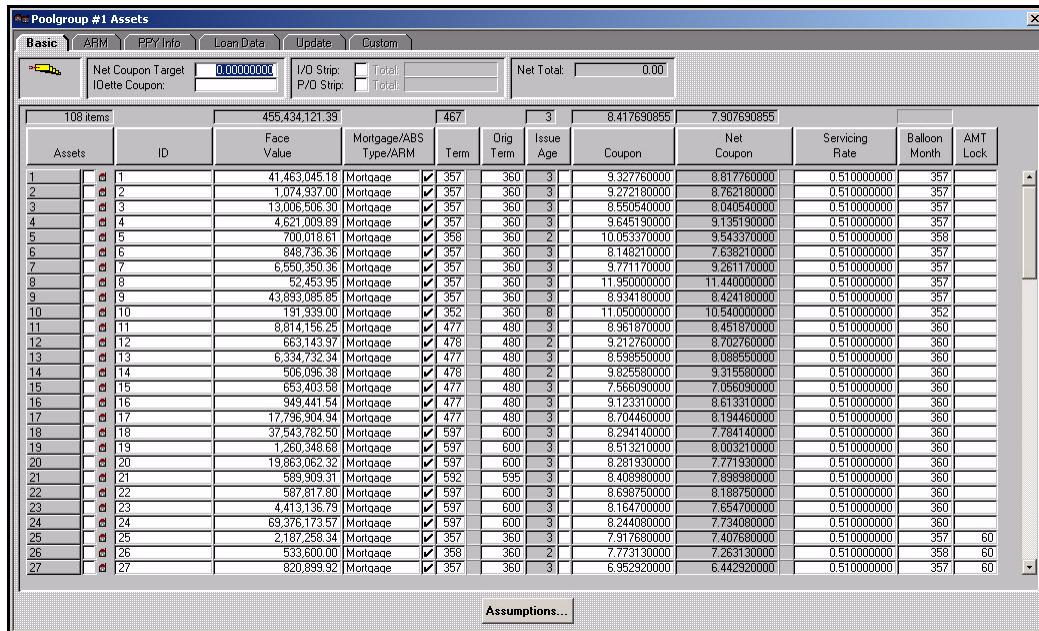


Figure 3.2 RMBS Poolgroup Editor

2. Double-click on an individual asset number to display the **Investment** dialog box.

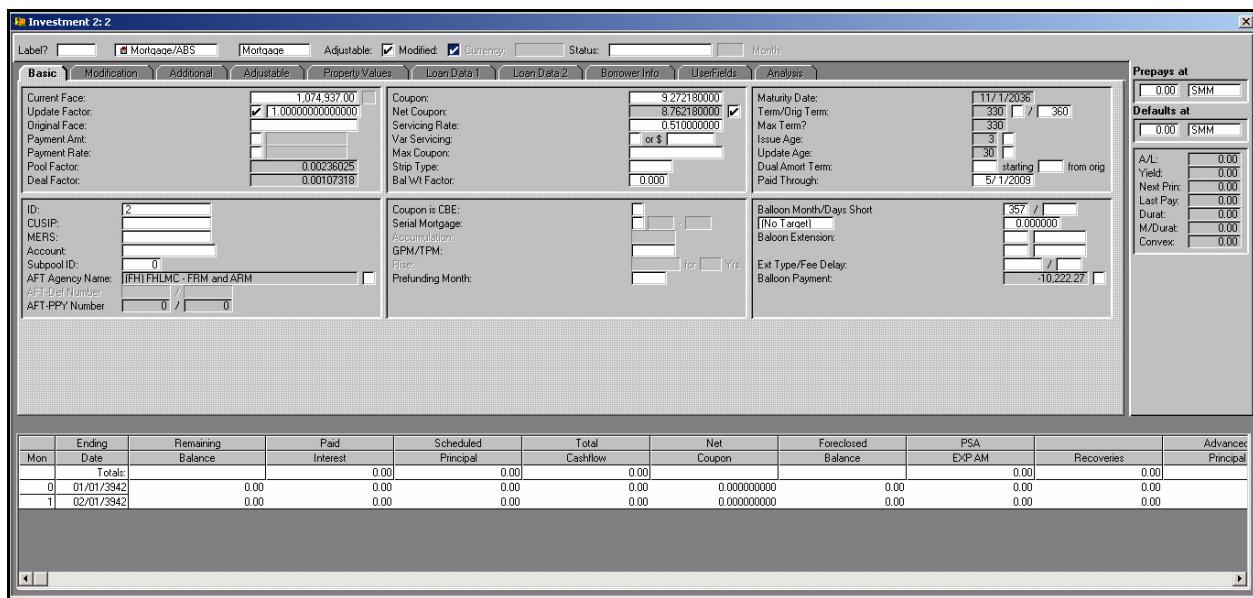


Figure 3.3 RMBS Individual Investment Dialog Box

3. Click **View** on the main toolbar to display cashflow fields in the bottom of the window.
4. Click the **Run Loan** icon on the main toolbar. The loan runs using the Prepay and Default rate specified in this window (not the Prepay and Default on the Bond Editor), and new cashflows display in the bottom of the window.

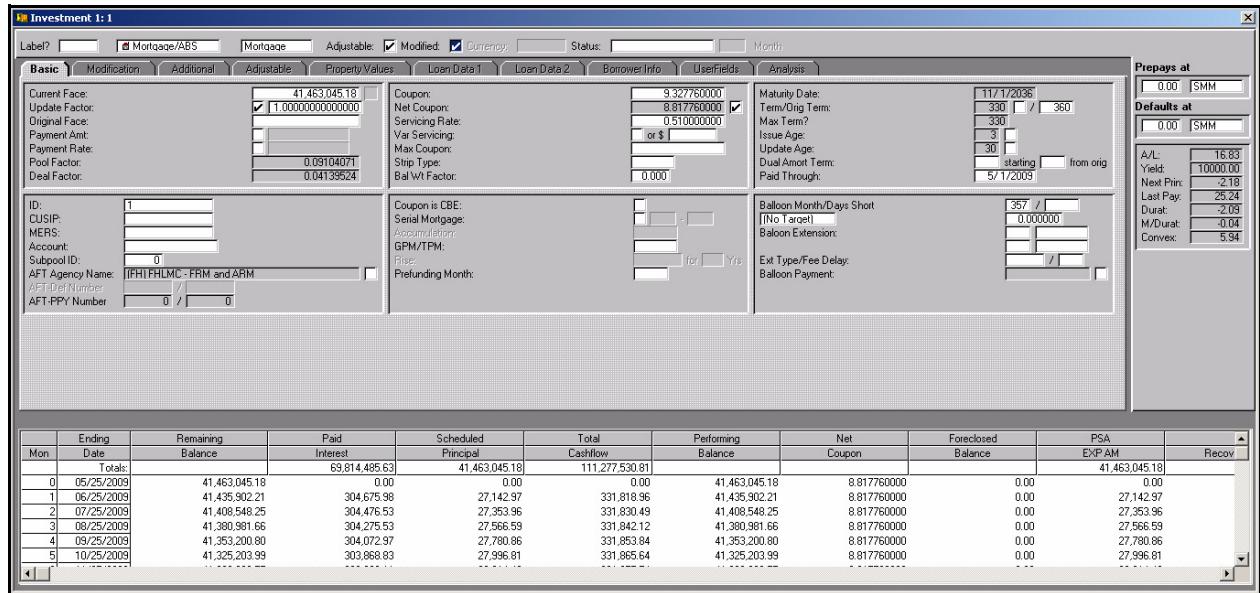


Figure 3.5 RMBS Investment Dialog Box Showing Cashflows



The soft interface is not available for asset-level cashflows.

## Setting up the Economy Files

Click the **Econ** button on the main toolbar to open the **Current Economic Models** prompt. To open any of the models listed on the **Current Economic Models** dialog box, click the corresponding **>>** button.

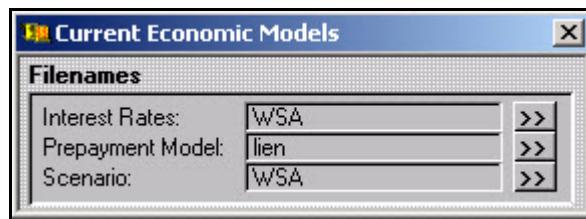


Figure 3.6 Current Economic Models Dialog Box

## Loading and Saving Interest Rates

Interest rate files exist separately from deal files so they can be used across deals. To open a file that was previously saved, right-click in the interest rate window and select **Open** from the **File** menu.

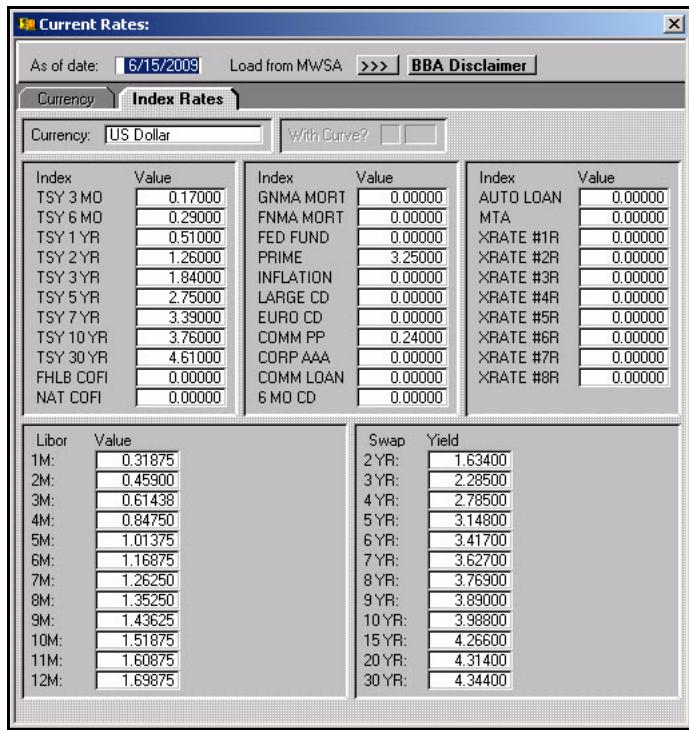


Figure 3.7 Current Rates Dialog Box

You can manually enter Interest rates into each field or load them from the Rates Library. To load the rates from the library, follow these steps:

1. Click the **Econ** icon to open the Economic model window.
2. Click >> next to **Interest Rates**. By default, the **Index Rates** tab on the the **Current Rates** dialog box displays.
3. Update interest rates in one of the following ways:
  - Manually enter rates in the fields.
  - Enter a date in the **As of date** field, and click the >>> button to load historical rates from the database.

- Right-click, and select Load from RatesLibrary from the popup menu.

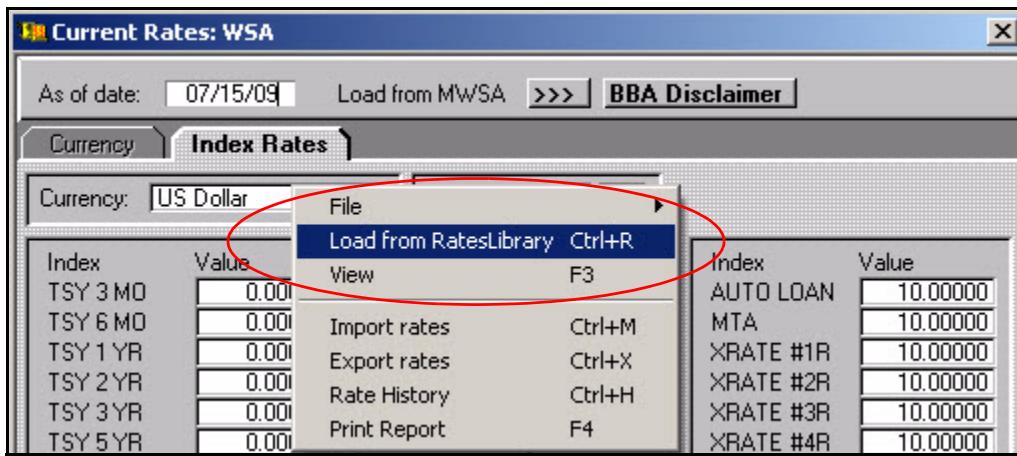


Figure 3.8 Popup Menu on the Current Rates Dialog Box



In **Update** mode, the system always uses the index rates on this screen. In **Issuance** mode, the system uses the indexes on the **Indexes** tab in the **Bond Editor Assumptions** window. To match these indexes to the ones loaded in the Economy Model, click the **Reset to Current** button on the **Bond Editor Assumptions** window.

- Right-click anywhere on the screen and select Save or Save As... from the File menu to save interest rates to your local drive.

## Updating Prepayment Default Models

Prepayment model files are saved separately from deal files so they can be used across deals. To open any of the models listed on the Current Economic Models dialog box, click the corresponding >> button.

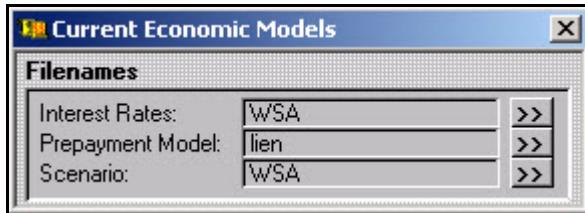


Figure 3.9 Current Economic Models Dialog Box

## Opening and Saving Prepayment Default Model Files

- Click the Econ button on the main toolbar to open the Current Economic Models prompt.
- Click the Prepayment Model >> button to open the Prepays Defaults window.
- Select MortgageABS from the Prepayment/Default Model field.

4. Select either PSA Standard Model or Advanced from the Type field.



Switching to *PSA Standard Model* from *Advanced* resets your settings.

5. To open a file that was previously saved, right-click in the Prepayment Model window and select File > Open File... from the popup menu.

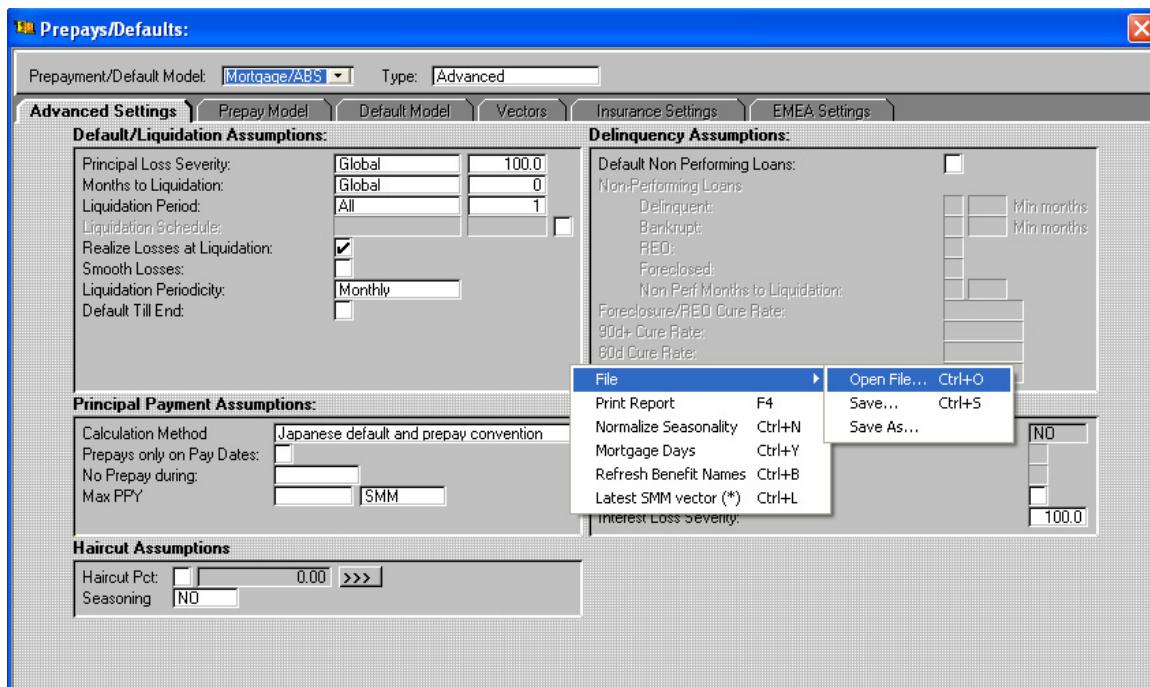


Figure 3.10 File Popup Menu on the Prepays/Defaults Dialog Box (RMBS)

6. To save a prepayment model file, right-click in the Prepayment Model window and select File > Save or File > Save As... from the popup menu.

## PSA Settings Tab

When you switch the Type field to *PSA Standard Model*, you see the following three fields:

- Servicer Advances P&I:** Whether the servicer will forward Principal and/or Interest while loans are in the middle of default. High quality servicers will advance both.
- Principal Loss Severity:** The percent of the default that will become a realized loss is indicated in this field. The percent of a default that will be recovered will be equal to 100 minus this value. When using the default model entered on the Default Model tab, this value will be ignored and the individual *Principal Loss Severities* (or loss curve) indicated in default model will be used instead.
- Months to Liquidation:** This field indicates the number of months between when a default occurs and when the loan is liquidated. When using the default model entered on the Default Model tab, this value will be ignored and the individual *Months to Liquidation* indicated in default model will be used instead.

## Advanced Settings Tab

When you switch the Type field to Advanced, you see these sections on the Advanced Settings tab:

- Default/Liquidation Assumptions
- Delinquency Assumptions
- Principal Payment Assumptions
- Interest Payment Assumptions
- Haircut Assumptions

### Default/Liquidation Assumptions

The following fields exist in the Default/Liquidation Assumptions section on the Advanced Settings tab:

- PrincipalLossSeverity: (See field description in previous section.)
- Months to Liquidation: (See field description in previous section.)
- Liquidation Period: The number of months over which the recovered portion of a default re-enters the cashflow as principal. The recoveries will be received in even slices over the number of months indicated.
- Liquidation Schedule: By selecting this checkbox and then clicking >>, a liquidation schedule can be entered. The value entered in the schedule for any month is the percent of the liquidation proceeds that will re-enter the cashflow as principal that month. The schedule must sum to 100.
- RealizeLosses at Liquidation: When this flag is checked the loss portion of a default will be realized in the month indicated in the **Months to Liquidation** field. When this flag is not checked, the loss portion of a default will be realized in the same month the default occurs.
- Smooth Losses: When this flag is checked, losses from current non-performing loans are smoothed out.
- Liquidation Periodicity: The period which liquidation occurs.
- Default Till End: When this flag is checked, default assumption will continue until the end of loan.

### Delinquency Assumptions

The following fields exist in the Delinquency Assumptions section on the Advanced Settings tab:

- Default Non Performing Loans: When this checkbox is selected, the Delinquent, REO, Foreclosed, and Bankrupt fields become enabled. By default, when the deal is in **Static** mode, the fields are set to **Delinquent 3+**, **Bankrupt 0+**, **REO**, and **Foreclosed**. You can check or uncheck the boxes to define which of these types to treat as non performing loans and setting the months in the text fields. When these checkboxes are selected, 100 percent of a non performing loan's face value is immediately defaulted.
- Non Perf Months to Liquidation: Select this checkbox and enter the number of months to delay the liquidation of the non-performing loans. When this checkbox is not selected, the non-performing loans use the values from the **Months to Liquidation** fields in the Default/Liquidation Assumptions section, which are the same values applied to performing loans.

## Principal Payment Assumptions

The following fields exist in the **Principal Payment Assumptions** section on the **Advanced Settings** tab:

- **Calculation Method:**

- **Default and Prepay before Sched Prin**

$Sched\ Prin = [Perf\ Bal(i-1) - New\ Def(i)] * Sched\ Am(i) / Sched\ Am(i-1)$

$Voluntary\ Prepayments = Perf\ Bal(i-1) * Sched\ Am(i) / Sched\ Am(i-1) * SMM(i)$

- **Sched Prin and Prepay before Default**

$Sched\ Prin = Perf\ Bal(i-1) * [1 - Sched\ Am(i) / Sched\ Am(i-1)]$

$Voluntary\ Prepayments = Perf\ Bal(i-1) * Sched\ Am(i) / Sched\ Am(i-1) * SMM(i)$

- **Default before Sched Prin and Prepay**

$Sched\ Prin = [Perf\ Bal(i-1) - New\ Def(i)] * Sched\ Am(i) / Sched\ Am(i-1)$

$Voluntary\ Prepayments = [Perf\ Bal(i-1) - New\ Def(i)] * Sched\ Am(i) / Sched\ Am(i-1) * SMM(i)$

(Sched Am = Scheduled amortization if no prepayments/defaults)

- **Default, Prepay, Sched Prin**

$Interest\ on\ Portfolio = (Portfolio\ Balance @ Beginning\ Period - Defaults - \frac{1}{2} * Prepayments - \frac{1}{2} * Amortization) * Annual\ Yield\ for\ current\ period / Number\ of\ periods\ in\ a\ year$

- **Max PPY:** The maximum prepayment rate can be entered as a CPR rate or an SMM rate. To have no prepayment cap set this field to 0.

## Interest Payment Assumptions

The following fields exist in the **Interest Payment Assumptions** section on the **Advanced Settings** tab:

- **Interest Calculated before Defaults:** Checking this flag is equivalent to setting the **Interest Loss Severity** value to 0. The following equation is used to calculate interest:

$Interest = Perf\ Bal(i-1) * Monthly\ Coupon$

- **Interest Loss Severity:** When the **Interest Calculated before Defaults** flag is not selected, the following equation is used to calculate interest:

$Interest = [Perf\ Bal(i-1) - ['Interest\ Loss\ Severity\ PCT' * New\ Def(i)]] * Monthly\ Coupon$

## Haircut Assumptions

You can enter a percent to discount cashflow variables. The percentage entered for each period is multiplied by CASH to reduce the available funds in that period.

To set up haircut vectors, follow these steps:

1. Select the **Haircut Pct** checkbox on the **Advanced Settings** tab of the **Prepays/Defaults** dialog box.

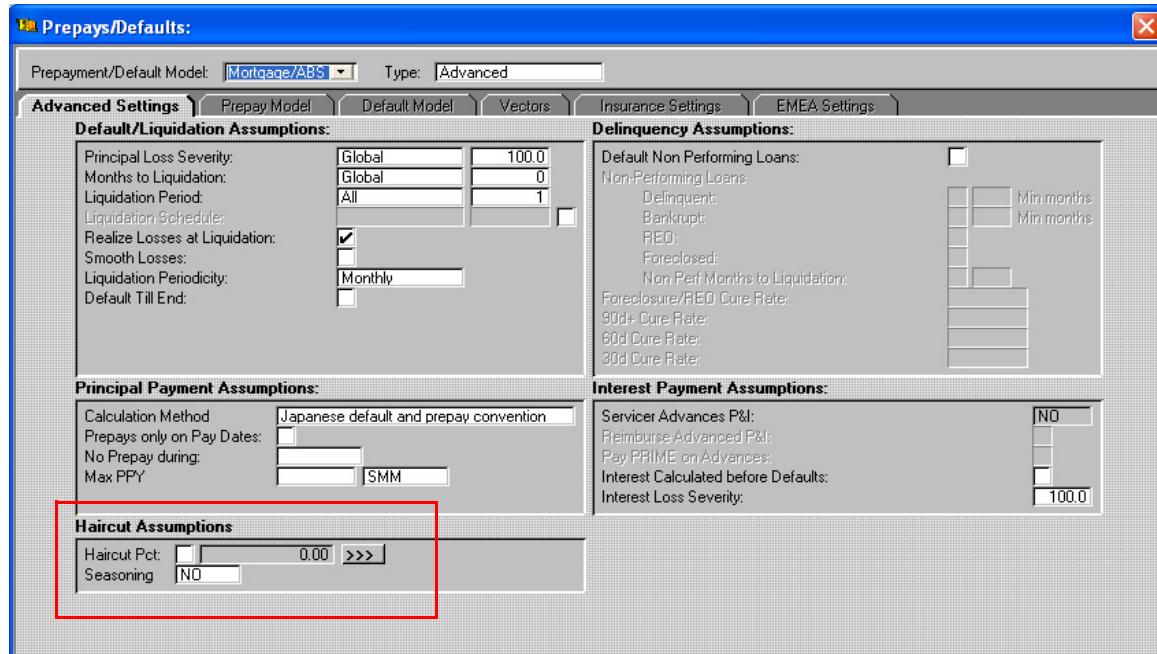


Figure 3.12 Haircut Assumptions Section on the Advanced Settings Tab of the Prepays/Defaults Dialog Box

2. Click on the arrow box next to the **Haircut Pct** field. You see the **Haircut Vector** dialog box.

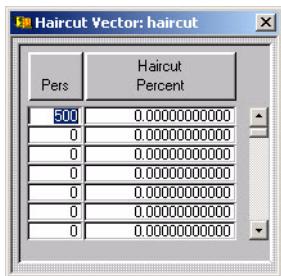


Figure 3.13 Haircut Vector Dialog Box

- Enter the number of periods the haircut percentage will be applied in the **Pers** column and the percentage in the **Haircut Percent** column.

Pers	Haircut Percent
40	50.00000000000000
50	40.00000000000000
410	30.00000000000000
0	0.00000000000000
0	0.00000000000000

Figure 3.14 Haircut Vector Dialog Box (Populated)

In Figure 3.14: Haircut Vector Dialog Box (Populated) above, for the first 40 periods, the haircut percentage will be 50%, and from period 41 to period 50, the haircut percentage will be 40%.

After you set up the haircut vector, you see the haircut percentage for the current period in the **Haircut Pct** field.

<b>Haircut Assumptions</b>	
Haircut Pct:	<input checked="" type="checkbox"/> 50.00 <input type="button" value="&gt;&gt;&gt;"/>
Seasoning	<input type="checkbox"/> NO

Figure 3.15 Haircut Assumptions Section (Populated)

- Select YES in the **Seasoning** field to treat the current period as the first period in the haircut vector. Select NO to start the haircut vector from the cutoff date of the deal.



The **Seasoning** field under **Haircut Assumptions** serves the same purpose as the **Seasoning** field on the **Vectors** tab.

## Vectors

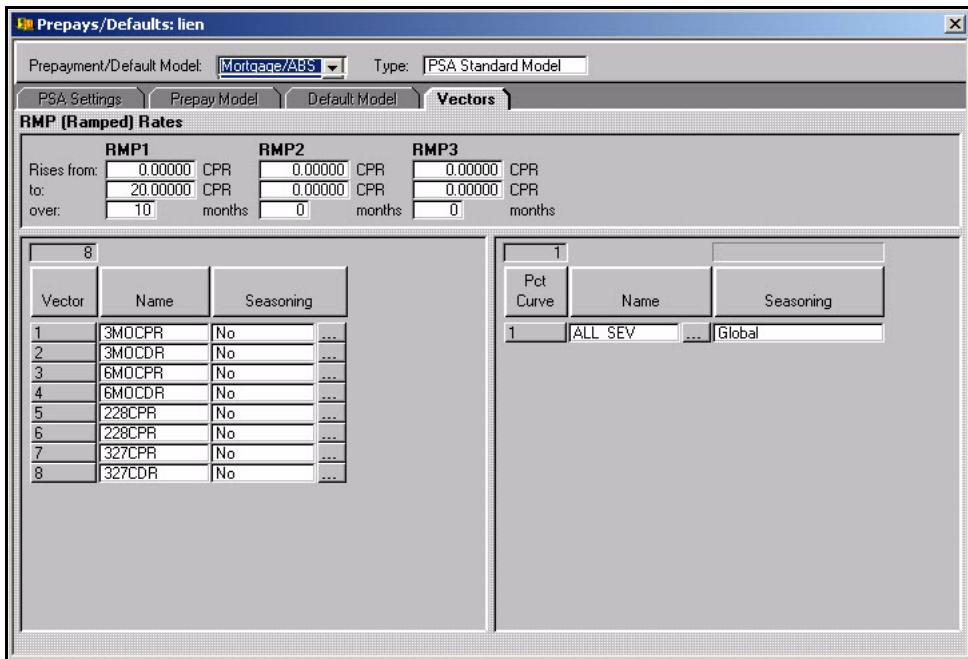


Figure 3.16 Vectors Tab on the Prepays/Defaults Dialog Box (RMBS)

This tab allows you to enter all user input vectors. You can enter simple CPR ramps at the top of this window, prepayment and default vectors are stored on the left side of the window, and loss vectors are stored on the right side of the window.



To use ramp rate vectors, along with updating values on this window, you must also set the prepay and default rate units to **RMP** on the Bond Editor window.

To enter a simple ramp, enter the starting CPR rate in the **Rises from** field, enter the final CPR in the **to** field, and enter the number of months over which the CPR rises from the starting rate to the final rate in the **over** field.

You can use the [Ctrl-I] and [Ctrl-D] keyboard functionality to add or delete vectors. Unique names should be entered for each vector in order to discern them when setting up the models. To enter the vector values, click the ... button next to that vector. Enter the number of months associated with each value in the **Pers** column. To quickly fill in the value 1 for all of these values, enter 1 for the first value then select **Fill Column Down** from the **Edit** drop-down menu. Enter the vector values in the right hand column. To paste in values put the cursor in the top box and click the **Paste** button the main toolbar [Ctrl-V]. Indicate whether the vector is a prepayment or default vector then select the appropriate unit from the drop-down menu.

## Applying Seasoning

For prepayment and default curves, an individual seasoning can be set for each curve. For loss curves, a global seasoning, which will apply to those curves, must be set at the top of the loss curve section. The seasoning options are:

- **No:** Do not apply any seasoning to the deal, so all loans will start at the very first month of the vectors.
- **Yes:** Apply loan level seasoning, so every loan backing the deal will start at the point of the vector corresponding to that loan's seasoning.
- **Global:** Take into account the update month of the deal, then start all loans at that point of the vector. For example, if the deal is in its 12th payment month, everything will run at month 12 of the vector from today forward.

## Importing from Excel

Curves can be quickly imported from Excel. The Excel file must be in the following format for prepayment and default curves:

	A	B	C	D
1	Default1	Default2	Prepay1	Prepay2
2	PCT	PCT	CPR	CPR
3	DEF	DEF	PPY	PPY
4	0.1370120674126250	0.1263109425719290	0.4085714285714290	0.8571428571428570
5	0.2632410943118040	0.0003608028315301	0.4085714285714290	0.8571428571428570
6	0.2788356969030790	0.1467278563331450	0.4080264015254350	0.8571428571428570
7	0.2408698408708380	0.1282281221351110	5.4061696217940500	3.9006466809374000
8	0.6458113226862910	0.199897770642760	6.6243135850130600	3.9006466809374000
9	0.8785082039712830	0.1271195146535420	6.7221529912670500	3.9006466809374000
10	1.4276948109019700	0.4345807224828690	7.5469720557293300	4.8990825904088600
11	1.0930809487792500	0.1530112341108170	7.9456225177016600	10.4524799402600000
12	2.4994078856102700	0.1467610652199690	8.0506670559022000	11.7381942257403000
13	2.5342182163644900	0.4854505990782180	9.0368587096339200	14.5228468447331000
14	2.1261164765841900	0.5863817396757470	8.6763933722988200	14.5228468447331000
15	1.3427825364585100	0.9040428291150470	9.8628900281472300	16.6133531948018000
16	1.9781463082631100	0.7156129204558170	10.4319262069490000	15.7285714285714000
17	2.3249453156305000	0.9066744810880950	12.3731789226404000	15.7285714285714000
18	1.2497768407733700	0.5175424538245240	14.4130230785272000	14.7621497829429000
19	1.7145440842629300	0.9060168488170770	14.3707047041883000	14.7621497829429000
20	2.3687791738422100	1.0968528343785100	15.4968900324599000	14.7621497829429000
21	1.9295338997598100	1.1895309691876300	16.7113639749462000	13.3501907212115000
22	1.8842675160673600	0.7907766055873590	16.7894839004449000	13.3501907212115000
23	3.7914649714949500	2.1978106395885400	17.3571132830177000	10.5014635129058000
24	2.5029756728505200	0.7972316499272700	17.7237961351406000	8.7871777986200400
25	2.0774912218423600	1.4446113575722400	20.4675218089609000	8.7871777986200400
26	2.3510568830788200	1.4837919026002500	24.6627214742749000	7.0728920843343200
27	2.1783990462198900	2.1678378911235900	22.6329245169331000	7.0728920843343200
28	1.4903969750740900	1.8383164062265800	20.3689428907287000	5.3586063700486100
29	1.9836354179218500	1.3038171265162500	17.0000000000000000	5.3586063700486100
30	1.6615780964619200	1.012018453795600	22.0000000000000000	6.0000000000000000
31	2.2520955792688900	1.8619296801848900	22.0000000000000000	6.0000000000000000
32	1.4639835324601700	1.2519239908797300	22.0000000000000000	6.0000000000000000

Figure 3.18 Excel File Format for Prepayment and Default Curves

- Row 1: Vector Name
- Row 2: Vector Unit (SMM, CDR, CPR, PCT, etc.)
- Row 3: Type of vector: PPY for prepayment vectors; DEF for default vectors
- Row 4 and on: Default or prepayment rate for each month starting with month 1

The Excel file must be in the following format for loss:

	A
1	Name1
2	Loss
3	1
4	2
5	3
6	4
7	5
8	6
9	7
10	8
11	9
12	10
13	11
14	12
15	13
16	14
17	15

Figure 3.19 Excel File Format for Loss (RMBS)

- Row 1: Vector Name (e.g. Name1)
- Row 2: Type of vector (e.g. **Loss** for loss vectors)
- Row 3 and on: Loss for each month starting with month 1

These file can be saved as a regular Excel file ( **.xls** ). In the **Vectors** tab, right-click and select **Import Vectors** [Ctrl-E] to import prepayment/default curves or select **Import Pct Curves** [Ctrl-L] to import loss curves. Browse for the appropriate Excel file and click **Open**.

## Setting up Prepayment, Default, and Loss Vectors

Follow these steps to set up a Prepayment Vector:

1. Name the vector.
2. Select the seasoning.
3. Click the ... to bring up the vector window.
4. Select **Prepay** at the top.
5. Select the appropriate metric.
6. Enter in the periods and the prepay values.
7. To use the Prepay Vector and activate user-created vectors, select the checkbox on the **Prepay Model** tab.



You can use the plucker tool to stratify by field to assign different prepayment vectors to different loan types. See ["Using the Stratifier" on page 31](#).

8. Enter an amount in percent to scale the vector. For example, 100 means you use the full vector as entered in the **Vectors** tab; 50 means you scale the vector to 50 percent; 200 means you scale the vector to 200 percent.
9. On the Bond Editor, change the Prepays to **100 MOD**.

Follow these steps to set up a Default Vector:

1. Name the vector.
2. Select the seasoning.
3. Select **Default** at the top.
4. Select the appropriate metric.
5. Enter in the periods and the default values.

Follow these steps to set up a Loss Vector:

1. Name the vector.
2. Select the seasoning.
3. Enter in the periods and the loss percent.

Follow these steps to use Default and Loss vectors on the **Default Model** tab:

1. Check this box to activate user-created vectors. Each Default has a corresponding Loss/Loss Vector and a Months to liquidation (between when the loan is in Default to when the loss is realized/liquidation amount is prepaid back).
2. You can use this plugger to stratify by field to assign different prepayment vectors to different loan types.
3. Enter the amount in percents to scale the vector. For example, 100 means you use the full vector as entered in the **Vectors** tab; 50 means you scale the vector to 50 percent; 200 means you scale the vector to 200 percent.
4. On the Bond Editor, change the Defaults to **100 MOD**.

## Prepayment and Default Models

Follow these steps to update your PPY/Def/Loss rates:

1. Click **Econ** on the toolbar to open the Economy model window.
2. Use the **>>>** on the **Prepayment Model** row to access prepayment settings.

You set up each of these models on the respective tabs (i.e. the prepayment model is set up on the **Prepay Model** tab and the default model is set up on the **Default Model** tab). These tables enable you to sort by how loans prepay, default or defer based on any of the asset level fields. To link a model to a loan field, click the **Canvas** button to open the canvas. Drag the red plug icon into any field on the canvas. The field name appears below the plugger indicating that the field is now linked.

To change the link, drag and drop the plugger into the new field. Enter the sorting criteria in the rows of the model. You can use the [Ctrl-I] and [Ctrl-D] keyboard functionality to insert or delete rows. For example, to sort the loans by **ProductDesc** you can add rows and enter the name of each possible **ProductDesc** in separate rows.

You can click the ... or >>> buttons next to each line item to perform additional sorting of individual buckets. To return to the previous level, click the <<< button at the bottom of the window.

## Prepay Model Tab

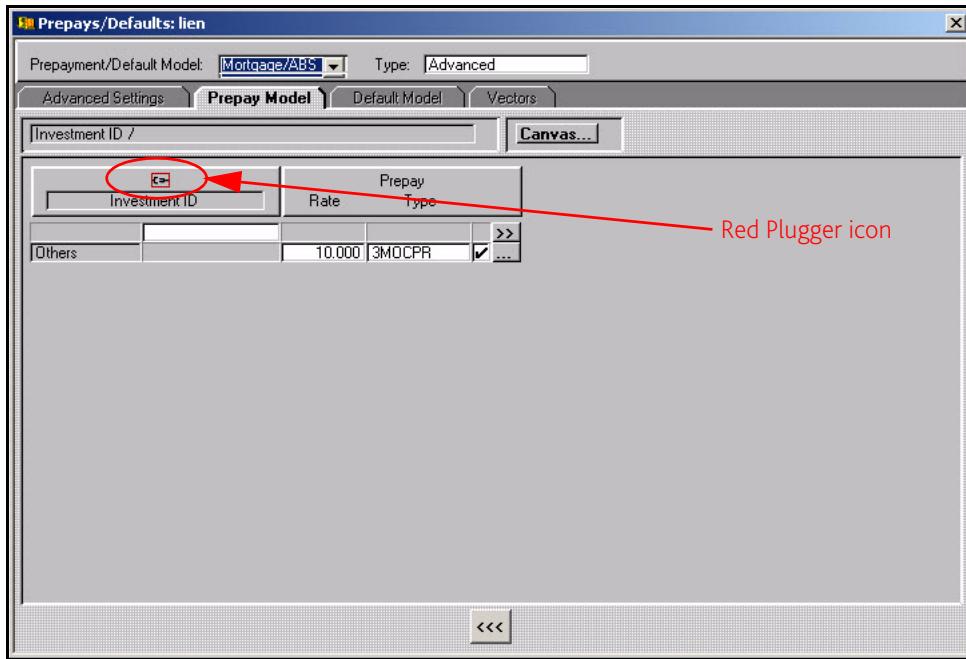


Figure 3.20 Prepay Model Tab

In the **Prepay Type** field, enter a system prepay metric or check the flag and select a curve from all of the user input prepayment vectors. Enter the rate of this prepayment in the **Prepay - Rate** field. For rows that have an additional level of sorting, these fields are grayed out. Click the **>>>** button to the far right to access the lower levels of the tree where you can assign prepayment types.

## Defaults Model Tab

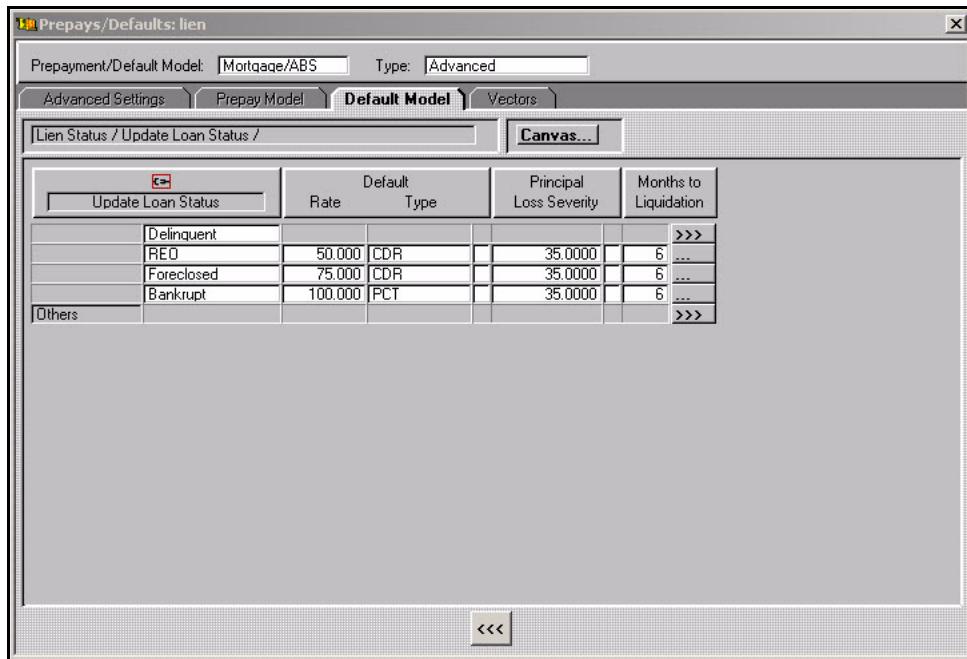


Figure 3.21 Default Model Tab

In the **Default Type** field, enter a system default type or check the flag and select from all of the user input default vectors. Enter the rate of this default in the **Default - Rate** field. Enter the loss percentage in the **Principal Loss Severity** field to indicate what percent of defaults will not be recovered (the recovered principal will be equal to 100 minus this value).

To use a user input loss curve, check the flag and select a curve from all of the user input loss/status vectors. The rate in the loss percentage then indicates the percent of the curve actually applied. Enter a Recovery Delay for each row. The recovery delay indicates the number of months between when a default occurs and when the recovered portion reenters the cashflow as principal. For rows that have an additional level of sorting these fields appear greyed-out. Click the **>>>** button at the end of the row to access the lower levels of the tree where you can assign default information.

## Insurance Settings

An insurance wrap on an MBS/ABS deal provides additional protection against credit losses on certain tranches for certain deals via an insurance counterparty. When you set up an insurance account in the **Accounts** tab on **Bond Structuring Assumptions** dialog box, the insurance account provides the money to insure the principal and interest payments for the insured tranches. On the **Accounts** tab, you can also specify whether the insured account is defaulted or not using the **Account Default** field. When the account is defaulted, the principal and interest payments of the insured tranche are no longer insured.

Normally, the insurance wraps continue to honor payment obligations even when a tranche has entered (or will enter) default status until cash reserves have been depleted. Eventually, they may quit paying at which point the insurance provider goes bankrupt or enters into default. The timing and probability of the

counterparty defaulting depends on the specific financial circumstances of the company who is insuring the deal (MBIA, Ambac, FGIC, etc.)

When the **Account Default** field is set to NO, you can account for these secondary default conditions by using Prepayment model functionality. The Prepayment model (**Insurance Settings** tab) enables you the ability to set up the insurance account that better reflects the conditions for default. However, when the **Account Default** field is set to YES and the **Default Date** is reached, the system ignores any settings on the **Insurance Settings** tab and defaults the account at 100 percent. For more information about the **Account Default** field, see “[Accounts](#)” on page 25.

You can define specific vectors or settings on the **Insurance Settings** tab and apply them to specific pre-determined (or user-defined) insurers.

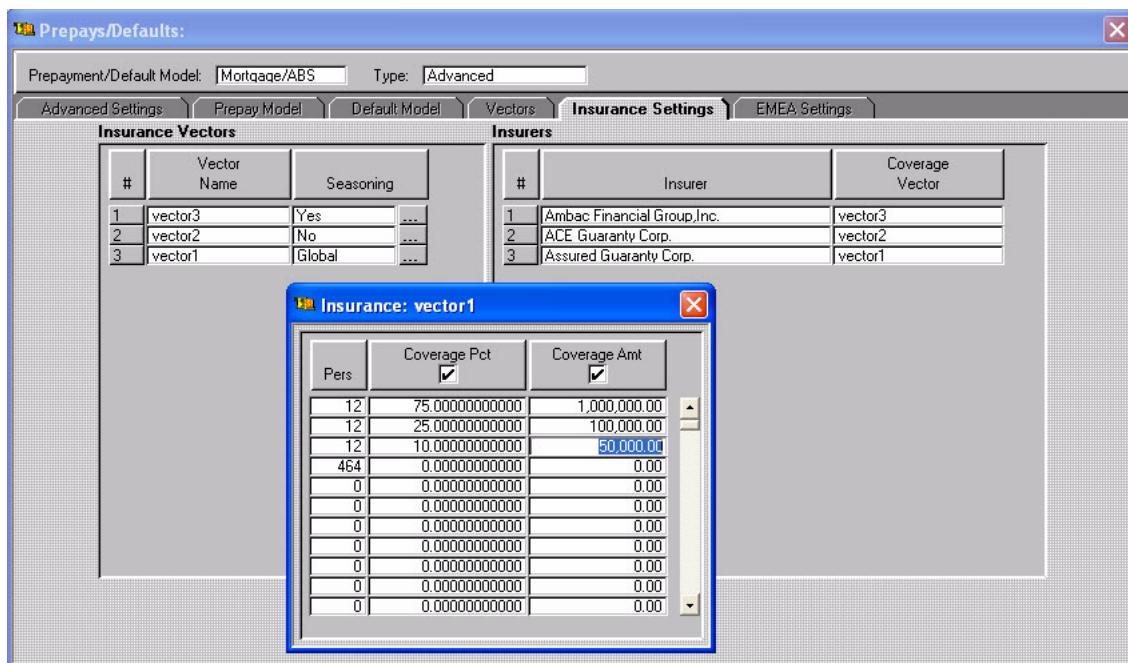


Figure 3.24 Insurance Settings Tab

## Insurance Vectors

In the **Insurance Vectors** section on the tab, you can add vectors and apply seasoning in the same way as described in “[Vectors](#)” on page 65. However, additionally, you can also provide coverage percentages based on the loss amount of that period in the **Coverage Pct** field and caps on coverage amounts in the **Coverage Amt** field on the vector dialog box. When you have both **Coverage Pct** and **Coverage Amt** enabled, the minimum between these two values is used as the coverage cap for that period.

## Insurers

In the **Insurers** section, you can select from a comprehensive list of pre-defined insurers, or you can select **UserDefined 1/2/3** from the list if there is one not included. Once you select an insurer from the list, you can then select the coverage vector to use with the insurer.

The insurer section on the right-hand side of the screen must be set up in order to apply the vectors entered in the **Insurance Vectors** section. Additionally, the insurer name selected in the **Insurer** section of the Prepayment Model must match the name of the **Insurer** located in the **Accounts** tab on the **Bond Assumptions** dialog box in order for the vector to be applied to the deal.

## Setting Up Scenarios

You can set up advanced prepayment, default, and interest rate scenarios in the Scenario Editor.

Scenario files are saved separately from deal files so they can be used across deals. To save a scenario file, right-click in the **Scenario** window and select **Save** or **Save As...** from the File menu. To open a file that was previously saved, right-click in the scenario window and select **File > Open**.

To run a single-scenario analysis, follow these steps:

1. Select **Economy > Scenario** from the main menu to display the **Scenario** dialog box.

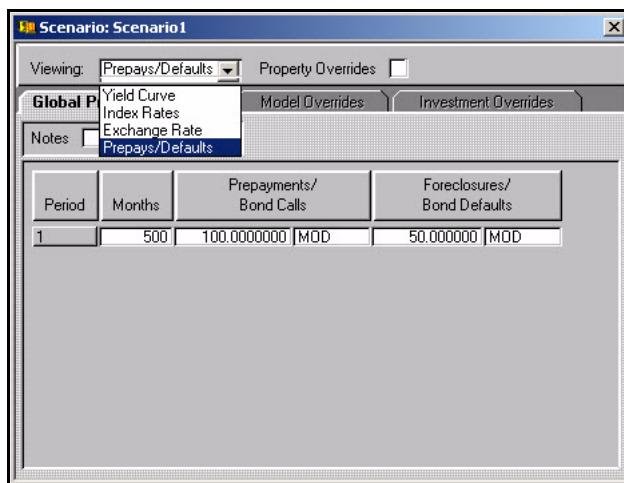


Figure 3.25 Scenario Dialog Box



You can also click the **Econ** icon on the main toolbar to access the **Scenario** dialog box.

2. Select one of the following options in the **Viewing** drop-down list field:

- Yield Curve
- Index Rates
- Exchange Rate
- Prepays/Defaults

## Index Rate Scenarios

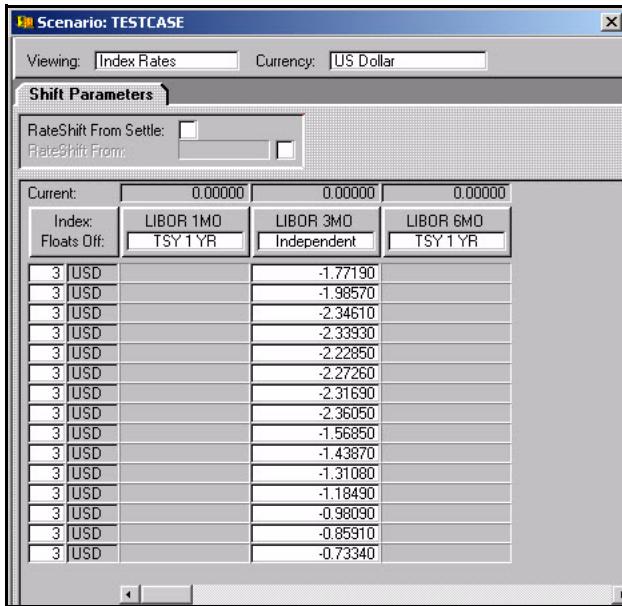


Figure 3.26 Index Rates Curves on the Scenario Dialog Box

To set up index rate curves (which can be set separately), follow these steps:

1. Click >>> in the **Scenario** row from the **Econ** button on the main toolbar.
2. Select **Index Rates** from the **Viewing** drop-down list field.
3. Select one of the following options from the **Float Off** drop-down list field:
  - **Independent:** to load your own rates. The values are rate differences relative to the current value. For example, if the current rate is 1.4, a value of 0.26 results in a rate that month of 1.66.

 Values entered should be equal to the desired negative or positive shift from the Current rate. The Current rate displays at the top of each column, but is set in the interest rate file.

    - **Curve:** To set SFW to automatically obtain rates by bootstrapping off of the current rates
    - **TSY <nn>:** To reference another index rate's curve.
4. Enter the appropriate number of months for each value in the field to the far left (for monthly values enter 1 in every row).
5. Click **View** to confirm the values that are loaded in.

## Prepay/Default Scenarios

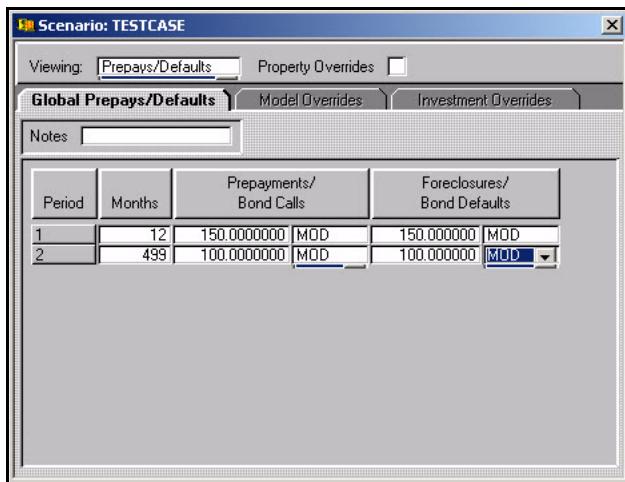


Figure 3.27 Prepay/Defaults on the Scenario Dialog Box

Select **Prepays/Defaults** from the **Viewing** drop-down menu to enter information on prepayments and defaults. On the **Global Prepays/Defaults** tab, insert or delete rows as necessary using the [Ctrl-I] or [Ctrl-D] keyboard functionality. To set up a chronological prepayment/default scheme, you can enter the number of months in the **Months** column and set the prepayment rate/type and default rate/type in the respective fields in that row.

# Running Analyses

## Running a Multi-Scenario Analysis

Several scenarios can be run at once from the Multiscenario Analysis window. This feature calculates and displays a wide range of performance values for each tranche for each of the scenarios. To open the **Multiscenario Analysis** window, select **Multi-Scenario** from the **Analysis** menu.

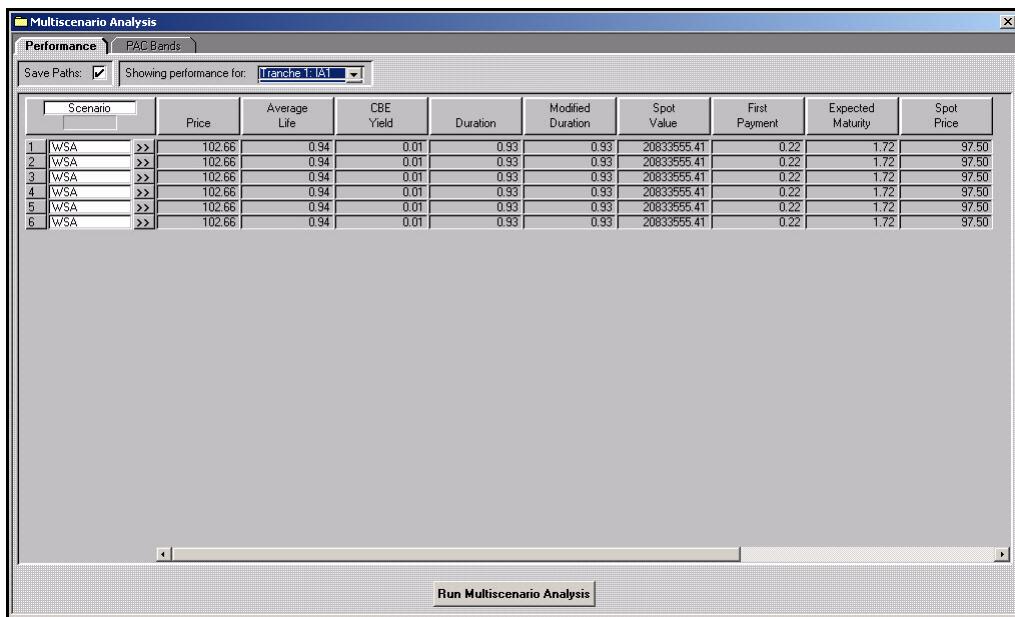


Figure 3.28 Multiscenario Analysis Dialog Box

You can set the left column to **Scenario** or **Prepayments**. When set to **Prepayments** any static prepayment rate can be entered. When set to **Scenario** any user-defined scenarios that have been saved are available in a drop-down menu in each row. Select [Ctrl-i] to insert or [Ctrl-d] to delete a row.

Click **Run Multiscenario Analysis** at the bottom of the window to generate cashflows. The performance values in the window can be viewed for any tranche by changing the **Show performance for** field at the top of the window. To view the cashflows that were generated, click the **View** icon and select **All Scenarios**. To view the cashflows for different tranches change the **Displaying Flows for** field at the top of the **View** screen.

## Running a Price/Yield Analysis

This section explains how you can fix the price and find the yield for a deal, and generate a Yield Table for a deal.

### Finding the Price/Yield of a Tranche

Follow these steps to fix the price and find the yield:

1. On the Bond Editor, right-click to open the soft interface.

2. Select and add the following fields to display:

- Pricing Assumptions
- Price
- Yield Margin

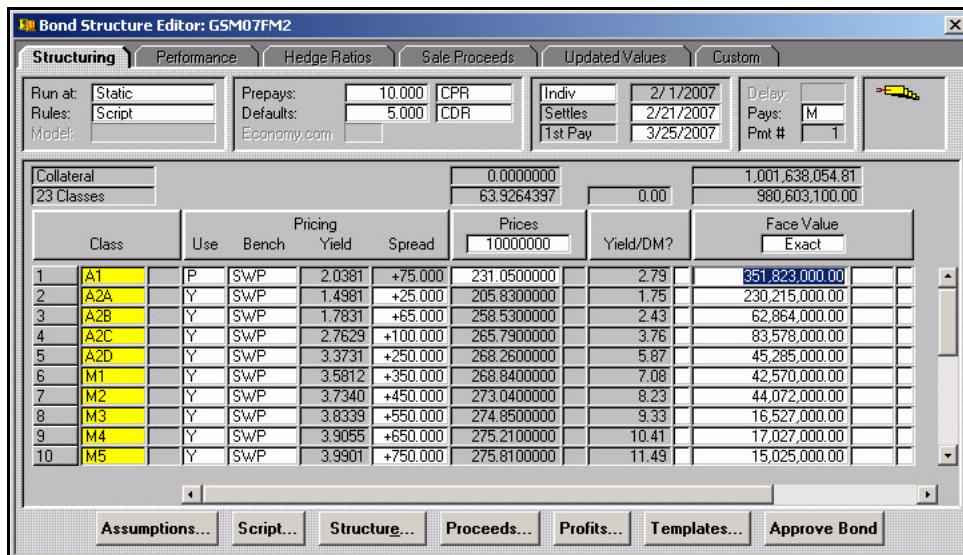


Figure 3.29 Bond Structure Editor Dialog Box

3. Set **Pricing: Use** to P
4. Enter the price (100 par) under the **Prices** column.
5. Select the benchmark in the **Pricing: Bench** field.
6. Run the deal. The yield appears in the **Yield/DM** column.

Follow these steps to fix the yield and find the price:

1. Follow steps 1 and 2 above.
2. Set **Pricing: Use** to Y.
3. Click **Assumptions...** and select the **Use DM Price** checkbox.
4. Select the **Yield/DM** checkbox to enter a discount margin to price the tranche. To use a yield to price to tranche, do not select the checkbox, and enter the yield in the open field.
5. Run the deal. The price appears in the **Prices** column.

## Yield Table

To generate a yield table for a deal, select **Yield Table** from the **Analysis** menu. You see the **Yield Table** dialog box.

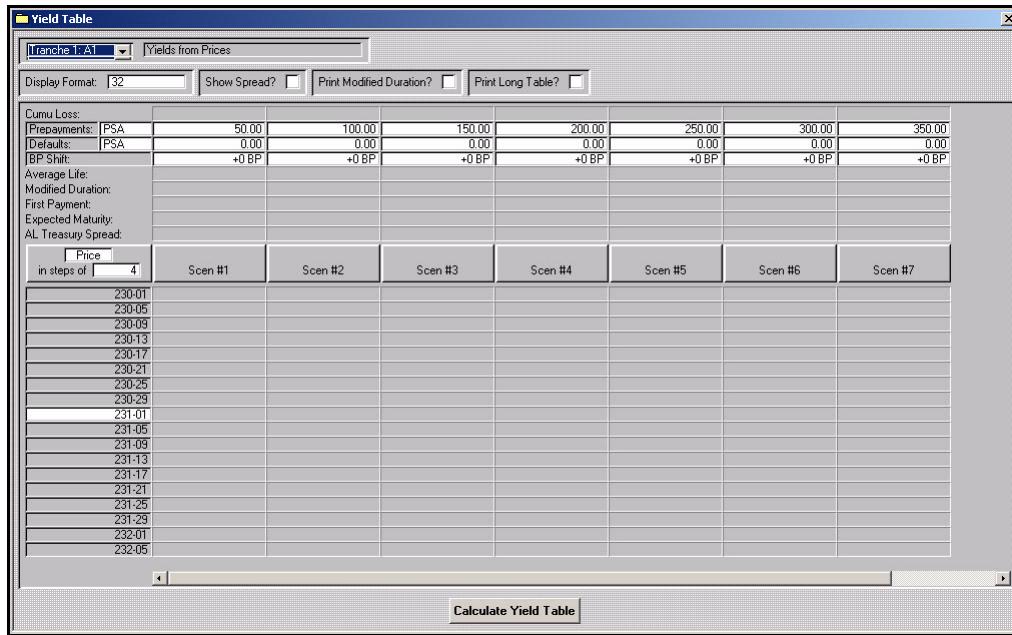


Figure 3.30 Yield Table Dialog Box

The **Yield Table** screen allows you to enter eight scenarios along the top, including assumptions for prepayments, defaults, recovery rates, and interest rate shifts. To enter static assumptions, simply select a default curve and input the desired default rates. In the example shown above, a simple vector of CDR speeds has been entered.

In the left-hand column, enter the pricing assumption for the bond. In this example, the starting point is 100 and the table is set to step-up and step-down in increments of .004. Click the **Calculate Yield Table** button to produce the grid of yields.

The system produces a grid of yields based on the prepayment, default, recovery rate, and interest rate assumptions along the top. The field in the upper left-hand corner (which displays "Tranche 1: A1" in the image above) is used to cycle through the various tranches. To produce a grid of prices, cycle the field displaying Price to Yield or DM (discount margin). The system displays the Yields (DMs) in the left-hand column and produces a grid of prices. The field directly below this toggle field can be used to change the step size.

To print the Yield table summary report, right-click and select **Print Report** from the menu. You see the **Yield Table Report Generator** dialog box when the process has been completed. Select the report type and click **OK**.

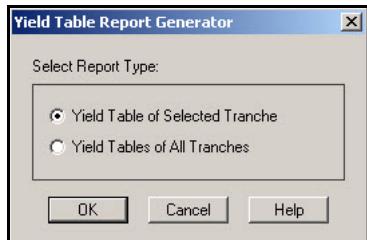


Figure 3.31 Yield Table Generation Dialog Box

In addition to entering static speeds to generate cashflows, the Yield Table also allows you to use the user-defined scenarios created in the Economy files. Select [Ctrl-M] once to shift from static assumptions to **Scenario** mode, which uses the Economy file formats from previous versions of SFW. Select [Ctrl-M] again to shift from **Scenario** to **Economy** mode, which allows you to use the Economy file. The **Yield Table** appears as follows:

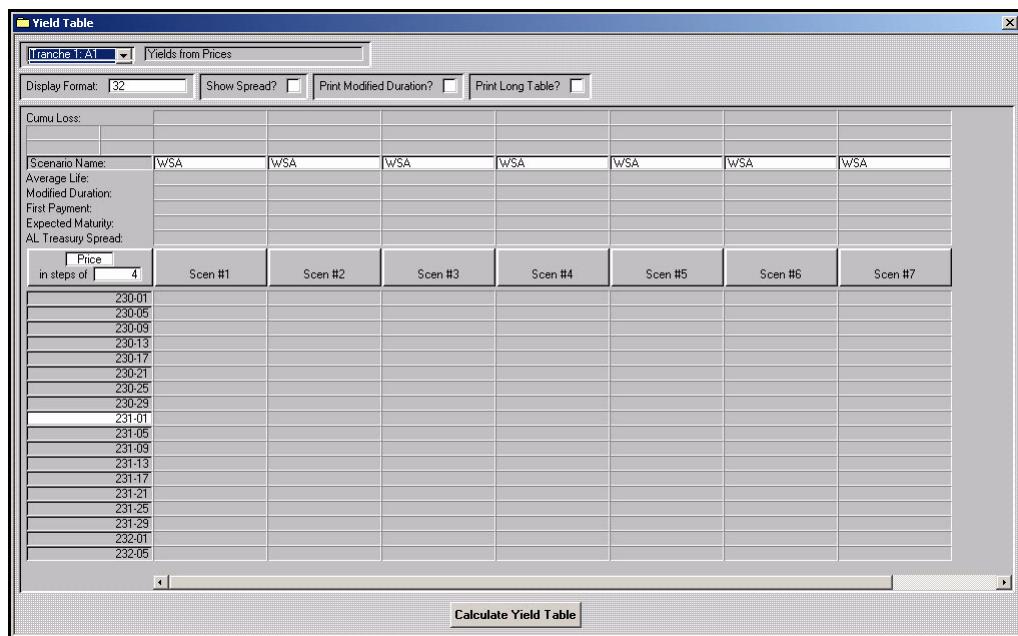


Figure 3.32 Yield Table Dialog Box

Choose the different scenarios under which you would like to run the Yield Table. Then click the **Calculate Yield Table** button to generate the prices and yields. Select [Ctrl-M] a third time to return to the initial window.

## Calling Deals

SFW offers you the flexibility to call deals before their maturity date. On the **Bond Structuring Assumptions** dialog box, the **Call Option** fields enable you to specify conditions (percentage and date) that need to be met to trigger the call option.

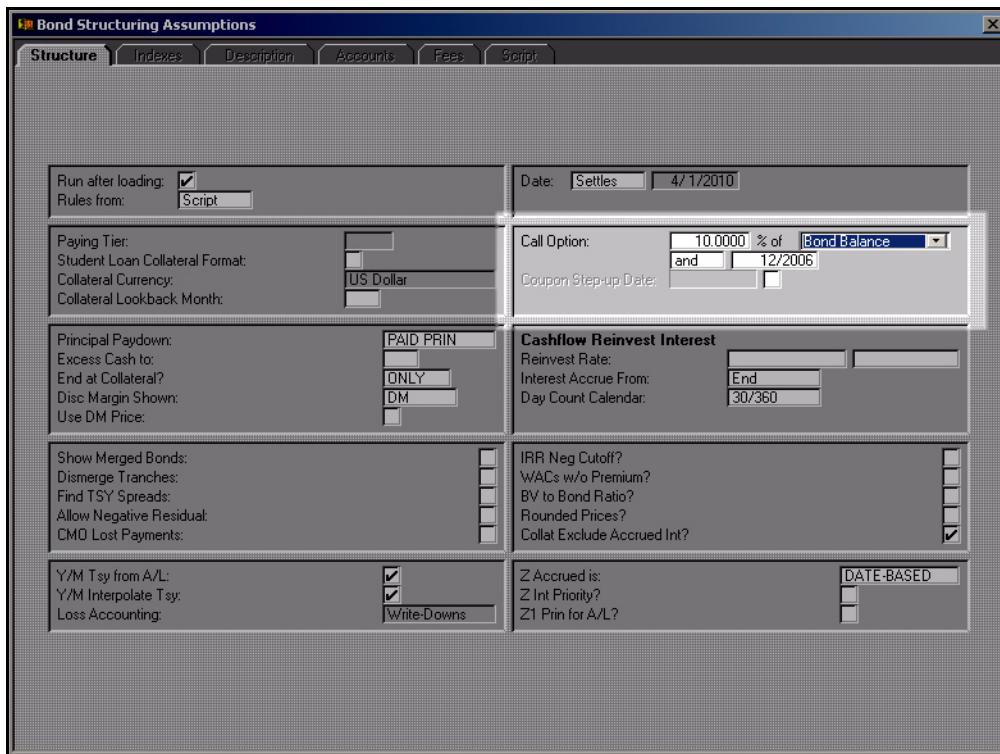


Figure 3.33 Call Options Fields on the Structuring Tab of Bond Structuring Assumptions Dialog Box

### Setting up the Call Conditions

You set the conditions for the call functionality on the **Bond Structuring Assumptions** dialog box as follows:

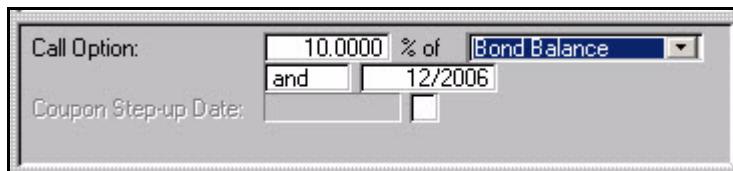


Figure 3.34 Enabling the Call Option

1. Enter a percentage amount in the first **Call Option** field.
2. Select one of the following options from the drop-down list:
  - **Bond Balance** Sets the condition to check that the current bond balance is equal to or smaller than the specified percent of the original bond balance.
  - **End Collat Balance** Sets the condition to check that the collateral balance at the end of the period is equal to or smaller than the specified percent of the original collateral balance.

- `BegCollatBalance` Sets the condition to check that the collateral balance at the beginning of the period is equal to or smaller than the specified percent of the original collateral balance.
3. Select either:
    - `and`: Use when both amount and call date conditions must be met to trigger the call option.
    - `or`: Use when at least one of the conditions must be met to trigger the call option.
  4. Enter the call date (mm/yyyy).
  5. Click the **Coupon Step-up Date** checkbox to enable the field and allow you to enter a date for coupon step up. This field is not required and will not affect the cashflows unless special language to affect the bond coupons is integrated into the waterfall script. The script variable is called `_coupon_stepup`.
  6. Select one of the following call options on the toolbar at the top to run the deal:

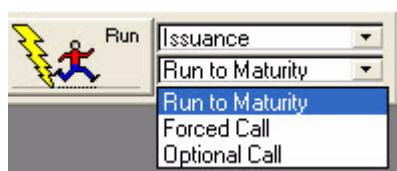


Figure 3.35 Running the Call Option

- `Run to Maturity`: Using this option disables the call functionality
- `Forced Call` (See “[Forced Call](#)” below for more detailed information.)
- `Optional Call` (See “[Optional Call](#)” below for more detailed information.)

### Forced Call

When you select **Forced Call** from the call option drop-down field and the conditions on the **Bond Assumptions** window are fulfilled, the deal is called. The **Forced Call** option does not take into account whether the total collateral is more than the current tranche balance.

When the deal is called, all the collateral is called, the remaining balance of the reserve accounts is withdrawn, and the outstanding tranche balance and arrear interest is paid down. When the sum of the total collateral balances and reserve funds is more than the outstanding tranche balances, the extra money is paid to the R tranche.

### Optional Call

When you select **Optional Call** from the call option drop-down field and the conditions on the **Bond Assumptions** dialog box are fulfilled, the deal is only called when the sum of the reserve funds and total collateral balance is equal to or more than the total tranche balance to ensure that money is available to pay down the tranche.

If the deal is called, the same logic is applied as for the Forced call.

## Waterfall Script Variables for Call Options

The script variables associated with the call option include:

```
_calloption;
```

A value of 0 (zero) indicates that the deal has not yet been called and will run to maturity. A value of 1 indicates that the deal has been force called. A value of 2 indicates that the deal has been optional called. Use the “set calloption = “ command to manually set the call option in the script. Updates made directly to the script override the conditions set in the **Bond Assumptions** dialog box.

```
_coupon_stepup;
```

When the deal has not yet reached the coupon step-up date, the value displays as 0 (zero). A value of 1 indicates that the coupon step-up date has been reached. The value mirrors the \_calloption value only when the **Coupon Step-up Date** has not been entered on the **Bond Assumptions** dialog box.

## Using the First Loss Calculator

The First Loss Calculator is a tool that enables you to find the Default or Recovery Rate that causes the tranche(s) to have Principal or Interest losses. The Iteration Method used is based on the Default or Loss Severity entered in the Run Mode column. The algorithm for calculating the first loss is as follows:

1. If max rate does not create loss, return *Not Found*.
2. If max rate does create loss, run seed rate.
  - a. If seed rate does not create loss, test halfway between max rate and seed rate. Repeat the halfway iteration until the difference between the "highest rate without loss" and the "lowest rate with loss" is within 0 . 001 for default or 0 . 1 for loss severity.
  - b. If seed rate does create loss, run 0 .
    - If 0 does create loss, return 0 .
    - If 0 does not create loss, use primary algorithm between seed rate and 0 for determining loss.

Algorithm for First Loss Calculation

To use the First Loss Calculator in SFW, follow these steps:

1. Select **First Loss Calculator** from the Analysis menu. You see the **First Loss Calculator** dialog box.

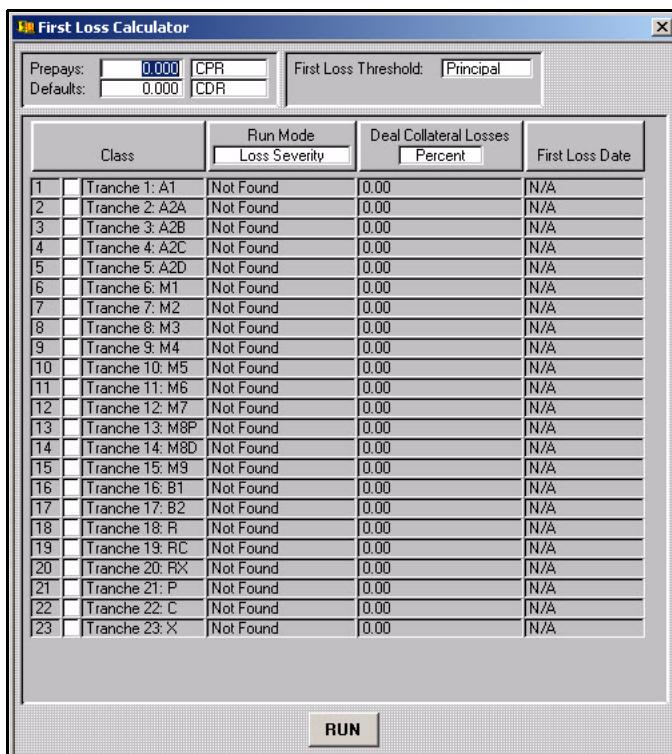


Figure 3.36 First Loss Calculator Dialog Box

2. Change the **First Loss Threshold** drop-down list field to specify whether you are looking for Principal loss, Interest loss, or either.



Figure 3.37 First Loss Threshold Field

3. Select the checkbox next to the tranche name to specify which tranche's first loss you are looking for.
4. Select from the **Run Mode** drop-down field to display either the default rate or the Loss Severity rate that will cause the first loss of the tranche(s).

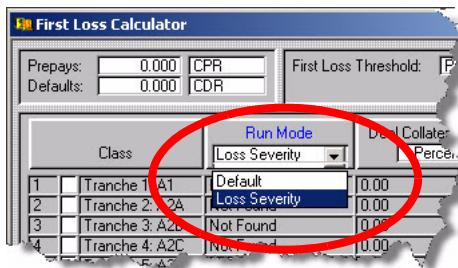


Figure 3.38 Run Mode Drop-down Field

5. Select the format (either **dollar** or **percentage**) to display the deal collateral losses under the **Deal Collateral Losses** column heading.
6. Specify the Prepay scenario on the First Loss Calculator when finding the Default Rate that will cause the first loss of the tranche.

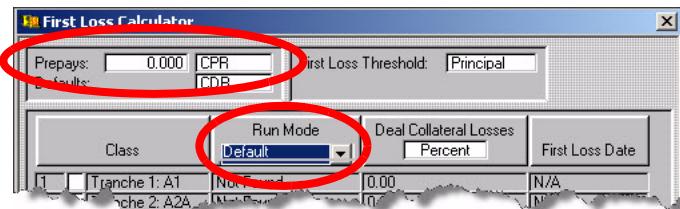


Figure 3.39 Specifying the Prepay Scenario

7. Specify both the Prepay and Default scenario on the First Loss Calculator when finding the Loss Severity Rate that will cause the first loss of the tranche.
8. Click **RUN**. The output of the first loss calculator displays:
  - The Default Rate or Loss Severity Rate that will cause the tranche to have first Interest/Principal losses.
  - The Deal Collateral Losses when the First Interest/Principal Losses happen.

- The First Loss Date the Interest/Principal Losses appears for the tranche.

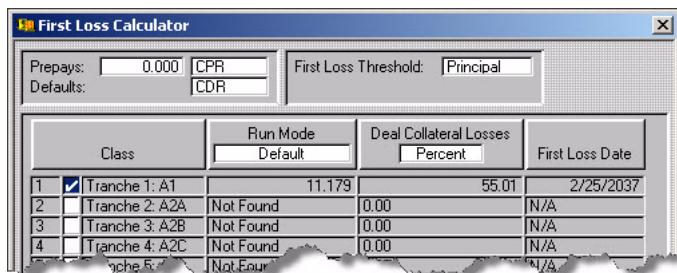


Figure 3.40 First Loss Calculator Interest/Principle Losses

## Using the Macro Language

SFW includes the capability to run and modify deals using Visual Basic macros within the application. This section provides a brief explanation about this functionality.

For a complete reference of all available Visual Basic syntaxes and more detailed instruction on developing macro scripts and using the API, see the **My Manuals** section on Client website at <http://www.wsainc.com/clients>.

### Modifying a Macro

- Select **File > Open > Macro Library** to access macros. You see the **Open** dialog box, prompting you to select a Macro Library (.MLB) file.

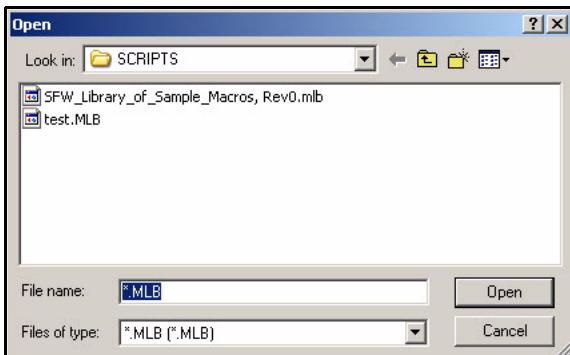


Figure 3.41 Open Dialog Box for Accessing the Macro Library

2. Navigate to the directory where you keep the M LB file, select the specific macro library file, and click Open. You see the Macro Library dialog box.

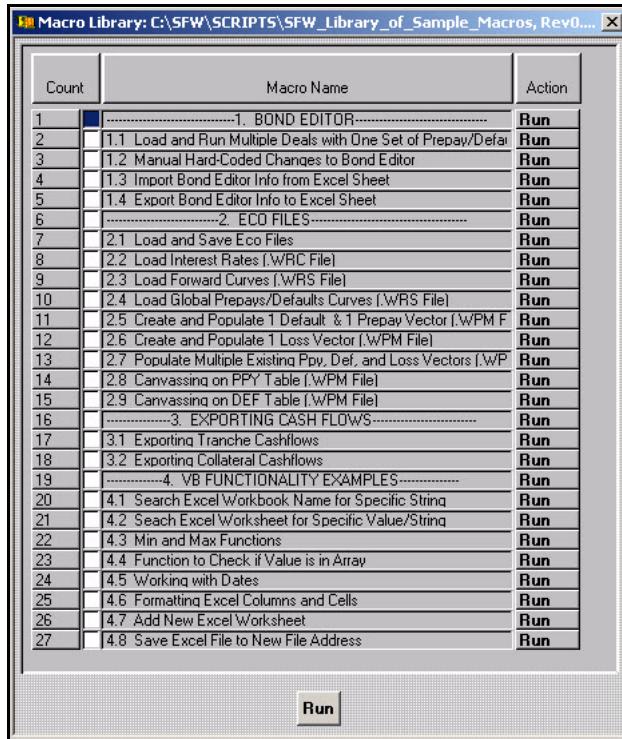


Figure 3.42 Macro Library Dialog Box in SFW

- Double-click the number on the corresponding row in the **Macro Library** dialog box to open the macro script window.

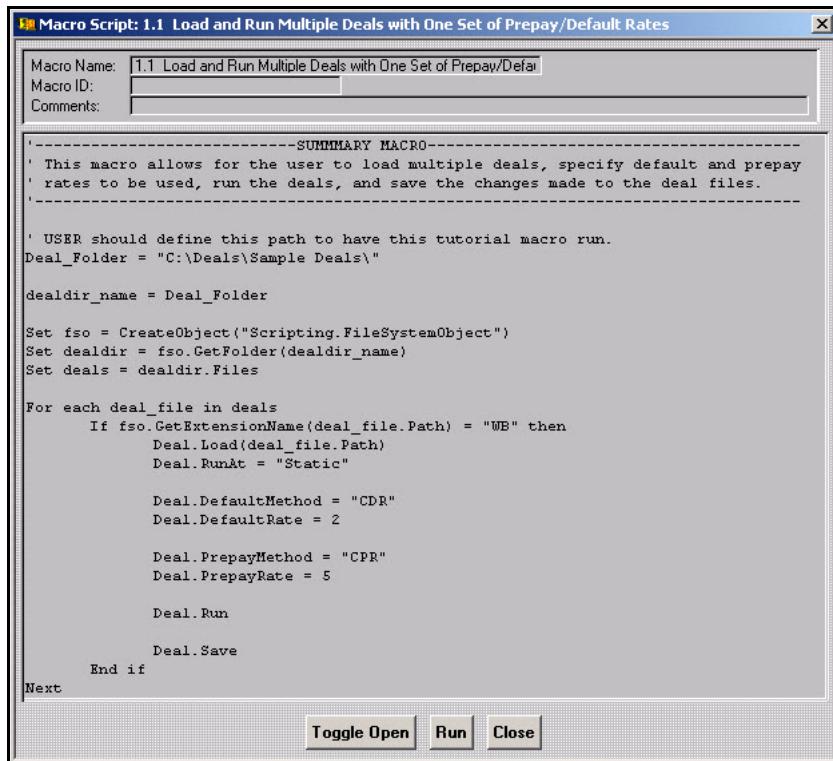


Figure 3.43 Macro Script Dialog Box in SFW

- Click TOGGLE OPEN to open and modify the macro script.
- Modify the values in the script as necessary.
- Click TOGGLE CLOSE, and then Save from the File menu to save the changes.

## Running a Macro

There are several ways to run a macro to generate output and/or write to fields in the application. To run an individual macro, click the **Run** button at the bottom of the **Macro Script** window or click **Run** under the **Action** column in the **Macro Library** window next to the name of the macro. To run several macros at once, check the box corresponding to the macros and click the **Run** button at the bottom of the **Macro Library** window.

# The M3 Module

## About This Module

This section offers a more comprehensive explanation of the M3 Module in the SFW application.

The Moody's Mortgage Metrics Model (M3) is a tool that uses five pre-determined economic scenarios which are linked to the SFW to generate general predictions (which include assumptions about prepayment, default, and loss severity rates) for how different types of mortgages may perform under these specified conditions. Each of these five scenarios has 2,880 pre-established vectors (replines) for prepayments, defaults, and losses which you can apply to your projections.

SFW analyzes each transaction and the data characteristics backing each mortgage deal and determines which of the available replines the mortgage falls into. The application then runs prepayments, defaults, and losses according to that repline. This allows you to generate predictive cashflows on collateral, which translates into cashflows on the tranches in the deal. Being able to see how the deal performs under these various economic stressors allows you to in turn, to value the tranches in the transaction.



This functionality is offered at an additional cost as an extension to the standard SFW product offering. For information on obtaining this tool, contact your MWSA representative.

The M3 module allows you to run separate Prepay and Default models using any combination of M3 and non-M3 vectors for each. For example you can run the deal with 100 percent of the M3 Prepay model, and at the same time run the same deal at 5 percent CDR. For information on the various combinations of M3 curves, see “[M3 as the Default Unit \(Bond Editor\)](#)” on page 78 and “[MOD as the Default Unit \(Bond Editor\)](#)” on page 80. This module also allows you to run an asset at stress levels beyond 100 percent. For information on setting up the Prepay and Default models, see “[Setting up the Prepayment and Default Models in the Economy Module](#)” on page 76.

The two main areas of SFW that you use to set up M3 include:

- Bond Structure Editor
- Economy module (**Prepays/Defaults**, **Interest Rates**, and **Scenarios** dialog boxes)

## M3 Files

In order to use M3, you must have the specific, encrypted files provided by MWSA, which you can download to your local directory (see “[Downloading Current Repline Data](#)” on page 73 for instructions on downloading the required files). These files are encrypted with Moody’s proprietary data and are available on a quarterly basis. The data is not viewable and can only be used within a licensed version of SFW.

- The M3.CONFIG file provides the location of all other files in the directory. It is essentially the roadmap for using M3. This file contains updates with each new quarterly release. The filename must not be changed.
- The “m3cat-” files (e.g., m3cat-prime-2008Q4.mdy and m3cat-subprime.mdy) provide the categorizations of all the various replines provided by Moody’s.
- The “m3cur-” files (e.g., m3cur-prime-2009Q4.mdy) contain the actual prepayment, default, and loss severity curves.
- The “m3lib-” files (e.g., m3lib-2008Q4.mdy) contain all the forward curve data.
- The “m3tsy-” files (e.g. m3tsy-2010Q1.mdy) contain forward curve data for the TSY indices.



When you add these files to the *RepData* folder on your local drive, make sure you do not remove them. The earliest date available for these files is the third quarter of 2008.

From 2010 Q1 on, files contain curve data for delinquent loans.

## Loan Characteristics Affecting M3 Results

To determine which M3 repline is applied to a loan, SFW refers to the following fields:

- Origination Date
- FICO® score
- State location
- LTV
- Doc code
- Fixed/Adjustable
- Coupon



When a field is blank, the value for the worst case scenario is automatically used.

The status of a loan is important because there is flexibility to treat performing and non-performing loans differently, depending on how the Prepayment Model is set up. When the deal is running M3 in the application, non-performing loan categories are the following:

- REO
- Foreclose



Uncheck these boxes to choose not to use these default settings. Additionally, you can select the **Delinquent** and **Bankrupt** checkboxes and specify the terms in months.

### Default Non Performing Loans Checkbox

The **Default Non Performing Loans** checkbox on the **Advanced Settings** tab of the Prepay Model file determines whether the loan immediately defaults 100 percent of the face value of the loan. When the checkbox is selected, loans with the status of **REO** or **Foreclosed** are auto-selected by default in the **Non Performing Loans** section and have the full face value immediately defaulted.



Although some fields are auto-populated when you select the **Default Non Performing Loans** checkbox, you can change the selections per your preference, including adding and setting the terms in months for the *Delinquency* and *Bankrupt* statuses.

The options selected on the **Advanced Settings** tab in the Prepayment Model of the Economy module dictate how the loss severity and recovery delays apply to those loans.

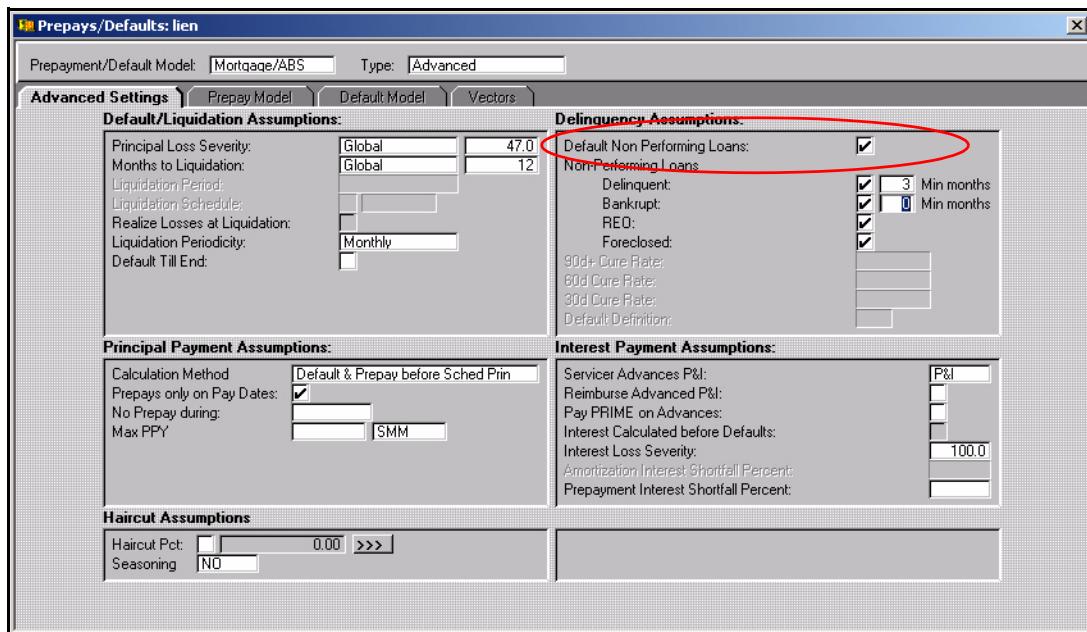
If there is overlap between what is defined in the **Non Performing Loan** categories and loan categories that have an M3-defined vector for that particular loan status, the **Default Non Performing Loans** box overrides the M3-defined curves.

When the checkbox is not selected, all loans in the deal are treated as though they are performing.



Beginning 2010 Q1, the *Current*, *Delinq 30D*, *Delinq 60D*, *Delinq 90D+* loan statuses run with their respective M3 curves that correspond to these loan statuses. Loans with *REO*, *Foreclosed*, or *Bankrupt* status apply the *Delinq 90D+* M3 curves.

To view all the possible combinations of preys and defaults in the M3 module—and what effect they have on cashflows—see “[M3 as the Default Unit \(Bond Editor\)](#)” on page 78 and “[MOD as the Default Unit \(Bond Editor\)](#)” on page 80.



For more information on setting up prepay and default curves, see “[Setting up the Prepayment and Default Models in the Economy Module](#)” on page 76.

## M3 and SFW Default Settings

The **Advanced Settings** tab on the Prepayment Model file interacts with the mode that the deal is in. The **Economy** drop-down option for the **Principal Loss Severity** and **Months to Liquidation** fields are only available when the deal is in M3 mode.

When the **Run At** field on the Bond Editor is **Static** and then you select **Economy**, the Prepayment Model file uses the following auto-settings:

- The **Months to Liquidation** type is set to **Economy**
- The **Default Non Performing Loans** checkbox is selected
- The **Non Performing** categories include only the **Foreclosed** and **REO** statuses

When you revert back to Static in the **Run At** field on the Bond Editor, the Prepayment Model file settings revert back to the previously saved settings.

If a deal is in **Static** mode and the **Default Non Performing Loans** checkbox is selected, but there have been no **Non Performing Loans** categories defined, the Prepayment Model file automatically updates and auto-defines your **Non Performing Loans** categories as **Delinquent3+**, **Bankrupt0+**, **REO**, and **Foreclosed**.

# Using the M3 Module

## Downloading Current Repline Data

Updates to the M3 replines are available for download on a quarterly basis. For more information about these files, see “[M3 Files](#)” on page 70.

To download the most current repline data from MWSA, follow these steps:

1. Go to <http://www.wsainc.com> and click **Clients** on the navigation bar on the left side of the screen.

The screenshot shows the Moody's Wall Street Analytics website. The navigation bar on the left includes links for HOME, PRODUCTS & SERVICES, NEWS, EVENTS, COMPANY, CONTACTS, PARTNERS, MOODY'S.COM, and CLIENTS. A red arrow points to the 'CLIENTS' link. The main content area features a banner for 'UNPARALLELED STRUCTURED FINANCE SOFTWARE, DATA, AND VALUATION SERVICES'. Below the banner, there is descriptive text about MWSA's software products and a screenshot of a software interface showing a waterfall chart. To the right, there is a 'LATEST NEWS' section with two entries: one from February 09, 2009, and another from May 14, 2008.

You see the login prompt to access the client site.



2. Log in to the website with the credentials provided to you by your MWSA Financial Engineer.

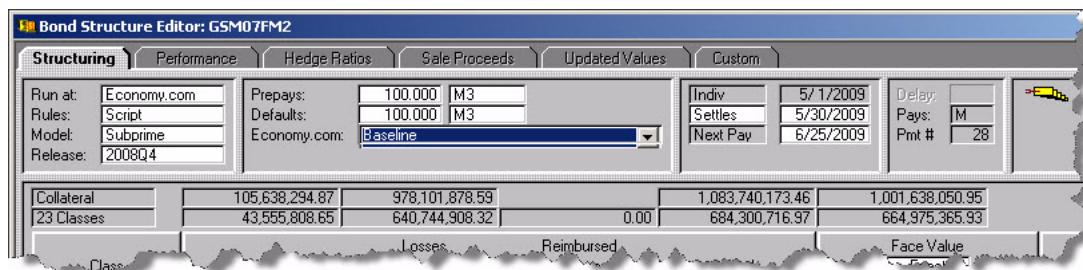
- Navigate to the directory that you were provided by your MWSA Financial Engineer to locate the latest M3 installation package.



The directory location varies by client. Contact your MWSA Financial Engineer if you do not know the specific directory from which to download the M3 installation package.

- Download the zip file to the c:\temp directory on your local drive.
- Extract the files to this directory.
- Double-click the `setup.exe` file and follow the InstallShield Wizard prompts to complete the M3 installation. The M3 module installs to the default directory which is `c:\Program Files\W W SA\SFW\RepoData`.

## Setting up M3 on the Bond Editor

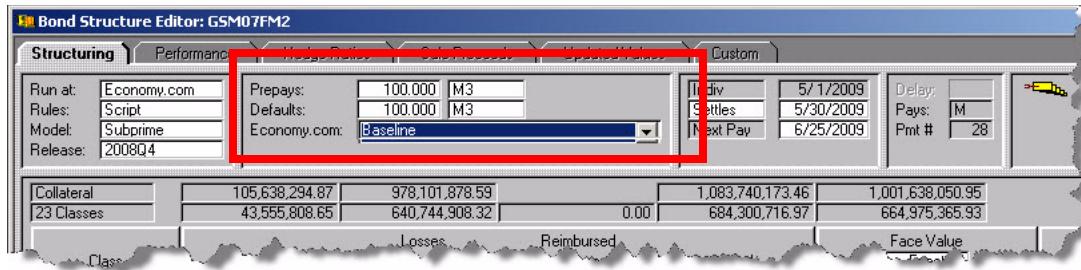


- Select `Economy.com` from the **Run at** drop-down list field on the **Structuring** tab in the **Bond Structure Editor** dialog box. The **Model**, **Release**, and **Economy.com** drop-down list fields become enabled, and **M3** appears as an option in both the **Prepays** and **Defaults** rate type drop-down list fields.
- Select the model to run the deal from the **Model** drop-down list field:
  - `Subprime`: Deals with over-collateralization use this option by default.
  - `PrimeAlt-A`: Deals without over-collateralization use this option by default.
- Select the quarter for the data you want to run M3 with from the **Release** drop-down list field.
- Select one of five different pre-determined economic scenarios from the **Economy.com** field:
  - `S0:Baseline`
  - `S1:Housing Stabilizes, Earlier Recovery`
  - `S2:Deep Recession, Weaker Recovery`
  - `S3:Very Severe Recession`
  - `S4:Depression`



While the specific names of these economic scenarios may change from quarter to quarter, SFW uses graduated degrees of severity, where "S0/S1" is the mildest scenario and "S4" is the most extreme.

- Enter amounts in the **Prepays** and **Defaults** fields to specify the percent that you want to run the M3, and then select M 3, M OD (or CPR/CDR) as the rate type from the drop-down list fields.



SFW looks to the **Default Non Performing Loan** checkbox on the **Prepays/Defaults** dialog box in the Economy module.

Depending on whether this checkbox is selected or not, specific curves that you set up in the Economy module are applied to the loans.

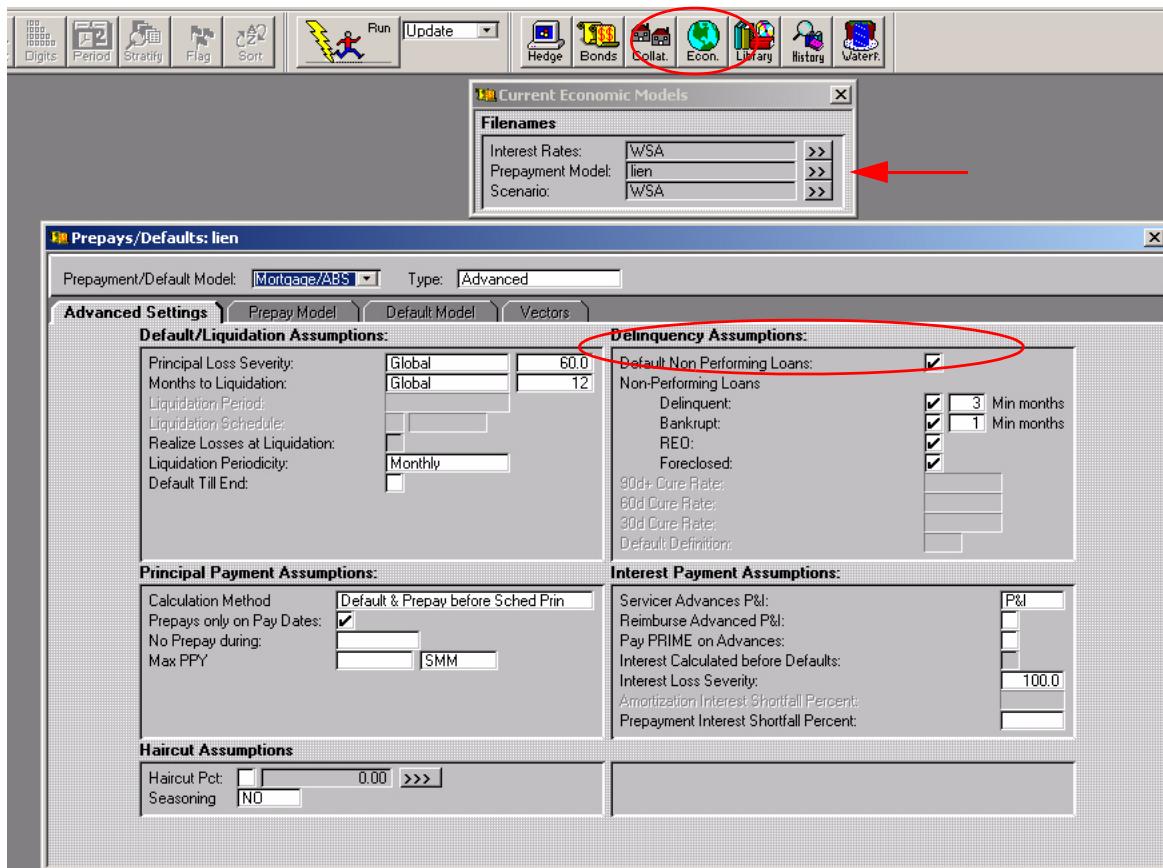
To view how M3 curves are applied when *M3* is selected as the default unit on the Bond Editor dialog box, see "[M3 as the Default Unit \(Bond Editor\)](#)" on page 96.

To view how M3 curves are applied when *MOD* is selected as the default unit on the Bond Editor dialog box, see "[MOD as the Default Unit \(Bond Editor\)](#)" on page 97.

Alternately, you can also use standard curves (such as CDR and CPR).

## Setting up the Prepayment and Default Models in the Economy Module

Click the Econ icon and then >> on the Prepayment Model row. You see the Prepays/Defaults dialog box.



### Setting up M3 on the Advanced Settings Tab

To immediately default the full face value of non-performing loans, select the **Default Non Performing Loans** checkbox and define your non-performing categories.

For more information on the combinations you can choose to run M3 with, see “[M3 as the Default Unit \(Bond Editor\)](#)” on page 96 and “[MOD as the Default Unit \(Bond Editor\)](#)” on page 97.

### Principal Loss Severity

Select one of the following in the **Principal Loss Severity** drop-down field:

- **Table** Uses amounts you enter in the table on the **Default Model** tab.
- **Global** Applies the amount (percentage) entered to non-performing loans (when the **Default Non Performing Loans** checkbox is selected).



For loans that are performing, M3 loss severity vectors run in the background and are not available to view when the **Run at** field on the Bond Structure Editor window is set to *Economy.com*.

- **Economy.com**: Uses loss severity rates imported from the Economy.com vector.

For more information on how loan status determines cashflows when the **Default Non Performing Loans** checkbox is selected, see “[Default Non Performing Loans Checkbox](#)” on page 71.

### Recovery Delay (Months to Liquidation)

Select one of the following options in the **Months to Liquidation** drop-down field to set the recovery delay:

- **Global**: Applies the amount (in months) for recovery delay.
- **Table**: Uses the amounts (in months) you enter in the **Months to Liquidation** field on the **Default Model** tab.
- **Economy.com**: Uses the M3 **Months to Liquidation** assumptions (by state) and is only available when the deal is in M3 mode. See the tables below for state assumptions:

State	M3 Months to Liquidation
AL	10
AK	13
AZ	8
AR	6
CA	9
CO	11
CT	11
DE	13
DC	6
FL	11
GA	8
HI	10
ID	13
IL	13
IN	13
IA	15
KS	14
KY	14
LA	16
ME	20
MD	9
MA	9
MI	13
MN	14
MS	12
MO	7

State	M3 Months to Liquidation
MT	12
NE	9
NV	9
NH	8
NJ	15
NM	14
NY	13
NC	9
ND	14
OH	16
OK	15
OR	12
PA	15
RI	8
SC	11
SD	17
TN	8
TX	8
UT	10
VT	15
VA	7
WA	10
WV	9
WI	15
WY	11

## M3 as the Default Unit (Bond Editor)

When M 3 is set as the default unit on the Bond Editor, the **Default Non Performing** checkbox on the **Prepays/Defaults** dialog box in the Economy module determines how the curves are applied. See the table below for the details of where to update curve information.

Table 4.1 M3 Set as the Default Unit on the Bond Editor

<b>Default Non Performing Loan checkbox is...</b>	<b>And the loans are...</b>	<b>Then the following settings on the Prepays/Defaults dialog box apply...</b>
NOT Selected (i.e. box is unchecked)	Performing (i.e. ALL loans regardless of status)	<p><b>Principal Loss Severity</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting uses the M3 curves.</li> <li><i>Table</i> setting uses the values from the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 curves.</li> </ul> <p><b>Months to Liquidation</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting applies the amount you enter here.</li> <li><i>Table</i> setting applies the amount you enter on the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 Months to Liquidation assumptions.</li> </ul>
Selected (i.e. box is checked)	classified as "current" by the user	<p><b>Principal Loss Severity</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting uses the M3 curves.</li> <li><i>Table</i> setting uses the values from the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 curves.</li> </ul> <p><b>Months to Liquidation</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting applies the amount you enter here.</li> <li><i>Table</i> setting applies the amount you enter on the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 Months to Liquidation assumptions.</li> </ul>
	in categories specified as "non-performing" by the user	<p><b>Principal Loss Severity</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting applies the amount you enter here.</li> <li><i>Table</i> setting uses the values from the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 curves.</li> </ul> <p><b>Months to Liquidation</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting applies the amount you enter here.</li> <li><i>Table</i> setting applies the amount you enter on the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 Months to Liquidation assumptions.</li> </ul>

## MOD as the Default Unit (Bond Editor)

When MOD is set as the default unit on the Bond Editor, the **Default Non Performing** checkbox on the **Prepays/Defaults** dialog box in the Economy module determines how the curves are applied. See the table below for the details of where to update curve information.

Table 4.2 MOD Set as the Default Unit on the Bond Editor

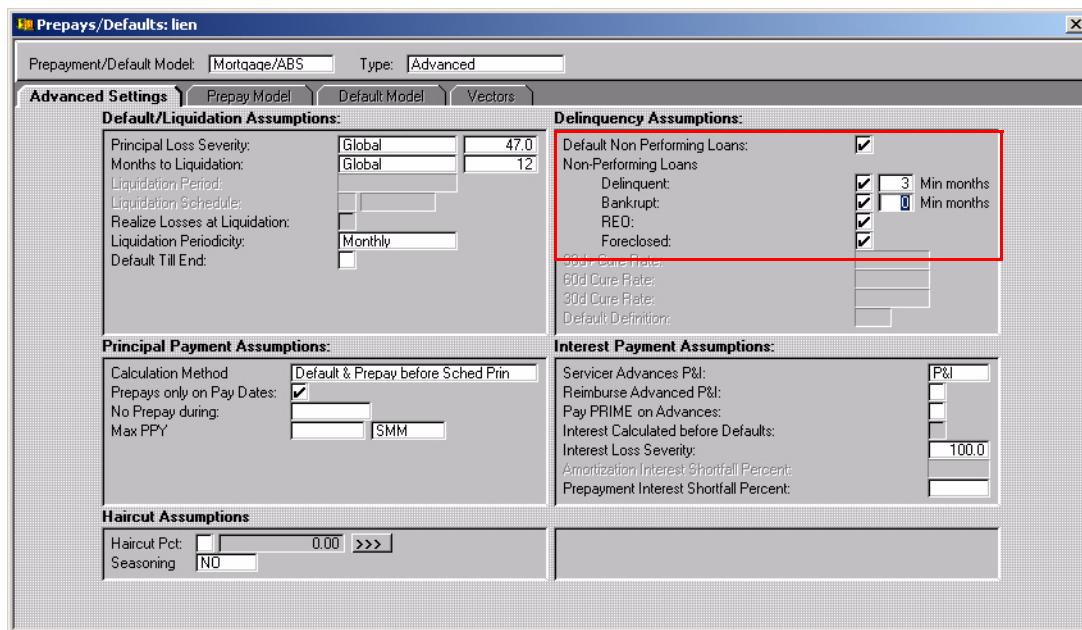
<b>When the Default Non Performing Loan checkbox on Prepays/Defaults dialog box is...</b>	<b>And the loans are...</b>	<b>Then the following settings on the Prepays/Defaults dialog apply...</b>
NOT Selected (i.e. box is unchecked)	Performing (i.e. ALL loans regardless of status)	<p><b>Principal Loss Severity</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting uses the values from the <b>Default Model</b> tab.</li> <li><i>Table</i> setting uses the values from the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the values from the <b>Default Model</b> tab.</li> </ul> <p><b>Months to Liquidation</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting applies the amount you enter on the <b>Default Model</b> tab.</li> <li><i>Table</i> setting applies the amount you enter on the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 Months to Liquidation assumptions.</li> </ul>
Selected (i.e. box is checked)	classified as "current" by the user	<p><b>Principal Loss Severity</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting uses the values from the <b>Default Model</b> tab.</li> <li><i>Table</i> setting uses the values from the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the values from the <b>Default Model</b> tab.</li> </ul> <p><b>Months to Liquidation</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting applies the amount you enter on the <b>Default Model</b> tab.</li> <li><i>Table</i> setting applies the amount you enter on the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 Months to Liquidation assumptions.</li> </ul>
	in categories specified as "non-performing" by the user	<p><b>Principal Loss Severity</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting applies the amount you enter here.</li> <li><i>Table</i> setting uses the values from the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 curves.</li> </ul> <p><b>Months to Liquidation</b> drop-down field:</p> <ul style="list-style-type: none"> <li><i>Global</i> setting applies the amount you enter here.</li> <li><i>Table</i> setting applies the amount you enter on the <b>Default Model</b> tab.</li> <li><i>Economy.com</i> setting uses the M3 Months to Liquidation assumptions.</li> </ul>

## Setting up M3 on the Prepay Model and Default Model Tabs

Under certain conditions when you run M3, the application uses setting that you input on the **Prepay Model** and **Default Model** tabs in the Economy file. The M3 module uses the same functionality for these features as in the standard SFW application. To learn more about this functionality and how to use it, refer to the SFW product documentation.

### Defining Non Performing Loan Categories

When the **Default Non Performing Loans** checkbox on the **Advanced Settings** tab is selected, the fields directly beneath the **Non Performing Loans** heading become enabled. It is in this section that you can define your own non-performing categories. For example, the settings depicted in the image below will immediately default loans that are Delinquent 3+ months, Bankrupt 0+ month, all REO, and all Foreclosed.



When the **Run At** field on the Bond Structuring Editor window is set to **Economy.com**, the following fields are auto-populated when the **Default Non Performing Loans** checkbox is selected on the **Advanced Settings** tab of the Prepays/Defaults window:

- **REO**
- **Foreclosed**

When the **Run At** field on the Bond Structuring Editor window is set to **Static**, the following fields are auto-populated when the **Default Non Performing Loans** checkbox is selected on the **Advanced Settings** tab of the Prepays/Defaults window:

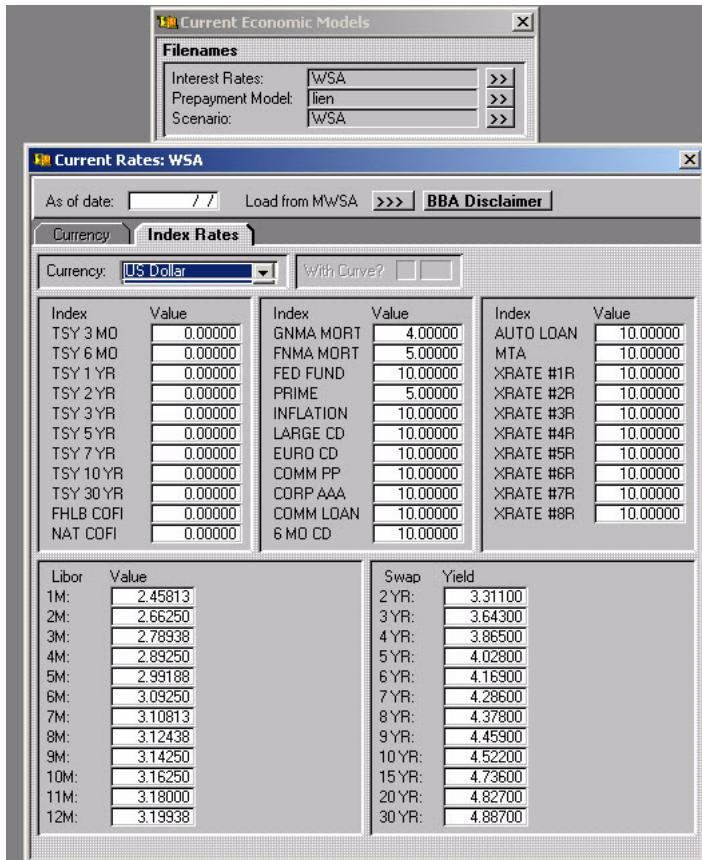
- **Delinquent (3+ months)**
- **Bankrupt (0+ months)**
- **REO**
- **Foreclosed**

Although these fields are auto-populated, you can edit the values when the fields are enabled (i.e. when they are *not* greyed out).

## Loading Interest Rates

Load the dates and rates from which you want to run the M3 analysis as follows:

1. Click **Econ** on the main toolbar to open the **Current Economic Models** dialog box.
2. Click **>>** on the **Interest Rates** row. You see the **Index Rates** tab on the **Current Rates** dialog box.



3. Enter the date from which you want to run the M3 analysis in the **As of date** field, and click the **Load from MWSA >>>** button. The new rates populate the **Value** fields.

The dialog box displays two main sections: **Index Rates** and **Swap Yields**.

**Index Rates:**

Index	Value	Index	Value	Index	Value
TSY 3 MO	0.18000	GNMA MORT	4.00000	AUTO LOAN	10.00000
TSY 6 MO	0.26000	FNMA MORT	5.00000	MTA	10.00000
TSY 1 YR	0.44000	FED FUND	10.00000	XRATE #1R	10.00000
TSY 2 YR	1.07000	PRIME	3.25000	XRATE #2R	10.00000
TSY 3 YR	1.61000	INFLATION	10.00000	XRATE #3R	10.00000
TSY 5 YR	2.51000	LARGE CD	10.00000	XRATE #4R	10.00000
TSY 7 YR	3.17000	EURO CD	10.00000	XRATE #5R	10.00000
TSY 10 YR	3.55000	COMM PP	0.37000	XRATE #6R	10.00000
TSY 30 YR	4.41000	CORP AAA	10.00000	XRATE #7R	10.00000
FHLB COFI	0.00000	COMM LOAN	10.00000	XRATE #8R	10.00000
NAT COFI	0.00000	6 MO CD	10.00000		

**Swap Yields:**

Libor	Value	Swap	Yield
1M:	0.27250	2 YR:	1.43600
2M:	0.30875	3 YR:	2.05000
3M:	0.42938	4 YR:	2.50700
4M:	0.59000	5 YR:	2.85700
5M:	0.74875	6 YR:	3.13200
6M:	0.83188	7 YR:	3.35000
7M:	0.94375	8 YR:	3.52100
8M:	1.04500	9 YR:	3.65500
9M:	1.13875	10 YR:	3.74700
10M:	1.21750	15 YR:	4.04600
11M:	1.30750	20 YR:	4.15500
12M:	1.39000	30 YR:	4.23000

## Setting up Scenarios

Click **>>** on the **Scenario** row to open the Scenario dialog box.

The dialog box shows three rows for file names:

- Interest Rates: WSA
- Prepayment Model: lien
- Scenario: WSA

The third row, "Scenario: WSA", has a red box around it, indicating it is the row to click to open the Scenario dialog box.



If the collateral in the deal is entirely based on LIBOR or TSY indices, this step is not necessary. If the collateral is a combination or based on other indices, either follow the steps the section immediately following or contact your MWSA Financial Engineer to assist you with the correct settings to use on this dialog box.

## Setting up Scenarios for Collateral Using Non-LIBOR Indices

If your collateral contains poolgroups based all or partly on non-LIBOR or non-TSY indices, you must set up scenarios in the Economy module to run the deal using M3.

To set up the scenario file, follow these steps:

1. Select **Yield Curve** from the **Viewing** drop-down list to first set up TSY rates curves. You see a table with editable fields.
2. Enter the TSY curves in basis points. The shift increments should be entered relative to the TSY rate in the Interest Rates file.

The screenshot shows the "Scenario: WSA" dialog box. At the top, it says "Viewing: Yield Curve" and "Currency: US Dollar". Below that is a table titled "Table 1". The table has columns for Control Point, Months, Month 1 Spot Yield, Month 3 Spot Yield, Month 6 Spot Yield, Month 9 Spot Yield, Year 1 Spot Yield, and Year 2 Spot Yield. A single row is shown with the value "1 USD" in the Control Point column and "+3.00" in all other columns. At the bottom of the table is a button labeled "Uniform Shift".



Alternately, you can copy and paste values from an Excel file.

3. Select **Index Rates** from the **Viewing** drop-down list.

The screenshot shows the "Scenario: TESTCASE" dialog box. At the top, it says "Viewing: Index Rates" and "Currency: US Dollar". Below that is a section titled "Shift Parameters". It includes checkboxes for "RateShift From Settle" and "RateShift From". A table titled "Current" is displayed with columns for LIBOR 1MO, LIBOR 3MO, LIBOR 6MO, and TSY 1YR. The "Index" row shows "LIBOR 1MO" and "LIBOR 3MO" selected. The "Floats Off" row shows "TSY 1YR" selected. Below this table is a scrollable list of index rates for TSY 1YR, ranging from -1.77190 to -1.18490.

4. Scroll right to locate the non-LIBOR index column header and choose the specific TSY index from the **Floats Off** drop-down list.



For further instruction on setting up non-LIBOR or non-TSY indices, contact your MWSA Financial Engineer.

## Running the Deal and Viewing Losses and Cashflows

Once you have set up the index rates, prepayment and default tables, and scenarios in the Economy module and set the fields on the Bond Editor, you can run the deal.

1. Switch the application to **Update mode**.
2. Click **Run** to run the deal.

To view collateral and tranche cashflows, follow these steps:

1. Click the **View** icon on the main toolbar. The **CMO/REMIC Flows** window displays individual tranche cashflow results of the deal including the predicted losses on the **Bondflows** tab.
2. Click the **Format** icon to cycle through different tranche cashflow views. The **CMO/REMIC Flows** window displays aggregated collateral cashflow results of the deal on the **Balance Sheet** tab.
3. Click the **Balance Sheet** tab.
4. Right-click and select **Soft Interface** from the popup menu to open the **Soft Interface** dialog box.
5. Select the amounts that you want to view from the **Available Fields** column, and click **Add -->** to include those fields in the display. In addition to seeing balance, interest, principal, and losses, you can select CDR's, CPR's, and Loss Severities. These M3 amounts represent the averages of Defaults, Prepayments, and Loss Severities of the collateral.

In addition to viewing losses for each tranche on the cashflow view, you can view losses for each particular tranche directly on the Bond Structure Editor window. To set this up, follow these steps:

1. Right-click on the Bond Structure Editor window to display the **Soft Interface** dialog box.
2. Locate and add **Losses** from the **Available Field** column to display the current and projected loss results.

## **M3 Module (Simulation)**

### **About this module –**

Moody's Mortgage Metrics® (M3) is a model for predicting loss distributions for residential mortgage pools. The model is based on a series of loan-level econometric models, each designed to capture a specific component of loan behavior including prepayment, default and severity. Moody's Mortgage Metrics was developed by Moody's Investors Service and is being used as an input when rating primary issuance of prime and Alt-A mortgage-backed securities. For more information about M3, please visit - [http://v3.moodys.com/productandsolutions/details/\\_/be3617a3-8b05-49d6-8db7-1b03974b4df3/prd](http://v3.moodys.com/productandsolutions/details/_/be3617a3-8b05-49d6-8db7-1b03974b4df3/prd)

SFW passes loan level data required by M3 (See the list below) to M3. In return, M3 simulates 10,000 different independent paths. Each path consist of Interest Payment, Principal Payment, Prepayment, Defaults, Recovery and Loss. Once SFW gets all the paths, users have choice of running one path at a time or All paths at the same time, and get the Tranche level Cashflow.

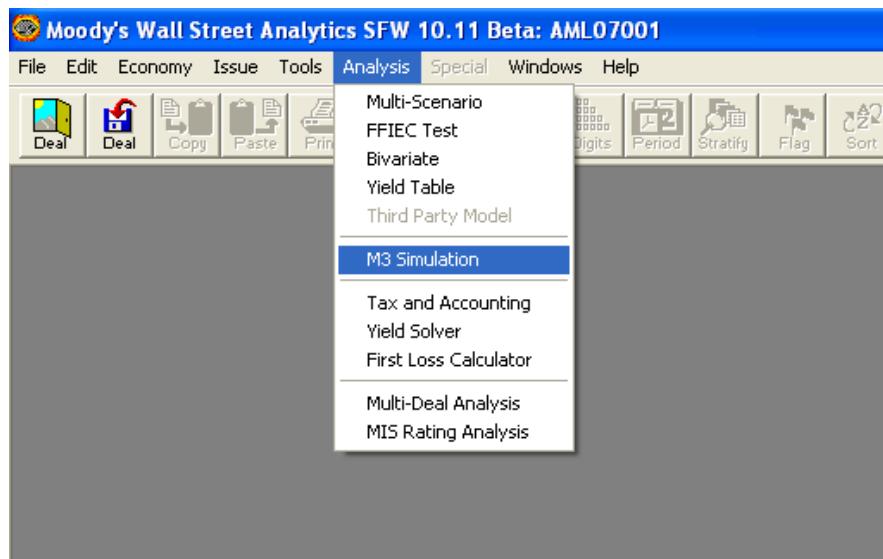
### **Loan Data required by M3 –**

The following fields are required by M3. If any of these fields are missing, SFW provides an option to use the default values for the missing fields.

Loan Id	Loan identifier
Mortgage Type	Mortgage loan type
Property Type	Property type code
Occupancy Type	Occupancy code
Purpose Type	Purpose code
Lien Position	Lien Position
Documentation	Documentation Code
Original Appraisal Amount	Original Appraisal Amount
LTV	Loan to Value ratio for the securitized loan
Junior LTV	Junior Loan to Value ratio for all loans which are junior to the securitized loan
FICO	FICO score
Original Amount	Original Amount of loan
Securitized Amount	Securitized Amount of loan
Current Amount	Current Loan Amount
Senior Balance	Loan amount for all loans which are senior to the securitized loan.
Gross Coupon	Coupon for the Fixed Rate Loans
Gross Margin	Margin for the Adjustable Rate Loans
Original Term	Original Term
Amortization Term	Term of amortization period
Origination Date	Origination Date of the loan
Loan Status	Current status of the loan
State	State of the loan
Zip Code	Zip code of the loan

### Using M3 Simulation Module –

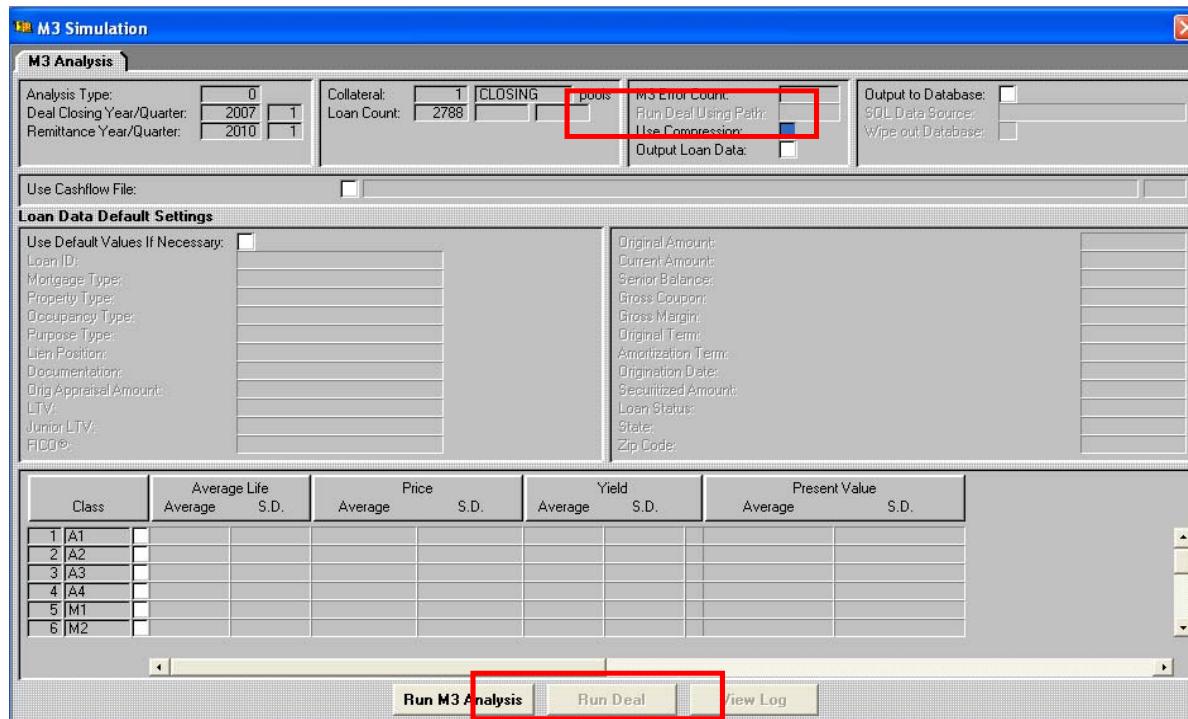
1. Launch the M3 Simulation. Go to Analysis → M3 Simulation.



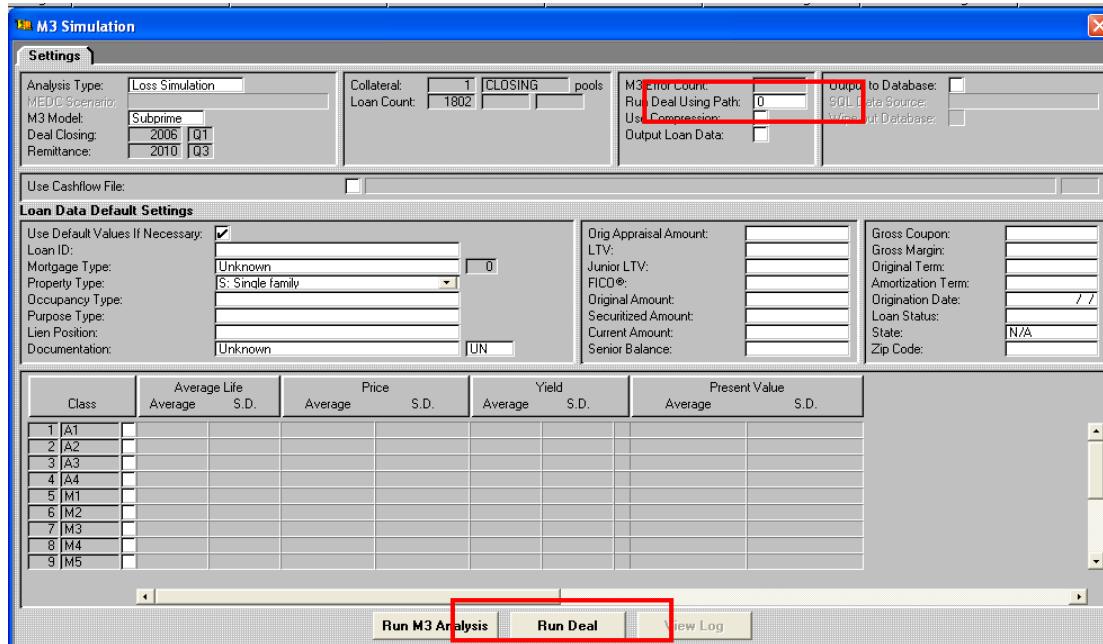
2. Select the default value check box, and provide any default values that you want to use in case of missing values.

The screenshot shows the 'M3 Analysis' dialog box. At the top, there are several input fields: Analysis Type (0), Collateral (1 CLOSING pools), M3 Error Count (checkboxes for Run Deal Using Path, Use Compression, Output Loan Data), and Output to Database (checkboxes for SQL Data Source and Wipe out Database). Below these are sections for 'Use Cashflow File' (checkbox) and 'Loan Data Default Settings'. The 'Loan Data Default Settings' section contains a table with columns for 'Use Default Values If Necessary' (checkbox) and various loan parameters like Original Amount, Current Amount, Senior Balance, Gross Coupon, etc. At the bottom of the dialog box is a table for 'Class' with columns for Average Life, Price, Yield, and Present Value, each with 'Average' and 'S.D.' sub-columns. The table rows are labeled 1 A1 through 6 M2. At the very bottom are three buttons: 'Run M3 Analysis', 'Run Deal', and 'View Log'.

- Click “Run M3 Analysis” button. This invokes a process that will pass loan level data to M3, and after it successfully gets 10,000 different paths back, it enables “Run Deal” button and “Run Deal Using Path” drop down.



- Select the path you want to run. It can either be an independent path or all, and click the “Run Deal” button.



5. Users have the following options to receive the output –
  - a. CSV files (Default option). Can also be zipped using the in-built compression.
  - b. Database
6. Depending on what's selected in the step above, three files are generated
  - a. Tranche Level Cashflow for each path
  - b. Tranche Summary for each path
  - c. Collateral information for each path
7. Performance Numbers such as Average Life, Price, Yield, Present Value, Lifetime Losses, Future Losses, Loss Probability, Maximum Losses and Minimum Losses can be seen on the M3 Simulation Screen. Each can also be graphed for each tranche.

# The CMM Module

## About This Module

Commercial Mortgage Metrics (CMM) is an optional module for SFW customers that assesses default and loss given probabilities in CMBS portfolios using an array of credit risk metrics for commercial real estate loans provided by Moody's.

With this module, SFW customers have indirect access to the quarterly CMM forecast updates (derived from MEDC forecasts by CBRE/Torto Wheaton) through certain required fields at the loan level in SFW. See “[Using the CMM Module](#)” on page 108 for a list of the required fields.

Using the CMM module, SFW users can generate specific default vectors represented by a probability of default (PD) and loss given default (LGD) for the individual loans in a CMBS transaction and for the transaction as a whole in both a base and stress scenario.

This functionality is offered at an additional cost as an extension to the standard SFW product offering. For information on obtaining this tool, contact your MWSA representative.

## CMM Economic, Stress Level, and Other Settings

When you run a deal with CMM, the system uses 100 CPY for the prepayment type and 100 CMM as the default type. You can change this; however, the CMM default type must be used to apply the PDs and LGDs from CMM.

CMM does not account for delinquent or defeased loans, and certain types of property types such as Health Care, Self Storage, and Mixed Use. If a loan has any of these characteristics at the time the CMM model is run, the loans are excluded from the results.

## CMM Default Vector Logic

The values that populate the Default Probability and Loss Given Default tables on the CMM tab on the Investment window are used to generate the Default vectors used in CMM. The default percent is generated by dividing the annual PDs (on the CMM tab of the Investment dialog box) by 12 for each year except for the last year, which is divided by the number of months left in the year.

## Using the CMM Module

To use the CMM credit model in SFW, open a CMBS deal in the application. Click the **Collat** icon on the taskbar and drill down to the investment level. In order to obtain meaningful results, certain loan-level and property level investment data need to be populated. When the data in these fields does not exist or is invalid, you may see errors or skewed results after running the deal.

When the stated conditions are applicable, these fields are required. If they do not apply, then they're not required. For example, when a loan is not a balloon type loan, then the balloon fields are not used in the CMM calculations. When the **Adjustable?** checkbox is selected, additional fields are required (see [“Adjustable Tab” on page 110](#)).

The fields used in the CMM calculations are highlighted in the images below.

## Basic Tab

**Basic Tab Fields:**

- Current Face: 68,115,945.04
- Update Factor: 0.99134029065115
- Original Face: 68,710,962.00
- Payment Amt: 407,110.24
- ID: 20
- CUSIP:
- MERS:
- Account:
- Subpool ID: 0
- Coupon: 5.8900000000
- Net Coupon: 5.8582700000
- Servicing Rate: 0.031730000
- Var Servicing: or \$
- Strip Type:
- Bal Wt Factor: 0.000
- Maturity Date: 7/1/2014
- Term/Org Term: 291 / 360
- Max Term: 291
- Issue Age: 3
- Update Age: 69
- Dual Amort Term: starting from orig
- Paid Through: 4/1/2010
- Balloon Month/Days Short: 120 / 0.000000
- [No Target]
- Balloon Extension:
- Ext Type/Fee Delay: /
- Balloon Payment: 64,274,750.78

Figure 5.1 Required Fields for CMM on the Basic Tab

## Additional Tab

**Additional Tab Fields:**

- Amort Lockout/IO Term: 60
- Prepay Lockout: 113
- 2nd Prepay Lockout: from [ ]
- Pay Schedule: NONE Abs:
- Pay Sched From: Orig.
- Straightline Amort:
- Prin Payment: 0.00
- Prin Pay Period:
- Amort Coupon:
- Hyper Amort:
- Draw Rate: 0.0000 SMM
- Draw Term: 0
- Calendar: ACT/360
- Servicing Calendar: 30/360
- Trustee Calendar: 30/360
- Pay Period: MONTHLY
- Holiday: NONE
- Int Reserve Code/Act360: Net Int
- Yield Maintenance**
- Type: NONE
- Rate: INTP + 0 bp
- Target Cpn: CBE?
- Term:
- Stop Month: from [ ]
- Min Percent:
- YM & PPY Penalty:
- Student Loan**
- Loan Type:
- Student Months: from [ ]
- Grace Period: IO Period:
- Margin In-School:
- Student Loans**
- Deferment Code:
- Int Capitalization Code:
- Deferred Int:
- Minimum Payment:
- Other Options**
- BiWeekly?
- Rule 78s:
- Balloon Default Pct:
- Credit Comeback:

Figure 5.2 Required Fields for CMM on the Additional Tab

## Adjustable Tab

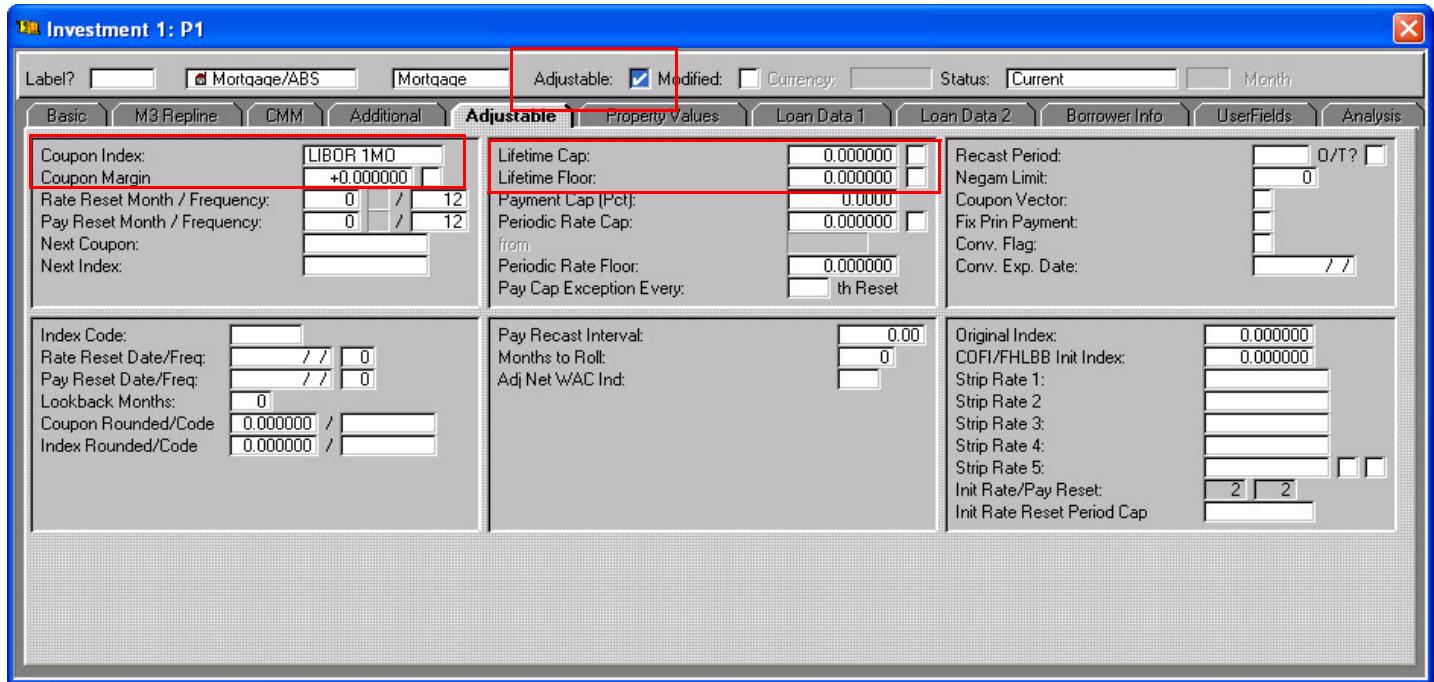


Figure 5.3 Required Fields for CMM on the Adjustable Tab

When the **Adjustable?** checkbox is selected, then the highlighted fields on this tab are used in the CMM calculations.

## Property Values Tab

The screenshot shows the 'Investment 2: 20' software interface with the 'Property Values' tab selected. The top menu bar includes 'Label?', 'Mortgage/ABS', 'Mortgage', 'Adjustable', 'Modified', 'Currency', 'Status: Current', 'Month', and tabs for 'Basic', 'M3 Repline', 'CMM', 'Additional', 'Property Values', 'Loan Data 1', 'Loan Data 2', 'Borrower Info', 'UserFields', and 'Analysis'. The 'Property Values' tab is active. A red box highlights the 'Property Type: Retail' field. Another red box highlights the 'DSCR' section containing 'DSCR: 1.42000', 'LTV: 80.00000', 'Value: 85,900,000.00', 'Net Flow:', 'Rentable Size:', 'DSCR Ref Date: / /', 'TV Ref Date: / /', 'Cap. Rate: / /', 'Based on: INPUT', 'Val Method: Balloon LTV', 'Index Used: 0.00000', and 'Appraised in:'. A third red box highlights the 'Property Name: Simon - West Ridge Mall', 'Street: 1801 S.W. Wanamaker Road', 'City/State/Zip: Topeka KS 66604 MSA: NONE', 'Country: U.S.', and 'Notes:' fields.

Figure 5.4 Required Fields for CMM on the Property Values Tab

## Loan Data 1 Tab

The screenshot shows the 'Investment 2: 20' software interface with the 'Loan Data 1' tab selected. The top menu bar is identical to Figure 5.4. The 'Loan Data 1' tab is active. A red box highlights the 'Origination Date: 7/1/2004' and 'Appraised Date: 6/11/2004' fields. Another red box highlights the 'Dates' section containing 'Origination Date', 'Appraised Date', 'Note Date', 'Funded Date', 'Disbursement Date', and 'First Payment/Delay'. A third red box highlights the 'Loan Type' section containing 'Purpose: N/A', 'Occupancy: UN', 'Product Type: CMBS', 'Collateral Type: CMBS', 'Poolgroup ID: 1', 'Loan Type: Unknown', 'Fitch Doc Code: N/A', 'Moody Doc Code: UN', 'S&P Doc Code: ', 'Conforming: ', 'Prepay Penalty Type: Unknown', and 'PPY Pen Month: 0'. A fourth red box highlights the 'Liens/Refinanced' section containing 'Lien Status: N/A', 'Combined Current Loan Bal: 0.00', 'Refinance?: ', 'Prior Loan Origination Date: / /', 'Prior Loan Purchase Price: 0.00', 'Cashout Refi Proceeds: ', and 'Simultaneous Second: '. A fifth red box highlights the 'Dealer Info' section containing 'Originator of Loan: ', 'Lender: ', 'Primary Servicer: ', 'Master Servicer: ', 'Special Servicer: ', 'Product Category: UN', and 'Origination Source: N/A'. A sixth red box highlights the 'Mortgage Insurance' section containing 'MI Flag/Borrower Paid MI Percent: 0.00', 'MI Lookup: 0.00', 'Borrower Paid MI Comp: ', 'Primary Mortgage Insurer: ', 'Lender MI Eligible: ', 'Lender Paid MI Company: ', 'Lender Paid MI Percent: ', and 'Lender Paid MI Fee: '.

Figure 5.5 Required Fields for CMM on the Loan Data 1 Tab

## Loan Data 2 Tab

**Investment 1: P3**

Label?  Mortgage/ABS  Mortgage Adjustable:  Modified:  Currency:  Status:  Month

Basic M3 Repline CMM Additional Adjustable Property Values Loan Data 1 **Loan Data 2** Borrower Info UserFields Analysis

**Value Info**

Original LTV:	0.00
Combined Orig LTV	0.00
Estimated Curr LTV:	0.00
Eligibility LTV:	0.00
Junior LTV:	0.00
Senior Bal:	0.00
Junior Bal:	0.00
Debt to Income:	0.00
Loan to Income:	0.00
Negative Amort:	0.00

**More Value Info**

Sale Price:	0.000
Property Market Value:	
Appraisal Value:	
Updated Appraisal Amount:	
Appraisal Type:	
S&P Appraisal Type:	
S&P Auto Val Model(AVM):	AP
S&P Val Auto U/W Sys:	

**Other Costs**

Association Fees:	
Verified Assets Flag/Amt:	/
Total Costs Financed:	
Total Other Debt:	
Points:	
Buy Down/Subsidy:	
Escrow:	None

**Credit Info**

Loan Mod Trial Period:	<input type="checkbox"/>
Credit Grade:	
Moody:	U/R
S&P:	U/R
S&P Risk Grade:	
Moody Borrower Quality:	0
S&P Borrower Quality:	

**Non-Performing:**

Pay History Grade:	<input type="checkbox"/>
Legal Interest:	<input type="checkbox"/>
Payment Method:	<input type="checkbox"/>
Anti-Predatory Lending Category:	High Cost Loan
Specially Serviced:	<input type="checkbox"/>
Watchlist:	<input type="checkbox"/>
Bankrupt:	<input type="checkbox"/>
Lockbox Status:	<input type="checkbox"/>

**Original Coupon:**

Original P&L:	0.00
Current P&L:	0.00
PITI Payment:	0.00
Front End Ratio:	0.0000
Back End Ratio:	0.0000
Arrears:	0.00

**Cash Reserve at Closing:**

# of Months Res. at Closing:	0
------------------------------	---

Figure 5.6 Required Fields for CMM on the Loan Data 2 Tab

## Setting up the Collateral

To runn CMM on the entire collateral or poolgroup, follow these steps:

1. Click Update PDs/LGDs from CMM on the Collateral Editor (or Poolgroup Editor) window. You see the **Update PDs/LGDs from CMM** dialog box.

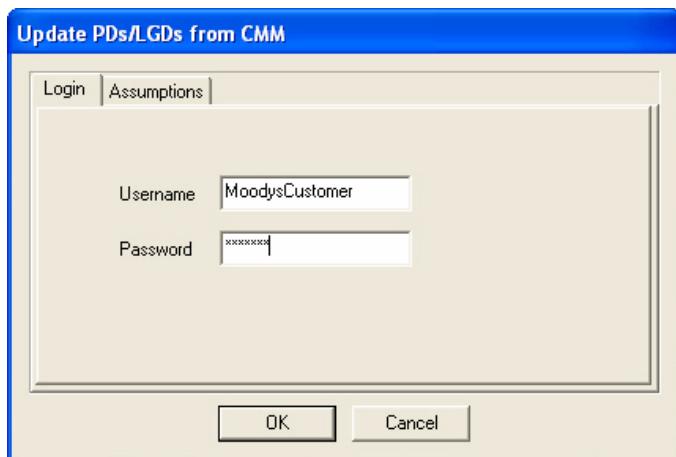


Figure 5.7 Update PDs/LGDs from CMM Dialog Box, Login Tab

2. On the **Assumptions** tab, either:

- Select the economic scenario from the **Scenario** drop-down field and stress level in the **Stress Level** section, OR...

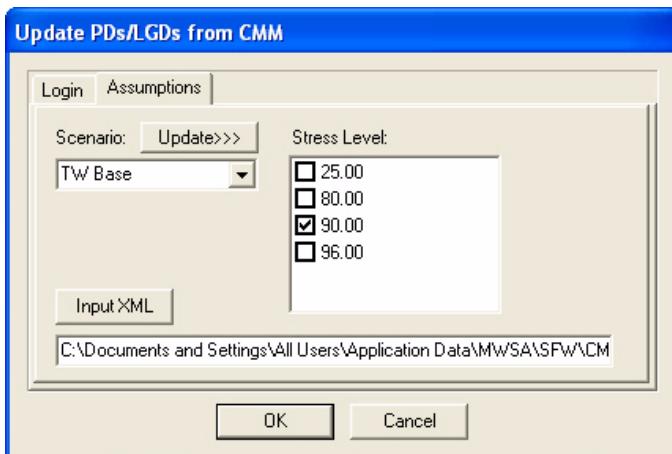


Figure 5.8 Update PDs/LGDs from CMM Dialog Box, Assumptions Tab

- Click the **Input XML** button to open a browse window and navigate to the **\_INPUT.xml** file in your **DEALLIB** or **ISSUES** directory to access a previously generated XML file.
- 3. Click the **Login** tab, enter your CMM username and password and then click **OK**. (If you do not have one or your account has been locked or lost, contact your Financial Engineer.) You see a status message in the lower left part of your screen.

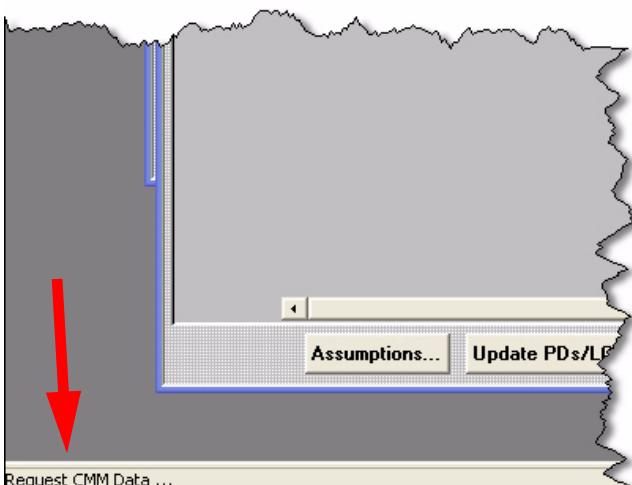


Figure 5.9 Request CMM Data Status Message

When the status message disappears, the CMM data has been updated and you can run the deal using the CMM settings.

## Setting up the Bond Editor

To set up the Bond Editor dialog box to run CMM curves, follow these steps:

1. Select **Run at** to CM M . By default, the **Prepays** field is set to scale at 100 CPY, and **Defaults** field is set to scale at 100 CM M .
2. Select the CMM Scenario and CMM Stress Level from the drop-down list fields. Depending on the data returned from the CMM web server (i.e. the data in the OUTPUT.XML file), the options in these fields may change.

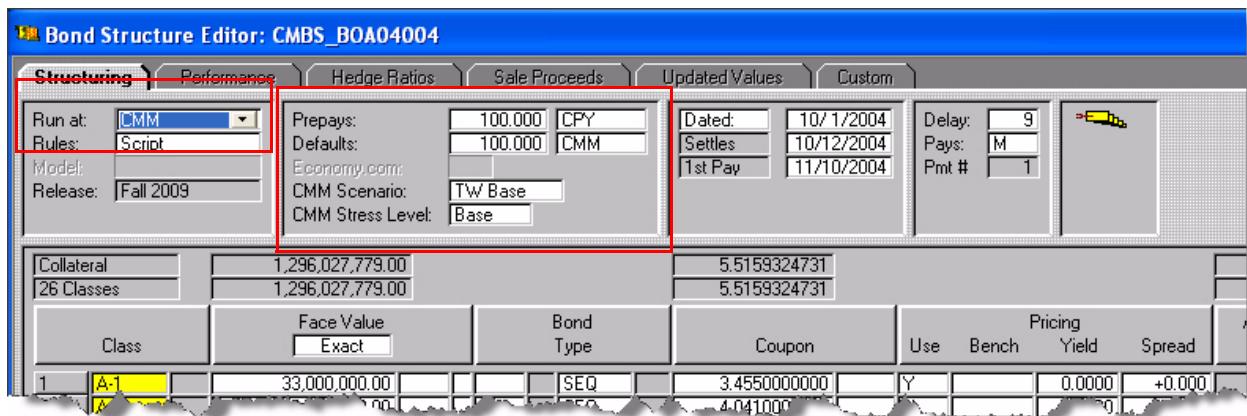


Figure 5.10 Bond Editor Setup for CMM

## Override CMM

To override CMM curves with your own default probabilities, follow these steps:

1. Click the **CMM** tab on the Investment window. You see the CMM curves as they have been applied on an annual basis.

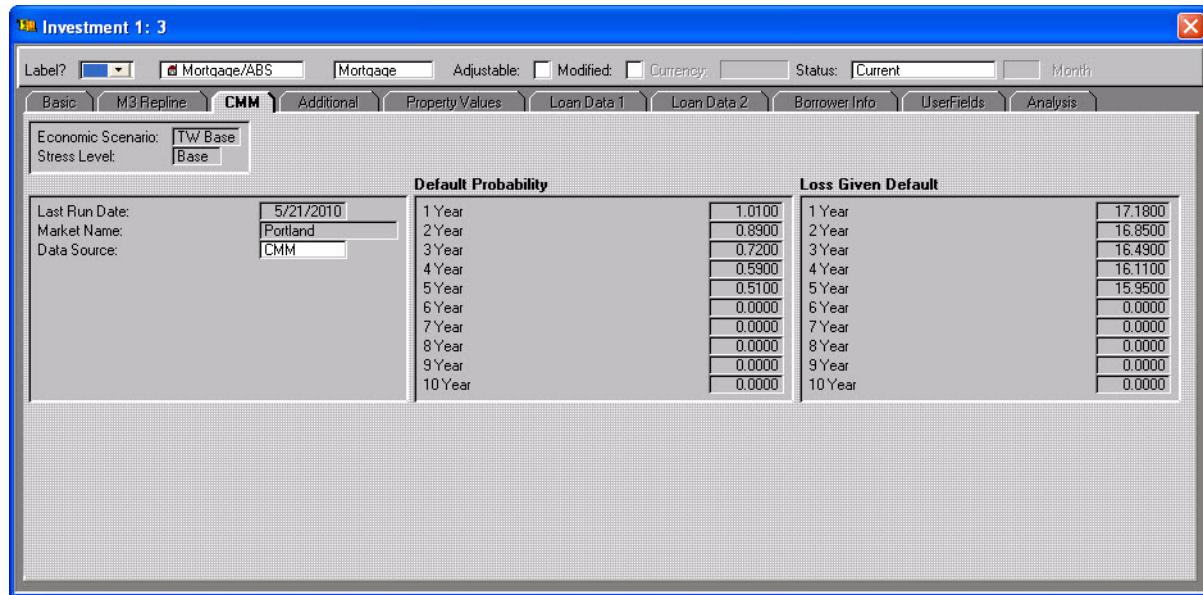


Figure 5.11 Override CMM Curves

2. In the Data Source drop-down field, select
  - **User** to enable the Default Probability and Loss Given Default table fields allowing you to manually enter specific values.



# The ABSROM Module

## About This Module

This section offers a more comprehensive explanation of the ABSROM Module in the SFW application.

The Moody's Rating Agency utilizes the ABSROM tool to produce ratings for EMEA ABS and RMBS deals. By integrating ABSROM into the application, SFW end users have the option to utilize the same calculation methods to produce similar cashflows for EMEA ABS and RMBS deals.

This functionality is offered at an additional cost as an extension to the standard SFW product offering. For information on obtaining this tool, contact your MWSA representative.

## ABSROM Settings

### Calculation Method

When the Calculation Method on the Prepayment Model is set to **Default, Prepay, Sched Prin**, the system calculates:

- Default on the Performing Balance
- Prepay on the (Performing Balance - Defaults)
- Scheduled Principal on the (Performing Balance - Defaults - Prepayments)

When this option is selected in the **Calculation Method** field, the **Prepayment Interest Shortfall Percent** and **Amortization Interest Shortfall Percent** fields become enabled for percentage input (typically 50 for both fields). Both of these effect the calculation of interest under this calculation method.

When the **Default Definition** field on the **Advanced Settings** tab in the Prepayment Model is set to a number "x," SFW stops paying interest on the defaulted portion of the underlying collateral "x" periods before default occurs. A non-zero default definition has the effect of removing the value of the defaults occurring in the next "n" periods from the balance the yield is computed upon (i.e. no income is received on the defaulted loans n periods prior to the default occurring.)



This input has the same effect of modelling delinquencies that ultimately default.

The Yield/Interest (\_PGH\_ACTUAL\_INT) currently calculated in SFW for the underlying collateral is changed when the **Calculation Method** field is set to **Default, Prepay, Sched Prin**. The calculation has been amended to the following formula:

Interest on Portfolio = (Portfolio Balance @ Beginning Period - Defaults -  $\frac{1}{2}$  \* Prepayments -  $\frac{1}{2}$  \* Amortization) \* Annual Yield for current period / Number of periods in a year

TABLE 6.1 Calculation Method in SFW

Portfolio Balance @ Beginning Period	_PGH_BEGBAL
Defaults	(See “Setting the Default Definition” on page 121 below)
$\frac{1}{2}$ Prepayments <sup>†</sup>	_PGH_NPO_UNSPRIN * 0.5
$\frac{1}{2}$ Amortization <sup>†</sup>	_PGH_SCHPRIN1(1) * 0.5
Annual Yield for current period	Collateral Calendar
Number of periods in a year	Collateral Coupon

<sup>†</sup> The Amortization Interest Shortfall Percent and Prepayment Interest Shortfall Percent fields (see “Setting the Default Definition” on page 121 for more information) represent the multiplier in the portion of rows 3 and 4

## Backloaded Losses

In some transactions, the default/loss curve can be **backloaded** which causes the default/loss timing curve to be longer than the amortization timing. Selecting the PCTX default type on the user-defined vector popup on the Prepayment Model enables you to cap the Amortization and Prepayments towards the end of the transaction to allow for the full amount of defaults to occur.

In each period, the model sums the defaults which have already occurred, and calculates the default still required to occur in the current scenario. This gives a cap to the Amortization and Prepayments which would be allowed to occur in the current period.

This feature, which is enabled by default, is applied to the initial pool, plus all reinvestments, if modelled.

Selecting the PCTX default type in SFW changes, limits, and caps any prepayment vectors or amortization vectors to ensure that the desired default amount is applied to the underlying collateral before they are fully paid down.

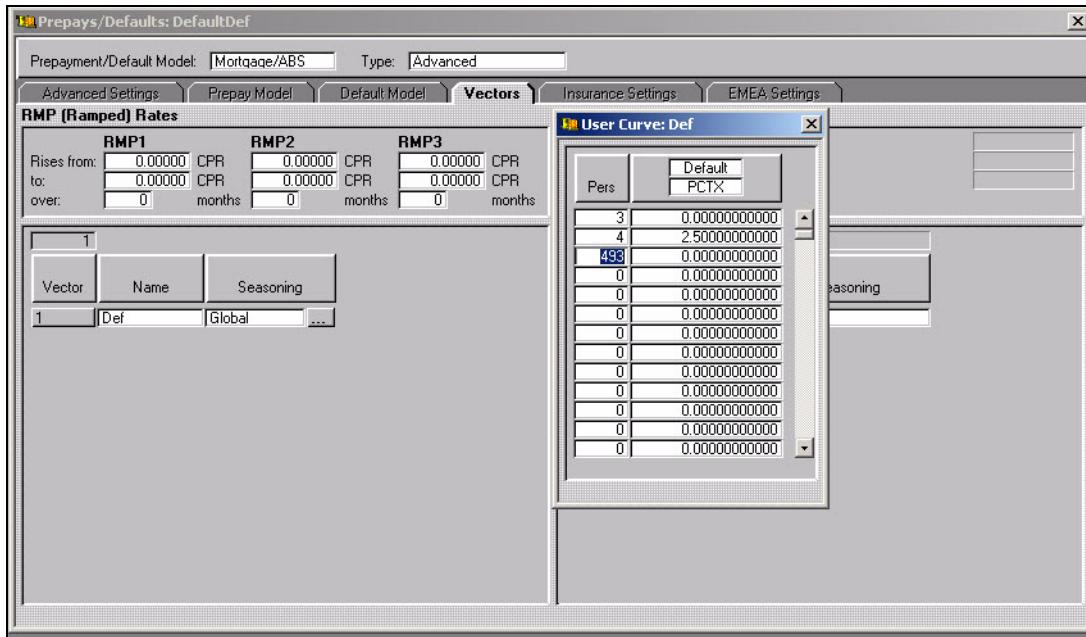


Figure 6.1 PCTX Default type (for Backloaded Losses) on the Vector Tab

# Using the ABSROM Module

This section explains how to use the integrated ABSROM functionality.

To enable the ABSROM Model, first set the **Calculation Method** on the **Advanced Settings** tab to **Default, Prepay, Sched Prin**.

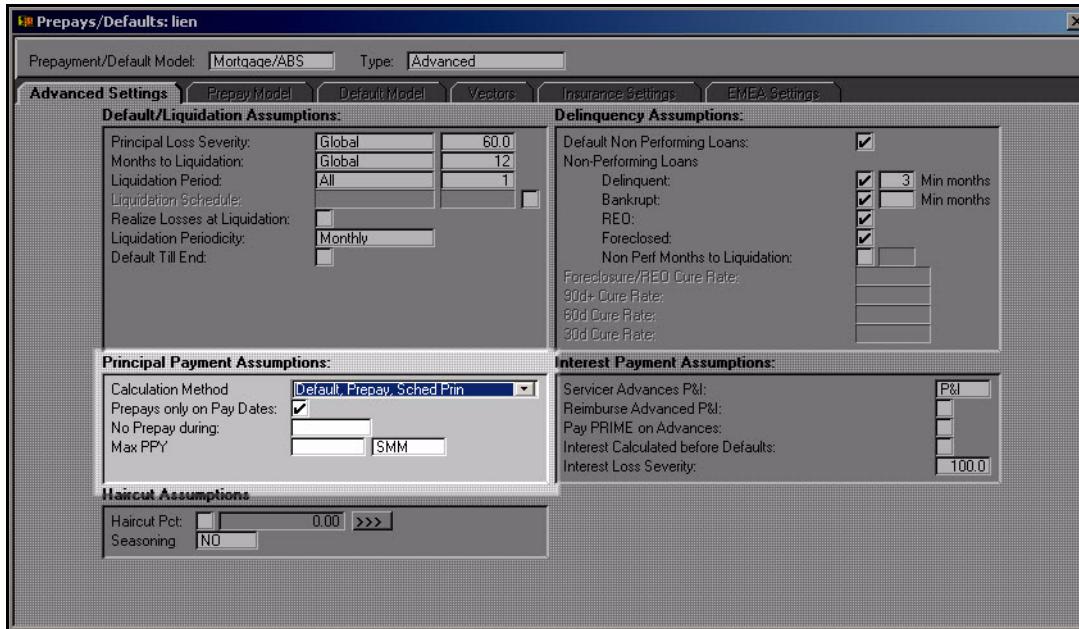


Figure 6.2 Enabling the ABSROM Model

Next, click the EMEA Settings tab.

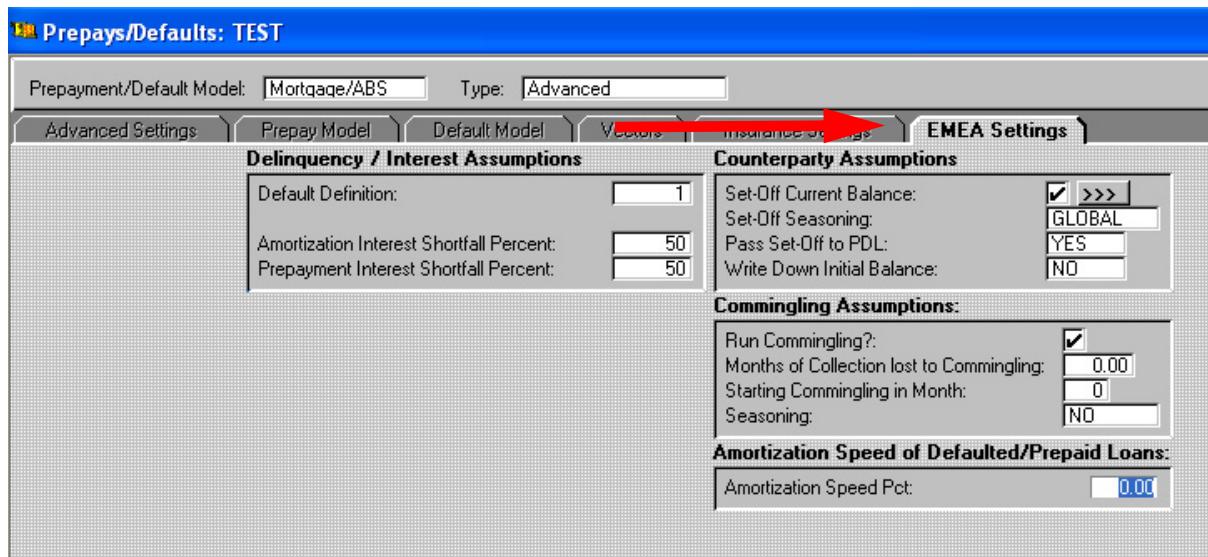


Figure 6.3 EMEA Settings Tab on the Prepayment Model

## Setting the Default Definition

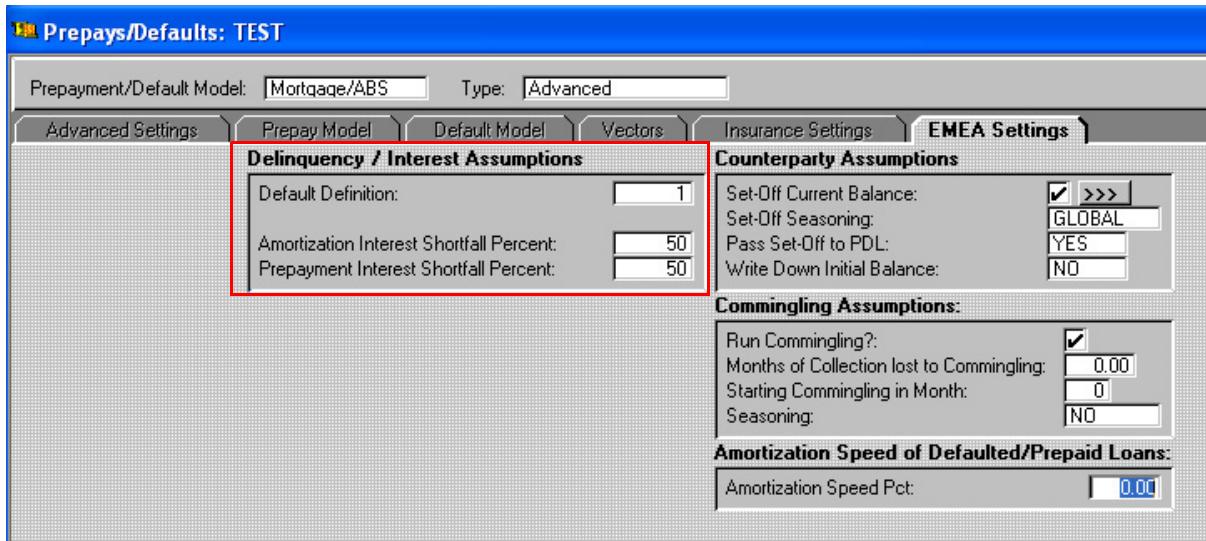


Figure 6.4 ABSROM Settings on the Prepayment Model

When **Default Definition** is set to a number “x,” then SFW stops paying interest on the defaulted portion of the underlying collateral “x” periods before default occurs. Using Table 6.1 on page 118, if the Default Definition was set to 1, then Default equals all the defaults in the current period together with all the defaults in the next 1 period after.

Similarly if the **Default Definition** was set to six periods then Default in period 14 would equal all the defaults in the current period together with all the defaults in the next six periods, which would include all periods 14-20. Thus, if only one default occurred in period 20, then this would be captured in period 14.

Enter the number of periods after the due date when the loan becomes classified as defaulted. The only effect this input has on the cashflow outputs is in reducing the yield for that period by the following amount. A non-zero default definition has the effect of removing the value of the defaults occurring in the next “n” periods from the balance the yield is computed upon (i.e. no income is received on the defaulted loans “n” periods prior to the default occurring.) This input, in effect, replicates modelling delinquencies that ultimately default.

When **Default Definition** option is set to 0, then the Default in Table 6.1 on page 118 refers to all defaults in the current period, and no recalculation is necessary.

Other fields in the **Delinquency / Interest Assumptions** section on the dialog box include:

**Amortization Interest Shortfall Percent:** This field indicates the amount (in percentage) of the expected interest loss on scheduled principal payments. The default setting for this field is 50, however, you can change it.

**Prepayment Interest Shortfall Percent:** This field indicates the amount (in percentage) of the expected interest loss on prepaid principal. The default setting for this field is 50, however, you can change it.

## Counterparty Assumptions

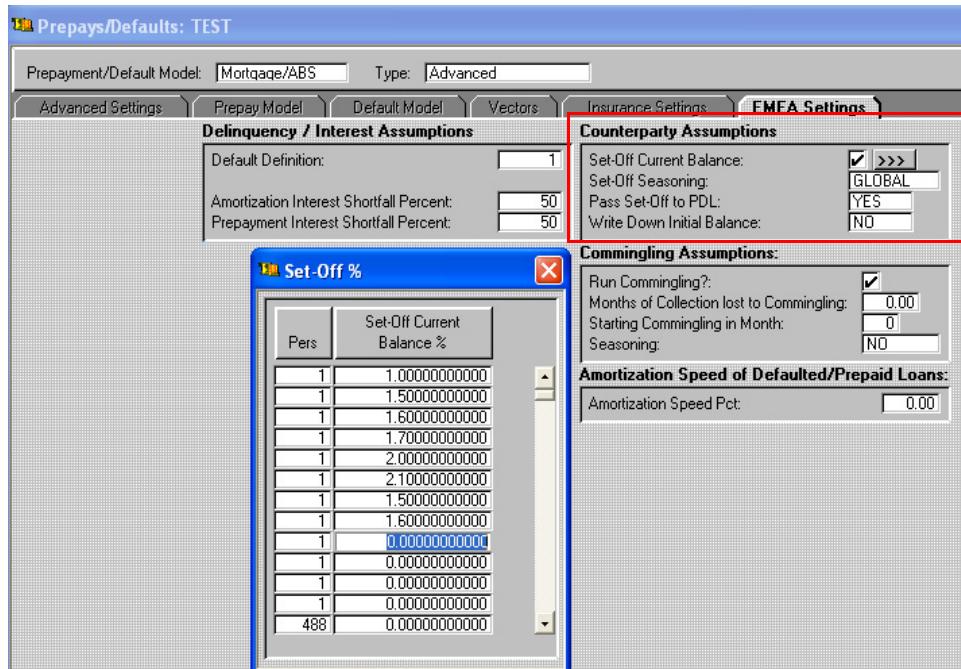


Figure 6.5 Counterparty Assumptions on the EMEA Setting Tab of the Prepayment Model

The **Counterparty Assumptions** fields enable you to further set up default situations used by Moody's Investor Service. These include **Counterparty Default**, **Dutch Set-Off** and **Sovereign Default**—all of which include the following concepts:

- Write-down (Set-Off) of the collateral balance by a user specified percentage
- Set-Off occurs before any calculations are carried out for that month
- From the Cashflow (and PGH variables) standpoint this Set-Off should behave as an extra SMM default with a 0% recovery and 0 months to liquidation



For *Counterparty Default* and *Dutch Set-Off* stresses, you only use the first three fields. For *Sovereign Defaults*, you use all four fields.

The **Counterparty Assumptions** fields include:

**Set-Off Current Balance:** Select the checkbox (which is **not selected** by default) to enable the **Set-Off %** vector window and the fields beneath. The vector includes columns for months and percentage of Set-Off. If there is a value in the **Set-Off** column, then the Collateral Balance is written down by that percentage for that corresponding month. Each vector row (percentage column) is limited to no more than 100%.

**Set-Off Seasoning:** This drop-down field includes two options: **GLOBAL** and **NO** (which is the default setting). When you select **GLOBAL**, the seasoning shifts according to the values entered in the **Set-Off Current Balance** field above.

**Pass Set-Off to PDL:** The default setting for this drop-down field is **YES**. When this field is set to **YES**, then any writedowns as a result of the entries in the **Set-Off** vector above should pass through to the PDL in the waterfall script for that period. This field directly affects the **\_TOTAL\_PDL** waterfall script variable.

**Write Down Initial Balance:** This field is used exclusively for *Sovereign Defaults* so the default setting for this drop-down field is set to **NO**. Select **YES** to change the vector to indicate the timing and severity of the Set-Off, and write down the initial balance of each underlying loan by the first percentage in the Set-Off vector. For example, if you want a 40% writedown in period 11 to indicate sovereign default/redenomination, then you enter 10 periods of 0% and 490 periods of 40% into the vector.

Other calculations that use the initial loan balance, such as the Default PCT, Default PCTX, and Prepay PCT, are also affected.

## Commingling Assumptions

When a Counterparty within a transaction defaults (usually the Servicer), there is the possibility that both Interest and Principal (both Scheduled and Unscheduled/Prepayments) collections going into the transaction will stop for a specified number of periods. This is known as **Commingling Risk**.

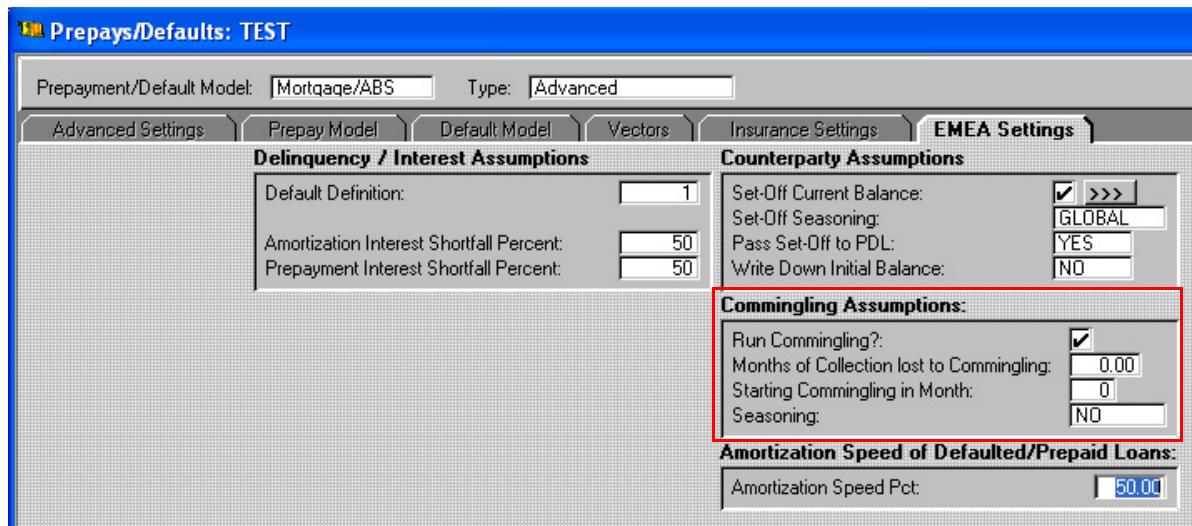


Figure 6.6 Commingling Assumptions on the Prepayment Model

The **Commingling Assumptions** fields on the Prepayment Model include:

- **Run Commingling?**: This is a checkbox field (TRUE/FALSE), whenever this is unchecked then the three fields below should be greyed out. The default value for this field should be unchecked (FALSE).
- **Months of Collection lost to Commingling**: This should be a value accepting both whole months and fractional months, allowing entry from 0 to 500, with a default value of 0. This field represents the number of months that both Interest and Principal (Scheduled, Prepayment, and Recovery) within the deal should be stopped. For example, if the field is set to 3 then Interest and Principal will be zero for three months within the deal.
- **Start Commingling in Month**: Enter whole numbers from 0 to 500 (the default value is 0). This field represents the Month in which the Commingling starts.
- **Seasoning**: This is a dropdown field with two options: **GLOBAL** and **NO** with the default value as **NO**. This field functions as other seasoning fields in SFW: **NO** indicates no seasoning, and **GLOBAL** indicates season with the deal. This seasoning directly affects the **Start Commingling in Month** field above, and shifts accordingly.

## Amortization Speed

The amortization speed of the portfolio determines how dependent the amortization of the portfolio in a period is upon the volume of defaults and prepayments which have already occurred. If the amortization speed is selected to be 0%, then the amortisation in a period does not take into account any defaults or prepayments which have already occurred. In this case the amortization rate for that period is applied directly to the balance of the pool at closing.

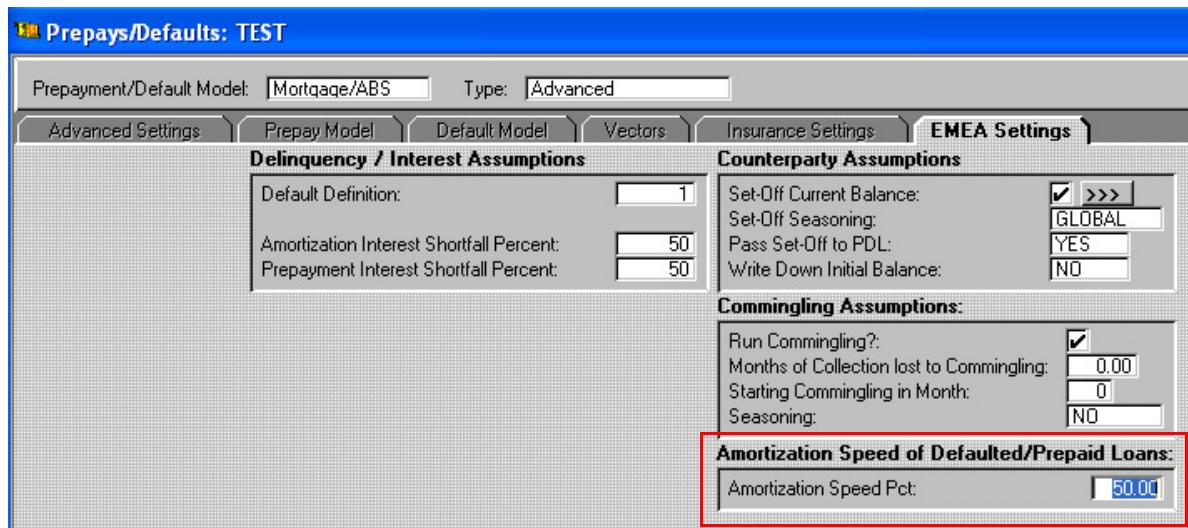


Figure 6.7 Amortization Speed on the Prepayment Model

If the amortization speed is selected to be 100%, then the amortisation in a period takes full account of the defaults and prepayments which have already occurred on the pool up to the current period. This has the effect that the amortisation is calculated on the written down balance of the pool at the beginning of each period.

Selecting the amortisation speed to be 50% means that the amortization in a period is partially dependent on the defaults and prepayments which have already occurred. A 50% amortisation speed input is recommended here - any change to this input requires committee approval, and will be flagged on the Ratings Worksheet.

## Viewing the Cashflow

You can view losses in the in the Default: Commingling Losses column on the Balance Sheet tab on the cashflow view.

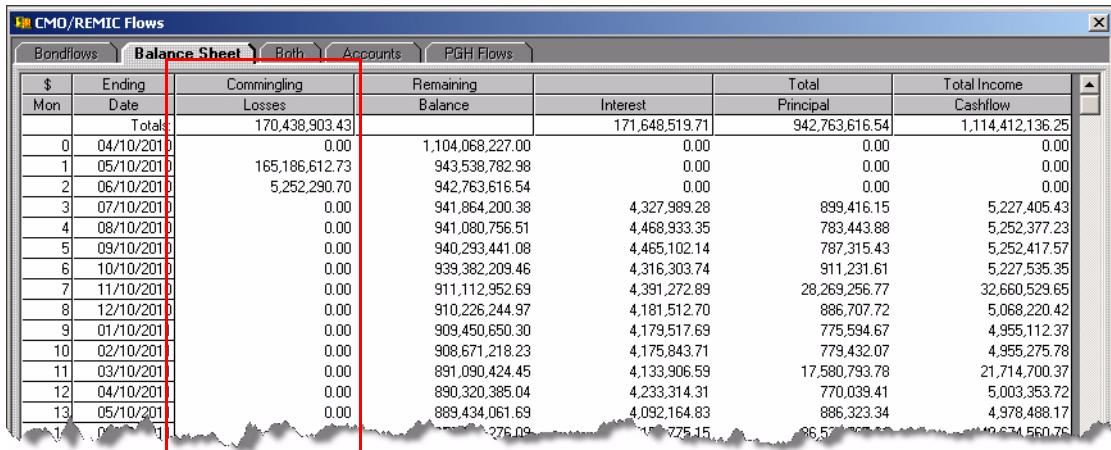


Figure 6.8 Commingling Losses on the Cashflow View

## When Commingling is Active

During the periods where Commingling is activated, the following applies for Amortization, Prepayment and Default:

### Amortization

- All Principal is stopped for the periods that Commingling applies.
- All Principal is diverted to **Default: Commingling Losses** and **\_PGH\_COMMINGLING**.
- The Scheduled Principal is also reduced accordingly.
- The Performing Balance is reduced as normal when Commingling is applied since the borrower has still made the payment, so for them they have still paid down part of their loan.

### Prepayment

- All Prepayments are stopped for the periods that Commingling applies
- All Prepayments are diverted to **Default: Commingling Losses** and **\_PGH\_COMMINGLING**.
- The Unscheduled Principal is also reduced accordingly.
- The Performing Balance is reduced as normal when Commingling is applied since the borrower has still made the prepayment, so for them they have still paid down part of their loan.

### Default, Recovery, and Losses

- Any Defaults that occur during Commingling still occur as normal and reduce the Performing Balance as normal.
- All Recovery cash is stopped for the periods that Commingling applies.
- Any Recovery during Commingling will be diverted to **Default: Commingling Losses** and **\_PGH\_COMMINGLING**.

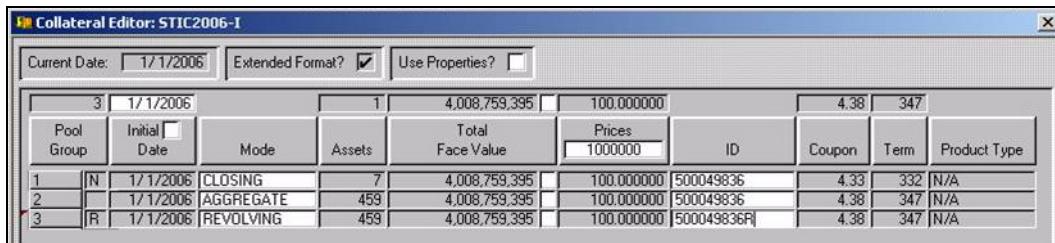
- All monies lost due to Commingling are never recovered.
- Losses that occur while Commingling is enabled behave as normal (recovered cash goes to Commingling).

## Reinvestment Pool (BUY Assets)

The reinvestment functionality involves two main areas: creation of the reinvestment assets and buying those assets in the waterfall script. Once reinvestment assets have been bought they behave the same as any other asset, they pay interest, principal, default, recover and prepay.

### Creating the Reinvestment Assets Pool

You can create a “REVOLVING” pool on the Collateral Editor, and then populate this poolgroup with assets as normal. All of these assets within this pool represent a percentage (100%) of the REVOLVING pool. For example, if you have two assets in the pool – one fixed and the other floating where the fixed face was 25 and the floating was 75 – then these would directly reflect 25% and 75% of the pool. You could also have 50 and 150 and this would represent the same 25% and 75%. So in this instance the Face Value of assets in the pool represents a relative percentage of the pool as opposed to a value of the asset.



The screenshot shows the 'Collateral Editor: STIC2006-I' window. At the top, there are three checkboxes: 'Current Date' (1/1/2006), 'Extended Format?' (checked), and 'Use Properties?' (unchecked). Below the checkboxes is a table with the following data:

Pool Group	Initial Date	Mode	Assets	Total Face Value	Prices	ID	Coupon	Term	Product Type
1	N	1/1/2006	CLOSING	7	4,008,759,395	100,000,000	500049836	4.33	332 N/A
2		1/1/2006	AGGREGATE	459	4,008,759,395	100,000,000	500049836	4.38	347 N/A
3	R	1/1/2006	REVOLVING	459	4,008,759,395	100,000,000	500049836R	4.38	347 N/A

Figure 6.9 Creating a Revolving Poolgroup

### Viewing the Revolving Pool

In the cashflow view screen, you can view the effect of the reinvestment assets, what collateral was bought and when, interest, principal, losses etc.. To add the **Revolving** fields to the Balance Sheet view, right-click on the table header and select **Soft Interface** from the popup menu. Scroll down the list of available fields until you reach the set of options dedicated to revolving pools.

The following viewing options are available on the cashflow view soft interface:

- Revolving: Balance of Buys
- Revolving: Collateral Bought
- Revolving: Defaulted of Buys
- Revolving: Interest of Buys
- Revolving: Losses of Buys
- Revolving: Recovery of Buys
- Revolving: Schd Prinl of Buys
- Revolving: Tot Principal of Buys

- Revolving: Unsched Prin of Buys

When a deal is opened, revolving pools always behave as though they are nullified and are ignored when counting the order of all other poolgroups for the purposes of assigning Poolgroup numbers in the waterfall script. Where “N” is indicated for nullified poolgroups an “R” is displayed and this cannot be toggled. No PGH script variables are populated by the revolving groups. For more information on accessing the revolving pool in the waterfall script, see [“BUY Command” on page 129](#).

## Fees and Interest on Cash

### Fees

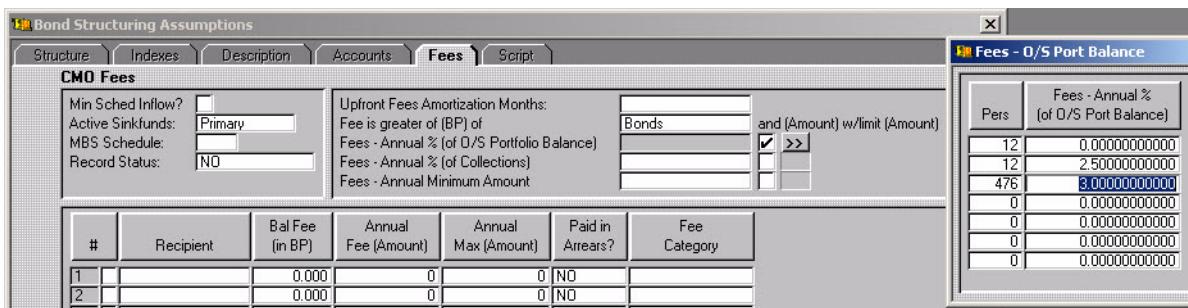


Figure 6.10 Fees Tab on the Bond Structuring Assumptions Dialog Box

Select the **Fees** tab on the **Bond Structuring Assumptions** dialog box.

The vectors available on the **Balance Sheet** tab of the cashflow view for debugging (Fee Item: ABSROM).

The fees fields control the amount of fees in the transaction. You can also vector the fees using the checkboxes.



Be sure to disable any existing fees by checking the box next to the number in # column on the input table.

For more information on accessing this functionality in the waterfall script, see [“Fees” on page 128](#).

### Interest on Cash

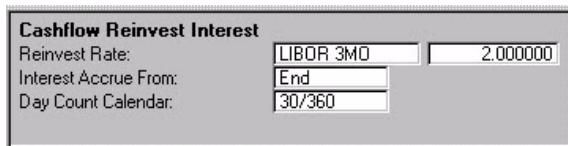


Figure 6.11 Interest Reinvestment Options on Structure Tab of the Bond Assumptions Dialog Box

Select the **Structure** tab on the **Bond Assumptions** dialog box. You can select cashflow reinvestment options for interest. Interest and Principal flowing into the deal can now earn Interest before each determination date. The **Interest Accrue From** field allows the user to specify when in the month the interest should begin

to accrue from. For more information on accessing this feature in the waterfall script, see [“Interest on Cash” on page 128](#).

To debug, you can use the **PoolG #1 Cash Reinvest** option on the soft interface of the cashflow view screen.

## Waterfall Variables

This section contains related waterfall script variables for use with EMEA deals.

### Counterparty Assumptions

A new waterfall system variable called “`_CF_SETOFF`” which captures the accumulated Set-Off amounts applied to the underlying Collateral across the current and previous months. This new system variable should only capture these values when the **Pass Set-Off to PDL?** field is set to NO, otherwise it should be zero.

### Commingling Assumptions

- The system variable called "`_PGH_COMMINGLING`" captures the losses
- Principal lost should be added to all places principal losses are tracked (`_PGH_PRIN_LOSS`, `_PGH_CUMU_PRIN_LOSS`, `_PGH_REGLOSS`, columns in view screen, etc.). Interest losses would also be added anywhere these are tracked.
- PGH variables for cashflows that are lost as part of commingling risk would be 0 (as well as their associated view screen columns)

## Fees

Affected vectors for ABSROM Fees: `_PGH_ACTUAL_INT`, `_PGH_WNETCPN`, `_CF_INTEREST`, `_CF_TPAYMENT`, `_CF_TCASHFLOW`.

### Interest on Cash

Affected vectors for interest on cash: `_PGH_ACTUAL_INT`, `_PGH_CASH_REINVEST`, `_CF_TCASHFLOW`.

### Default Definition

The effect of the Default Definition on the delinquency variables in the waterfall script is as follows:

All the waterfall system variables with the `_PGH_END_DELBAL` prefix take into account these delinquencies, the relevant waterfall system variables are listed in the table below.

<code>_PGH_END_DELBAL_6M</code>	<code>_PGH_END_DELBAL_GT1Y</code>	<code>_PGH_END_DELBAL_LT5M</code>
<code>_PGH_END_DELBAL_9M</code>	<code>_PGH_END_DELBAL_LT1M</code>	<code>_PGH_END_DELBAL_LT6M</code>
<code>_PGH_END_DELBAL_GE3M</code>	<code>_PGH_END_DELBAL_LT1Y</code>	<code>_PGH_END_DELBAL_LT7M</code>
<code>_PGH_END_DELBAL_GE5M</code>	<code>_PGH_END_DELBAL_LT2M</code>	<code>_PGH_END_DELBAL_LT8M</code>

```
_PGH_END_DELBAL_GE6M _PGH_END_DELBAL_LT3M _PGH_END_DELBAL_LT9M  
_PGH_END_DELBAL_GE9M _PGH_END_DELBAL_LT4M
```

When calculating, these delinquency balance waterfall script variables first run the existing calculations as normal, then add these delinquencies on top. The delinquencies should be based upon the same calculation used to work out the Default Definition above. For example if the Default Definition is set to “2” then all Defaults will stop paying Interest two periods before they Default. Similarly within these two periods in which the collateral is “Delinquent” it should be included in the delinquency variables ending with “\_LT1M” and “\_LT2M” in both periods before default occurs (if the two periods represented months).

## BUY Command

```
SET POOLGROUP 1 ;  
BUY __PRIN FROM __PRIN AT 100 OF REVOLVING 1 ;
```

The Set Poolgroup command indicates what poolgroup you are buying into (cashflows from the newly bought assets integrate with this group's PGH flows). AT 100 indicates the price at which you are buying assets; however, you can change this amount.

When OF REVOLVING is entered before the asset indicator number, this indicates to buy the whole revolving group 1 prorata with the balances of the non-nullified assets in this group. Revolving group 1 is the first group that is mode Revolving

Other variables associated with this functionality include:

_CF_BUY	_CF_BUY_BAL
_CF_BUY_BALLN_DEF	_CF_BUY_COST
_CF_BUY_INT	_CF_BUY_LOSS
_CF_BUY_PRIN	_CF_BUY_RECOVERED
_CF_BUY_SCHD_PRIN	_CF_BUY_UNSCHD_PRIN



# Japanese Related Functionalities

## Japanese-Asset Type

This section offers a more comprehensive explanation of the Japanese related functionalities developed in the SFW application.

The “Japan-Asset” type models the Cash flows characteristics of a typical Japanese mortgage loan. The features will be discussed in details with explanation of the various fields.

### Setup

Step 1 : Click on the collateral button. This will bring up the collateral editor. Double click on the Poolgroup ID.

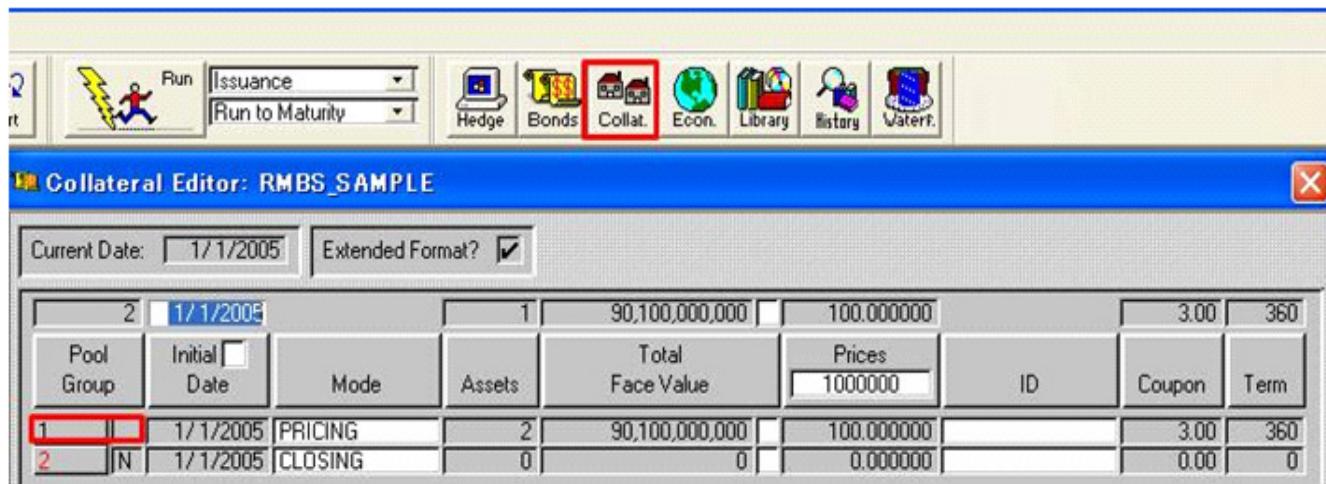


Figure 7.1 Collateral Editor Screen

Step 2: This will bring up the asset. Double click on one of the assets to bring up the details. Select "Japan-asset" from the drop down.

The screenshot displays two windows of Moody's Analytics software:

- Poolgroup #1 Assets** (Top Window):
  - Basic tab selected.
  - Net Coupon Target: 0.00000000
  - I/O Strip: Total: [ ]
  - P/O Strip: Total: [ ]
  - Net Total: [ ]
  - Table: 2 items
 

Assets	Max Coupon	Max Term	Next Coupon	ID	Face Value
1					100,000,000.00
2					90,000,000,000.00
- Investment 1: Mortgage/ABS** (Bottom Window):
  - Label? [ ] Mortgage/ABS
  - Japan-Asset dropdown menu open, showing options: ABS, Lease, SubPrime, Relocation, Global, HELOC, Japan-Asset (selected), and another option.
  - Basic tab selected.
  - Current Face: 100,000.00
  - Update Factor: [ ]
  - Original Face: [ ]
  - Payment Amt: [ ]
  - Payment Rate: [ ]
  - Pool Factor: 0.00110988
  - Deal Factor: 0.00110988
  - Adjustable tab selected.
  - Loan Data 1 tab selected (highlighted in blue).
    - Coupon: 0.000000
    - Next Coupon: 0.000000
    - Levying Rate: 0.000000
    - Max Coupon: [ ]
    - Strip Type: [ ]
    - Bal Wt Factor: 0.000
  - Loan Data 2 tab selected (highlighted in blue).
  - Borrower Info tab selected.
  - UserFields tab selected.
  - Maturity Date: [ ]
  - Term/Orig Term: [ ]
  - Max Term?: [ ]
  - Issue Age: [ ]
  - Update Age: [ ]
  - Dual Amort Term: [ ]
  - Paid Through: [ ]

Figure 7.2 Selecting Japan-Asset in the Collateral Asset Screen

Step 3: To view the cash flow, click on the “Run Loan” icon.

The screenshot shows the 'Investment 1: Mortgage/ABS' window with the 'Adjustable' tab selected. The 'Adjustable' checkbox is checked. The 'Run Loan' button is highlighted with a red box. The table below shows loan amortization details:

Mon	Ending Date	Remaining Balance	Paid Interest	Unpaid Interest	Accumulated Unpaid Interest
	Totals:		1,063,523,201.92	0.00	7,905,964,286.26
0	01/01/2005	100,000,000.00	0.00	0.00	0.00
1	02/01/2005	99,722,222.22	0.00	0.00	0.00
2	03/01/2005	99,527,546.30	83,101.85	0.00	0.00
3	04/01/2005	99,324,051.79	165,879.24	0.00	0.00
4	05/01/2005	99,202,988.17	248,310.13	0.00	0.00

Figure 7.3 Japanese-related Functionalities in Adjustable tab

The following fields are applicable only when the loan is a floating loan. ( To set the asset as a floating loan, check the “Adjustable” checkbox which is beside the asset type dropdown box. )

### Coupon Average

When this is checked, the following 2 fields will be activated

- Lookback : specifies the amount of lag between the Coupon Index and the coupon used. For example, when Lookback = 2, the current coupon will be calculated based on the Coupon Index 2 periods ago.

- Window : specifies the window length for the moving average calculation of coupon. For example, when Window = 6, the current coupon will take the value of the average of the nearest 6 period worth of Coupon Index.

### Certain Loans Resets the Coupon Rate According to a Cycle.

The following fields can be used to achieve this :

- Rate Reset Month: The first month from which Coupon Index will be reset.
- Frequency: The frequency of coupon resets.
- 1st Rate Reset Override: check the checkbox next to this field to activate it. This specifies the first month at which rate reset will occur. Usually this field will assume a smaller value than the Rate Reset

Example: Rate Reset Month = 5

Frequency= 6

1st Rate Reset Override = 3

The first rate reset will occur at the 3rd period, the second rate reset will occur at the 5th period and every 6 months thereafter.

### Periodic Pay Cap (Pct)

Unlike the US-mortgage asset types, the Periodic Pay Cap (Pct) field for a Japan-asset is unidirectional. It limits the maximum amount which the monthly payment amounts can increase during a pay reset. ( Note, it does not limit the amount which the monthly payments can decrease during a pay reset. )

Example: Periodic Pay Cap (Pct) = 25

Assume that: Previous monthly payment = \$1000

This means that the monthly payments during the next pay reset will be capped at 125% of \$1000 = \$1250. Hence, the next monthly payments can mathematically take any value from 0 to 1250.

### Cashflow Screen of the Japanese Asset

After the asset is unloaded, click on “Run Loan”. The cash flow of the asset will then be displayed. Japan-asset has the following extra fields not found in other asset types:

- 1) Unpaid Interest: Unpaid interests for the Japan-asset mortgage occurs when monthly payment amount is insufficient to meet interest obligations for that period. ( i.e. Monthly\_Payments < Coupon\_Rate x Loan\_Balance x Days ). This can happen when interest rates are rising and we have a Period Pay Cap (Pct) in place which limits the maximum amount of monthly payments. These unpaid monies are recorded as unpaid interest for that period.
- 2) Accumulated Unpaid Interest: The cumulative sum of Unpaid Interest so far.
- 3) Index: The value of the Coupon Index every period. ( Forward rates displayed.)
- 4) Coupon: Application of the Rate Reset Month / Frequency and 1st Rate Reset Override to the Index column will give us this column.

- 5) Referred Coupon: Application of the Lookback to the Coupon column will result in this column.
- 6) Average Coupon:: Application of the Window to Referred Coupon column will result in this column.

## Calendar Function

Japanese investors are very particular about accrued interests and would want to project cashflows to the exact dates, where the end user can adjust the dates manually in a date payment vector. This allows adjustments for holidays, weekends, etc. Also, one additional Holiday Code was added called “Japan”, which is based on the Japanese Holiday calendar.

Here is how to use the Calendar function in SFW.

- Click on the “1st Pay” button on the Bond Structure Editor to open the Bond Pay Dates window.

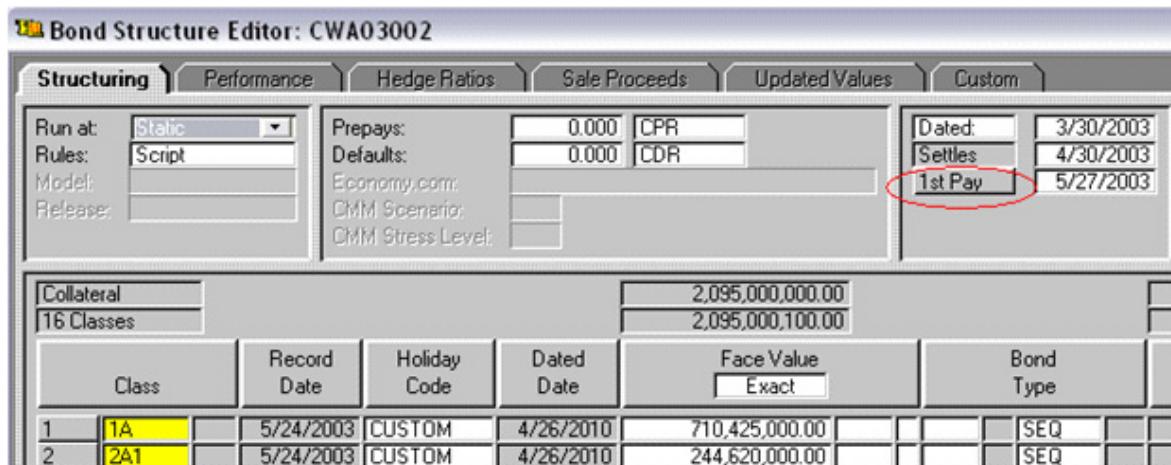


Figure 7.4 1st Pay Button in Bond Editor

- If you would like to set up a CUSTOM Holiday Code, you can click on the arrow button next to “CUSTOM Holiday Code Setup” on the Bond Pay Dates window..

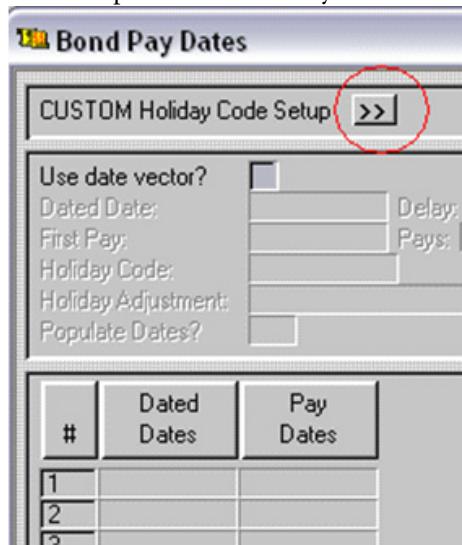


Figure 7.5 Custom Holiday Code Setup Button

- In the CUSTOM Holiday Code Setup window, you can set up the Holiday Schedule for CUSTOM Holiday Code.

You can cycle through the “Additional Holiday from” field to choose which Existing Holiday code you would like to build this CUSTOM Holiday code on. When “NONE” is picked, you will build the CUSTOM Holiday Code based on the Holiday Schedule only.

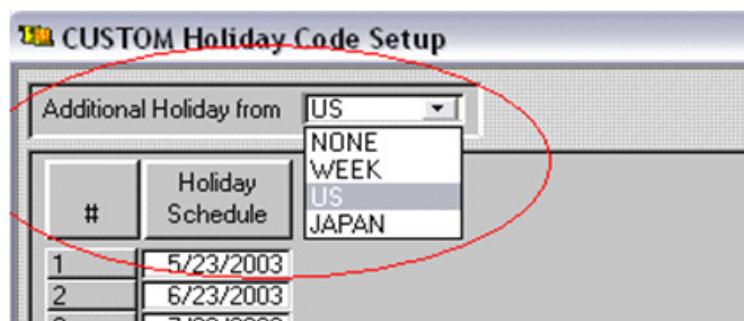


Figure 7.6 Select Additional Holiday

- You can manually enter additional Holiday to the CUSTOM Holiday Code by one of the following 2 methods.

Use Ctrl+I to insert new row into the Holiday Schedule, and either enter the Holiday Schedule manually or copy and paste the Holiday Schedule from the Excel file.

Right Click to use the “Load Holiday Calendar” feature to load the Holiday Schedule from Excel directly.

The Holiday Schedule has to be on the first Sheet of the Excel file, but can be either on column A or column B.

- The following information on the Bond Pay Dates window is imported from the Bond Structure Editor.
  - Dated Date
  - First pay
  - Delay
  - Pays

You can also modify the First Pay, Delay and Pays on the Bond Pay Dates window, and the change will be reflected on the Bond Structure Editor as well.

- Cycle through the “Holiday Code” field to choose which Holiday Code to use for business day adjustment. We added the following 2 new Holiday Code.
  - JAPAN – Japanese Holiday and weekend.
  - CUSTOM – the customized holiday the user set up in the CUSTOM Holiday Code Setup window.
- When the Holiday Code field is set to any Holiday Code other than “NONE”, the “Holiday Adjustment” field will be enabled for the user to set how the Payment date should be adjusted when it’s on Holiday or weekend.
  - Next Business Day

b. Prev Business Day

- Click on the arrow button next to “Populate Dates?” to populate the Pay Dates schedule. The Pay Dates will be populated based on the “First Pay” and “Pays”, and the Dated Dates will be populated based on the “Delay”. Both of them will be adjusted based on the Holiday Code.
- After the Pay Dates are populated, the user can also manually adjust if needed.
- When the Bond Pay Dates window is closed, the Pay Dates and Dated Dates schedule will be saved in the deal file.
- When the Holiday Code at both Tranche level and Loan level are set to blank, the tranche and the loan will be using the Pay Dates and Dated Dates schedule set up above to calculate accrued interest.
- We also added the Macro Syntax to access the above new windows.

## Rounding Collateral Cashflows

Mortgages in certain currencies need to be rounded off during cash flow calculations. For example, the smallest denomination in Japanese Yen is 1 Yen . Hence cash flow calculated should not go below 1 yen. The Cashflow Rounded /Code enables users to control how the collateral cashflows are rounded.

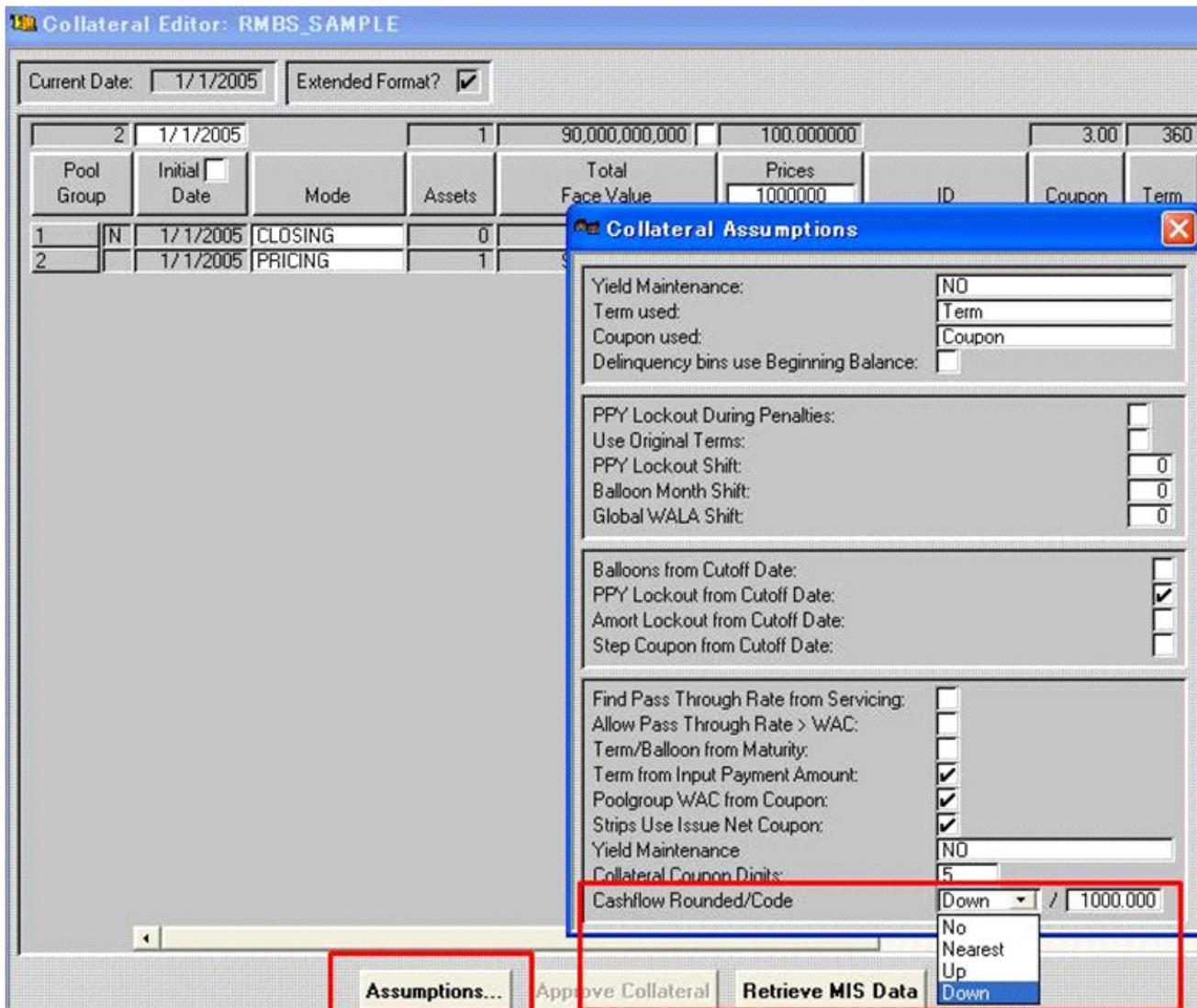


Figure 7.7 Cashflow Rounded / Code in Collateral Assumptions

Cashflow Rounded /Code can be activated via the following steps:

- 1) Launch the collateral editor
- 2) Press Assumptions
- 3) "Collateral Assumptions" will pop-up. Cashflow Rounded /Code is available in the last row.

Available Fields of "Cashflow Rounded/Code" - Dropdown field with the following 4 choices.

- No -- this is the default choice.
- Nearest -- this option will behave like the Round function in Excel.

- Up -- this option will behave like the Roundup function in Excel.
- Down – this option will behave like the Rounddown function in Excel.

By default, the above dropdown field is set to “NO”, and when the field is set to “NO”, the Cashflow Code field is grey out.

When the “Cashflow Rounded” field is set to “Nearest”, “Up” or “Down”, the “Cashflow Code” field will be enabled, and the user can specify the decimal place of the rounding.

#### Cashflow Rounding:

When the “Cashflow Rounded/Code” field is set up in the Global Assumption, the following cashflow component should be rounded according to the Rounding setting at loan level.

- Default Principal
- Schedule Principal
- Prepayment Principal
- Recovery from Default
- Loss from Default
- Interest
- Unpaid Interest

The other Cashflow components don't need to be rounded but they will be affected by the rounding of the above components.

