



RiskManager™

Using LiquidityMetrics

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The company's flagship product offerings are: the MSCI indices with approximately USD 7 trillion estimated to be benchmarked to them on a worldwide basis¹; Barra multi-asset class factor models, portfolio risk and performance analytics; RiskMetrics multi-asset class market and credit risk analytics; MSCI ESG (environmental, social and governance) Research screening, analysis and ratings; ISS governance research and outsourced proxy voting and reporting services; FEA valuation models and risk management software for the energy and commodities markets; and CFRA forensic accounting risk research, legal/regulatory risk assessment, and due-diligence. MSCI is headquartered in New York, with research and commercial offices around the world.

¹As of June 30, 2011, based on eVestment, Lipper and Bloomberg data.

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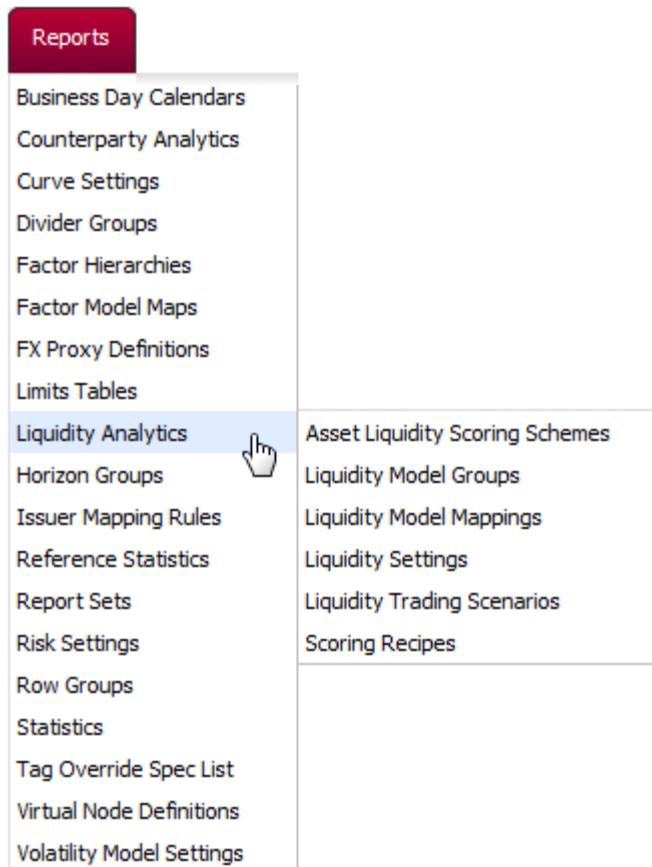
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Getting Started with LiquidityMetrics

Before starting to work with LiquidityMetrics, make sure that the following requirements have been met:

- Position enrichment should be turned on in your RiskManager account for MSCI's bid-ask spread and trading volume tags for equities, bonds, and listed derivatives.
- Bond bid-ask (BLM) data requires a subscription or a trial agreement
- The LiquidityMetrics module must be permissioned in
- ITG equity liquidity surfaces dataset should be permissioned if needed. This data requires a subscription or a trial agreement.
- Experimental bond liquidity surfaces supplied by MSCI to LiquidityMetrics subscribers is accessible.

LiquidityMetrics functionality is primarily accessed through the Reports Tab. Interfaces for creating Liquidity settings and models are available through the Liquidity Analytics submenu shown below. You can create and access Liquidity reports using LiquidityMetrics statistics using RiskManager's interactive reporting interface.

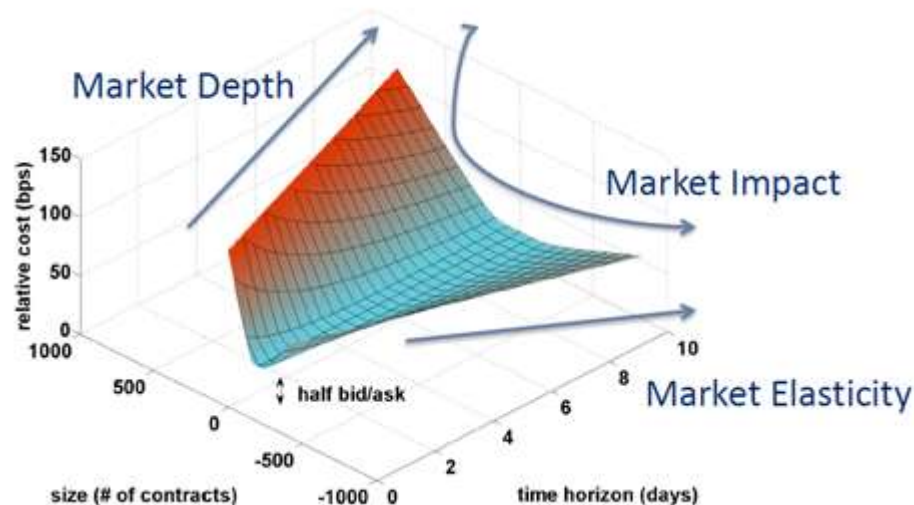


To get started using LiquidityMetrics, click on any of the links below to navigate to that help page.

1. **Review LiquidityMetrics Analytics**
2. **Set-up Liquidity settings with bid-ask spread and trading volume data**
3. **Optional user customization:**
 - **Liquidity Model Groups and Maps:** User-defined Liquidity Surfaces that can be mapped to specific assets.
 - **Trading scenarios:** Defines the amount of each asset that you will be selling or buying.
 - **Liquidity Scores:** Define position and portfolio-level liquidity scores used with Transaction Cost or Liquidation Horizon statistics. You can define scoring buckets and apply different liquidity scoring "recipes" (such as Highly Liquid, Liquid and Illiquid-relative to transaction cost or horizon).
 - **Average Daily Volume :** Used for calculating liquidity horizon and liquidity size statistics when a liquidity surface is not available.
4. **Create Liquidity Stress Tests**
5. **Create Liquidity Reports**
 - a. **Configure Liquidity Statistics**

Understanding Liquidity Surfaces

The central concept in the LiquidityMetrics methodology is that of a liquidity surface. A liquidity surface is a function of an asset's Transaction Cost with respect to Order Size and Liquidation Horizon (time available for order execution). Transaction cost, order size, and liquidation horizon are the fundamental dimensions of market liquidity, and provide the complete description of an asset's liquidity. The following picture illustrates a hypothetical liquidity surface (also referred to as Liquidity Model in RiskManager).



Only six numbers required to calibrate a liquidity surface for any assets:

- bid-ask spread
- 1-day normal market size
- 1-day large order size
- 1-day market depth
- 1-day market impact multiplier
- Relaxation time.

A Note on Bid-Ask Spreads

In LiquidityMetrics, $\frac{1}{2}$ bid-ask spread is the expected transaction cost of either a sell or buy order. It is very important to understand the relationship between liquidity surfaces and bid-ask spreads. In LiquidityMetrics, the transaction cost of an order is a sum of $\frac{1}{2}$ bid-ask spread, and market impact. In Figure 1 above, you can see that $\frac{1}{2}$ bid-ask spread is the transaction cost of small orders, where size is close to or equal to zero.

For listed assets, bid-ask spreads are obtained directly from the market, or estimated on a daily basis from market data (as in the case of bond bid-ask spreads). Bid-ask spread is an asset-specific parameter.

For most asset classes, other parameters of a liquidity surface such as market depth or market elasticity cannot be obtained from market data. These parameters can only be collected using the survey approach mentioned above. These parameters must be defined for categories of assets with similar liquidity characteristics (i.e. German Sovereign Bonds, European HY non-financial corporate bonds, etc.), because it is simply impractical to survey this data for each individual assets. For the same reason, it is only practical to perform liquidity surveys on a less frequent (i.e. monthly, quarterly) basis.

Therefore, in LiquidityMetrics, liquidity surfaces are calibrated with daily, asset-specific bid-ask spread data, and monthly (or less frequent) asset-class data for the other parameters of a liquidity surface. The only exception to this is ITG equity liquidity surfaces, which we is discussed in the Market Data section.

If a bid-ask spread is not available for a given asset, transaction cost cannot be calculated for that asset, even if a liquidity surface has been calibrated for the asset class/category the asset belongs to. If a bid-ask spread is available, but not the liquidity surface, transaction cost can still be calculated; although the transaction cost ignoring ignores the market impact, market depth, and market elasticity information contained in the liquidity surface.

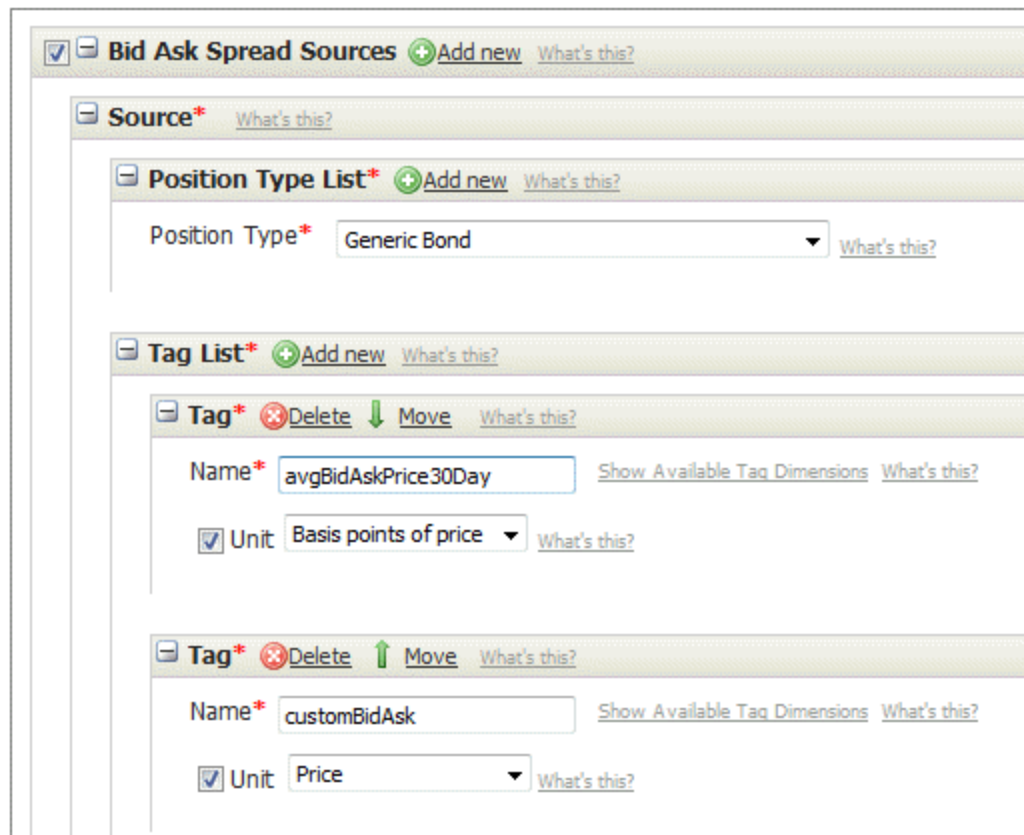
Liquidity Data Sources

- Configuration of bid-ask spread sources involves first defining the names of tags containing the bid-ask spread data, as well as the priority of those tags when there is more than one. Click this [link](#) for more information about setting up these tags and to view a Bid-Ask Spread Tag Table
- The Average Daily Volume approach can be used for calculating liquidity horizon and liquidity size statistics, when a liquidity surface is not available. Click this [link](#) to view the Average Daily Volume Liquidity Settings

To set up Liquidity Data Sources in RiskManager, choose Liquidity Settings from the Liquidity Analytics submenu in the Reports tab.

The screenshot below illustrates a bid-ask spread tag hierarchy defined for bonds modeled with Generic Bond instrument.

In this example, two bid-ask spread tags are specified: avgBidAskPrice30Day, and customBidAsk. If both tags are present for a position, the avgBidAskPrice30Day tag will have priority because it appears above customBidAsk in the list. If avgBidAskPrice30Day tag is not present, then RiskManager will look for the customBidAsk tag. If neither is present, RiskManager uses the tag designated for the Default Bid Ask Spread source.



The screenshot shows the 'Bid Ask Spread Sources' configuration window. It includes a 'Source*' section with a 'Position Type List*' dropdown set to 'Generic Bond'. Below this is a 'Tag List*' section containing two tags:

- Tag 1:** Name: avgBidAskPrice30Day, Unit: Basis points of price.
- Tag 2:** Name: customBidAsk, Unit: Price.

Each tag entry has icons for 'Delete' and 'Move'.

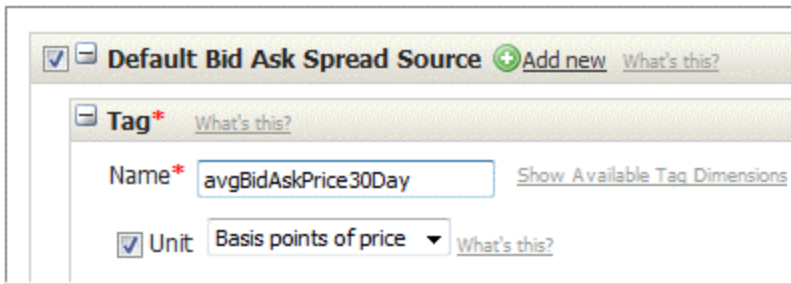
Bid-Ask Spread Units

It is important to correctly specify the bid-ask spread quotation units. Currently, RiskManager supports two quotation types:

1. Price: price per share or unit
2. Basis Points of Price: price bid-ask spread divided by the mid-price, and expressed in basis points

For all listed assets, bid-ask spreads provided by MSCI are in Price units. Bond bid-ask spreads estimated with MSCI's BLM models, are expressed in Basis Points of Price.

It is not necessary to define bid-ask spread sources for each position type. In most situations, it should be sufficient to define default bid-ask spread sources, as shown below:



The screenshot shows a web interface for configuring the 'Default Bid Ask Spread Source'. It includes a 'Tag' field with the value 'avgBidAskPrice30Day' and a 'Unit' dropdown menu set to 'Basis points of price'. There are also links for 'Add new', 'What's this?', and 'Show Available Tag Dimensions'.

If a bid-ask spread source is not defined for a given position type, RiskManager looks for the tag defined as the default bid-ask spread source.

Using Bid-Ask Spread Tags

For most assets, bid-ask spreads are provided as position tags. For many assets, MSCI provides bid-ask spread tags as part of its Terms & Conditions Enrichment service. Users can also provide their own bid-ask spread tags for any asset. RiskManager allows users to define more than one tag as a source of bid-ask spread for an asset class, and to prioritize these sources. If a bid-ask spread tag has been provided by both MSCI and you, your bid-ask spread can be configured to override the MSCI bid-ask spread, and or vice-versa.

The following table lists the bid-ask spread tags available from MSCI:

Asset Class	Bid-Ask Spread Tag Names	Units	Source
Equities	lastBidAskSpread avgBidAskSpread30Day	Price	Exchanges

	avgBidAskSpread60Day avgBidAskSpread90Day		
<i>Bonds</i>	bidAskPrice avgBidAskPrice30Day avgBidAskPrice60Day avgBidAskPrice90Day	Basis Points of Price	MSCI BLM models
<i>Listed Derivatives</i>	lastBidAskSpread avgBidAskSpread30Day avgBidAskSpread60Day avgBidAskSpread90Day	Price	Exchanges

Using Average Daily Volume

Average Daily Volume is used for calculating liquidity horizon and liquidity size statistics when a liquidity surface is not available. RiskMetrics provides average daily volume data for equities and most listed derivatives. Average daily volume is provided via the T&C Enrichment service. The following volume tags are available:

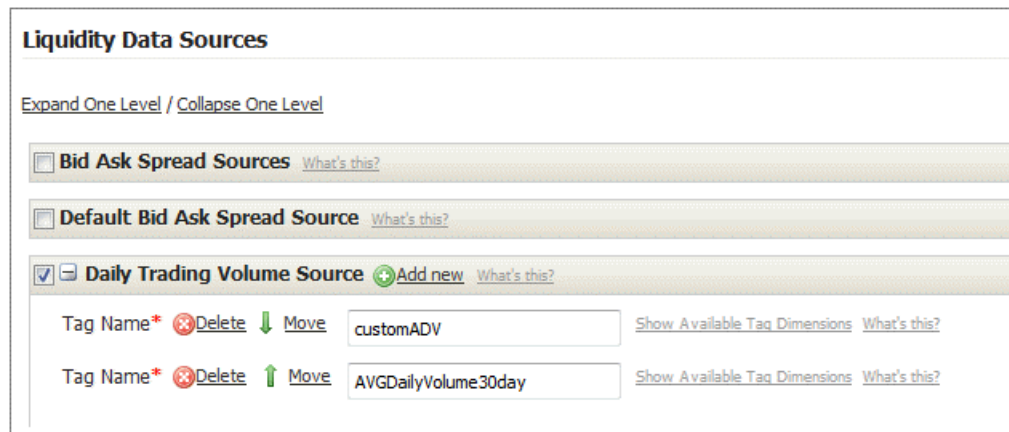
Tag	Assets	Description
avgDailyVolume30Day	Equities, listed derivatives	Primary exchange volume
avgDailyVolume60Day	Equities, listed derivatives	Primary exchange volume
avgDailyVolume90Day	Equities, listed derivatives	Primary exchange volume
avgConsolidatedDailyVolume30Day	Equities	Consolidated volume
avgConsolidatedDailyVolume60Day	Equities	Consolidated volume
avgConsolidatedDailyVolume90Day	Equities	Consolidated volume

For assets not covered by MSCI, clients can provide their own Average Daily Volume data, when available. Any custom tag can be used.

To enable the use of ADV in the application, the ADV tag hierarchy needs to be specified in Reports>Liquidity Analytics>Liquidity Settings.

In the screenshot below, two tags options are used as a source of average daily volume: customADV and avgDailyVolume30Day. Based on this these specifications, the engine will first check if customADV tag is present on a position. If it is available, it will be used. If it is not available, the engine will check if the avgDailyVolume30Day tag is available.

You can configure bid-ask spread sources in the Liquidity Settings screen. Reports > Liquidity Analytics > Liquidity Settings.



Liquidity Data Sources

[Expand One Level](#) / [Collapse One Level](#)

☐ **Bid Ask Spread Sources** [What's this?](#)

☐ **Default Bid Ask Spread Source** [What's this?](#)

☒ **Daily Trading Volume Source** [Add new](#) [What's this?](#)


Tag Name* Delete Move	customADV	Show Available Tag Dimensions What's this?
Tag Name* Delete Move	AVGDailyVolume30day	Show Available Tag Dimensions What's this?

Creating Liquidity Model Groups

You can use a Liquidity model Group to create custom liquidity surfaces and group them together using a common name that describes the group. For instance, you could create several liquidity surfaces for bonds and group under the Model Group Name "Bond Liquidity Models".

After you have created Liquidity Model group, you must **map the group to specific assets**.

To create a Liquidity Group and create custom Surfaces:

1. Choose Liquidity Models from the LiquidityMetrics submenu in the Reports tab.
2. Next click Create Liquidity Model > New.
3. After you create a new model group, enter an appropriate name, then click  [Add Liquidity Model](#) .

The options provided allow you to name and customize a liquidity surface, as shown below:

Model Group Name:
Bond Liquidity Model Group

TAGS ▶

☒ **Impact Curve Dimension**
Order Size: Notional ☐ Currency: USD ☐
Market Impact: Half Bid-Ask Spread ☐

Liquidity Model

Generic Bond Liquidity Model

High Yield Bond Model

Expand One Level / Collapse One Level
☒ Name: Generic Bond Liquidity Model [What's this?](#)
☐ **Impact Curve Dimension** [What's this?](#)
☒ **Sell Impact Surface** basicImpactSurface [What's this?](#)
☒ **Basic Impact Surface** [What's this?](#)
☒ Normal Market Size: 1,000,000.00 [What's this?](#)
☒ Bid-Ask Multiplier: 2.00 [What's this?](#)
☒ Large Order Size: 5,000,000.00 [What's this?](#)
☒ 1-day Market Depth: 10,000,000.00 [What's this?](#)
☒ Relaxation Time: 2.00 [What's this?](#)
☐ **Buy Impact Surface** [What's this?](#)

A liquidity surface has two wings – a Sell wing, and a Buy wing, defined under “Sell Impact Surface”, and “Buy Impact Surface”. The Sell wing is used to compute liquidity statistics for sell orders, and the buy wing is used to compute liquidity statistics for buy orders. At a minimum, you need to define the parameters of the Sell wing. If you don’t define the parameters of the Buy wing, it will be considered symmetrical to the Sell wing, meaning that the RiskManager will assign it the same parameters.

Once you have clicked Save Model, the model will be added to the group, and you will see the name of the model appear in the left panel. You can now click Add Liquidity Model again, to add another liquidity model. You can add any number of models to the group.

Basic Impact Surface

There are two types of liquidity surfaces available in RiskManager: Basic Impact Surface, and Impact Surface.

Basic Impact Surface is the recommended approach, and it is described fully in the next section.

Basic Impact Surface is the implementation of the parsimonious calibration approach for liquidity surfaces described in the LiquidityMetrics White Paper. The parsimonious calibration method breaks the calibration of a liquidity surface into two components:

1. A 1-day function of transaction cost with respect to order size
2. A Relaxation Time parameter that models the time horizon dimension of the liquidity surface.

The 1-day impact function is defined by five parameters:

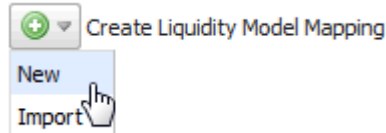
1. Bid/Ask Spread (Δ): half bid/ask spread is the impact for small orders
2. Normal Market Size (NMS) (s_1): the maximum order size up to which the best (bid or ask) quotes are expected to be still prevailing. Impact is flat, up to this size.
3. Large Order Size s_2 : the size of a representative large order for which the Large Order Multiplier will be fixed.
4. Bid-Ask Multiplier (m): A multiplicative market impact penalty (in multiples of $\frac{1}{2}$ bid-ask spread) incurred by large orders of size s_2 .
5. 1-Day Market Depth (s_{\max}): represents the maximum order size realistically executable within one day, without experiencing distressed, unpredictable transaction costs. Impact beyond this size is set to be $+\infty$.
6. The full liquidity surface is defined by adding an additional time scaling parameter:
7. Relaxation Time (τ): the typical time needed to the market for regenerating the liquidity removed by large orders.

With the exception of the bid-ask spread, all of the above parameters must be defined for a basic impact surface.

Creating Liquidity Mapping Models

A Liquidity Mapping Model must be defined for every liquidity model. The mapping model maps the model to specific positions. Complete the following steps to create a Mapping model and map it to assets using tags.

1. Select Liquidity Model Mappings From the Liquidity Analytics Submenu in the Reports Tab.
2. Click Create Liquidity Model Mapping > New.



3. Enter a name for the Mapping Model.
4. Select the model that you want to map. Models can be filtered by model group to narrow down the choices. Select the model then click [Select](#). The selected model will appear to the right of the [Select](#) link.

Name:

[TAGS](#) ▶
[SHARING](#) ▶

Model Selection
 Filter by group

All

 Select a model

All Equities (vikram.josyula@riskmetrics)
FCY-FCY-MX (rm4demo@riskmetrics)
Generic Bond Liquidity Model (vikram.josyula@riskmetrics)
High Yield Bond Model (vikram.josyula@riskmetrics)
LCY-LCY-MX (rm4demo@riskmetrics)

▶▶ **Select**

Selected: (none)

Market Environment
 Enter a market environment

 Or select an existing market environment

normal
default

- a. Next, you can optionally enter a Market Environment. You can either select from a list of existing market that you have already created , or create a new one by simply entering a name for the market environment.
 - b. The Market Environment field is used by LiquidityMetrics statistics. When you add a statistic to a report you can specify that the statistic references a specific Market Environment.
3. To add mapping rules, click Add Rule. When you click Add Rule, you will need to choose the type of rule: Single Criterion or Group.

+

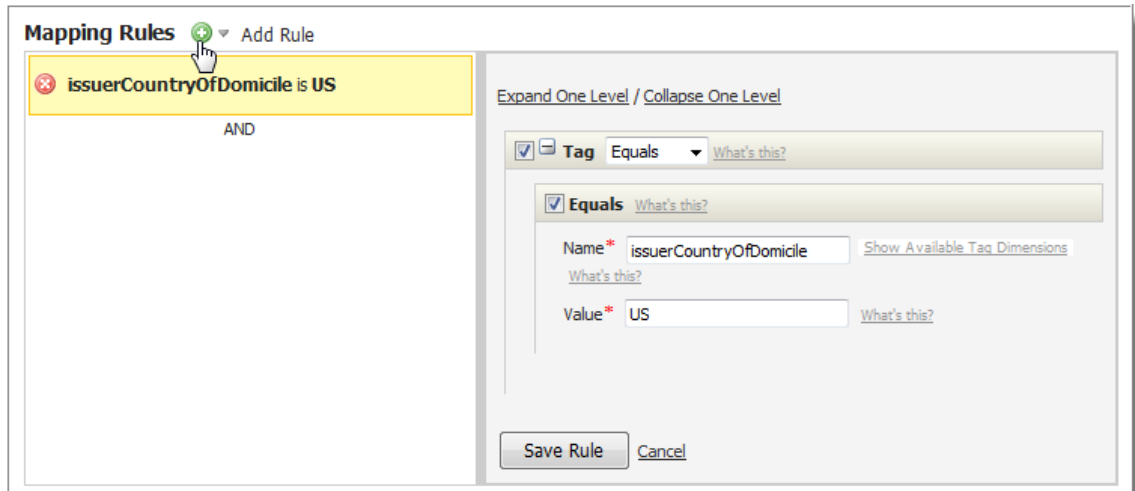
Add Rule

Single Criterion
Group

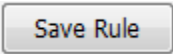
4. Use a “Single Criterion” rule when you need to add a rules like issuerCountryOfDomicile=“US”, issuerCountryOfDomicile=“US” AND issuerCountryOfDomicile=“Canada”. Use “Group” where you need to enter a rule like such as issuerCountryOfDomicile=“US” or “Canada”. Examples:

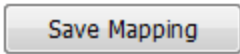
Rule Type	T&C Tag	Value
Single criterion	assetType	CORP
Group	issuerCountryOfDomicile	US or Canada
Single criterion	gicsSector	Financials
Group	priceSourceIdent	CORPIGISS or CORPIGRT

The screenshot below shows how a mapping rule can be set up.



The screenshot shows the "Mapping Rules" interface. On the left, a list of rules is displayed, with one rule highlighted: "issuerCountryOfDomicile is US". Below this list, the word "AND" is visible. On the right, the details for the selected rule are shown. The "Tag" is set to "issuerCountryOfDomicile" and the "Value" is set to "US". The interface includes buttons for "Save Rule" and "Cancel".

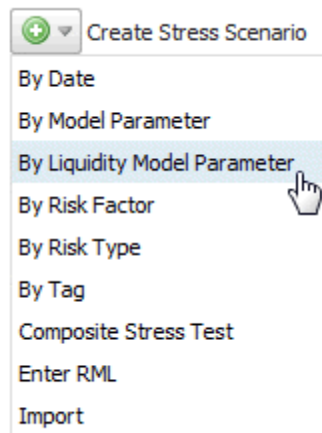
5. Click .

6. Click .

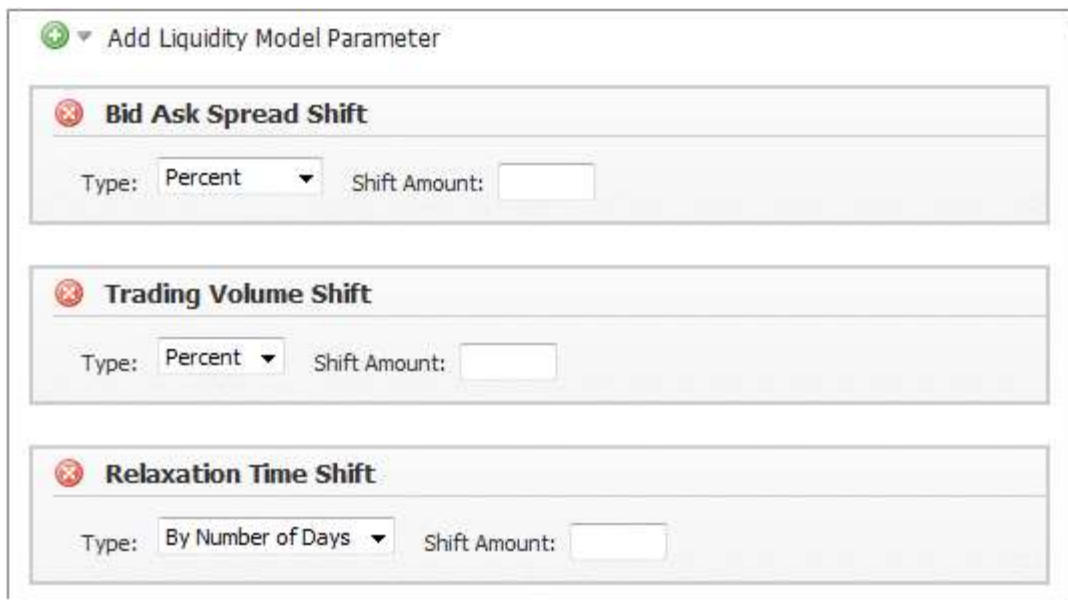
The Liquidity Model Parameter Stress Test

LiquidityMetrics provides a Model Parameter stress test that allows you to shift Bid-Ask Spread, Relaxation Time, and Trading Volume.

To access the Liquidity Stress tests, choose Liquidity Model Parameter from the Create Stress Scenario menu in the Stress Tests tab.



The Liquidity Model Parameter stress tests are shown and described below:



Add Liquidity Model Parameter

Bid Ask Spread Shift
Type: Percent Shift Amount:

Trading Volume Shift
Type: Percent Shift Amount:

Relaxation Time Shift
Type: By Number of Days Shift Amount:

Bid Ask Spread Shift

The Bid-ask spread stress test allows stressing bid-ask spreads up or down. When bid-ask spread stress test is used for an asset mapped to a Basic Impact Surface, the stress test shifts the entire liquidity surface up or down, and changes the shape of the surface via the market impact multiplier.

Relaxation Time Shift

The Relaxation time shift changes the market elasticity of the liquidity surface. Relaxation time shift is defined in terms of days. When you specify a shift of N days, relaxation time will be increased by N days. When you define a shift of negative N days, relaxation time will be reduced by N days.

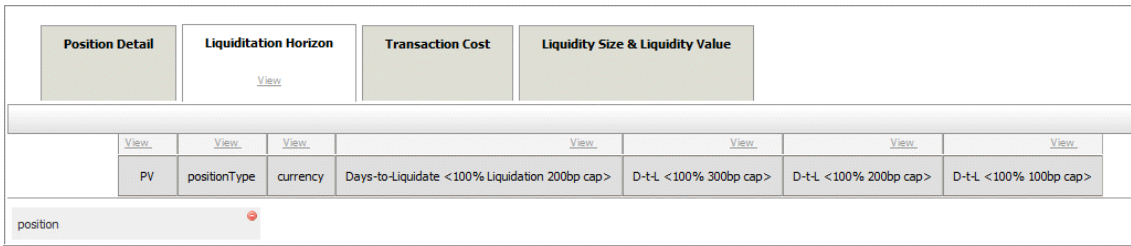
Trading Volume Shift

Trading Volume shifts trading volume up or down by a specified percentage. Trading volume stress test affects any assets for which a trading volume method is used to compute liquidity statistics.

Using Liquidity Statistics

LiquidityMetrics statistics allow you to analyze the cost, size, or time dimension of a investments. You can create reports that show the expected transaction cost of a set of orders given a maximum time horizon and how long it should take to liquidate a set of positions given defined cost limits.

The screenshot below shows a sample report set up in RiskManager's Custom report interface. The report shows how an example of how a report can be divided by into different tabs categorized by statistic groups.

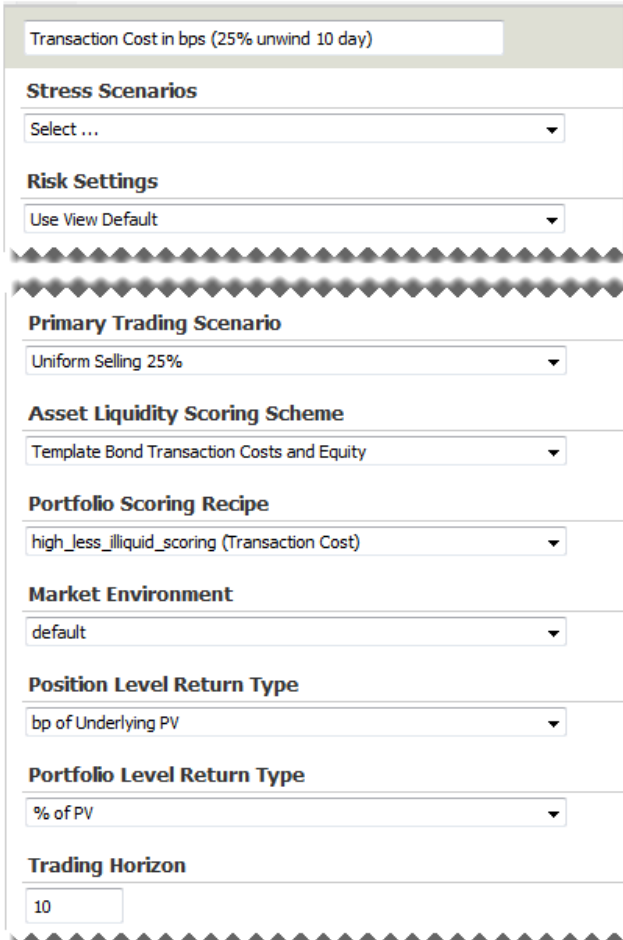


The following table provides an overview of Liquidity statistics. Subsequent pages in this section show the options that allow you to customize the statistics.

Statistic	Description <i>Position Level</i>	<i>Portfolio Level</i>
Bid-Ask Spread	An asset's bid-ask spread in the units that it is supplied	Not Applicable
Transaction Cost	Total transaction cost of executing a specified trading scenario over a specified trading horizon	Sum of position-level transaction costs.
Liquidity Time Horizon	Time required to execute a specified trading scenario, given a cap on transaction cost	Longest of the of the position-level horizons.
Liquidity Size	Amount that can be sold/bought, given a time horizon, and a cap on transaction cost	Exposure-weighted average of position level liquidity sizes
Liquidity Value	<p><i>Sell Order:</i> Maximum amount that can be redeemed, given a time horizon. Liquidity Value is equal to the fair value of the liquidated portion of the position minus transaction cost.</p> <p><i>Buy Order:</i> Minimum amount required to execute a buy order of a given size, given a time horizon. Liquidity Value is equal to the fair value of the acquired position plus transaction cost.</p>	Sum of position-level liquidity values
Market Impact	Total market impact of executing a specified trading scenario.	Not Applicable

Liquidity Statistics Options

Most of the Liquidity Statistics provide options that allow you to customize the statistics' output. The screenshot below shows the statistics options for Transaction Costs (note that not all Statistics offer the same options). The descriptions on the right of the screenshot describe the options available for all LiquidityMetrics statistics and specify in which statistics the options appear. Click the links to learn more about each statistic option.



Transaction Cost in bps (25% unwind 10 day)

Stress Scenarios
Select ...

Risk Settings
Use View Default

Primary Trading Scenario
Uniform Selling 25%

Asset Liquidity Scoring Scheme
Template Bond Transaction Costs and Equity

Portfolio Scoring Recipe
high_less_illiquid_scoring (Transaction Cost)

Market Environment
default

Position Level Return Type
bp of Underlying PV

Portfolio Level Return Type
% of PV

Trading Horizon
10

Statistics Options

- Primary Trading Scenario:** Trading scenario defines the amount of each asset that you will be selling or buying. If you do not select a trading scenario in a statistic, the system will assume that the trading scenario is 100% liquidation.
 - Statistics: *Transaction Cost, Liquidity Time Horizon, Market Impact*
- Asset Liquidity Scoring Scheme:** Returns a Scoring Scheme mapped to specific asset by tags. Asset scoring schemes apply only to statistics results at position level. Also returns raw value of the option.
 - Statistics: *Transaction Cost, Liquidity Time Horizon*

- **Portfolio Scoring Recipe:** Allows you to customize the output of Transaction Cost and Liquidity Time Horizon statistics
- **Market Environment:** Instructs the statistic to only use liquidity model mappings labeled with that specific market environment
 - All Statistics, except Bid-Ask spread
- **Trading Horizon:** Trading horizon in days. Note that: Horizon is one of the dimensions of a liquidity surface, and therefore is a required parameter for computing other dimensions of a liquidity surface, such as transaction cost.
 - Statistics: *Transaction Cost, Market Impact, Liquidity Size, Liquidity Value*
- **Transaction Cost Limit:** Provides three options:
 1. Specified Limit (basis points: For all positions mapped to liquidity surfaces the statistics are computed with the specified limit. Specifying a transaction cost limit has the effect of limiting limits the amount that can be liquidated. At this time, limits are only implemented for securities, and not derivatives. For derivatives, the limit is ignored. Limits must be specified in Basis Points.
 2. No limit: For all positions mapped to liquidity surfaces, the system will assume that each position can be liquidated up to its market depth.
 3. No market impact: For each position mapped to liquidity surfaces, the statistics will be computed with the transaction cost limit equal to ½ bid-ask spread
 - Statistics: *Liquidity Time Horizon, Liquidity Size, Liquidity Value*
- **FX Breakout:** Transaction cost of liquidating a foreign currency-denominated asset. This option provides two components: the cost of liquidating the asset, and the cost of converting the proceeds from liquidation into the reporting currency. When you select the FX Breakout option, the report will show the decomposition of the transaction cost into the asset transaction cost, and currency conversion transaction cost. (Regardless of the currency of the position, this option always returns three FX transaction cost columns: USD, EUR, and EUR-USD.
 - Statistic: *Transaction Cost*

Creating Trading Scenarios

Trading scenario defines the amount of each asset that you will be selling or buying. You can specify trading scenarios by selecting Liquidity Trading Scenarios in the Liquidity Analytics submenu in Reports Tab. If you do not select a trading scenario in a statistic, RiskManager assumes that the trading scenario is 100% liquidation.

RiskManager provides an Equal Percentage Change trading scenario which allows you to define proportional liquidation scenario as a percentage of portfolio market value. For example, to compute liquidity statistics for a scenario in which you liquidate 20% of each position, you would define the trading scenario shown in the screenshot below. Notice that the specified percentage is a positive number. Sell orders have a positive sign, and buy orders have a negative sign.

Liquidity Trading Scenario: Proportional Liquidation (20%)

Name:

[TAGS](#) ▶

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Type*
Equal Percentage Change
[What's this?](#)

☒
Equal Percentage Change
[What's this?](#)

Percentage* [What's this?](#)

Using Liquidity Scoring Recipes

Liquidity Recipes allow you to customize the output of Transaction Cost and Liquidity Time Horizon statistics. For instance, the scoring recipe below determines the output of the Transaction Cost statistic in a report.

Transaction Cost Liquidity Scoring Recipe

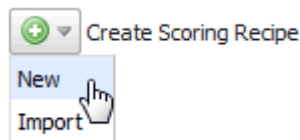
Relative Transaction Cost	Liquidity Score
0- 50bp	1: Highly Liquid
Between 50bp and 100bp	2: Liquid
> 100bp	3: Illiquid


Scoring Recipes can be assigned to asset groups by selecting **Liquidity Asset Scoring Schemes** from the Liquidity Analytics submenu in the Reports Tab.

Creating a Scoring Recipe

To create a scoring Recipe select Scoring Recipes from the Liquidity Analytics menu in the Reports Tab. then follow these steps:

1. Choose Create Scoring Recipe > New.



2. Enter a descriptive name for the recipe.
3. Choose the Scoring Variable: Either Transaction Cost, Horizon or Percent Liquidated.
4. Click the + icon next to Score Assignment .
5. Click  **Add new** to add a bucket, then enter a Score and a Value for the bucket.
6. Add as many buckets as needed, and enter Scores and Values

Name:

Horizon Scoring Recipe

[TAGS](#) ▶
[SHARING](#) ▶
[Expand One Level](#) / [Collapse One Level](#)
 Scoring Variable* Horizon [What's this?](#)

Score Assignment* [+ Add new](#) [What's this?](#)

[-] **Bucket***
⊗ Delete
↓ Move
[What's this?](#)

Score*
1 day or less
[What's this?](#)

Value*
2.00
[What's this?](#)

[-] **Bucket***
⊗ Delete
↓ Move
↑ Move
[What's this?](#)

Score*
2 to 7 days
[What's this?](#)

Value*
8.00
[What's this?](#)

[-] **Bucket***
⊗ Delete
↓ Move
↑ Move
[What's this?](#)

Score*
7-30 days
[What's this?](#)

Value*
31.00
[What's this?](#)

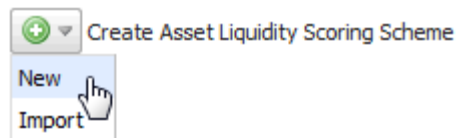
[+] **Bucket***
⊗ Delete
↓ Move
↑ Move
[What's this?](#)

Creating Liquidity Asset Scoring Schemes

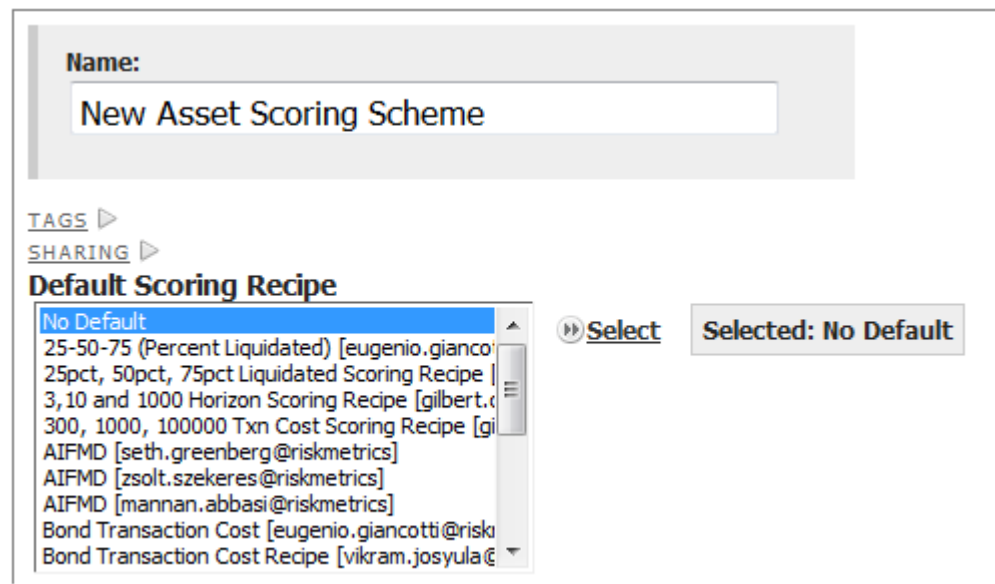
You can use Asset Liquidity Scoring Schemes to calculate liquidity scores at the asset/position level. An asset liquidity scoring scheme contains one or more liquidity scoring recipes with each recipe mapped to a different group of assets.

Here are the steps for creating an asset scoring scheme. After you create the Asset Scoring Scheme you use tags to map the Scoring Scheme to assets

1. Select Asset Scoring Schemes from the Liquidity Analytics sub menu in the Reports tab.
2. Choose Create Asset Liquidity Scoring Scheme > New.



3. Enter a name for your asset scoring scheme.
4. Choose a Default Scoring Recipe: select one of the recipes listed in the Default Scoring Recipe Box, and click Select. Default scoring recipe apply to all assets that don't get mapped to one of the scoring recipes as defined in Scoring Recipe Mappings. If you do not specify Scoring Recipe Mappings, then the default recipe will apply to all assets.



Name:
New Asset Scoring Scheme


TAGS ▶
SHARING ▶

Default Scoring Recipe

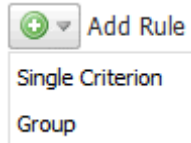
- No Default
- 25-50-75 (Percent Liquidated) [eugenio.gianco@riskmetrics.com]
- 25pct, 50pct, 75pct Liquidated Scoring Recipe [gilbert.c@riskmetrics.com]
- 3, 10 and 1000 Horizon Scoring Recipe [gilbert.c@riskmetrics.com]
- 300, 1000, 100000 Txn Cost Scoring Recipe [gilbert.c@riskmetrics.com]
- AIFMD [seth.greenberg@riskmetrics.com]
- AIFMD [zsolt.szekeres@riskmetrics.com]
- AIFMD [mannan.abbasi@riskmetrics.com]
- Bond Transaction Cost [eugenio.giancotti@riskmetrics.com]
- Bond Transaction Cost Recipe [vikram.josyula@riskmetrics.com]

▶▶ **Select** **Selected: No Default**

To define Scoring Recipe Mappings:

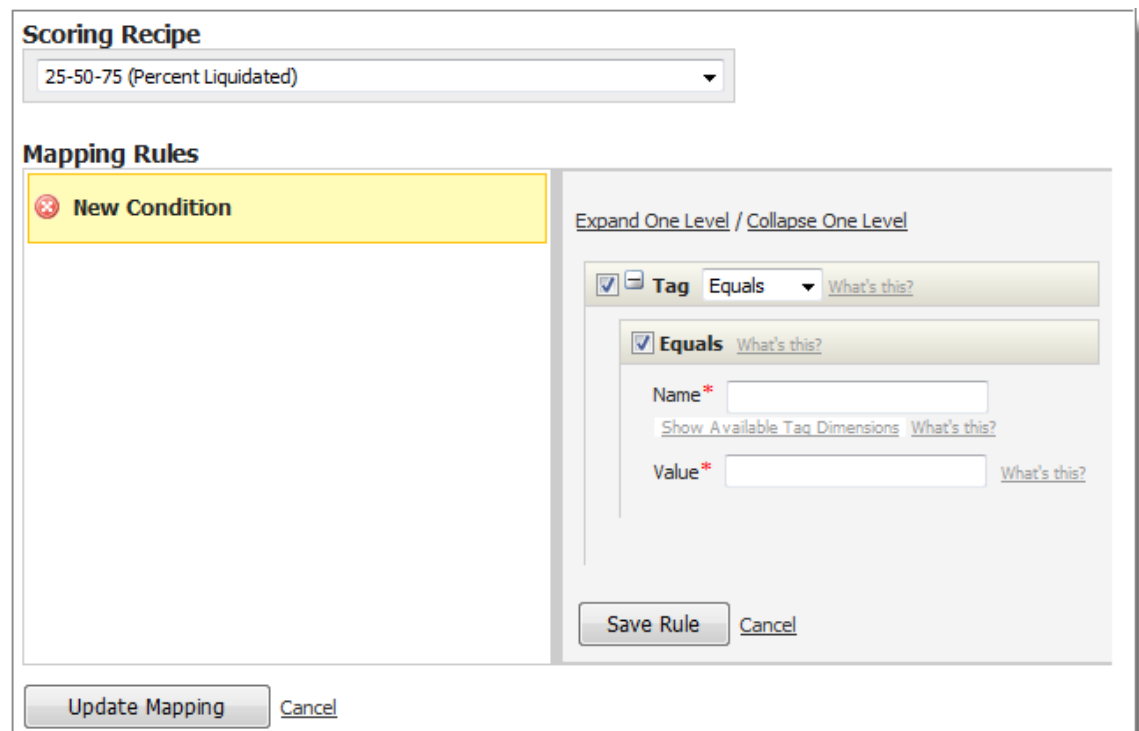
1. Click  [Add Scoring Recipe Mapping](#).

- In the right panel, select the scoring recipe you want to map from the Scoring Recipe drop-down. and click [Select](#) .
- Click Add Rule. When you click Add Rule, you will need to chose the type of rule: Single Criterion or Group.

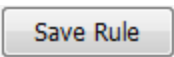
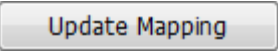


A dialog box titled "Add Rule" with a green plus icon and a dropdown arrow. Below the title are two buttons: "Single Criterion" and "Group".

- Use a "Single Criterion" rule when you need to add a rules like issuerCountryOfDomicile="US" ,issuerCountryOfDomicile="US" AND issuerCountryOfDomicile="Canada". Use "Group" where you need to enter a rule like such as issuerCountryOfDomicile="US" or "Canada".
- Use tags to designate the mapping rules (same way as the liquidity model mapping rules, described in the liquidity model mapping section)



The interface shows a "Scoring Recipe" dropdown set to "25-50-75 (Percent Liquidated)". Below it is the "Mapping Rules" section. On the left, there is a yellow box labeled "New Condition" with a red 'x' icon. On the right, there are links for "Expand One Level / Collapse One Level". Below these links are two sections: "Tag" and "Equals". The "Tag" section has a checkbox and a dropdown menu set to "Equals", with a "What's this?" link. The "Equals" section has a checkbox and a "What's this?" link. Below the "Equals" section are input fields for "Name*" and "Value*", each with a "What's this?" link. At the bottom right are "Save Rule" and "Cancel" buttons. At the bottom left are "Update Mapping" and "Cancel" buttons.

- Click  .
- Click  .

How to Use a Market Environment

When creating a liquidity model mapping you can either chose from the list of existing market environments, or define a new market environment. When you define a new market environment, it appears in the list when you go to create the next liquidity model mapping.

Market Environment is a label given to a liquidity model mapping. When create a liquidity report, you will find that every liquidity statistic definition screen has a drop-down labeled Market Environment. When you pick a specific market environment for a statistic, RiskManager 4 uses only the liquidity model mappings with that Market Environment label for that statistic.

Assume you are a bond investor who invests in the US, and in Latin America. You are interested in running a liquidity analysis for a portfolio that contains both US and Latin American bonds, and you want to run your analysis for two hypothetical market scenarios: “Normal”, and “Latin America Crisis”.

To run the analysis, you need to define liquidity surfaces for the relevant bond categories. After consulting with your bond traders and investment managers, you have calibrated five liquidity surfaces for the US bonds categories, and five liquidity surfaces for the Latin America bond categories. These surfaces represent what you consider a normal market environment. Further, you define another five liquidity surfaces for the same Latin America bond categories, which will represent liquidity conditions in the event of a Latin America bond market crisis. You also make a simplifying assumption that the liquidity of the US bond market will not be significantly affected by the Latin America crisis, so you do not need to create another version of the US liquidity surfaces.

To run your analysis you will need to create two sets of mappings.

1. The first set of mappings will be to the five US models that represent a normal market environment, and five Latin America models that also represent a normal market environment. To each of these ten mappings you will assign a Market Environment label “Normal”.
2. The second set of mappings will be to the same five US models for the US bond categories. However, for the Latin America bond categories, you will map to the five Latin America liquidity models that represent a crisis environment. To each of these ten mappings (Normal US, and Crisis Latin America) you will assign a Market Environment label “Latin America Crisis”.

The next step is to create a report, with the liquidity statistics you are interested in. If you are interested in the time it will take to liquidate your portfolio under both Normal and Crisis conditions. What you need to do is add the Liquidity Horizon statistic twice to your report. In the first instance you will pick the normal market environment, and in the second one you will pick the crisis environment. When RiskManager computes the statistics, it will use the mappings labeled “Normal” for the first statistic, and the mappings labeled “Latin America Crisis” for the second statistic.