

3. Market Data



Market Data

The *Market Data* window is used to acquire, maintain, and store in Fin-Scope information about yield curves and other imported data.

In Fin-Scope market data is stored in “yield curves” even though the data contains more information (such as index rates, mortgage rates, option volatilities, etc.) than just yield curve data.

This chapter has four sections:

Getting Started – identified by the thick blue border on the right page margin, this sections tells you the minimum steps to set-up yield curves

Overview – provides a “executive summary” of the window and the role it plays in Fin-Scope

Window Organization and Contents - describes the window layout, input fields, drop-down lists and buttons used

Using Market Data – describes how to operate the window to get things done

Getting Started with Market Data

Accurate yield curve and market rate information is critical to operating Fin-Scope. Here are the steps to retrieve market data from The Bloomberg and use it in the application.

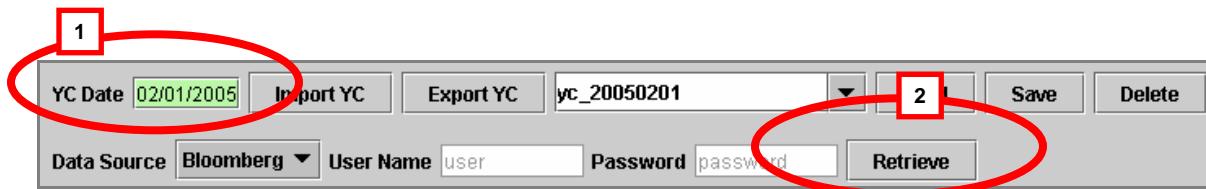


Figure 15: Retrieving Market Data from Bloomberg

1. On the *Market Data* window, key a date into the *YC Date* field.

This is the date for which market data will be retrieved so it should be today's date or a date prior to today.

🔄 Fin-Scope requires a yield curve date.

2. Click the *Retrieve* button.

This activates the built-in Bloomberg interface and requests a set of data points for the date you entered. (This might take a minute depending on your network environment.)

(Note: if you're not using Bloomberg you can still use this window to acquire market data. See *Importing a Yield Curve From a Flat File* later in this chapter.)

	Index	Index Rate	Spread	Mortgage Rate
30 Years	FNCR3010	5.17	0.45	5.22
15 Years	FNCR1510	5.24	0.45	5.69
7 Years	FNCR2310	3.869	0.9	4.869
5 Years	FNCR2510	3.869	0.9	4.769

Figure 16: Mortgage Index Spread Entry on the Market Data window

3. Key in spreads against mortgage indexes

Fin-Scope retrieves from Bloomberg a set of standard mortgage indexes (see Appendix 2 for a list).

The next step is to key into Fin-Scope the appropriate spreads on these indexes. Normally, you'll acquire these from the supplier of the prepayment model you're using.

For maximum precision, the spreads must be entered for every yield curve you create. Fin-Scope makes this easy by storing the spreads so that they can be recalled and reused on each new yield curve you create.

☞ Mortgage spreads are required.

Figure 17: Saving a Yield Curve

4. Key in a unique name in the combo-box.

You can choose any name that describes the data.

The Fin-Scope convention is to name yield curves as follows: "yc_YYYYMMDD" where YYYY is a four digit year, MM is a two digit month, and DD is the two digit day. However, some users prefer to save each new curve simply as "yc_current".

☞ Fin-Scope requires a name for the yield curve.

5. Click **Save**.

This (a) saves the yield curve data, market rates, and indexes to the Fin-Scope database, (b) makes it active for your session, and (c) makes it available to all other system users.

That's it — Fin-Scope has the market data it needs to perform calculations. The remainder of this chapter provides more details about the *Market Data* window and how to use it.

Overview

The *Market Data* window is used to acquire, maintain, and store in Fin-Scope information about yield curves and other data imports.

With this window, you create collections of market data including yield curves, custom curve data points, market indexes, domestic mortgage rates, and estimates of option volatilities that are essential to Fin-Scope's calculations.

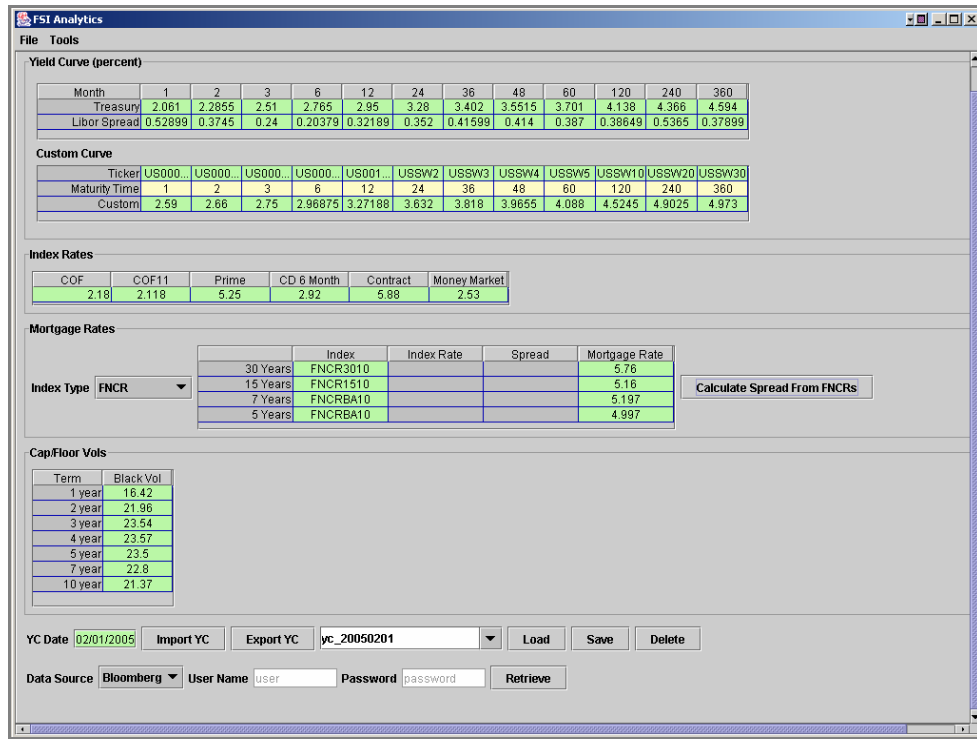


Figure 18: Market Data Window

Market data constantly evolves reflecting the trading community's reactions to news, world events, economic reports, and so on. With Fin-Scope, you have the ability to model almost any market environment.

In addition, Fin-Scope uses a built-in interface to *The Bloomberg*® so current market data is only a mouse-click away.

Window Organization and Contents

The *Market Data* window has seven areas. Each area pertains to a different aspect of market information used by Fin-Scope.

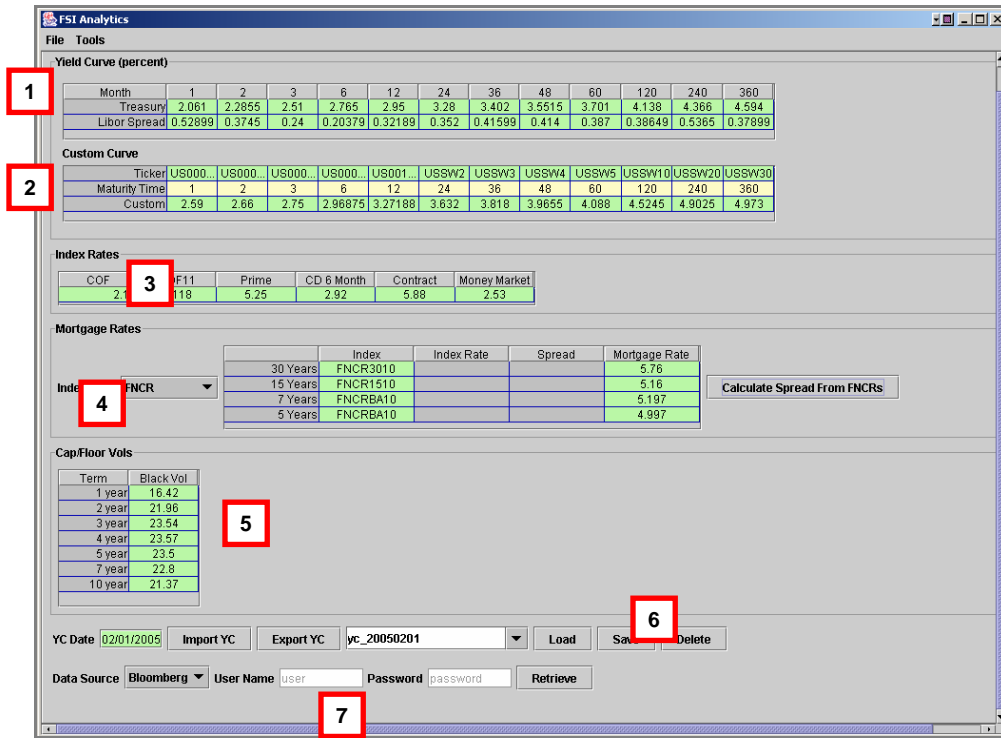


Figure 19: Market Data Window Regions

This section discusses the content of each window area.

1. **Yield curve** – Fin-Scope uses the US Treasury and LIBOR (Spread) yield curves as fundamental inputs
2. **Custom curve** – An area where you can specify a proprietary curve
3. **Index rates** – Common market rates used for various purposes in Fin-Scope
4. **Mortgage rates** – Common mortgage benchmarks used in the prepayment model
5. **Cap/Floor volatilities** – Implied volatilities for US currency options used in calibrating the interest rate model
6. **Naming area** – Window region used for acquiring and saving market data collections
7. **Data source interface** – Window region used to retrieve market data from external suppliers (currently Bloomberg)

Yield Curve (Percent)

When connected to Bloomberg, Fin-Scope retrieves yield curve data for US Treasuries and yield spreads for the LIBOR index.

- | | |
|-----------------------------|--|
| <i>Treasury Yield Curve</i> | – An array of Treasury yields using both index and interpolated rates at 1, 2, 3, and 6 months, and 1, 2, 3, 4, 5, 10, 20, and 30 years. |
| <i>LIBOR spread</i> | – An array of spreads between the LIBOR and Treasury issues of the same maturities. |

Custom Curve

You can create a proprietary yield curve and associate it with the market curves for the same point in time by specifying custom curve data points.

On the *Security Analysis (General Settings)* and *Portfolio Manager (Details)* windows you select the curve to use for discounting cash flows prior to starting a calculation cycle. Your custom curve will appear there as an option.

- | | |
|---------------|--|
| <i>Ticker</i> | – Drop down list used to specify what index will be used to construct the custom curve |
|---------------|--|

LIBOR/SWAP rates	Fin-Scope loads the appropriate Bloomberg tickers for this index and common maturities.
Eurodollar futures	Fin-Scope loads the appropriate Bloomberg ticker for this index and common maturities.
N/A	This selection eliminates the cell from the custom curve.
Manual	Allows complete discretion as to what type of curve point is input.

- | | |
|----------------------|--|
| <i>Maturity Time</i> | – An array of maturities used to create the curve. These will normally match the maturities used in the Treasury curve. |
| <i>Custom</i> | – An array of rates used to create the custom curve. By default, Fin-Scope loads the Bloomberg LIBOR/SWAP rates for the date of the session current yield curve. |

Index Rates

Index rates supplied by the external data source are those that are the most currently available. That is, some rates are as of the end of the most recent month while others are changed on different schedules.

- | | |
|-------------------|--|
| <i>COF</i> | – Cost of funds rate |
| <i>COF11</i> | – 11 th District cost of funds rate |
| <i>Prime</i> | – Prime rate |
| <i>CD 6 Month</i> | – 6 month yield on bank certificates of deposits |

- Contract* – Current contract rate (This field is no longer used.)
- Money Market* – Current money market rate

Mortgage Rates

Mortgage rates are displayed in terms of an *Index Type* and an array of associated index data points retrieved from the external data source. These rates are inputs to Fin-Scope's prepayment model.

- Index Type* – Drop down list that specifies which of a collection of standard mortgage rate benchmarks will be used.

At present all of the benchmark rates (with the exception of manually entered rates) are acquired from Bloomberg.

Manual	Indicates that you will enter benchmark values directly into the <i>Mortgage Rate</i> field
FNCR	Fannie Mae Commitment Rate
LIBOR/Swap	LIBOR rates
TSY	US Treasury rates
Cur. Coup. FN	Fannie Mae current coupon rates
Cur. Coup. FG	Freddie Mac current coupon rates

Rate Table

Benchmark mortgage rates are displayed as an array (table) including index names, index rates, spreads, and market mortgage rates for 5-year, 7-year, 15-year, and 30-year instruments.

- Index* – Displays the name of the Bloomberg index used to acquire the rate.

These cells also serve as drop-down lists that offer a variety of alternative indexes. See Appendix 2 for more information.

The cells are inactive when the *Index Type* selection is "Manual".
- Index Rate* – Displays the data retrieved for the Bloomberg index. (You can't edit this cell.)

These cells are inactive when the *Index Type* selection is "Manual".
- Spread* – Cells for spread values used to modify index rates to better match market mortgage rates. Check with the vendor of your prepayment model to get the appropriate values.

These cells are inactive when the *Index Type* selection is "Manual".
- Mortgage Rate* – Cells for market mortgage rates. By default, these cells are loaded with the index rates and are then adjusted by the spread values you key in.
- Calculate Spread from FNCRs* – (This button is no longer used.)

Cap/Floor Vols

Volatility estimates for common options on the US dollar are displayed in an array (table) including the option term and a Black-Scholes volatility estimate.

- Term* – The term of the option as 1, 2, 3, 4, 5, 7, and 10 years. (You can't edit this cell.)
- Black Vol* – Implied volatilities calculated from the option prices.

Naming Area

The area near the bottom of the window is used for saving market data collections to the Fin-Scope database, and for acquiring market data in situations where the Bloomberg system is not used.



Fin-Scope refers to collections of market data as "yield curves" even though the collection contains more information (such as index rates, mortgage rates, option prices, etc.) than just yield curve data.

- YC Date* – A calendar date that indicates when the market data was acquired. You'll specify a date to this field before requesting market data from an external data source. The date serves as the "request date" for the data source.

Thereafter, the date will identify the age of the market data stored as a "yield curve" in the Fin-Scope database.
- Import YC* – Invokes a file system *Open* window used to locate and choose a flat (ASCII) external file containing yield curve and index rate data that's been formatted for Fin-Scope.

This is useful when you don't have access to the Bloomberg data source, you want to avoid manually inputting custom curve data points, or you're calibrating Fin-Scope's outputs to other analytic tools.
- Export YC* – Invokes a file system *Save* window to store yield curve and index rate data to a flat (ASCII), external file formatted for Fin-Scope.

This can help when market data must be shared with other systems or users in your organization.
- < yield curve name >* – Combo-box used to name the market data collection (yield curve) to be stored, retrieved, or deleted from the Fin-Scope database.
- Load* – Retrieves the yield curve specified in the combo box, and makes active the related market data.
- Save* – Stores the current market data – including any changes - to the application database using the name specified in the combo box.
- Delete* – Removes the yield curve specified in the combo box from the application database.

Data Source Interface

The bottom area of the window is used to define the external data source that supplies market data and to retrieve the data.

- Data Source* – The current version of Fin-Scope uses Bloomberg as the source of market data.
- User Name* – (This field is no longer used.)
- Password* – (This field is no longer used.)
- Retrieve* – Accesses the 3rd party data source (Bloomberg) and acquires market data for the date specified in *YC Date*.
- (Cancel)* – Once pressed, the *Retrieve* button is relabeled. This gives you to chance to terminate the process if necessary.

Using the Market Data Window

This section begins with some important concepts regarding how Fin-Scope uses market data. Then, it lists the most common activities you'll do on the *Market Data* window and how to accomplish them.

Remember - in Fin-Scope "yield curve" means a collection of market data that has been associated with a given date.

Acquiring Market Data

Fin-Scope uses collections of standard market data points as a basis for its calculations. Think of them as "time slices" that capture each of the relevant market data items as of a point in time and associates them with a label that you refer to. Thus, there are two important questions to consider regarding market data and Fin-Scope.

- **How often will market data be acquired?** (That is, how many "time slices" per day will you need?)
- **At what point in the trading day will market data be acquired?** (That is, when will the "time slices" be taken?)

In answering these questions, think about how Fin-Scope will be used in your organization. Obviously, a trader will want market data to be as up to the minute as possible, while a corporate risk manager may be satisfied with a single yield curve per day.

Naming Market Data

Each collection is stored in the Fin-Scope database under a unique name. The name is how Fin-Scope finds the data collection to use.

Because Fin-Scope uses a shared database model it's a good idea to consult the others in your organization so that there is some agreement on the details of market data retrieval timing and the names that will be used.

Saving Market Data

In organizations that create one or more yield curves every day the question is sometimes raised about how long to keep "old" market data information in the database.

Fin-Scope recommends that you leave it in the database until you become completely comfortable with the application and have built up a history of it's use.

After several months of use you'll be in a better position to decide how much to keep and when to delete old market information. And by the way – you won't run out of space storing market information. Fin-Scope's developers made certain that it takes up a minimum amount of space.

Changing Market Data

It's important to ensure that all Fin-Scope users understand the impact of manual manipulation of the data.

Fin-Scope makes it easy to manipulate market data. (In a sense it lets you use market data as a starting point for your own opinions about the future. That's one of the most powerful aspects of the application.)

However, editing the market data and then **saving** it to the database **without** properly communicating that fact can lead to confusion among the other system users.



For example, if the custom at your firm is to have one yield curve created per day and someone decides to alter and save the yield curve data, there's no easy way for everyone else to know that changes were made to that day's curve.

The solution is simple: Ensure that all Fin-Scope users know to **uniquely name** their market data collections whenever they make custom changes. It's a simple rule that most people remember and follow without any problem.

Operations

Here are the most common operations you'll perform on the *Market Data* window.

Creating a Yield Curve From Bloomberg

Most users create yield curves regularly – some daily, some weekly, and some at multiple points throughout the day. Without regard to how often you create yield curves, the steps are the same. Here's how to do it:

1. Key into the *YC Date* field the date for which market data is needed.
2. Click the *Retrieve* button.
3. In the *Mortgage Rates* table, ensure that the spread values are appropriate to the yield curve date. (You might have to enter new spread values.)
4. Save the yield curve to the Fin-Scope database with a descriptive name.

Note: To successfully retrieve market data, your Calculator host table must include at least one Bloomberg server. (See the chapter on *System Settings / Calculator* for more information.)

Saving a Yield Curve

Yield curves are usually saved as soon as the market data has been retrieved or when any of the market data points have been changed by an end user. Here's how to do it:

1. Key in a unique yield curve name in the combo-box.

The Fin-Scope convention is to name yield curves as follows: "yc_YYYYMMDD" where YYYY is a four digit year, MM is a two digit month, and DD is the two digit day. However, you can name your curve in almost any manner.

2. Click the *Save* button.

Reviewing / Inspecting a Yield Curve

Retrieving a yield curve from the Fin-Scope database displays the data on the *Market Data* window and makes those data points active for your session. Here's how to do it:

- From the combo-box, select the name of the yield curve that you wish to retrieve and click the *Load* button.

Deleting a Yield Curve

Deleting a yield curve permanently removes it from the database eliminating the possibility of re-using it. Here are the steps

1. Retrieve the existing yield curve that you want to remove from the application.
2. Click *Delete*.
3. Click *Yes* on the pop-up window to confirm that you want to permanently remove the curve. (Click *No* to cancel the operation without removing anything.)

Creating a Custom Yield Curve

Fin-Scope makes it easy to model your proprietary market opinions. You can do this by creating a custom yield curve or by adjusting the yield curve data points directly at the point of calculation. (See the *Security Analysis* chapter for more information.)

Here's how to change yield curve data from the *Market Data* window:

1. Load a yield curve by recalling it from the Fin-Scope database.
2. Revise the data as needed to form your opinion.
3. Save the yield curve to the Fin-Scope database.

Remember – editing yield curve data can impact the computational results of others using the system. If you're not sure about this, save the revised yield curve information under a name that clearly identifies it as custom.

Recreating a Yield Curve

On occasion you might have the need to recreate a yield curve. Here's how:

1. Follow the steps to create a new yield curve in *Creating a Yield Curve*.
2. Follow the steps to save the curve to the Fin-Scope database in *Saving a Yield Curve*.

Importing a Yield Curve from a Flat File

You can supply Fin-Scope with market data and custom data points via an external file that has been formatted according to Fin-Scope's market data import specification.

To import a yield curve, follow these steps:

1. Prepare a flat file containing market and custom data points, rate, and the like according to Fin-Scope's import specifications.
2. Click *Import YC*.
3. Using the file system *Open* window, navigate to and select the external file. Click OK on the *Open* window.



Importing a yield curve in this way loads the market and custom data to the Market Data window and makes the data active to the current session. It does not, however, change the Yield Curve Date or the Name of the yield curve in the combo-box. So it's a good idea to set the date, name the curve and save it as soon as it is imported.

Exporting a Yield Curve to a Flat File

You can save current market data to an external flat file. Here are the steps:

1. Click *Export YC*.
2. Using the file system *Save* window, navigate to the file system location (folder) where Fin-Scope should place the exported information.
3. Supply a name for file and click *Save*.

Terminating a Market Data Retrieval Process

Fin-Scope lets you cancel (terminate) the process of acquiring market data from the external data source. After you click the *Retrieve* button to begin the retrieval process, the button label changes to *Cancel*.

- To terminate a data retrieval that is in progress, click *Cancel*.

This could leave your session in an inconsistent state with regard to market data. Try to complete a retrieval operation or load a stored yield curve before going on.