

BOND/FUTURE SPREAD & BUTTERFLY MONITOR

BLOOMBERG APPLICATION

USER MANUAL



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Spread & Butterfly USD Application Overview

“Spread & Butterfly USD” is inspired by one of RiskVal’s most popular modules among our 200+ Relative Value (RV) strategies.

This compact yet powerful Bloomberg Application provides the most comprehensive and sophisticated way to monitor, analyze, and present relative value performance for a large set of curve strategies in a single screen, allowing real time speed and efficiency.

The App enables its users to easily create spread and butterfly trading strategies, then immediately benefit from RiskVal’s state-of-the-art real-time analytics for relative value analysis.

What features does Spread & Butterfly USD have?

1. Compare, monitor and analyze any single security, spread, or butterfly strategy. To enter a strategy you can either use the [Bond Chooser](#) function or simple [Keyboard entry](#).
Note: The Bond Chooser function is applicable to bond only strategies.
2. For each trading strategy you enter, Spread & Butterfly USD automatically provides the following relative value information:
 - a. Current **Yield spread** level and change from last business day
 - b. Current **True ASW** level and change from last business day
 - c. Current **2+ RVS** level and change from last business day
 - d. Current **Z-Spread** level
 - e. 3-Month **Heatmap** that shows the current level against the 3 month historical range
The heatmap is available for these three measures:
 - i. Yield spread level
 - ii. True ASW level
 - iii. 2+ RVS level
 - f. **Intraday** tick-by-tick graph of “Yield spread”, “True ASW”, and “2+ RVS”, such that trader can observe the intraday relative value movements
 - g. **Historical** graph that displays 3 months of **historical data** for the selected strategy
3. When a given strategy is selected, the App will automatically pull the strategy details to the [Strategy Solver](#) tool. It allows users to solve for price, yield, or spread of a selected leg of the strategy, and determine the carry component. It also shows the individual bonds’ ASW, Z-Spread, I-Spread, and TED spread.
4. Set up **Alerts** for any of the entered strategies to monitor the tick by tick variation. The App will notify you when the specified measure passes the chosen upper or lower bound.

What other features are available in the App?

The App also allows you to:

- **Print** the window
- Take a **Screenshot** and send it with **BBG Mail**
- **Copy** the strategies to paste to Excel
- Adjust the **Future Roll**
- Adjust the **weighting** of the spread or butterfly
- Add/Remove/Organize the **Columns**

What kinds of securities are supported in the App?

The App currently supports USD Treasury On-The-Runs, Off-The-Runs, and Bond Future contracts. Traders can construct a spread or butterfly strategy with any combination of these securities. RiskVal offers USD and CAD versions of this application, both available separately on Bloomberg.

GUI Layout Overview

RiskVal Financial Solutions LLC - USD Spread/Butterfly

Strategy entry adButterfly Options Preferences Help Alerts Hide Charts FUT Roll: 1st of Delivery Month

	YLD Sprd	dYLD dSprd	3MYLD R<->C	YLD(I)	YLDZ	True ASW	dASW	3M ASW R<->C	ASW(I)	ASWZ	RVS	dRVS	3M RVS R<->C	RVS(I)	RVSZ	Z-S	W
3/5/10	-64.9	-0.3			0.10	-20.4	0.35				-1.94	-33.4	-0.09		-0.70	-20.79	-1
5/FV1/7	-64.0	-2.1			3.07	-2.1	0.00				0.10	-2.5	-1.29		2.23	-1.24	-1
2/5	45.1	1.2			-1.71	1.6	-0.74				-0.06	-19.4	-0.08		-0.47	2.07	-1
FV1/TY1/10	-20.3	0.6			-2.00	-21.6	0.42				-2.22	-19.2	0.51		-2.10	-18.84	-1
US1/WN1	47.3	-0.1			0.99	22.8	0.11				2.36	-10.8	0.62		3.22	19.96	-1
TY1/10	65.2	1.0			-1.46	20.4	-0.31				2.30	21.2	0.45		1.59	30.05	1
FV1	0.635	0.9			-1.13	-31.0	0.81				-1.53	-21.2	-1.37				

Monitoring area

Intraday Chart Solver

Solve	Security	Price	Yield	Weight	Notional	DV01	Risk	Cusip
<input checked="" type="checkbox"/>	¼ 414 99-29	0.2985	-1	0			193	912828SR2
<input type="checkbox"/>	¾ 417 100-19+	0.7491	1	0			486	912828SS0
	Spread -4818-113	45.06		0				

Send Bbg Mail Clear Overrides Refresh Send Ticket

Security	ASW	ZSprd	ISprd	Swap	TED	OAS	Accrue
¼ 414	-33.5	-34.1	-37.8	0.6769	34.6	1.08	0.0149
¾ 417	-32.2	-32.8	-33.3	1.0821	36.5	1.13	0.0523
Spread	1.3	1.2	4.5	0.4051	1.9		

Solver tool

Last updated: about 2 mins ago, at 09:46:10

Print Capture Details

Historical graph

2/5 3M YIELD

Mean=61.76 Std Dev=.097 SMA(20)=51.997



YIELD Spread

Date

Upper Half of GUI: Strategy Monitor

RiskVal Financial Solutions LLC - Power Bonds (USD)

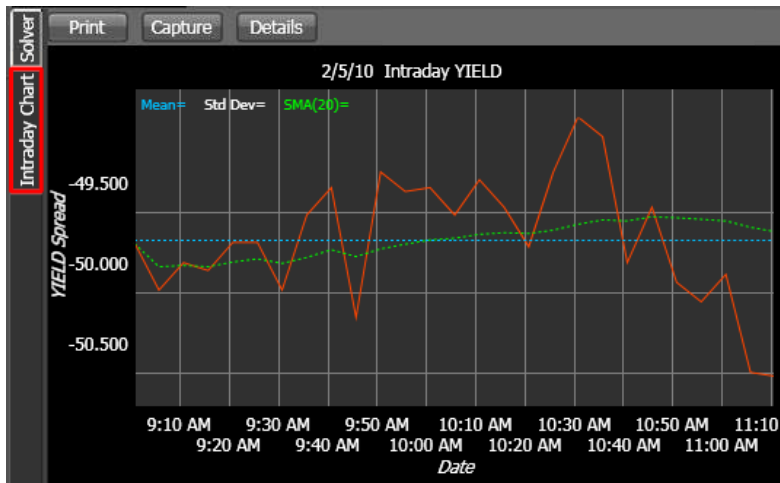
PowerBonds Print Screenshot Columns Alerts Copy Table Hide Charts FUT Roll: 1st of Delivery Month User Manual

USD Bond Sprd/Bf/y	YLD Sprd	dYLD dSprd	3MYLD R<->C	YLD(I)	YLDZ	True ASW	dASW	3M ASW R<->C	ASW(I)	ASWZ	RVS	dRVS	3M RVS R<->C	RVS(I)	RVSZ	Z-S	WGT
2	0.266	0.8			-1.10	-27.4	1.15				-0.53	-4.2	-0.78		-0.25	-27.99	
3	0.388	1.3			-0.78	-26.6	0.93				-0.12	-16	-0.92		1.53	-27.48	
5	0.833	2.2			-0.97	-27.9	0.21				-1.21	-24.3	-0.69		0.09	-28.58	
2/5	30.2	0.6			-0.45	27.0	-2.09				-0.14	-15.8	0.88		0.26	27.40	-2/1
10	1.954	3.9			-0.74	-9.6	-0.13				-1.54	3.9	0.02		0.50	-10.14	
005/5	-36.6	-1.1			0.99	11.6	-0.25				1.37	9.8	0.11		-0.06	11.58	8/-1.2

Lower Left of GUI: Strategy Solver and Intraday Graph

Solve	Security	Price	Yield	Weight	Notional	DV01	Risk	Cusip
<input checked="" type="checkbox"/>	0% 514 99-31+	0.2578	-1	0			199	912828SW1
<input type="checkbox"/>	0% 517 99-26+	0.660	2	0			490	912828SY7
<input type="checkbox"/>	1¾ 522 101-23+	1.5612	-1	0			927	912828SV3
	Spread	-1606-12	-49.90	0				

Security	ASW	ZSprd	ISprd	Swap	TED	OAS	Accure
0% 514	-34.0	-34.6	-35.7	0.6150	35.1	0.41	0.0007
0% 517	-32.1	-32.9	-33.8	0.9980	37.9	0.22	0.0017
1¾ 522	-15.0	-15.4	-16.5	1.7261	30.9	1.62	0.0808
Spread	-15.2	-15.7	-15.4	-0.3451	9.9	-1.58	0.0000



Lower Right of GUI: 90 Day Historical Graph



How do I use the Spread & Butterfly App?

How do I enter a bond or strategy?

Enter your desired strategies using your keyboard or the Bond Chooser function (next page).

Keyboard Method

Step #1

Double click the cell in the strategy column where you want to enter information. The cell will become editable.

USD Bond/Sprd/Bfly	YLD Sprd	dYLD dSprd	3MYLD R<->C
2	0.266	0.8	
3	0.385	1.1	
5	0.832	2.1	
2/5	30.0	0.5	
10	1.949	3.3	
005/5	-36.4	-0.9	

Step #2

Type in the desired security or strategy and hit "Enter".

2/5/7	4.9	0.5		-0.63	-5.6	-1.01		-0.57	-30.2	-0.25		0.67	-5.44
005/5	-36.5	-1.0		1.01	11.6	-0.23		1.38	9.7	0.03		-0.19	11.59
TY1/TY2		0.0		0.00	0.0	0.00		0.00	0.0	0.00		0.00	0.00

Result:

The App will automatically populate the columns.

TY1/TY2	-108.7	-113.3		-271.90	31.6	31.12		95.00	19.4	18.16		56.06	30.84
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Note: Please refer to [Product/Strategy Coverage](#) for more detail including important keyboard abbreviations.

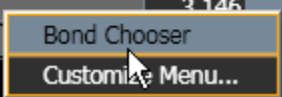
How do I enter an off-the-run bond or strategy using Bond Chooser?

Note: the Bond Chooser function is applicable to bond only strategies.

Step #1

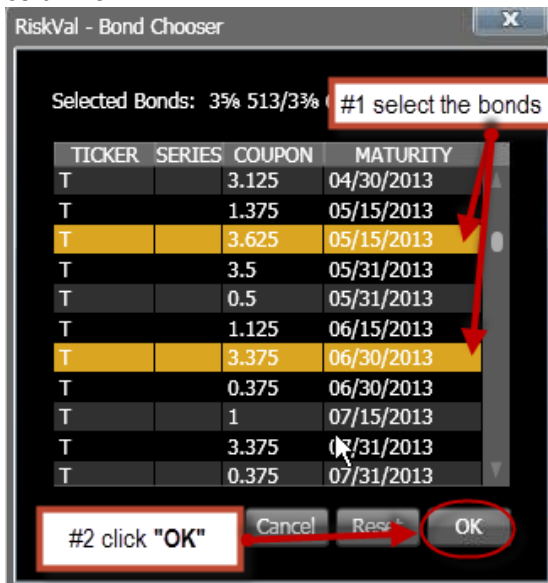
Right click on the strategy column and select “**Bond Chooser.**” The Bond Chooser will pop up.

USD Bond/Sprd/Bfly	YLD Sprd	dY ds
2	0.266	
3	0.386	
5	0.827	
7	1.344	
10	1.944	
30	3.146	



Step #2

Select any 1, 2, or 3 securities in the list and click OK. The App will populate the data into the columns.



Selected Bonds: 3% 513/3%

TICKER	SERIES	COUPON	MATURITY
T		3.125	04/30/2013
T		1.375	05/15/2013
T		3.625	05/15/2013
T		3.5	05/31/2013
T		0.5	05/31/2013
T		1.125	06/15/2013
T		3.375	06/30/2013
T		0.375	06/30/2013
T		1	07/15/2013
T		3.375	07/31/2013
T		0.375	07/31/2013

Buttons: Cancel, Result, OK

Result:

0% 512/4%	612/4%	-2.6	-7.7	-1.00	-4.7	-6.53	-0.09	-3.1	-7.76
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How do I use the Strategy Solver function?

The Strategy Solver allows traders to monetize their tracked strategies. Once a strategy is chosen, you can enter your desired spread and solve for any leg's price or yield. Then you can also enter a trade notional (or contract size for Bond Futures) for one of the securities and the system will calculate a DV01 (Fwd DV01 for Bond Futures) neutral hedge for the other leg(s). If there is a Bond Future in your strategy, the system will automatically forward the entire strategy to the last delivery date of the Future contract, or you can specify a date. For a cash only strategy you can enter the forward date and adjust the repo rate to determine the carry component.

To bring a strategy into the Solver, simply click on the desired row in the "Strategy Monitor" and the trade detail will be brought into the Solver for analysis.

Strategy Solver for Butterfly Trade:

- Step #1:** Check the box of the spread leg for which you want to solve the bond price.
- Step #2:** Enter a desired "spread" level.
- Step #3:** Enter the bond price or bond yield on the other bond(s) which is not checked.
- Step #4:** Enter in a trade notional.
- Step #5:** Enter a forward date and/or the repo rate if desired.

Solve	Security	Bond Pk	Yld	Fut Px	CF	Wgt	Notional	Risk	F DV01	Repo	Fwd Yld	Fwd Date
<input checked="" type="checkbox"/>	0% 514	99-303	0.277			-1		#4	166	0.1000	0.307	09/30/12
<input checked="" type="checkbox"/>	0% 517	99-236	0.678			2			457	0.1000	0.714	09/30/12
<input checked="" type="checkbox"/>	1% 522	101-15	1.589	#2		-1			892	0.1000	1.637	09/30/12
	Spread	-1657-11	-51.00							#5	-51.63	09/30/12

Security	Spot DV01	ASW	ZSprd	ISprd	Swap	TED	OAS	Accrue
0% 514	194	-26.2	-26.6	-29.5	0.5723	27.1	0.82	0.0123
0% 517	485	-25.5	-26.1	-26.6	0.9445	28.8	0.87	0.0307
1% 522	921	-12.7	-13.1	-13.9	1.7277	23.0	2.37	0.1617
Spread		-12.0	-12.4	-9.9	-0.4143	7.5	-1.44	

Last updated: 17 seconds ago, at 15:31:37

Note: Red cells indicate either that the actual data values are manually overridden by the user or the cell value is calculated based on overridden data. Click on "Clear Overrides" to clear user-entered data.

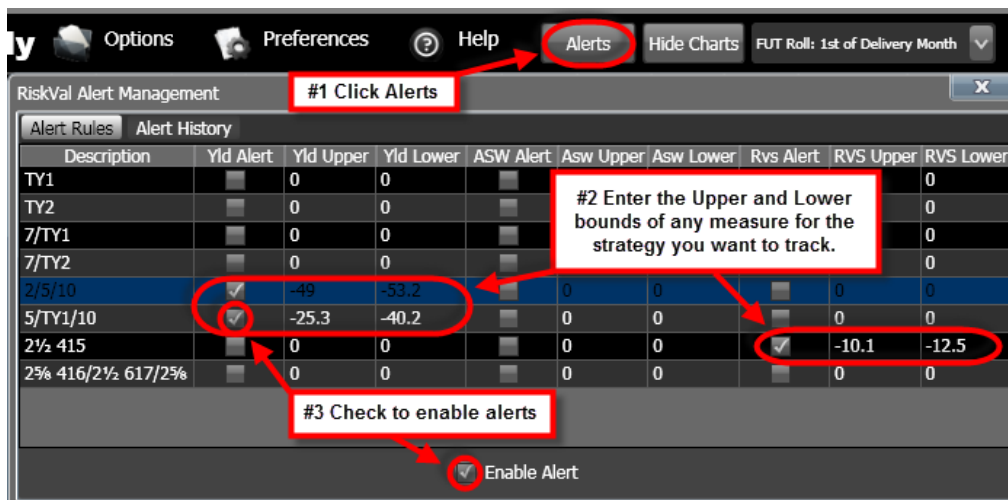
How do I set up an alert?

Our Alert system allows for hands-off real-time monitoring of any strategy for any measure so you do not miss a crucial trade.

Step #1: To set up an alert click on “Alerts” and the Alert Management window will pop up.

Step #2: Specify the upper and lower bounds for the desired measures of the strategy you want to follow.

Step #3: Check the box to enable Alerts.



Description	Yld Alert	Yld Upper	Yld Lower	ASW Alert	Asw Upper	Asw Lower	Rvs Alert	RVS Upper	RVS Lower
TY1	<input type="checkbox"/>	0	0	<input type="checkbox"/>			<input type="checkbox"/>	0	0
TY2	<input type="checkbox"/>	0	0	<input type="checkbox"/>			<input type="checkbox"/>	0	0
7/TY1	<input type="checkbox"/>	0	0	<input type="checkbox"/>			<input type="checkbox"/>	0	0
7/TY2	<input type="checkbox"/>	0	0	<input type="checkbox"/>			<input type="checkbox"/>	0	0
2/5/10	<input checked="" type="checkbox"/>	-49	-53.2	<input type="checkbox"/>	0	0	<input type="checkbox"/>	0	0
5/TY1/10	<input checked="" type="checkbox"/>	-25.3	-40.2	<input type="checkbox"/>	0	0	<input type="checkbox"/>	0	0
2½ 415	<input type="checkbox"/>	0	0	<input type="checkbox"/>	0	0	<input checked="" type="checkbox"/>	-10.1	-12.5
2% 416/2½ 617/2%	<input type="checkbox"/>	0	0	<input type="checkbox"/>	0	0	<input type="checkbox"/>	0	0

Enable Alert

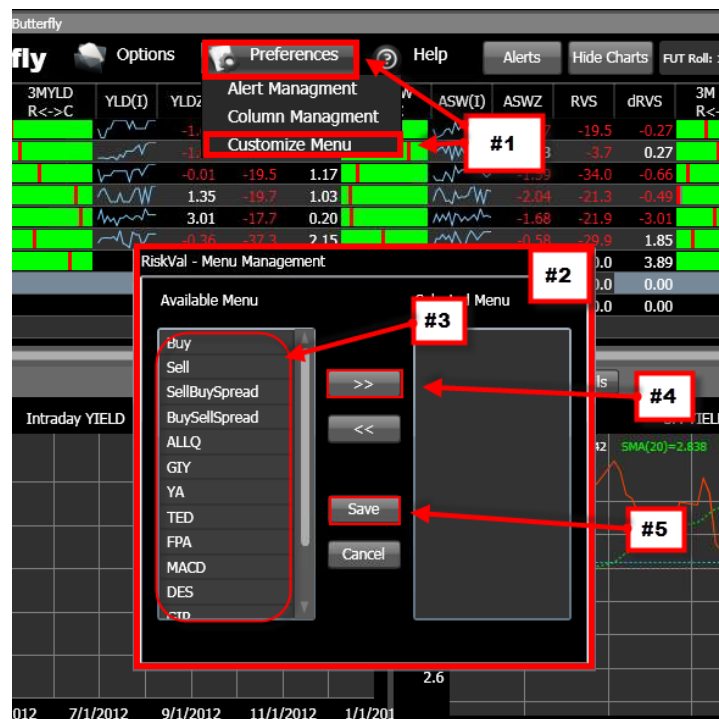
Once either of the bounds is crossed the alert will be triggered and the cell with the tracked measure will blink in red or green.

7	1.325	-0.5
10	1.919	-0.2
2/5	55.2	-0.3

Other Features

How can I add Right Click functions?

- Step #1:** Click on Preferences, then on Customize Menu
- Step #2:** The Right Click menu management will pop out
- Step #3:** Select the functions you want to add to the Right Click menu
- Step #4:** Click on “>>” to add
- Step #5:** Click Save



For example: Select Buy, Sell, and GIP from the list. Click “>>” to add. Then when you right click on a single security row the options will appear as below.



Available Buttons

Top Horizontal Menu



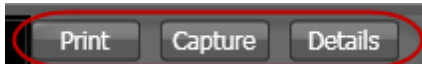
Button	Functional Description
Found under Options :	
Print Application	Print the entire Spread & Butterfly App to your default printer
Capture screen	Takes a screenshot of the App, such that the user can paste (CTRL-V) to Outlook or a Word document.
Copy Table	This function allows the user to copy their strategies and paste them into a spreadsheet.
Found under Preferences :	
Alert Management	Allows set up of the Alerts function that enables tick-by-tick real time tracking of selected strategies and notifies the user once the specified threshold has been breached.
Column Management	Customize your column layout. Add or remove columns to fit your needs, and arrange them as desired.
Customize Menu	Set up your right-click menu. Use these options to take advantage of the App's FIT Integration with Bloomberg functions.
Help	This menu includes the Tutorial, this User Manual, and our contact info
Hide Charts	Hide the charts in the lower half of screen, so that you can use the entire screen for "Strategy Monitor" purposes.
FUT Roll	This function allows the user to adjust for either the 1 st , 15 th , or Last Trade Date future roll.

Strategy Solver Buttons



Button	Functional Description
Send BBG Mail	Sends the spread or butterfly strategy shown in “Strategy Solver” to Bloomberg mail. This is a convenient feature for traders that want to share their strategies with counterparties or colleagues.
Clear Overrides	Resets cells for which the trader has entered data (red cells), showing the current data.
Refresh	The Solver queries Bloomberg for a fresh snapshot of the current ASW, Z-Spread, I-Spread, TED spread levels.
Send Ticket	This function allows the user to execute the strategy via the SST function in Bloomberg.

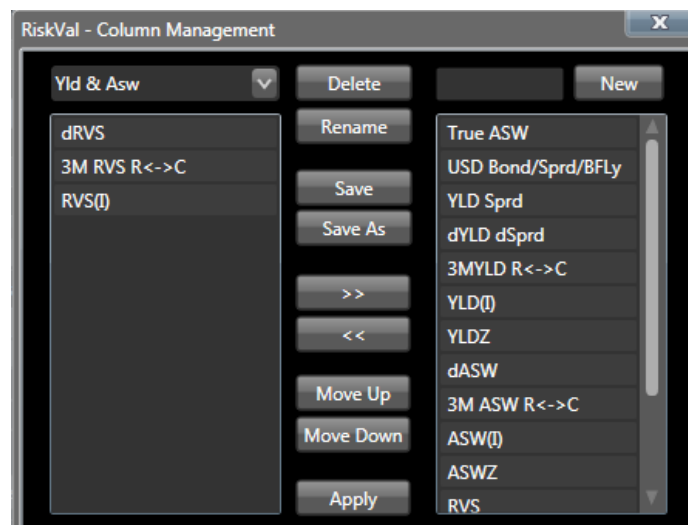
Intraday and Historical Graph Buttons



Button	Functional Description
Print	Sends the Graph to your default printer.
Capture	Takes a screenshot of the Graph, so you can paste (CTRL-V) to Outlook or a Word document.
Detail	Shows the detailed day-by-day historical “YLD Spread” of the strategy in a pop up.

Column Management

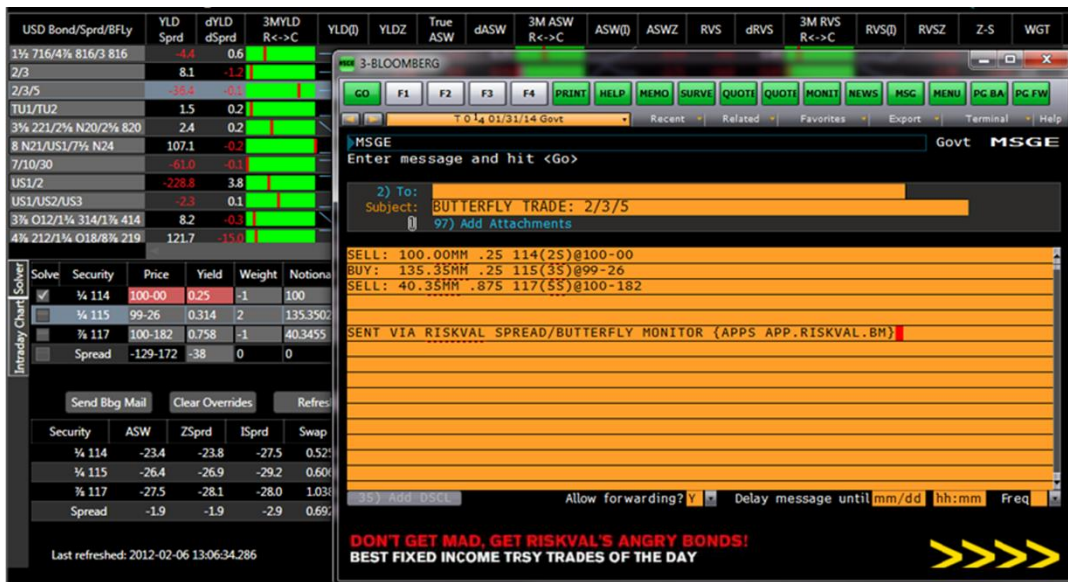
Under “Preferences,” click on “Column Management” to display a window that allows you to customize the column layout. On the left-hand side are all available columns, and on the right-hand side are the selected columns. Use this window to reorganize the column order, or you can also click and drag the column headers in the Strategy Monitor to do the same.



Send BBG Mail

The Spread & Butterfly App is integrated with Bloomberg mail, such that you can click on the “Send BBG Mail” button to share Solver results with your trade counterparty. Here is a sample screenshot of BBG mail that you will see when you use the “Send BBG Mail” button.

Sample screenshot for “Send BBG Mail”



The screenshot displays a Bloomberg terminal window with a 'MSGE' (message) window open. The message content is as follows:

```

2) To: [Redacted]
Subject: BUTTERFLY TRADE: 2/3/5
97) Add Attachments

SELL: 100.00MH .25 114(2S)@100-00
BUY: 135.35RH .25 115(3S)@99-26
SELL: 40.35MH .875 117(5S)@100-182

SENT VIA RISKVAL SPREAD/BUTTERFLY MONITOR (APPS APP.RISKVAL.BM)
  
```

At the bottom of the terminal, there is a promotional banner: **DON'T GET MAD, GET RISKVAL'S ANGRY BONDS! BEST FIXED INCOME TRSY TRADES OF THE DAY** with four yellow arrows pointing right.

The background of the terminal shows a 'Solve' window with the following data:

Security	Price	Yield	Weight	Notional
¾ 114	100-00	0.25	-1	100
¾ 115	99-26	0.314	2	135.3500
¾ 117	100-182	0.758	-1	40.3455
Spread	-129-172	-38	0	0

Below the 'Solve' window, there is a 'Send Bbg Mail' button and a 'Clear Overrides' button. The 'Send Bbg Mail' button is highlighted in the screenshot.

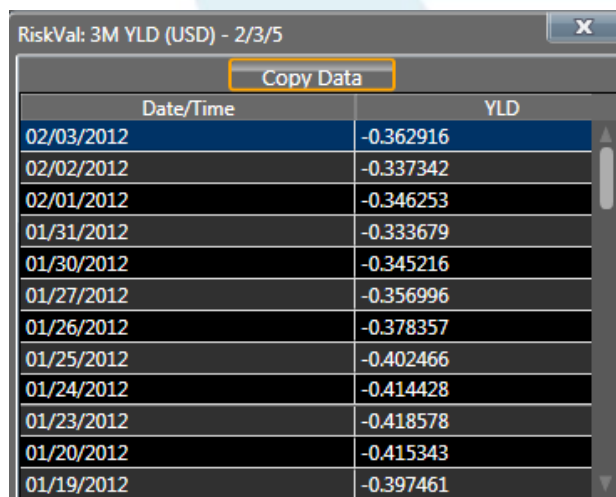
Historical Graph

The Historical Graph resides on the lower right of the Spread & Butterfly App. When a strategy is selected, the Graph shows the 3 Month historical “YLD Spread” of the selected strategy. The Graph also displays the “Mean” and “Standard Deviation” of the 3 Month historical spread, as well as the 20 Day “Simple Moving Average” (SMA).



Historical Data

Click on the “Details” button in the “Historical Graph” to view the actual historical YLD spread (as shown below). Furthermore, traders can click on “Copy Data” to capture the time series data, and paste (CTRL-V) to Excel or other document for analysis.



Date/Time	YLD
02/03/2012	-0.362916
02/02/2012	-0.337342
02/01/2012	-0.346253
01/31/2012	-0.333679
01/30/2012	-0.345216
01/27/2012	-0.356996
01/26/2012	-0.378357
01/25/2012	-0.402466
01/24/2012	-0.414428
01/23/2012	-0.418578
01/20/2012	-0.415343
01/19/2012	-0.397461

Product/Strategy Coverage

Product	Symbols and Keyboard Abbreviations
Bond	Benchmark samples: 5, O5, OO5, OOO5, OOOO5 Off-the-run samples: 0.5 814 as T 0.5% 8/15/2014
Bond Future	TU1, TU2 3Y1, 3Y2 FV1, FV2 TY1, TY2 US1, US2 WN1, WN2 Where 1 is the front future; 2 is the back future
Strategy	Symbols and Keyboard Abbreviations
Single Security	Enter any security from the product coverage
Spread	Use any 2 securities in the product coverage with separator of "/" Examples: 2/5 TY1/TY2 0.5 814/3 O10/10 TY1/US1
Butterfly	Use any 3 securities in the product coverage with separator of "/" Examples: 2/5/10 5/TY1/10 FV1/TY1/US1 OO10/O10/10 2.375 215/2.625 216/3.0 217

Note: Traders can use the same Bloomberg Terminal fraction keys to enter bond coupons, such as F9 for $\frac{1}{2}$, F10 for $\frac{1}{8}$, etc.

Keyboard Abbreviations

Security Type	Entry Format	Keystrokes	Result
Benchmark Treasury	Integer	2	Current 2 Year
		7	Current 7 Year
Off-the-Run Treasury	Integer prefixed with single or multiple "O" for "Old" Maximum of 4	O5	First Off-the-Run 5 Year
		OO7	Second Off-the-Run 7 Year
		OOOO3	Fourth Off-the-Run 3 Year
Any Bond	Coupon MYY	0.25 O13	T 0.25% Oct-2013 Bond
		3.125 119	T 3.125% Jan-2019 Bond
		Month is single character: 1-9, O, N, D O: October – N: November – D: December	
Bond Futures	TU1,3Y1, FV1, TY1, US1, WN1 or TU2, 3Y2, FV2, TY2, US2, WN2	Note: Use a number following the contract symbol to indicate front or back contracts. For example: FV1 is the front FV contract, and FV2 is the back FV contract. You can replace FV with TU, 3Y, TY, US, or WN for the different bond future contracts.	

Note: As a reminder, the Bond Chooser function also allows you to enter any bond-only strategy. It can be accessed by right-clicking in the Entry Area.

Column Definitions

Column Name	Description
Bond/Spread/BFly	Enter your strategy here: single security, spread, or butterfly. Note: Please follow the “Product Coverage” to enter your strategy.
Yield Spread	
YLD Sprd	For single security, this will show yield For all other strategies, this will show the yield spread
dYLD Sprd	Spread change of day since last business day
3M YLD R<->C	3 Month heat map of “YLD Spread”. The green bar represents the range of 3 months of historical yield spread data. The red bar shows the current level relative to the 3 month range.
YLD(I)	Intraday tick-by-tick chart of “YLD Sprd” cell. The tick data only starts to collect once you start the App, therefore we suggest you keep the App running to have more complete intraday graph data.
YLD Z	Yield Z-score represents the current YLD spread level compared to the 3 month historical data in standard deviations from the 3 month historical mean. For example, +1 means the current value is 1 STD higher than the historical mean.
True ASW Spread	
True ASW	This is a coupon weighted ASW Spread. The calculation logic is to create a swap with semi-bond cash flow as fixed leg and solve for the spread to 3 month floating rate such that the NPV of swap is equal to bond dirty price – 100. For single security, this will show the current True ASW level For all other strategies, this will show SOS of True ASW
dASW	Spread change of day since last business day
3M ASW R<->C	3 Month heat map of ASW “Spread”. The green bar represents the range of 3 months of historical True ASW data. The red bar shows the current level relative to the 3 month range.
ASW(I)	Intraday tick-by-tick chart of “ASW Sprd” cell. The tick data only starts to collect once you start the App, therefore we suggest you keep the App running to have more complete intraday graph data.
ASW Z	ASW Z-score represents the current ASW spread level compared to the 3 month historical data in standard deviations from the 3 month

	historical mean. For example, +1 means the current value is 1 STD higher than the historical mean.
2+ RVS	
RVS	This is the relative value spread (RVS) against the 2+ model Treasury fair value curve. A negative value means it is richer than the fair value curve, and positive value means that it is cheaper than the fair value curve. For single security, this will show the current 2+ RVS For all other strategies, this will show SOS of 2+ RVS
dRVS	Spread change of day since last business day
3M RVS R<->C	3 Month heat map of RVS "Spread". The green bar represents the range of 3 months of historical RVS data. The red bar shows the current level relative to the 3 month range.
RVS(I)	Intraday tick-by-tick chart of "RVS Sprd" cell. The tick data only starts to collect once you start the App, therefore we suggest you keep the App running to have more complete intraday graph data.
RVS Z	RVS Z-score represents the current RVS spread level compared to the 3 month historical data in standard deviations from the 3 month historical mean. For example, +1 means the current value is 1 STD higher than the historical mean.
Others	
Z-S (Z-Spread)	Z-Spread. This is a coupon weighted ASW spread. The calculation logic is to discount the bond cash flow with swap curve, and solve for the spread to the swap curve such that the NPV of the discounted cash flow is equal to bond dirty price. For single security, this will show the current Z-spread level For all other strategies, this will show SOS of Z-spread
WGT	Spread and Butterfly weighting. The default gross weight is "-1/1" and "-1/2/-1", respectively. Users can overwrite as needed.