

# RELATIVE VALUE FIXED INCOME (RVFI) Pre-Trade Analytics



**RISKVAL**  
FINANCIAL SOLUTIONS

| Choice for Success

# INDEX

RVFI OVERVIEW.....	2
PRODUCT COVERAGE.....	3
MARKET DATA.....	4
RVFI COMPONENTS.....	5
SERVICE PACKAGE.....	6
SAMPLE TRADING STRATEGIES.....	7
BOND/FUTURE SPREAD/BFLY STRATEGY.....	7
SWAPBOX STRATEGY.....	7
FORWARD SWAP MATRIX.....	8
LISTED OPTION SABR MODEL.....	8



# RVFI: PRE-TRADE ANALYTICS

RiskVal's Relative Value Fixed Income (RVFI) is a multi-currency and multi-strategy trading system that integrates complex front, middle, and back office functions into a smooth and ready-to-use SaaS (Software as a Service) platform installed natively on each user's PC. RVFI covers all interest rate instruments, from cash and plain vanilla securities to exotic derivatives over the universe of G30 currencies. RVFI's risk management framework is carefully designed to provide intraday front office risks and P&L management.

RVFI has more than 200 relative value trading strategies which we developed over the last 15+ years based on our close relationship with elite traders in top Wall Street institutions. RiskVal financial engineering captures the very latest intellectual property of the most current issues. Over the years, RVFI has become a de facto pre-trade analytic tool for trading desk. The entire analytics libraries are home grown by our financial engineering team no external commercial libraries are needed, such that we can fully fine tune for performance and accuracy.

USD Bond Roll Analysis

Swap Box X

Future CTD Scen

New

Save All

Schedule Table Export

Option

Strategy Analysis

tu-fv

IT-OAT 24s

TIPS B/e 26s

USD B

Rename

Save

Delete

Alerts

Send

	Instrument	Price	Yield	dYld	Weight	
1	T 1.875 31-Aug-2024	99.136	1.9626	0.7	-1.00	
2	T 2.375 15-May-2027	102.016	2.1393	0.2	2.00	
3	T 2.250 15-Aug-2027	101.002	2.1370	0.2	-1.00	
4		Diff	17.89	-0.6		
5			Px Sprd	-21.952	Ratio	-0.92
6			dPx Sprd	0.023		
7	Daily Carry A. Px	-21.948	Carry A. Px	-21.540		

Repo Date: 29-Dec-2017

☒ Auto Hedge

Swap Hedge: FWD SWA

		T 1.875 31-...	T 2.375 15-...	T 2.250 15-...	
1	Bond Posit...	0.00	0.00	0.00	
2	Total Cash...	0.00	0.00	0.00	
3	Swap Posi...	0.00	0.00	0.00	MisHedge
4	Bond DV01	0	0	0	0
5	Fwd Bond ...	0	0	0	0
6	Fwd Swap ...	0	0	0	0
7	MisHedge	0	0	0	Diff
8	Fwd Swap ...	1.9422	2.0972	2.1097	14.26
9	Diff of Spo...	2.04	4.20	2.74	3.63
10	Fwd OIS R...	1.6419	1.7720	1.7824	11.98
11	Fwd Bond ...	2.0014	2.1773	2.1705	18.27
12	Fwd Bond ...	3.88	3.80	3.35	0.38
13	Bond Roll ...	3.20	1.43	1.40	-1.74
14	Carry&Roll...	7.08	5.23	4.75	-1.36
15	Fwd Swap ...	2.97	2.78	2.76	-0.16
16	Swap Roll ...	1.88	1.58	1.63	-0.35
17	Swap Carr...	4.85	4.36	4.39	-0.51
18	Asw Swap...	0.92	1.02	0.59	0.54
19	ASW Roll ...	1.32	-0.15	-0.23	-1.39
20	ASW Carr...	2.23	0.87	0.36	-0.85
21	Fwd OIS C...	2.24	2.15	2.12	-0.06
22	OIS Roll D...	1.84	1.44	1.40	-0.35
23	OIS Carry...	4.08	3.60	3.52	-0.41
24	OIS Sprd C...	1.64	1.65	1.23	0.43

# PRODUCT COVERAGE

<b>Cash</b>	Treasury Bonds Treasury Bills Agency Bonds TIPS Callable Bonds Strip & Strip Principal	Bond Futures ED\$ Futures Repo Futures Options on Futures Mortgage TBAs
<b>Currency</b>	Currency futures	Currency Options
<b>Derivatives</b>	Interest Rate Swaps (LIBOR & OIS) Inflation Swaps Basis Swaps XCCY Swaps MAC Swaps IMM Swaps FRA Rates	Swaptions CAPs/Floor Mid-Curve Swaptions CMS Swaps CMS options CMS spread options Agency Callables
<b>FX</b>	Spot Forward Options	Plain Vanilla options Exotic options (knock-in, knock-out, barriers)
<b>Mortgage</b>	TBA IO PO CMO	CMBS RMBS Pass-through
<b>Credit</b>	Single name CDS CDX Indices	Corporate Bonds
<b>Muni</b>	Municipal bonds	



# MARKET DATA

## Live Market

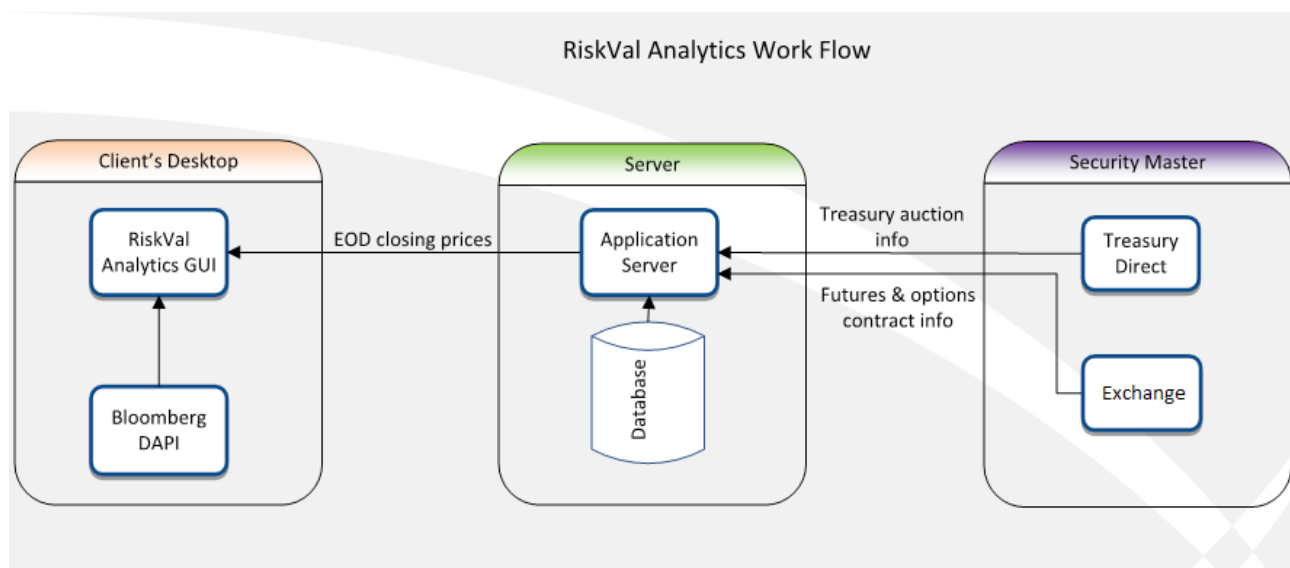
- Fully integrated with Bloomberg DAPI, SAPI, and B-Pipe.
- Integration available for BGC eSped feed.
- Integration available for UBS Neo.

## EOD Market

- RiskVal EOD market data is consistent with market convention.
- It is marked the same time as future close.
- Apply market conventions to collect EOD data.
- Use multiple data sources to determine the best bid/offer results

## Historical

- RVFI contains more than 15 years of historical EOD marks:
  - Bonds, futures, derivatives, and options.
- RiskVal contains more than 15 years of relative value measures:
  - ASW spread, OIS spread, 2+ RVS, TED Spread.
  - Invoice spread for futures.



# RVFI COMPONENTS

## Front Office

- SwapBox, TEDBox, Calendar ASW, and Calendar TED
- Future CTD scenario analysis
- Inflation B/E analysis
- Mortgage relative value analysis
- Options strategy analysis
- Conditional curve trade analysis
- Spot and forward swap analysis
- Volatility arbitrage based on SABR model framework
- Correlation trading analysis
- Principal component analysis framework
- Blotter and trade sheet by product type

## Middle Office

- Portfolio management with multi-tier hierarchy structure
- Risk management with DV01, duration, convexity, bucket risk, spread risk, Greeks, yield curve scenario analysis, and vol surface scenario analysis
- P&L management with live P&L, inception P&L, and P&L attributions
- Interactive repo calculation framework for funding assumptions

## Back Office

- XML API for STP integration
- FIX, FIT integration
- Trade life cycle management
- MarkitWire integration
- ECN OM integration
- Bloomberg TOM integration



# SERVICE PACKAGE

## Base RVFI package

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Libor Curve builder  
OIS curve builder  
USD Mortgage TBA performance  
USD Bond ASW sheet  
USD Bond TED sheet  
USD Tbill TED sheet  
USD STRIP (SP/P) ASW sheet  
USD TIPS analysis  
USD Agency ASW sheet  
Bond Future CTD scenario analysis  
Historical Viewer

## Relative Value Trading package

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Bond Roll Analysis  
Swap Box (multi-strategies)  
Ted Box (multi-strategies)  
Calendar Trade (ASW and TED)  
Forward Swap Matrix  
Fwd-Fwd Swap Matrix  
Conditional Curve Monitor (multi-strategies)  
Future Conditional Curve analysis  
Swap trade sheet  
Swaption trade sheet  
Basis Swap trade sheet  
Listed Option Strategy Analysis  
2+ RV framework

- Bond RVS analysis (G7)
- Swap RVS analysis (G7)
- ED\$ RVS analysis (G7)
- Swap RVS live graph

Bond RV roll analysis







## FORWARD SWAP MATRIX

Desktop Window Tool Help

Market View

Swap Price | USD Bond Roll Analysis | Conditional Trade | New Swap Trade Sheet | Forward SwapMatrix Sheet | FWD FWD | Bond Trade Sheet | Swap Box | Future CTD Scenario Analysis | Libor Curve Builder | OIS Curve Builder | TIPS USD Bond

USD - Libor | USD - OISwap

Curve	weight	Spread	dSprd	Mean	StdDev (dCg)	(Carry+Roll) dSprd /StdDev	Rich<->Chp	Yld Z-Score	RSI(14)	OverB<->OverSd	FwdSprd	dFwdSprd	3mo fnd	6mo fnd	1yr fnd	3M Carry	3M Roll	Float Index	
1 2/5	-1/1	118.46	(1.04)	121.19	2.29	0.98	(0.45)	(0.60)	38.2		118.58	(0.86)	118.58	115.72	104.57	3.78	(1.54)	3M/3M	
2 2/10	-1/1	216.26	(0.94)	230.13	2.49	(1.42)	(0.02)	(2.07)	35.6		210.61	0.45	210.61	201.62	177.48	2.73	(6.26)	3M/3M	
3 2x2/5	-1/1	71.37	1.43	85.13	1.68	(4.65)	0.85	(1.28)	40.0		64.13	1.91	64.13	57.47	46.34	0.00	(7.81)	3M/3M	
4 2x2/2x10	-1/1	121.23	3.01	142.32	3.17	(4.04)	0.95	(1.09)	44.8		109.31	3.64	109.31	98.37	80.27	0.00	(12.80)	3M/3M	
5 3x7	-1/2-1	24.54	(0.06)	22.94	1.23	1.25	(0.00)	0.43	44.3		24.82	0.02	24.82	24.77	22.78	1.59	(0.03)	3M/3M/3M	
6 5/10/30	-0.95/2.0/-1.19	(30.70)	(2.37)	(25.42)	0.80	(0.08)	(2.95)	(4.79)	30.7		(30.85)	(2.35)	(30.85)	(31.21)	(32.58)	1.47	(1.54)	3M/3M/3M	
7 5/10/30	-1/2-1	25.52	(1.93)	33.66	0.91	(0.07)	(2.12)	(3.05)	25.8		25.39	(1.89)	25.39	25.02	23.64	1.84	(1.90)	3M/3M/3M	
8 3x7	-1/2-1	24.54	(0.06)	22.94	1.23	1.25	(0.00)	0.43	44.3		24.82	0.02	24.82	24.77	22.78	1.59	(0.03)	3M/3M/3M	
9 2x5/2x7/2x10	-1/2-1	1.30	0.34	2.04	0.38	(1.04)	0.88	(1.04)	46.7		1.09	0.28	1.09	0.66	0.67	0.00	(0.40)	3M/3M/3M	
10 2/1/5	-1/2-1	(32.42)	(1.22)	(38.73)	0.99	5.08	(1.24)	1.33	59.5		(27.21)	(1.77)	(27.21)	(23.61)	(17.22)	1.07	3.94	3M/3M/3M	
11 5x5/5x10	-1/1	(0.75)	(0.12)	1.60	0.86	1.89	(0.15)	(1.54)	31.2								0.68	0.95	3M/3M
12 5x1	1	13.40	0.03	12.74	1.10	(1.11)	0.02	0.52	54.6								(0.60)	0.54	3M
13 5x5	1	8.50	0.12	9.50	0.76	(2.54)	0.16	(0.81)	46.9								(0.81)	(1.12)	3M
14 5x2/5x5	-1/1	(4.90)	0.10	(3.24)	1.29	(0.55)	0.08	(1.30)	43.8								(0.13)	(0.58)	3M/3M
15 5x5/5x5/5x7	-1/2-1	2.25	(0.50)	0.49	1.68	(0.39)	(0.30)	0.82	55.6								(0.34)	(0.32)	3M/3M/3M
17 2/1/5	-1.80/5/2.0/-0.72/5	(27.14)	(0.50)	(31.88)	0.76	(1.53)	(1.10)	1.36	60.5		(30.11)	(0.94)	(30.11)	(37.37)	(57.50)	0.00	(1.35)	3M/3M/3M	
18 1x2/1x3/1x5	-1.75/2.0/-0.57	(14.21)	1.01	(13.60)	0.85	(8.29)	1.19	(0.30)	51.0		(23.96)	1.44	(23.96)	(33.45)	(51.97)	0.00	(7.01)	3M/3M/3M	
19 2/10	-1/1	216.26	(0.94)	230.13	2.49	(1.42)	(0.02)	(2.07)	35.6		210.61	0.45	210.61	201.62	177.48	2.73	(6.26)	3M/3M	
20 0x25x1x5x0x25x1x5x30	-1/1	176.62	4.30	(4)	0.0			0.0	0.0										
21 5/30	-1/1	170.08	3.93	184.23	2.70	(4.24)	1.45	(0.91)	49.5		158.67	4.52	158.67	146.78	122.58	(3.95)	(7.52)	3M/3M	
22 1x2/1x5	-1/1	117.49	(1.09)						115.83		(0.64)	115.83	112.34	99.39	2.01	(0.97)	3M/3M		
23 1x2/1x5	-1/1	104.37	0.86	115.47	1.51	(4.27)	0.57	(1.84)	34.2		96.02	1.38	96.02	87.58	71.37	0.00	(6.45)	3M/3M	
24 0x30x20x1x5x5	-1/1	2.60	(2.85)	(4)	0.0			0.0	0.0		(0.03)	2.60	2.60	2.60	0.00	(4.77)	3M		
25 2/7	-1/2-1	67.56	(1.19)	64.17	2.39	2.16	(0.50)	0.43	44.1		70.51	(1.30)	70.51	70.82	66.35	4.01	1.14	3M/3M/3M	

Table  
Add Row  
Remove Selected Row  
Alert  
Show Forward Spread  
Forward Date: 08/12/22  
Term: 3M  
Roll Date: 05/07/22  
Hot Period: 3M  
Last Updated: Live 1:11

Fwd SwapMatrix | Hist dFwdRate | FwdOTMMatrix | Hist FwdOTMMatrix | dFwdOTM | FwdSwap-FwdOTMSpr | Hist FwdSwap-FwdOTMSpr | dFwdSwap-FwdOTMSpr | Fwd Roll | Vol Adjusted Roll | Fwd CFI SwapMatrix | Custom FRA

Tenor	3M	6M	1Y	2Y	3Y	4Y	5Y	6Y	7Y	8Y	9Y	10Y	12Y	15Y	20Y	25Y	30Y	Fwd Cap
1 00 (%(5/12/2014))	0.2283	0.2284	0.2508	0.5229	0.9531	1.3653	1.7075	1.9883	2.2165	2.4012	2.5558	2.6855	2.8905	3.0975	3.2819	3.3664	3.4083	
2 0(12/2014)	0.2284	0.2398	0.3052	0.6778	1.1147	1.5363	1.8636	2.1304	2.3444	2.5178	2.6633	2.7839	2.9765	3.1686	3.3382	3.4139	3.4504	
3 0M (%(11/12/2014))	0.2512	0.2722	0.4131	0.8677	1.3283	1.7660	2.0246	2.2753	2.4759	2.6368	2.7707	2.8839	3.0632	3.2404	3.3947	3.4617	3.4927	
4 0M (%(12/2/2015))	0.2950	0.3707	0.5781	1.0812	1.5341	1.9004	2.1895	2.4221	2.6058	2.7558	2.8792	2.9850	3.1506	3.3129	3.4520	3.5103	3.5357	
5 1Y (%(5/12/2015))	0.4462	0.5533	0.7963	1.3084	1.7441	2.0836	2.3521	2.5644	2.7322	2.8712	2.9862	3.0832	3.2354	3.3835	3.5079	3.5580	3.5778	
6 1Y (%(12/2/2016))	1.4711	1.6053	1.8276	2.2287	2.5288	2.7617	2.9424	3.0826	3.1982	3.2932	3.3729	3.4450	3.5459	3.6384	3.7090	3.7283	3.7285	
7 1Y (%(5/12/2017))	2.3952	2.4950	2.6366	2.8918	3.0893	3.2403	3.3553	3.4505	3.5302	3.5936	3.6494	3.6965	3.7609	3.8173	3.8476	3.8481	3.8310	
8 4Y (%(5/14/2018))	3.0134	3.0811	3.1566	3.3282	3.4560	3.5513	3.6308	3.6952	3.7502	3.7968	3.8338	3.8638	3.9034	3.9328	3.9551	3.9176	3.8940	
9 1Y (%(5/13/2019))	3.4017	3.4536	3.5045	3.6124	3.6906	3.7593	3.8140	3.8612	3.9013	3.9323	3.9559	3.9742	3.9954	4.0050	3.9878	3.9604	3.9299	
10 6Y (%(5/12/2020))	3.8710	3.7123	3.7233	3.7880	3.8494	3.8981	3.9400	3.9758	4.0024	4.0228	4.0363	4.0462	4.0537	4.0477	4.0174	3.9823	3.9475	
11 7Y (%(5/17/2021))	3.8790	3.8557	3.8551	3.8100	3.8606	3.9001	3.9311	3.9543	3.9711	3.9811	3.9841	3.9861	3.9711	3.9411	3.9008	3.8511		

## LISTED OPTION SABR MODEL

Desktop Window Tool Help

▶ Market View

Swap Price | USD Bond Roll Analysis | Conditional Trade | New Swap Trade Sheet | Forward SwapMatrix Sheet | FWD FWD | Bond Trade Sheet | Swap Box | Future CTD Scenario Analysis | Libor Curve Builder | OIS Curve Builder | TIPS USD Bond | Listed Option SABR Model

New Save Delete Save All Delete All Show SABR Params

TYM4

Serial	Future	Future Px	Expiry	Cals	Annuity	#Calls	#Puts	#Straddles	Alpha	Increment	Beta	Rho	Nu		
1	TYM4	TYM4	125-02 23-May-2014	1	7.039	1	3	5	3	1	0.0344	0.0010	1.0000	0.0652	3.7627

◀ ▶

Fit SABR

SAVE PARAMS

LOAD PARAMS

☐ USE VOL/SKEW

Live Vol ▼

X	Ticker	Price Strike	Yld Strike	Live Prem	SABR Prem	Live Vol	SABR Vol	Yld Black Vol	Yld Bp Vol	Yld Bp Daily Vol	Delta	Gamma	Theta	Vega	Vanna	Volga
1	TYM4P 122.5	122-16	2.483	'01.0	'00.7	5.420	5.114	41.510	95.268	90.031	6.001	237.4	(0.030)			
2	TYM4P 123.0	123	2.412	'01.0	'01.2	4.515	4.701	35.218	79.639	82.681	5.017	206.4	(0.035)			
3	TYM4P 123.5	123-16	2.340	'02.0	'02.3	4.152	4.306	32.950	73.387	76.055	4.623	140.7	(0.068)			
4	TYM4P 124.0	124	2.269	'04.0	'04.7	3.752	3.951	30.309	66.460	69.830	4.187	113.3	(0.132)			
5	TYM4P 124.5	124-16	2.198	'11.0	'10.0	3.866	3.689	31.776	68.567	65.465	4.319	56.1	(0.282)			
6	TYM4P 125.0	125	2.127	'12.0	'11.4	3.697	3.601	30.965	65.727	64.014	4.140	46.8	(0.472)			
7	TYM4C 125.5	125-16	2.056	'13.0	'12.7	3.774	3.731	32.218	67.235	66.459	4.235	53.5	0.326			
8	TYM4C 126.0	126	1.985	'06.0	'06.4	3.926	4.026	34.177	70.088	71.832	4.415	108.8	0.176			
9	TYM4C 126.5	126-16	1.914	'03.0	'03.4	4.252	4.401	37.757	76.049	78.723	4.791	134.8	0.094			

Vol Skew

LiveVol

SABR Vol

S	Ticker	Price Strike	Yld Strike	Live Prem	SABR Prem	Live Vol	SABR Vol	Yld Black Vol	Yld Bp Vol	Yld Bp Daily Vol	Delta	Gamma	Theta	Vega	Vanna	Volga
1	TYM4S 124.5	124-16	2.198	'58.0	'56.1	3.866	3.689	31.776	68.567	4.319	0.435	0.687	(0.022)	0.170	(0.102)	0.016
2	TYM4S 125.0	125	2.127	'48.0	'46.8	3.697	3.601	30.965	65.727	4.140	0.556	0.846	(0.025)	0.202	(0.118)	0.000
3	TYM4S 125.5	125-16	2.056	'53.0	'53.5	3.690	3.731	31.486	65.709	4.139	(0.355)	0.764	(0.023)	0.180	0.098	0.011

C	Ticker	Price Strike	Yld Strike	Live Prem	SABR Prem	Live Vol	SABR Vol	Yld Black Vol	Yld Bp Vol	Yld Bp Daily Vol	Delta	Gamma	Theta	Vega	Vanna	Volga	
1	TYM4C 125.5	125-16	2.056	'13.0	'12.7	3.774	3.731	32.218	67.235	66.459	4.235	0.326	0.375	(0.012)	0.090	0.047	0.005
2	TYM4C 126.0	126	1.985	'06.0	'06.4	3.926	4.026	34.177	70.088	71.832	4.415	0.176	0.259	(0.008)	0.064	0.063	0.015
3	TYM4C 126.5	126-16	1.914	'03.0	'03.4	4.252	4.401	37.757	76.049	78.723	4.791	0.094	0.155	(0.006)	0.041	0.051	0.017

P	Ticker	Price Strike	Yld Strike	Live Prem	SABR Prem	Live Vol	SABR Vol	Yld Black Vol	Yld Bp Vol	Yld Bp Daily Vol	Delta	Gamma	Theta	Vega	Vanna	Volga
1	TYM4P 122.5	122-16	2.483	'01.0	'00.7	5.420	5.114	41.510	95.268	90.031	(0.030)	0.049	(0.003)	0.017	(0.022)	0.011
2	TYM4P 123.0	123	2.412	'01.0	'01.2	4.515	4.701	35.218	79.639	82.681	(0.035)	0.067	(0.003)	0.020	(0.029)	0.014
3	TYM4P 123.5	123-16	2.340	'02.0	'02.3	4.152	4.306	32.950	73.387	76.055	(0.068)	0.124	(0.005)	0.032	(0.043)	0.017
4	TYM4P 124.0	124	2.269	'04.0	'04.7	3.752	3.951	30.309	66.460	69.830	(0.132)	0.223	(0.007)	0.052	(0.063)	0.018
5	TYM4P 124.5	124-16	2.198	'11.0	'10.0	3.866	3.689	31.776	68.567	65.465	(0.282)	0.343	(0.011)	0.085	(0.051)	0.008