RELATIVE VALUE FIXED INCOME (RVFI)

Pre-Trade Analytics

RISKVAL
FINANCIAL SOLUTIONS

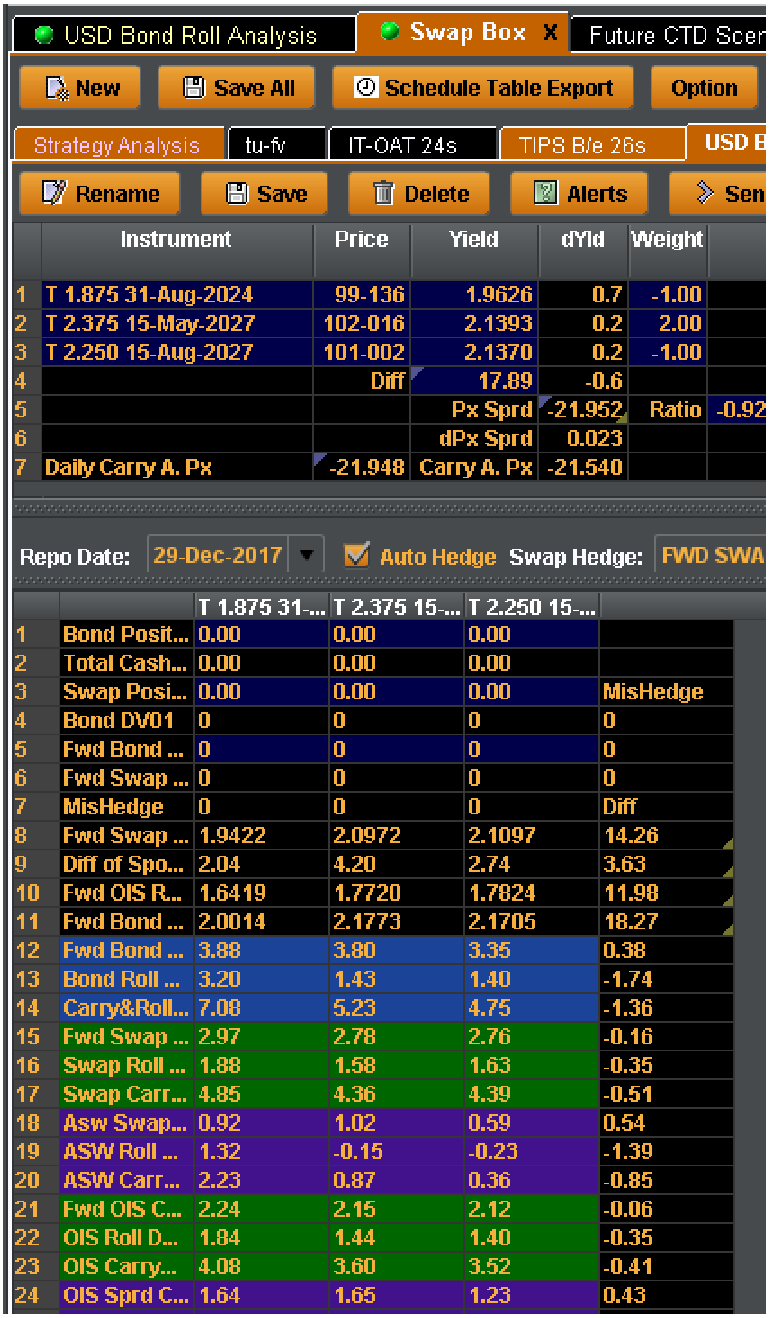
Choice for Success

INDEX

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.



	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

Cash	Treasury Bonds Treasury Bills Agency Bonds TIPS Callable Bonds Strip & Strip Principal	Bond Futures ED$ Futures Repo Futures Options on Futures Mortgage TBAs
Currency	Currency futures	Currency Options
Derivatives	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
FX	Spot Forward Options	Plain Vanilla options Exotic options (knock-in, knock-out, barriers)
Mortgage	TBA IO PO CMO	CMBS RMBS Pass-through
Credit	Single name CDS CDX Indices	Corporate Bonds
Muni	Municipal bonds	

MARKET DATA

Live Market

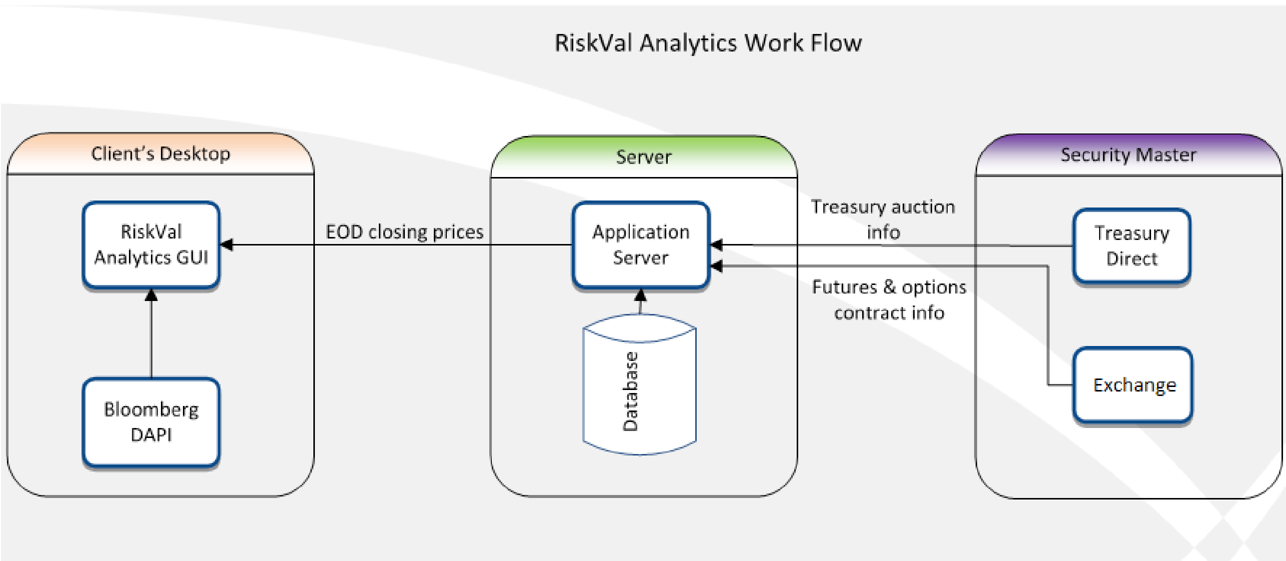
- Fully integrated with Bloomberg DAPI, SAPI, and B-Pipe.
- Integration available for BGC eSped feed.
- Integration available for UBS Neo.

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

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

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

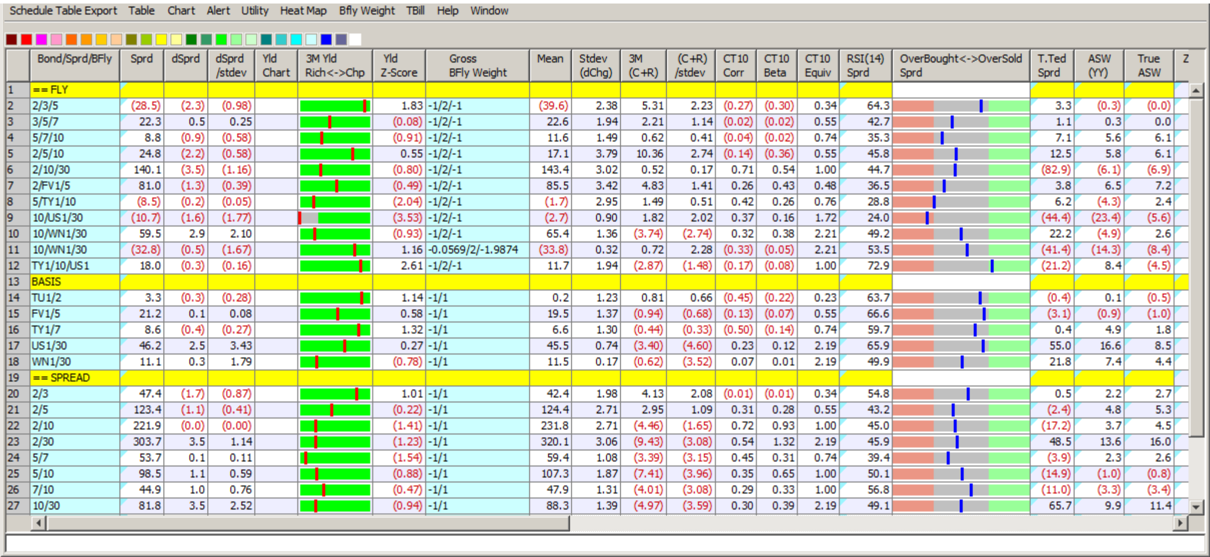
2+ RV framework

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

Bond RV roll analysis

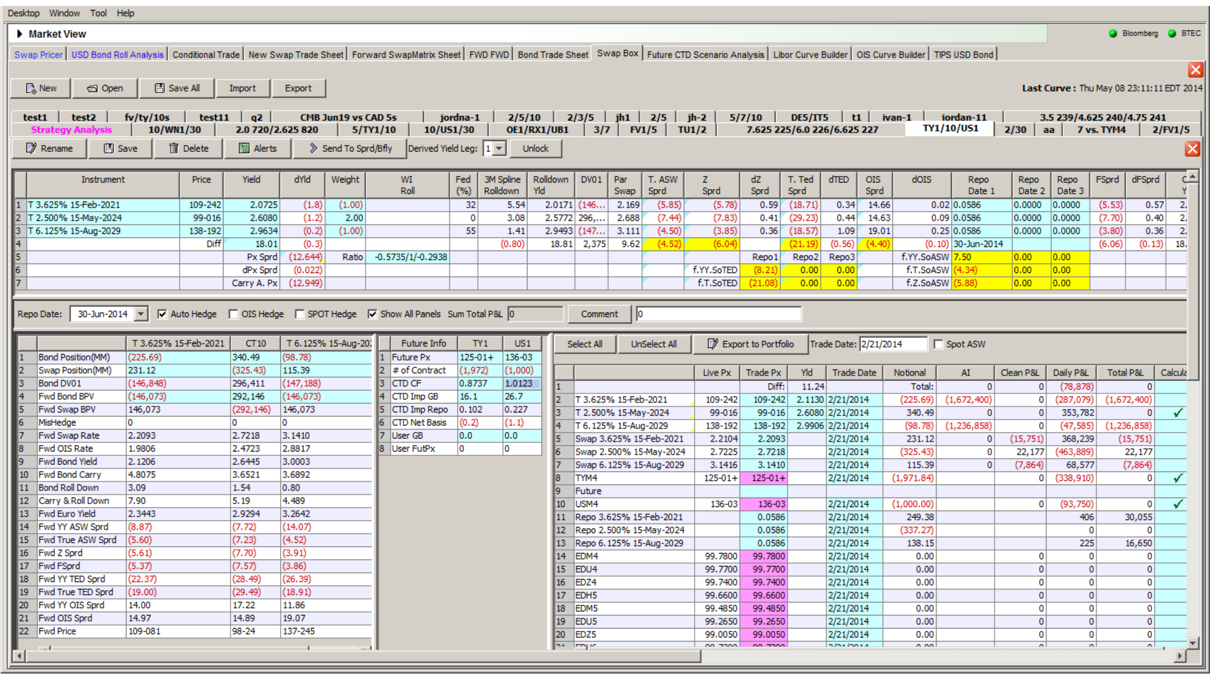
SAMPLE TRADING STRATEGIES

BOND/FUTURE SPREAD/BFLY STRATEGY

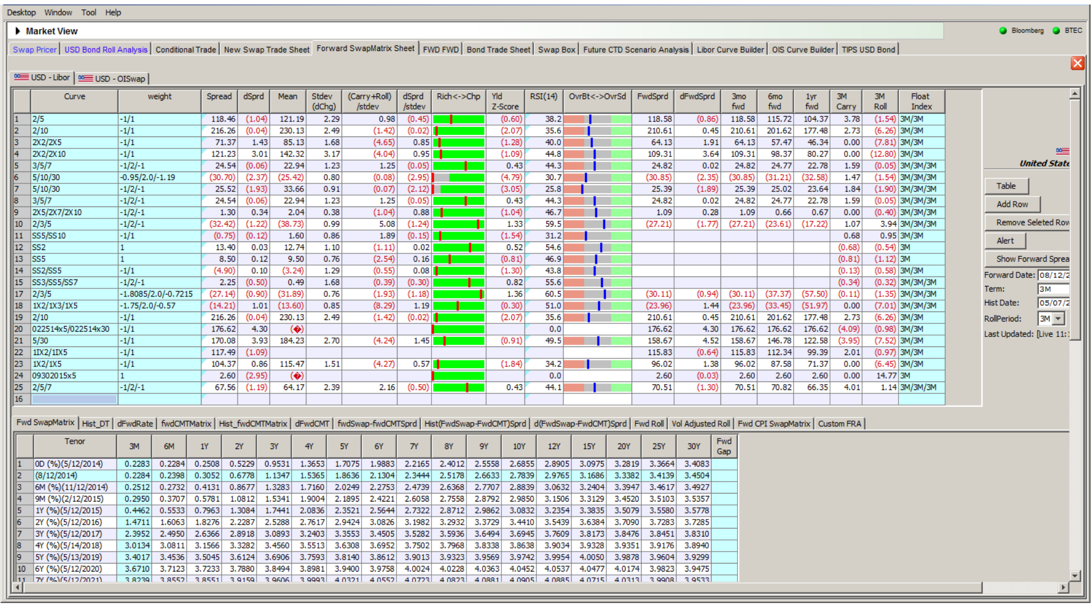


	Bond/Sprd/BFly	Sprd	dSprd	dSprd /stdev	Yld Chart	3M Yld Rich<->Chp	Yld Z-Score	Gross BFly Weight	Mean	Stdev (dChg)	3M (C+R)	(C+R) /stdev	CT10 Corr	CT10 Beta	CT10 Equiv	RSI(14) Sprd	OverBought<->OverSold Sprd	T.Ted Sprd	ASW (YY)	True ASW	Z
1	== FLY																				
2	2/3/5	(28.5)	(2.3)	(0.98)			1.83	-1/2/-1	(39.6)	2.38	5.31	2.23	(0.27)	(0.30)	0.34	64.3		3.3	(0.3)	(0.0)	
3	3/5/7	22.3	0.5	0.25			(0.08)	-1/2/-1	22.6	1.94	2.21	1.14	(0.02)	(0.02)	0.55	42.7		1.1	0.3	0.0	
4	5/7/10	8.8	(0.9)	(0.58)			(0.91)	-1/2/-1	11.6	1.49	0.62	0.41	(0.04)	(0.02)	0.74	35.3		7.1	5.6	6.1	
5	2/5/10	24.8	(2.2)	(0.58)			0.55	-1/2/-1	17.1	3.79	10.36	2.74	(0.14)	(0.36)	0.55	45.8		12.5	5.8	6.1	
6	2/10/30	140.1	(3.5)	(1.16)			(0.80)	-1/2/-1	143.4	3.02	0.52	0.17	0.71	0.54	1.00	44.7		(82.9)	(6.1)	(6.9)	
7	2/FV1/5	81.0	(1.3)	(0.39)			(0.49)	-1/2/-1	85.5	3.42	4.83	1.41	0.26	0.43	0.48	36.5		3.8	6.5	7.2	
8	5/TY1/10	(8.5)	(0.2)	(0.05)			(2.04)	-1/2/-1	(1.7)	2.95	1.49	0.51	0.42	0.26	0.76	28.8		6.2	(4.3)	2.4	
9	10/US1/30	(10.7)	(1.6)	(1.77)			(3.53)	-1/2/-1	(2.7)	0.90	1.82	2.02	0.37	0.16	1.72	24.0		(44.4)	(23.4)	(5.6)	
10	10/WN1/30	59.5	2.9	2.10			(0.93)	-1/2/-1	65.4	1.36	(3.74)	(2.74)	0.32	0.38	2.21	49.2		22.2	(4.9)	2.6	
11	10/WN1/30	(32.8)	(0.5)	(1.67)			1.16	-0.0569/2/-1.9874	(33.8)	0.32	0.72	2.28	(0.33)	(0.05)	2.21	53.5		(41.4)	(14.3)	(8.4)	
12	TY1/10/US1	18.0	(0.3)	(0.16)			2.61	-1/2/-1	11.7	1.94	(2.87)	(1.48)	(0.17)	(0.08)	1.00	72.9		(21.2)	8.4	(4.5)	
13	BASIS																				
14	TU1/2	3.3	(0.3)	(0.28)			1.14	-1/1	0.2	1.23	0.81	0.66	(0.45)	(0.22)	0.23	63.7		(0.4)	0.1	(0.5)	
15	FV1/5	21.2	0.1	0.08			0.58	-1/1	19.5	1.37	(0.94)	(0.68)	(0.13)	(0.07)	0.55	66.6		(3.1)	(0.9)	(1.0)	
16	TY1/7	8.6	(0.4)	(0.27)			1.32	-1/1	6.6	1.30	(0.44)	(0.33)	(0.50)	(0.14)	0.74	59.7		0.4	4.9	1.8	
17	US1/30	46.2	2.5	3.43			0.27	-1/1	45.5	0.74	(3.40)	(4.60)	0.23	0.12	2.19	65.9		55.0	16.6	8.5	
18	WN1/30	11.1	0.3	1.79			(0.78)	-1/1	11.5	0.17	(0.62)	(3.52)	0.07	0.01	2.19	49.9		21.8	7.4	4.4	
19	== SPREAD																				
20	2/3	47.4	(1.7)	(0.87)			1.01	-1/1	42.4	1.98	4.13	2.08	(0.01)	(0.01)	0.34	54.8		0.5	2.2	2.7	
21	2/5	123.4	(1.1)	(0.41)			(0.22)	-1/1	124.4	2.71	2.95	1.09	0.31	0.28	0.55	43.2		(2.4)	4.8	5.3	
22	2/10	221.9	(0.0)	(0.00)			(1.41)	-1/1	231.8	2.71	(4.46)	(1.65)	0.72	0.93	1.00	45.0		(17.2)	3.7	4.5	
23	2/30	303.7	3.5	1.14			(1.23)	-1/1	320.1	3.06	(9.43)	(3.08)	0.54	1.32	2.19	45.9		48.5	13.6	16.0	
24	5/7	53.7	0.1	0.11			(1.54)	-1/1	59.4	1.08	(3.39)	(3.15)	0.45	0.31	0.74	39.4		(3.9)	2.3	2.6	
25	5/10	98.5	1.1	0.59			(0.88)	-1/1	107.3	1.87	(7.41)	(3.96)	0.35	0.65	1.00	50.1		(14.9)	(1.0)	(0.8)	
26	7/10	44.9	1.0	0.76			(0.47)	-1/1	47.9	1.31	(4.01)	(3.08)	0.29	0.33	1.00	56.8		(11.0)	(3.3)	(3.4)	
27	10/30	81.8	3.5	2.52			(0.94)	-1/1	88.3	1.39	(4.97)	(3.59)	0.30	0.39	2.19	49.1		65.7	9.9	11.4	

SWAPBOX STRATEGY



FORWARD SWAP MATRIX



LISTED OPTION SABR MODEL