

Beating your Benchmark

- USING STOCHASTIC OPTIMIZATION TO UNDERWRITE A PORTFOLIO OF INSURANCE LINKED SECURITIES [ILS]

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Outline and Exhibits

Preliminaries

- ILS Price “Indication” Sheet 9/30/2014
- Universe of ILS Grouped and ranked by EL
- Market Preference Measures, 4 TVaR points
- Reducing the Scenario Set - 10,000 to 20

Optimization Results

- Unrestrained – Case A
- Case B - Constrained by Issue Shares
- Optimum vs Market portfolio Characteristics
- Marginal Values, Rankings
- Case C - Creating Leverage by Optimum Retrocession

Table 1 Overview of Market Portfolio
i.e., all Outstanding ILS by Peril or Region
As of 9/30/2014

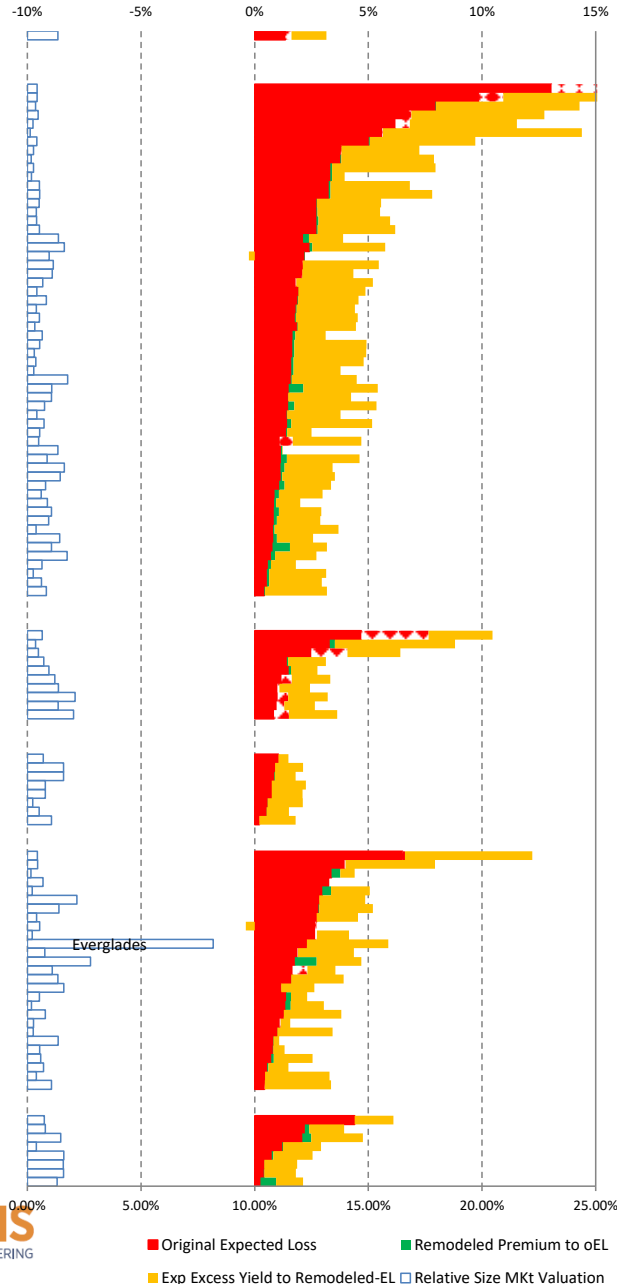
	MARKET PORTFOLIO	
MULTI-PERIL	42.72%	\$8,141,328,400
EUROPE	11.25%	\$2,142,850,483
ASIA	7.31%	\$1,392,646,913
US WIND	29.21%	\$5,566,359,500
US QUAKE	9.51%	\$1,812,208,750
	<hr/> 100.00%	<hr/> \$19,055,394,046

MARKET
PORTFOLIO

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	<hr/>	<hr/>
	100.00%	\$19,055,394,046

ILS Deals Outstanding in "Market" Portfolio 9/30/14

Grouped by Peril and Type and Ordered by Original EL, Excess to Remodeled EL.
 N.B. also AIR Remodeling Premiums and Discounts to original ELs - every other deal listed



- VenTerra Re Ltd. Series 2013-1 Class A
- MULTIPERIL BONDS
- Res Re 2013 Ltd. Series 2013-II Class 1 Reset 2014
- Loma Re Ltd. Series 2013-1 Class C
- Res Re 2012 Ltd. Series 2012-I Class 7 Reset 2014
- Loma Re Ltd. Series 2013-1 Class B
- Loma Re Ltd. Series 2013-1 Class A
- Res Re 2011 Ltd. Series 2011-I Class 2 Reset 2014
- Res Re 2012 Ltd. Series 2012-II Class 3 Reset 2014
- Queen Street VIII Re Ltd. Reset 2014
- Queen Street VI Re Ltd. Reset 2014
- Galileo Re Ltd. Series 2013-1 Class A
- Res Re 2013 Ltd. Series 2013-I Class 11 Reset 2014
- Mythen Re Ltd. Series 2012-2 Class A Reset 2014
- Mona Lisa Re Ltd. Series 2013-2 Class A Reset 2014
- Queen Street IV Capital Ltd. Reset 2014
- Blue Danube Ltd. Series 2012-1 Class B Reset 2013
- Res Re 2011 Ltd. Series 2011-I Class 1 Reset 2014
- Res Re 2012 Ltd. Series 2012-I Class 3 Reset 2014
- Gator Re Ltd. Series 2014-1 Class A
- Tradewynd Re Ltd. Series 2013-2 Class 3-B
- Tradewynd Re Ltd. Series 2013-1 Class 1
- Riverfront Re Ltd.
- Tradewynd Re Ltd. Series 2013-2 Class 3-A
- Caelus Re 2013 Ltd. Series 2013-1 Class A Reset 2014
- Sanders Re Ltd. Series 2014-1 Class C
- Sanders Re Ltd. Series 2013-1 Class A Reset 2014
- Res Re 2012 Ltd. Series 2012-II Class 2 Reset 2014
- Sanders Re Ltd. Series 2014-2 Class A
- Blue Danube Ltd. Series 2012-1 Class A Reset 2013
- Res Re 2012 Ltd. Series 2012-I Class 5 Reset 2014
- EUROPE
- Pylon II Capital Ltd. Class B
- Pylon II Capital Ltd. Class A
- Atlas Re VII Ltd. Class B Reset 2014
- Lion I Re Ltd.
- Calypto Capital II Ltd. Class A
- ASIA
- Akibare II Ltd. Series 2012-1 Class A
- Kibou Ltd. Series 2012-1 Class A Reset 2014
- Nakama Re Ltd. Series 2014-1 Class 1
- Aozora Re Ltd. Series 2014-1 Class B
- US WIND
- Mythen Re Ltd. Series 2012-2 Class C Reset 2014
- Pelican Re Ltd. Series 2012-1 Class A Reset 2014
- Alamo Re Ltd. Series 2014-1 Class A
- MultiCat Mexico Ltd. Series 2012-I Class B
- Successor X Ltd. Series 2012-1 Class V-D3 Reset 2014
- Pelican Re Ltd. Series 2013-1 Class A Reset 2014
- MetroCat Re Ltd. Series 2013-1 Class A
- Long Point Re III Ltd. Series 2013-1 Class A Reset 2014
- Ibis Re II Ltd. Series 2013-1 Class B Reset 2014
- Mythen Ltd. Series 2012-1 Class A Reset 2014
- Long Point Re III Ltd. Series 2012-1 Class A Reset 2014
- Ibis Re II Ltd. Series 2013-1 Class A Reset 2014
- Queen City Re Ltd.
- US QUAKE
- Embarcadero Re Ltd. Series 2012-I Class A Reset 2014
- Tramline Re II Ltd. Series 2013-1 Class A Reset 2014
- Merna Re V Ltd.
- Golden State Re II Ltd. Series 2014-1 Class A

Fig 2

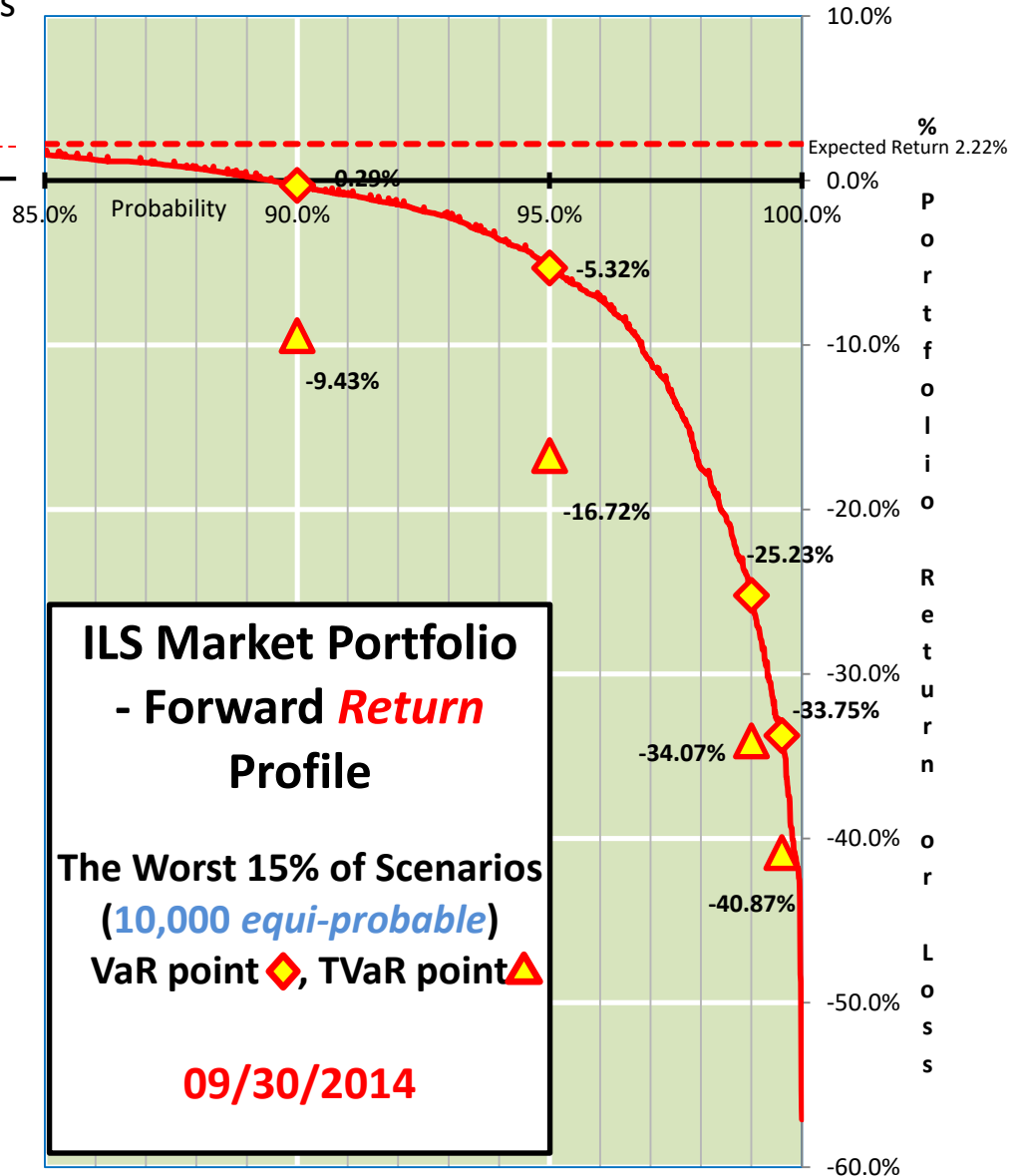
MARKET RISK PROFILE

based on all deals and 10,000 Scenarios

Only the worst 15% of outcomes are shown in this graphic. The other 85% are relatively uninteresting

Note that for each deal listed, modeling companies, such as AIR, will predict the loss outcome for each scenario.

For illustrative purposes for this presentation, we reduce the 10,000 equally-likely scenarios to 20 “representative” scenarios (which have different likelihood of occurrence) while capturing a faithful representation of the “tail”



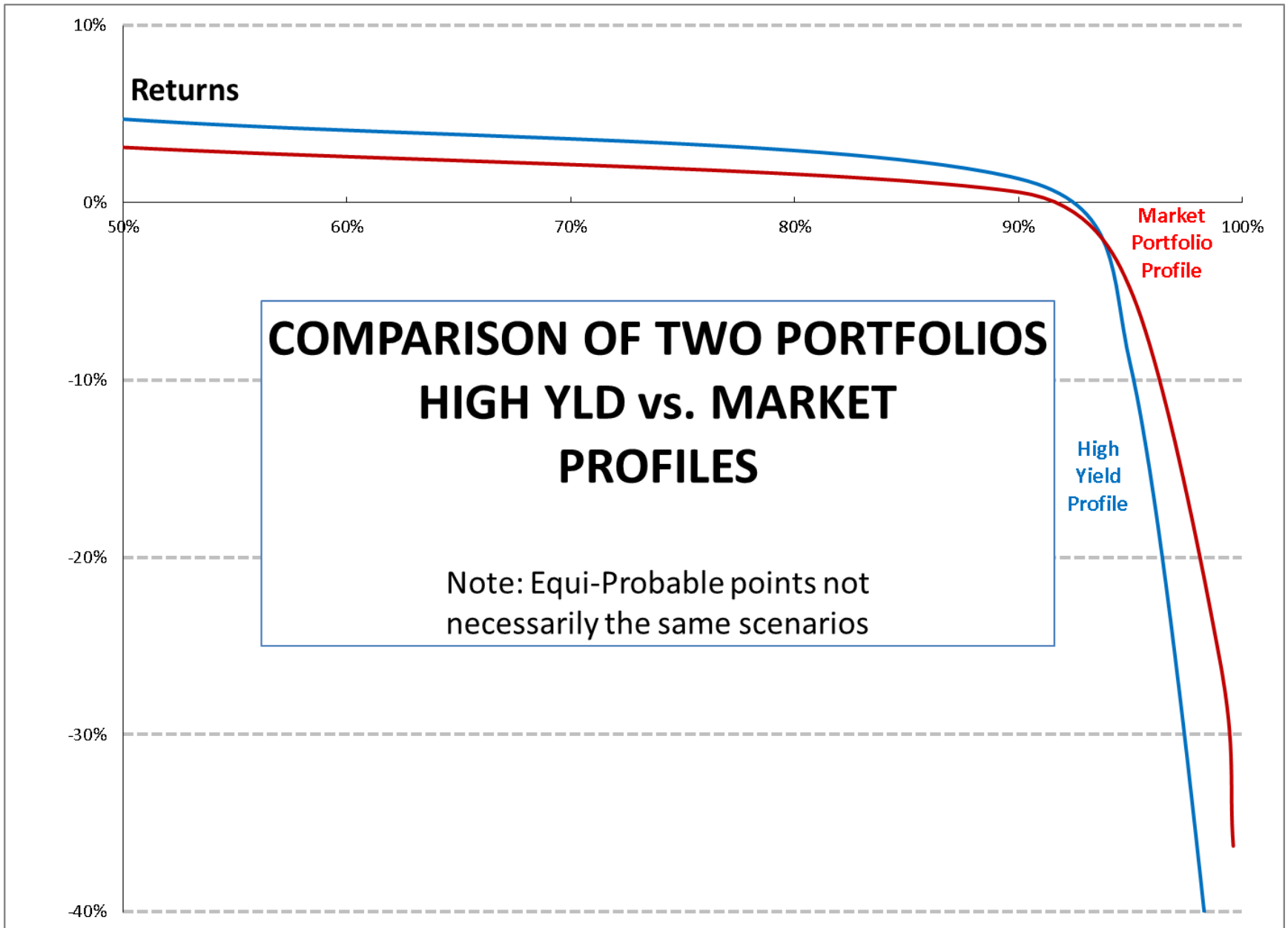


Fig 2

MARKET RISK PROFILE

Left panel – based on 10,000 Scenarios

Right panel – based the collapsed 20 Scenarios

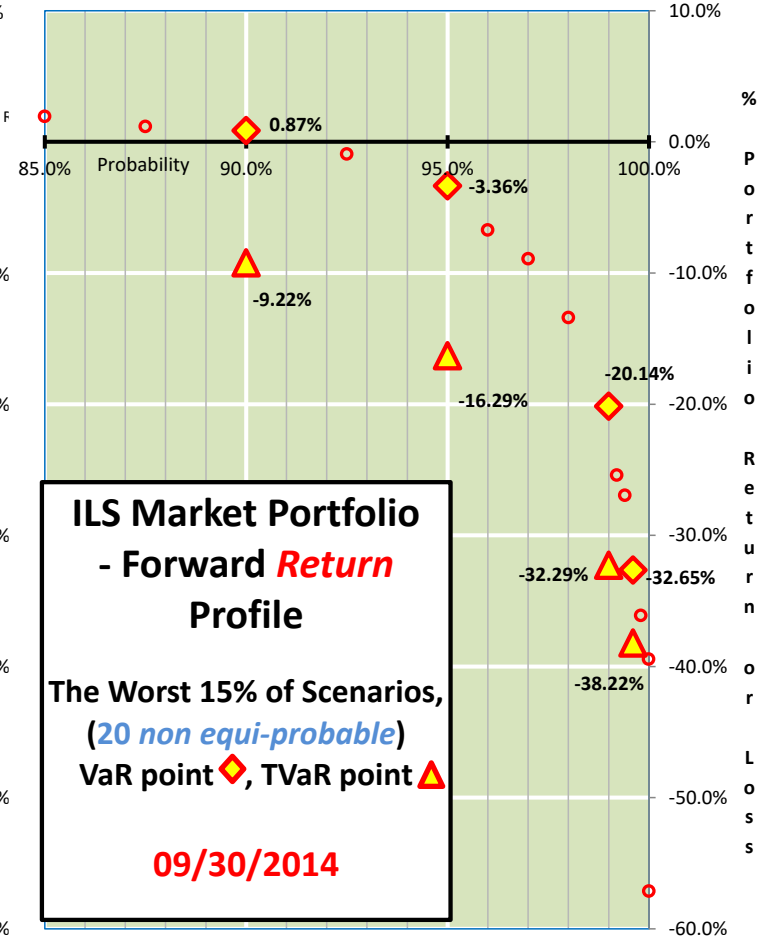
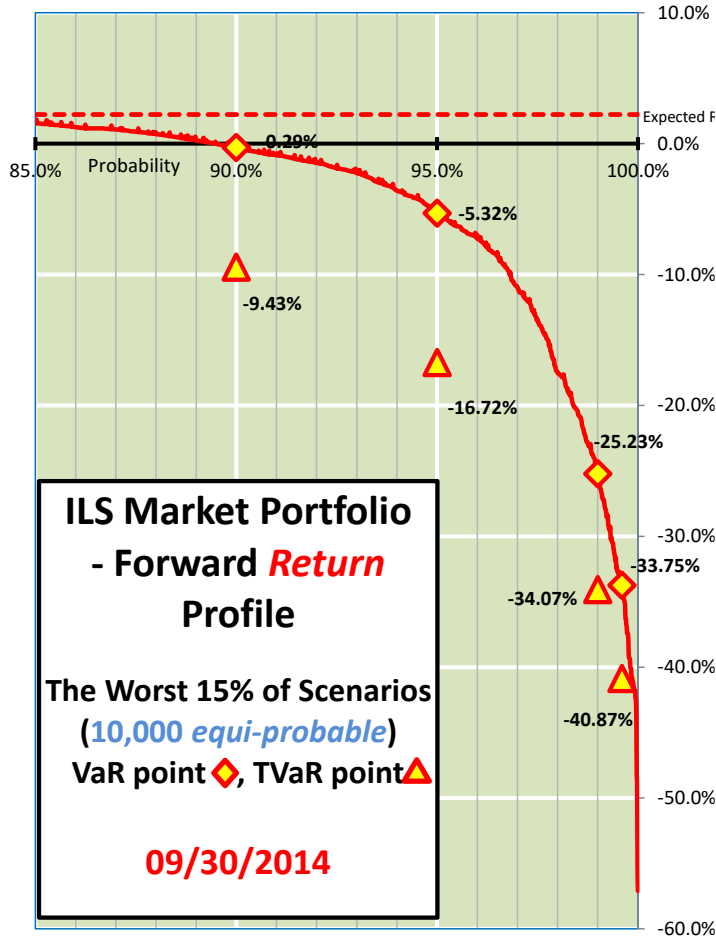


Table 2 **Data Sheet** (Partial) Illustrating required inputs and co-measures
 (Assembling this data sheet requires both market pricing information and modeling company scenario analysis)

Data Sheet (Partial) Illustrating Required Inputs		Golden State Re II Ltd. Series 2014-			Embarcadero Re Ltd. Series 2012-		Tramline Re II Ltd. Series 2013-1	Embarcadero Re Ltd. Series 2012-I		MultiCat Mexico Ltd. Series 2012-I	
		1 Class A CUSIP	Merna Re IV Ltd. CUSIP	Merna Re V Ltd. CUSIP	II Class A Reset 2014	Class A Reset 2014	Lakeside Re III Ltd. Reset 2014	Class A Reset 2014	Class A CUSIP		
Coupon		2.20%	2.50%	2.00%	5.00%	3.25%	8.00%	7.25%	8.00%		
Issue Size		\$250,000,000	\$300,000,000	\$300,000,000	\$300,000,000	\$75,000,000	\$270,000,000	\$150,000,000	\$140,000,000		
Secondary Market Price		100.29	101.03	100.32	102.03	100.89	104.01	101.29	102.10		
Market Value		\$250,725,000	\$303,090,000	\$300,945,000	\$306,090,000	\$75,663,750	\$280,827,000	\$151,935,000	\$142,933,000		
Secondary Market Yield		2.13%	1.81%	1.87%	2.55%	2.92%	4.75%	3.93%	6.11%		
Remodeled Expected loss		0.94%	0.42%	0.42%	0.81%	1.25%	2.49%	2.40%	4.40%		
Expected Return		1.19%	1.39%	1.45%	1.73%	1.67%	2.26%	1.54%	1.71%		
		Maturity	01/08/19	04/08/16	04/07/17	08/07/15	07/07/17	01/08/16	02/13/15	12/04/15	
		Non Zero Years	5892								
Probability	Density	Original	YES	YES	YES	YES	YES	YES	YES	YES	
0.4108	Probability	# of Scenarios	38123FAA6	59012FAA6	59012QAA2	29079DAB2	89289YAA8	51218UAA2	29079DAA4	625258AA6	
	Density	Row Labels									
0.5000	0.5000	5000	S1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
0.6000	0.1000	1000	S2	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
0.7000	0.1000	1000	S3	0.0003	0.0000	0.0000	0.0000	0.0001	0.0007	0.0000	
0.8000	0.1000	1000	S4	0.0033	0.0008	0.0009	0.0000	0.0000	0.0024	0.0085	
0.8250	0.0250	250	S5	0.0119	0.0019	0.0023	0.0000	0.0000	0.0027	0.1359	
0.8500	0.0250	250	S6	0.0103	0.0012	0.0012	0.0000	0.0016	0.0103	0.0532	
0.8750	0.0250	250	S7	0.0284	0.0031	0.0021	0.0000	0.0120	0.1294	0.0745	
0.9000	0.0250	250	S8	0.0191	0.0000	0.0000	0.0000	0.0051	0.0550	0.0703	
0.9250	0.0250	250	S9	0.0435	0.0699	0.0709	0.0088	0.0433	0.1609	0.1127	
0.9500	0.0250	250	S10	0.1344	0.0240	0.0240	0.1534	0.1385	0.2960	0.2494	
0.9600	0.0100	100	S11	0.0915	0.0300	0.0300	0.1329	0.1767	0.2229	0.1524	
0.9700	0.0100	100	S12	0.0804	0.0100	0.0100	0.1062	0.1686	0.1800	0.1400	
0.9800	0.0100	100	S13	0.0400	0.0400	0.0400	0.0400	0.1411	0.1576	0.0800	
0.9900	0.0100	100	S14	0.0700	0.0600	0.0600	0.1187	0.2251	0.2200	0.1500	
0.9920	0.0020	20	S15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
0.9940	0.0020	20	S16	0.0000	0.0500	0.0500	0.0000	0.0500	0.0596	0.0500	
0.9960	0.0020	20	S17	0.0202	0.0000	0.0000	0.0500	0.0793	0.1088	0.1500	
0.9980	0.0020	20	S18	0.0000	0.0000	0.0000	0.0000	0.0500	0.0000	0.0500	
0.9999	0.0019	19	S19	0.0000	0.0526	0.0526	0.0000	0.0000	0.0495	0.0000	
1.0000	0.0001	1	S20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
		10000	Expected	0.94%	0.42%	0.42%	0.81%	1.25%	2.49%	2.40%	4.40%

Problem –

Allocate 100 (say % points) to a Portfolio of ILS such that,

Expected Return from the chosen portfolio is Maximized

And the Tail of chosen portfolio outcomes is no worse than that that the market exhibits

i.e.

Subject to,

Solution Portfolio TVaR90 $\geq -9.22\%$

Solution Portfolio TVaR95 $\geq -16.29\%$

Solution Portfolio TVaR99 $\geq -32.65\%$

Solution Portfolio TVaR99.6 $\geq -38.22\%$

and all investments are positive.

Table 3 OPTIMUM SOLUTION with just risk constraints – solution TWO DEALS

Deal name	Pelican Re Ltd. Series 2013-1 Class A Reset 2014	Res Re 2013 Ltd. Series 2013-II Class 1 Reset 2014	Synthetic Two Deal Portfolio	Total ILS Market - the BENCHMARK	
CUSIP	705844AB4	76117PAC8			
Spread or Coupon	6.00%	20.00%			
Issue Size	140,000,000	80,000,000			
Maturity	05/15/17	12/06/17			
Secondary Market Price	104.14	103.91			
Market Value	145,796,000	83,124,000			
Allocation	52.68% LONG	+ 47.32% LONG	= 100.00%		
Secondary Market Yield	4.34%	18.36%	10.97%	>= 2.20%	
Remodeled Expected Loss	1.86%	8.90%	5.19%	>= 1.73%	
Expected Return	2.47%	9.45%	5.78%	>= 2.20%	
	SCENARIO PROBABILITY	CO-MEASURES - LOSSES 705844AB4	CO-MEASURES - LOSSES 76117PAC8	RISK PROFILE RETURNS	RISK PROFILE RETURNS
	CUSIP				
Mkt Scenario 1	0.5000	0.00%	0.00%	10.97%	>= 3.92%
Mkt Scenario 2	0.1000	0.00%	6.78%	7.76%	>= 3.81%
Mkt Scenario 3	0.1000	7.67%	15.33%	-0.32%	3.05%
Mkt Scenario 4	0.1000	3.51%	12.42%	3.24%	>= 3.02%
Mkt Scenario 5	0.0250	4.65%	9.73%	3.92%	>= 2.73%
Mkt Scenario 6	0.0250	2.62%	16.94%	1.58%	1.95%
Mkt Scenario 7	0.0250	4.32%	18.28%	0.04%	1.17%
Mkt Scenario 8	0.0250	2.78%	19.64%	0.21%	0.87%
Mkt Scenario 9	0.0250	2.53%	29.87%	-4.49%	-0.92%
Mkt Scenario 10	0.0250	3.70%	29.03%	-4.71%	-3.36%
Mkt Scenario 11	0.0100	3.00%	49.14%	-13.86%	-6.72%
Mkt Scenario 12	0.0100	3.26%	40.04%	-9.70%	-8.92%
Mkt Scenario 13	0.0100	4.57%	41.28%	-10.97%	>= -13.40%
Mkt Scenario 14	0.0100	5.10%	53.69%	-17.12%	>= -20.14%
Mkt Scenario 15	0.0020	8.72%	50.38%	-17.47%	>= -25.40%
Mkt Scenario 16	0.0020	0.00%	31.84%	-4.09%	>= -26.95%
Mkt Scenario 17	0.0020	5.00%	61.99%	-21.00%	>= -32.65%
Mkt Scenario 18	0.0020	15.36%	58.82%	-24.96%	>= -36.12%
Mkt Scenario 19	0.0019	6.79%	56.19%	-19.19%	>= -39.43%
Mkt Scenario 20	0.0001	0.00%	100.00%	-36.35%	>= -57.12%
	1.0000	1.86%	8.90%	5.78%	>= 2.20%

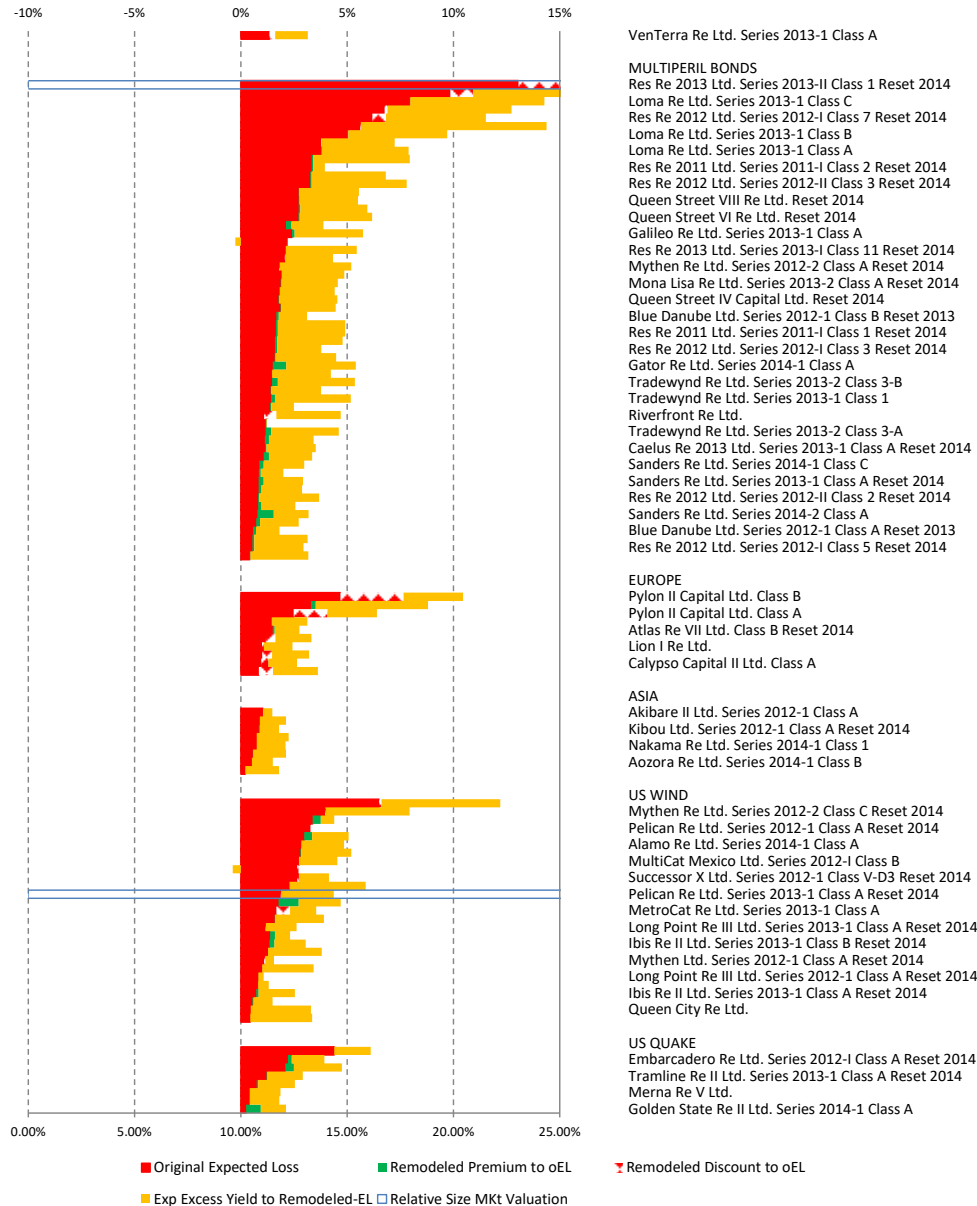
Question

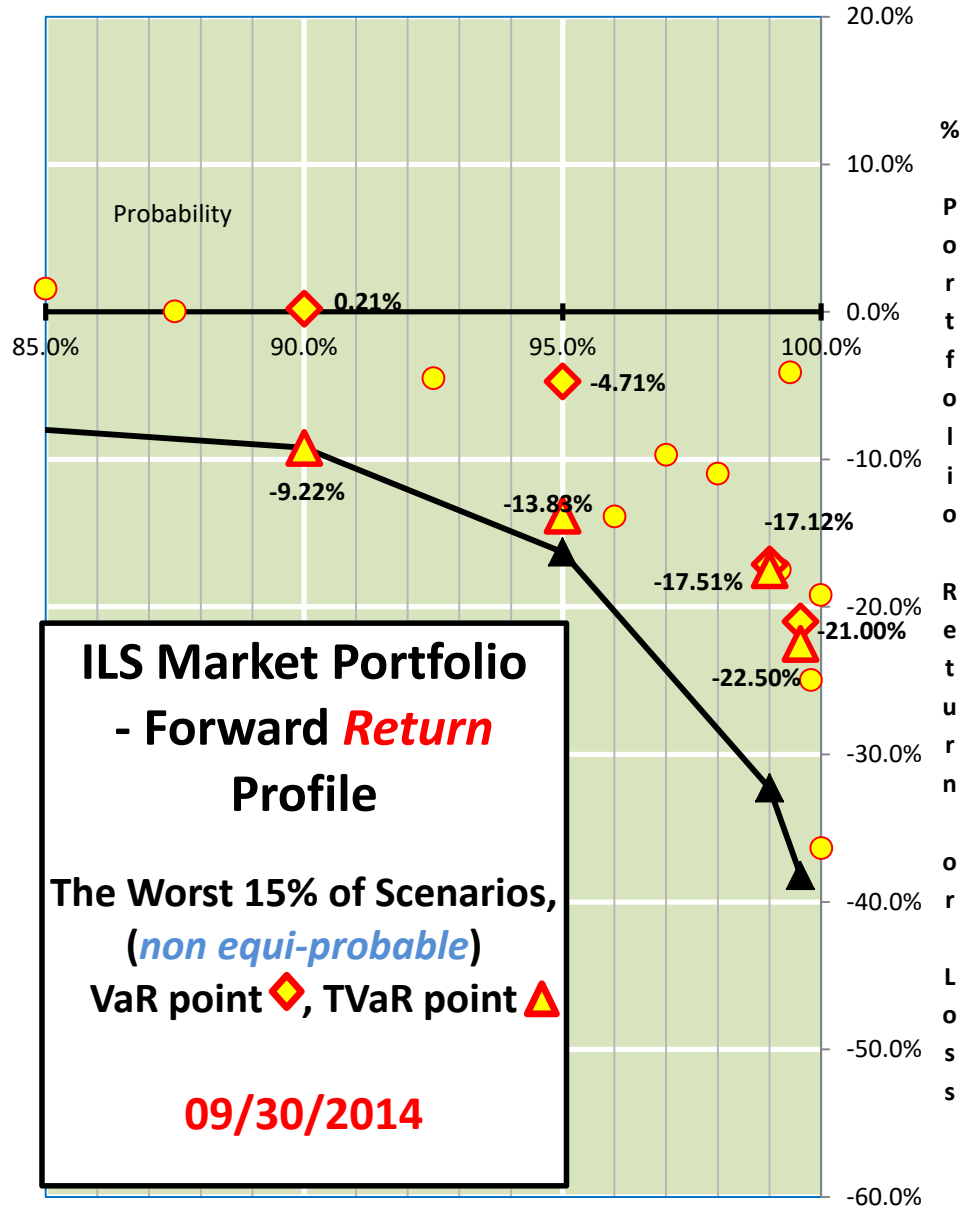
Is the TVaR99.6 Constraint binding?

Figure 3 OPTIMUM SOLUTION only Risk Constraints - TWO DEALS

ILS Deals Outstanding in "Market" Portfolio 9/30/2014

Grouped by Peril and Type and Ordered by Original EL, Excess to Remodeled EL.
 N.B. also AIR Remodeling Premiums and Discounts to original ELs - every other deal listed





Of course, if the portfolio is \$500 million the allocation to each deal is greater than the size of issues (Pelican's issue size was \$140 million, Res Re's was \$80 million). Further it is unrealistic to assume that you could more than say, 10% of any issue. We need to revise the model to include that constraint.

The revised model is,

Allocate \$100 to a Portfolio of ILS such that,

Expected Return from the chosen portfolio is Maximized

And the tail of portfolio outcomes is no worse than that that the market exhibits
i.e. Subject to,

Solution Portfolio TVaR90 $\geq -9.22\%$

Solution Portfolio TVaR95 $\geq -16.29\%$

Solution Portfolio TVaR99 $\geq -32.65\%$

Solution Portfolio TVaR99.6 $\geq -38.22\%$

No more than 10% of any issue can be purchased and all investments are positive.

Mathematically, this looks something like,

$$\begin{aligned}
 & \text{MAX}_{w_i} \sum_i w_i \left(p_i - \sum_j r_j l_{i,j} \right) \\
 & \text{subject to} \\
 & \sum_i w_i (l_{i,j} - p_i) \leq \sum_i w_i^* (l_{i,j} - p_i) \quad : \lambda_j \\
 & \quad w_i \leq w_i^* \quad : q_i \\
 & \quad \sum_i w_i \leq 1 \quad : \omega \\
 & \quad -w_i \leq 0 \quad : \mu_i
 \end{aligned}$$

What's offered vs. What's chosen

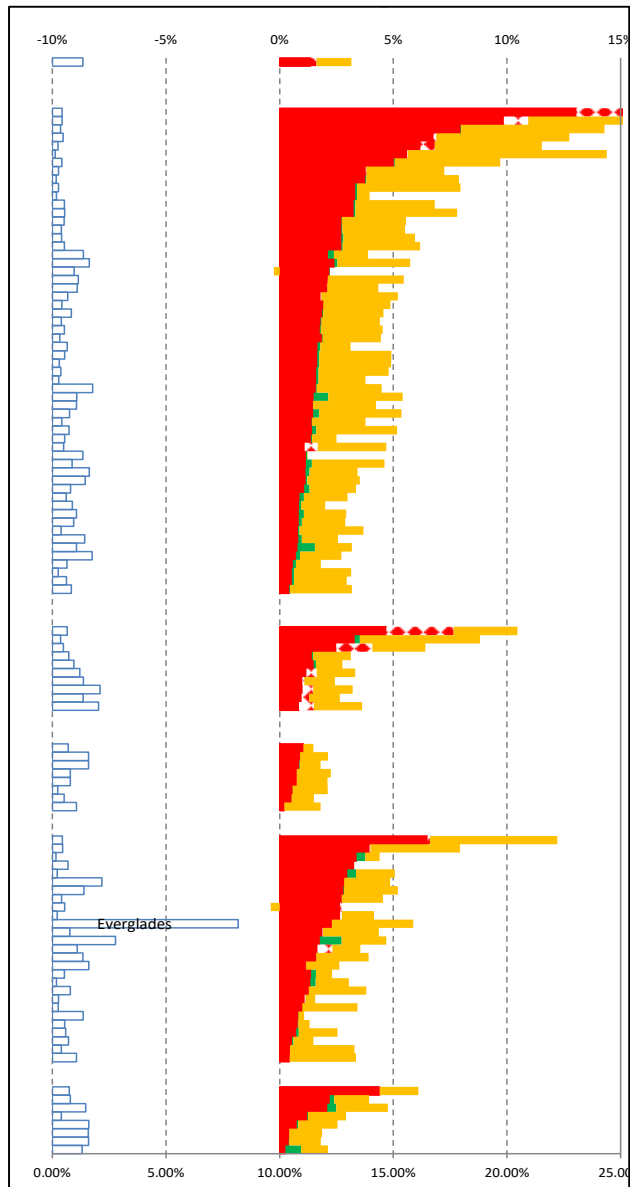


Figure 5 **OPTIMUM SOLUTION** with Limit of 10% of any Deal

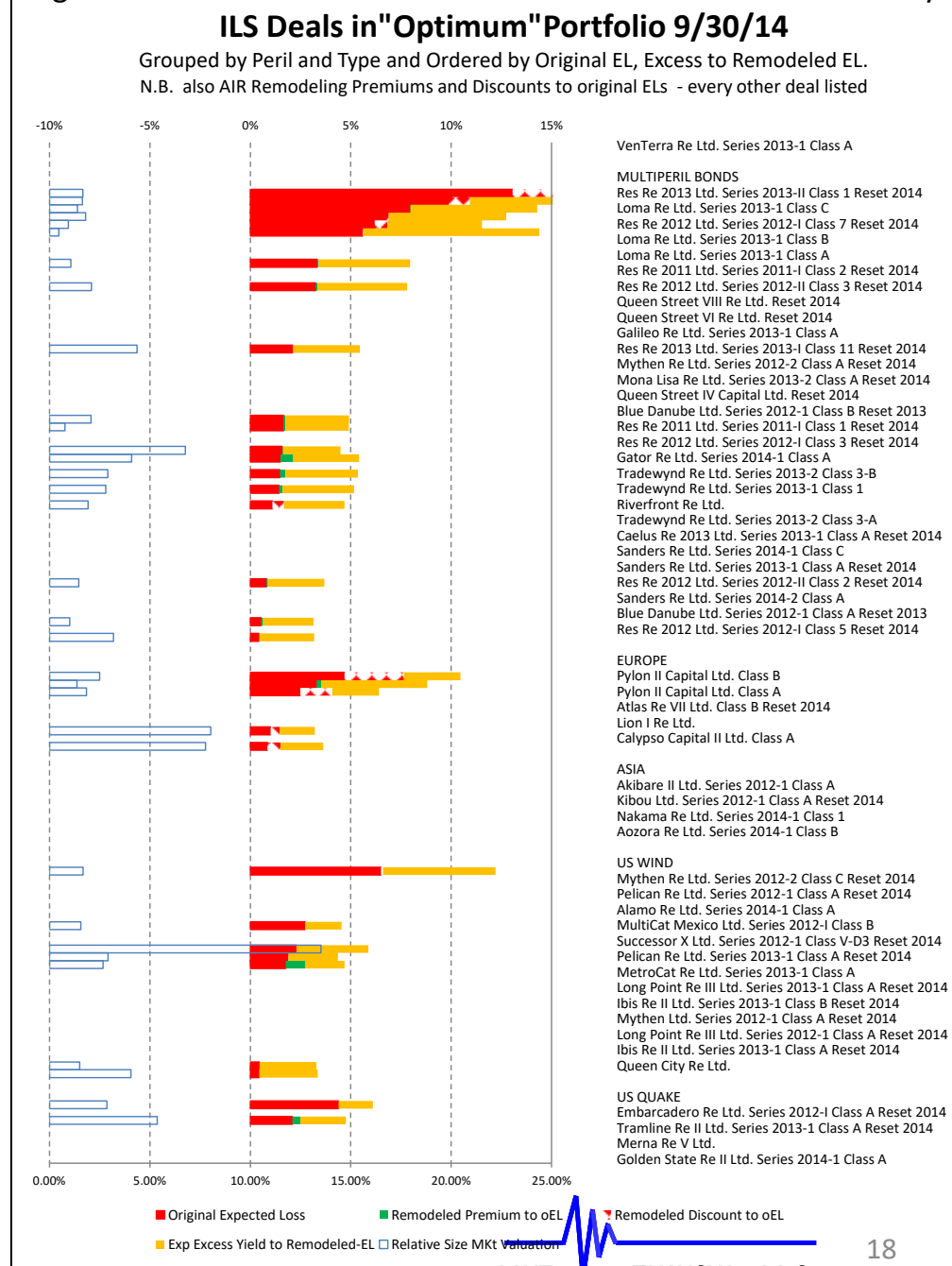
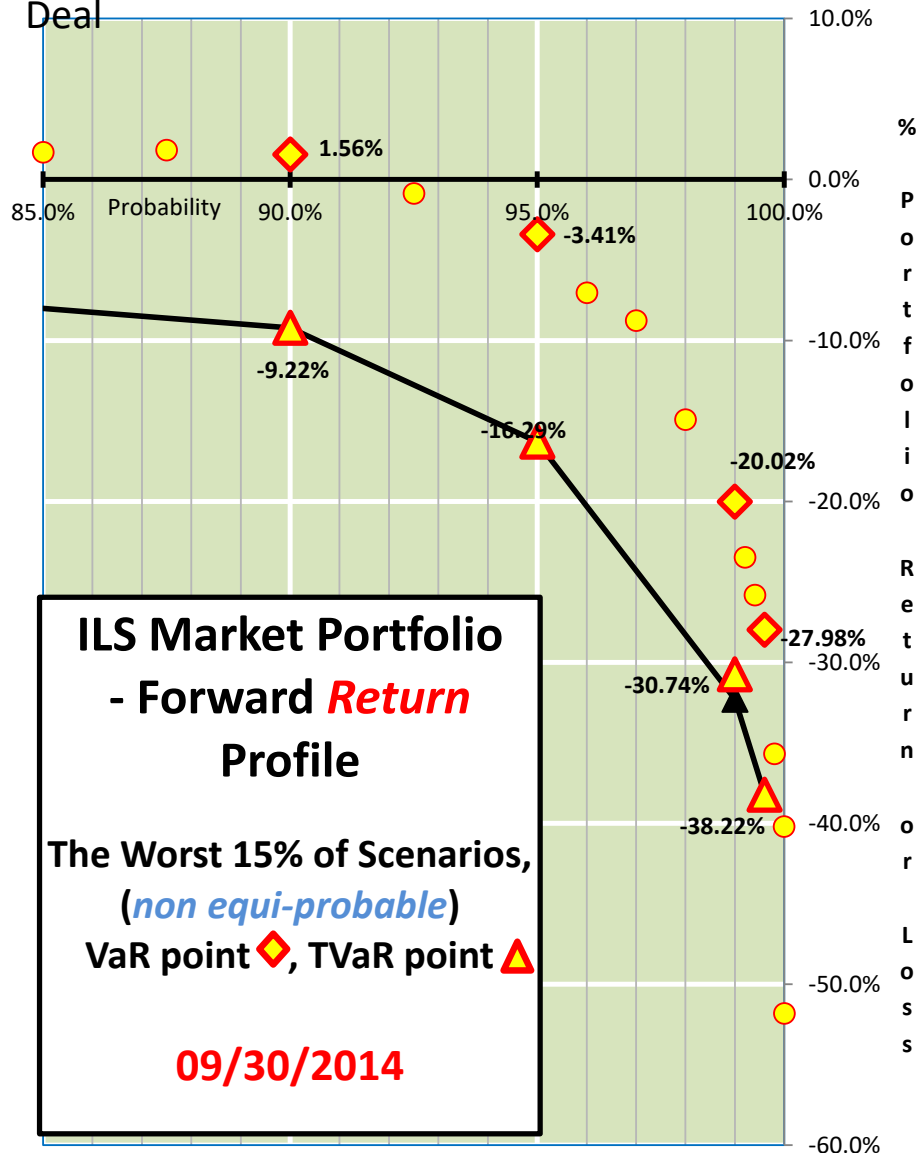


Table 4 **OPTIMAL SOLUTION** with limit of 10% of any Deal vs Market

SUMMARY STATISTICS				
	MARKET PORTFOLIO	OPTIMAL PORTFOLIO	IMPROVEMENT	RISK (TVaR) TIGHTNESS
Yield	3.72%	5.41%	1.69%	
Expected Loss	1.72%	2.22%	0.50%	
Expected Profit	2.20%	3.19%	0.99%	
TVaR90	-9.22%	-9.22%		-3.58%
TVaR95	-16.29%	-16.29%		-0.87%
TVaR99	-32.29%	-30.74%	1.55%	
TVaR99.6	-38.22%	-38.22%		-1.42%
Number of Deals chosen to Max	112	29		
Number of Deals chosen <=10%		4		
Number od deals Chosen Long		33		
Number of Deals not Chosen		79		

Figure 6 Risk profile for the
OPTIMUM SOLUTION with limits of 10% of any
Deal



Note that on the barrier
3 of the 4 TVaR
constraints are binding.
TVaR₉₉ is not.

Figure 7 Peril Composition of OPTIMUM SOLUTION with limits of 10% of any Deal

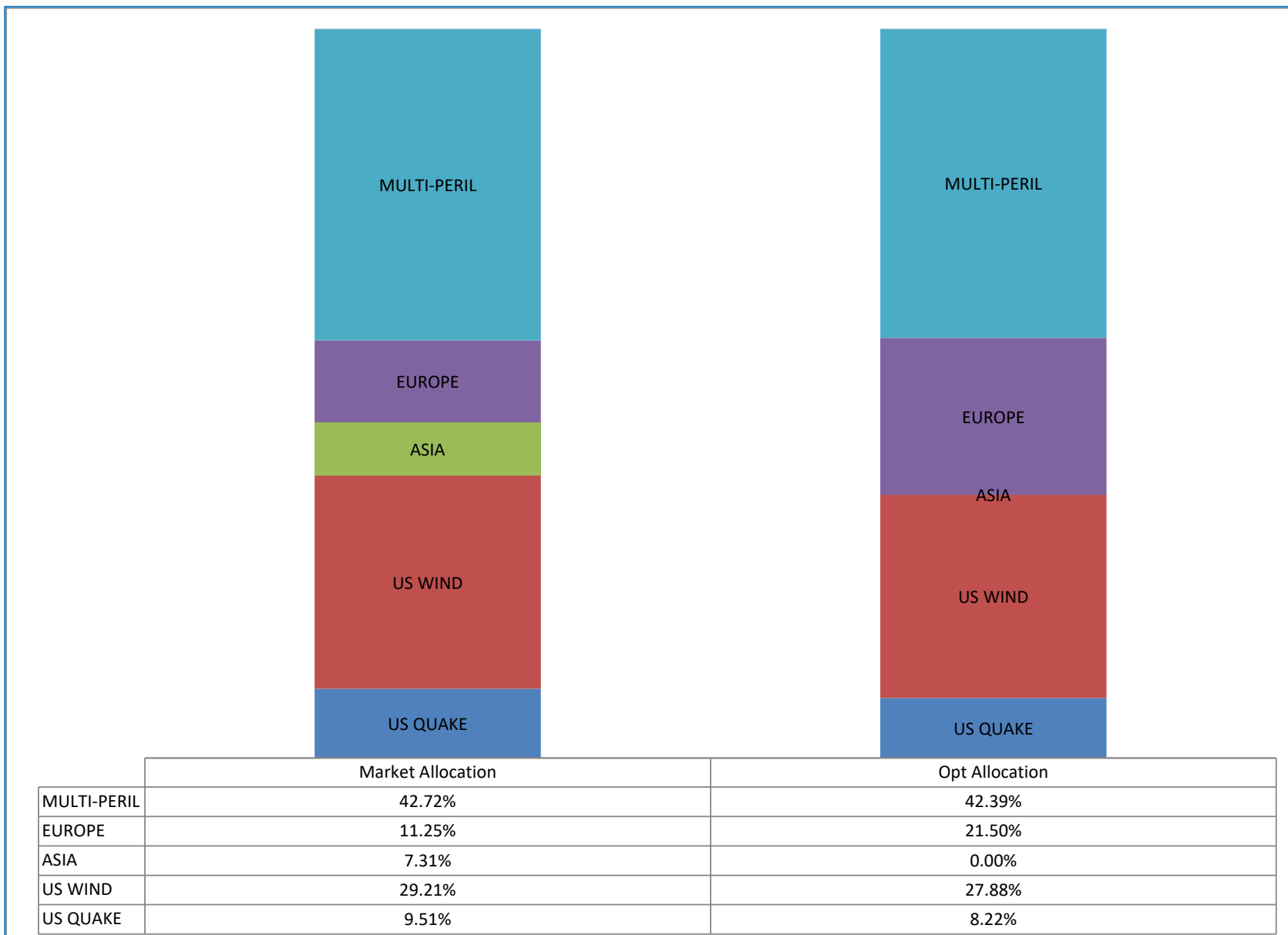


Table 5A OPTIMUM SOLUTION Marginal Values Limit to 10% any Deal Case – Single Peril Listing

DEAL	Allocation	Limit	Premium	Necessary Increment	Necessary Premium	Marginal Value	Rank
Golden State Re II Ltd. Series 2014-1 Class A		5.01%	2.13%	0.61%	2.74%	-0.61%	72
Merna Re IV Ltd.		6.06%	1.81%	0.32%	2.13%	-0.32%	52
Merna Re V Ltd.		6.02%	1.87%	0.26%	2.13%	-0.26%	48
Embarcadero Re Ltd. Series 2012-II Class A Reset 2014		6.12%	2.55%	0.09%	2.64%	-0.09%	40
Tramline Re II Ltd. Series 2013-1 Class A Reset 2014		1.51%	2.92%	0.37%	3.29%	-0.37%	56
Lakeside Re III Ltd. Reset 2014	5.37%	5.62%	4.75%	0.03%	4.79%	0.00%	30
Embarcadero Re Ltd. Series 2012-I Class A Reset 2014		3.04%	3.93%	0.47%	4.40%	-0.47%	61
MultiCat Mexico Ltd. Series 2012-I Class A	2.86%	2.86%	6.11%			0.10%	28
US QUAKE							
Armor Re Ltd. Series 2014-1 Class A	4.06%	4.06%	3.35%			0.54%	18
Queen City Re Ltd.	1.51%	1.51%	3.29%			0.64%	14
Foundation Re III Ltd. Series 2011-1 Class A Reset 2014		2.74%	1.49%	1.76%	3.24%	-1.76%	98
Ibis Re II Ltd. Series 2013-1 Class A Reset 2014		2.25%	2.55%	1.36%	3.90%	-1.36%	92
Mythen Ltd. Series 2012-1 Class E Reset 2014		2.08%	1.31%	1.74%	3.05%	-1.74%	97
Long Point Re III Ltd. Series 2012-1 Class A Reset 2014		5.17%	1.08%	2.16%	3.24%	-2.16%	102
Citrus Re Ltd. Series 2014-2 Class 1		1.01%	3.42%	0.34%	3.77%	-0.34%	54
Mythen Ltd. Series 2012-1 Class A Reset 2014		1.04%	1.46%	2.91%	4.38%	-2.91%	108
Citrus Re Ltd. Series 2014-1 Class A		3.03%	3.80%	0.37%	4.17%	-0.37%	55
Ibis Re II Ltd. Series 2013-1 Class B Reset 2014		0.72%	3.05%	2.07%	5.11%	-2.07%	101
Ibis Re II Ltd. Series 2012-1 Class A Reset 2014		2.04%	2.31%	2.89%	5.20%	-2.89%	107
Long Point Re III Ltd. Series 2013-1 Class A Reset 2014		6.14%	2.60%	0.98%	3.58%	-0.98%	85
Kilimanjaro Re Ltd. Series 2014-1 Class A		5.14%	3.91%	1.00%	4.91%	-1.00%	86
MetroCat Re Ltd. Series 2013-1 Class A		4.16%	2.25%	0.84%	3.09%	-0.84%	81
Tar Heel Re Ltd. Series 2013-1 Class A Reset 2014	2.67%	10.59%	4.69%	0.05%	4.75%	0.00%	31
Pelican Re Ltd. Series 2013-1 Class A Reset 2014		2.92%	4.34%			0.78%	11
Everglades Re Ltd. Series 2014-1 Class A	13.51%	31.17%	5.87%	0.02%	5.89%	0.00%	32
Successor X Ltd. Series 2012-1 Class V-D3 Reset 2014		0.82%	4.00%	2.72%	6.72%	-2.72%	105
Mythen Re Ltd. Series 2013-1 Class B-1 Reset 2014		2.09%	2.23%	4.63%	6.86%	-4.63%	112
MultiCat Mexico Ltd. Series 2012-1 Class B	1.56%	1.56%	4.54%			0.22%	24
Everglades Re Ltd. Series 2013-1 Class A Reset 2014		5.30%	5.20%	1.40%	6.60%	-1.40%	93
Alamo Re Ltd. Series 2014-1 Class A		8.30%	4.85%	0.02%	4.87%	-0.02%	36
Ibis Re II Ltd. Series 2013-1 Class C Reset 2014		0.84%	5.07%	2.55%	7.62%	-2.55%	104
Pelican Re Ltd. Series 2012-1 Class A Reset 2014		2.65%	2.38%	2.88%	5.27%	-2.88%	106
Ibis Re II Ltd. Series 2012-1 Class B Reset 2014		0.62%	4.40%	3.79%	8.19%	-3.79%	111
Mythen Re Ltd. Series 2012-2 Class C Reset 2014		1.72%	7.85%	0.47%	8.32%	-0.47%	62
Successor X Ltd. Series 2011-3 Class V-F4 Reset 2014	1.67%	1.67%	12.00%			0.93%	9
US WIND							
US WIND							
Kizuna Re II Ltd. Series 2014-1 Class A		4.06%	1.79%	0.01%	1.81%	-0.01%	35
Aozora Re Ltd. Series 2014-1 Class B		2.00%	1.51%	0.56%	2.07%	-0.56%	68
Kizuna Re II Ltd. Series 2014-1 Class B		0.91%	2.12%	0.07%	2.19%	-0.07%	39
Nakama Re Ltd. Series 2014-1 Class 1		3.01%	2.10%	0.28%	2.39%	-0.28%	50
Nakama Re Ltd. Series 2014-1 Class 2		3.03%	2.25%	0.13%	2.38%	-0.13%	42
Kibou Ltd. Series 2012-1 Class A Reset 2014		6.08%	1.80%	0.75%	2.55%	-0.75%	78
Nakama Re Ltd. Series 2013-1 Class 1 Reset 2014		6.07%	2.13%	0.41%	2.54%	-0.41%	57
Akibare II Ltd. Series 2012-1 Class A		2.69%	1.48%	1.15%	2.63%	-1.15%	90
ASIA							
ASIA							
Green Fields II Capital Ltd. Series 2013-1 Reset 2014	7.77%	7.77%	2.30%			0.54%	17
Calypto Capital II Ltd. Class A		5.15%	1.97%	0.49%	2.46%	-0.49%	63
Bosphorus I Re Ltd. Series 2013-1 Class A	8.02%	8.02%	2.29%			0.18%	25
Lion I Re Ltd.		5.22%	2.25%	0.53%	2.78%	-0.53%	65
Calypto Capital II Ltd. Class B		4.60%	2.42%	0.15%	2.57%	-0.15%	43
Atlas Re VII Ltd. Class B Reset 2014		3.61%	2.76%	0.95%	3.71%	-0.95%	84
Eurus III Ltd. Series 2012-1 Class A Reset 2014		2.77%	3.13%	0.28%	3.41%	-0.28%	49
Pylon II Capital Ltd. Class A	1.85%	1.85%	3.23%			0.64%	13
Atlas VI Capital Ltd. Series 2011-2 Class A Reset 2014		1.37%	8.81%			3.30%	3
Pylon II Capital Ltd. Class B	2.50%	2.50%	4.53%			1.11%	8

From these next two pages of marginal values –

- 1) What is the best deal?
- 2) What is the worst deal?
- 3) From whose point of view?

Table 5B OPTIMUM SOLUTION Marginal Values Limit to 10% any Deal Case – Multi-Peril Listing

DEAL	Allocation	Limit	Premium	Necessary Increment	Necessary Premium	Marginal Value	Rank
Res Re 2012 Ltd. Series 2012-II Class 1 Reset 2014	3.19%	3.19%	3.18%			0.53%	19
Res Re 2012 Ltd. Series 2012-I Class 5 Reset 2014		2.38%	2.95%	0.05%	3.00%	-0.05%	37
Res Re 2014 Ltd. Series 2014-I Class 13	1.01%	1.01%	3.14%			0.15%	27
Blue Danube Ltd. Series 2012-1 Class A Reset 2013		2.45%	1.81%	1.27%	3.09%	-1.27%	91
Sanders Re Ltd. Series 2014-1 Class B		6.66%	2.72%	0.57%	3.29%	-0.57%	69
Sanders Re Ltd. Series 2014-2 Class A		4.07%	3.18%	1.59%	4.77%	-1.59%	95
East Lane Re VI Ltd. Series 2014-I Class A		5.43%	2.57%	0.78%	3.35%	-0.78%	79
Res Re 2012 Ltd. Series 2012-II Class 2 Reset 2014	1.46%	1.46%	3.69%			0.27%	22
Blue Danube II Ltd. Series 2013-1 Class A		3.58%	2.88%	0.65%	3.53%	-0.65%	73
Sanders Re Ltd. Series 2013-1 Class A Reset 2014		4.06%	2.93%	0.59%	3.53%	-0.59%	71
Res Re 2011 Ltd. Series 2011-I Class 5 Reset 2014		3.35%	2.00%	1.61%	3.61%	-1.61%	96
Sanders Re Ltd. Series 2014-1 Class C		2.32%	2.98%	0.54%	3.52%	-0.54%	66
Sanders Re Ltd. Series 2013-1 Class B Reset 2014		3.05%	3.36%	0.53%	3.88%	-0.53%	64
Caelus Re 2013 Ltd. Series 2013-1 Class A Reset 2014		5.53%	3.52%	0.23%	3.76%	-0.23%	46
Sanders Re Ltd. Series 2014-1 Class D		6.23%	3.43%	0.45%	3.88%	-0.45%	59
Tradewynd Re Ltd. Series 2013-2 Class 3-A		3.31%	4.61%	0.00%	4.61%	0.00%	34
East Lane Re IV Ltd. Series 2011-1 Class B		5.12%	1.24%	2.50%	3.73%	-2.50%	103
Riverfront Re Ltd.	1.92%	1.92%	3.54%			0.56%	16
Mystic Re III Ltd. Series 2012-1 Class A Reset 2014		2.06%	2.50%	1.81%	4.31%	-1.81%	99
Tradewynd Re Ltd. Series 2013-1 Class 1	2.80%	2.80%	5.17%			0.29%	21
East Lane Re V Ltd. Series 2012 Class A		1.61%	3.78%	0.70%	4.48%	-0.70%	75
Tradewynd Re Ltd. Series 2013-2 Class 3-B	2.90%	2.90%	5.36%			0.27%	23
Kilimanjaro Re Ltd. Series 2014-1 Class B		4.03%	4.24%	0.69%	4.93%	-0.69%	74
Gator Re Ltd. Series 2014-1 Class A	4.09%	4.09%	5.41%			0.84%	10
Caelus Re 2013 Ltd. Series 2013-2 Class A Reset 2014	6.76%	6.76%	4.49%			0.15%	26
Res Re 2012 Ltd. Series 2012-I Class 3 Reset 2014		1.10%	3.78%	1.12%	4.90%	-1.12%	88
Res Re 2013 Ltd. Series 2013-II Class 4 Reset 2014		1.42%	4.79%	0.06%	4.84%	-0.06%	38
Res Re 2011 Ltd. Series 2011-I Class 1 Reset 2014	0.77%	1.17%	4.91%	0.01%	4.92%	0.00%	33
Res Re 2011 Ltd. Series 2011-II Class 1 Reset 2014	2.07%	2.07%	4.92%			0.01%	29
Blue Danube Ltd. Series 2012-1 Class B Reset 2013		2.49%	3.12%	1.99%	5.11%	-1.99%	100
Atlas Re VII Ltd. Class A Reset 2014		1.25%	4.46%	1.13%	5.59%	-1.13%	89
Queen Street IV Capital Ltd. Reset 2014		2.03%	4.54%	0.72%	5.26%	-0.72%	77
Queen Street V Re Ltd. Reset 2014		1.53%	4.41%	0.85%	5.26%	-0.85%	82
Moma Lisa Re Ltd. Series 2013-2 Class A Reset 2014		3.21%	4.56%	1.10%	5.66%	-1.10%	87
East Lane Re V Ltd. Series 2012 Class B		1.62%	4.87%	0.22%	5.09%	-0.22%	45
Mythen Re Ltd. Series 2012-2 Class A Reset 2014		2.57%	5.14%	0.24%	5.38%	-0.24%	47
Northshore Re Ltd. Series 2013-1 Class A Reset 2014		4.20%	4.29%	1.55%	5.84%	-1.55%	94
Res Re 2013 Ltd. Series 2013-I Class 11 Reset 2014	4.36%	4.36%	5.42%			0.47%	20
Mystic Re III Ltd. Series 2012-1 Class B Reset 2014		3.66%	1.93%	3.68%	5.61%	-3.68%	110
Galileo Re Ltd. Series 2013-1 Class A		6.21%	5.75%	0.72%	6.46%	-0.72%	76
Mythen Ltd. Series 2012-1 Class H Reset 2014		5.21%	3.89%	0.90%	4.79%	-0.90%	83
Queen Street VI Re Ltd. Reset 2014		2.04%	6.18%	0.29%	6.47%	-0.29%	51
Queen Street VII Re Ltd. Reset 2014		1.56%	5.95%	0.58%	6.53%	-0.58%	70
Queen Street VIII Re Ltd. Reset 2014		1.52%	5.51%	0.55%	6.06%	-0.55%	67
Queen Street IX Re Ltd. Reset 2014		2.00%	5.56%	0.47%	6.03%	-0.47%	60
Res Re 2012 Ltd. Series 2012-II Class 3 Reset 2014	2.09%	2.09%	7.80%			0.62%	15
Res Re 2013 Ltd. Series 2013-I Class 3 Reset 2014		2.01%	6.82%	0.42%	7.24%	-0.42%	58
Res Re 2011 Ltd. Series 2011-I Class 2 Reset 2014		0.70%	3.96%	3.54%	7.50%	-3.54%	109
Res Re 2011 Ltd. Series 2011-II Class 2 Reset 2014	1.06%	1.06%	7.95%			0.68%	12
Loma Re Ltd. Series 2013-1 Class A		0.67%	7.89%	0.33%	8.22%	-0.33%	53
Successor X Ltd. Series 2011-3 Class V-X4 Reset 2014		1.04%	7.18%	0.80%	7.98%	-0.80%	80
Loma Re Ltd. Series 2013-1 Class B		1.60%	9.71%	0.10%	9.80%	-0.10%	41
Successor X Ltd. Series 2012-1 Class V-AA3 Reset 2014	0.46%	0.46%	14.32%			4.41%	2
Res Re 2012 Ltd. Series 2012-1 Class 7 Reset 2014	0.94%	0.94%	10.25%			1.36%	6
Res Re 2012 Ltd. Series 2012-II Class 4 Reset 2014		1.80%	12.48%			1.52%	5
Loma Re Ltd. Series 2013-1 Class C		1.39%	14.29%			1.17%	7
Res Re 2014 Ltd. Series 2014-I Class 10		1.63%	14.20%			1.87%	4
Res Re 2013 Ltd. Series 2013-II Class 1 Reset 2014	1.66%	1.66%	18.36%			6.30%	1

MULTIPERIL BONDS

VenTerra Re Ltd. Series 2013-1 Class A

5.13%

2.62%

0.16%

2.78%

-0.16%

44

Are there any ILS you would like to Short? (i.e. Retrocede)

How would you do that?

Table 6 **OPTIMAL SOLUTION LEVERAGED CASE** with limit of 10% of any Deal, 5% Short vs Market

SUMMARY STATISTICS - LEVERAGE CASE				
	MARKET	OPTIMAL		RISK (TVaR)
	PORTFOLIO	PORTFOLIO	IMPROVEMENT	TIGHTNESS
Yield	3.72%	5.74%	2.02%	
Expected Loss	1.72%	2.24%	0.52%	
Expected Profit	2.20%	3.50%	1.30%	
TVaR90	-9.22%	-9.22%		-1.29%
TVaR95	-16.29%	-16.29%		-2.01%
TVaR99	-32.29%	-30.79%	1.49%	
TVaR99.6	-38.22%	-38.22%		-1.25%
Number of Deals chosen to Max	112	31		
Number of Deals chosen <=10%		4		
Number of Deals Long		35		
Number of Deals Short		5		
Number of Deals not Chosen		72		

Figure 8 OPTIMUM SOLUTION LEVERAGED CASE

ILS Deals Outstanding in Optimum Portfolio 9/30/14

Grouped by Peril and Type and Ordered by Original EL, Excess to Remodeled EL.

N.B. also AIR Remodeling Premiums and Discounts to original ELs - every other deal listed

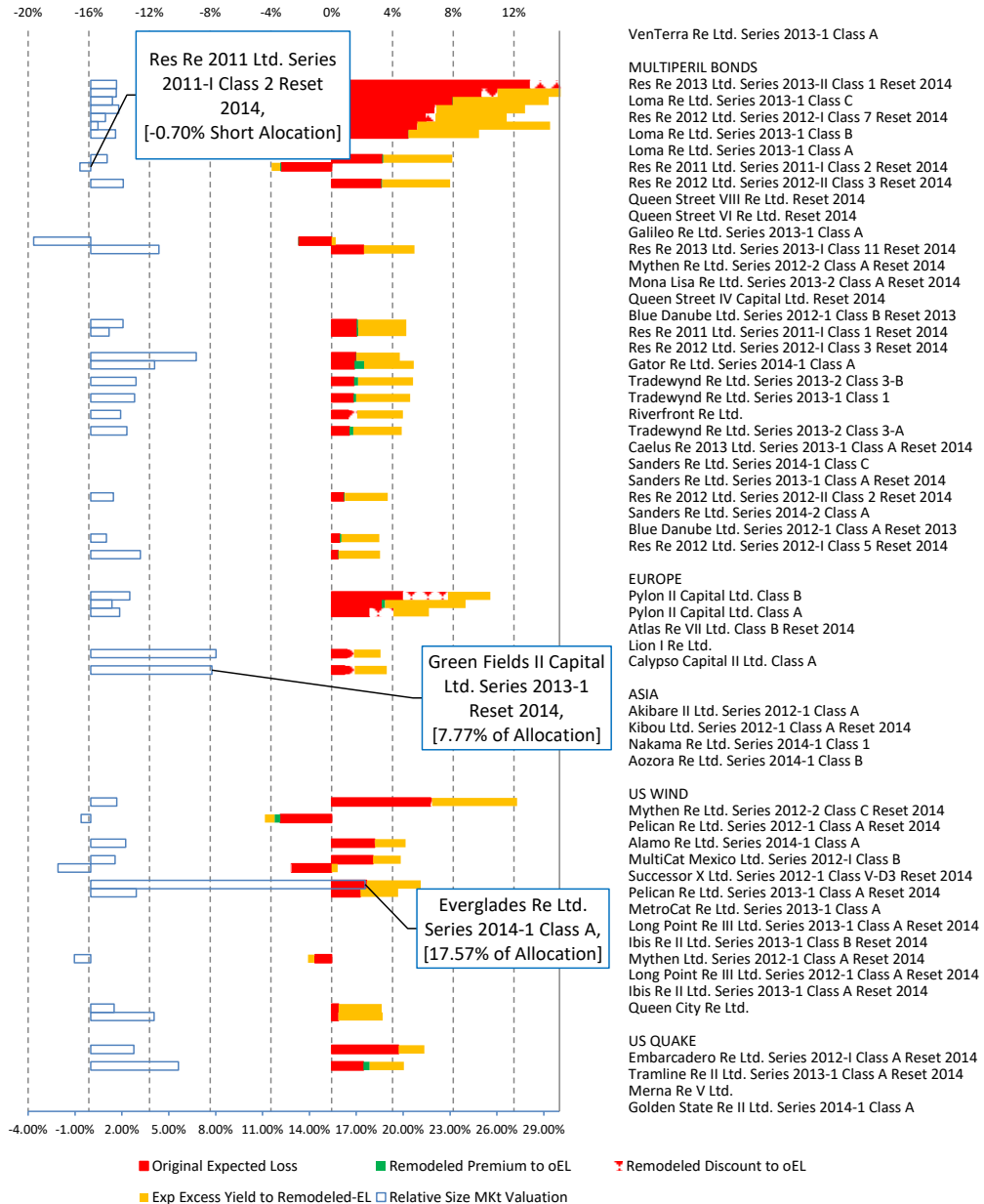


Table 7A OPTIMUM SOLUTION LEVERAGED CASE

- with limit of 10% long any Deals ; max 5 shorts - Single Perils

DEAL	Allocation	Limit	Premium	Necessary Increment	Necessary Premium	Marginal Value	Rank
Golden State Re II Ltd. Series 2014-1 Class		5.01%	2.13%	0.64%	2.77%	-0.64%	72
Merna Re IV Ltd.		6.06%	1.81%	0.38%	2.19%	-0.38%	52
Merna Re V Ltd.		6.02%	1.87%	0.32%	2.19%	-0.32%	48
Embarcadero Re Ltd. Series 2012-II Class		6.12%	2.55%	0.13%	2.68%	-0.13%	40
Tramline Re II Ltd. Series 2013-1 Class A		1.51%	2.92%	0.40%	3.31%	-0.40%	56
Lakeside Re III Ltd. Reset 2014	5.62%	5.62%	4.75%		4.75%	0.11%	30
Embarcadero Re Ltd. Series 2012-I Class		3.04%	3.93%	0.41%	4.34%	-0.41%	61
MultiCat Mexico Ltd. Series 2012-I Class	2.77%	2.86%	6.11%	0.07%	6.17%	0.00%	28
US QUAKE							
Armor Re Ltd. Series 2014-1 Class A	4.06%	4.06%	3.35%		3.35%	0.48%	18
Queen City Re Ltd.	1.51%	1.51%	3.29%		3.29%	0.57%	14
Foundation Re III Ltd. Series 2011-1 Class		2.74%	1.49%	1.78%	3.27%	-1.78%	98
Ibis Re II Ltd. Series 2013-1 Class A Reset		2.25%	2.55%	1.34%	3.89%	-1.34%	92
Mythen Ltd. Series 2012-1 Class E Reset 2		2.08%	1.31%	1.78%	3.09%	-1.78%	97
Long Point Re III Ltd. Series 2012-1 Class		5.17%	1.08%	2.22%	3.29%	-2.22%	102
Citrus Re Ltd. Series 2014-2 Class 1		1.01%	3.42%	0.36%	3.78%	-0.36%	54
Mythen Ltd. Series 2012-1 Class A Reset 2	-1.04%	1.04%	1.46%	2.89%	4.35%	-2.89%	108
Citrus Re Ltd. Series 2014-1 Class A		3.03%	3.80%	0.37%	4.18%	-0.37%	55
Ibis Re II Ltd. Series 2013-1 Class B Reset		0.72%	3.05%	2.04%	5.08%	-2.04%	101
Ibis Re II Ltd. Series 2012-1 Class A Reset		2.04%	2.31%	2.84%	5.15%	-2.84%	107
Long Point Re III Ltd. Series 2013-1 Class		6.14%	2.60%	1.02%	3.61%	-1.02%	85
Kilimanjaro Re Ltd. Series 2014-1 Class A		5.14%	3.91%	0.99%	4.90%	-0.99%	86
MetroCat Re Ltd. Series 2013-1 Class A		4.16%	2.25%	0.90%	3.15%	-0.90%	81
Tar Heel Re Ltd. Series 2013-1 Class A Re		10.59%	4.69%	0.04%	4.73%	-0.04%	31
Pelican Re Ltd. Series 2013-1 Class A Reset	2.92%	2.92%	4.34%		4.34%	0.68%	11
Everglades Re Ltd. Series 2014-1 Class A	17.57%	31.17%	5.87%	0.06%	5.93%	0.00%	32
Successor X Ltd. Series 2012-1 Class V-D.		0.82%	4.00%	2.66%	6.66%	-2.66%	105
Mythen Re Ltd. Series 2013-1 Class B-1 Re	-2.09%	2.09%	2.23%	4.55%	6.77%	-4.55%	112
MultiCat Mexico Ltd. Series 2012-1 Class I	1.56%	1.56%	4.54%		4.54%	0.12%	24
Everglades Re Ltd. Series 2013-1 Class A		5.30%	5.20%	1.33%	6.53%	-1.33%	93
Alamo Re Ltd. Series 2014-1 Class A	2.24%	8.30%	4.85%	0.06%	4.91%	0.00%	36
Ibis Re II Ltd. Series 2013-1 Class C Reset		0.84%	5.07%	2.47%	7.53%	-2.47%	104
Pelican Re Ltd. Series 2012-1 Class A Reset		2.65%	2.38%	2.93%	5.31%	-2.93%	106
Ibis Re II Ltd. Series 2012-1 Class B Reset	-0.62%	0.62%	4.40%	3.67%	8.07%	-3.67%	111
Mythen Re Ltd. Series 2012-2 Class C Reset		1.72%	7.85%	0.35%	8.20%	-0.35%	62
Successor X Ltd. Series 2011-3 Class V-F4	1.67%	1.67%	12.00%		12.00%	1.15%	9
US WIND							
US WIND							
Kizuna Re II Ltd. Series 2014-1 Class A		4.06%	1.79%	0.10%	1.89%	-0.10%	35
Aozora Re Ltd. Series 2014-1 Class B		2.00%	1.51%	0.67%	2.18%	-0.67%	68
Kizuna Re II Ltd. Series 2014-1 Class B		0.91%	2.12%	0.15%	2.27%	-0.15%	39
Nakama Re Ltd. Series 2014-1 Class 1		3.01%	2.10%	0.34%	2.45%	-0.34%	50
Nakama Re Ltd. Series 2014-1 Class 2		3.03%	2.25%	0.19%	2.44%	-0.19%	42
Kibou Ltd. Series 2012-1 Class A Reset 20		6.08%	1.80%	0.80%	2.60%	-0.80%	78
Nakama Re Ltd. Series 2013-1 Class 1 Reset		6.07%	2.13%	0.47%	2.59%	-0.47%	57
Akibare II Ltd. Series 2012-1 Class A		2.69%	1.48%	1.25%	2.73%	-1.25%	90
ASIA							
ASIA							
Green Fields II Capital Ltd. Series 2013-1	7.77%	7.77%	2.30%		2.30%	0.43%	17
Calypso Capital II Ltd. Class A		5.15%	1.97%	0.58%	2.55%	-0.58%	63
Boosphorus 1 Re Ltd. Series 2013-1 Class	8.02%	8.02%	2.29%		2.29%	0.07%	25
Lion I Re Ltd.		5.22%	2.25%	0.57%	2.82%	-0.57%	65
Calypso Capital II Ltd. Class B		4.60%	2.42%	0.23%	2.65%	-0.23%	43
Atlas Re VII Ltd. Class B Reset 2014		3.61%	2.76%	0.89%	3.65%	-0.89%	84
Eurus III Ltd. Series 2012-1 Class A Reset		2.77%	3.13%	0.27%	3.40%	-0.27%	49
Pylon II Capital Ltd. Class A	1.85%	1.85%	3.23%		3.23%	0.57%	13
Atlas VI Capital Ltd. Series 2011-2 Class	1.37%	1.37%	8.81%		8.81%	3.36%	3
Pylon II Capital Ltd. Class B	2.50%	2.50%	4.53%		4.53%	1.05%	8

Table 7B OPTIMUM SOLUTION LEVERAGED CASE

- with limit of 10% long any Deals ; max 5 shorts - Multi-Perils

DEAL	Allocation	Limit	Premium	Necessary Increment	Necessary Premium	Marginal Value	Rank
Res Re 2012 Ltd. Series 2012-II Class 1 Re	3.19%	3.19%	3.18%		3.18%	0.46%	19
Res Re 2012 Ltd. Series 2012-I Class 5 Re		2.38%	2.95%	0.09%	3.04%	-0.09%	37
Res Re 2014 Ltd. Series 2014-I Class 13	1.01%	1.01%	3.14%		3.14%	0.11%	27
Blue Danube Ltd. Series 2012-1 Class A R		2.45%	1.81%	1.31%	3.13%	-1.31%	91
Sanders Re Ltd. Series 2014-1 Class B		6.66%	2.72%	0.64%	3.36%	-0.64%	69
Sanders Re Ltd. Series 2014-2 Class A		4.07%	3.18%	1.52%	4.70%	-1.52%	95
East Lane Re VII Ltd. Series 2014-I Class /		5.43%	2.57%	0.83%	3.39%	-0.83%	79
Res Re 2012 Ltd. Series 2012-II Class 2 Re	1.46%	1.46%	3.69%		3.69%	0.24%	22
Blue Danube III Ltd. Series 2013-1 Class A		3.58%	2.88%	0.69%	3.57%	-0.69%	73
Sanders Re Ltd. Series 2013-1 Class A Res		4.06%	2.93%	0.66%	3.59%	-0.66%	71
Res Re 2011 Ltd. Series 2011-1 Class 5 Re		3.35%	2.00%	1.60%	3.60%	-1.60%	96
Sanders Re Ltd. Series 2014-1 Class C		2.32%	2.98%	0.61%	3.59%	-0.61%	66
Sanders Re Ltd. Series 2013-1 Class B Res		3.05%	3.36%	0.59%	3.94%	-0.59%	64
Caelus Re 2013 Ltd. Series 2013-1 Class A		5.53%	3.52%	0.26%	3.79%	-0.26%	46
Sanders Re Ltd. Series 2014-1 Class D		6.23%	3.43%	0.51%	3.94%	-0.51%	59
Tradevynd Re Ltd. Series 2013-2 Class 3-	2.31%	3.31%	4.61%	0.02%	4.63%	0.00%	34
East Lane Re IV Ltd. Series 2011-1 Class F		5.12%	1.24%	2.50%	3.74%	-2.50%	103
Riverfront Re Ltd.	1.92%	1.92%	3.54%		3.54%	0.51%	16
Mystic Re III Ltd. Series 2012-1 Class A R		2.06%	2.50%	1.84%	4.33%	-1.84%	99
Tradevynd Re Ltd. Series 2013-1 Class 1	2.80%	2.80%	5.17%		5.17%	0.31%	21
East Lane Re V Ltd. Series 2012 Class A		1.61%	3.78%	0.70%	4.47%	-0.70%	75
Tradevynd Re Ltd. Series 2013-2 Class 3-I	2.90%	2.90%	5.36%		5.36%	0.29%	23
Kilimanjaro Re Ltd. Series 2014-1 Class B		4.03%	4.24%	0.67%	4.91%	-0.67%	74
Gator Re Ltd. Series 2014-1 Class A	4.09%	4.09%	5.41%		5.41%	0.80%	10
Caelus Re 2013 Ltd. Series 2013-2 Class A	6.76%	6.76%	4.49%		4.49%	0.13%	26
Res Re 2012 Ltd. Series 2012-1 Class 3 Re		1.10%	3.78%	1.10%	4.88%	-1.10%	88
Res Re 2013 Ltd. Series 2013-II Class 4 Re		1.42%	4.79%	0.04%	4.83%	-0.04%	38
Res Re 2011 Ltd. Series 2011-I Class 1 Re	1.17%	1.17%	4.91%		4.91%	0.02%	33
Res Re 2011 Ltd. Series 2011-II Class 1 Re	2.07%	2.07%	4.92%		4.92%	0.03%	29
Blue Danube Ltd. Series 2012-1 Class B R		2.49%	3.12%	1.94%	5.06%	-1.94%	100
Atlas Re VII Ltd. Class A Reset 2014		1.25%	4.46%	1.09%	5.55%	-1.09%	89
Queen Street IV Capital Ltd. Reset 2014		2.03%	4.54%	0.65%	5.18%	-0.65%	77
Queen Street V Re Ltd. Reset 2014		1.53%	4.41%	0.76%	5.17%	-0.76%	82
Mona Lisa Re Ltd. Series 2013-2 Class A I		3.21%	4.56%	1.08%	5.64%	-1.08%	87
East Lane Re V Ltd. Series 2012 Class B		1.62%	4.87%	0.20%	5.07%	-0.20%	45
Mythen Re Ltd. Series 2012-2 Class A Res		2.57%	5.14%	0.25%	5.39%	-0.25%	47
Northshore Re Ltd. Series 2013-1 Class A		4.20%	4.29%	1.50%	5.79%	-1.50%	94
Res Re 2013 Ltd. Series 2013-I Class 11 Re	4.36%	4.36%	5.42%		5.42%	0.49%	20
Mystic Re III Ltd. Series 2012-1 Class B R	-3.66%	3.66%	1.93%	3.63%	5.57%	-3.63%	110
Galileo Re Ltd. Series 2013-1 Class A		6.21%	5.75%	0.64%	6.38%	-0.64%	76
Mythen Ltd. Series 2012-1 Class H Reset 2		5.21%	3.89%	0.75%	4.64%	-0.75%	83
Queen Street VI Re Ltd. Reset 2014		2.04%	6.18%	0.16%	6.34%	-0.16%	51
Queen Street VII Re Ltd. Reset 2014		1.56%	5.95%	0.44%	6.39%	-0.44%	70
Queen Street VIII Re Ltd. Reset 2014		1.52%	5.51%	0.55%	6.06%	-0.55%	67
Queen Street IX Re Ltd. Reset 2014		2.00%	5.56%	0.47%	6.03%	-0.47%	60
Res Re 2012 Ltd. Series 2012-II Class 3 Re	2.09%	2.09%	7.80%		7.80%	0.70%	15
Res Re 2013 Ltd. Series 2013-1 Class 3 Re		2.01%	6.82%	0.33%	7.15%	-0.33%	58
Res Re 2011 Ltd. Series 2011-I Class 2 Re	-0.70%	0.70%	3.96%	3.41%	7.37%	-3.41%	109
Res Re 2011 Ltd. Series 2011-II Class 2 Re	1.06%	1.06%	7.95%		7.95%	0.76%	12
Loma Re Ltd. Series 2013-1 Class A		0.67%	7.89%	0.20%	8.09%	-0.20%	53
Successor X Ltd. Series 2011-3 Class V-X-		1.04%	7.18%	0.58%	7.76%	-0.58%	80
Loma Re Ltd. Series 2013-1 Class B	1.60%	1.60%	9.71%		9.71%	0.12%	41
Successor X Ltd. Series 2012-1 Class V-A.	0.46%	0.46%	14.32%		14.32%	4.62%	2
Res Re 2012 Ltd. Series 2012-I Class 7 Re	0.94%	0.94%	10.25%		10.25%	1.45%	6
Res Re 2012 Ltd. Series 2012-II Class 4 Re	1.80%	1.80%	12.48%		12.48%	1.70%	5
Loma Re Ltd. Series 2013-1 Class C	1.39%	1.39%	14.29%		14.29%	1.55%	7
Res Re 2014 Ltd. Series 2014-1 Class 10	1.63%	1.63%	14.20%		14.20%	2.01%	4
Res Re 2013 Ltd. Series 2013-II Class 1 Re	1.66%	1.66%	18.36%		18.36%	6.40%	1

MULTIPERIL BONDS

VeniTerra Re Ltd. Series 2013-1 Class A		5.13%	2.62%	0.26%	2.89%	-0.26%	44
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Figure 9 Peril Composition of OPTIMUM SOLUTION LEVERAGED CASE, NON-LEVERAGED AND MARKET



TOTAL	100%	108.10%	100%	100%
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Table 8 Identifying the Shorts, Aggregating the Perils and showing the additional Long position

SHORTED SECURITIES	Mythen Ltd. Series 2012-1 Class A Reset 2014	Mythen Re Ltd. Series 2013-1 Class B-1 Reset 2014	Ibis Re II Ltd. Series 2012-1 Class B Reset 2014	Mystic Re III Ltd. Series 2012-1 Class B Reset 2014	Res Re 2011 Ltd. Series 2011-1 Class 2 Reset 2014	Combined Risk Profile of Five Shorted deals	Difference between long and short	LONG SECURITY	Everglades Re Ltd. Series 2014-1 Class A
	CUSIP	62866QAA3	62866RAD5	451052AB0	62864XAB8	76114XAB6			
Spread USD	8.50%	8.00%	13.50%	12.00%	12.00%				7.50%
Principal Amt at Issue (USD)	50,000,000	100,000,000	30,000,000	175,000,000	33,000,000	\$388,000,000			1,500,000,000
Secondary Price - 9/30 Sec Px Sheet	104.17	104.43	103.11	104.45	105.43	104.39			103.92
Market Value 9/30/2014	52,085,000	104,425,000	30,933,000	182,778,750	34,791,900	\$405,013,650			1,558,725,000
Market Weighting in OPTIMUM	-1.04%	-2.09%	-0.62%	-3.66%	-0.70%	-8.10%			17.57%
Expected Return	0.41%	-0.38%	0.63%	-0.26%	0.56%	-0.07%			3.57%
Coupon at Issue	8.50%	8.00%	13.50%	12.00%	12.00%	10.6%			7.50%
Secondary Mkt Yield	1.46%	2.23%	4.40%	1.93%	3.96%	2.31%			5.87%
AIR Remodeled Exp Loss	1.05%	2.61%	3.77%	2.19%	3.40%	2.38%			2.30%
Original Exp Loss	1.10%	2.66%	3.38%	2.17%	3.33%	2.35%			2.30%
AIR Optimism (Conservatism) bps	0.05	0.05	-0.39	-0.02	-0.07	-2.58%			0.00
Expected Yield									
Maturity Date	05/07/15	07/09/15	02/05/15	03/12/15	06/06/15	4/23/2015			04/28/17
Mnths to Maturity	7	9	4	5	8	7			30
Scenario Probabilities	62866QAA3	62866RAD5	451052AB0	62864XAB8	76114XAB6		Diff		300141AC2
0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
0.1000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000		0.0000
0.1000	0.0000	0.0000	0.0013	0.0001	0.0034	0.0004	-0.0004		0.0000
0.1000	0.0000	0.0000	0.0159	0.0020	0.0236	0.0042	-0.0042		0.0000
0.0250	0.0000	0.0000	0.0113	0.0045	0.0186	0.0045	-0.0044		0.0001
0.0250	0.0000	0.0005	0.0302	0.0041	0.0638	0.0098	-0.0081		0.0017
0.0250	0.0000	0.0026	0.0644	0.0064	0.0519	0.0129	-0.0121		0.0008
0.0250	0.0000	0.0034	0.0314	0.0171	0.0317	0.0137	-0.0086		0.0051
0.0250	0.0000	0.0314	0.0724	0.0476	0.0841	0.0423	-0.0292		0.0131
0.0250	0.0000	0.0449	0.1122	0.0680	0.1337	0.0623	-0.0017		0.0606
0.0100	0.0000	0.1710	0.2275	0.2309	0.2373	0.1860	-0.0621		0.1240
0.0100	0.0032	0.1353	0.2184	0.2728	0.2011	0.1924	0.1205		0.3129
0.0100	0.0410	0.4227	0.6025	0.3394	0.3653	0.3448	0.1677		0.5125
0.0100	0.2375	0.7090	0.7525	0.4621	0.5411	0.5259	-0.0537		0.4721
0.0020	0.5876	0.9500	1.0000	0.4500	0.7280	0.6625	-0.1179		0.5446
0.0020	0.6931	0.9193	0.9380	0.2612	0.7174	0.5773	0.1727		0.7500
0.0020	0.8159	0.9521	0.9982	0.5586	0.7712	0.7450	-0.2560		0.4890
0.0020	0.8004	1.0000	1.0000	0.5701	0.9797	0.7786	-0.1014		0.6772
0.0019	0.9445	1.0000	1.0000	0.6182	0.9443	0.8158	0.0790		0.8947
0.0001	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000		1.0000
	1.05%	2.61%	3.77%	2.19%	3.40%	2.38%	-0.08%		2.30%

Some mix of comments generated from applying these techniques in practice

ILS (multiple) - Renaissance Re (2006) - Axis Re - Students Project 2015+ - Others

Non-modelled losses can be a concern

“Programs” may generate a need to accept small-loss deals to access better deals

Is it possible to generate capital?

Can one evaluate deals outside the model from the outputs – Yes, via Implied Probabilities

Those implied probabilities can be used to delegate to division underwriters, or for allocations

All XoL deals can be handled somewhat easily; proportional deals may need artificial limits

The specification of “capital” herein is done via a \$ limit – it can be done via a probability e.g. 1 in 250

The model is agnostic as to form of risk assumption – CRe, Traditional XoL, ILS, ILW, Reinstatements

Simultaneously choosing inwards reinsurance and outwards retrocession possible, but tricky

First stage models can be used to design retrocession programs

NOTE WELL - ILS are simply a microcosm of general insurance risk-assumption management

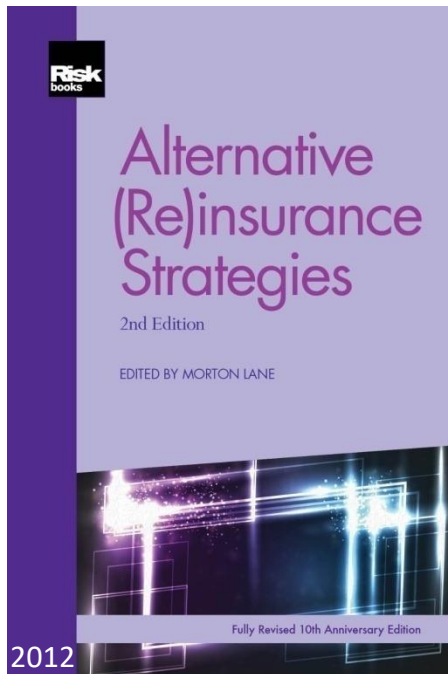
Thank You ... Questions

END

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Many of the numerical examples and graphs herein are available on Lane Financial LLC Web Site