

Capital Markets & the P/C Sector

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Increased Capital Markets Activity in P/C Insurance

- The hurricanes in 2005, which caused insured losses of \$80-\$90 billion, caused a retro capacity squeeze in 2006.
- Perceived risk of US hurricane activity increased – peril modelers changed loss amplification factors and other model parameters to reflect near-term changes in weather patterns.
- Insurance companies looked for capital market alternatives to reinsurance and found them in non-traditional capital vehicles supported by investors:
 - Catastrophe bonds
 - Industry loss warrants
 - Sidecars
 - Contingent capital arrangements

Other Capital Markets Activities in P/C Insurance

- Recoverable Securitization/Hedge.
- Collateralized Debt Obligations of Cat Exposure.
- Trups CDOs.
- Catastrophe-Linked Futures & Options.
- Other - transfer of high-frequency/low severity risk such as auto coverage, credit insurance, and casualty insurance.

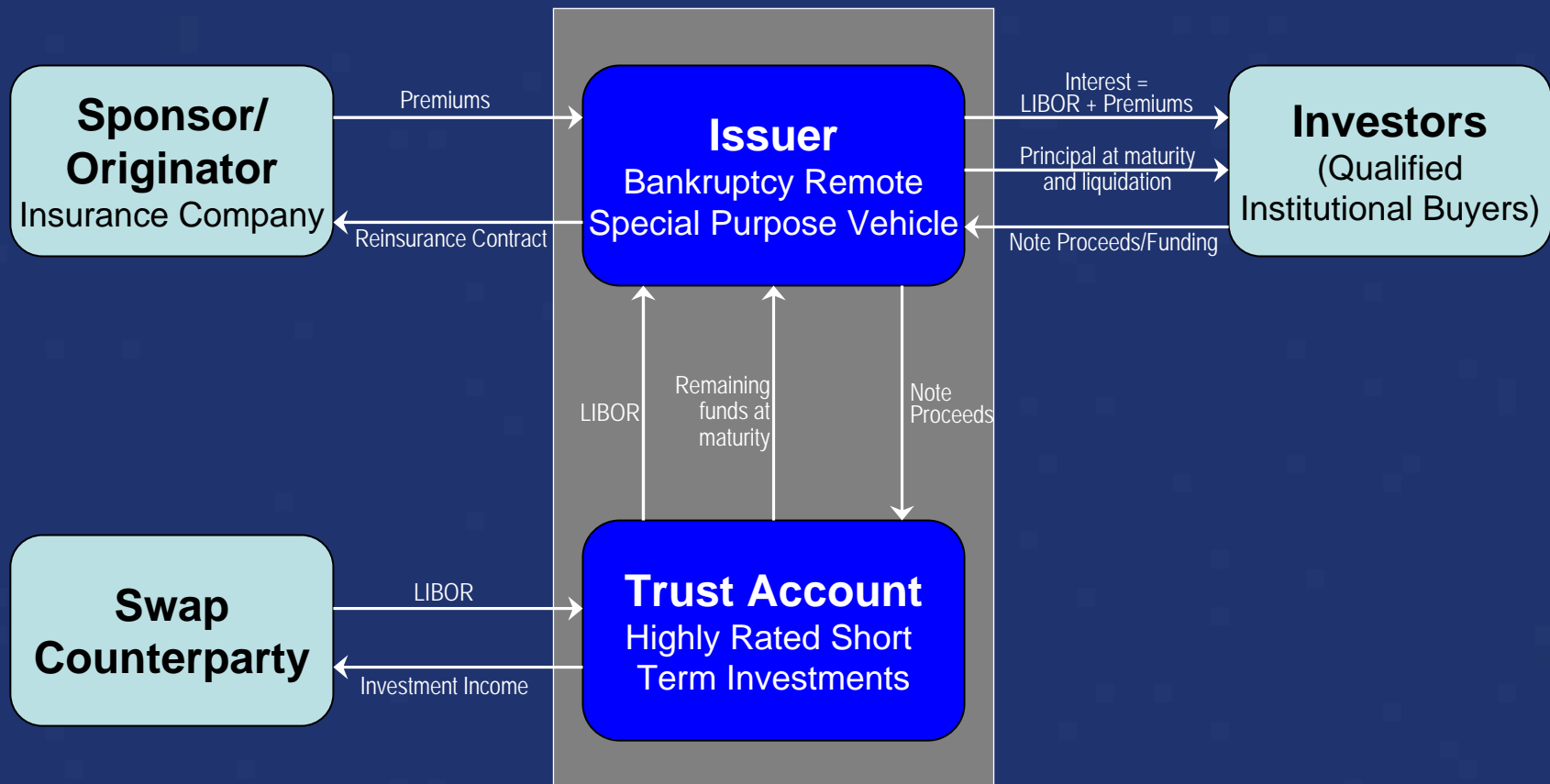
What Is a Catastrophe Bond?

- A Structured Debt Instrument that Behaves Like a Reinsurance/Retrocessional Contract.
- Covers Specific Perils (examples):
 - Earthquake:
 - U. S. (California, New Madrid, and Pacific Northwest).
 - Japan.
 - Wind-related Perils:
 - U. S. Hurricane (Inland, Gulf and eastern coastal areas);
 - European, UK, and Japan Windstorms; and
 - Typhoons (typically far east).
 - Flood: the most recent peril covered (Blue Wings Ltd. By Allianz)

Cat Bonds: Motivational Factors

- Provide Excess of Loss Coverage Over Defined Zones.
- Increase Retrocessional Capacity.
- Provide Multi-Year Coverage.
- Fully Collateralized.
- Generally Uncorrelated With Financial Markets – benefit to investors.

Catastrophe Bonds – Basic Structure



Catastrophe Bonds – Various Triggers

Indemnity trigger ■ Payouts are based on the size of the sponsor's actual losses.

Parametric trigger ■ Payouts are triggered by a Cat event with defined parameters (eg, wind speed, location of hurricane, magnitude and location of EQ, etc.).

Industry-loss trigger ■ Payouts are triggered by an estimate of loss for the insurance industry as a whole from a Cat event.

Modeled-loss trigger ■ Trigger is calculated by running an actual event's parameters against a modeling firm's database of industry exposures. The resultant number is the modeling firm's estimate of an industry loss.

Catastrophe Bonds – Market Growth

	<u>Principal</u> (in \$bil)	<u>% Change</u> Year over Year
1997	\$0.63	NA
1998	0.85	34.9%
1999	0.98	15.3%
2000	1.13	15.3%
2001	0.97	(14.2%)
2002	1.26	29.9%
2003	1.73	37.3%
2004	1.14	(34.1%)
2005	1.99	74.6%
2006	4.69	135.7%
2007 May	1.63	NA (partial yr)

Sources: 1997-2005 – Guy Carpenter/MMC Securities Corp.
2006 – Goldman Sachs

Cat Bonds Issued Year to Date 2007

Issuer	Date	Sponsor	Term (yrs)	Debt Principal (in \$ mil)
Carillon Ltd	05/08/07	Munich Re	3.3	150.0
Longpoint Re	05/08/07	Travelers	3	500.0
East Lane Re (A)	04/30/07	Chubb	4	135.0
East Lane Re (B)	04/30/07	Chubb	4	115.0
Ajax Re	04/25/07	Aspen	2	100.0
Blue Wings Ltd.	04/10/07	Allianz Global	5	150.0
Puma Capital	03/23/07	Bridge Re	3	182.5
Australis Limited - Series 2	03/16/07	Swiss Re	2	50.0
Calabash Re II Ltd.	01/28/07	ACE- America Insurance Co.	3	100.0
Calabash Re II Ltd.	01/28/07	ACE- America Insurance Co.	3	100.0
Calabash Re II Ltd.	01/28/07	ACE- America Insurance Co.	3	50.0
				1,632.5

Select Closed Transaction Listing Rated By A.M. Best Spread/Rate Analysis

Type	Date Closed	Name of Deal	Funding Amount (amt. millions)	AM Best Rating	Floating Spread (bps)	Term (Yrs)	Yield Comparison (5/1/2007)		Expected Loss
							Note/Bond (Floating Rate) (a)	Generic Corporate Bond (Fixed Rate)	
Cat Bond:									
	6/21/2006	Vasco Re 2006 Ltd.	50	bb	850	3	13.86%	5.93%	0.82%
	8/9/2006	Shackleton Re Limited	50	bb+	750	2	12.86%	5.73%	0.51%
	8/9/2006	Shackleton Re Limited	60	bb	800	2	13.36%	5.82%	0.98%
	8/9/2006	Shackleton Re Limited	125	b+	800	1.5	13.36%	5.91%	1.13%
	12/21/2006	Atlas Reinsurance III plc	EUR 120	bb+	400	3	9.36%	5.93%	
	4/25/2007	Ajax Re Limited	100	b+	625	2	11.61%	5.82%	1.93%
	4/30/2007	East Lane Re Ltd.	135	bb	600	4	11.36%	6.07%	0.99%
	4/30/2007	East Lane Re Ltd.	115	bb-	700	4	12.36%	6.07%	1.31%
	5/8/2007	Longpoint Re Ltd.	500	bb+	525	3	10.61%	5.93%	0.83%
Cat Bond CDO:									
	12/20/2006	Bay Haven Limited	133.5	aa	150	3	6.86%	5.14%	
	12/20/2006	Bay Haven Limited	66.7	bbb	425	3	9.61%	5.61%	
Sidecar:									
	8/22/2006	Concord Re Limited	365	bb+	425	1.5	9.61%	5.82%	
	12/1/2006	Panther Re Bermuda	72	bbb-	225	2	7.61%	5.31%	
	12/1/2006	Panther Re Bermuda	144	bb	450	2	9.86%	5.73%	
	12/28/2006	Triomphe Re Limited	24	bbb-	175	2	7.11%	5.60%	
	12/28/2006	Triomphe Re Limited	40	bb+	375	2	9.11%	5.73%	
	3/5/2007	Kepler Holdings Limited	200	bb-	450	2	9.86%	5.82%	

(a) 3 month libor @ 5.36%

Representative Investors in Cat. Risk

Investor Name	Entity Name	Sponsor
Farallon Capital	Flatiron	Arch Capital
Highfields	Cyrus Re	Cyrus Re
Aquiline Capital	Pertril Re	Validus Re
Vestar Capital	Pertril Re	Validus Re
New Mountain Capital	Pertril Re	Validus Re
First Reserve	Pertril Re	Validus Re
Jeffrey Greenberg, Merrill Lynch, and Goldman	Petril Re	Validus Re
Och-Ziff Capital	Olympus Re	White Mountains Ins.
Fairholme Capital	Olympus Re	White Mountains Ins.
Third Avenue Capital	Olympus Re	White Mountains Ins.
Leucadia	Olympus Re	White Mountains Ins.
Citadel Investment Group		
Soros Fund Management		
HBK Investments		
Moore Capital Management		
Wilbur Ross		
PIMCO		
HBK Investments		
Cerberus		

Catastrophe Bonds – Rating the Bonds

Significant Factors Include:

- Attachment probabilities (from model outputs).
- Trigger Events (e.g., 2nd or 3rd event triggers).
- Credit Risk of Sponsor.

Catastrophe Bonds – Rating the Bonds

The Role of the Default Matrix :

- Rating Assigned - based on *Best's Idealized Default Matrix* (next page) derived from pure insurance data.
- Default Matrix - shows relationship between defaults and debt ratings.

Catastrophe Bonds – Rating the Bonds

Best's Idealized Default Matrix

	1 Year	3 Years	5 Years	10 Years	15 Years
aaa	0.03%	0.14%	0.31%	0.94%	1.73%
aa+	0.03%	0.20%	0.45%	1.36%	2.53%
aa	0.04%	0.26%	0.58%	1.79%	3.34%
aa-	0.05%	0.42%	0.84%	2.13%	3.64%
a+	0.06%	0.58%	1.10%	2.48%	3.94%
a	0.11%	0.76%	1.41%	3.03%	4.65%
a-	0.16%	0.95%	1.71%	3.58%	5.36%
bbb+	0.21%	1.13%	2.02%	4.13%	6.06%
bbb	0.23%	1.25%	2.25%	4.58%	6.64%
bbb-	0.27%	1.25%	2.75%	5.76%	8.43%
bb+	0.52%	2.48%	4.30%	8.26%	11.35%
bb	0.66%	2.92%	5.03%	9.69%	13.44%

Catastrophe Bonds – To Issue or Not to Issue

- Decision depends on:
 - Total cost of issuance versus cost of reinsurance – comparison of rate-on-line.
 - Basis risk of non-indemnity catastrophe bonds.
 - Credit risk relative to that of a potential reinsurer.

Catastrophe Bonds – To Issue or Not to Issue (cont'd)

- Decision depends on:
 - Covered Perils – Unlike catastrophe bonds, reinsurance can cover ancillary perils caused by hurricanes such as floods, ice storms, frost, etc.
 - Multi-Year Coverage.
 - Deal Time – It can take 2-3 months to put a catastrophe bond deal together.
 - Management Time – Catastrophe bonds absorb a great deal of time from senior management.

Catastrophe Bonds – Approximating Rate-On-Line

- Get the annualized initial transaction cost as a percentage of bond issuance.
- Get the annualized premium payment as percentage of bond issuance.
 - Premium payment is approximately the spread to Libor paid to investors.
- Add the two numbers above to get the approximate rate-on-line.

Catastrophe Bonds – Costs Converted to Rate-On-Line (Example of \$100 mm Issuance- 2yr Bond)

Initial Transaction Costs :

Expense Category	Amount	%
Underwriting & Structuring Cost	\$ 2,000,000	65.8%
Legal Fees	\$ 500,000	16.4%
Peril Modelling Cost	\$ 250,000	8.2%
Rating Agency Fees	\$ 200,000	6.6%
Trustee Fee	\$ 30,000	1.0%
Accounting	\$ 30,000	1.0%
Printing	\$ 30,000	1.0%
Total Transaction Costs	\$ 3,040,000	100.0%

Transaction cost is 3.04% of Bond Issuance
Annualized Transaction Cost = 3.04%/2 = 1.52%

Catastrophe Bonds – Costs Converted to Rate-On-Line (Example of \$100 mm Issuance- 2yr Bond)

Assumptions:

Covered Peril	Wind/Hurricane
Securities Issued Amt.	\$100mm
Security Type	Floating
Securities Rating	bb

Term (Yrs)	Spread (bps)
1	500
2	550
3	600

Catastrophe Bonds – Costs Converted to Rate-On-Line (Example of \$100 mm Issuance- 2yr Bond)

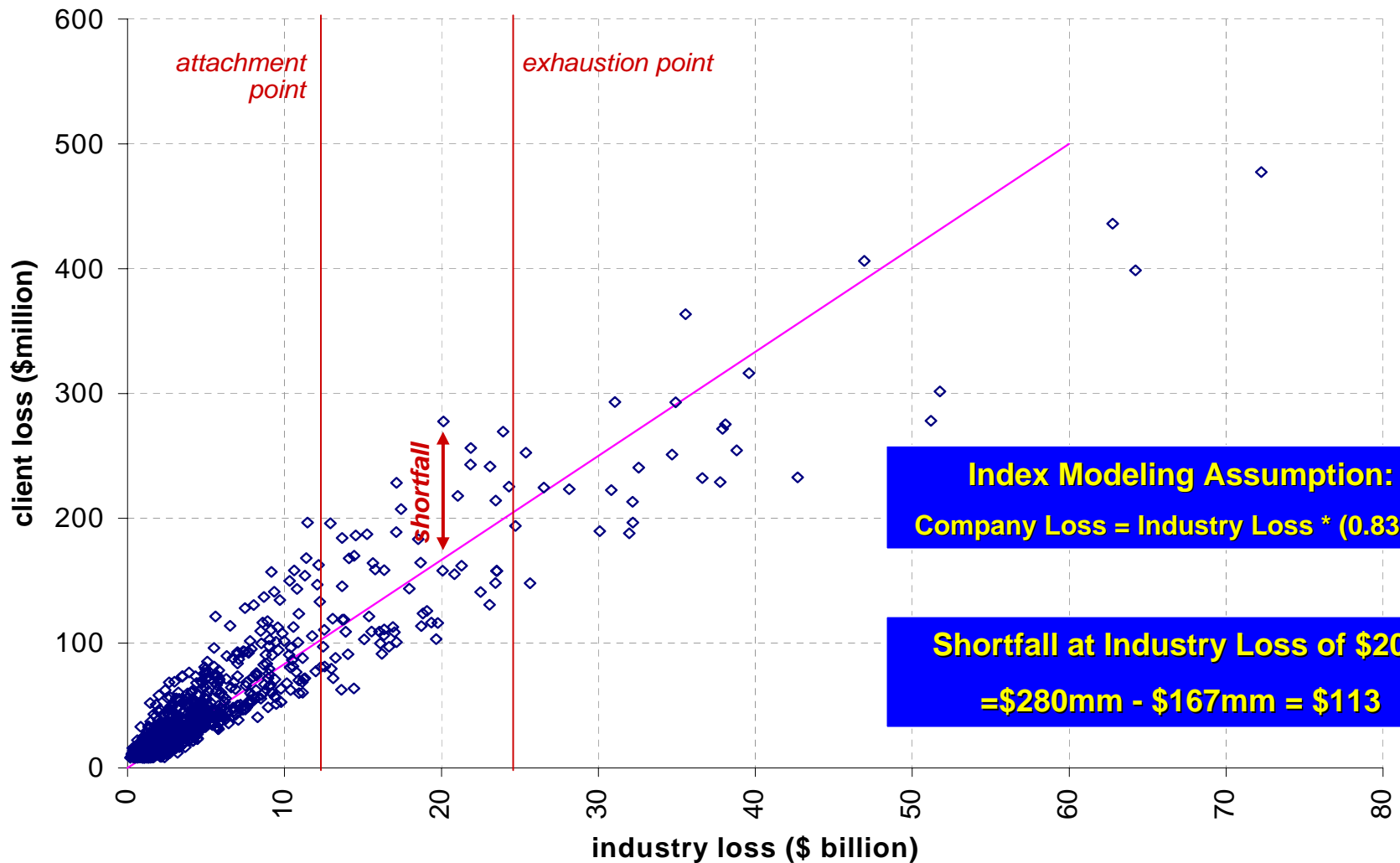
- Assume that investors expect the following rate:
 - Libor + 550 bps per annum
- Annual premium payment to investors by sponsor is therefore 5.50% per annum
- Annual cost of cat bond in terms of rate-on-line is calculated as follows:
 - Rate-On-Line = 1.52% + 5.50% = 7.02%

Catastrophe Bonds – Basis Risk

- Basis risk is the risk that the catastrophe bond may not trigger (for covered perils) even when the sponsor has suffered a loss.
 - High for parametric bonds* or index-based instruments (such as Industry Loss Warrants [ILWs]).
 - A.M. Best is only concerned with “negative” basis risk.
 - A.M. Best determines how much reinsurance credit should be given in the BCAR analysis based on its evaluation of basis risk.

*For the purposes of this presentation, we consider non-indemnity catastrophe bonds as parametric bonds

Visualizing Basis Risk



Measuring Basis Risk: Mechanical Steps

- Step 1 – Complete the *Basis Risk Scoring Table*;

scoring categories:

- A. Shortfall;
- B. Exhaustion probability (prob. of recovering losses);
- C. Type of peril;
- D. Ind. peril modeler's involvement (or lack thereof);
- E. Quality of data used in modeling losses; and
- F. Certainty of business composition.

Weight

35%

25%

10%

10%

10%

10%

- Step 2 – Calculate the *Capital Effectiveness Ratio*.

Industry Loss Warrant (ILW)

- An ILW is an index-based instrument that can either be structured as an indemnity-based contract or a derivative contract.
- An alternative to excess of loss reinsurance coverage.
- Index most commonly used is published by Property Claims Services (PCS).
- Triggered when the buyer of the ILW suffers a loss and when industry has a loss over a specified threshold (in indemnity form).
- Works best for large, diversified sponsors whose business portfolio closely replicates the industry's.
- Estimated market size in 2006 was \$4 billion.

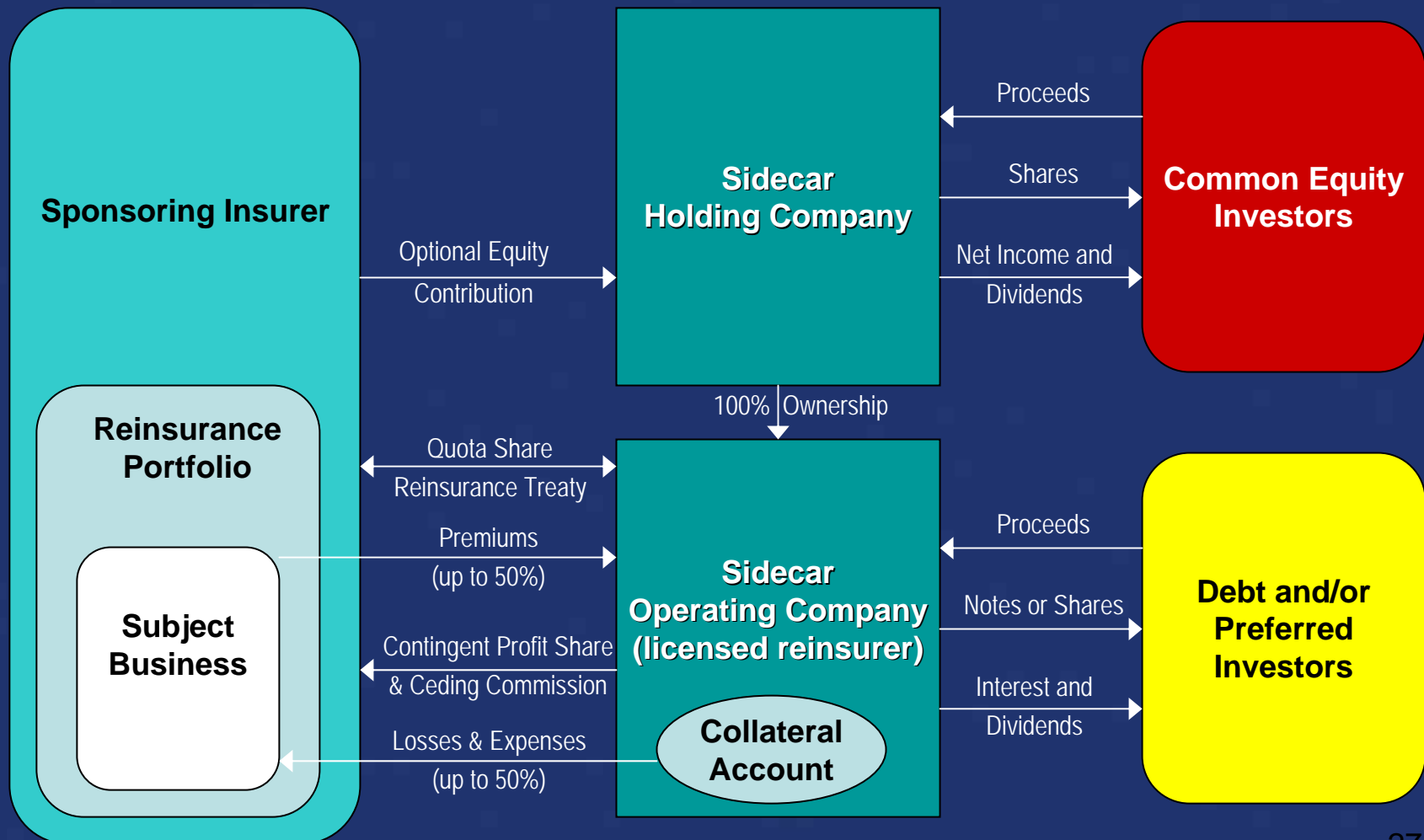
Industry Loss Warrants (ILW)– Basis Risk

- A.M. Best views an ILW as a special case of a catastrophe bond.
- Basis risk
 - An ILW have the same basis risk issues as catastrophe bonds.
 - When assessing the basis risk of ILWs, the same data requirements apply as in catastrophe bonds.
 - Documentation is a critical element in determining whether credit is to be given to the issuer.

Sidecars

- Special purpose vehicles (SPVs) that generally provide quota-share reinsurance exclusively to its sponsor.
- Life of SPVs is generally limited to 1 to 3 years.
- The perils covered by sidecars are like those of catastrophe bonds.

The Structure of a Typical Sidecar



Sidecars: Motivational Factors

- Sponsors Increase Retro Capacity.
- Sponsors/Investors Take Advantage of Hard Market.
- Sponsors/Investors Can Exit When Market Wanes.
- Sponsors Benefit from Ceding Commission, etc.
- Alignment of the Interest of Sponsors & Investors.

Sidecar Capital – Market Growth

	Cat Bond <u>Debt</u> (in \$bil)	<u>Sidecar Capital</u>		
		<u>Debt</u> (in \$bil)	<u>Equity</u> (in \$bil)	<u>Total</u> (in \$bil)
1997 & prior	\$0.63	\$ 0	\$ 0	\$ 0
1998	0.85	0	0	0
1999	0.98	0	0	0
2000	1.13	0	0	0
2001	0.97	0	0	0
2002	1.26	0	0	0
2003	1.73	0	0	0
2004	1.14	0	0	0
2005	1.99	0.50	1.36	1.86
2006	4.69	1.22	3.28	4.50
2007 _{May}	1.63	0.20	0.51	0.71

Sidecar – Rating the Sidecar and Its Debt

Significant factors:

- Sidecar Sponsor – for underwriting acumen.
- Terms and Conditions of Agreements.
- Collateralization.
- Risk Analysis.
- Key Assumptions on Business Origination and Profitability.
- Cash Flow Model.
- Restriction on Equity Withdrawals and Wind-down Procedures.

Sidecar – Rating the Sidecar and Its Debt

The Default Probability of the Debt:

- Reviewing initial attachment of debt.
- Reviewing ongoing attachment of debt.
- Establishing rating with *Best's Idealized Default Matrix*.
- Applying rating constraints.
- Establishing an issuer credit rating.

Sidecar Transactions in 2006 & 2007

	<u>Month</u>	<u>Sidecar</u>	<u>Sponsor</u>	<u>Initial Capital (in \$mil)</u>		<u>Risks Assumed</u>
				<u>Equity</u>	<u>Debt</u>	
2006	Jan	Kaith Re (a)	Hannover Re	414		Multi-peril
	Jan	Helicon Re	Folksamerica	145		QS of short-tail property
	Jan	Olympus Re (b)	Folksamerica	156		QS of short-tail property
	Jan	Timicuan (c)	Renaissance Re	70		Reinstatement prem protection
	May	Petrel Re	Validus Re	200		QS of marine and energy
	May	Starbound Re	Renaissance Re	125	374	Florida property cat
	May	Monte Fort	Flagstone Re	60		Peak zone and ILW coverage
	May	Sirocco Re	Lancashire	95		Gulf of Mexico offshore energy
	May	Syndicate 6103	MAP Syndicate 2791	87		QS of US property
	Jun	Bay Point Re	Harbor Point	75	75	Short-tail lines
	Jul	Castlepoint Re	Tower Group	265		Program and specialty
	Aug	Concord Re	Lexington Re	365	365	QS of US commercial property
	Nov	Blue Ocean	Montpelier Re	100	(d)	Property and cat
	Nov	Cyrus Re	XL Capital	100	(d)	Property and cat
	Nov	Panther Re	Lloyd's (Syndicate 33)	144	216	QS of property cat
	Nov	Triomphe Re	Paris Re/Axa Re	121	64	QS of property and cat
	Nov	Stoneheath Re	XL Capital	350		Property and cat
	Dec	Norton Re	Brit Insurance Ltd.	108		Cat lines
	Dec	Maxwell Re	Ace	175		Property and cat risk
	Dec	New Point Re	Harbor Point	125	125	QS of short-tail lines
2007	Jan	Kaith Re (K5)	Hannover Re	106		Multi-peril
	Jan	MARI	Marsh	400		U.S. commercial property
	Mar	Kepler Re	Hannover Re		200	Worldwide natural perils
		Total		3,786	1,419	

(a) Additional capital injection of \$106 mil in Jan. 2007.

(b) Olympus was recapitalized in Jan. 2006.

(c) Timicuan was dormant from 2003 through May 2006, when it was capitalized as a sidecar.

(d) Incremental funding on existing sidecar.

Sidecar - Tail Risk

- Defining Tail Risk – Risk borne by the sponsor if the sidecar is insufficiently capitalized.
- Determination of Tail Risk – “What capital level is required in order to maintain a sidecar’s assumed FSR?”
- “Shadow Rating” of Sidecar – Assumed to be rating of the sidecar’s sponsor.

Assumed One -Year Avg. Impairment Rates (By FSR on the Credit Market Scale)

	aaa	aa+	aa	aa-	a+	a	a-
Impairment Rate	0.03%	0.06%	0.11%	0.16%	0.21%	0.23%	0.27%
Return Period	3,333	1,667	909	625	476	435	370
Confidence Interval	99.97%	99.94%	99.89%	99.84%	99.79%	99.77%	99.73%
	aaa	aa+	aa	aa-	a+	a	a-

Sidecar's Aggregate Exceedence Curve

Confidence Interval	Return Period	Losses	Stressed* Losses (Stress factor: 110%)
90.00%	10	100,000	110,000
96.00%	25	150,000	165,000
98.00%	50	200,000	220,000
99.00%	100	250,000	275,000
99.60%	250	300,000	330,000
99.73%	370	330,000	363,000
99.80%	500	350,000	385,000

"a-" rated company

*Use stressed losses if not confident with modeled loss.

Contingent Capital

Definition

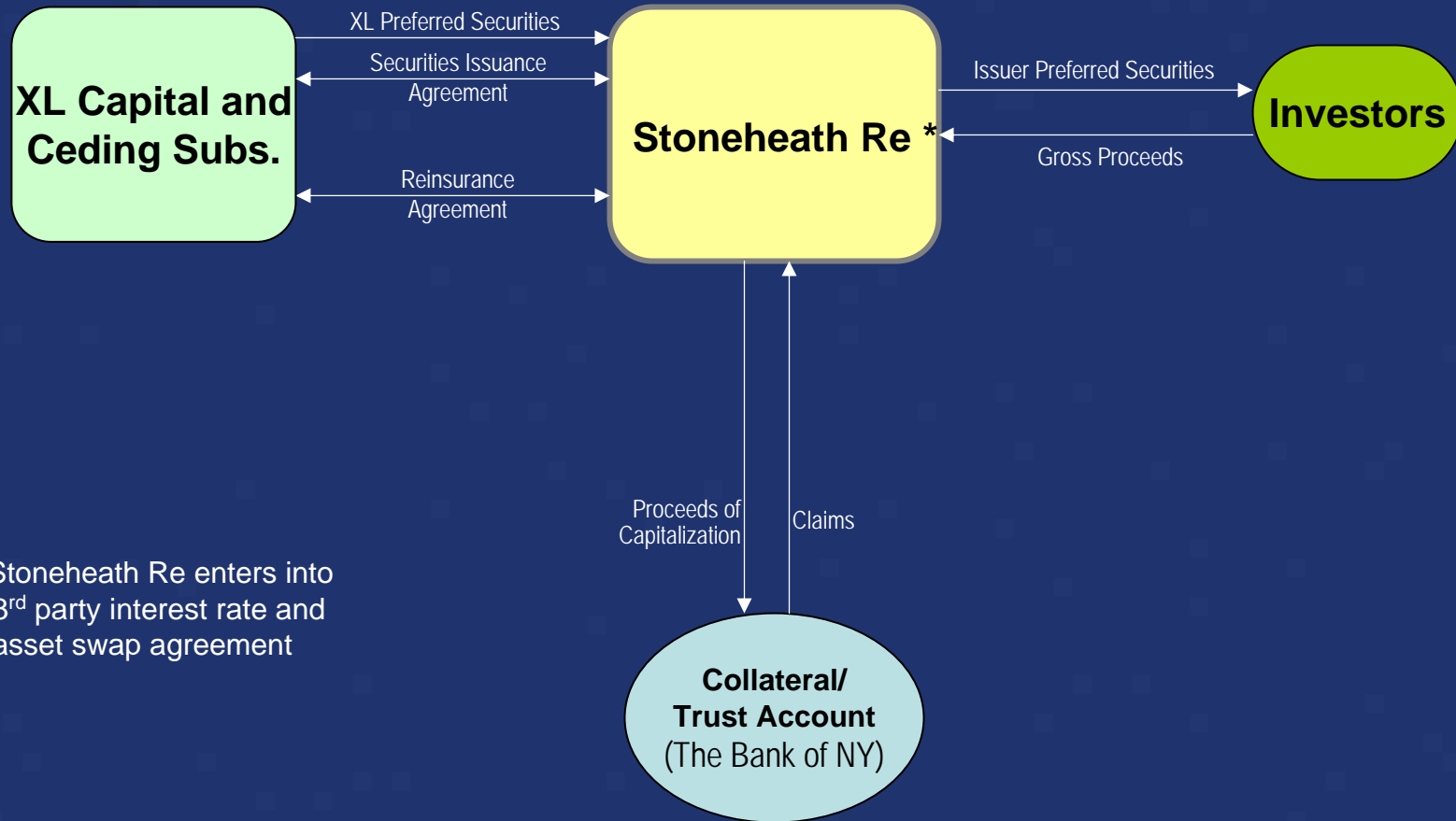
- Contingent capital is “post-event” capital that insurance companies can access after a catastrophic event.

Examples of Contingent Capital Arrangements:

- Issuance of new securities after a defined loss event.
- Purchasing option to sell stock to investors at a pre-defined price after a loss event.

Contingent Capital

Stoneheath Re



* Stoneheath Re enters into 3rd party interest rate and asset swap agreement

Contingent Capital

Stoneheath Re – Transaction Basics

- Stoneheath Re (Issuer) provides 2nd event indemnity reinsurance to subsidiaries of XL Capital.
- Perils Covered: US Wind, California earthquake, European wind and terrorism.
- XL Capital pays a reinsurance premium to Stoneheath Re.
- Stoneheath Re collateralizes the coverage by issuing \$350mm of preferred securities to investors.
- XL Capital also enters into an agreement with Stoneheath Re in which XL Capital replaces any depleted capital by preferred shares.

Contingent Capital

Stoneheath Re – Rating Consideration

Rating the Transaction

- Documentation reviewed: reinsurance agreement, indenture, etc.
- Rating of the preferred securities directly linked to the profile of XL Capital.
- XL Capital's Issuer Credit Rating (ICR) is “a-”: rating for preferred shares is “bbb” – two notches below the ICR.

Contingent Capital

Stoneheath Re – FSR Perspective

- A.M. Best expects the event trigger to be outside the control of XL Capital.
- The payment is indemnity based and as such basis risk is not an issue.
- Terms and repayment conditions are pre-established/determined and irrevocable.
- Timely access to capital.
- Financial leverage impact upon the issuance of the securities should be minimal.

The Future of Securitization

Reinsurance Recoverable Hedge/Securitization

Two Transactions

- Aspen Re / Deutsche Bank Hedging Contract

- Merlin CDO I B.V.

The Future of Securitization

Reinsurance Recoverable Hedge/Securitization

Best Rating <u>FSR(ICR)</u>	Best's BCAR Reinsurer Default Factor <u>(As a % of Reins. Recov)</u>
A++ (aaa/aa+)	2%
A+ (aa/aa-)	4%
A (a+/a)	6%
A-(a-)	10%
B++ (bbb+/bbb)	15%
B+ (bbb-)	20%
B (bb+/bb)	30%
B- (bb-)	40%

The Future of Securitization

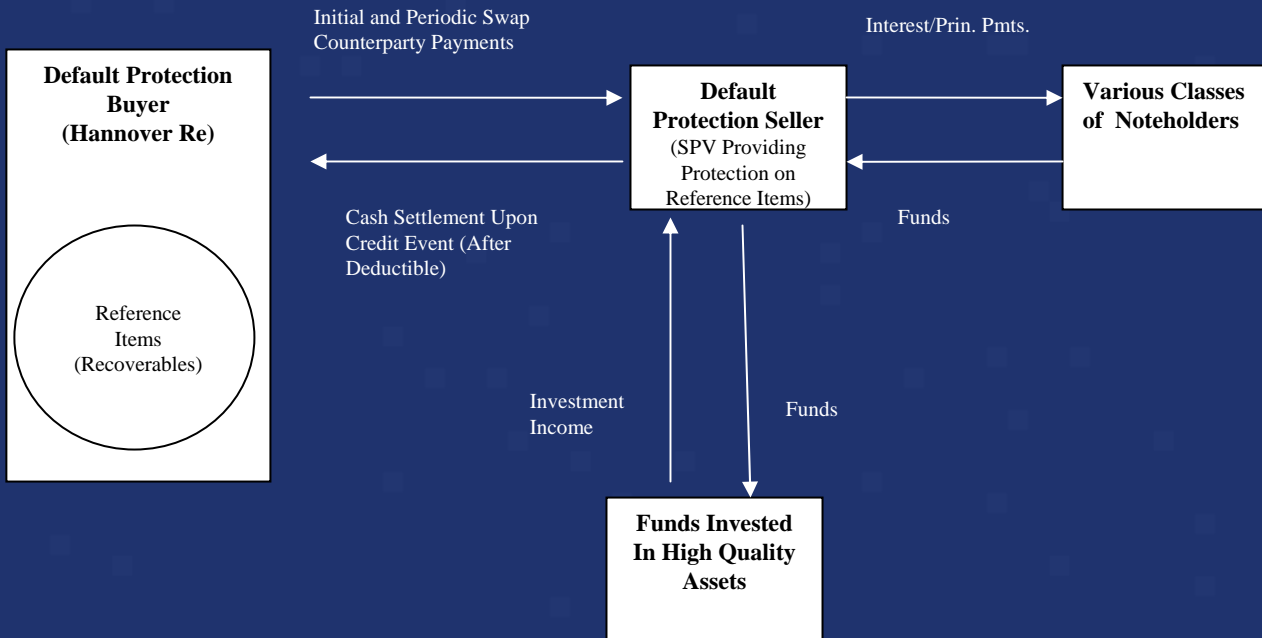
Reinsurance Recoverable Hedge/Securitization

Some Rating Considerations

- Definition of Reinsurance Credit Events
- Credit Risk of Counterparty.
- Correlation.
- Recoveries on Recoverables
 - Recovery data is scarce and commutations are done privately.

The Future of Securitization

Reinsurance Recoverable Securitization – Merlin CDO



The Future of Securitization

Reinsurance Recoverable Hedge/Securitization

Assumed Insurance Default Rates*
(On Credit Market Scale)

	aaa	aa+	aa	aa-	a+	a	a-	bbb+	bbb	bbb-
1	0.03%	0.06%	0.11%	0.16%	0.21%	0.23%	0.27%	0.52%	0.66%	0.81%
2	0.11%	0.32%	0.44%	0.56%	0.67%	0.74%	0.89%	1.51%	1.81%	2.10%
3	0.20%	0.58%	0.76%	0.95%	1.13%	1.25%	1.51%	2.48%	2.91%	3.35%
4	0.31%	0.84%	1.08%	1.33%	1.58%	1.76%	2.13%	3.41%	3.99%	4.57%
5	0.45%	1.10%	1.41%	1.71%	2.02%	2.25%	2.75%	4.30%	5.03%	5.75%
	aaa	aa+	aa	aa-	a+	a	a-	bbb+	bbb	bbb-

*Preliminary

Rating Transition Matrix On FSR Scale (Used for Approximating Reinsurance Default Rate)

	<u>A++/A+</u>	<u>A/A-</u>	<u>B++/B+</u>	<u>B/B-</u>	<u>C++/C+</u>	<u>C/C-</u>	<u>D</u>	<u>Impaired</u>
<u>A++/A+</u>	92.62%	6.90%	0.39%	0.03%	0.00%	0.00%	0.00%	0.06%
<u>A/A-</u>	4.19%	91.15%	3.58%	0.61%	0.10%	0.06%	0.12%	0.20%
<u>B++/B+</u>	0.36%	10.93%	81.03%	5.51%	0.63%	0.31%	0.48%	0.75%
<u>B/B-</u>	0.27%	1.03%	15.12%	75.35%	3.96%	0.98%	1.21%	2.09%
<u>C++/C+</u>	0.23%	0.58%	1.86%	18.18%	67.07%	5.30%	3.32%	3.44%
<u>C/C-</u>	0.00%	0.63%	0.25%	4.43%	15.19%	65.44%	7.97%	6.08%
<u>D</u>	0.10%	0.55%	1.05%	3.06%	3.11%	3.56%	81.18%	7.38%

The Future of Securitization

Reinsurance Recoverable Hedge/Securitization

Assumed Reinsurance Default Rates
(On Credit Market Scale)

	aaa	aa+	aa	aa-	a+	a	a-	bbb+	bbb	bbb-
1										
2										
3										
4										
5										
	aaa	aa+	aa	aa-	a+	a	a-	bb b+	bbb	bbb-

*Used for evaluating reinsurance recoverable securitizations

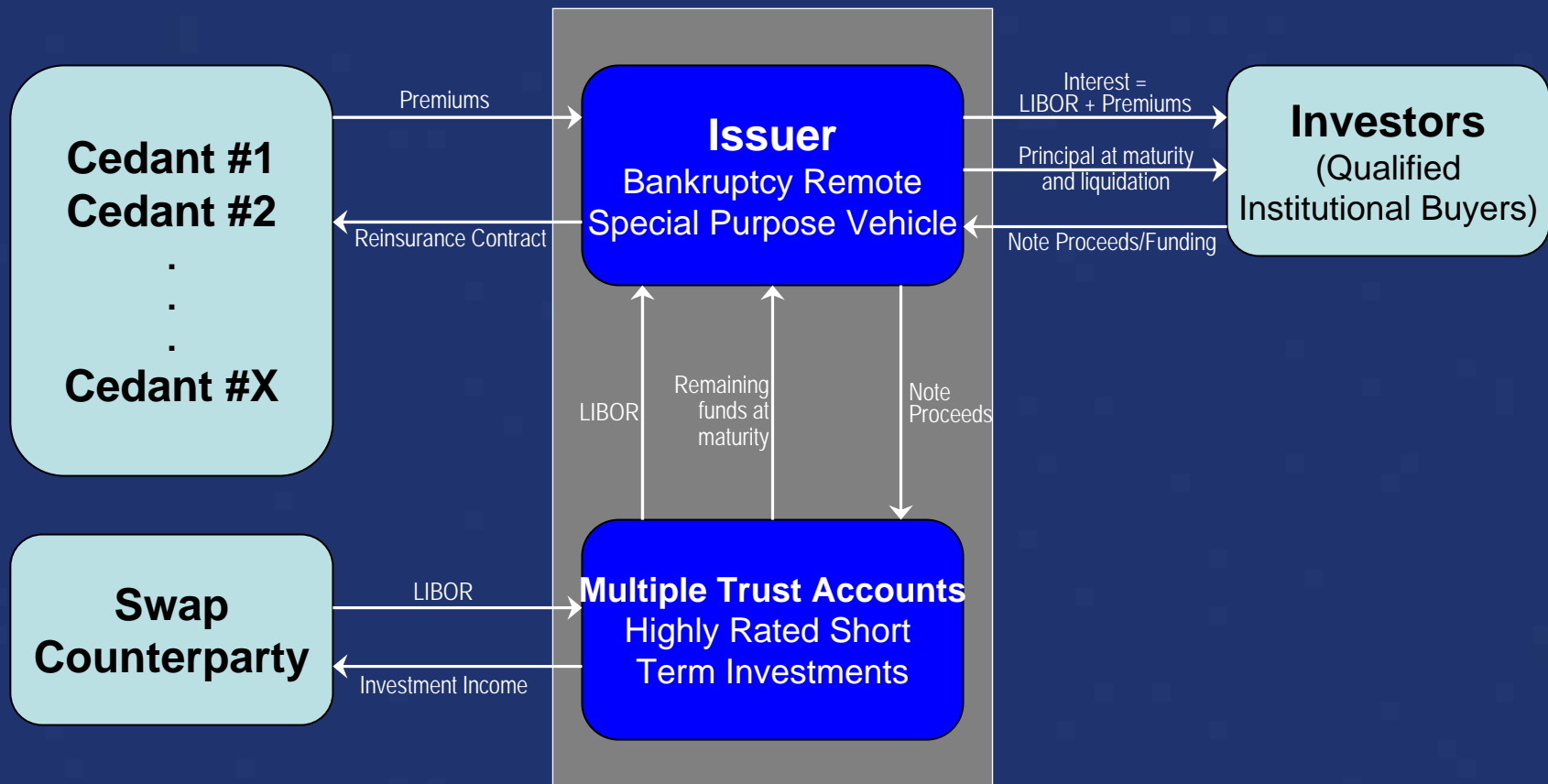
The Future of Securitization

Reinsurance Recoverable Hedge/Securitization

- Modeling the Credit Risk of Recoverables (for Securitizations)
 - Apply assumed default risk to insurers.
 - Apply assumed default risk to reinsurers.
 - Apply conservative recovery assumptions on recoverables – recoveries trickle in for distressed reinsurers.
 - Apply conservative correlation.
 - Perform Monte Carlo simulation of losses.
 - Determine whether cash in collateral account (and deductible) is enough to provide a hedge against the reinsurance recoverable.
 - OR determine losses to noteholders and correlate losses to data in *Best's Idealized Default Matrix*.

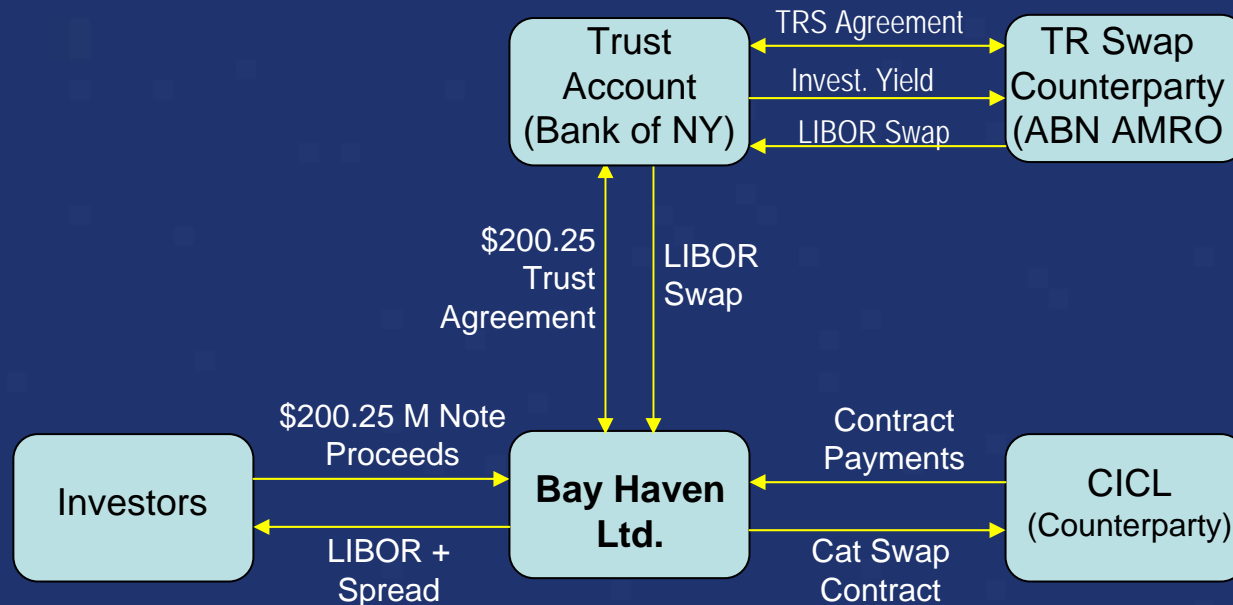
*Used for evaluating reinsurance recoverable securitizations

Catastrophe Bonds – New Structures Resembles CDO of Catastrophe Risk



The Future of Securitization

CDO of Catastrophe Risk – Example (Bay Haven Ltd.)



Perils (7)*-3yr Protection

- California earthquake
- New Madrid earthquake
- U.S. hurricane
- Japan earthquake
- Japan typhoon
- U.K. windstorm(non-US)
- Europe wind (non-U.K.)

The Future of Securitization

CDO of Catastrophe Risk – Example (Bay Haven Ltd.)

Perils (7)*-3yr Protection

- California earthquake
- New Madrid earthquake
- U.S. hurricane
- Japan earthquake
- Japan typhoon
- U.K. windstorm(non-US)
- Europe wind (non-U.K.)



300.375	Tranche A	\$133.500 mil	$\$33.375 \times 4$
166.875	Tranche B	\$ 66.750 mil	$\$33.375 \times 2$
100.125	Retained by Catlin	\$100.125 mil	$\$33.375 \times 3$
0			

* Each peril has a specific attachment point and associated attachment probability (i.e., default probability).

The Future of Securitization

CDO of Catastrophe Risk – Example (Bay Haven Ltd.)

Ratings of the Securities

- Class A Notes – rated “aa” by A.M. Best.
- Class B Notes – rated “bbb” by A.M. Best.

Rationale for Unprecedented Investment Grade Rating for Cat Risk

- Attachment points extremely low when considering rating default thresholds
 - Cumulative default threshold for an A.M. Best debt rating of “aa” for a 3-year security is 0.26%.
 - Cumulative default threshold for an A.M. Best rating of “bbb” for a 3-year security is 1.25%.
- Default on securities requires multiple catastrophic events.

The Future of Securitization

CDO of Catastrophe Risk – FSR Perspective

- True Benefit to Insurance Company – needs to be assessed.
- Low Attachment Probabilities - suggests little credit from an FSR perspective.
- Basis Risk – it is still an issue.

Review & Preview 2007

Select P/C Transactions Rated by A.M. Best's Structured Finance Group in 2006 & 2007

Issue Date	Name	Transaction Type	Sponsor	Features	Debt (\$ mil)
May 2007	Longpoint Re	Cat Bond	Travelers	Northeast U.S. hurricane peril; index – modified modeled industry loss	\$ 500
Apr 2007	East Lane Re	Cat Bond	Chubb	Northeast U.S. hurricane peril; Rare indemnity cat bond	250
Apr 2007	Ajax Re	Cat Bond	Aspen	California earthquake; index – modeled industry loss	100
Mar 2007	Kepler Re	Sidecar	Hannover Re	Hybrid cat bond/sidecar transaction; SPV is a protected cell in a sidecar	200
Aug 2006	Concord Re	Sidecar	Lexington Re	1st sidecar by a primary insurer	365
Dec 2006	Triomphe Re	Sidecar	Paris Re	Newly formed sponsor owned by a group of international investors	64
Dec 2006	Panther Re	Sidecar	Lloyd's (Syn 33)	1st sidecar issued by a Lloyd's Synd	216
Dec 2006	Atlas Re III	Cat Bond	Scor	1st interest rate step up after event	120
Dec 2006	Stoneheath Re	Contingent Perpetual Securities	XL Capital	1st contingent capital by A.M. Best	350
Sep 2006	Bay Haven Ltd.	Cat CDO	Catlin	1st Cat CDO structure	200
Aug 2006	Shakleton Re	Cat Bond	Endurance Re	1st loan facility & cat bond together	235
Jun 2006	Vasco Re	Cat Bond	Balboa	Rare indemnity bond	<u>50</u>

Conclusion

- The insurance-linked securities market has expanded due to new catastrophic events.
- No matter what instruments are devised by the capital markets to hedge insurance risk, basis risk and tail risk will remain important issues for the A.M. Best rating process.

Resources

- *Best's Impairment Rate and Rating Transition Study – 1977 to 2006 (Methodology)* published on February 26, 2007.
- *Tail Risk and the BCAR (Quick Reference)* published on February 26, 2007.
- *Assessing the “Tail Risk” of Sidecars (Methodology)* published on October 9, 2006.
- *Gauging the Basis Risk of Catastrophe Bonds (Methodology)* published on September 25, 2006.
- *Rating Sidecars (Quick Reference)* published on June 28, 2006.
- *Catastrophe Risk Management Incorporated Within the Rating Analysis (Methodology)* published in May 2006.
- *Rating Natural Catastrophe Bonds (Quick Reference)* published on May 12, 2006.
- *Catastrophe Analysis in A. M. Best Ratings (Methodology)* published in April 2006.
- *Rating Surplus Note and Insurance Trust-Preferred CDOs (Methodology)* published on July 25, 2005.
- *A. M. Best's Idealized Default Matrix (Methodology)* published on October 14, 2004.
- *Understanding BCAR (Methodology)* published on November 24, 2003.

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