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Baldwin & Lyons

ILS Fund

CAS - Capital Markets Update, May 6/7, 2010

Agenda

- Introduction
- Actuarial Tool Kit
- Investor Perspective
- (Re)Insurer Perspective
- Potential Areas of development

Why is this topic relevant?

- Increased share of the cat risk market is shifting to ILS
  - *15% to 20% of cat protection now purchased in securitized form according to some estimates*
- Now that basic mechanics of insurance securitization have been established, one can envision this expanding to other lines of business or exposures
- Developments in the ILS market will continue to provide opportunities to
  - *use established tools in new ways and*
  - *develop new tools/capabilities*
- Securitization requires the analysis of cash flows, measurement of contingencies and an understanding how these interact in a complicated environment with less than perfect information – actuarial analysis

Existing Tools

- Existing tools used to quantify exposure and price risk remain relevant; the underlying risk is still insurance risk
- Actuarial tools are appropriate for situations where there is less than perfect information
  - *Experience rating*
  - *Exposure rating*
  - *Trending/Developing losses*
- An ILS investor requires the ability to keep up with the rapidly expanding sciences; dedicated attention rather than reliance on models
  - *Examples include evolving views regarding earthquake risk*
- ILS investors must develop “views” to differentiate among risks; information provided in offering materials is insufficient
- Risk management of an ILS portfolio comparable to what reinsurers do regularly
  - *manage aggregates, develop “willing to lose” parameters, stress testing*
- Offering materials provide summaries of the risk but they do not provide any insight as to how to construct a portfolio

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New Tools

- New risks: asset risk/counterparty risk/interest rates
- New considerations: tax implications/regulatory concerns/accounting treatment
- New forms: require a better understanding of mechanics
  - *Exchange-traded platforms have distinct process for establishing and securing trades*
  - *Swap wordings, conforming to ISDA standards, have similarities and differences to traditional reinsurance contracts*
- New timelines
  - *How do risk management decisions change if you are now able to reverse a trade mid year (vs. the annual reinsurance agreement)*
- Capital Allocations
  - *implications of cash collateralized trades*
- ILS is a “relative” investment; requires an understanding of how ILS compares to other asset classes with regards to risk/yield
  - *During 2009, bond prices rose (yield/ROL down) as we entered hurricane season, why?*
- Actuarial skills applied in a broader context

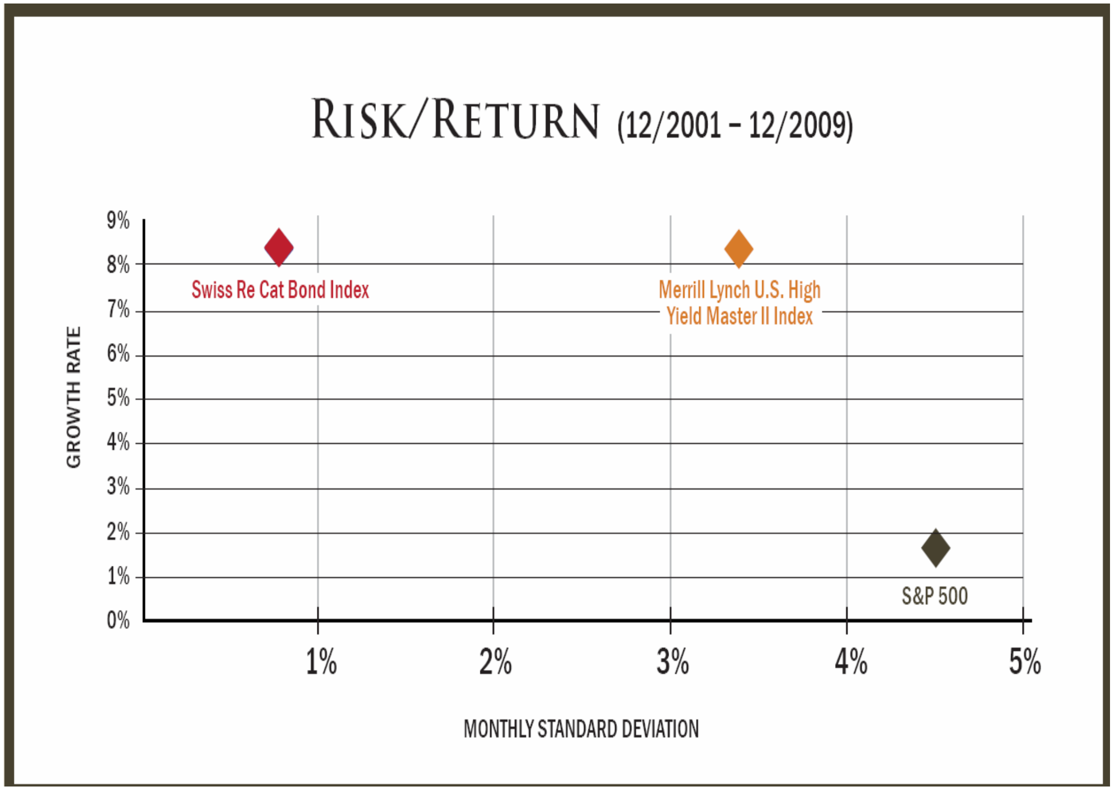
Investor Perspective

Goals:

- Reduced Volatility
- Performance
- Diversification

Reduced Volatility

- *Primary selling point - yield expectations consistent with HY bonds without volatility and uncorrelated*
- *Growth rate relative to monthly standard deviation*
- *Investor understanding of volatility*
- *Catastrophe Bonds have delivered consistent yield/growth this decade despite spate of natural catastrophes (2004, 2005 & 2008) and financial crisis (2008/09)*



Source: BLCM Analytics

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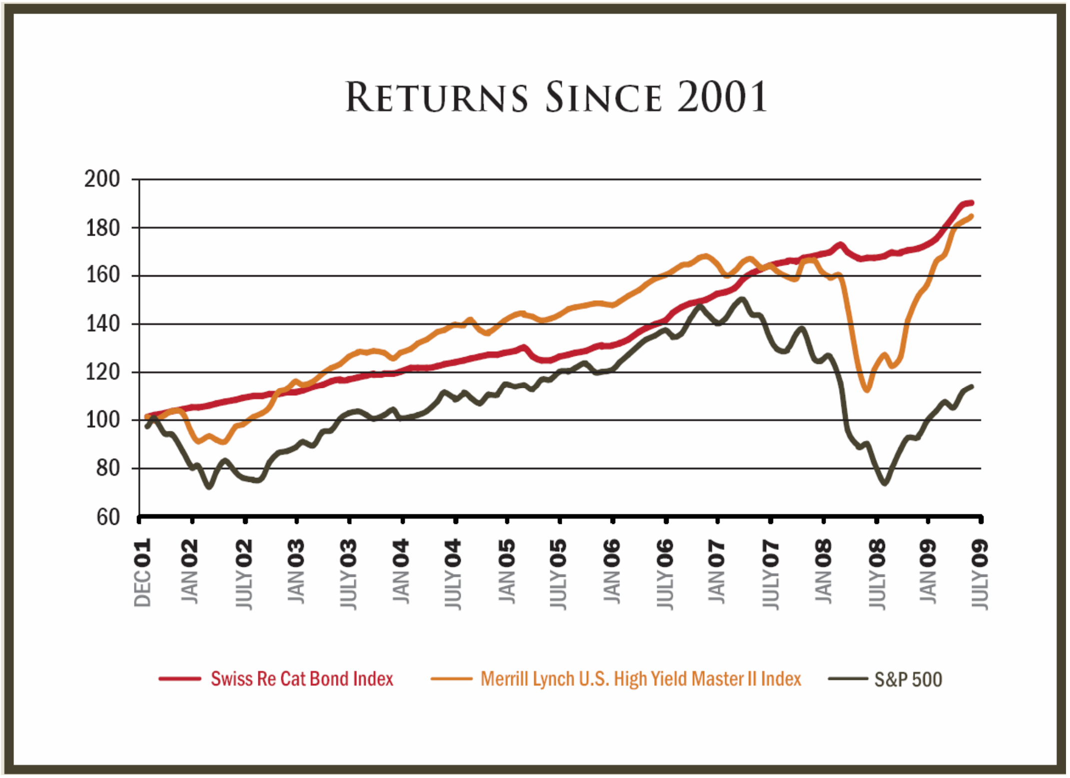
Performance

- *Actual performance since 2001 further illustrates the value of ILS*
- *Note the relatively small dip in 3Q08*
- *HY market had a remarkable recovery during 2009; stocks still below peak*
- *Leads to asset allocation question, "how much exposure should one have to the asset class?"*



Source: BLCM Analytics

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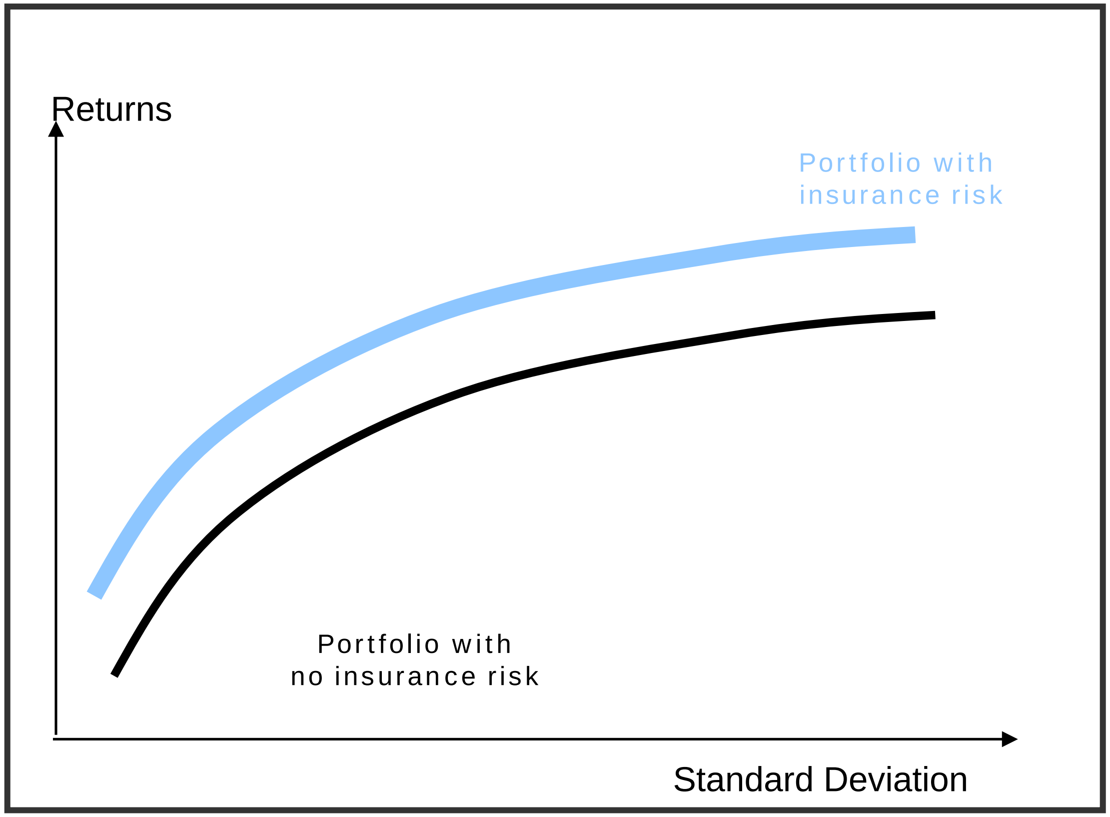
Diversification

- *Each curve represents the efficient frontier, the trade off between risk/return*
- *Blue line illustrates the value of adding ILS - shifting the efficient frontier*
- *Guy Carpenter estimates that adding 2% CAT risk to a portfolio of 60% stocks/40% bonds will increase expected return by 1.25% and decrease portfolio standard deviation by .25%*



Source: BLCM Analytics

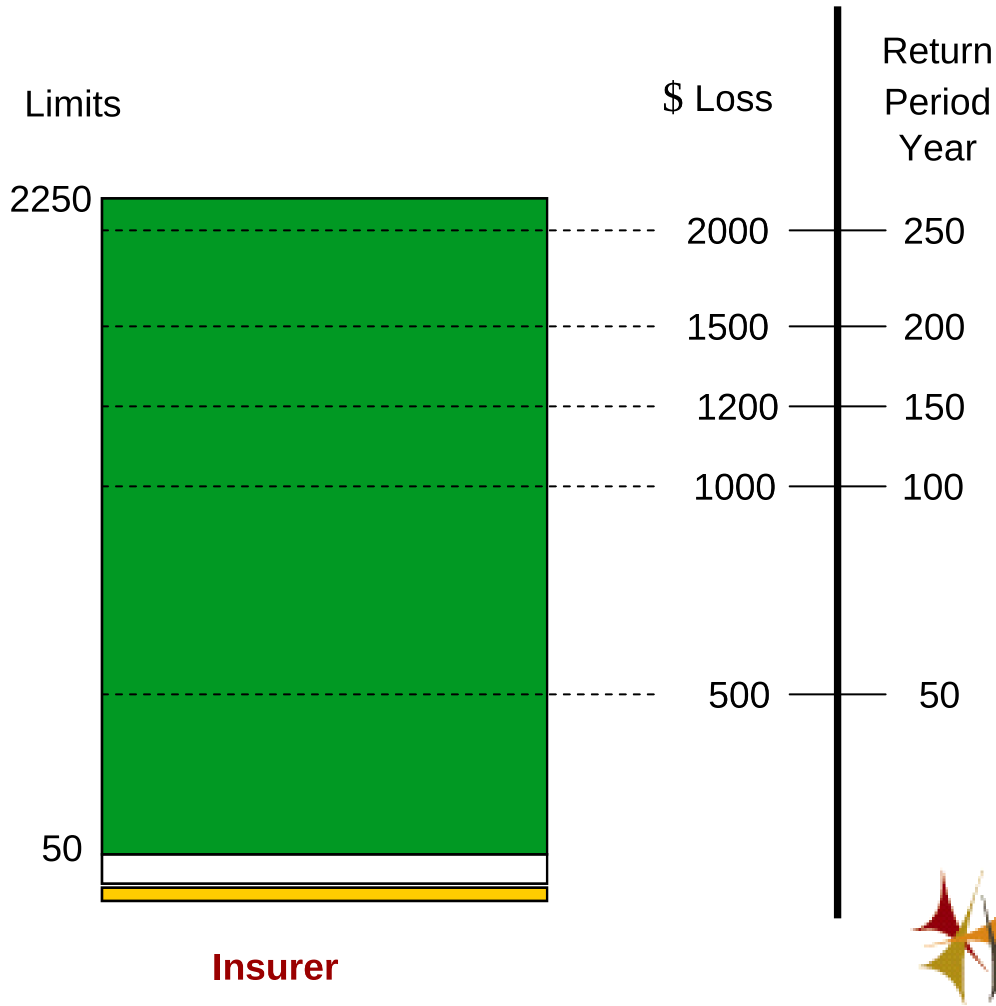
(Re)Insurer Perspective

Goals:

- Hedging
- Potential Investment
- New products

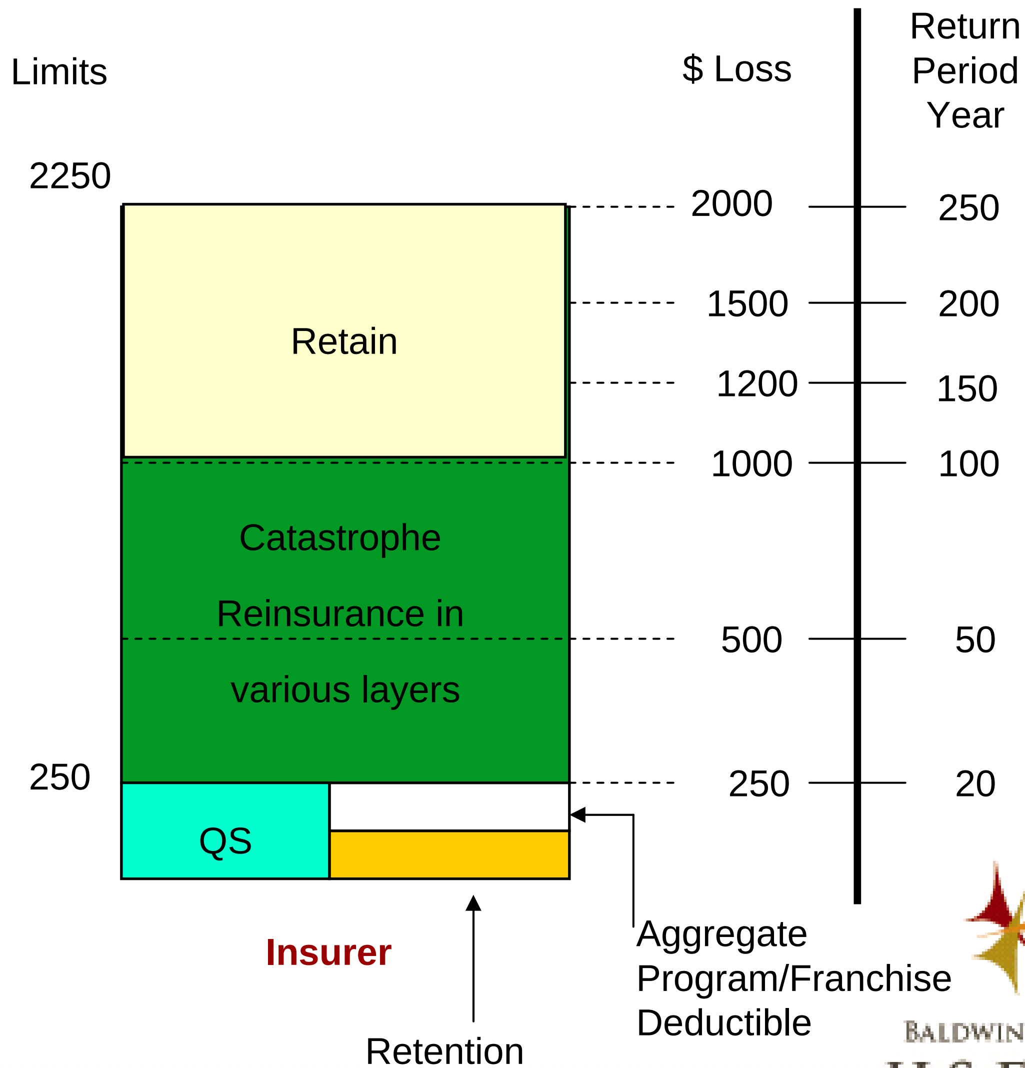
Hedging Options

- *Step one is to quantify exposures*
- *Establish probabilities in a credible manner*
- *Facilitates Securitization/ Tranching*
- *This is easiest done with US Cat Risk for homeowners – securitization efforts outside of cat space contingent upon an ability to perform this type of analysis in a credible manner*



Traditional Options

- *In many respects, decision process is identical to what is done with a traditional placement*
- *Determine the optimal product for each level of risk*
- *Retain risk when hedging ceases to be economical*



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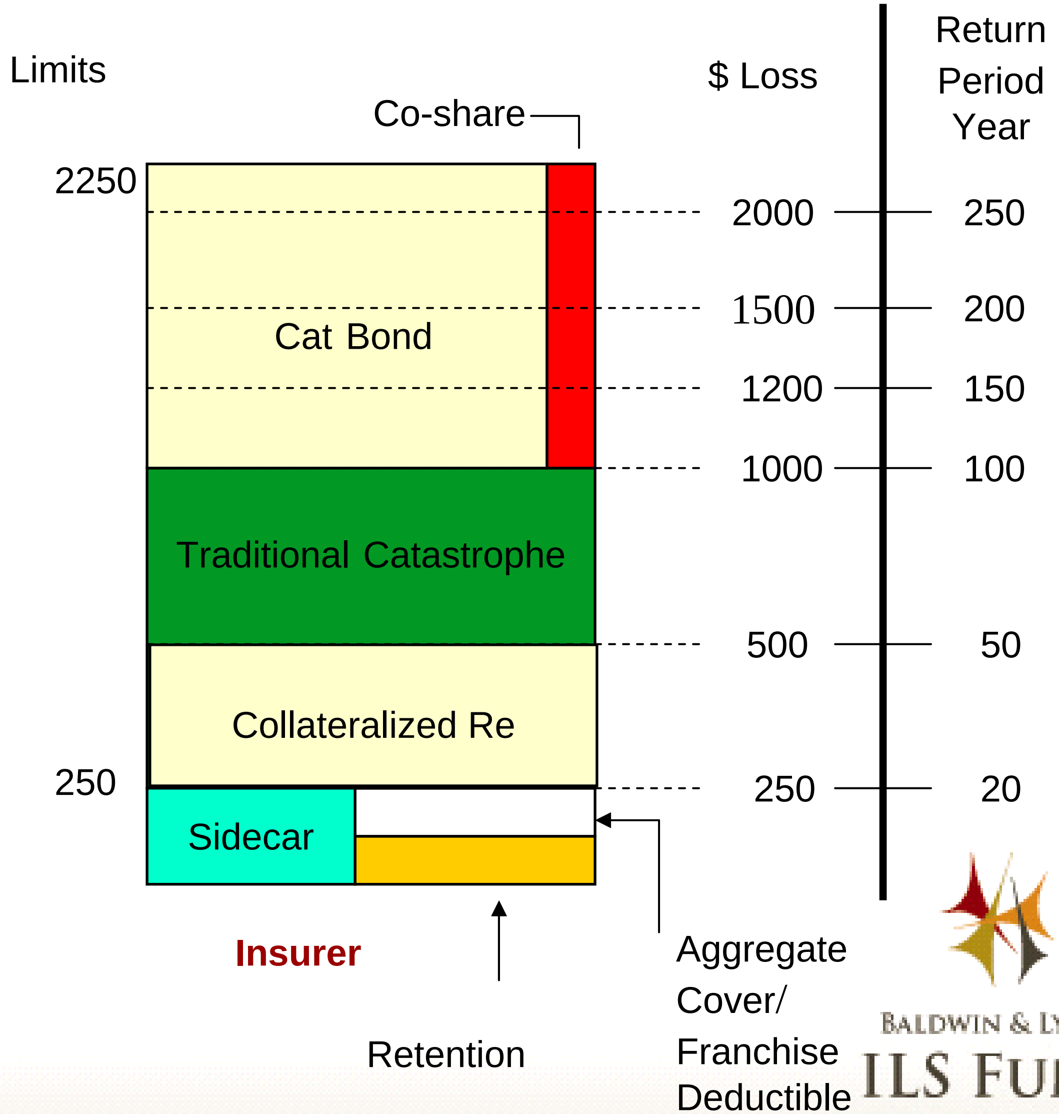
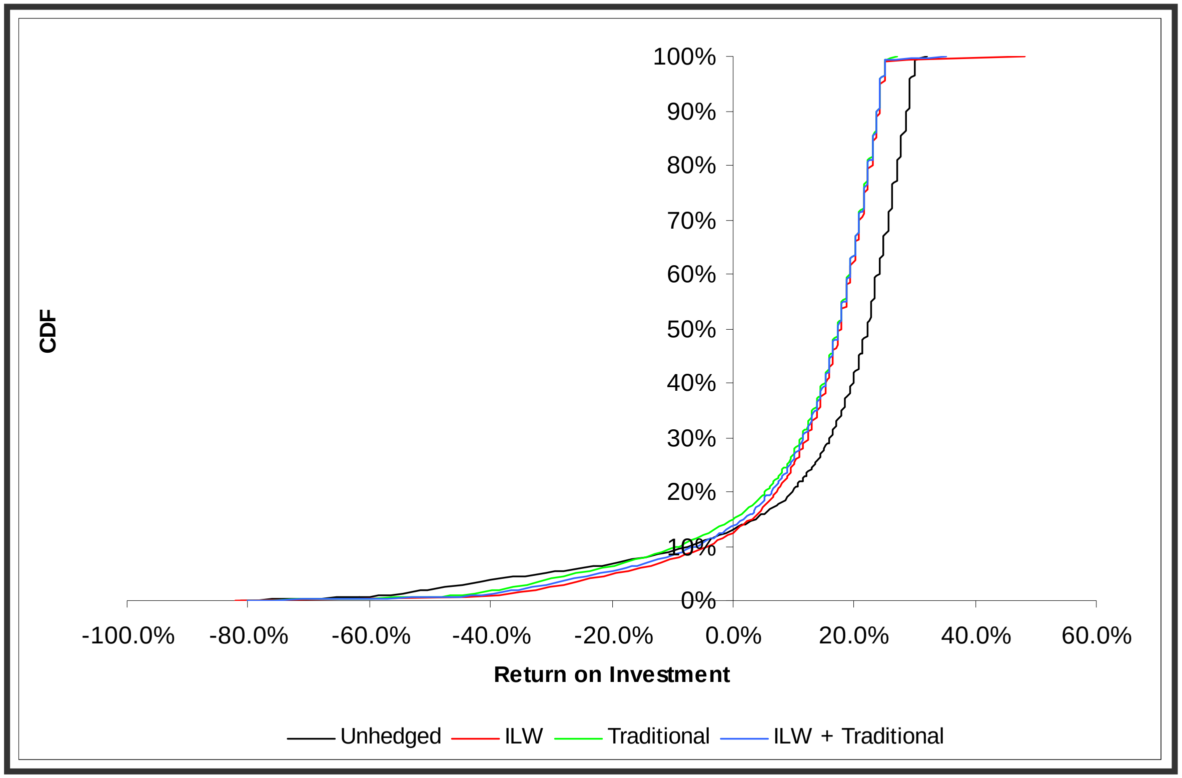
New Options

- *ILS provide more options, but the decision making process should be comparable*
- *Some products have identical triggers - collateralized re/traditional cat, QS/Sidecar - but they have other distinctions*
- *A range of economic considerations are relevant to the decision, including:*
  - *- pricing*
  - *- breadth of coverage*
  - *- term*
  - *- quality of protection*
  - *- reliability*
  - *- quality of assets*
  - *- capital equivalency*



Trade Offs

- *Cumulative distribution function of annual results for a portfolio of reinsurance contracts*
- *Hedge alternatives include traditional retrocessional reinsurance and an ILW*
- *Both products reduce worst case scenario (their purpose) but also the best case scenario (by the cost of the hedge)*
- *What is the proper way to value this trade off?*



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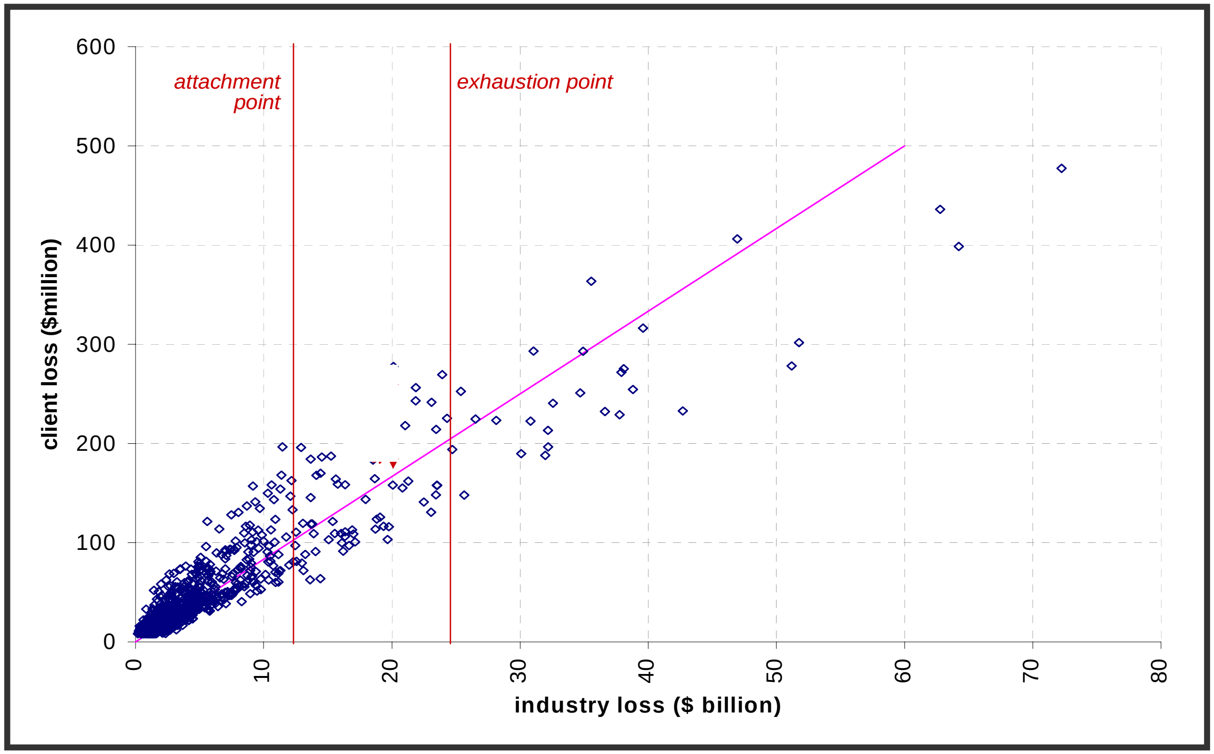
Basis Risk

- *Index and parametric, products provide better value on a "rate vs. expected loss" perspective, however, they introduce "basis risk"*
- *What if loss is big, but index is not breached?*
- *How low does the cost of an index-based product have to compensate for this risk?*
- *Is coverage with basis risk better than no coverage at all?*



Source: AM Best

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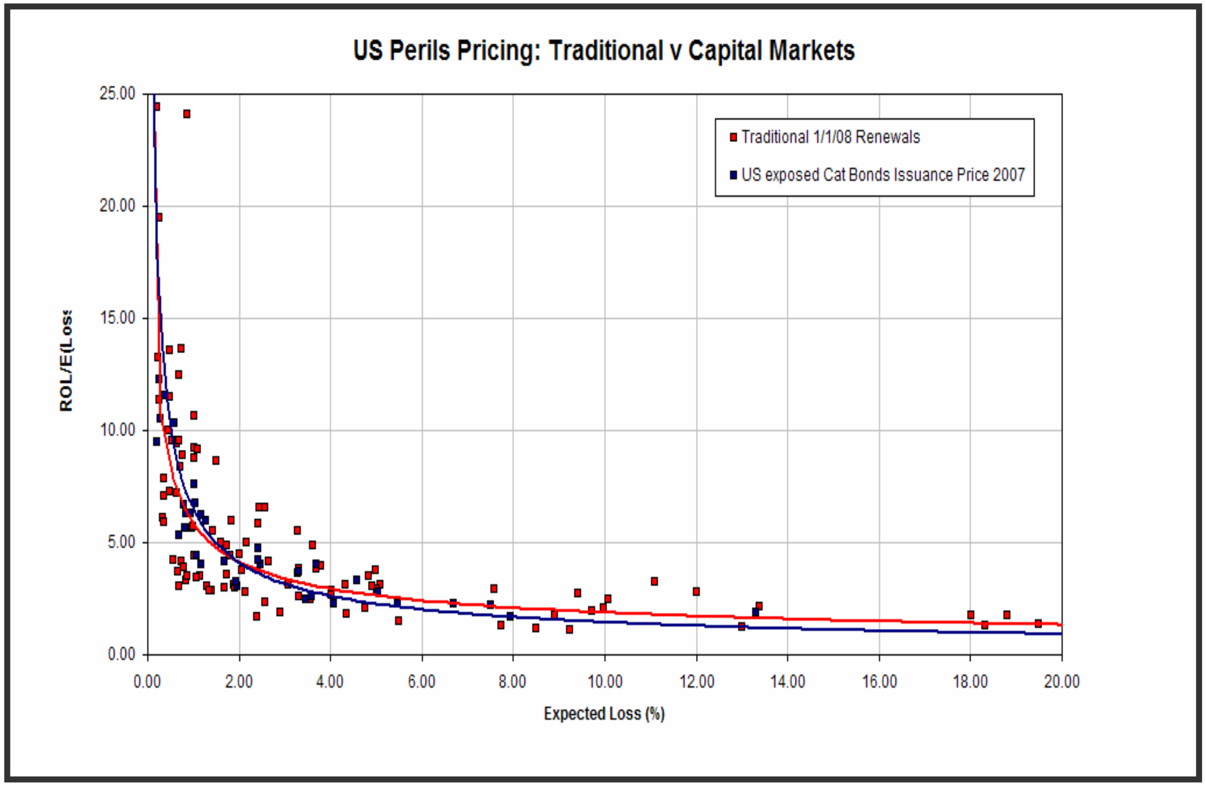
Pricing Considerations

- *Price relative to risk for traditional reinsurance against catastrophe bonds*
- *Old data – no longer relevant*
- *However, highlights a few interesting characteristics*
- *Pricing generally consistent between markets - trend lines overlap*
- *Greater variability with traditional reinsurance; presumably due to more subjectivity in exposure*



Source: Aon Benfield

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Other potential areas of development

Issues

- *Tail, or development, risk*
- *Transparency*
- *Credibility of data*
- *Asymmetrical information*
- *Collateral requirements*

Resolutions

- *Sidecar format, outsource expertise*
- *Identify parametric alternatives*
- *Vehicles with more open ended life spans*

- Political risk insurance
- Motor insurance
- Credit insurance
- Aviation & satellite
- Man-made property
- Terrorism
- Event cancellation risk
- Industrial accident
- Workers' compensation
- Insurance Recoverables
- Adverse Development Covers

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Conclusion

- The ILS market has passed through its formative years; it is now poised to become a responsible member of the investment community, what does that mean?
  - *It can no longer live by a distinct set of rules*
  - *It must conform to the broader norms of market*
- The attraction, for all parties, will no longer be based on a novelty factor but on demonstrable advantages
  - *Confirmed lack of correlation, diversification benefits, predictable cash flows and properly priced risk for investors*
  - *Cost efficient forms of capacity for insurers*
- Market has been tested multiple times, and has lived up to the challenge
- This is a great time to be a quant in our industry; demands for actuarial services will continue to grow due to these developments

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