

Swiss Re



**EXPERT MEETING ON REQUIREMENTS OF THE  
CATASTROPHE INSURANCE AND WEATHER RISK  
MANAGEMENT MARKETS FOR NATIONAL  
METEOROLOGICAL AND HYDROLOGICAL SERVICES 5-7**

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*Catastrophe Insurance and Bond Markets*



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## Market Trends

- Insurance-linked securities (“ILS”) offer an attractive risk return profile as a diversifying component within a broader fixed income portfolio
- By bridging the insurance and capital markets, ILS are creating a range of attractive investment opportunities previously unavailable to those outside the insurance industry
- Since 1997, approximately \$42 billion in worldwide insurance and reinsurance capacity has been created through the issuance of ILS, with much of the issuance linked to both natural catastrophe perils as well as life risks
- A broad universe of investors have committed capital and resources to the sector

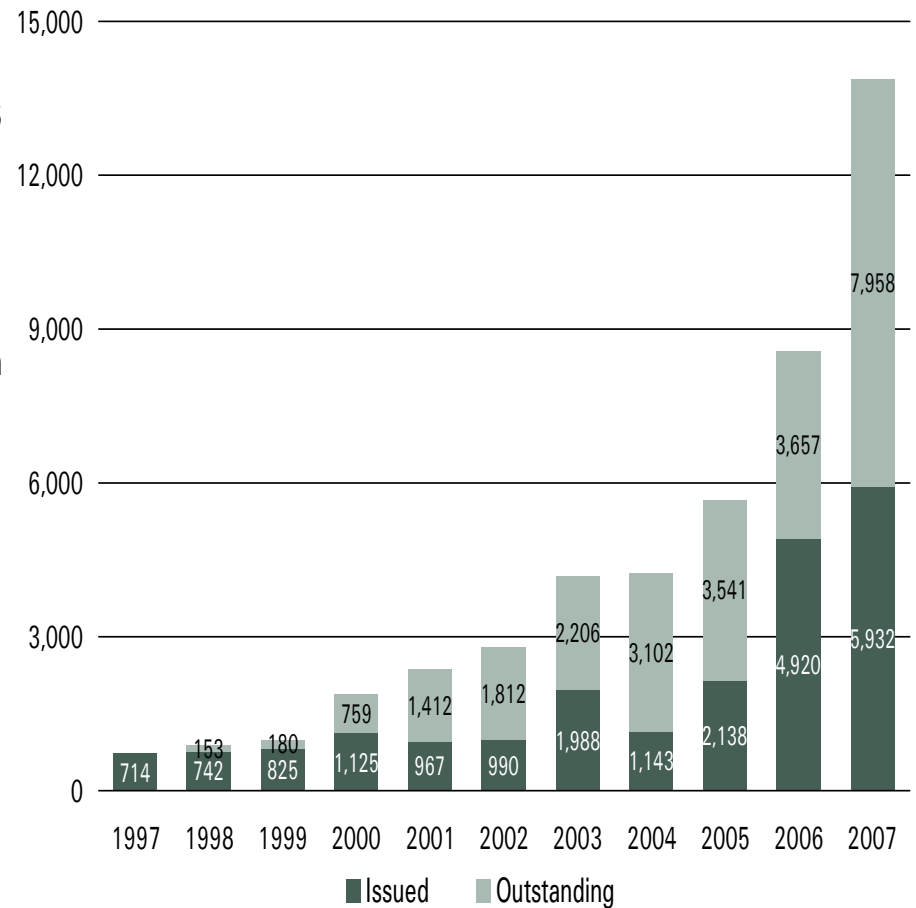
## ILS market to be a substantial market

- ILS is growing at a high rate
- The ILS market is based on a broad set of perils and has moved away from a quasi-retrocession market to an investor-based market
- Swiss Re is a leading participant both in volume as well as breadth and depth

# ILS Market Capacity

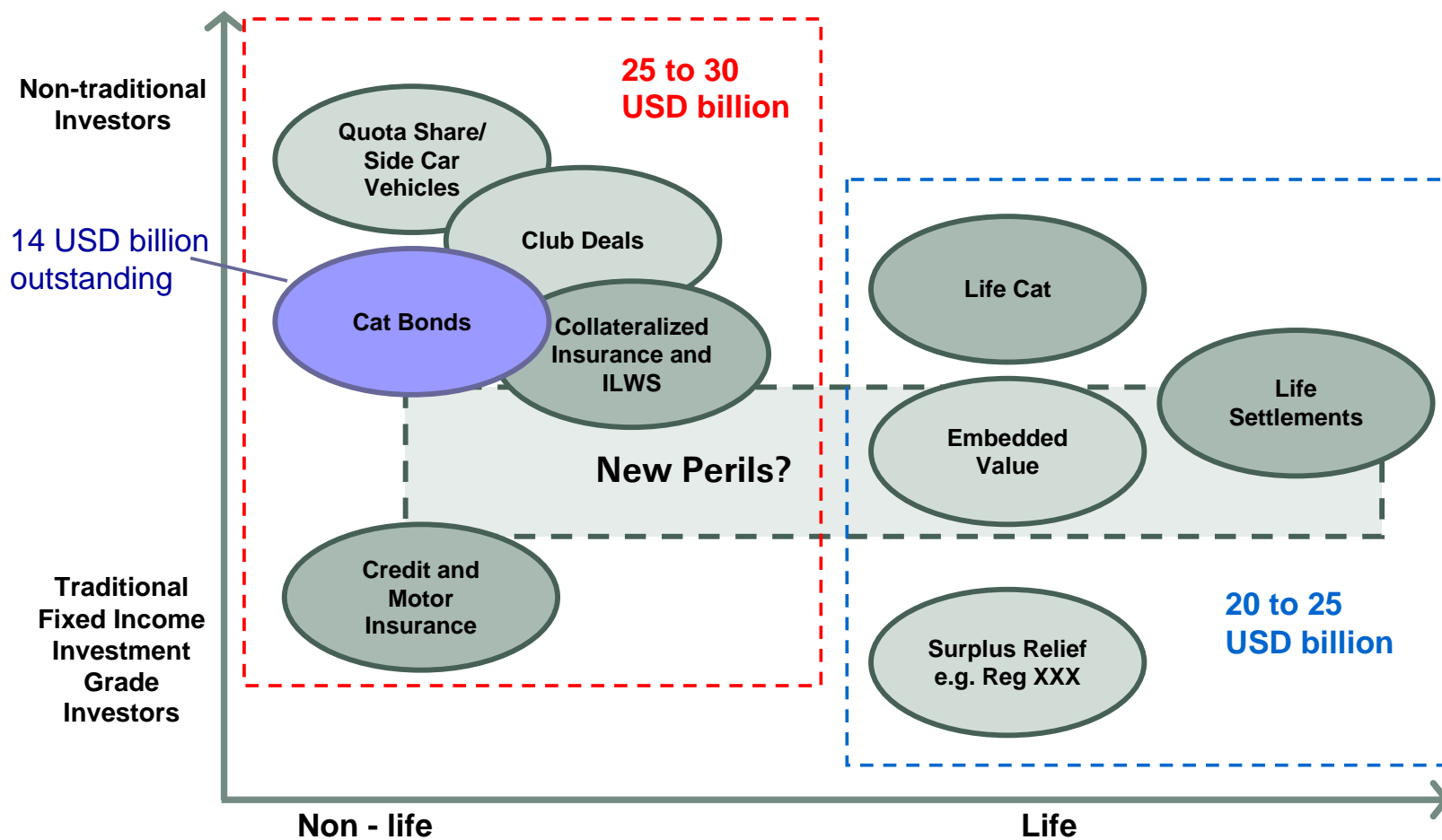
- New issuance in 2007 YTD already exceeds that of 2006 positioning the sector for another year of solid growth. Total non-life bonds outstanding are approximately USD 14 billion

**Total non-life bonds outstanding, by year\***

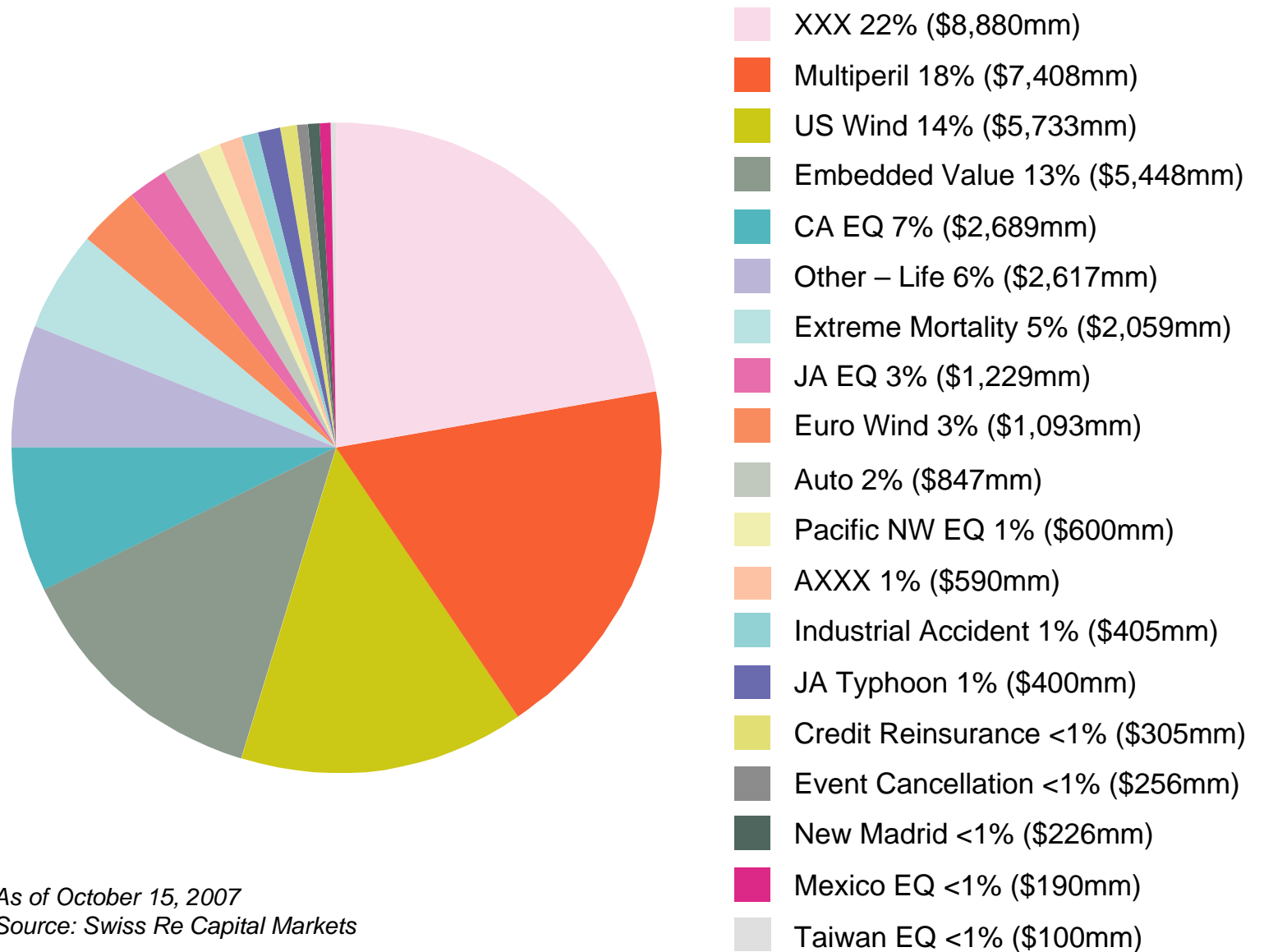


# ILS Market: Market Segmentation and Size

*Total ILS capacity being provided directly by the capital markets in varying formats is estimated around \$50 billion of which approximately \$25 billion represents natural catastrophe risk.*



# Risks Securitized Since 1997

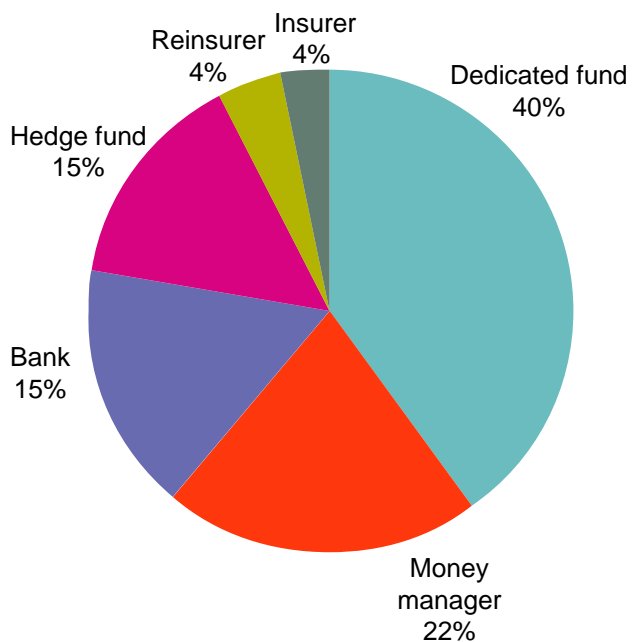


# Investor Segmentation

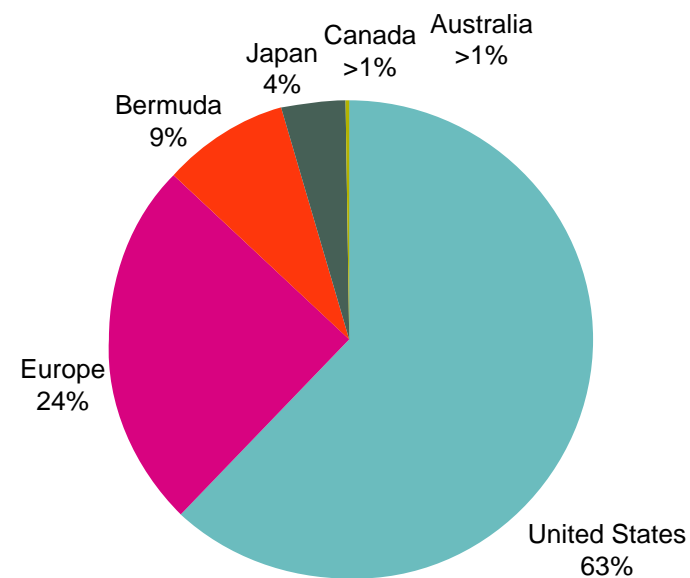
- Dedicated cat funds, money managers and hedge funds have increased their participation in the sector in recent years

*Capital market investors now dominate the ILS investor base, including large institutional money managers and many funds dedicated to the sector.*

**By Type**



**By Region**



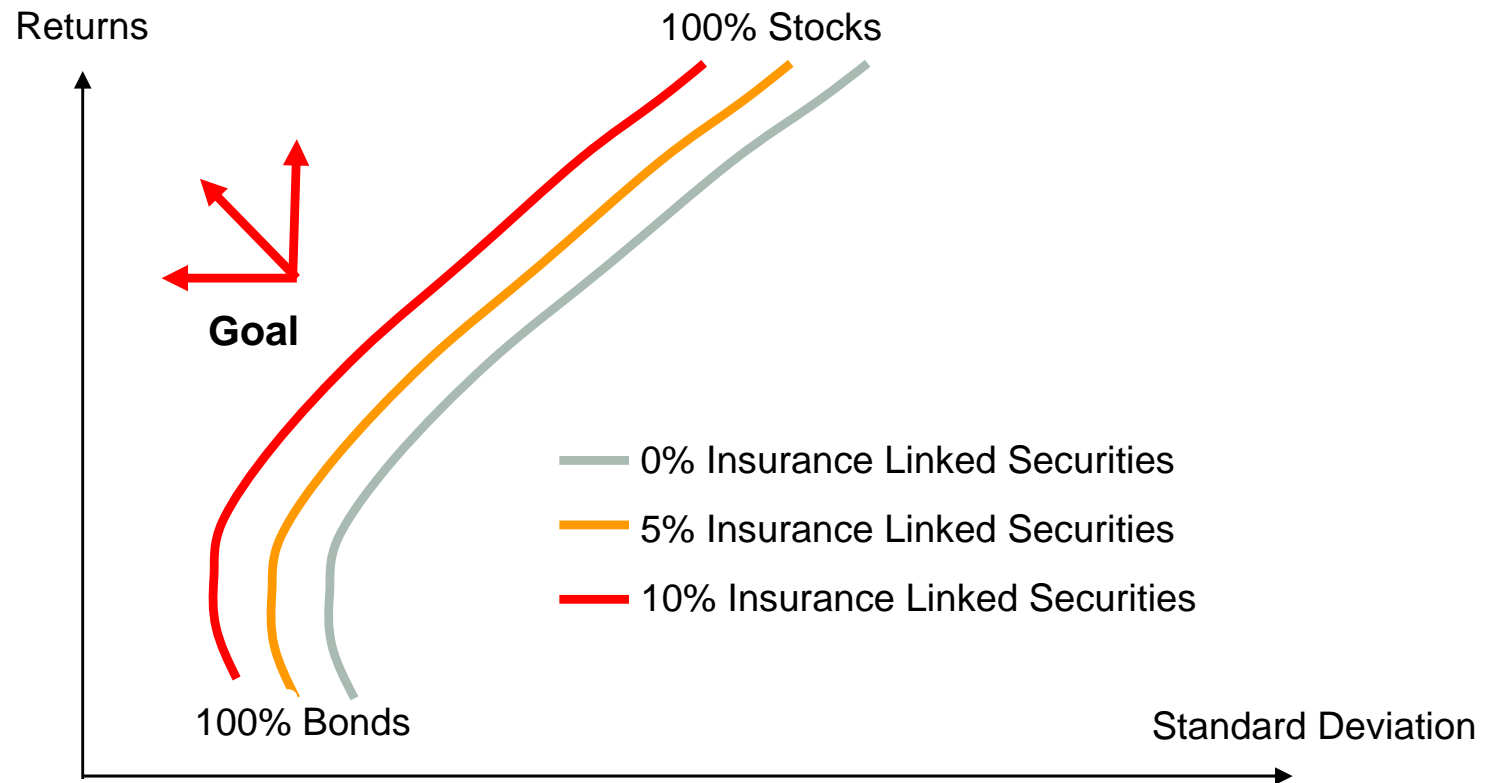
As of October 15, 2007  
 Source: Swiss Re Capital Markets



## Investor Landscape

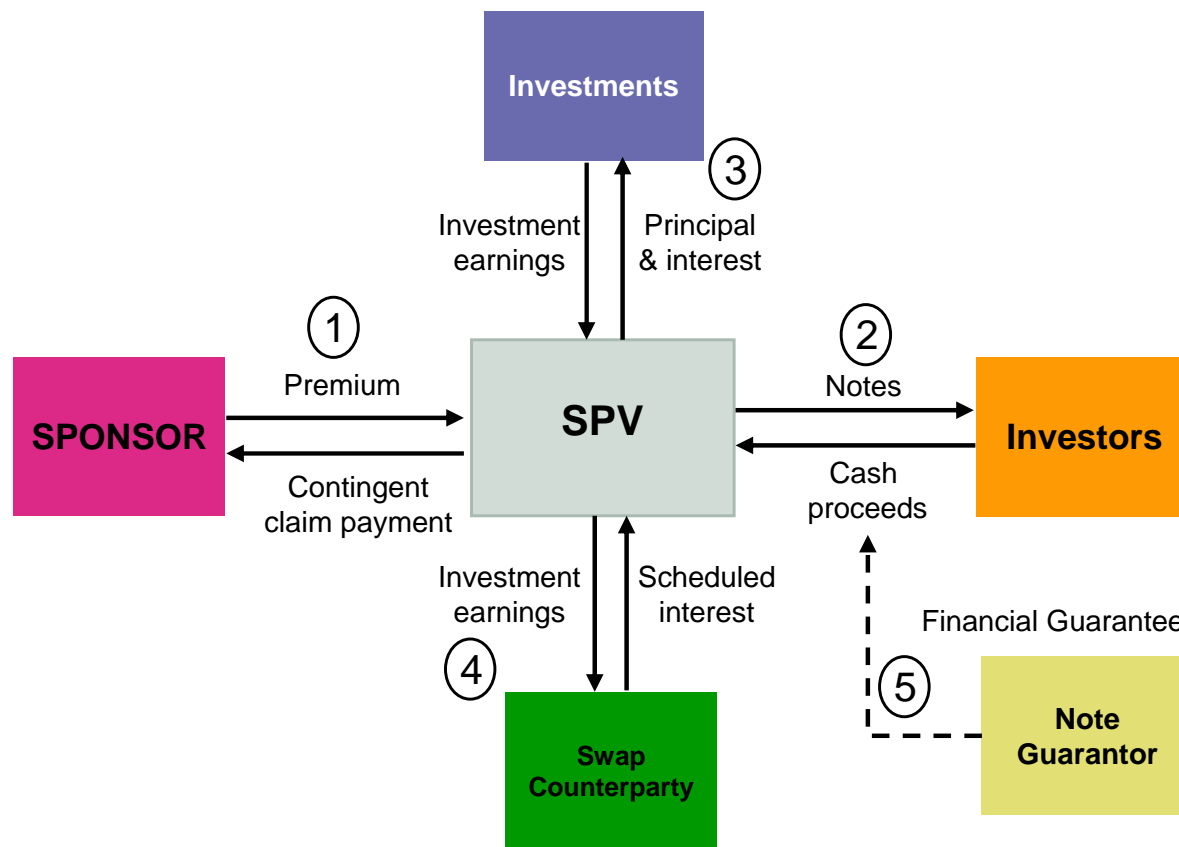
- Hedge funds are increasingly dominating the sector
  - Committing significant amount of capital
  - Setting up reinsurance vehicles
  - High risk tolerance with high return expectations
  - Generally, will take other non-cat risks (life, aviation, terrorism, etc), whether or not in rated bond form
  - Aggressive pricing
  
- Traditional money managers still interested in ILS
  - Require ratings from rating agencies
  - Generally like lower expected losses (<2%)
  - Renewed interest in committing significant capital
  
- Dedicated ILS funds are the largest investors in the sectors
  - Usually aim to have diversified portfolio across risks
  - Will take risk across the capital structure
  - Some can invest in bonds only, while others can invest in multiple formats (ie ILWs, derivatives)
  
- Banks are increasing their interest
  - Generally invest in investment-grade insurance-linked securities

# Investor Diversification



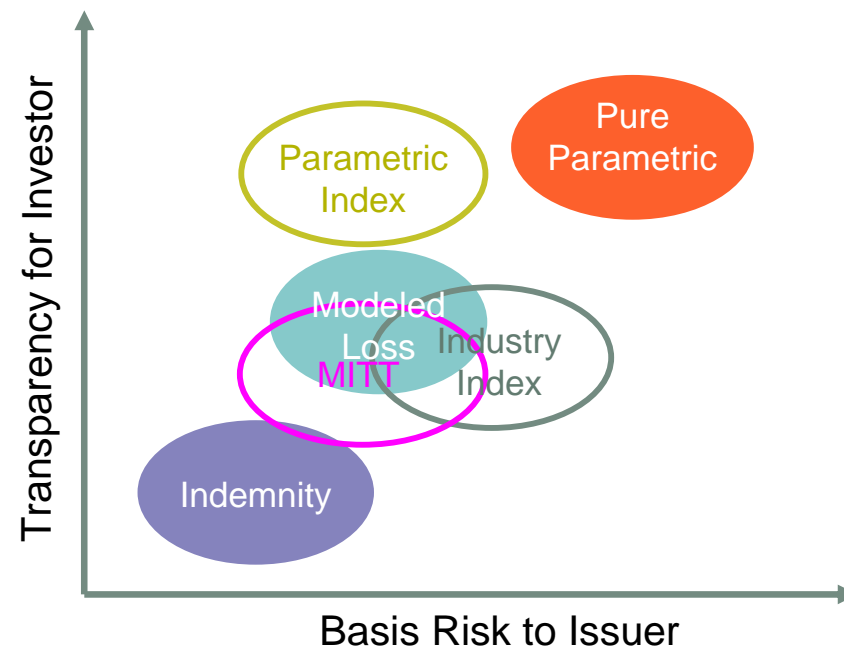
- Different points on a curve represent efficient risk/return profiles of different investment portfolios
- Goal: Maximise the ratio of Return/Risk subject to risk constraints

# Typical Cat Bond Structure



1. The Sponsor enters into a financial contract with a Special Purpose Vehicle (SPV)
2. The SPV hedges the financial contract by issuing Notes to investors in the capital markets
3. Proceeds from the securities offering are invested in high quality securities and held in a collateral trust
4. Investment returns are swapped to a LIBOR - based rate by the Swap Counterparty
5. In some transactions, principal and interest on the Notes may be guaranteed by a Note Guarantor

# Cat Bond Trigger Types



- An **indemnity** transaction is based on the actual losses of the sponsor
- An **industry index** transaction is based on an industry-wide index of losses (e.g., Property Claim Services or “PCS” in the United States)
- A **pure parametric** trigger is based on the actual reported physical event (i.e., magnitude of earthquake or wind speed of hurricane)
- A **parametric index** is a more refined version of the pure parametric trigger using more complicated formulas and more detailed measuring locations
- In a **modeled loss** transaction, losses are determined by inputting actual physical parameters into an escrow model which then calculates the loss
- In a **Modeled Industry Trigger Transaction (“MITT”)\***, industry index weights are set post-event using modeled loss techniques

## ILS Risk Monitoring

Nat-Cat Activity can be monitored through a number of reporting agencies.

Some of these reporting agencies have free automated email systems that will notify subscribers of any Wind or Earthquake activity instantaneously.

- US Wind: The National Hurricane Center (NHC)
- Euro Wind: UK Metrological Office, Meteo France, Deutscher Wetterdienst (DWD)
- US Quake: U.S. Geological Survey (USGS)
- Japan Quake: Japan National Research Institute for Earthquake Science and Disaster Prevention (NEID)

## Event Monitoring

- Most wind events develop over time
  - For example, many North Atlantic hurricanes form off the west coast of Africa
  - Increase in intensity as they drift across the Atlantic
  - Either reach United States or begin to dissipate 7-14 days after formation
- During this period, ILS bond market is updating prices
  - Updating estimates of making landfall
  - Updating estimates of losses given landfall
  - Depends on path and intensity of hurricane and geographic exposure of ILS bonds

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