

Insurance-Linked Securities (ILS): “Taller” than you might think

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FERMAT CAPITAL
MANAGEMENT, LLC

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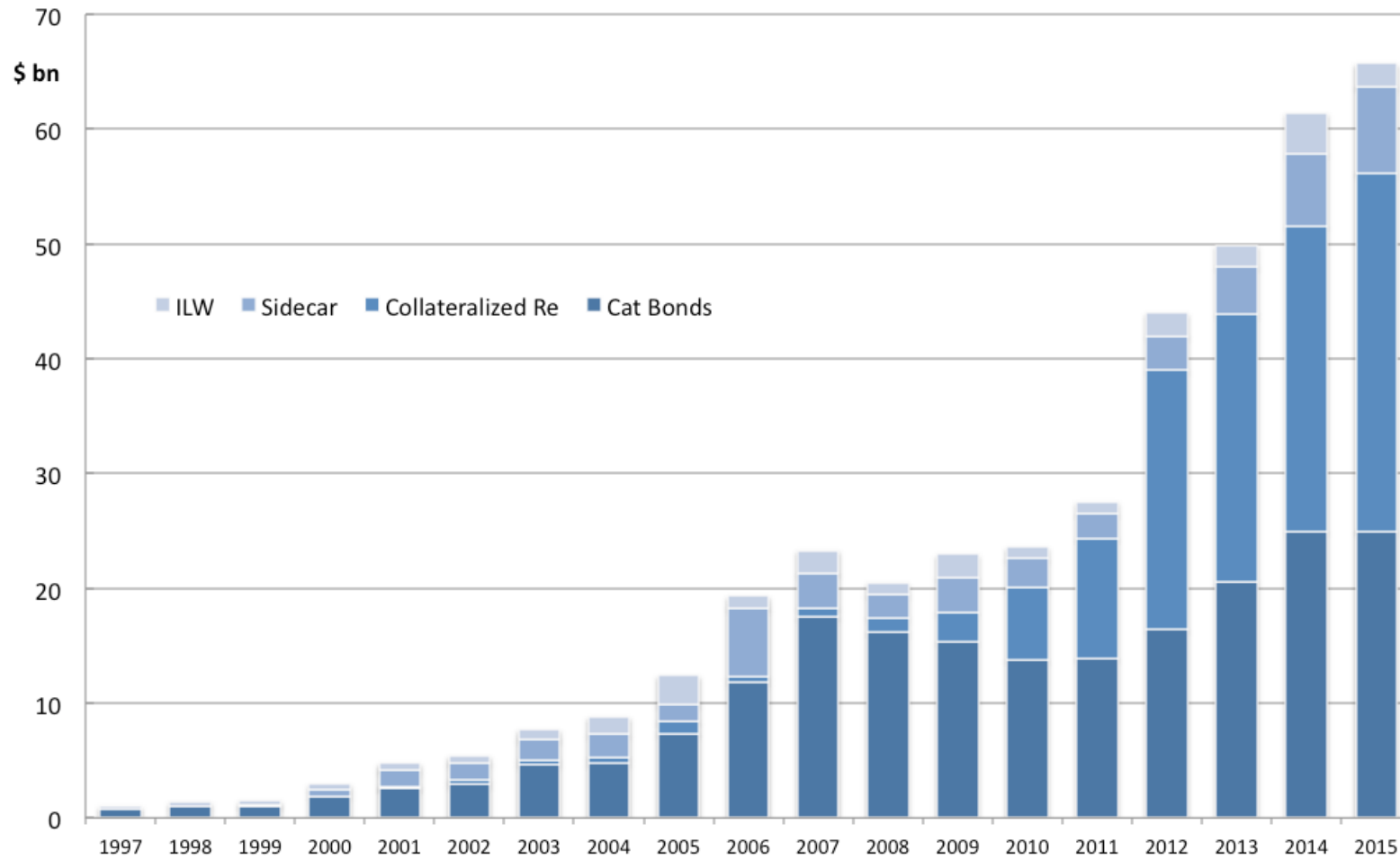
- I. MARKET SNAPSHOT
- II. IMPACT IN FLORIDA
- III. EPILOGUE & FOOTNOTES

I. MARKET SNAPSHOT

- INSURANCE-LINKED SECURITIES (ILS) MARKET GROWTH
- CAT BOND ISSUER MIX
- CAT BOND INVESTOR MIX

INSURANCE LINKED SECURITIES (ILS) MARKET GROWTH

ILS Market Growth: 1997 - 2015*



Source: Fermat Capital, Guy Carpenter, Aon Benfield, and Trading Risk Magazine.
*Note: 2015 figures are projected to a full calendar year based on market activity up to 31 October 2015.

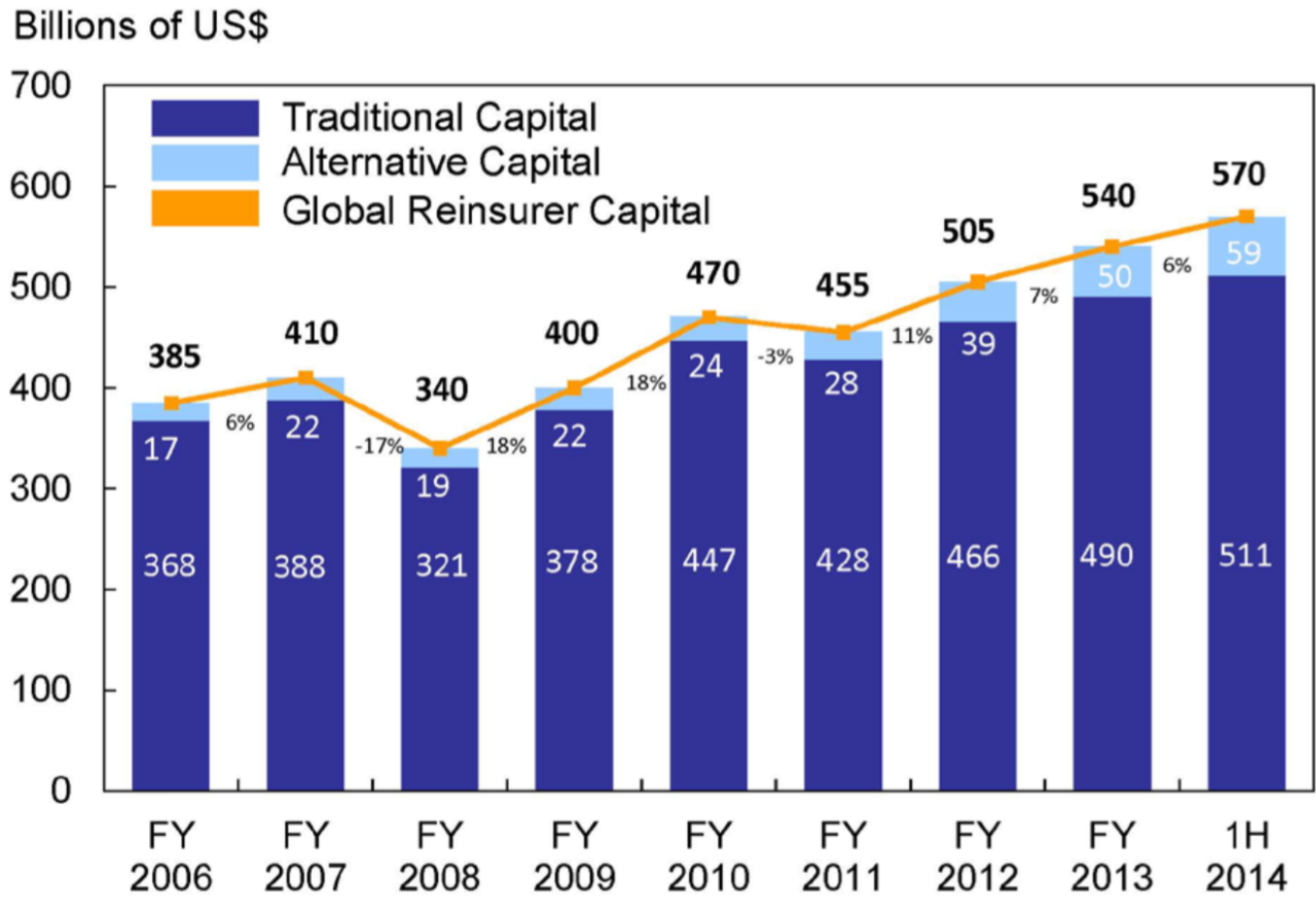
- 7 out of the top 10 US insurance companies
- 7 out of the top 10 global reinsurers
- **3 of the top 3 government catastrophe pools worldwide***
 - Florida Citizens (70% of insured residential risk “on the beach” in South Florida)
 - California Earthquake Authority (70% of insured residential risk in California)
 - Turkish Catastrophe Insurance Pool (100% of insured residential risk in Turkey)
- 55 issuers (sponsors):
 - 42 Insurers /11 Reinsurers/ 2 Corporates
 - **14 of 55 issuers are governmental entities**
 - 7 first-time issuers in 2015

- Majority of investors are outside of the U.S., though U.S. investors have been active since the beginning of the cat bond market and remains strong with promising future growth.
- **Significant presence of global top 20 national pension funds and sovereign wealth funds.**
- Growing participation from ultra-high net worth and multi-family offices, private wealth investment advisors, charities, small-to-medium pension, endowment and insurance companies.
- **A typical cat bond allocation is 1–2% of assets under management (AUM),** with allocations up to 4% of AUM not uncommon.
- ~25 core investment managers (most often specialist ILS managers) manage 75% of the cat bond market. ~125 non-core investment managers (e.g., life insurers, fixed income mutual funds, endowments) manage the remaining 25% of the cat bond market.
- **These ~150 investment managers represent thousands of end investors through specialized mutual funds and tens of millions of pension fund members through separately managed accounts.**

II. IMPACT IN FLORIDA

- ILS MARKET MAY SEEM SMALL, BUT...
- ILS HELP FILL THE DISASTER GAP, SO...
- ILS IS MUCH “TALLER” THAN YOU MIGHT THINK.

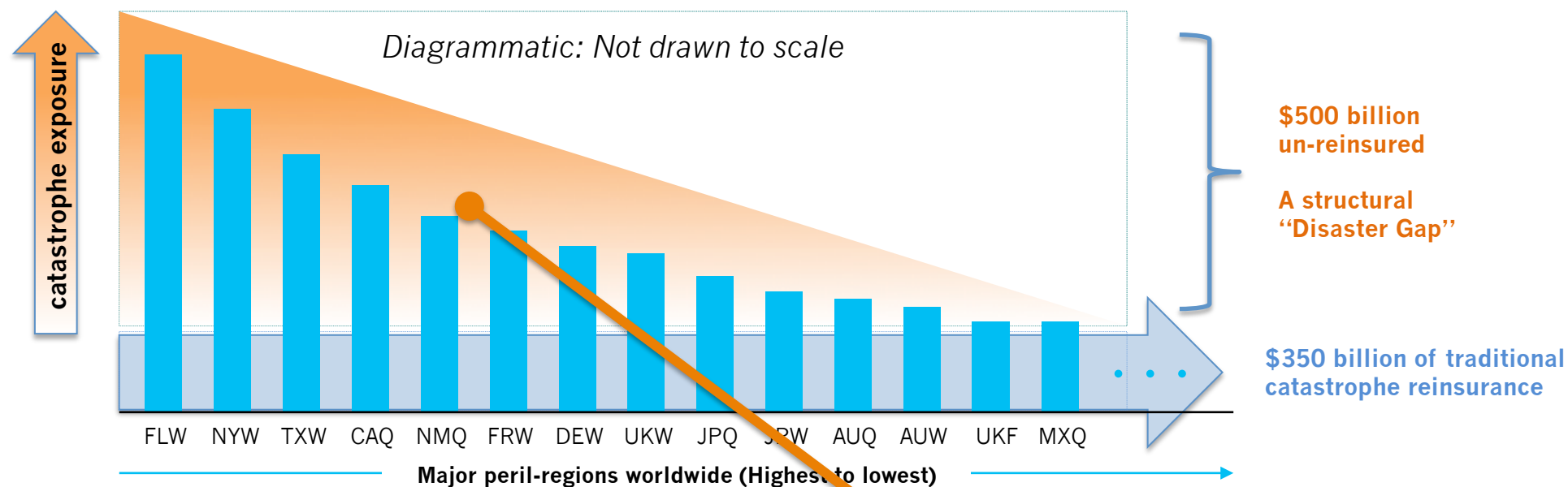
Figure 1: Global Reinsurer Capital



Source: From p. 6 of "The Breadth and Scope of of the Global Reinsurance Market and the Critical Role Such Market Plays in Supporting Insurance in the United States", Federal Insurance Office, U.S. Department of the Treasury, December 2014. This report cites the primary source of data as Aon Benfield.

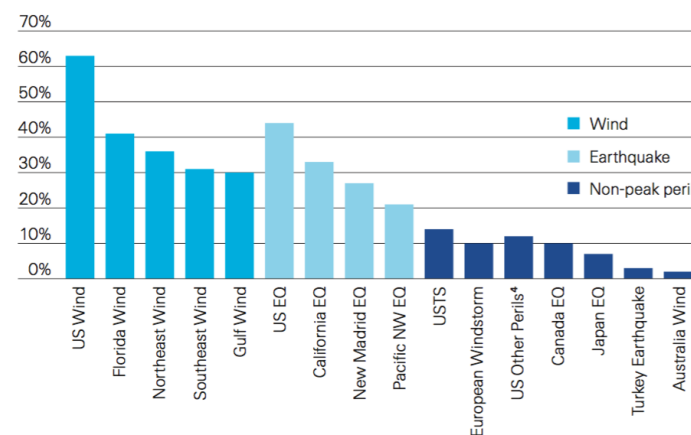
ILS HELP FILL THE DISASTER GAP, SO...

Sources: Lloyds, Guy Carpenter, Applied Insurance Research, Risk Management Solutions, EQECAT, Swiss Re Capital Markets, and Fermat Capital. See also *The Disaster Gap*, BNY Mellon, October 2013.



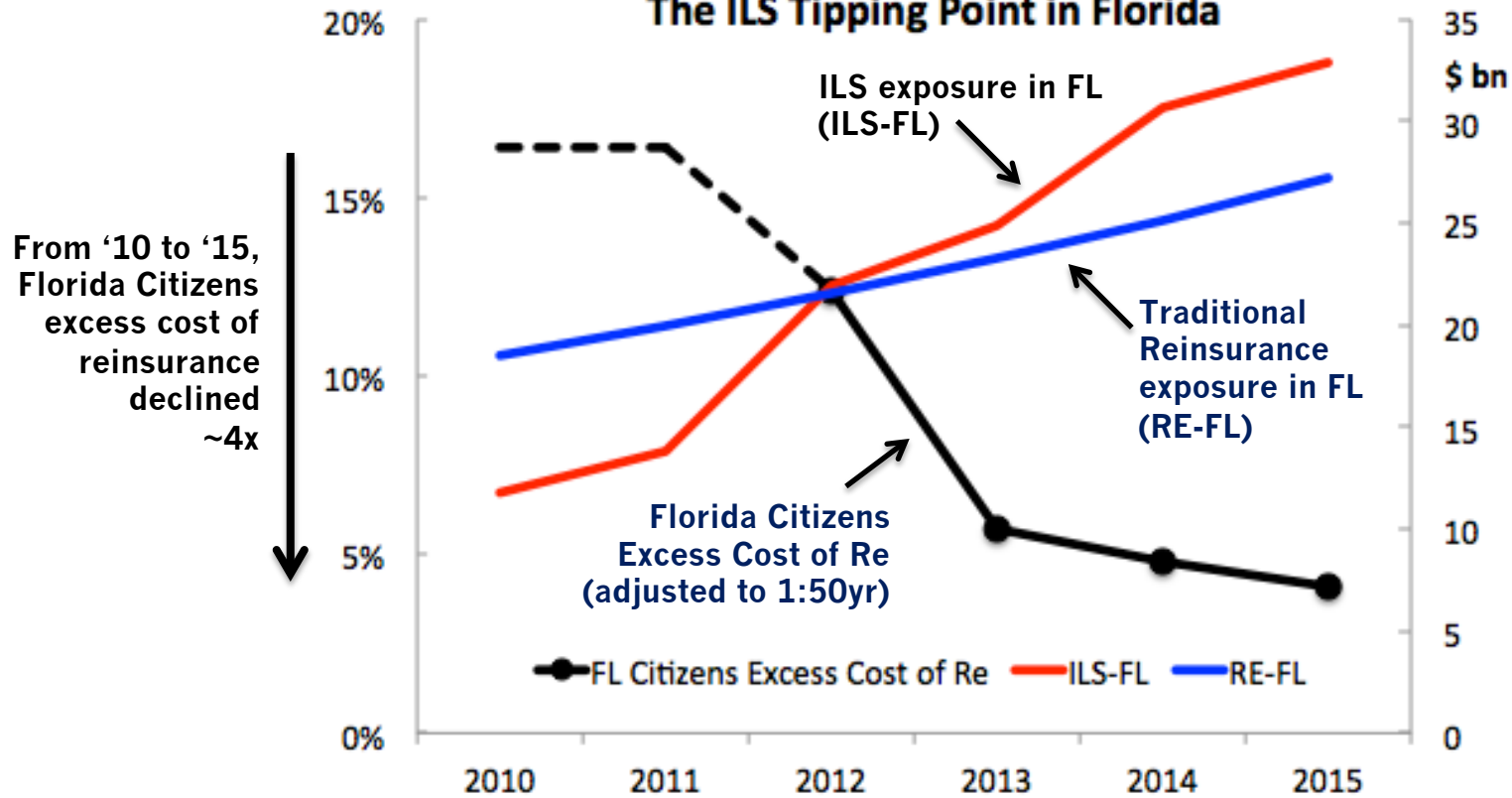
- Catastrophe risk tends to grow vertically, but...
- Reinsurance capacity tends to grow horizontally.
- This creates a Disaster Gap:
 - ~\$200 billion private market insured
 - ~\$150 billion government market insured
 - ~\$150 billion un-insured exposures

Figure 15
Outstanding cat bonds by peril
(June 22, 2015)



Source: Swiss Re Capital Markets
 * US Other Perils include Winter Storms, Wildfire, Volcanic Eruption and Meteorite Impact

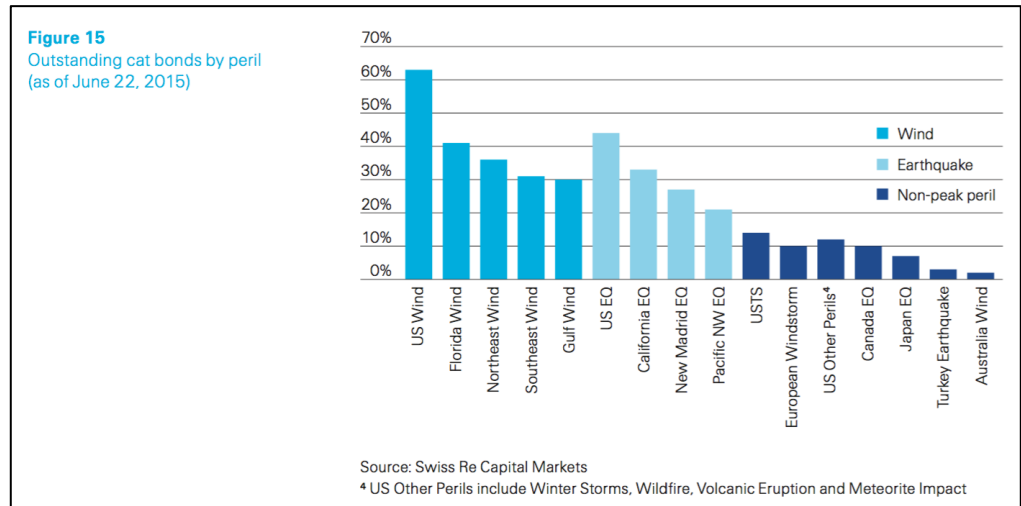
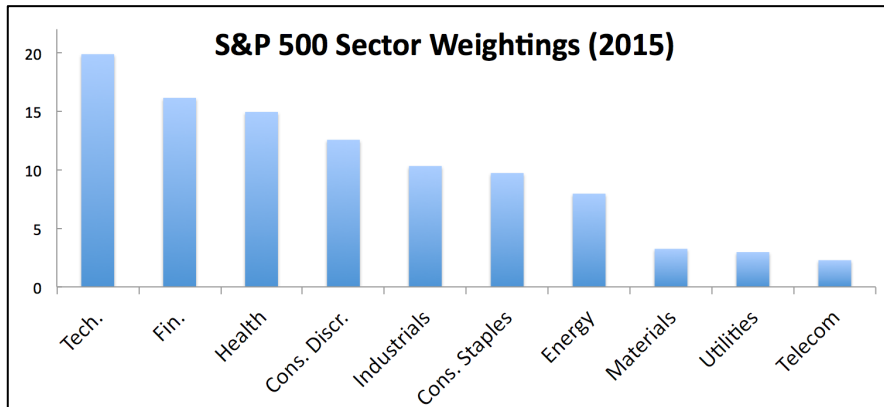
**Florida Citizens Excess Cost of Reinsurance
vs.
The ILS Tipping Point in Florida**



III. EPILOGUE & FOOTNOTES

- HORIZONTAL vs. VERTICAL MARKETS
- MATTERS OF SIZE
- FOOTNOTES TO THE SLIDE ON PAGE 9

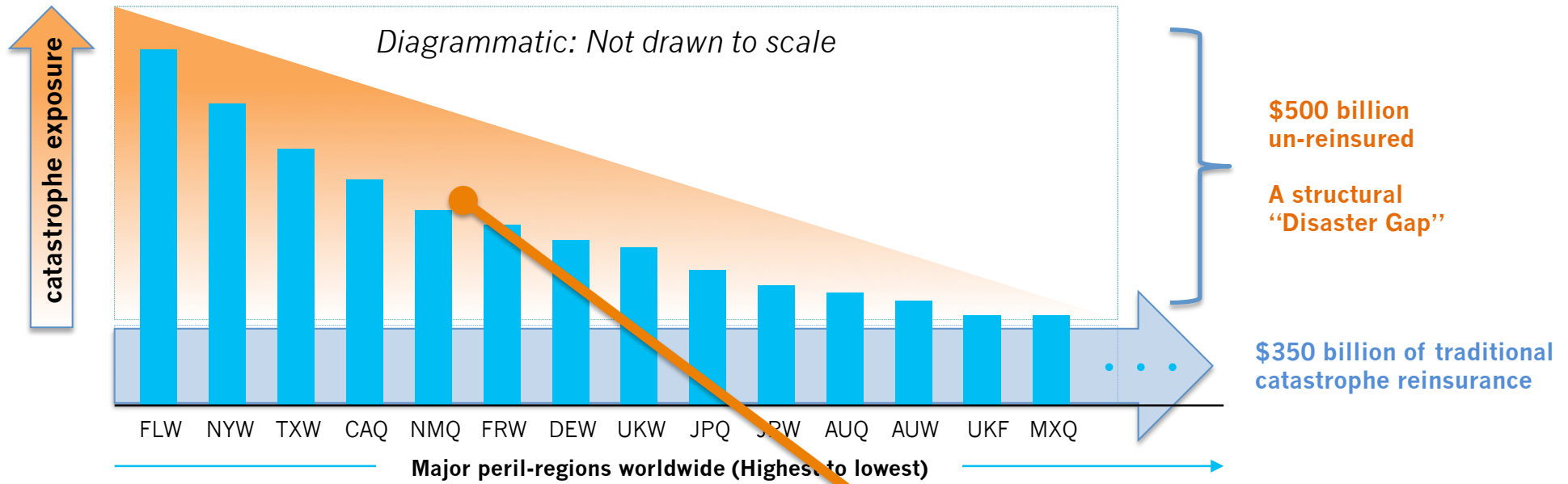
- Traditional reinsurance seeks to diversify risk across numerous “risk buckets”. Traditional reinsurance markets therefore have a **horizontal** orientation. Capital markets seek to finance economic activity, which is not “nice and even”—e.g., see industry sector weightings in the S&P 500 (below, left). Capital markets therefore have a **vertical** orientation.
- The Disaster Gap is a result of economic activity—in particular, the way that economic activity increasingly concentrates in urban areas. As a result, the Disaster Gap has a **vertical** risk profile.
- Because of their mutual, vertical orientation, Capital Markets, via the ILS market (below, right...this screenshot is repeated from page 8), are a more natural fit for the Disaster Gap than traditional reinsurance markets.



- Traditional Reinsurance has **~\$600 billion** in potentially available capital. ILS, which comes out of the Capital Markets, has **~\$100 trillion** in potentially available capital.
- No market knowingly risks 100% of available capital to a single, identifiable event. Traditional Reinsurance currently offers up to ~4% of potentially available capital to any single catastrophe event. Capital Markets currently offers ~1% of potentially available capital for the same.
- This is how ~\$600 billion in traditional reinsurance capital translates to **~\$25 billion** in coverage available to any single catastrophe event (see notes in the next slide below); whereas the capital markets, via ILS, potentially offer **~\$1 trillion** in coverage to any single catastrophe event.
- **Is \$25 billion in traditional reinsurance coverage for a single catastrophe event enough? Unfortunately, it is not.**
- Consider this: emerging Solvency II standards would require the insurance industry to manage losses to **~\$175 billion insured industry loss in Florida alone** (a 1-in-200 year Florida hurricane loss according to cat model estimates from Applied Insurance Research, EQECAT, and Risk Management Solutions).
- Going forward, it will become increasingly difficult for insurance companies to manage to modern solvency standards using traditional reinsurance alone. **ILS may be the only market with the necessary “head room” to help the insurance industry manage truly catastrophic event risks.**

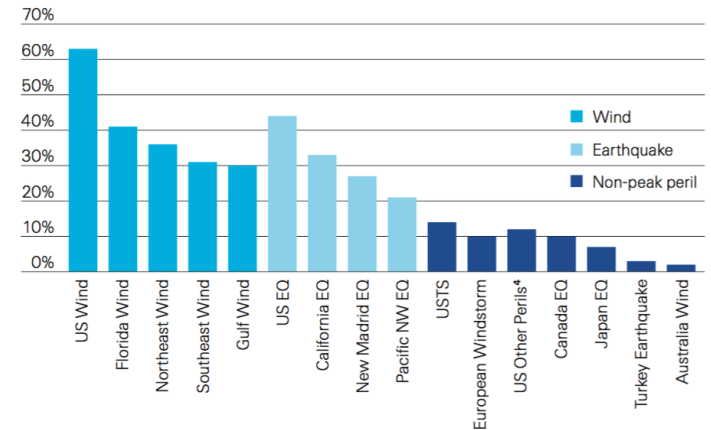
- **Florida Citizens Excess Cost of Re (FL Citizens Excess Cost of Re, black line).** The 2012–15 points are based on the coupon spreads of Florida Citizens cat bonds issued in those years (Everglades Re Ltd. bond series; see Artemis.bm; at the top of the home page, click on the *Deals & Data* tab, then search the page for “Everglades”). Florida Citizens cat bonds vary in risk level slightly by year, so this analysis adjusts the coupon spreads to a constant risk of 2% expected loss (EL) per annum—or a “1-in-50 year” loss level. The method used was to calculate the Sharpe Ratio for the actual bond issuance, then use that Sharpe Ratio to re-calculate coupon for the 1-in-50 year loss level. The formula used was: $\text{Sharpe Ratio} = (\text{Coupon Spread} - \text{EL}) / \sqrt{(1 - \text{EL}) \times \text{EL}}$. The 2010–11 points are gotten from oral disclosures made in the past by Florida Citizens management during road shows to market their Everglades bonds to cat bond investors. The excess cost of reinsurance is here defined as Coupon Spread minus EL or, in reinsurance terminology, the “Rate-On-Line” (ROL) minus EL.
- **ILS exposure in FL (IL-FL, red line).** As a rule of thumb, approx. half of all cat bonds cover Florida hurricane risk—even if they cover other risks like California earthquake as well. This rule of thumb was used on the the ILS numbers seen on Page 3 (“ILS MARKET GROWTH...”) to arrive at the IL-FL estimate for this graph. (Yes, I acknowledge that the Swiss Re Capital Markets graphs on pages 8 and 11 shows a 40% exposure to Florida as of June 22nd, 2015. Different analysts will come up with slightly different numbers on this. Also, there are intra-year fluctuations in the market share of Florida hurricane in the ILS market.)
- **Traditional reinsurance exposure in FL (RE-FL, blue line).** Guy Carpenter puts traditional reinsurance coverage for Florida at ~\$25 billion in 2014. See, for example, the slide deck available at the Florida Hurricane Catastrophe Fund home page at www.sbafla.com/fhcf/ — under *Featured Items*, click on *Announcements*; then *2015 Participating Insurers Workshop*; then *Joe Christiana, National Insurance Markets*; see the slide numbered 13 titled “PROPERTY CAT PREMIUMS = ~ 10% OF GLOBAL NON-LIFE REINSURANCE”. Dowling & Partners reports that traditional reinsurance market risk coverage for Florida totalled ~\$20 billion in 2011-12 (what Dowling calls “pre-tipping point”). See, for example, *Florida Primer*, Dowling & Partners, 11 June 2015—available by paid subscription (sorry, I could not find a public source, but Dowling is one the best research firms in the reinsurance space). From this I implied an 8% annual growth rate in traditional reinsurance exposure in Florida going from 2011 to 2014. Therefore, for RE-FL in this graph, a constant 8% annual growth rate was assumed in this slide with 2011 set to \$20 billion.

ILS HELP FILL THE DISASTER GAP



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Figure 15
Standing cat bonds by peril
(June 22, 2015)



Source: Swiss Re Capital Markets

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