Big Cats, Small Cats, Turkish Cats

May 23, 2017

PCS

SERVE | ADD VALUE | INNOVATE

PCS History
Serving the insurance industry

- U.S. catastrophe claim information since 1950

- PCS formed at request of insurance industry

- Loss development surveys started in 1998

- Estimates based on retrospective claims review

- Continual improvement amid consistency w/past

Aggregating Actual Claims Data for Almost 70 Years

PCS Data Users
Broad benefit across industry and in various sectors

- Homeowners and the public

- Primary insurance carriers

- Marketing and sales for agency bonuses

- NOAA, NHC, various NGOs and government agencies

- Industry quarterly and annual reports

- Catastrophe modelers

- Reinsurers and reinsurance brokers

- Capital markets

Overview of PCS Cat Loss Aggregation

- Event identification within 24 hours

- Proactive carrier outreach

- Tracking of multiple weather systems

- Verisk meteorological expertise

- Data requests at aggregated levels

- Catastrophe definition thresholds:

  o United States: US$25 million

  o Canada: C$25 million

  o Turkey: TRY30 million

Continual Weather Monitoring

PCS Reporting Timeframes

1. Event designation: within 48 hours (with 24 hours the typical target)

2. Preliminary industry loss estimate: +15 days

3. Resurvey industry loss estimates: +60 days

4. Final industry loss estimate: when PCS deems the loss estimate "stable"

Notes:

- Timeframes are estimates that can be influenced by conditions on the ground
- Resurveys completed for US events above $250mn and all Canadian and Turkish events
- "Stable"
  - Successive resurveys with consistent underlying data
  - No outstanding factors (e.g., class action litigation) that could have a significant effect on the industry loss estimate

PCS Estimate Process Overview
Preliminary estimates and resurveys

- Survey request to carriers and residual markets in impacted states
- Target 70% market share for commercial, auto, residential
- Estimate requests are for ultimate loss in each category
- Include on the ground assessment for larger cats
- Inclusion of state residuals, E&S assessment, captive review
- Business intelligence in media, industry contacts, public information
- Use of Verisk tools to assess damages to known structures
- Review internally other ISO related data sources
- Aggregate to state and total levels; looking for market outliers
- Team review, publish & if final, initiate data destruction process

Global Client Base

Bermuda, Canada, Cayman Islands, France, Germany, Ireland, Japan, Qatar, South Korea, Switzerland, Turkey, UK, US

Recent Catastrophe Activity

PCS Cat Activity (2016)

2016

- US – 43 events
- US$21.6 bn in insured loss
- Canada – 9 events
- CA$5 bn in insured loss
- Turkey – 1 event – ₺510M

10-Year Average

- US – 32 events
- US$19.2 bn
- Canada – 6 events
- CA$1.8 bn

PCS Cat Activity (1Q2017)

2017

- US – 13 events
- US$6bn in insured loss
- Canada – 1 event
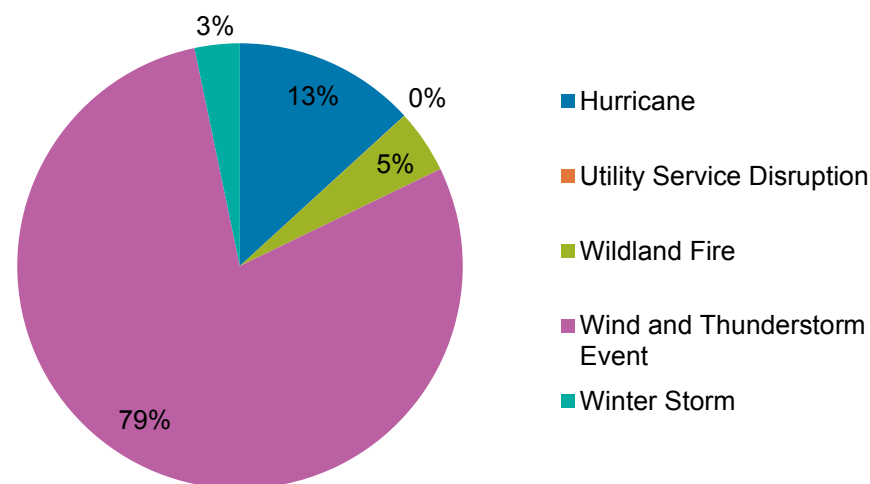- CA$147mn in insured loss

Average

- US – 8 events
- US$3.6 bn
- Canada – 1 events
- C$57mn

So, What's Changing?

- Five largest insured losses of the year:
  - PCS Canada Cat 56, Ft McMurray, CAD $3.98bn
  - Cat 1623 (TX, FL), Wind and Thunderstorm(w/significant hail),US $3bn
  - Cat 1650, Hurricane Matthew, US $2.6bn
  - Cat 1621 (TX), Wind and Thunderstorm(w/significant hail), US $1.7bn
  - Cat 1628 (11 states), Wind and Thunderstorm(w/significant hail), US $1.2 bn
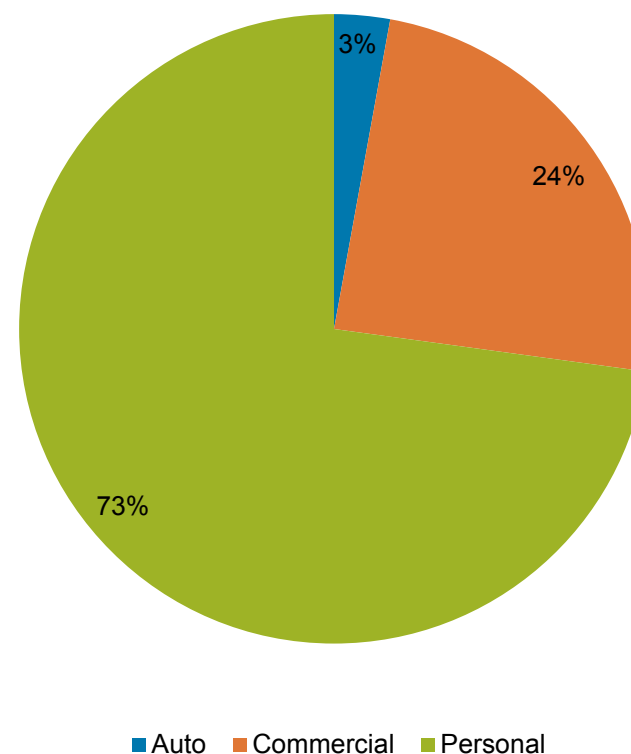- Five severe thunderstorms of more than US$1 billion resulted in US$8 billion in insured losses

- Florida saw its first hurricane landfall since 2005
  o Hurricane Matthew: US$2.6 billion
  o Hurricane Hermine: US$206 million

Facing the Unexpected in Canada

- Fort McMurray wildfire: greatest insured loss from this peril on record with PCS
  - Designated a PCS catastrophe in May 2016
  - Final estimate published in October 2016
  - Key issues: uncertainty around timing of adjuster access, smoke remediation cost, demand surge
  - Initially high reserving ultimately came down, resulting in a reduction of the initial PCS loss estimate

Pie chart: Auto 3%, Commercial 24%, Personal 73%

Legend: ■ Auto ■ Commercial ■ Personal

PCS Turkey Now Fully Live

- Launched in collaboration with the Istanbul Underwriting Center
- Completed the full historical database Aug 2016
- Designation threshold: TRY30 mn, reporting by CRESTA Zone
- Data set (going back to 1999):
  - 5 cats (4 EQ, 1 flood)
  - 3 non-cats (1 EQ, 2 flood)
  - 1 open event (terror)
- PCS is the only loss aggregation solution in Turkey with:
  - A full historical loss database
  - An estimate on a current catastrophe event in the region

Historical cat events
1. Izmit: EQ, 1999
2. Duzce: EQ, 1999
3. Marmara: flood, 2009
4. Van: EQ, 2011
5. Van: EQ, 2011

Noteworthy non-cats
1. Kutahya/Merkez: EQ, 2011
2. Trakya: flood, 2012
3. Antalya: flood, 2013

PCS Turkey Cat 1613

- Initially reported as two events, consolidated into one per additional information from market
- Terror attacks in 12 villages in CRESTA zones 14 and 15
  - CRESTA zone 14: TRY72.6 mn
  - CRESTA zone 15: TRY473.4 mn
- Regions affected: Diyarbakir, Mardin, Sirnak
- Key issues: lack of adjuster access for six months, unexploded ordnance, regional curfew, hours clauses
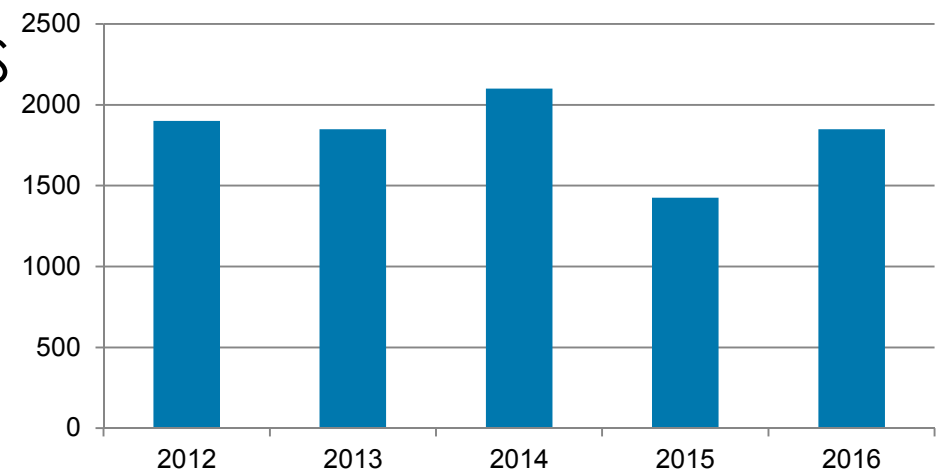
2016/7 ILS Market Summary

ILS Use of PCS (FY2016)

- US$5.6 bn in global issuance
- US$4.5 bn North America
- US$3 bn using data from PCS
- Total issuance down 7% YOY
- NA issuance down 11% YOY
- PCS use up 44% YOY
- Sponsor profile changed, accounting for the PCS increase
- Cat bonds including Canada:
  - 3, all with index triggers (PCS)
  - US$1.4 bn in limit
  - All were retro transactions
- 10 cat bond lites, US$423 mn

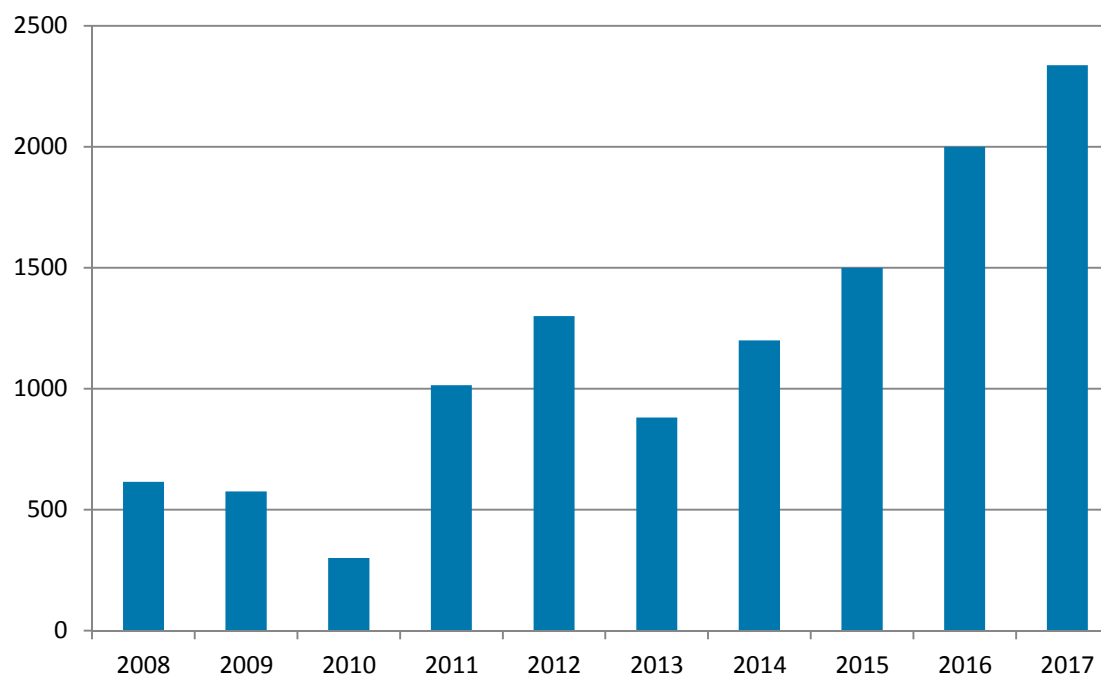**Historical Q4 Issuance Activity**

- Relatively quiet Q4 in 2016
- US$750 mn came from the first of two Galilei Re transactions
- Q4 generally busy because of run-up to 1/1 renewal

ILS Use of PCS (1Q2017)

- Record-setting quarter for total issuance activity
- US$2.3 bn in global issuance
- US$1.9 bn North America
- US$900 mn using data from PCS
- 3 cat bond lites, US$110 mn
- Cat bonds including Canada:
  - 1, with index triggers (PCS)
  - US$525 nn in limit
  - Retro transaction

Historical Q1 Issuance Activity

PCS Global Marine & Energy

Types of Event Covered

Energy	Ocean Marine
• PD • LOPI • P&I • COW/OEE/ICOW • SRCC/terror/war on land • Other man-made events	• Collision (ATL/CTL) • Hull & Machinery (ATL/CTL) • Cargo/containers • Fire/explosion • SRCC/terror/war on land • Piracy/war • Salvage • Other man-made

- For events over $250 million
- PD+BI+liabs
- Offshore and non-elemental only
- Event types above not exhaustive

PCS GM&E Process Timeline

1. Event occurs (day 0)
2. Event designation (+5 business days)
3. Preliminary estimate (+4 weeks from event designation)
4. First interim estimate (end of first full quarter following preliminary estimate)
5. Subsequent interim estimates (quarterly)
6. Final estimate (not constrained by time)

Preliminary Loss Estimate Event Set

Event	Date	Location	Subject to Resurvey
SpaceX	1 Sep 2016	Florida	Yes
Jubilee	18 Feb 2016	Ghana	Yes
Tianjin	12 Aug 2015	China	Yes
Big Foot	29 May 2015	GoM	No
Pemex	1 Apr 2015	GoM	Yes
Alpine Eternity	22 Mar 2015	Strait of Hormuz	Yes
Cidade Sao Mateus	11 Feb 2015	Brazil	No
Costa Concordia	13 Jan 2012	Italy	Yes
FPSO Gryphon Alpha	4 Feb 2011	North Sea	No
Deepwater Horizon	20 April 2010	GoM	Yes
Siri	31 Aug 2009	North Sea	Yes

Full historical database due for release 1 June 2017

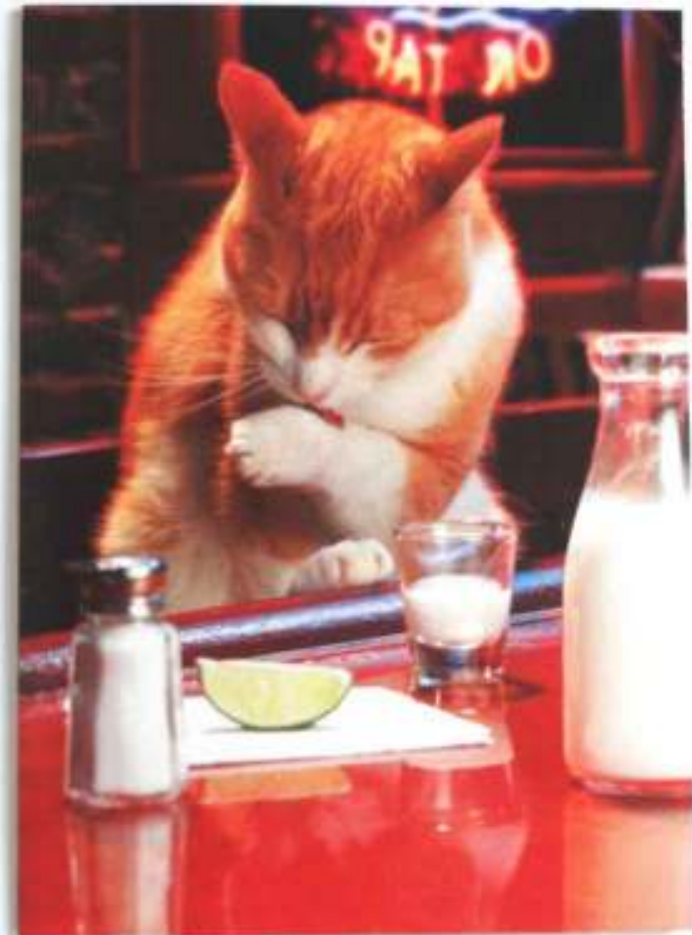# What's Next for PCS?

Continued Specialty Lines Expansion

- PCS Global Cyber: Working with Capsicum Re to develop a global loss index for events XS US$20 mn worldwide (affirmative cyber only). Engaging the market to contribute loss data, some already in the door.

- PCS Global Terror: Developing a loss index for events XS US$25 million worldwide. US is complete, progress with several non-US events. Will cover property damage and business interruption.

IT'S A CONSPIRACY!

PCS Mexico

- Completed preliminary market entry meetings a few weeks ago
- Identified likely partners for the process
- Historical database to go back to 2009 for all natural and man-made perils
- Cat designation threshold: M$30 billion (US$15 million)
- Resurvey threshold: $M95 billion (US$50 million)
- All reporting in local currency only
- Potentially ready by YE2017

Questions?