2019 Silicon Valley Risk Technology Forum

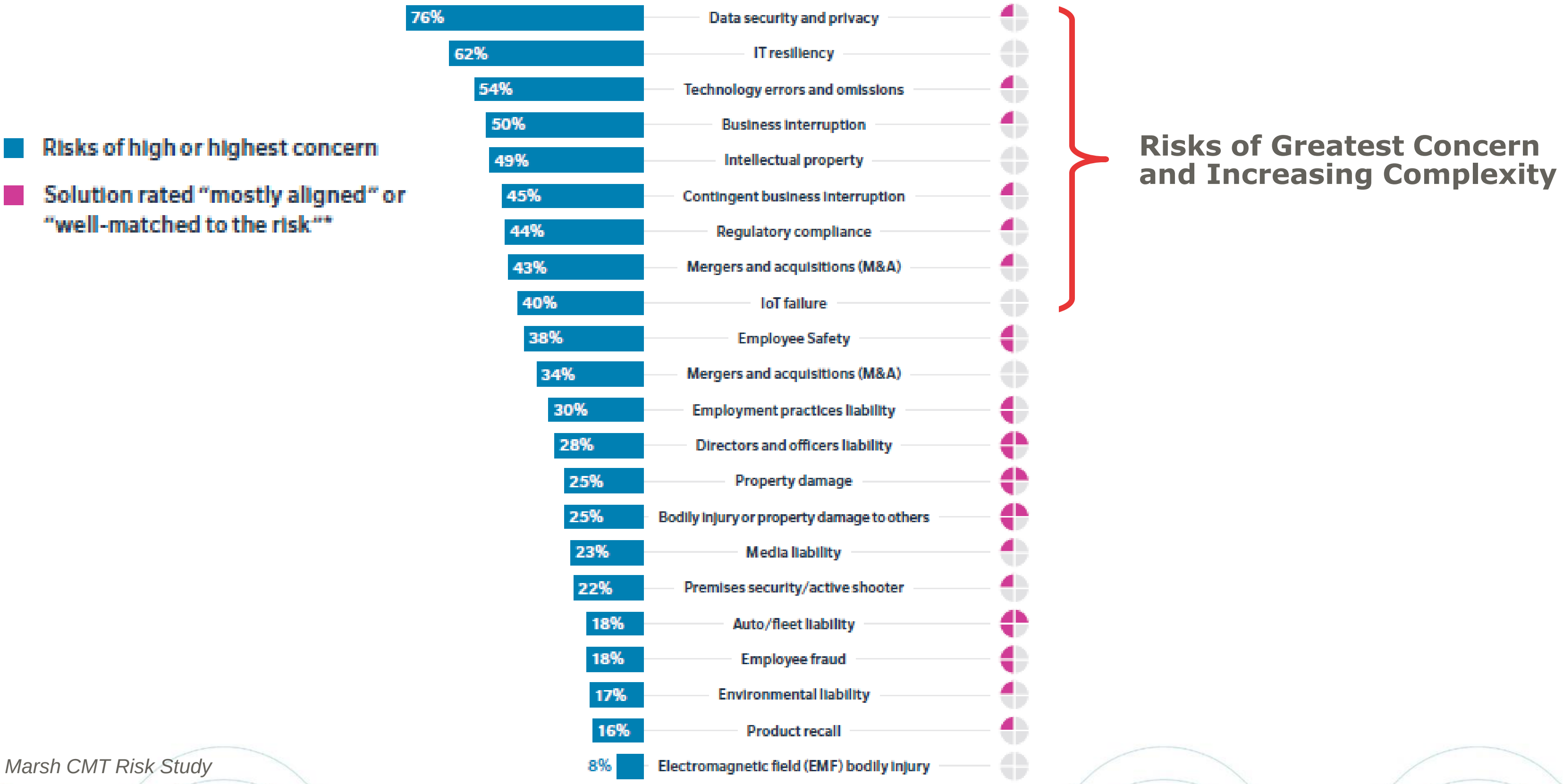
March 5-6, 2019

PLUG AND PLAY TECH CENTER
SUNNYVALE, CA

Becoming Your Own Insurance Company

Tom Quigley (Moderator) – US CMT Practice Leader, Marsh
Corey Anger – Managing Director, GC Securities
Robley Moor – Innovation and Industry Practice Leader, Swiss Re
Allan Smith – Captive Solutions, Marsh

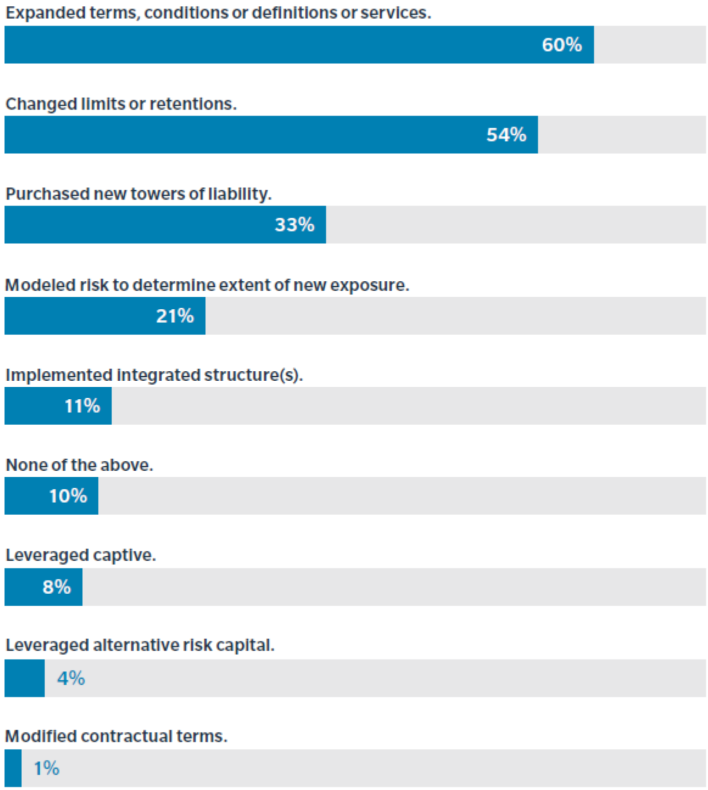
Increasing Disconnect with Needs & Solutions Available?



2019 Marsh CMT Risk Study

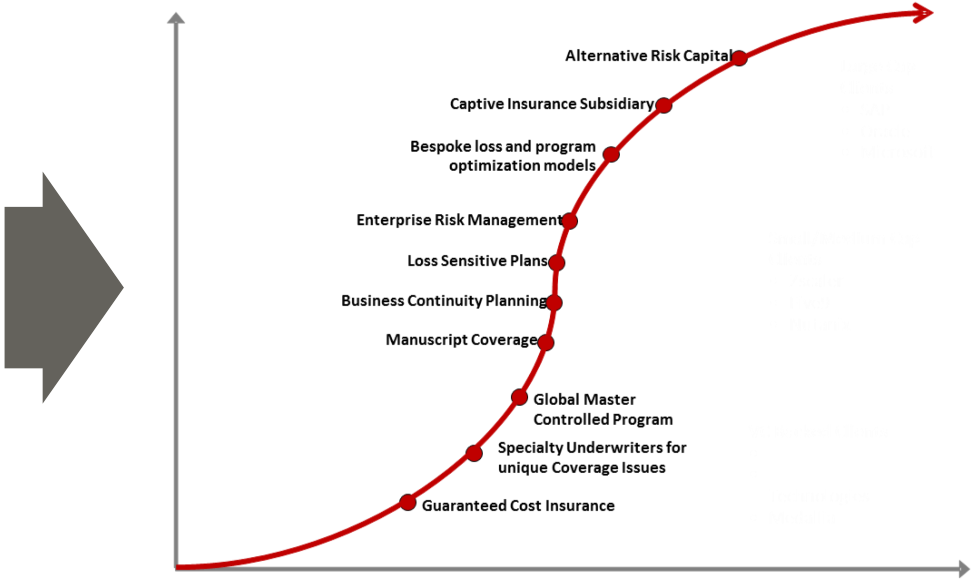
Adjustment or Reinvention – What's Needed?

How have you adjusted your risk management program in response to how your products or services are being deployed?



2019 Marsh CMT Risk Study

Optimizing Risk Capital



Changing Mindset – Becoming your own Insurance Company

- Pitching to underwriters
- Customizing standard offerings
- “Trading dollars” in a wide range of expected losses
- Market reactive
- Silo-oriented purchasing

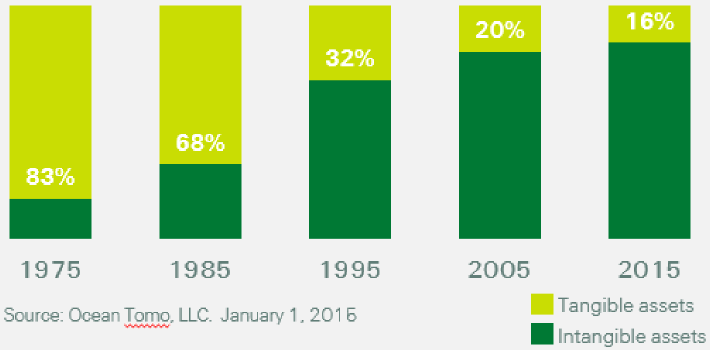
- Underwriting your own risk
- Designing programs & triggers
- “Reinsuring” truly catastrophic loss scenarios
- Driving the market
- Capitalizing on diversification

Non-Traditional Insurer Solutions

Robley Moor – Innovation and Industry Practice Leader, Swiss Re

Do you need innovative risk solutions?

The corporate risk landscape has changed with increased intangible asset values



Source: Ocean Tomo, LLC. January 1, 2015

"Uber, the world's largest taxi company, owns no vehicles. Facebook, the world's most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world's largest accommodation provider, owns no real estate. Something interesting is happening."

Source: "The Battle Is For The Customer Interface", by Tom Goodwin of Havas Media on Tech Crunch Network.

Business interruption incl. supply chain disruption and vulnerability	**Market developments** volatility, new entrants, M&A, market stagnation	**Cyber risks** IoT, cyber attacks, cyber crime, IT failure, data breaches	**Natural catastrophes**	**Regulatory uncertainty** BEPS, protectionism, sanctions
Macroeconomic developments austerity, deflation, inflation, commodity prices	**Fire, explosions**	**Political risks and violence** war, terrorism, populism, changing political landscape	**Loss of reputation and brand value**	**New technologies** 3 D printing, IOT, AI, drones, etc.

Captive Solutions

Custom-made captive protection

Efficiency cover	
Policyholder	Captives looking to protect their retention and rethink their overall insurance program; all industries
Trigger	Insured loss from any covered line of business in excess of ground-up deductible
Pay-out	Indemnity based up to defined limits per line of business
Term	36 months or longer

What makes it Innovative?

- Innovative and custom-made solutions to fit the client's specific needs and requirements (coverage, trigger, term, etc)
- Multiline and multiyear custom-made captive covers, such as aggregate stop loss and excess of loss programs, retention financing or floating retention concepts
- International captive fronting solutions with efficient use of corporate credit in lieu of traditional collateral arrangements

Parametric Solutions
Earthquake, Wildfire, Windstorm

Revenue and liquidity	
Policyholder	Corporates (any industry), government agencies, schools
Trigger	Varies
Pay-out	Pays amount depending on parameter / index such as shake intensity
Term	36 months

What makes it Innovative?

- Broad coverage, easy proof of loss, no physical damage required (derivative or insurance policy form)
- Large block of supplemental capacity protects revenue from sales in case of changes in buying behaviour of consumers after NatCat shock
- Quick, formulaic pay-out and discretionary use of funds protects client’s liquidity

Non-physical damage business interruption (NDBI)

Understanding NDBI

We design insurance solutions to cover “non-core” business interruption (BI) risks resulting from events that may not produce physical damage to insured property

NDBI is not covered under traditional property damage and business interruption Insurance

Examples of NDBI Triggers

- Withdrawal of **regulatory approval** or license to produce
- **Closure of production facility** by order of an authorized regulatory body
- **Contingent business interruption** due to non-physical damage affecting a key supplier
- **Financial collapse** of a key supplier
- **Failure of Internet access**; software errors and mistakes
- **Cyber attacks** (malware, virus, denial of access, hacking, etc)
- **Political risks such as strikes**, organized blockade, government actions, civil unrest
- **Terrorism** affecting trade in a wide area
- **Blackout** (no electricity)
- **Product recall**
- **Theft, corruption** and other criminal acts
- **Environmental contamination**
- **Communicable disease**
- **Murder** / suicide / bad press
- **Transportation interruption** causing serious delay of delivery of goods or services
- **Natural hazards** and other events affecting
  a wide area, regardless of damage to insured locations

Captives – Flexibility & Growth

Allan Smith – Captive Solutions, Marsh

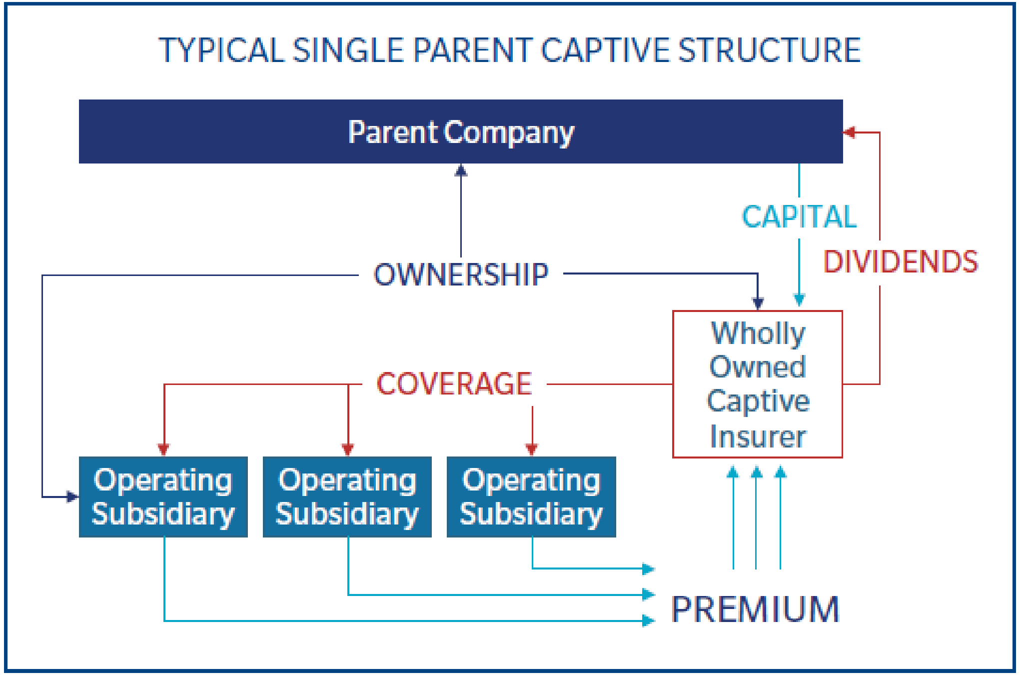
Definition Of A Captive

A captive insurance company is a bona fide licensed insurance or reinsurance company owned by a non-insurance company and which insures or reinsures the risks of its parent or affiliated companies

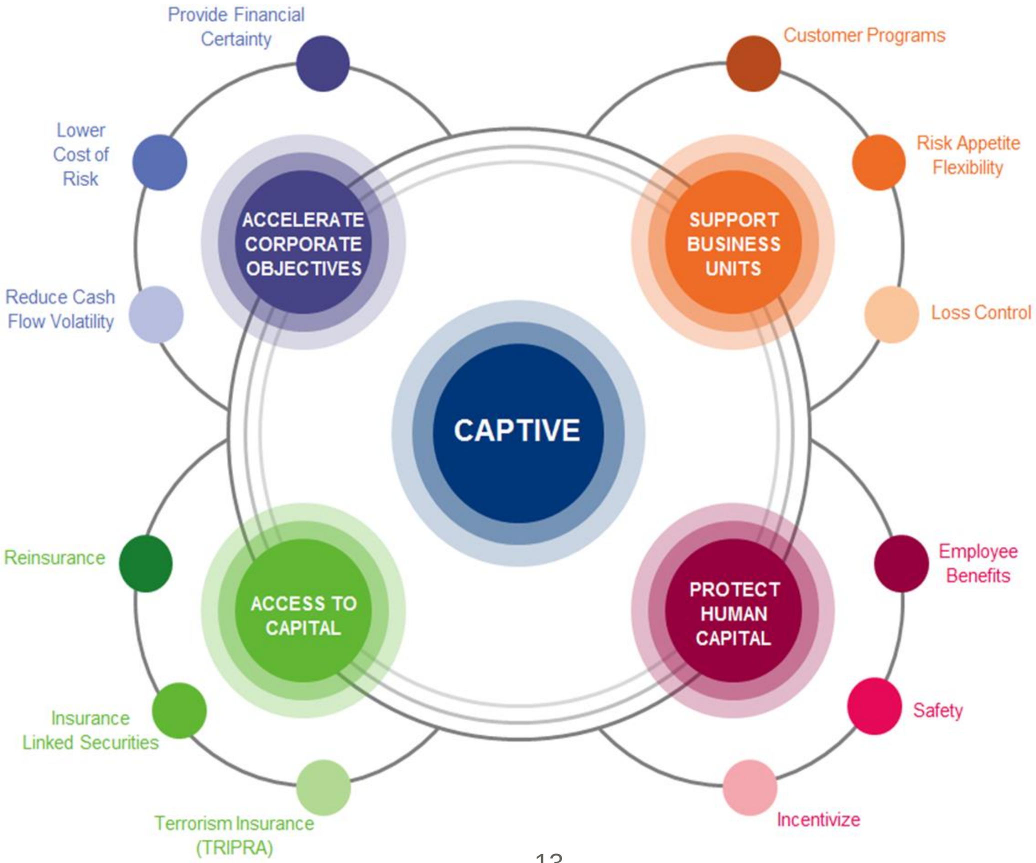
Simply put – it is a formalized mechanism to finance self-insured risks.

The decision to retain risk by the organization has already been taken.

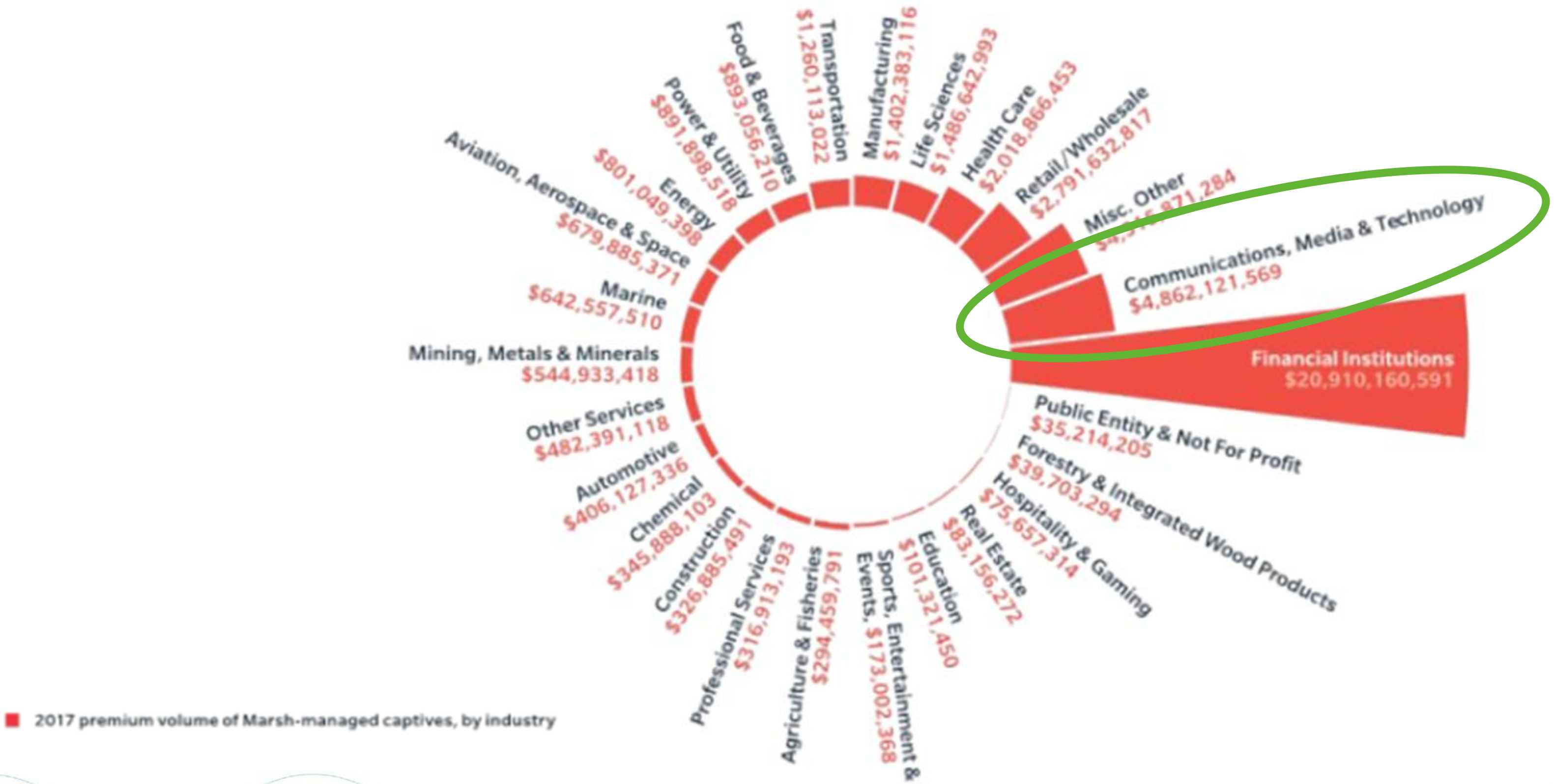
Structure



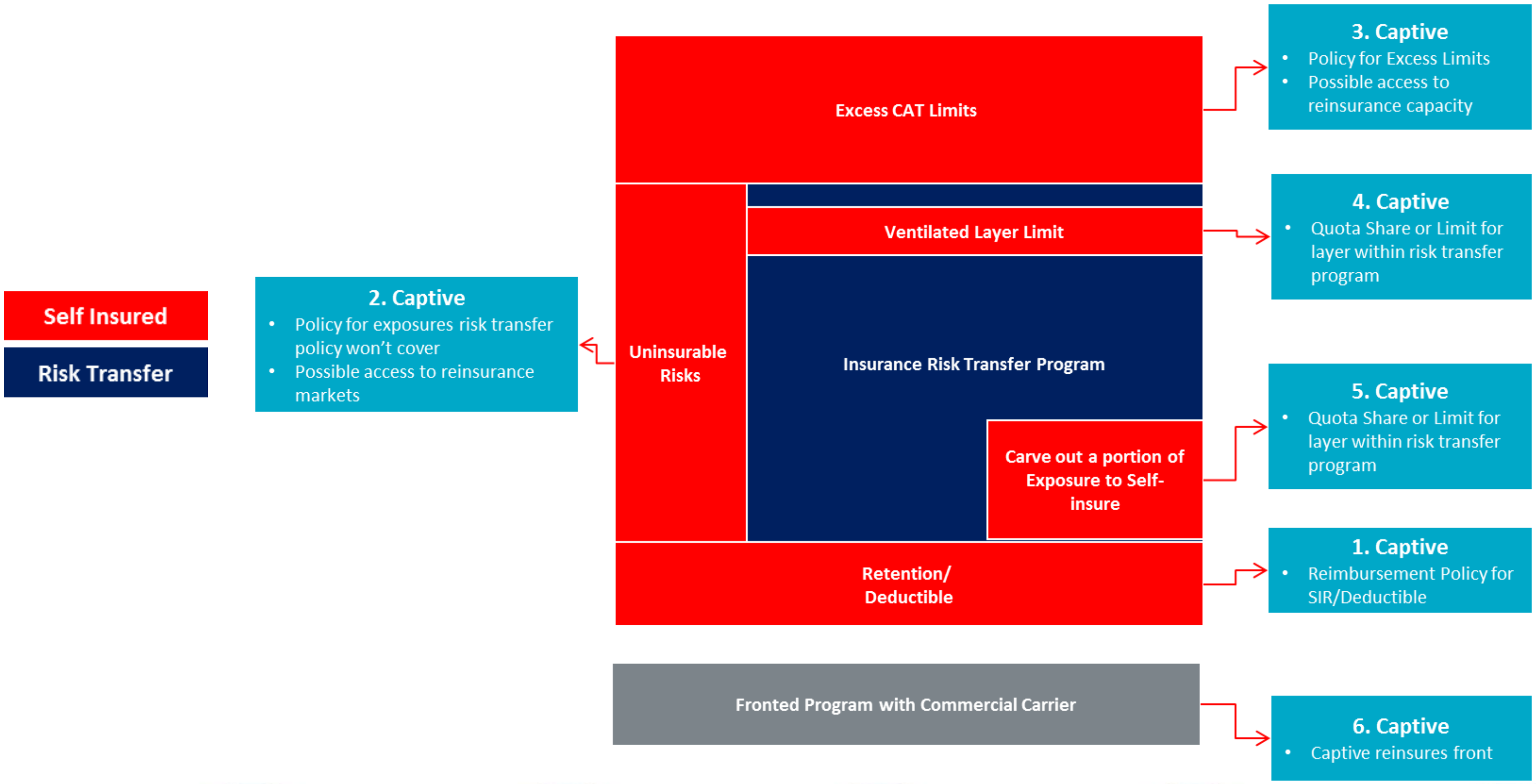
Captives as a Risk Management Tool



CMT Captive Premiums Exceed Most all Industries



Typical Uses for a Captive



A Growing Range of Uses

Liability

- Employers liability/WC
- Public/general liability
- Auto liability
- Professional liability
- Products liability, product recall
- Environmental liability
- Excess liability/umbrella
- Banker's blanket bond
- Credit
- Medical malpractice
- Crime
- Employment practices
- Cyber risk

Property

- Terrorism insurance:
  - US TRIA policy with NBCR
  - Pool Re
- Quota share reinsurance
- Shipping, cargo, and transit insurance
- Marine cargo
- Motor
- Aviation
- Residual value

3rd Party

- Green Island Reinsurance Treaty (GIRT)
- Pooling facilities
- Extended warranty
- Customer, vendor, and joint-venture business
- Service contracts
- Employee benefits:
  - Global
  - Voluntary, and ERISA benefits
- Consumer Programs

Captives as a Profit Center

15%
of captives write unrelated risk

TOP INDUSTRIES FOR UNRELATED THIRD-PARTY PROGRAMS

Communications, Media & Technology
- Handheld Device
- Extended Warranty

Construction
- OCIP/CCIP
- Warranty

Financial Institutions
- Credit/Life
- Travel/ Trip

Real Estate/Hospitality & Gaming
- Renters Insurance
- Employee Benefits

Retail/Wholesale, Food & Beverage
- EB / VEB
- Patient Coverages

Alternative Risk Capital

Corey Anger – Managing Director, GC Securities

Leveraging Capital from Every Source

TRADITIONAL CAPITAL

$3 TRILLION

INSURERS

REINSURERS

Insureds

ALTERNATIVE CAPITAL

PENSION FUNDS

HEDGE FUNDS

PRIVATE EQUITY

SOVEREIGN WEALTH FUNDS

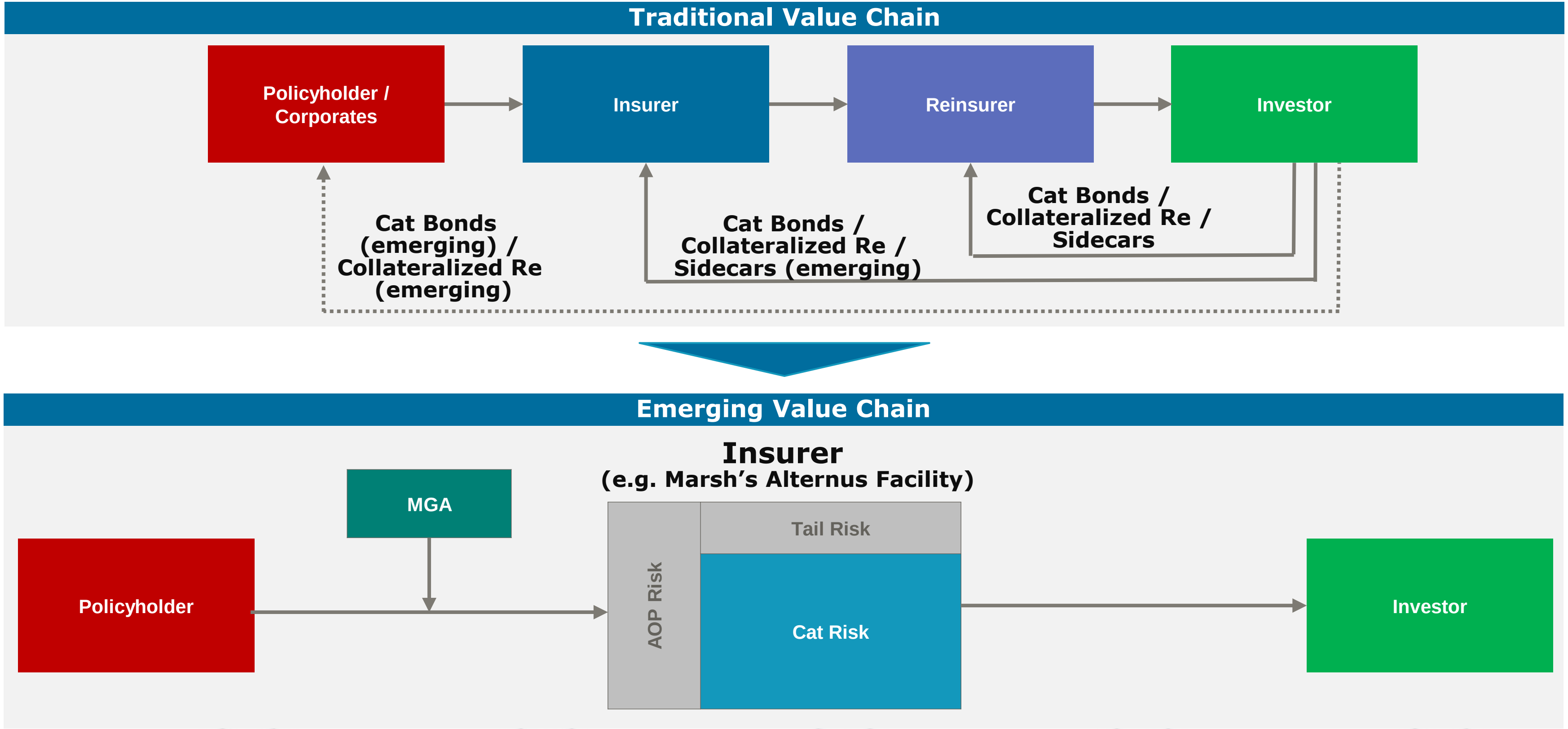
FAMILY OFFICES

$70 TRILLION

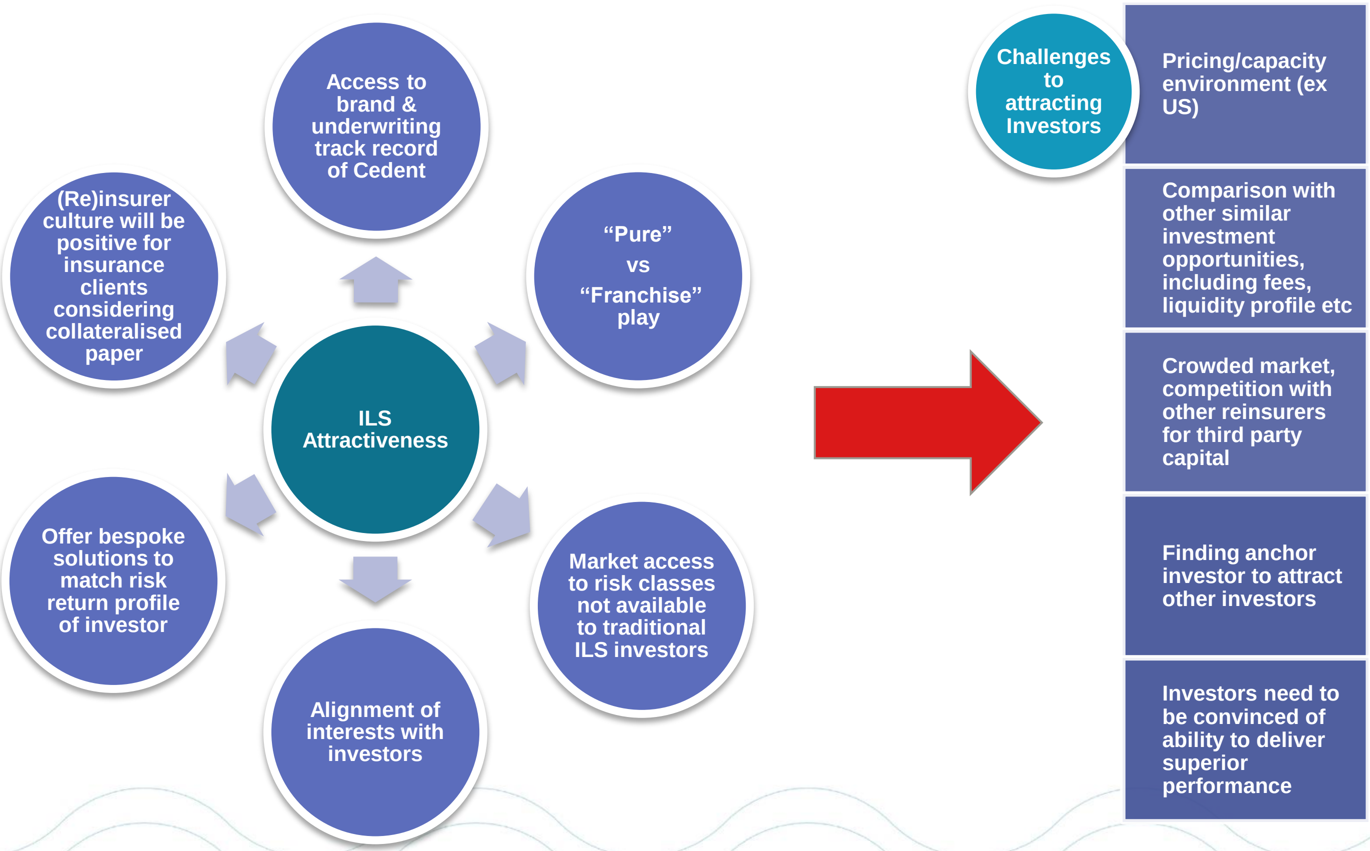
Traditional Capital is balance sheet capital: Supported by shareholders' equity.

Alternative Capital is dedicated capital: Supported by sophisticated investors.

Connecting Risk to Alternative Capital – Shortening Value Chain



Connecting Risk with Capital – Investor Motivations



Connecting Risk with Capital – Sources & Destinations of Capital

Sources

- Sovereign Wealth Funds
- Public Pensions
- Superannuation Funds
- Family Offices
- Endowments
- Fund of Funds
- Corporate Pensions
- Registered Investment Advisors

AUM →

← Yield

Diversification

Destinations

Investment Manager Affiliated Funds

LGT

CREDIT SUISSE

PIONEER Investments®

STONE RIDGE

Reinsurer Affiliated Funds

MARKEL CATCo

Nephila

HISCOX

RenaissanceRe

Independent ILS Funds

FERMAT CAPITAL MANAGEMENT, LLC

Elementum

HUDSON STRUCTURED CAPITAL MANAGEMENT

Multiple Fund Offerings based on Risk, Liquidity and Duration

Case Study: Acorn Re Ltd. (2018)

July 2018

$400,000,000

Acorn Re Ltd.

Series 2018-1 Principal At-Risk
Variable Rate Notes
due November 10, 2021

hannover re®

and its other (re)insureds including

KAISER PERMANENTE®

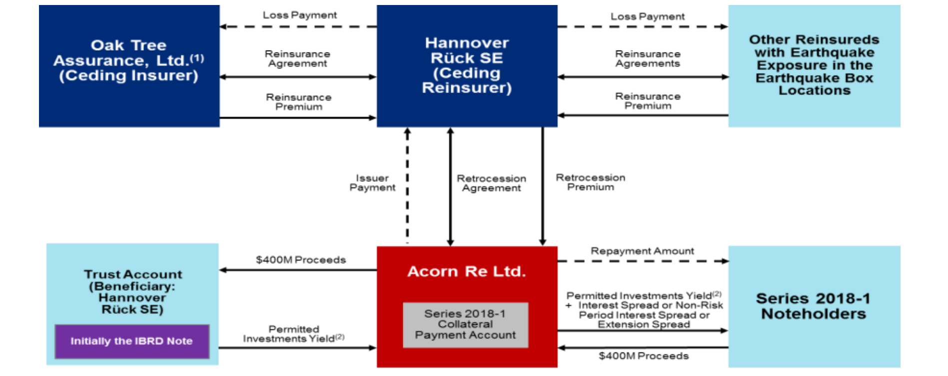
Sole Structuring Agent and
Sole Bookrunner

GC SECURITIES

- Hannover Re ceded the risk on behalf of Oak Tree Assurance, Ltd (a wholly owned subsidiary of Kaiser Foundation Health Plan, Inc.) in addition to other reinsureds with earthquake exposure in California and the Pacific Northwest
- The Series 2018-1 Notes utilize a four-step payout structure that determines payout level based on the moment magnitude and depth parameters of each earthquake that occurs within the defined covered area; changes from the Series 2015-1 Notes include:
    - Optimized under latest RMS US EQ model
    - Expanded defined covered area relative to 2015 deal
    - Minimum triggering magnitude is Mw7.2 (2018) versus Mw7.5 (2015)
    - Expected Loss increased to 0.81% (2018) versus 0.74% (2015)
    - 2018 pricing decreased 19% (2.75% (2018) versus 3.40% (2015)
- The transaction was well supported by investors upsizing from $300 to $400 million

Series 2015-I Notes	
Issuer	Acorn Re Ltd.
Peril	Earthquake
Covered Areas	California and the Pacific Northwest
Trigger	Parametric
Risk Period	3 years
Modeling Firm	Risk Management Solutions, Inc.
Rating (Fitch)	Note rated
Collateral	IBRD Note
Expected Loss	0.81% (year 1)
Attachment Point	P(attach) = 1.06% (year 1)
Exhaustion Point	P(exhaust) = 0.57% (year 1)
Issuance Amount	$400,000,000
Initial Spread	2.75%

Illustrative Transaction Structure



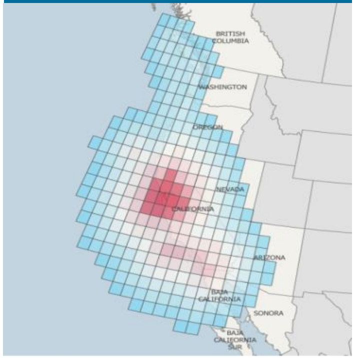
Case Study: Acorn Re Ltd. (2018) – Triggers & Thresholds

Level	Definition
Trigger Levels	For Trigger Level One, Two, Three and Four, if the Magnitude of a Covered Event is greater than or equal to such Earthquake Box Location's minimum moment magnitudes (as defined in the spreadsheets within the Data File), then the applicable Trigger Level will be met

Event Percentages

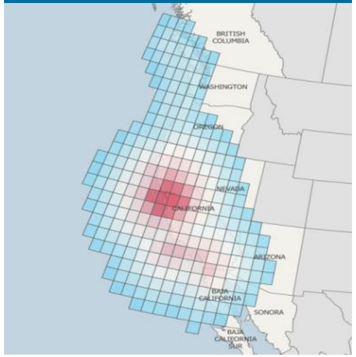
25%

Trigger Level One



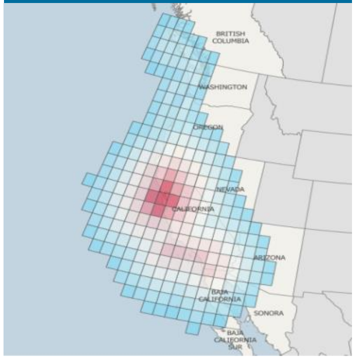
50%

Trigger Level Two



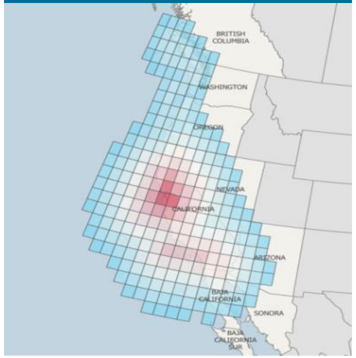
75%

Trigger Level Three



100%

Trigger Level Four



Magnitude (Mw)

7.2	7.7	8.2	8.7	9.2	9.7
7.3	7.8	8.3	8.8	9.3	>9.8
7.4	7.9	8.4	8.9	9.4	
7.5	8.0	8.5	9.0	9.5	
7.6	8.1	8.6	9.1	9.6	

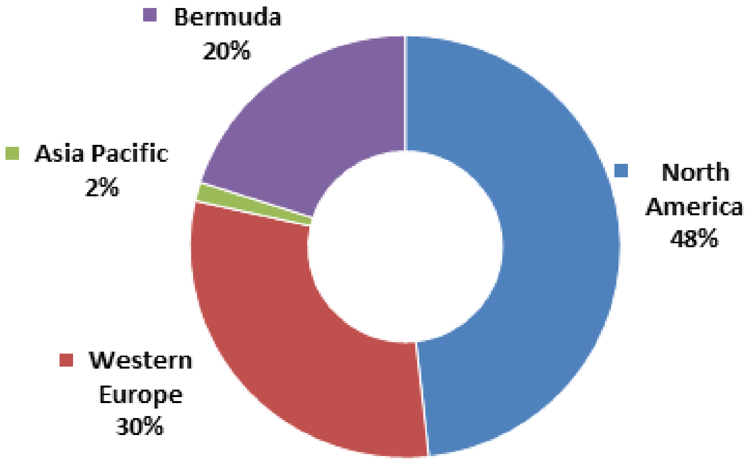
Case Study: Acorn Re Ltd. (2018) – Distribution Analysis

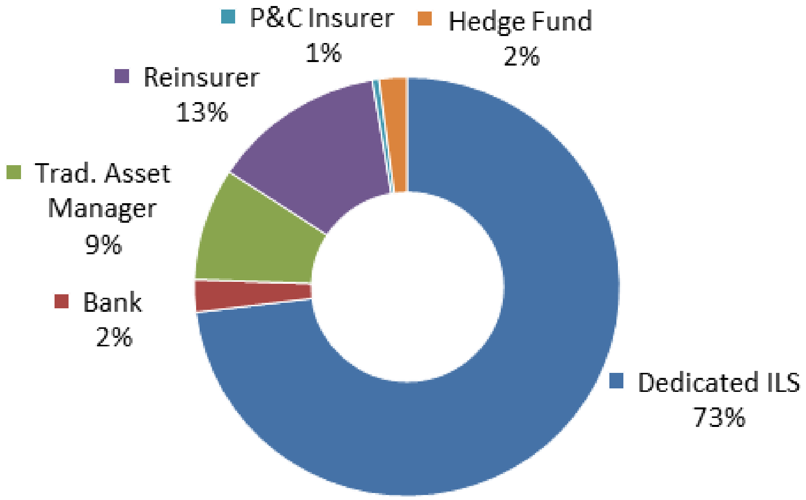
Marketing Highlights

- Parametric trigger and focused risk profile led to broad support across the full investor base
- Thirty-four (34) investors participated
- Strong Interest in the transaction allowed the doubling of deal size from $200M to $400M while decreasing pricing to the lowest end of price guidance (2.75%).

Distribution Analysis

Risk Capital Breakdown by Investor Region	Risk Capital Breakdown by Investor Type





Cal Phoenix Re Ltd. Series 2018-1 Notes

Overview

August 2018

$200,000,000

Cal Phoenix Re Ltd.

Series 2018-1 Principal At-risk
Variable Rate Notes
due August 13, 2021

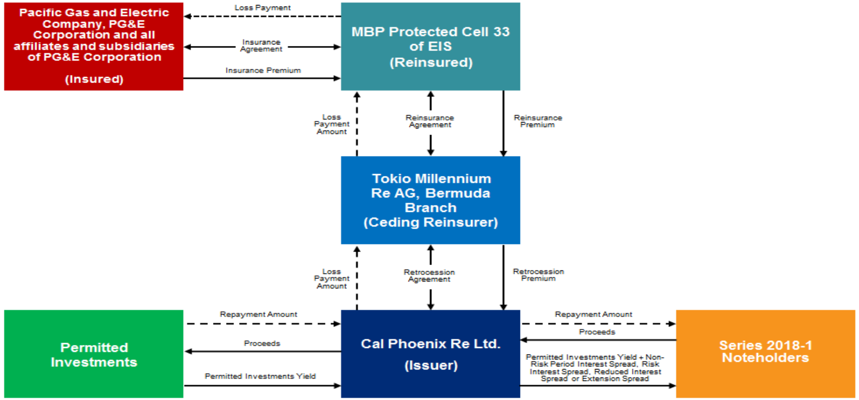
Sole Structuring Agent
and Sole Bookrunner

GC SECURITIES

- Pacific Gas & Electric Company ("PG&E") accessed the reinsurance capital markets for the first time through the issuance of the Cal Phoenix Re Ltd. Series 2018-1 Notes
- Marks the first-ever 144A catastrophe bond to provide protection against the peril of Wildfire on a standalone basis
- The Notes provide $200M of protection against losses related to third-party property damage arising from wildfire on an indemnity, annual aggregate basis subject to:
  - a $100M per-event franchise deductible
  - Attachment level of $1.25B and exhaustion level of $1.75B

Series 2018-1 Notes	
Issuer	Cal Phoenix Re Ltd.
Insured	Pacific Gas & Electric Company, PG&E Corporation and all affiliates and subsidiaries of PG&E Corporation
Reinsured	Energy Insurance Services, Inc. on behalf and for the benefit of its Mutual Business Program No. 33
Ceding Reinsurer	Tokio Millennium Re AG, Bermuda Branch
Issuance Amount	$200,000,000
Peril(s)	Wildfire
Trigger	Indemnity; annual aggregate subject to a per event Franchise Deductible
Risk Period	August 3, 2018 – August 1, 2021 (Pacific Time)
Modeling Firm	AIR Worldwide Corporation
Collateral Solution	Initially, IBRD Putable Note
Expected Loss	1.01%
Initial Risk Interest Spread	7.50%

Illustrative Transaction Structure



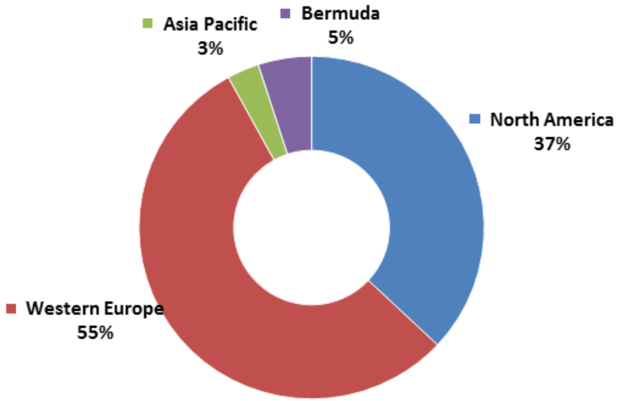
Cal Phoenix Re Ltd. Series 2018-1 Notes – Distribution Analysis

Marketing Highlights

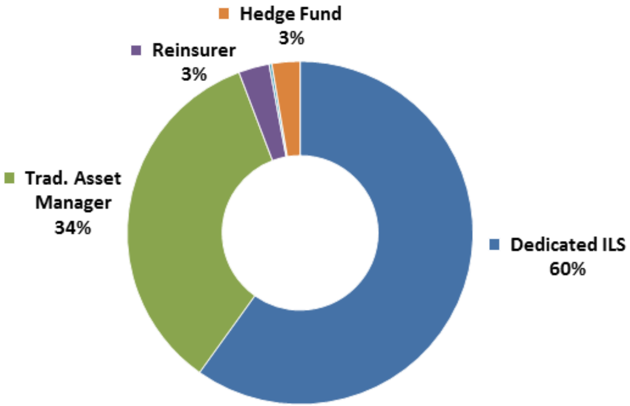
- **The Cal Phoenix Re Series 2018-1 issuance was completed with strong investor demand for wildfire risk on a standalone basis and a new sponsor**
- Capital market's demand for new perils and new sponsors was clearly demonstrated by the 22 unique investors who participated in the transaction. The transaction received broad, global investor support as markets based in North America and Western Europe represented the bulk of the participating investors.

Investor Profile

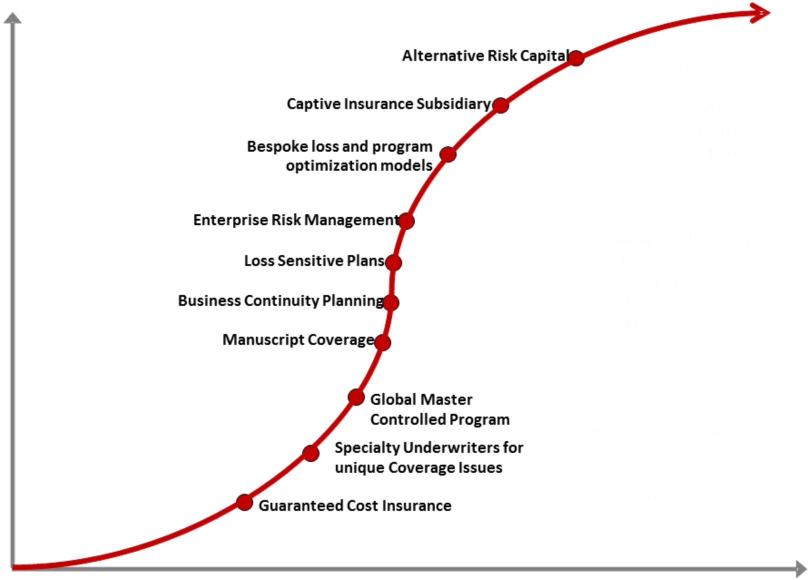
Investor Region



Investor Type



Optimizing Risk Capital



MARSH