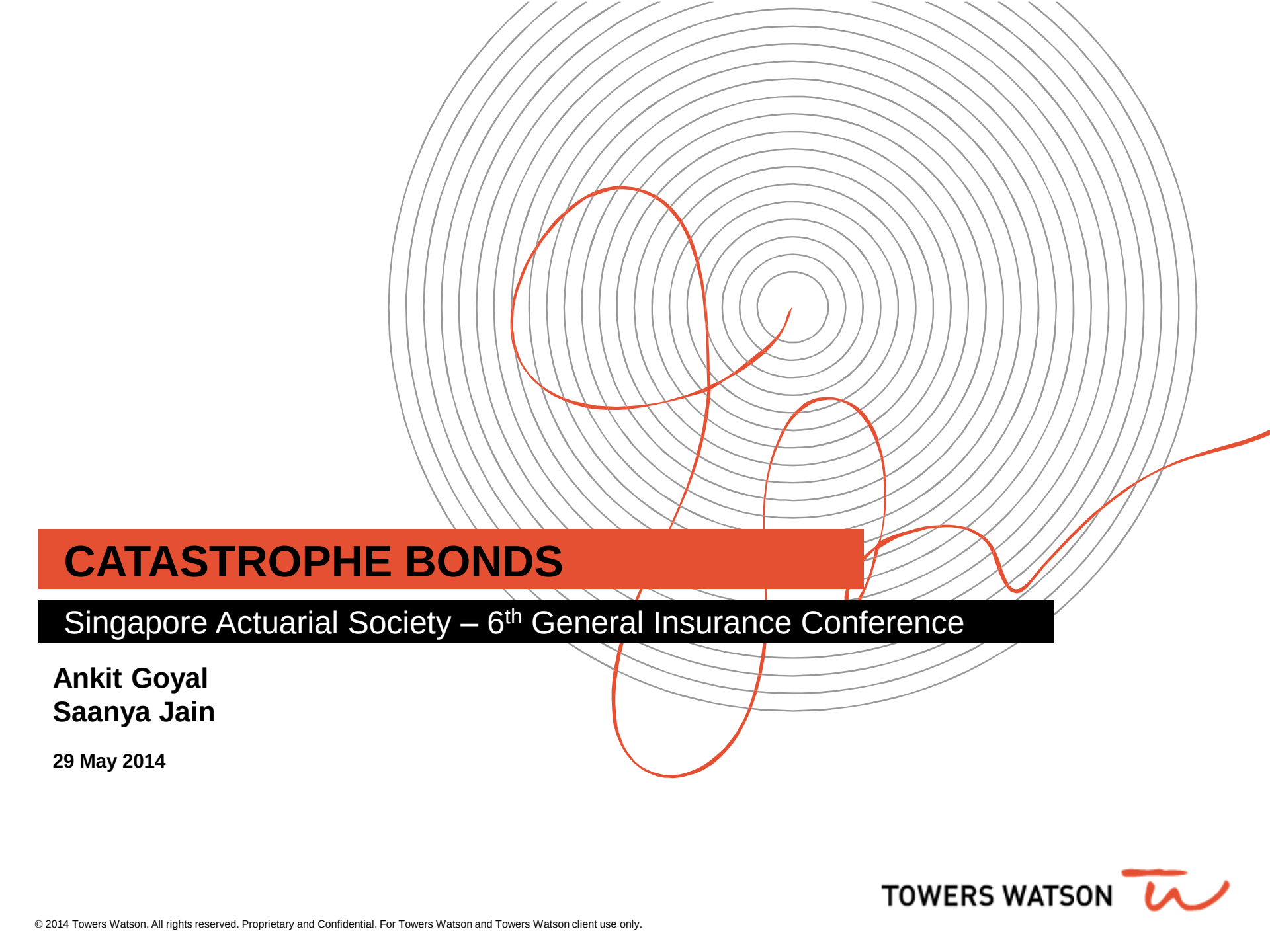




CATASTROPHE BONDS

Singapore Actuarial Society – 6th General Insurance Conference

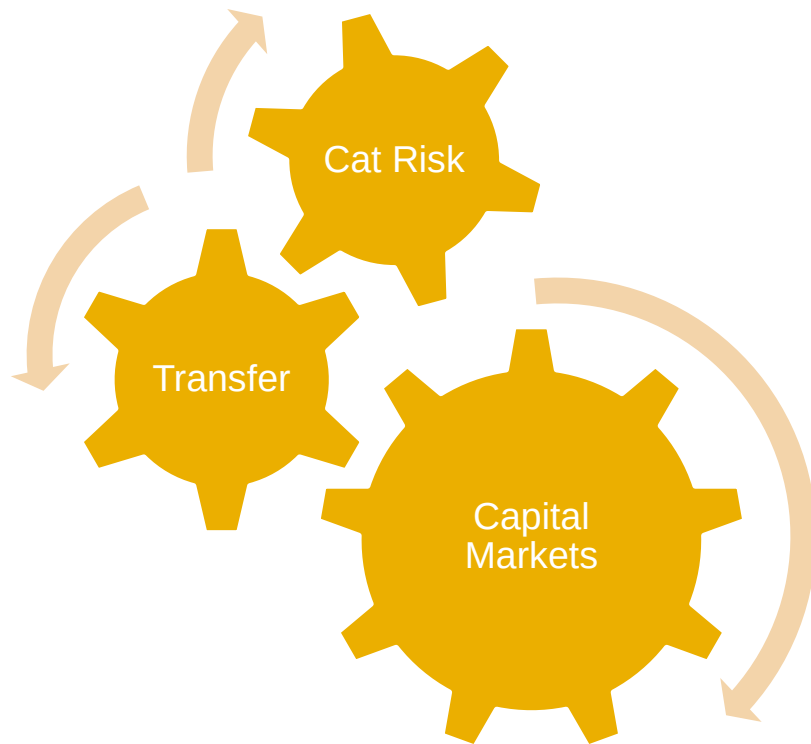
Ankit Goyal
Saanya Jain

29 May 2014

AGENDA

- Introduction
- Structure
- Triggers
- Comparison with Traditional RI
- Comparison with Corporate bonds
- Characteristics & Trends
- Advantages & Challenges

INTRODUCTION



Hurricane Andrew 1994



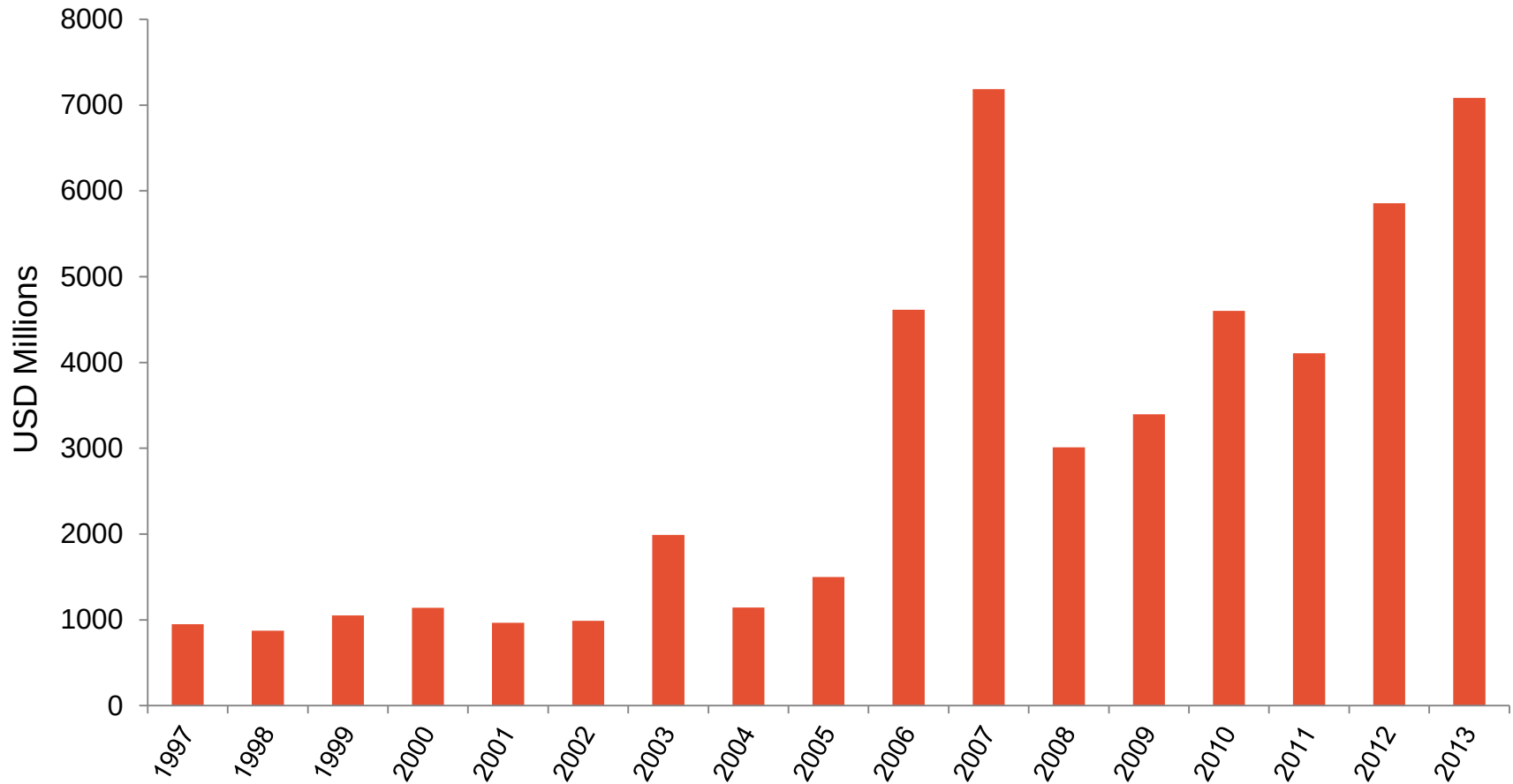
Hurricane Katrina 2005



Japan Earthquake 2011

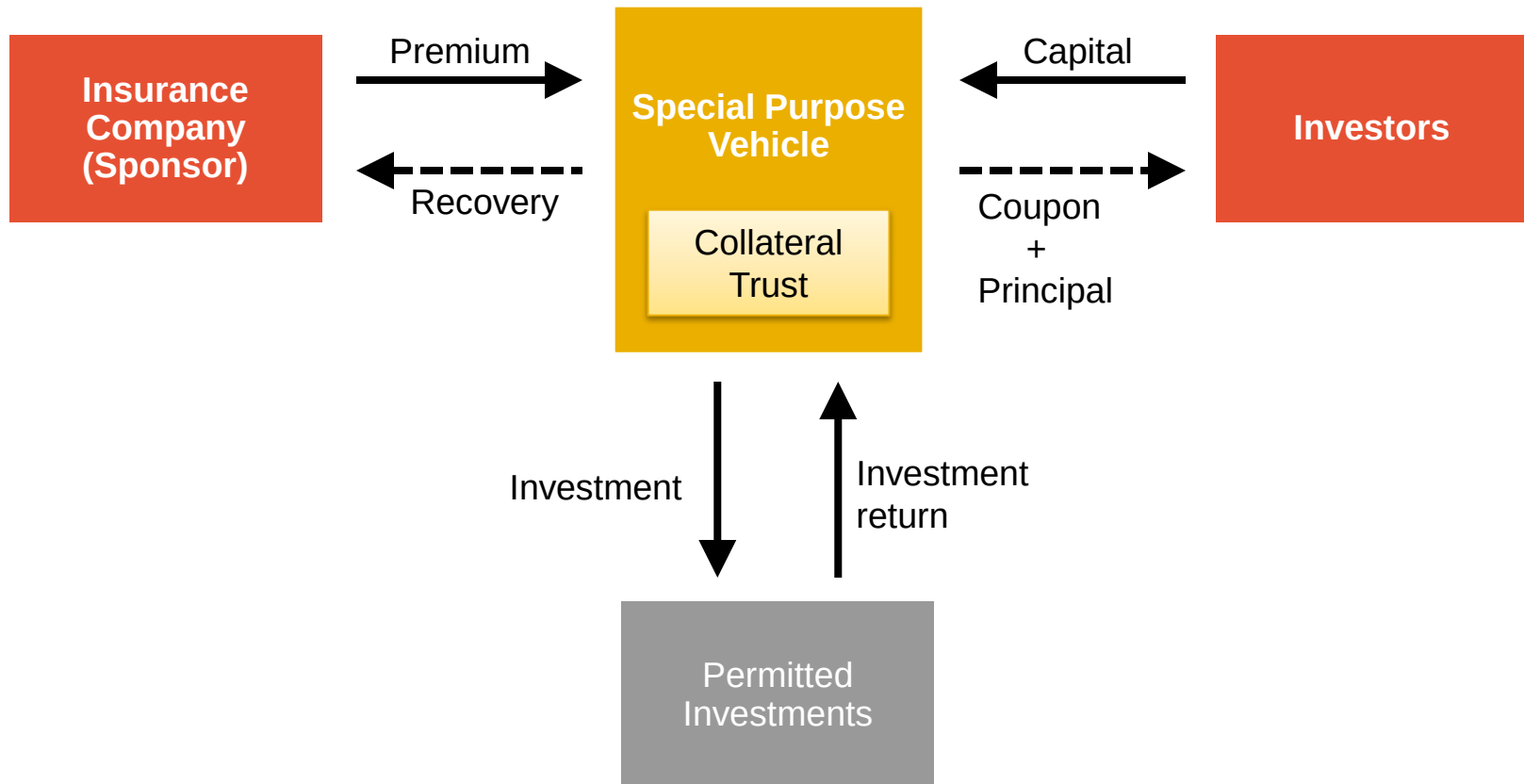
HISTORICAL GROWTH

Catastrophe Bond Issuance by Year



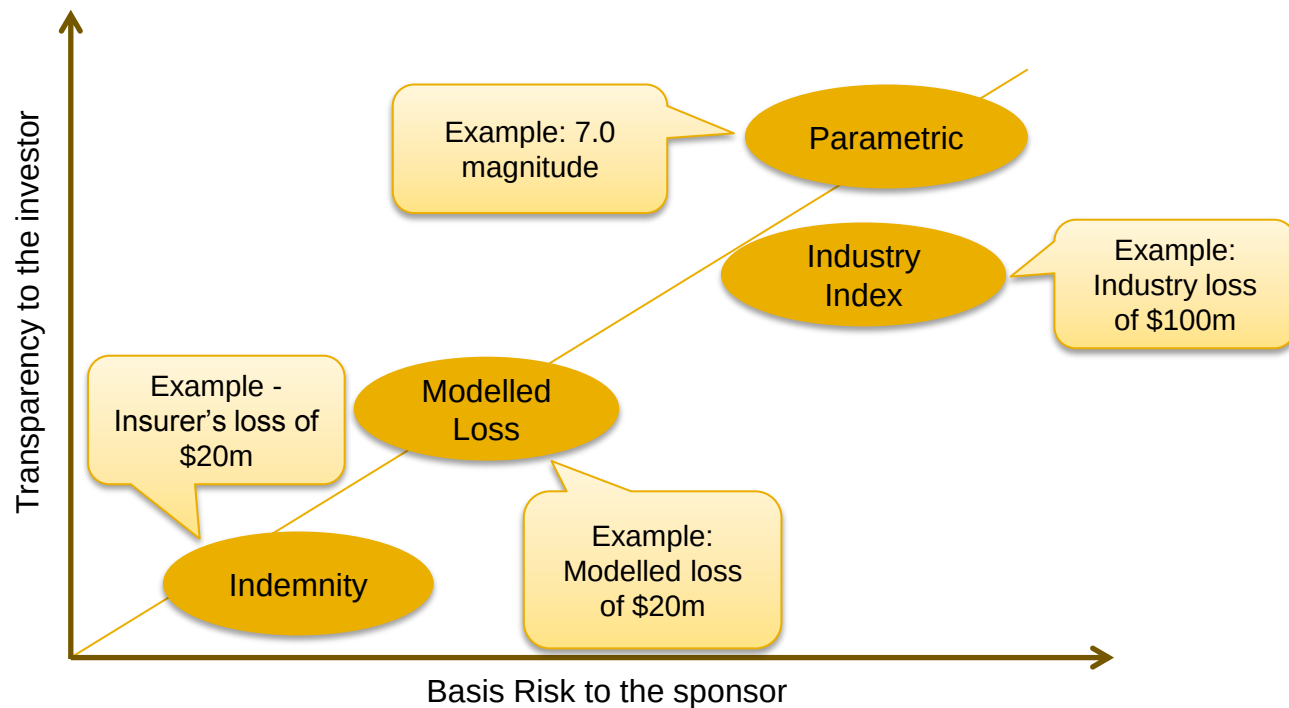
Source: Guy Carpenter

STRUCTURE



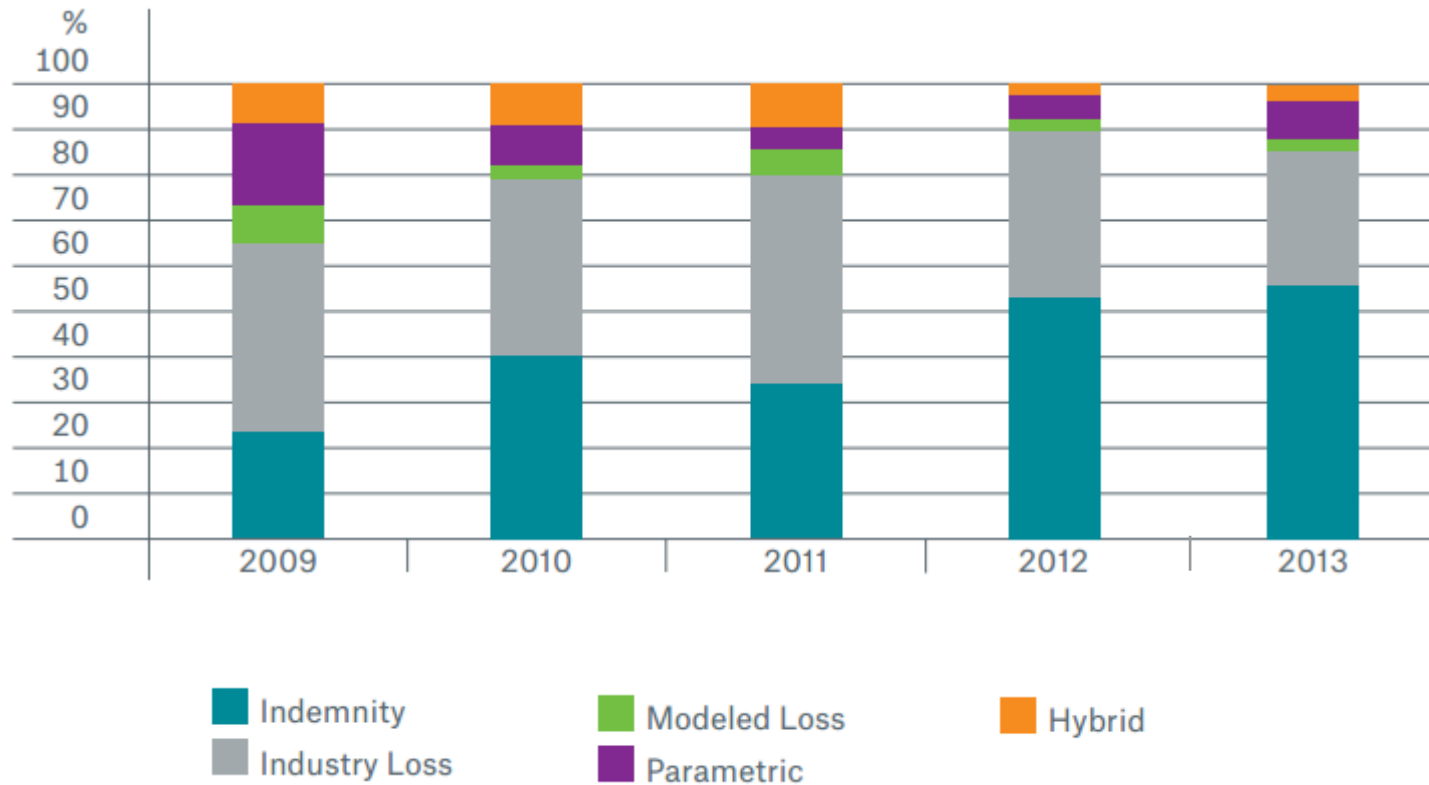
TRIGGER TYPES

Indemnity	Modelled Loss	Industry Index	Parametric	Hybrid
Issuer's actual loss	A notional exposure portfolio is constructed and run when event happens	Industry losses as reported by PCS or PERILS	Natural hazard parameters	A hybrid of various triggers



TRIGGER TRENDS

Trigger types as a % of number of bonds issued



Source: Munich Re

CAT BOND vs. TRADITIONAL REINSURANCE

Features	Cat Bonds	Traditional RI
Based on	Trigger mechanism	Indemnity
Term	~3 years	Annual
Reinstatements	None	Available
Costs	High upfront cost	Low
Capacity	Alternative	Consistent

CAT BOND vs. CORPORATE BOND

Features	Cat Bonds	Corporate Bonds
Aim	Transfer risk	Raise capital
Term	~3 years	Short, medium & long
Cause of Default	Cat event	Bankruptcy
Rating	Non-investment grade (BB and B)	Investment grade (AAA to BBB)
Recovery basis	Trigger mechanism	Remaining assets & seniority of bonds

CHARACTERISTICS

	Global Cat Bond	Equities	Corporate Bonds	High Yield Bonds	Commodities	Hedge Funds
Annualized Return	8.6%	6.1%	5.7%	9.7%	11.6%	2.2%
Volatility (p.a.)	2.9%	15.1%	6.8%	9.6%	23.5%	5.0%
Worst return year	2011	2008	2008	2008	2008	2008

Data from January 2002 to 31 December 2013

Cat Bonds: Swiss Re Cat Bond Index

Equities: S&P500 Total Return Index

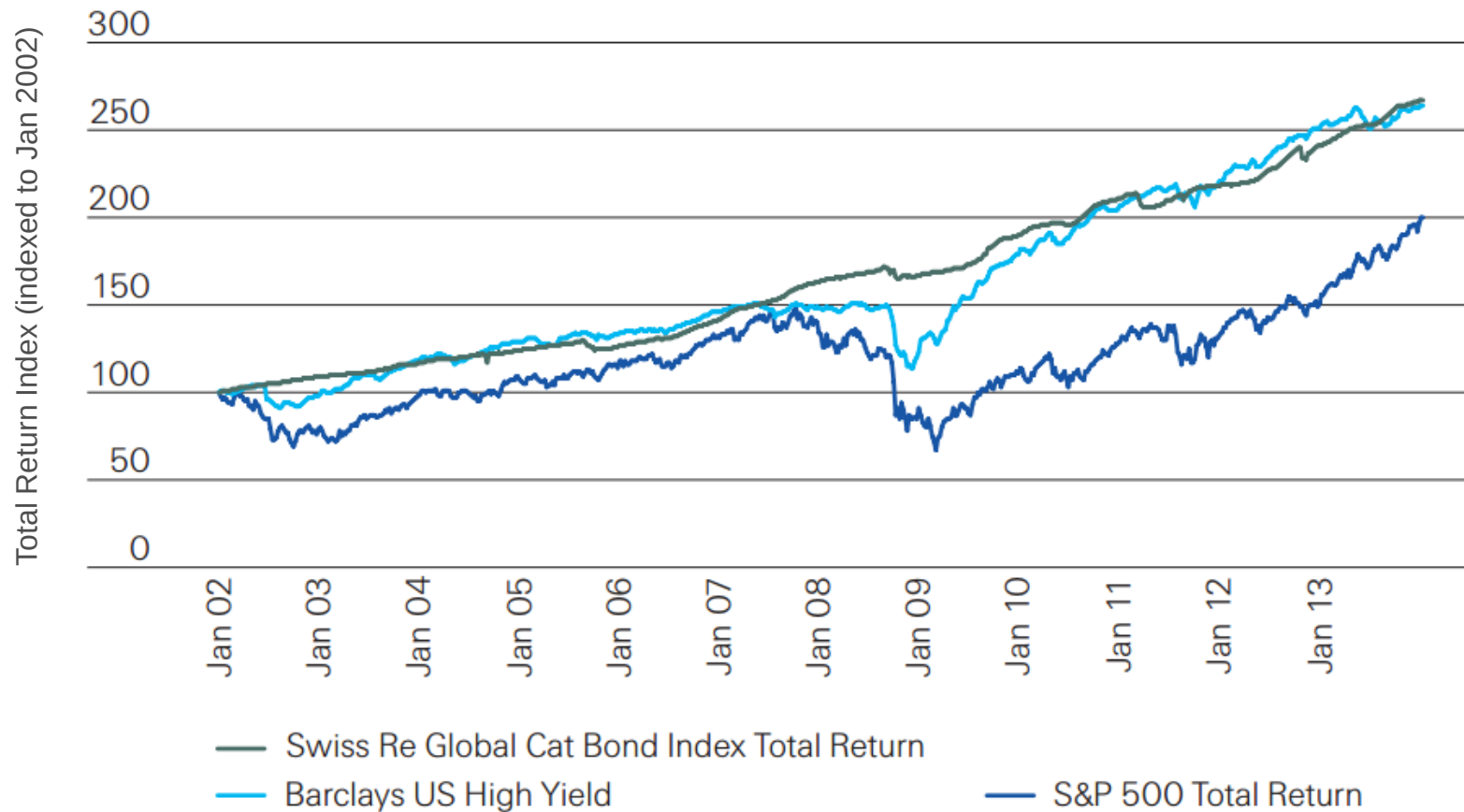
IG bonds: JP Morgan IG Corporate Total Return Index

High yield bonds: JP Morgan Global High Yield Index

Commodities: S&P Goldman Sachs Commodity Index

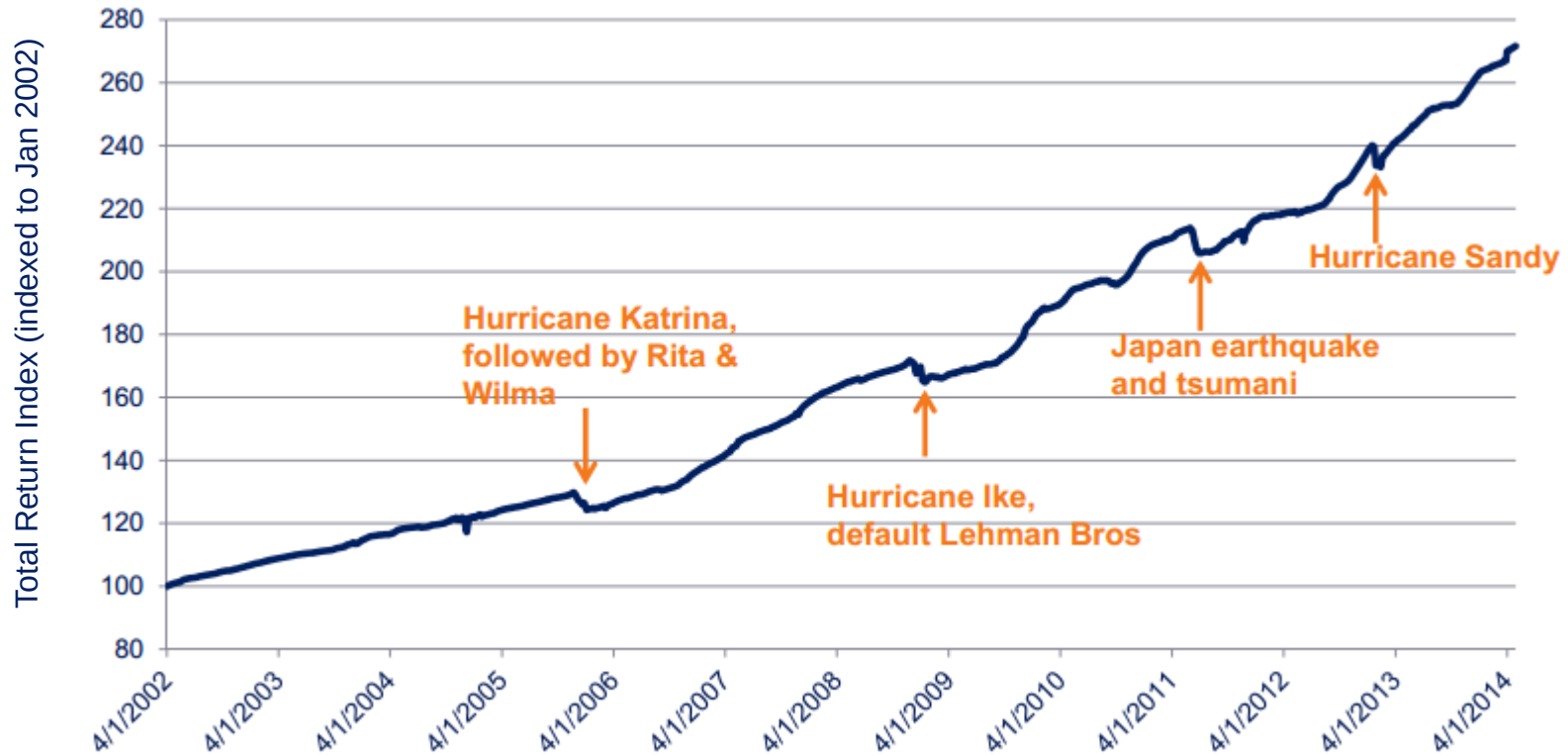
Hedge funds: HFRX Equally Weighted Index

PERFORMANCE COMPARISON



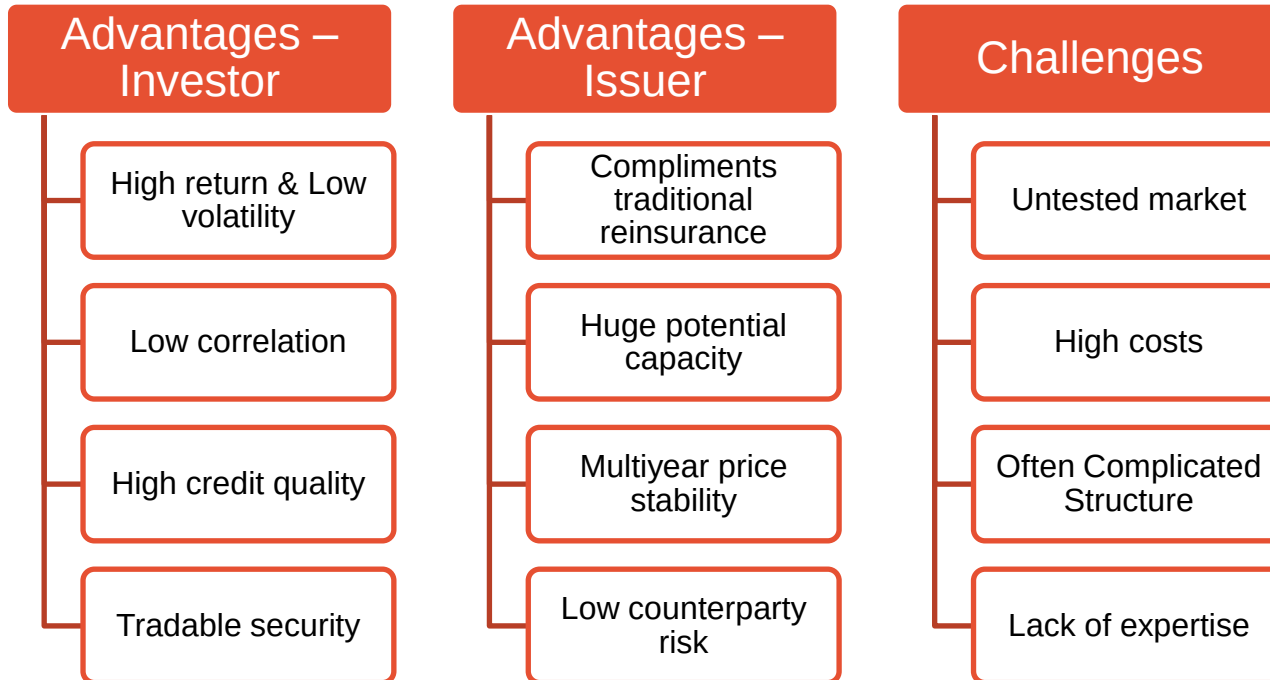
Source: Swiss Re Capital Markets

IMPACT OF EVENTS



Source: Bloomberg, Swiss Re Global Cat Bond Total Return Index

STAYING AHEAD OF THE GAME



A decorative orange geometric shape consisting of two horizontal bars of different lengths, with the longer bar on the right and the shorter bar on the left, creating a stepped effect.

Thank You

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Disclaimer: The views expressed in this presentation are a collective view of the speakers and do not necessarily reflect the views of Towers Watson