

Interest Rate Hedging: Market Trends and Best Practices

Jim Zhou, Global Atlantic Financial Group

Steve Castleton, Chatham Financial

Aaron Jacob, Chatham Financial

Cole Bloom, Chatham Financial



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- **Do not** discuss what you or other entities plan to do in a particular geographic or product markets or with particular customers.
- **Do not** speak on behalf of the SOA or any of its committees unless specifically authorized to do so.
- **Do** leave a meeting where any anticompetitive pricing or market allocation discussion occurs.
- **Do** alert SOA staff and/or legal counsel to any concerning discussions
- **Do** consult with legal counsel before raising any matter or making a statement that may involve competitively sensitive information.

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Poling Question

What is your level of familiarity with interest rate risk and hedging?

- A. I'm regularly involved in risk management and hedging
- B. I'm occasionally involved in risk management and hedging
- C. I'm rarely involved in risk management and hedging
- D. Risk management and hedging is new to me

Overview of Global Atlantic

Leading U.S. insurance company focused on attractive retirement and life insurance markets

- Founded at Goldman Sachs (“GS”) in 2004 and separated as an independent company in 2013
- ~1,100 employees and a seasoned management team with an average of ~20 years of experience



Performance Highlights



1. As of December 31, 2019

2. Based on FY2019 sales data as reported to LIMRA. Block Reinsurer based on statutory reserve credit taken by U.S. retirement and life insurance cedants for reinsurance transactions entered into from January 1, 2018 to December 31, 2019

3. Compared to a publicly traded peer set determined by management for the four years and nine months ending September 30, 2019.

Note: All averages and CAGRs are FY 2016 – FY 2019 results

Note: Past performance is not a guarantee of future results. The presentation above includes non-GAAP measures should not be considered as an alternative to GAAP financial measures. The Company's non-GAAP measures may not be calculated or comparable to similarly titled measures used by other companies. Management uses non-GAAP financial measures and has presented them in this presentation because it believes such measures allow investors to better understand the Company's results of operations and the underlying profitability drivers of the Company's business.

Chatham Financial

Financial risk management solutions that take your organization further

Chatham Financial delivers financial risk management advisory and technology solutions to organizations across industries and around the world — helping companies maximize value in the capital markets.



\$2.4 trillion in hedged notional on our platform



3,000+ clients around the world



Over **\$700 billion** in transaction volume annually



3,000+ ISDAs reviewed annually



Seven global offices



700 employees

Why are we here today?

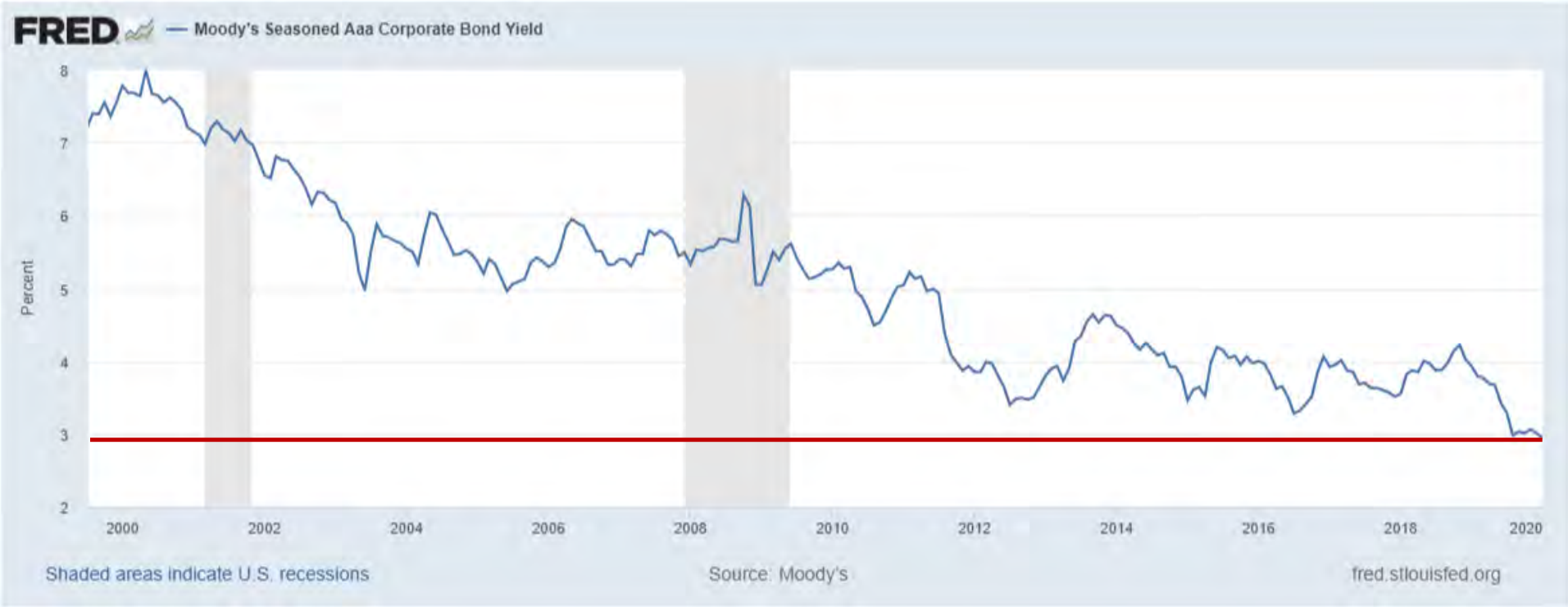
Context for insurance risk from a balance sheet perspective



Some telling charts...



Aaa Corporate Bonds – 2000 to Present



Aaa Corporate Bonds – 1980 to Present

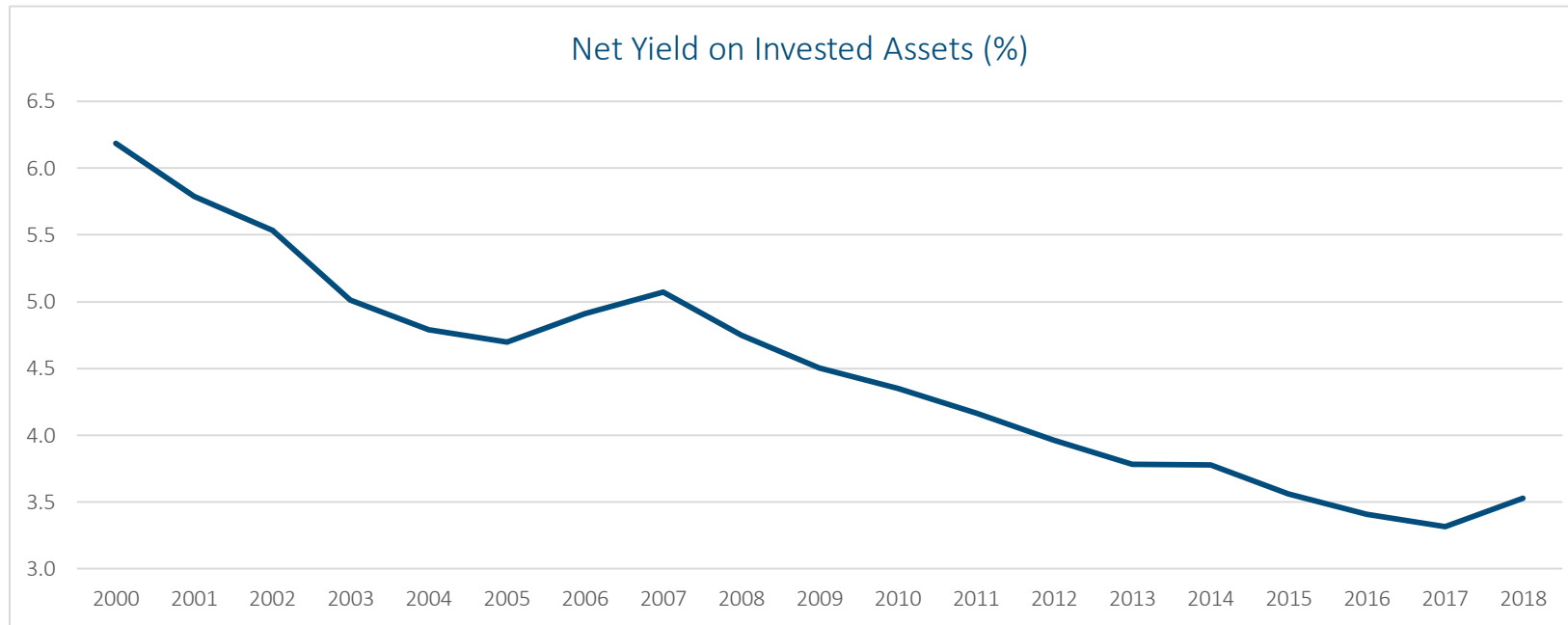


10-Year treasury—1980 to Present



Historic trends in insurance industry net yield

From 2010 to 2018 net yield on invested assets has steadily fallen across the life insurance industry



Source: NAIC Capital Markets Special Report

The post-financial crisis era has introduced historically low interest rates in the United States, which has put significant pressure on the net yield of insurers, as the return from fixed income products decrease proportionally with low rates.

This in turn has pushed insurers to seek yield in foreign assets as well as across non-traditional asset classes such as private equity and direct investments in real assets. The higher risk and lower liquidity of these assets command a higher risk premium to compensate investors accordingly.

10-year change in net yield

Insurer	2008 Net Yield	2018 Net Yield	Difference
Venerable Insurance & Annuity Co	3.77%	4.98%	1.21%
Global Atlantic	4.63%	4.41%	-0.22%
Brighthouse Financial	4.66%	4.31%	-0.35%
John Hancock	5.67%	5.02%	-0.65%
Genworth	5.39%	4.68%	-0.71%
Wilton Re	5.98%	5.19%	-0.79%
Pan American Life	5.88%	4.99%	-0.89%
Protective	5.77%	4.73%	-1.04%
SCOR	3.81%	2.64%	-1.17%
Prudential Financial Inc.	5.04%	3.75%	-1.29%
RGA	5.72%	4.26%	-1.46%
Northwestern Mutual	5.78%	4.19%	-1.59%
Standard Life & Cas Ins Co.	5.71%	4.12%	-1.59%
Lincoln Financial Group	5.72%	4.01%	-1.71%
Standard	5.77%	3.53%	-2.24%

How does this impact strategy...



Life Insurance Industry Market Perspectives

CIOs are adding new investment vehicles to improve yields. The ability to rapidly deploy hedging strategies gives insurers a competitive advantage.

Driving Objectives

Increase Yield

Insurers are looking to increase yield in this extended period of low interest rates. CIOs are expanding the types of investment vehicles to do so. Some of these new investments require hedging. Having the ability to hedge when necessary expands options available to CIOs to increase yield.

Improve Reaction Time to *Market Opportunities*

New hedging strategies can be difficult to implement for derivative operations teams – causing CIOs to miss attractive opportunities. Further, as insurers grow via acquisition, derivative volumes can spike. Many derivative operations teams lack the necessary expertise and systems to add new strategies or deal with spikes in volumes in a short period of time.

Secondary Considerations

Focus on Core

What opportunities exist to outsource non-core functions

Flexible Technology

Leveraging efficiencies of technology that evolves with market changes

Reduce Costs

Seek out opportunities for cost savings to boost margins and preserve capital

Match the products/exposure with the hedging instrument

Insurance Product / Investment
Exposure

Fixed Indexed Annuities

Foreign Denominated Bonds

Reinvestment Risk

Fixed Income / Structured Products

Derivative Instrument

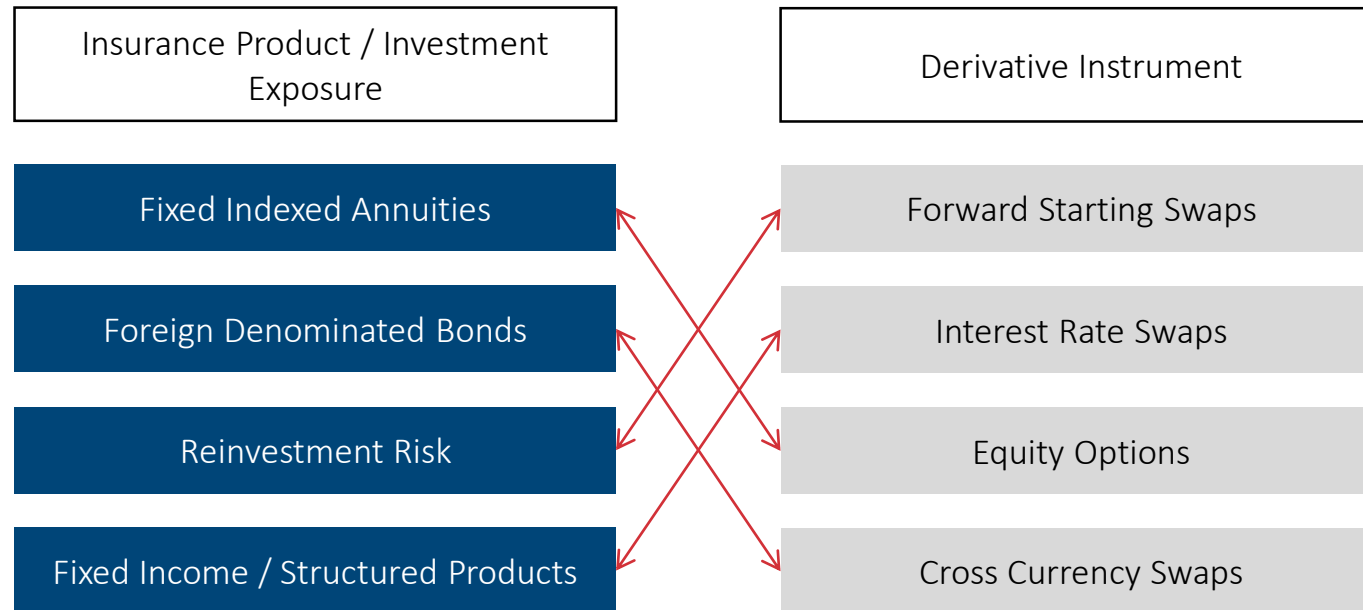
Forward Starting Swaps

Interest Rate Swaps

Equity Options

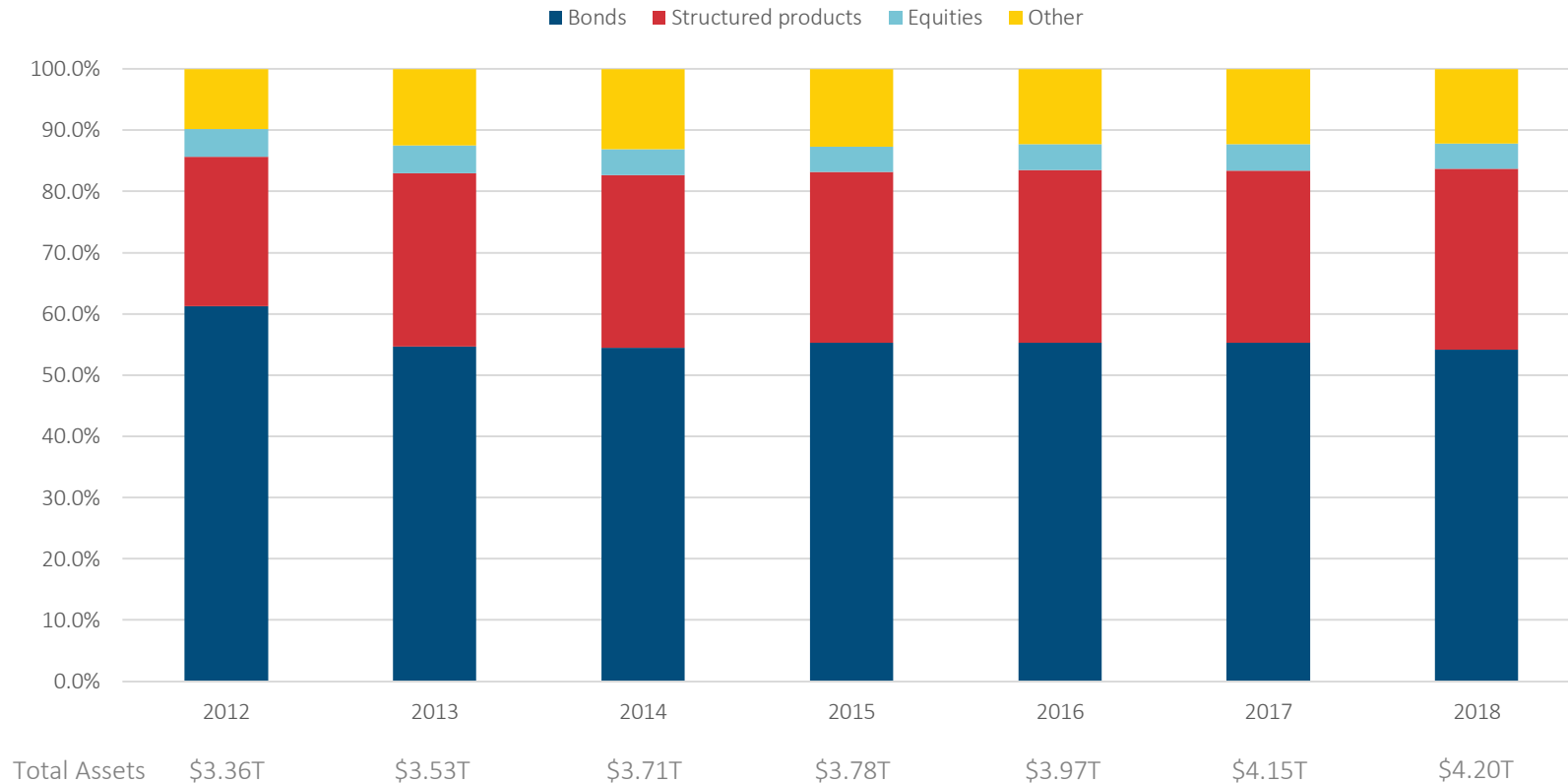
Cross Currency Swaps

Match the products/exposure with the hedging instrument



Trends in insurer invested asset mix

While bonds continue to be the majority of holdings, the subtle decline in bonds has been filled by an uptick in structured products.



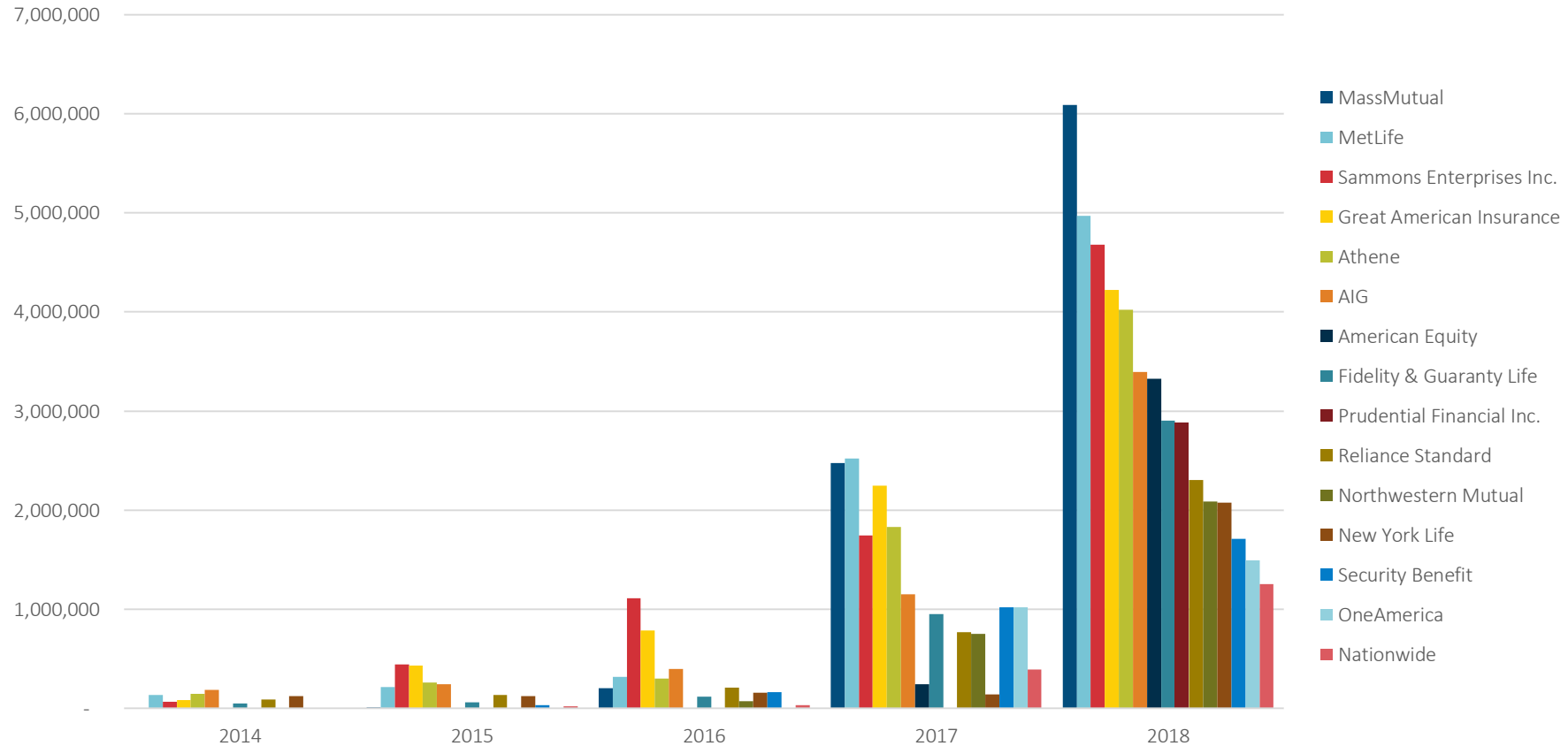
Source: NAIC Capital Markets Special Report

“Equities” includes common stock and preferred stock. “Other” includes real estate, cash and short-term investments, securities lending, and Schedule BA assets (long term assets including but not limited to hedge funds and private equity)

Trends in top insurers CLO investments

There's been a sharp recent up-tick in CLO activity

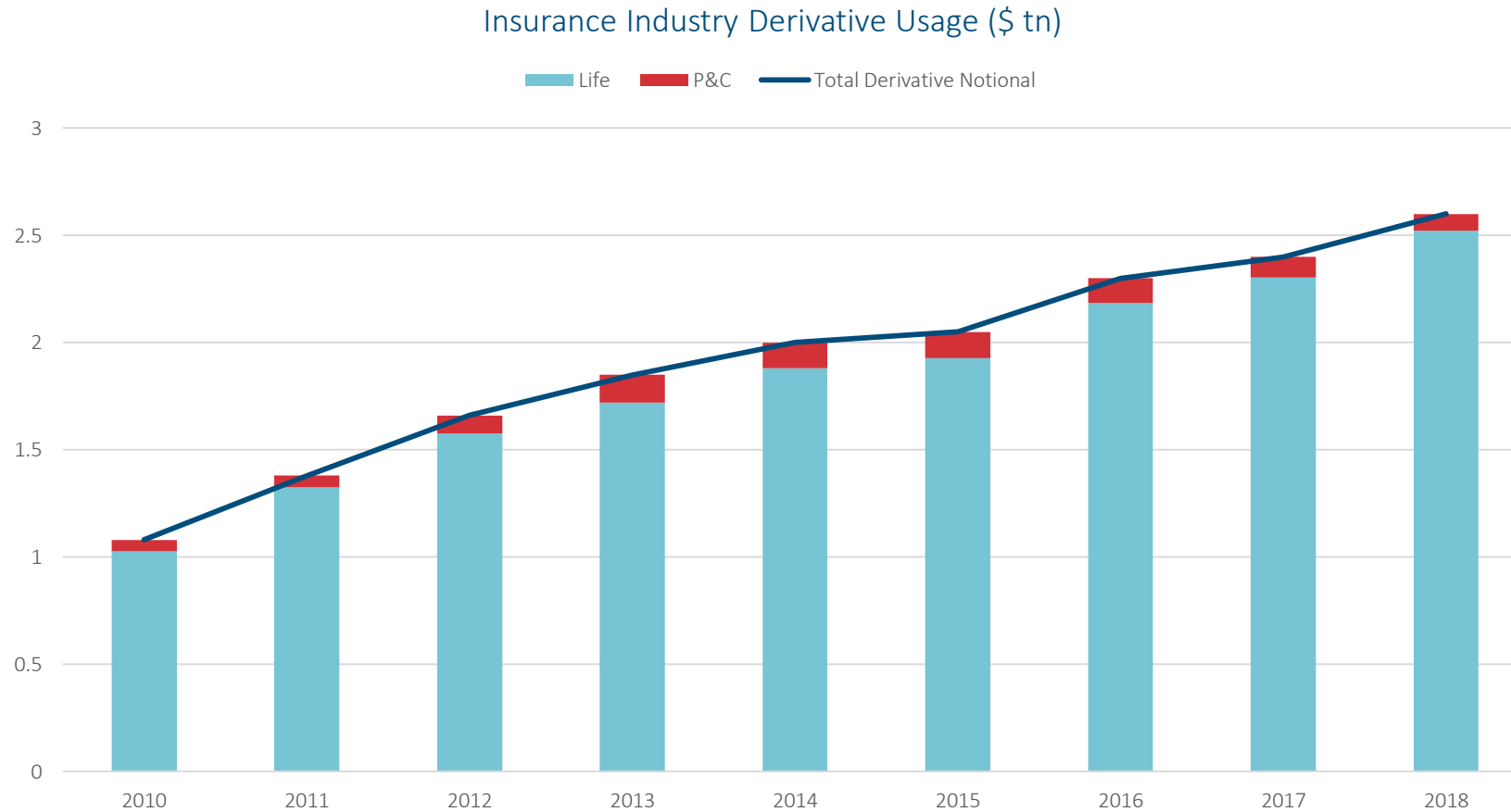
Top 15 Insurers CLO Carry Value (\$'000)



Source: S&P Global Market Intelligence

Derivative usage in the insurance industry

As measured by notional, the use of derivatives among insurers has grown over time. Life insurers account for the majority of reported notional



Source: NAIC Capital Markets Special Report

Poling Question

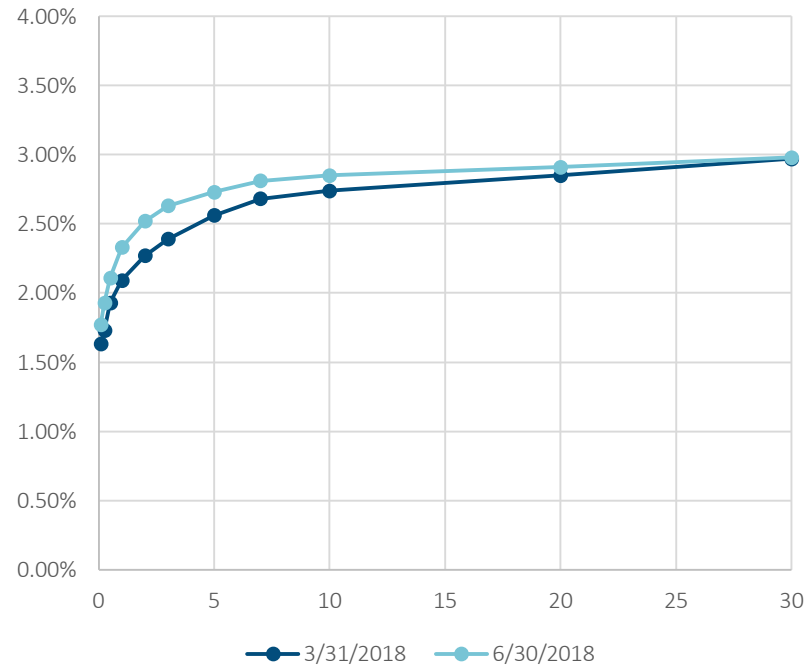
As far as you know, what hedging strategies are employed at your companies? (Select all that apply)

- A. Hedging variable rate structured products
- B. Hedging foreign bonds
- C. Hedging forward bond purchases
- D. Other
- E. I'm not familiar with our current hedging programs

Case Study: Basis Risk

Client calculated material change in capital from decline in bootstrapped forward rates

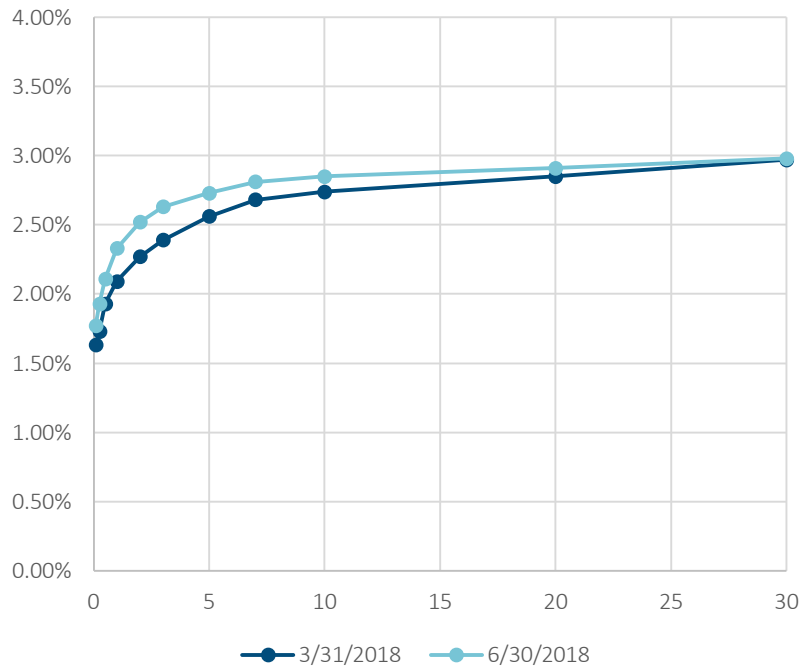
Treasury Par Yield Curve



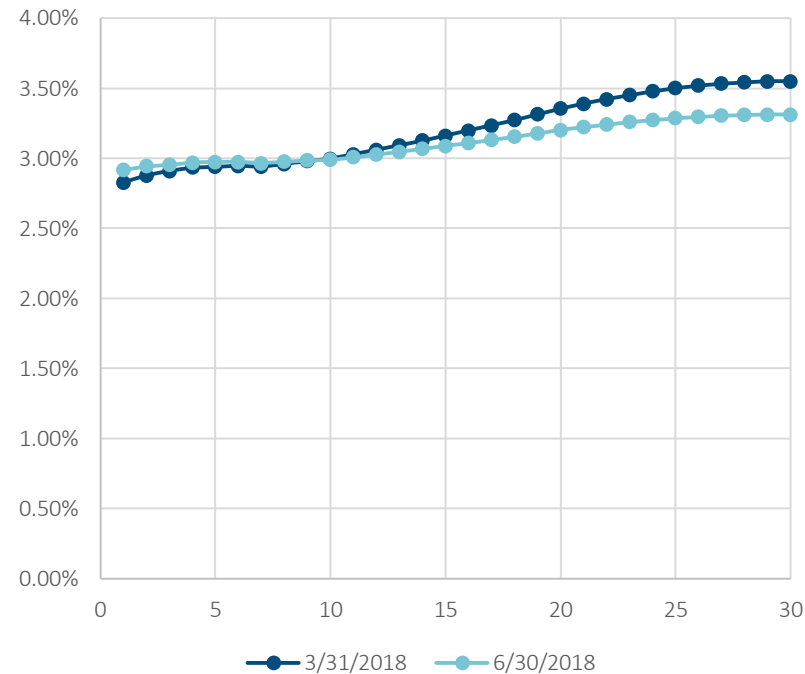
Case Study: Basis Risk

Client calculated material change in capital from decline in bootstrapped forward rates

Treasury Par Yield Curve



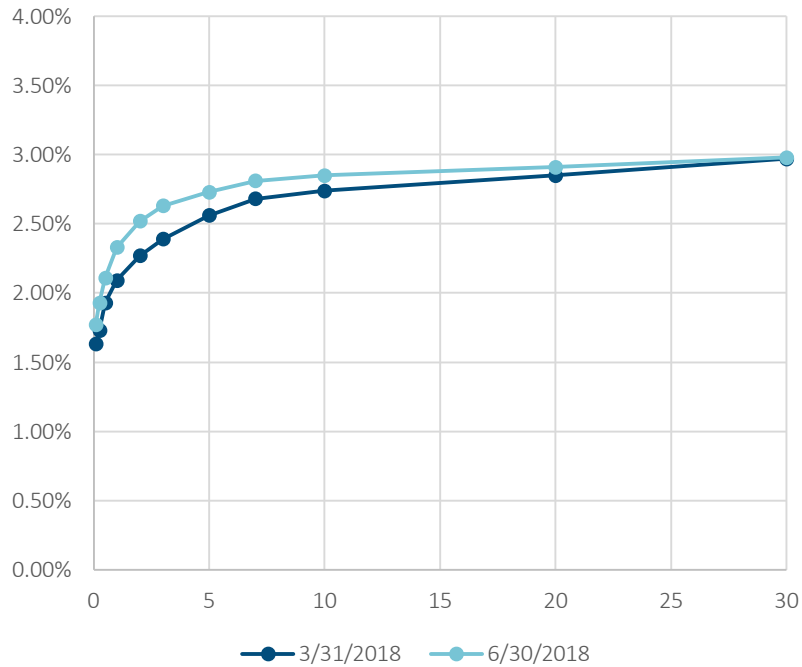
10Y Treasury Forward Curve (Client Model)



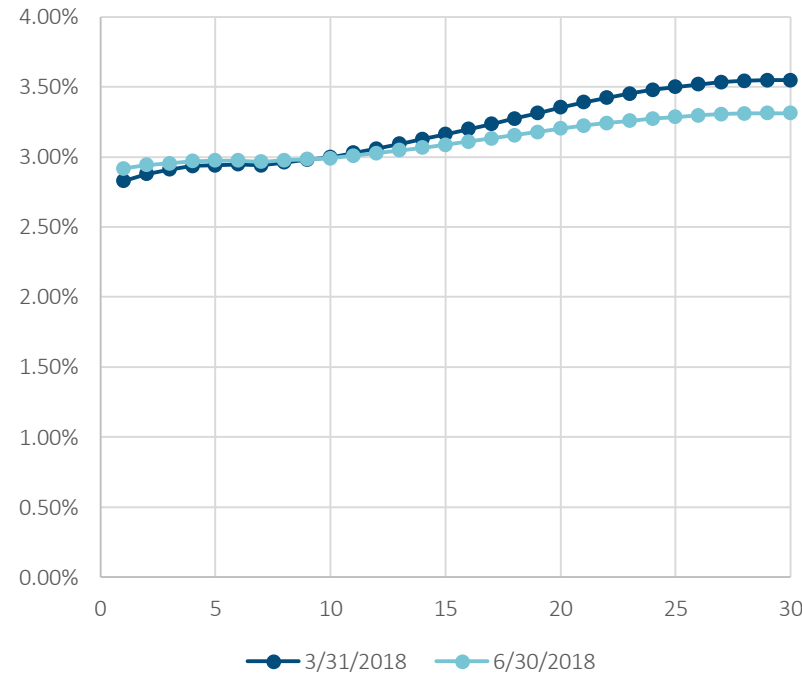
Case Study: Basis Risk

Client calculated material change in capital from decline in bootstrapped forward rates

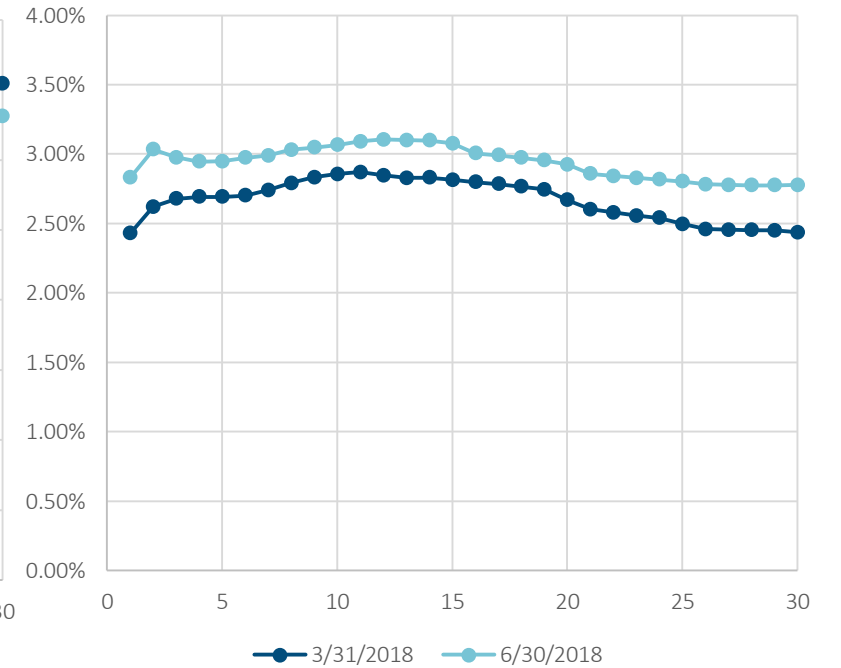
Treasury Par Yield Curve



10Y Treasury Forward Curve (Client Model)



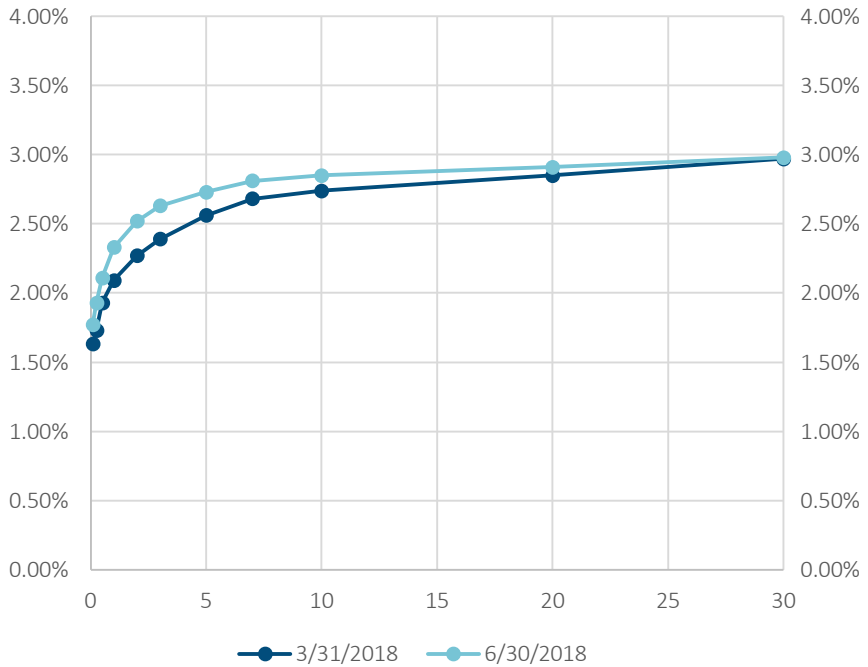
1m LIBOR Forward Curve



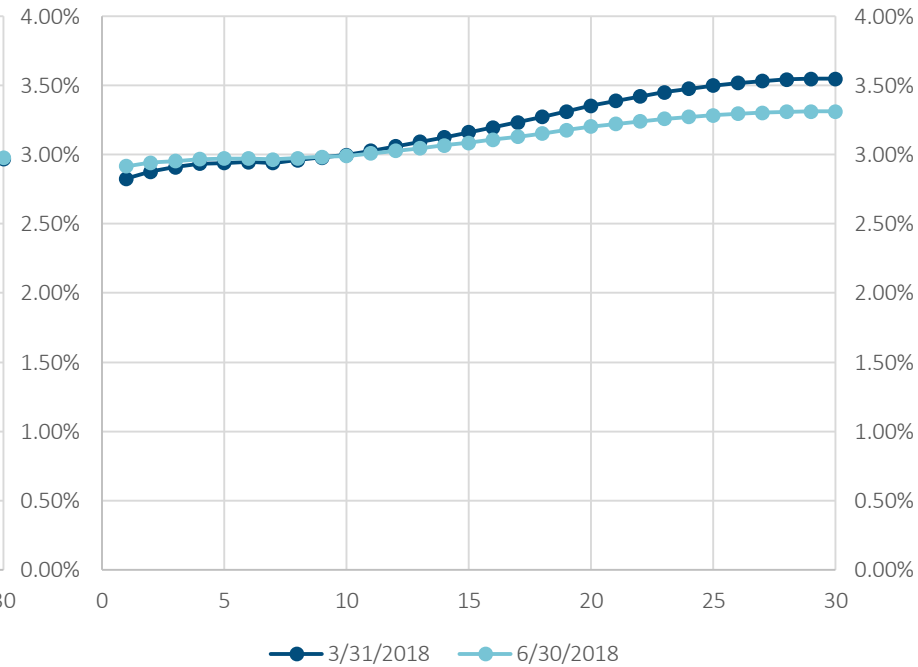
Case Study: Model Risk

Client calculated material change in capital from decline in bootstrapped forward rates

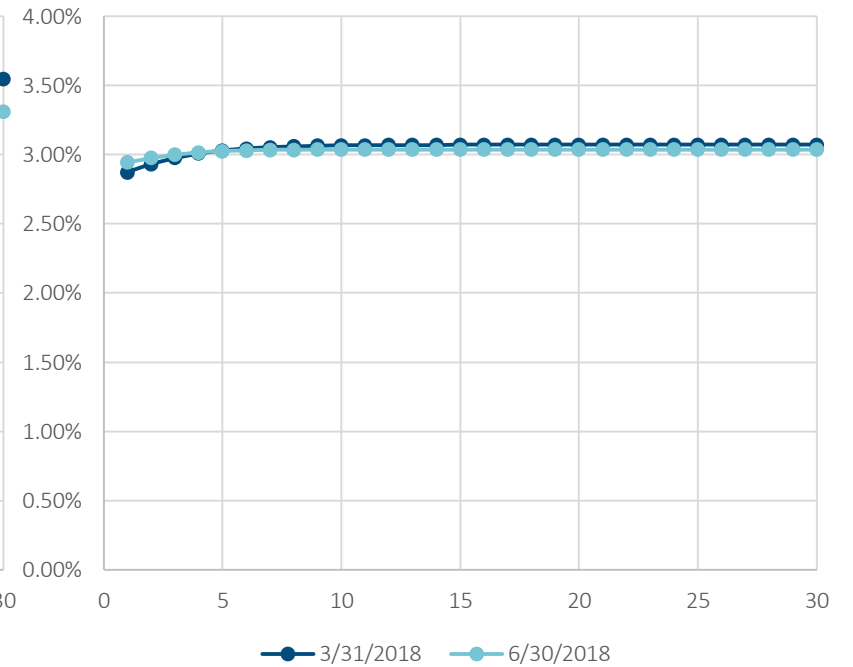
Treasury Par Yield Curve



10Y Treasury Forward Curve (Client Model)



10Y Treasury Forward Curve (NSS Model)



Case Study: Liquidity Risk

“Hence, as Harvard’s NPV on its IR swap contracts became more and more negative, the amount of cash it had to deliver as collateral rose. This created an additional consideration for Harvard; that of liquidity, or more accurately illiquidity. This increased need to generate more and more liquid cash likely played a roll in Harvard’s decision to pay \$497.6 million in fiscal year 2009 to terminate a subset of its interest rate swaps with notional value totaling \$1.1 billion, three of which swaps were tied to \$431.7 million of bonds the university sold in fiscal years 2005 and 2007.”

- Society of Actuaries Committee on Finance Research, “Interest Rate Swaps – An Exposure Analysis”

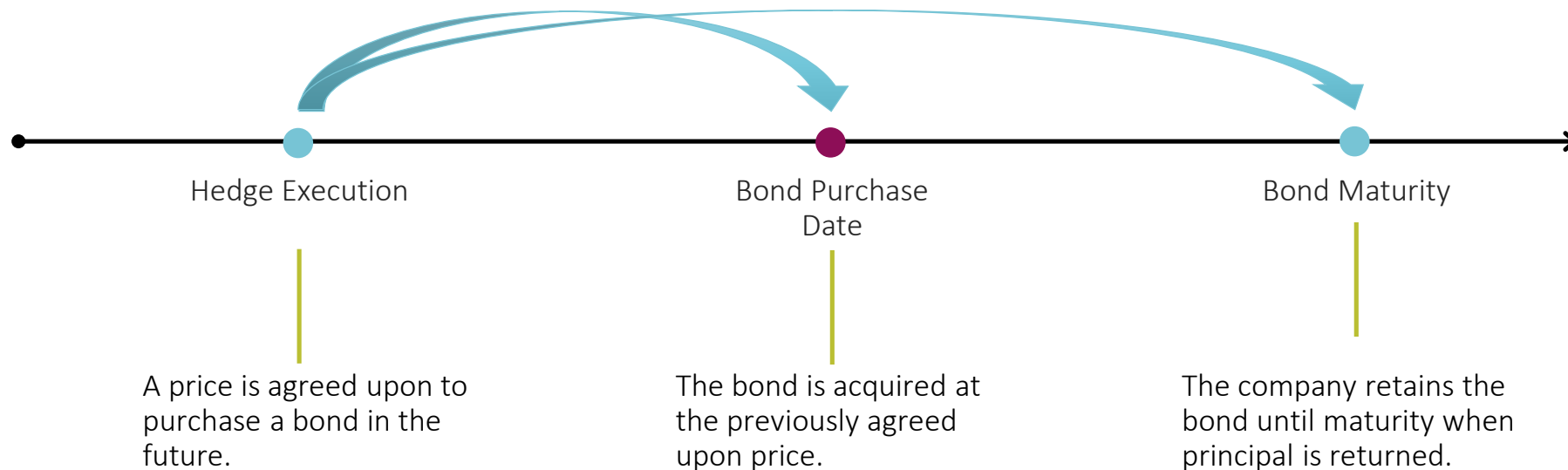
Variation Margin (\$mm)* *Rates are indicative only*

Shock Rate	Current	1 year	2 year
-200.00 bps	75,970,813	79,912,110	83,731,423
-150.00 bps	49,383,705	52,828,108	56,010,971
-100.00 bps	28,423,856	31,123,689	33,435,910
Unchanged	0	755,576	890,772
+100.00 bps	-14,898,859	-16,351,988	-18,653,491
+200.00 bps	-20,349,717	-24,005,967	-28,746,135
+300.00 bps	-19,313,883	-25,010,054	-32,036,366
+400.00 bps	-13,934,880	-21,424,058	-30,498,463
+500.00 bps	-5,756,946	-14,756,132	-25,600,374

*Variation Margin (VM) reflects the value of the position(s) and Bank can be a pledger or holder of collateral

Case Study: Future Bond Purchases– Bond Forward Solution

- An agreement to purchase bonds in the future at a price determined today
- Enables companies to “lock in” today’s rate for future investments
- Accounting considerations to align economic objectives with financial reporting outcomes



Case Study: Foreign Bond Hedging – Turnkey Solution

A large asset manager wanted to offer a new investment strategy to insurance companies giving them greater access to foreign investments. The company needed a comprehensive turnkey solution to hedge the FX exposure.

Company goals

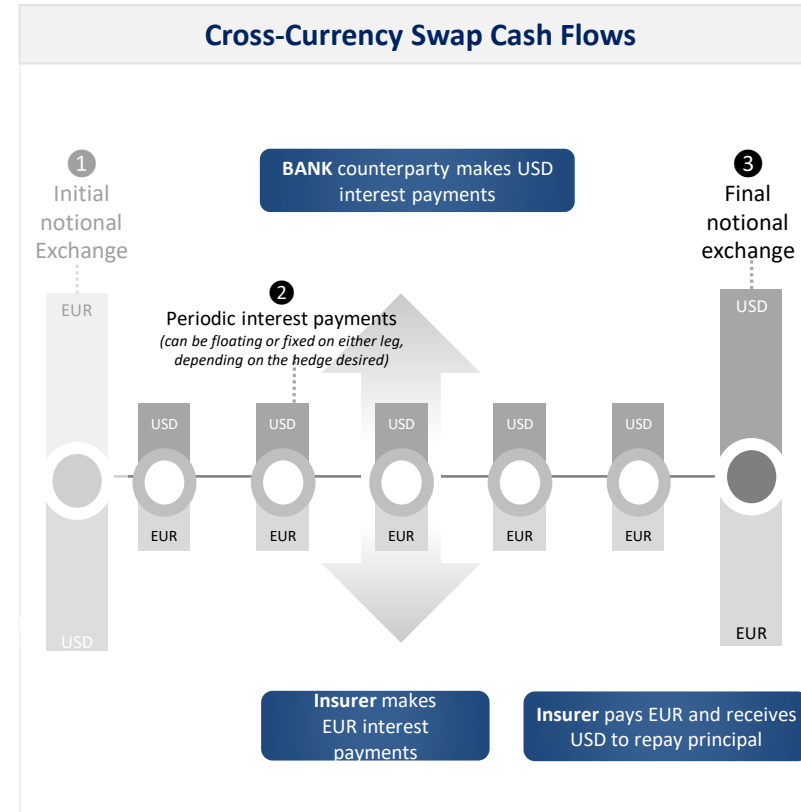
- End-to-end outsourced solution for cross currency swaps that includes trade execution, collateral, ongoing operations, and accounting
- Tailored solution to fit the needs of multiple clients

Key activities

- Received bond investment trade details and executed cross currency swaps to hedge bonds
- Provided confirmation and transaction details to asset manager and insurance company through our technology platform – ChathamDirect
- Provided valuations and hedge accounting journal entries to client at the end of each month

Results

- Outsourced the entire derivatives process
- Fit seamlessly into the process between the asset manager and the client



Questions?



Thank you





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