

A New ALM Approach

Lessons from the SVB collapse

May 2023

Straterix

SVB, First Republic...and a banking crisis

“First Republic Fallout: A Call for More Effective Bank Board Risk Committees”

“Bank Failures and the Need for Better Risk Leadership”

“Different, but the Same: What Bank Failures Can Teach”

“SVB and Signature Bank: Risk Management Revelations”

“Would DFAST Have Saved SVB?”

Key takeaways...

✓ Regulations

✓ ALM mismatch

✓ Uninsured deposits

✓ Accounting

✓ Liquidity

✓ Governance



We live in an unpredictable world

J.P.Morgan

"...forecasters have been operating in a fog..."

(April 9, 2020)

MOODY'S

"...A New, Dysfunctional Era Disrupts Default Predictions"

(August 14, 2020)

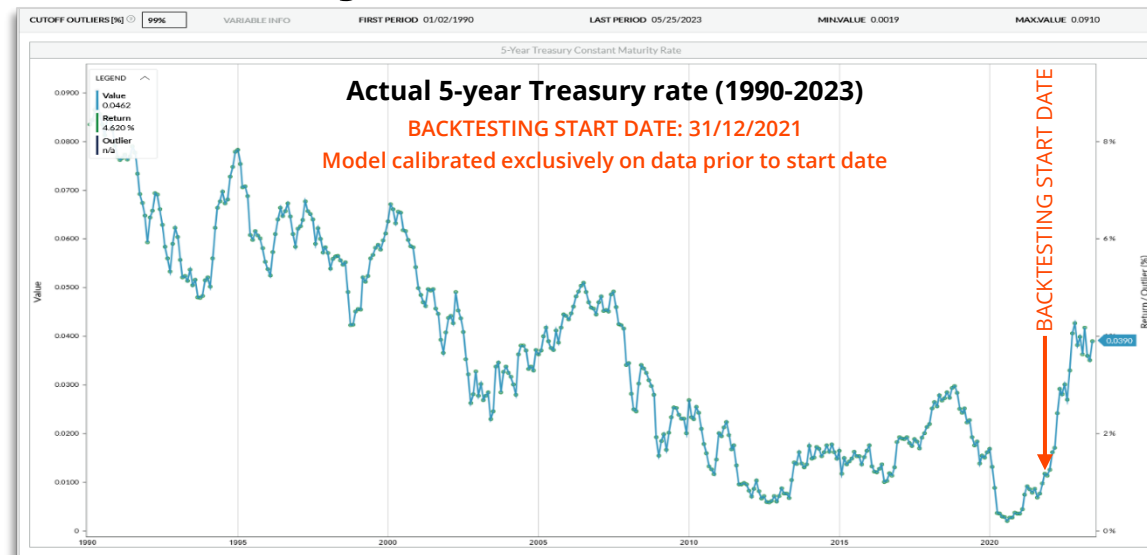


"Finance needs to deal in data points and not crystal balls...The only thing we can say with certainty is that we cannot predict the single outcome of any situation..."

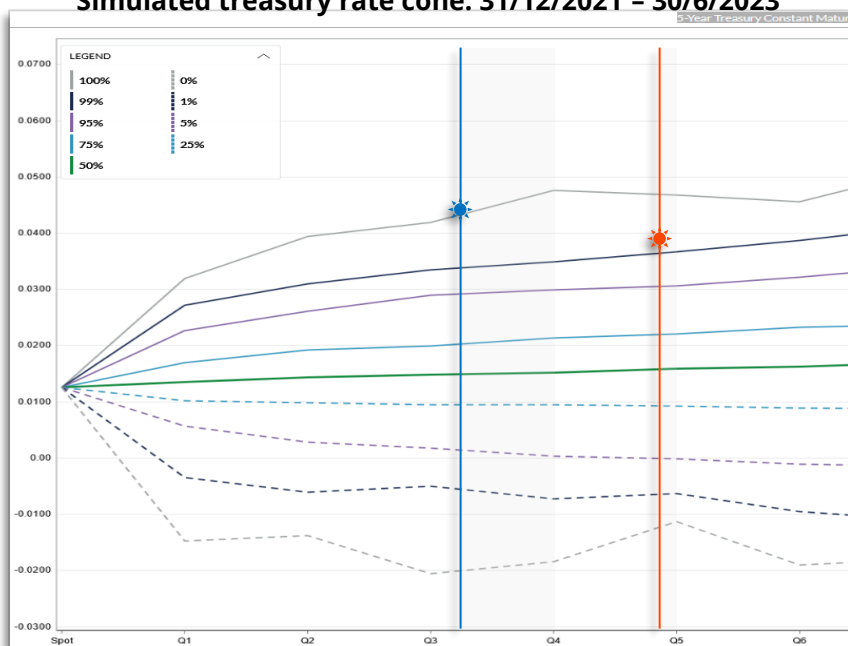
(June 18, 2020)

Backtesting of the 5-year Treasury rate

- **Backtesting start date: 31/12/2021**
Model calibrated exclusively on data prior to start date
- **In 4Q22 the 5-year Treasury rate reached 4.45%**
☀ This rate was captured at between the 99.5th and 99.8th percentile in the simulated backtesting cone
- **On March 10 (day of the SVB collapse) the rate stood at 3.96%**
☀ This rate was captured between the 99th and 99.5th percentile in the simulated cone



Simulated treasury rate cone: 31/12/2021 – 30/6/2023

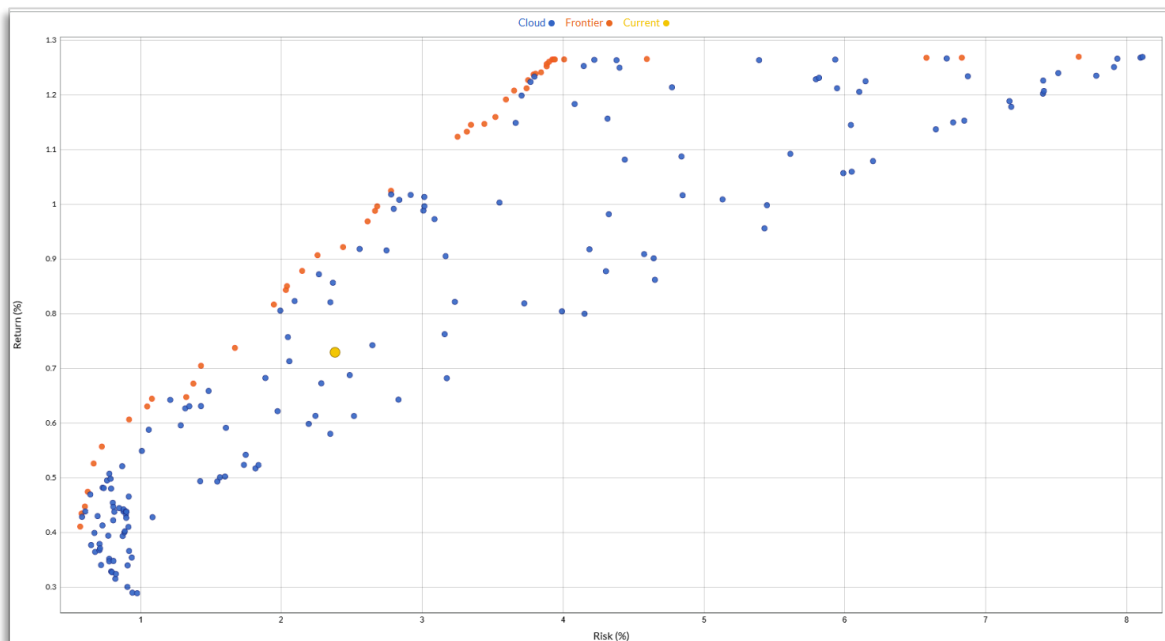


Simulated treasury rate cone (TABLE VIEW)

PERCENTILE	Spot	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5	Quarter 6
100%	0.0126	0.0319	0.0394	0.0419	0.0476	0.0468	0.0455
99%	0.0126	0.0272	0.0309	0.0335	0.0349	0.0367	0.0387
95%	0.0126	0.0226	0.0261	0.0289	0.0299	0.0307	0.0322
75%	0.0126	0.0169	0.0193	0.0200	0.0214	0.0220	0.0232
50%	0.0126	0.0135	0.0144	0.0149	0.0152	0.0159	0.0163
25%	0.0126	0.0102	0.0098	0.0095	0.0095	0.0092	0.0088
5%	0.0126	0.0057	0.0028	0.0018	0.0003	-0.0001	-0.0011
1%	0.0126	-0.0035	-0.0060	-0.0050	-0.0073	-0.0063	-0.0096
0%	0.0126	-0.0147	-0.0138	-0.0205	-0.0184	-0.0113	-0.0191



Comparing cash investment strategies



FRONTIER POINT	RETURN	RISK	1-YR	3-M	3-YR	5-YR ↑	6-M
Yes	1.27	7.66	6.85e-109	7.2e-5	9.88	90.12	0.0028
Yes	1.27	6.83	7.48e-105	0.0001	29.12	70.79	0.0853
Yes	1.27	6.58	0	0.0032	36.5	63.44	0.0516
Yes	1.27	4.59	7.85e-143	1.34e-11	86.93	13.07	0.0011
Yes	1.15	3.44	2.17e-86	6.57e-5	82.72	3.03	14.25
Yes	1.16	3.52	1.19e-33	10.71	87.23	2.06	0.0078
Yes	1.21	3.74	1.64e-180	0.1663	91.68	1.97	6.19
Yes	1.26	4.01	8.31e-92	0.002	98.44	1.56	0.0011
Yes	0.8166	1.95	6.81e-72	8.84	46.26	1.33	43.57
Yes	0.9215	2.44	0	16.52	60.53	1.17	21.78
Yes	0.7046	1.43	8.46e-68	5.13	32.6	0.7828	61.49
Yes	0.8502	2.04	5.13e-234	1.14e-6	49.24	0.7542	50.01
Yes	1.24	3.84	1.21e-46	2.39	96.92	0.6735	0.0208
Yes	1.13	3.32	5.6e-131	2.9	83.95	0.6494	12.5
Yes	0.9962	2.68	1.11e-257	2.8	67.66	0.4715	29.07
Yes	0.9878	2.66	7.33e-247	7.74	67.6	0.4482	24.22
Yes	1.25	3.88	3.24e-50	0.9047	98.19	0.4471	0.4595
Yes	0.9686	2.61	1.73e-109	14.6	66.57	0.4452	18.38
Yes	1.26	3.94	1.15e-6	0.0012	99.67	0.3243	9.91e-6
Yes	0.7373	1.67	6.86e-290	31.2	41.97	0.2569	26.58
Yes	1.12	3.25	0	2.45e-6	82.73	0.206	17.07
Yes	1.26	3.93	4e-163	0.0015	99.78	0.2035	0.017
Yes	0.6444	1.08	1.03e-34	0.115	24.98	0.2026	74.71

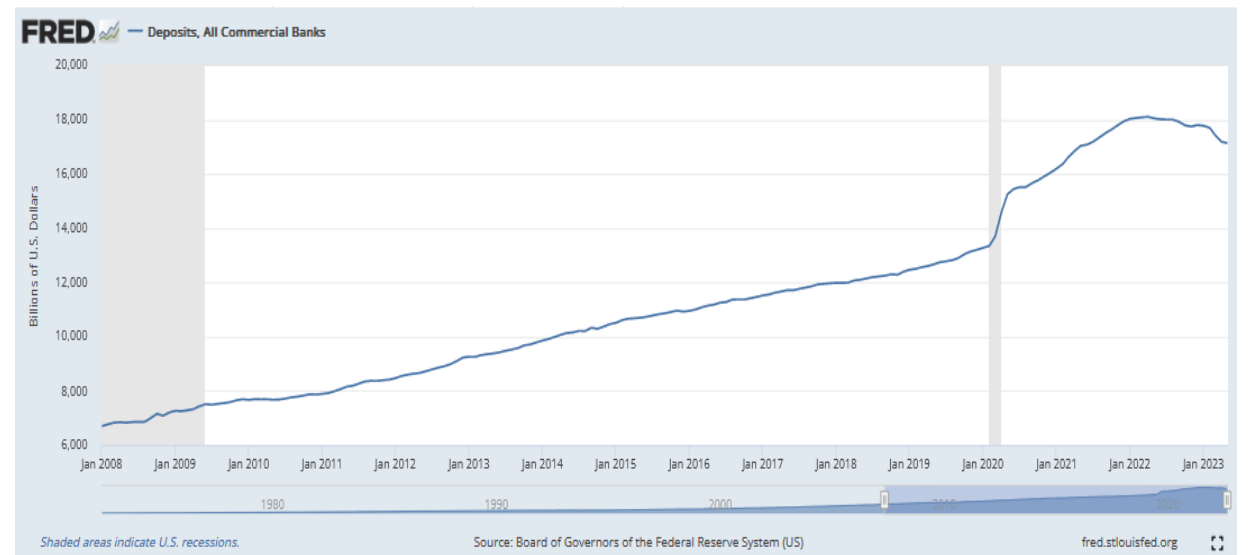
- **Portfolio alternatives plotted:**
Various combinations of different bonds calculated across the same set of full-range scenarios
- **Result: Similar return with much lower risk could have been achieved(!)**

Deposits were closely connected to VC and PE performance

AXS Thomson Reuters Venture Capital Return Tracker Fund (LDVAX)



Invesco Global Listed Private Equity ETF (PSP)



How to get prepared...

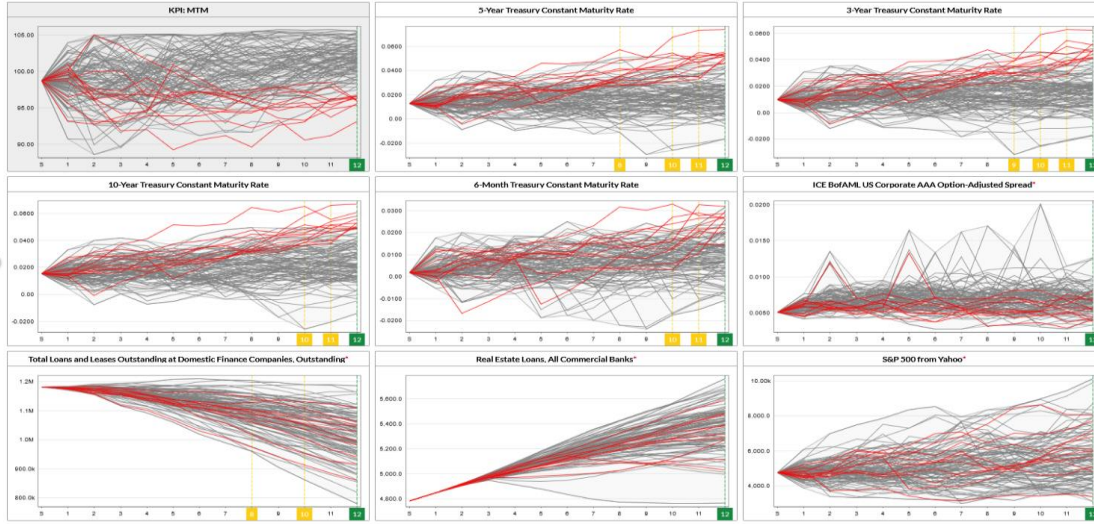
REPORTS

PPNR Reversed Scenario Analysis

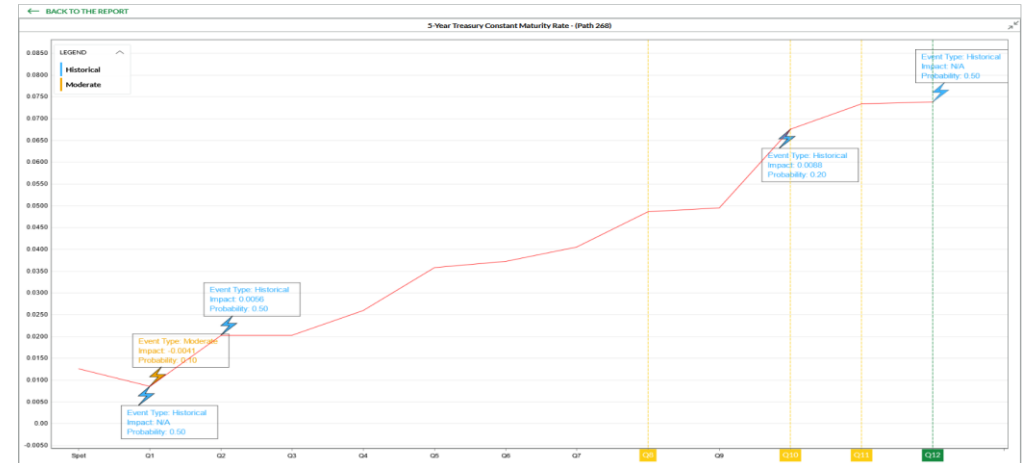
SELECT PORTFOLIO [OPTIONAL]
 Cash Allocation 5yr
 SELECT RELATIONSHIP
 ALM Backtesting
 RESULT HORIZON: Quarter 12
 FREQUENCY MODE: Quarterly / Monthly / Annually
 STRESS PERCENTILE: 1% / 5% / 50% / 95% / 99%

SELECT KPI/VARIABLE
 MTM
 EXPLANATORY VARIABLES
 DEPENDENT VARIABLES
 PORTFOLIO VARIABLES

SELECT VARIABLES [OPTIONAL]
 AVAILABLE VARIABLES...
 30-Year Fixed Rate Mortgage Average in US
 Total Loans and Leases Outstanding at Domestic Finance Companies...
 Real Estate Loans, All Commercial Banks*
 S&P 500 from Yahoo*
 ICE BofAML US High Yield B Option-Adjusted S...
 EXPLANATORY VARIABLES
 1-Month Treasury Constant Maturity Rate



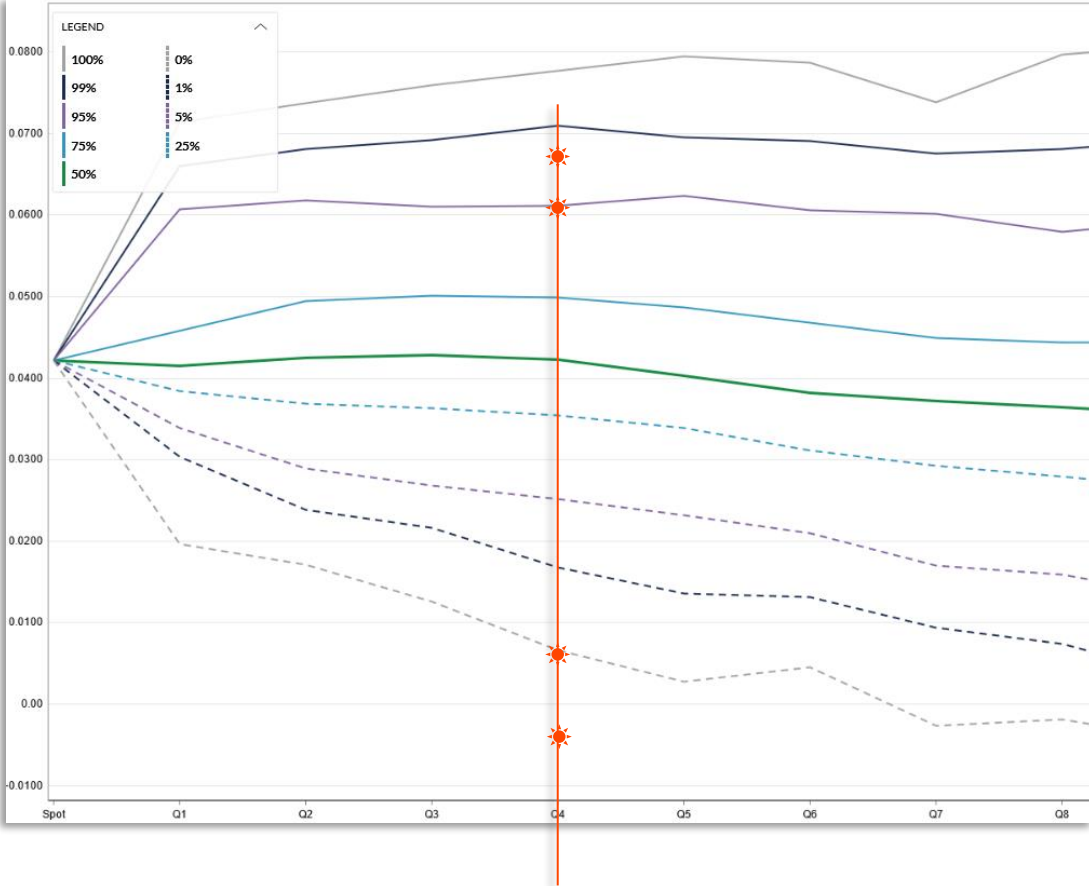
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
5-Year Treasury Constant Maturity Rate	9.59%	4.78%	-22.57%	5.44%	-18.67%	-19.44%	-33.66%	-52.49%	-93.54%
3-Year Treasury Constant Maturity Rate	9.33%	9.61%	-13.42%	11.13%	-12.07%	-10.53%	-28.22%	-44.28%	-71.07%
10-Year Treasury Constant Maturity Rate	5.54%	-4.44%	-29.08%	-3.84%	-25.31%	-23.20%	-30.01%	-43.70%	-61.79%
Global price of Brent Crude	-0.54%	1.73%	-12.28%	1.28%	-0.50%	13.05%	-6.22%	-32.57%	-37.80%
US Federal Funds Effective Rate	5.27%	-4.31%	-8.34%	10.85%	6.48%	21.42%	28.98%	14.00%	-0.52%



Some numbers you may want to consider going forward!

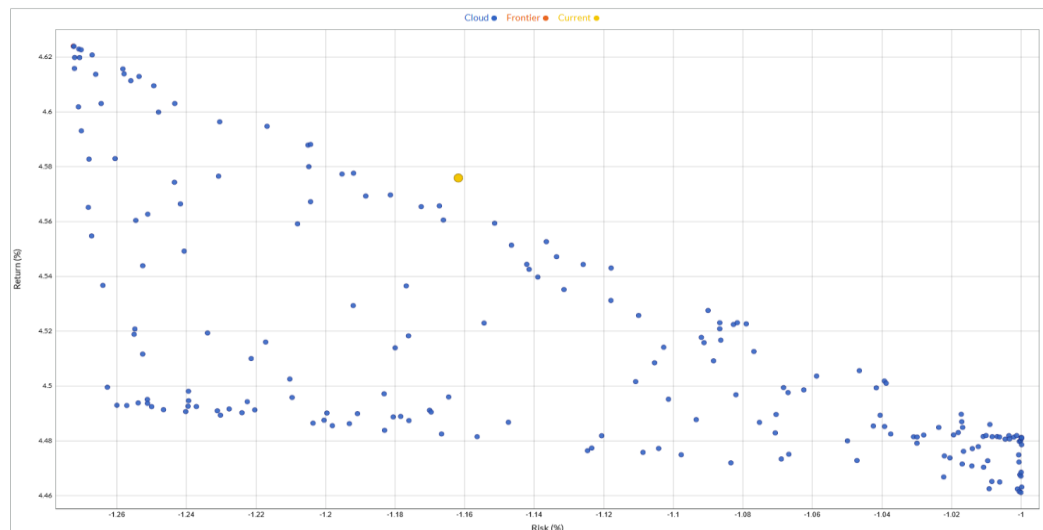
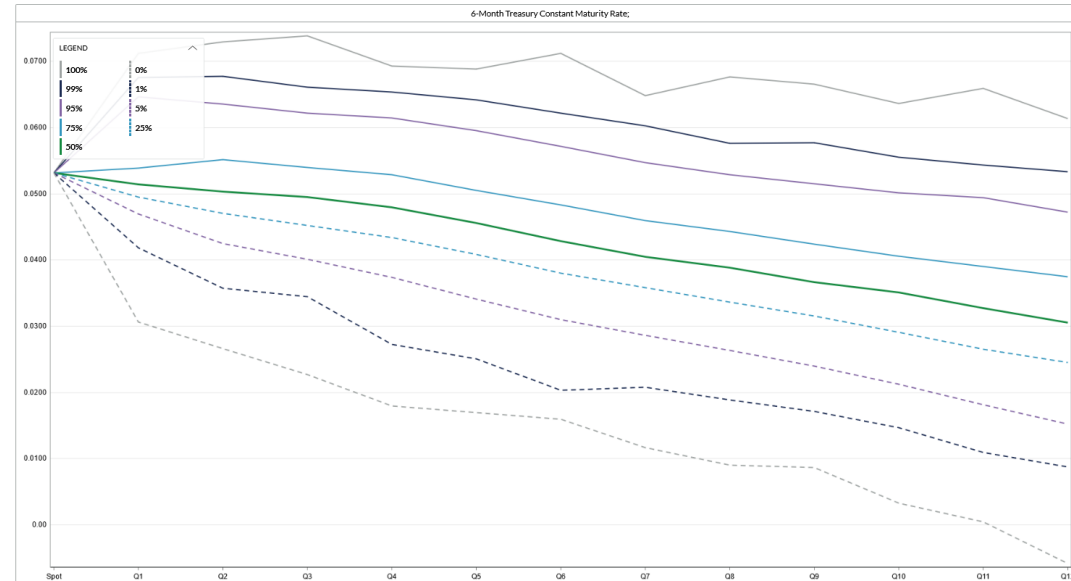
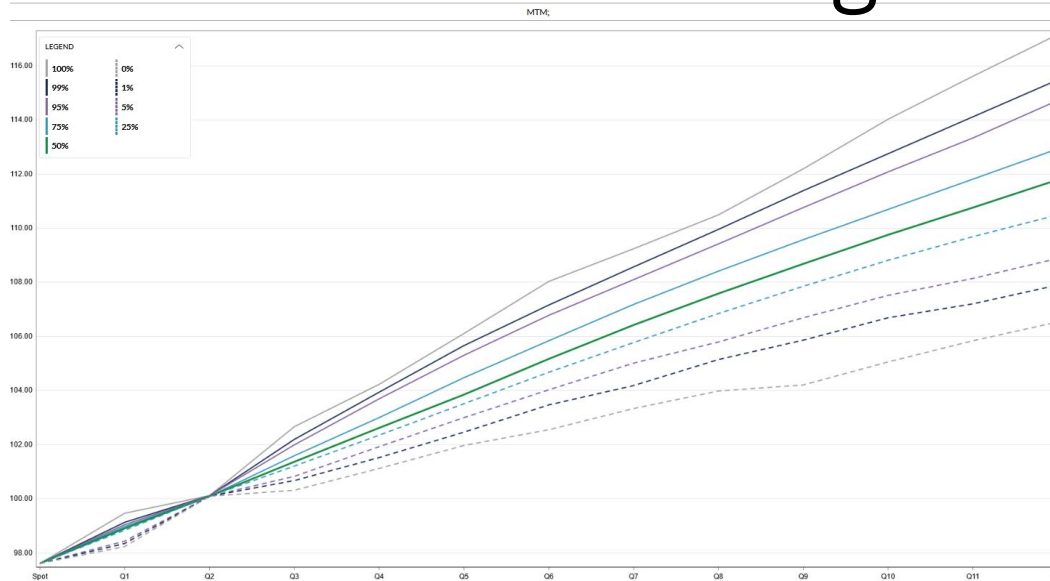
- 5-year Treasury rates simulated as of last quarter
- Simulation start date: [31/03/2023](#)

PERCENTILE	Spot	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5	Quarter 6	Quarter 7	Quarter 8
100%	0.0422	0.0714	0.0737	0.0759	0.0777	0.0794	0.0786	0.0739	0.0797
99%	0.0422	0.0660	0.0680	0.0692	0.0710	0.0695	0.0690	0.0675	0.0681
95%	0.0422	0.0606	0.0618	0.0610	0.0612	0.0623	0.0606	0.0601	0.0580
75%	0.0422	0.0458	0.0494	0.0501	0.0499	0.0486	0.0468	0.0449	0.0444
50%	0.0422	0.0415	0.0425	0.0428	0.0422	0.0403	0.0382	0.0372	0.0364
25%	0.0422	0.0384	0.0369	0.0363	0.0354	0.0339	0.0311	0.0293	0.0279
5%	0.0422	0.0339	0.0289	0.0269	0.0252	0.0232	0.0210	0.0170	0.0159
1%	0.0422	0.0303	0.0238	0.0217	0.0168	0.0135	0.0131	0.0093	0.0074
0%	0.0422	0.0197	0.0172	0.0126	0.0066	0.0028	0.0046	-0.0026	-0.0018



- In the next four quarters the simulation cone shows rates:
 - ...that can go as high as 7.1-7.8% (99th percentile and above)
 - ...and as low as 0.7 - 1.7% (1st percentile and below)

Cash allocation strategies for the current environment



FRONTIER POINT	RETURN	RISK	1-YR	3-M	3-YR	5-YR	6-M
Current	4.58	-1.16	20.02	20	19.93	20.02	20.01
Yes	4.62	-1.27	1.9e-119	0.0012	1.33e-6	0.222	99.78
No	4.62	-1.27	1.69e-127	0.0698	0.012	0.2333	99.68
No	4.62	-1.27	0	0.0002	0.0003	0.2685	99.73
No	4.62	-1.27	0	6.38	8.54e-6	0.0899	93.53

- As rates are expected to go down, portfolio MTM remains positive
- 6-month and 3-month Treasury is the most efficient cash allocation

What else is threatening the financial industry now?

- Inconsistency between liquidity and capital analysis
- Inability to incorporate unprecedented crisis data into risk modeling
- Fixed A-L levels in ALM interest rate analysis
- Insufficient reverse stress testing
- Lack of proactive and preventive contingency plans

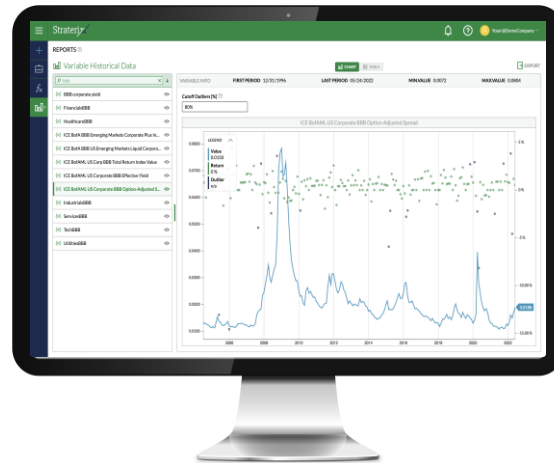
Replacing prediction with discovery

SAME HISTORY
NEW INFORMATION

GENERATE
THOUSANDS OF
FUTURES

DISCOVER
ALL RISKS &
OPPORTUNITIES

- **FULL-RANGE SCENARIO ANALYSIS**
- **REVERSE INTEGRATED STRESS TESTING**
- **EARLY WARNING INDICATORS (EWIs)**



**SYNTHETIC
BIG DATA
+
AI**



POTENTIAL CRITICAL LOSSES



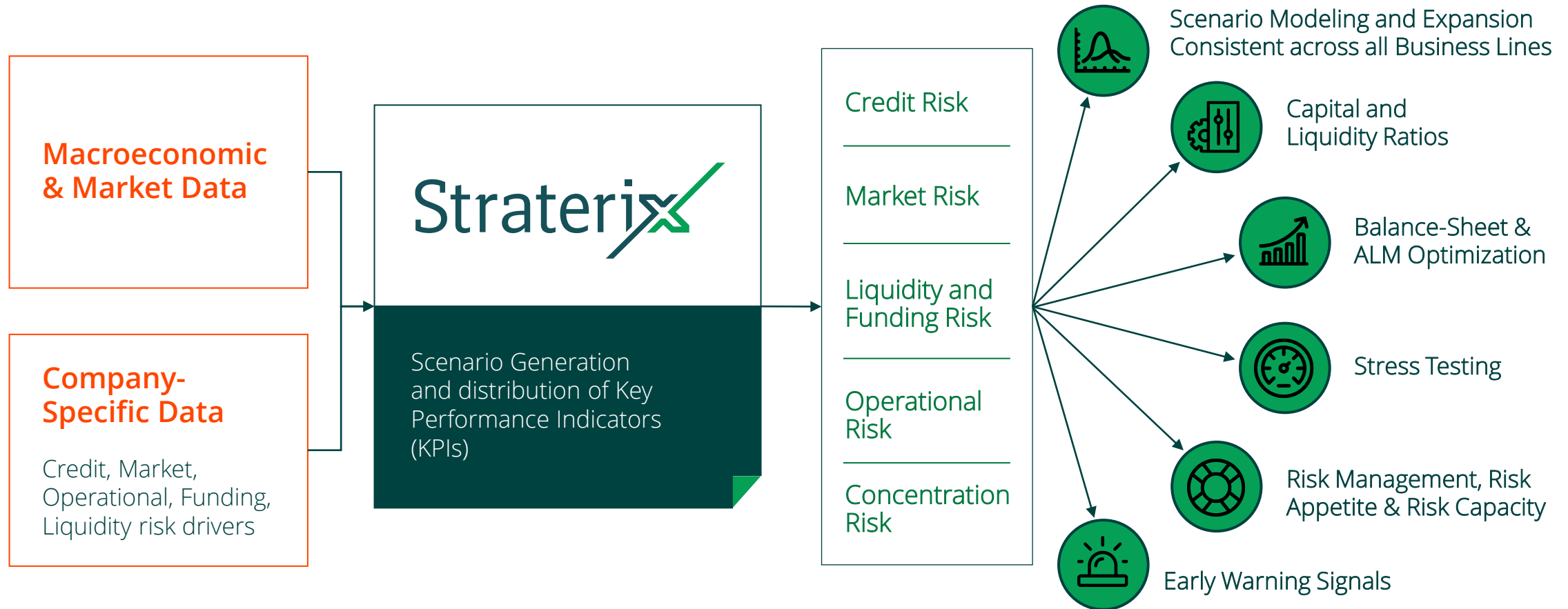
FUTURE KPI PERFORMANCE



HIDDEN OPPORTUNITIES

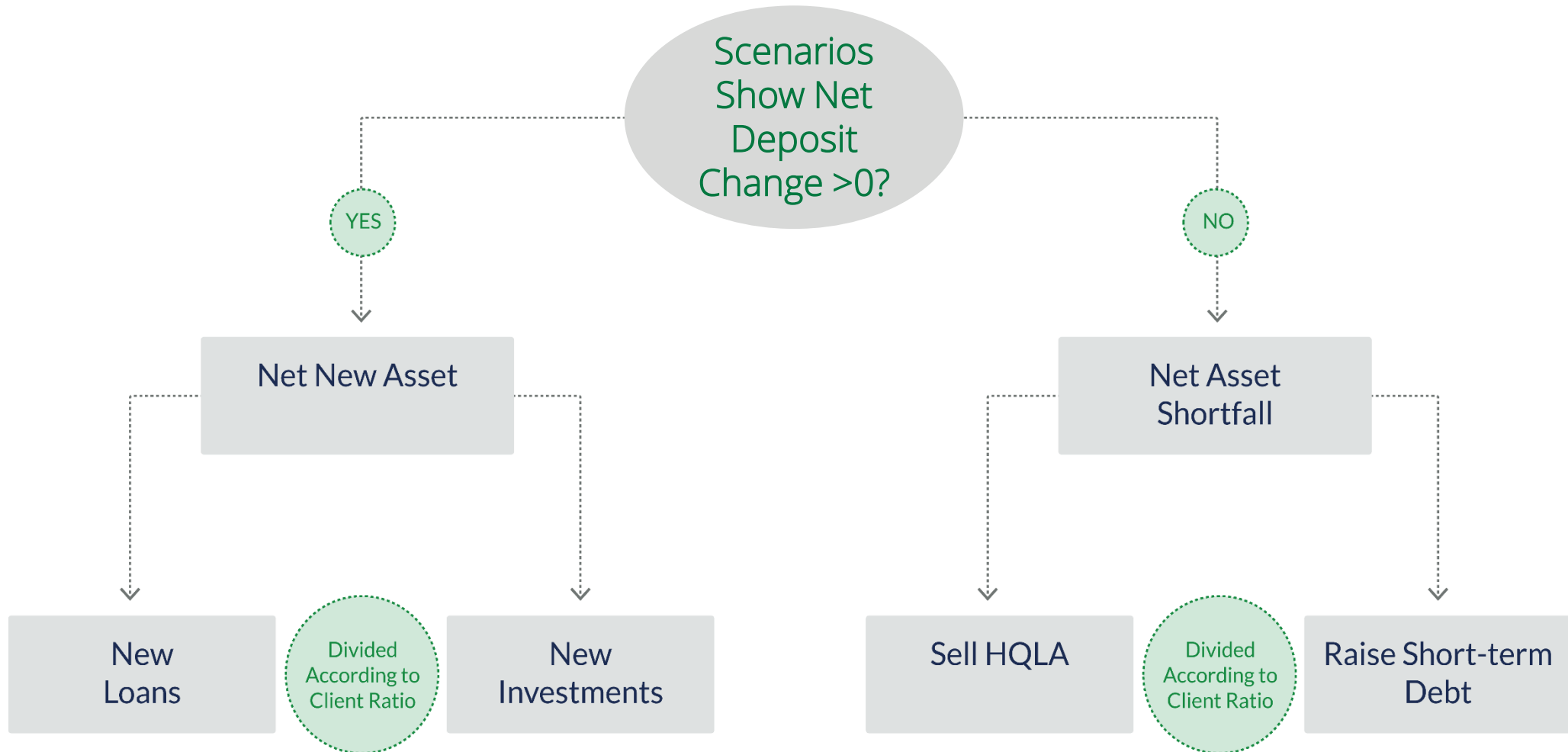
Application overview

Top-down comprehensive scenario analysis is applied to a broad range of critical analysis



Forward-looking Liquidity and Capital Planning

Early warning signals prepare senior management to resolve balance sheet mismatches before conditions deteriorate



APPENDIX

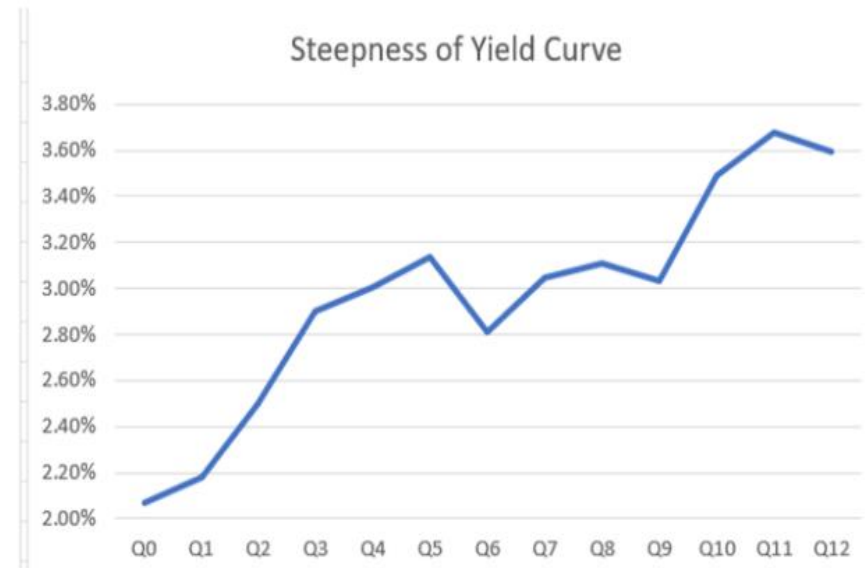
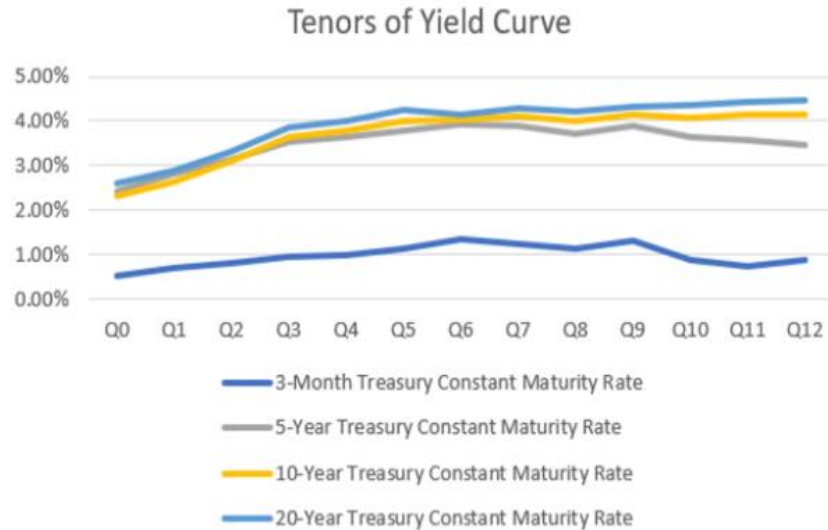
Case Studies



Combining Liquidity and Capital Stress Testing

An Example of Discovery via Reverse Scenario Analysis

Path	LCR (Rank)	CR (Rank)	Sum (Rank)
111	40	1000	1040
124	83	999	1082
953	41	998	1039
902	602	997	1599
954	960	996	1956
490	392	995	1387
884	739	994	1733
103	25	993	1018
406	272	992	1264
938	557	991	1548
732	651	990	1641
774	119	989	1108
17	890	988	1878
199	316	987	1303
870	31	986	1017
147	145	985	1130
842	110	984	1094
758	53	983	1036
506	147	982	1129
85	229	981	1210
500	427	980	1407
23	171	979	1150
667	393	978	1371
543	878	977	1855
592	32	976	1008
335	181	975	1156
840	2	974	976



Stress Testing Integration: How to Combine Capital and Liquidity

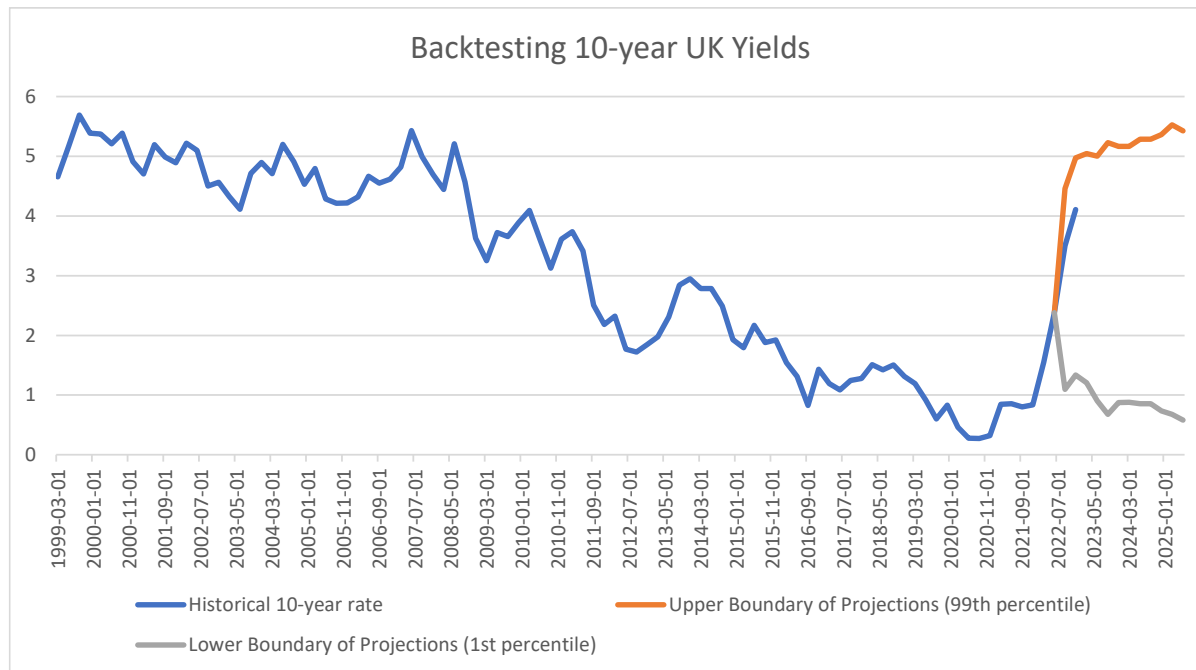
UK Pension Schemes' Failure

\$1.7 T in UK pension funds using LDI investment strategy required government rescue

How Britain's pension scheme hedge became a trillion-pound gamble

UK LDI-related turmoil could spread

Barrie & Hibbert approved by UK regulator for pension funds



As the BoE recently stated, insuring schemes against all extreme market outcomes might not be a reasonable expectation but it is important that lessons are learned from these recent events.

- The actual historical value for that date was 3.5% which represents 87th percentile of yields distribution.
- For the past twenty years, risk managers were expected to be prepared to outcomes with such probabilities.



Please visit us on www.Straterix.com
or reach out directly via info@Straterix.com

