

Discussion:
"Pension Liquidity Risk"
by Jansen, Klingler, Rinaldo, Duijm

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This paper: Dutch pensions' swap use facts

- ▶ Regulatory data from 255 pensions from 2012Q1-2022Q4
- ▶ Pensions
 - ▶ negative net duration: assets dur (12y) < liab dur (19y)
 - ▶ funding ratios $\equiv PV(A)/PV(L)$ limited by regulation
 - ▶ interest rate hike *increases* (drop *decreases*) funding ratio
- ▶ Risk-management with pay floating receive fixed swaps
 - ▶ swap use increases portfolio duration to hedge liability dur
 - ▶ pensions with lower funding ratio use more swaps: *proxies for hedging demand as constrained to hedge via bonds*
- ▶ Rate hikes *decrease* pay-floating swaps fair values: margin call risk
 - ▶ margin call proxy & cash → liquidity risk for 74% pensions
 - ▶ Increase in rates prompts sale of medium-term bonds
- ▶ Selling pressure creates adverse price impact on bonds

Contribution

- ▶ rich set of interesting facts
- ▶ margin call pressures underappreciated in the context of pensions' risk management
- ▶ provocative conclusion: regulation accidentally caused significant liquidity risk with aggregate asset price implications

Discussion

- ▶ paper's interpretation: regulation-induced hedging gone wrong
- ▶ plausible, but alternative risk seeking plausible too
- ▶ regulation should consider bond-stock correlation

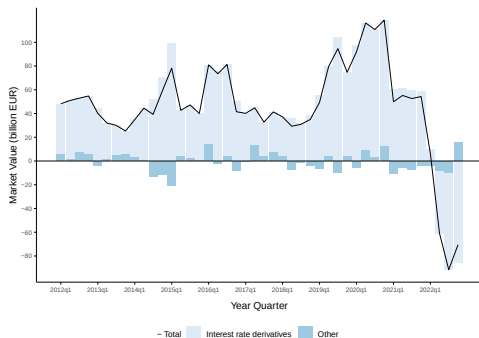
Funding Ratio as a Measure of Hedging Demand

- ▶ appendix model: funding ratio as hedging demand measure
 - with funding ratio constraint, use swaps to hedge liab dur
not more bonds, which would forgo higher stock return
- ▶ assumes stocks/bonds are uncorrelated
- ▶ alternative: pensions may seek *more* return (and risk) to max
funding status, not to hedge (as implied by mean-var opt)
 - hedging gone wrong likely plausible, but needs more work
- ▶ what evidence is consistent with *risk seeking gone wrong*

Risk Seeking Gone Wrong?

Funding ratio could also measure risk-seeking incentives

- ▶ swaps positive market value over most of the sample period

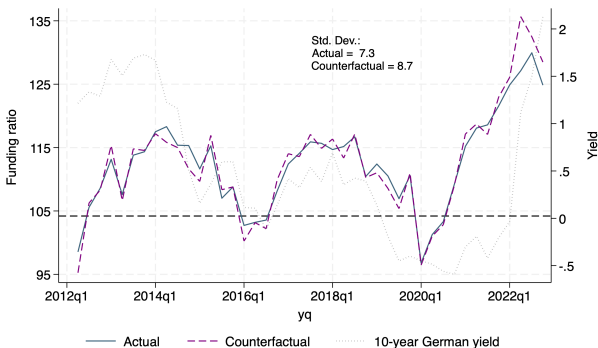


- ▶ low funding ratio increases risk-seeking incentives as in Ang, Chen, and Sundaresan (2012) (see also banking literature)
- ▶ when pensions expect rate decline, pay float swap right bet risk-seeking explains banks' no hedging (Begenau, Piazzesi, and Schneider)

Risk Seeking Gone Wrong?

Funding ratio could also measure risk-seeking incentives

- ▶ swaps positive market value over most of the sample period
- ▶ low funding ratio increases risk-seeking incentives
- ▶ indeed swap uses increased funding ratio pre-2022



Open Questions

- ▶ Even with swaps, net-duration is still negative
19 years liabilities versus 12 years assets + bonds

Why did pensions only hedge parts of duration risk?

- ▶ Negative link between swap duration & funding gap also sign of risk-seeking gone wrong since rate hike caused losses

Did funding gap cause swap use or swaps funding gap?

Is it possible to exploit effects from exogenous changes in liability duration on swap use?

- ▶ Margin call (proxy) exceeds the actual change in funding ratios. Did pensions hedge too much, or is that just driven by overstating margin calls (see Fig. 1A.3)?

Did pension change hedging strategy during rate hike period?

Open Questions Ctd

- ▶ Model: unconstrained pensions should not use swaps.

funding ratios very high in 2021: why did pensions exit/offset swap positions?

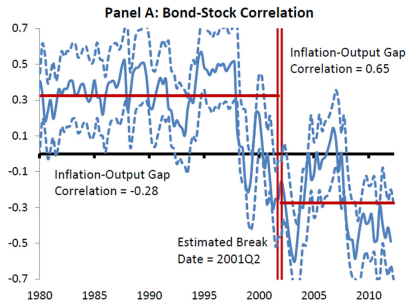
swap use by pensions up from 75% in 2012 to 95% in 2022

XS: do unconstrained pensions abstain from swaps?

Use model for understanding quantitative drivers of allocations & potential frictions to hedging

Changing Stock-Bond Correlation

- ▶ Regulation does not consider stock-bond correlation



- ▶ Historically, stock-bond correlation variable, positive before 2001, negative until recently (Campbell, Pflueger, Viceria 2020)

Changing Stock-Bond Correlation

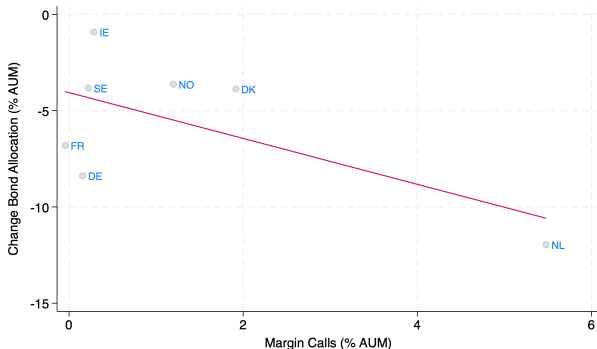
- ▶ Regulation does not consider stock-bond correlation
- ▶ Recently correlation again positive

Month	Changes in Swap Rates		Stock and Bond returns	
	10-day Change (%)	Monthly Change (%)	$Ret^{MSCI}(\%)$	$Ret^{IG}(\%)$
May 2015	0.55	0.28	0.5	-0.5
Jun 2015	0.44	0.40	-2.5	-1.9
Mar 2020	0.45	0.11	-13.5	-3.5
Apr 2022	0.42	0.54	-8.4	-3.2
Jun 2022	0.59	0.32	-8.8	-2.5
Aug 2022	0.55	0.62	-4.3	-5.7
Sep 2022	0.50	0.51	-9.5	-4.5
Dec 2022	0.53	0.47	-4.3	-3.9

- ▶ Large decline in funding ratios through stock value decline
- ▶ Regulation ought to consider interest rate risk of the entire portfolio and dynamic changes in factor correlation (i.e., market equity & interest rate risk akin to Begenau, Piazzesi, and Schneider 2024)

Is there something unusual about Dutch pensions?

- ▶ Dutch GDP share in the EU is 6.3% but pensions' AUM share is 53% of all pension assets
- ▶ Also unusually high margin call per AUM and a large reduction in bond allocation



Conclusion

- ▶ Very nice paper with many interesting facts
- ▶ Regulation should consider interest rate risk exposure and changing factor structure
- ▶ Suggestion:
 - ▶ use model with detailed data to nail drivers of swap use
 - ▶ did regulation cause liquidity risk in pensions or did pensions miscalculated risks when seeking returns?