Underwater: Strategic Trading and Risk Management in Bank Securities Portfolios*

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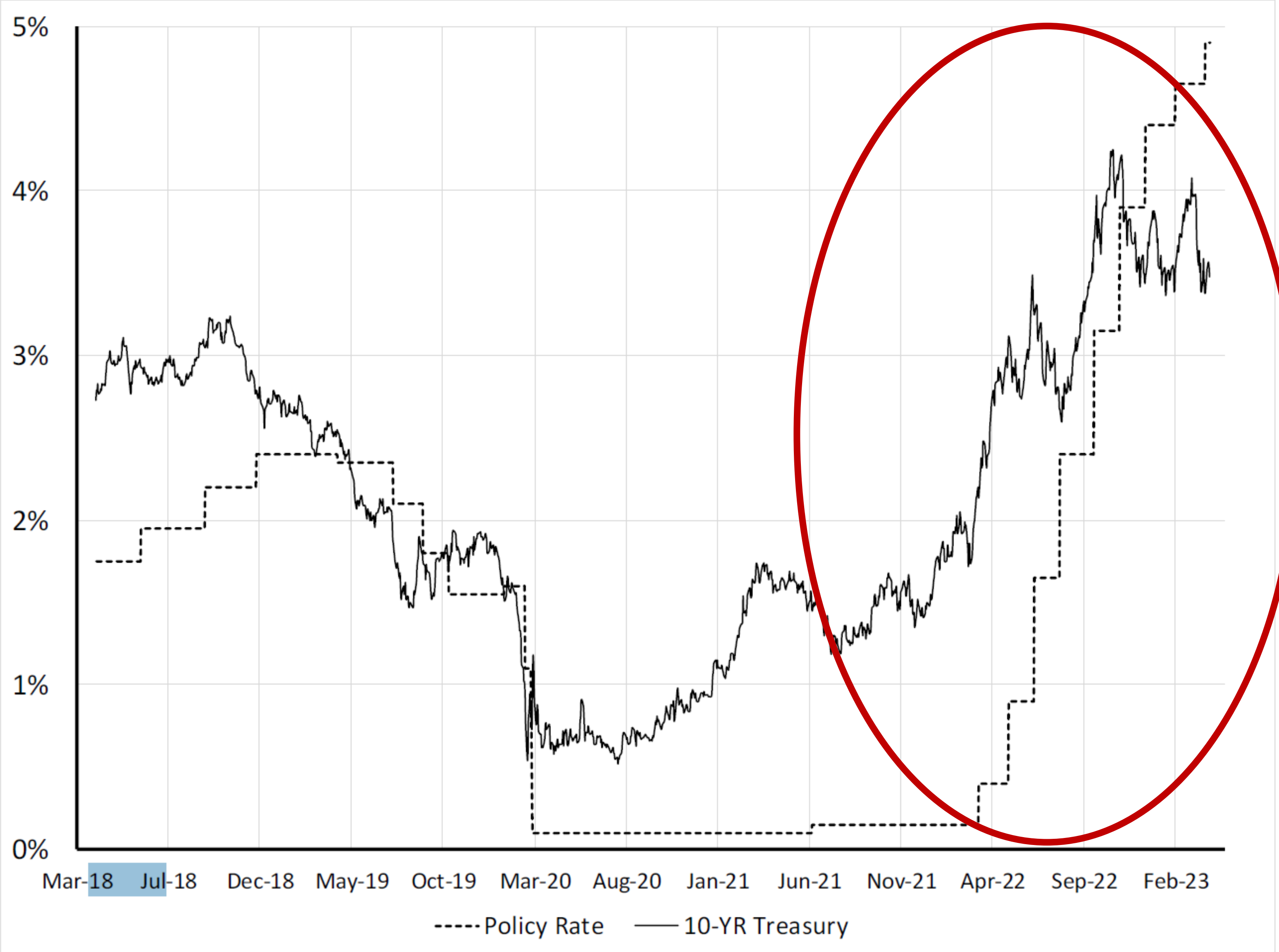
Overall Assessment

- First rate paper
- Impressive empirical work combines data from multiple sources
- Clearly illustrates their main points
- Their call for regulatory reform should be fleshed out more
- I had a hard time figuring out how to add value here.

Obligatory interest rate slide



What should the banks have been doing after 2021?

- The Fed had clearly announced its intention to fight inflation by raising rates.
- Most banks already had unbooked securities losses.
- If these losses would mount as rates rose, a prudent bank manager might shorten her securities' duration.
- This is the paper's null hypothesis.

What did they do?

- Minimal movement toward shorter duration securities in the AFS portfolios.
- Bought a limited amount of relatively short-term bonds.
- Did not sell off longer-term or mortgage bonds, where the value losses were likely to be greatest if rates continued to rise.
- Would be good to explain at more length why the documented bank behavior was ex ante inappropriate.

The accounting is important

- Capital losses on HTM securities are never recognized on balance sheets.
- Capital losses on AFS securities are accumulated in AOCI without going through the income statement.
  - AOCI may or may not be reflected in CET1.
  - Hence the "hit" to regulatory capital upon the sale (≡ realized loss) of an underwater bond depends on treatment of AOCI.
- Larger banks (> $700bn) must include their AOCI in CET1 (since Nov. 2019).
- Mostly, smaller banks do not.
- Therefore smaller banks are more reluctant to sell underwater securities.

- Realizing a loss upon sale will (probably) reduce regulatory capital. Hence reluctance to sell underwater bonds.

- But the amount of the change in CET1 depends on whether the bank has been recognizing accumulating, unbooked losses.
  - Banks that include AOCI in CET1 will have a relatively small change in capital.
  - Banks that have not been recognizing accumulating unbooked losses will likely have a much larger capital reduction upon sale of an underwater bond.

Table 8: Drivers of strategic trading in 2022-23

A. AOCI filter

	(1)	(2)	(3)	(4)	(5)
FV/AC > 0.99	4.669***	2.911***	4.294***	3.168***	2.565*
	[3.0,7.3]	[1.7,5.0]	[2.9,6.4]	[1.9,5.2]	[0.9,7.1]
AOCI not in capital		0.263***		2.963	0.117
		[0.1,0.6]		[0.2,36.3]	[0.0,4.5]
FV/AC $> 0.99 \times$ AOCI not in capital		2.414*		2.366**	2.617*
		[1.0,6.1]		[1.1,5.2]	[1.0,7.1]
Log(Assets)					0.028*
					[0.0,1.1]
FV/AC $> 0.99 \times$ Log(Assets)					1.102
					[0.7,1.8]
Obs.	467,728	467,728	467,025	467,025	467,025

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Mostly smaller banks, larger accumulated losses on sale.

Table 8B examines additional bank features that might determine willingness to accept capital losses

	(6)
FV/AC > 0.99	2.079*
	[0.9,4.6]
FV/AC > 0.99	3.202**
× AOCI not in capital	[1.3,8.2]
FV/AC > 0.99	1.200
× CET1 Buffer < Median	[0.5,2.8]
FV/AC > 0.99	3.182***
× PB Ratio < Median	[1.5,6.8]
FV/AC > 0.99	0.529
× YoY Stock Ret < Median	[0.2,1.4]
FV/AC > 0.99	1.975
× Reserves/Securities < Median	[0.7,5.5]
FV/AC > 0.99	0.798
× Uninsured Deposits/Deposits > Me	[0.4,1.8]
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Deposit franchise

- Maintained hypothesis: the rate increases during 2022 should have lead well-behaved and risk averse banks to shorten their securities' durations.

- The authors raise one reason why such shortening would be less urgent: if "banks that experienced larger losses on the asset side (due to holding longer-duration assets) simultaneously experienced larger gains on the value of their deposit franchise, for instance, if the bank has particularly low-beta depositors (such that the deposits effectively have long duration). (page 18)

- If this assumption is correct there would be less (no) need to reduce securities durations – justifying the observed behavior.

- They test for this effect in their Table 4, using Drechsler at al's estimated betas.

(Aside) How did they convert the Drechsler bank betas to a holding company beta?

- Another assessment of franchise value comes from (Demarzo et al. 2024), which unravels the deposit franchise more completely than we've seen previously.

- They "conclude from this analysis that most banks' franchise value in 2021 is exposed to risk from a rise in interest rates." (page 35)

- That is, during 2022 the franchise values should have been expected to fall, reinforcing the asset value decline.

- This would make the securities adjustments more urgent.

- Also possible. What does the data say about this?

Table 4: Bank-level determinants of mark-to-market equity

Dependent Variable: $\dfrac{FV\ of\ assets - BV\ of\ liabilities}{FV\ of\ assets}$

	(1)	(2)	(3)	(4)	(5)	(6)
Post-2022	-0.0335***	-0.0204***	-0.0194***			
	(0.002)	(0.004)	(0.004)			
Post-2022 × Securities/Assets		-0.0815***	-0.0241	-0.0235	-0.0359	-0.0270
		(0.023)	(0.029)	(0.029)	(0.032)	(0.029)
Post-2022 × MBS/Assets			-0.1156**	-0.1161**	-0.1201**	-0.1160**
			(0.045)	(0.045)	(0.048)	(0.045)
Post-2022 × Deposit Beta					0.0465**	
					(0.020)	
Deposit Expense						-0.0018
						(0.001)

Too roundabout?

Table 3: Bank-level determinants of rising interest rate risk

	Gross Duration			
	(1)	(2)	(3)	(4)
Post-2022 × % Callable Bonds	1.690***			1.390***
	(0.359)			(0.464)
Post-2022 × % HTM		0.773		0.636
		(1.041)		(0.888)
Post-2022 × AOCI in capital			-0.716**	-0.300
			(0.321)	(0.300)
Deposit beta or Post-2022 x Deposit beta				

The estimated coefficient provides direct test of hypothesis that deposit beta affects securities portfolio duration.

- What might explain the behavior illustrated in this paper?
  - Bankers had become accustomed to moving out the yield curve to earn the term premium.
  - Maybe rates would return to their 2021 level.
  - Very risky strategy, but the supervisors let them do it.
  - Unfortunately, the 2022 rate behavior differed quantitatively from the prior decade's.
  - Hence the authors' call for revised treatment of banks' capital losses.

Summary

1. Very careful paper.

2. Strongly illustrates the (apparently) inappropriate behavior in bank security portfolios during 2022-23.

3. I’ve made a couple of small suggestions to strengthen the inferences.

4. Recommend they are more explicit about the supervisory reforms they have in mind.