Three papers about behaviors close to bank failure

Comments by Mark Flannery

September 19, 2024

23rd Annual FDIC Research Conference

Bank

- One paper about banks’ defensive steps as trouble mounts.

- Two papers about investors’ concerns before the “surprise” failure of SVB.

Quick on the Draw: Liquidity Risk Mitigation in Failing Banks

Amanda Rae Heitz
Jeffrey Traczynski
Alexander Ufier

- Daily HELOC data from 9 failing banks

- The authors claim that banks cancel HELOCs to avoid being forced to provide liquidity against further draws.
  - HELOC cancellations occurred, in fact,
  - Particularly (they say) in their last three months of operation.

- Tables 2 and 3 illustrate some features of cancelled lines

	(1) Line Cut	(2) Line Cut
LTV	0.00727***	0.00614***
	(26.62)	(21.46)
Origination Spread	0.0255***	0.0166***
	(7.37)	(5.11)
Close to Fail		-0.146
		(-1.46)
LTV * Close to Fail		0.0129***
		(8.82)
Origination Spread * Close to Fail		0.106***
		(5.95)
Zillow Price Index Growth	Yes	Yes
Bank FE	Yes	Yes
Month FE	Yes	Yes
Zip 3 * Year FE	Yes	Yes
N	1,055,087	1,055,087
R-sq	0.036	0.037

	(1) Line Cut	(2) Line Cut
Recent Delinquency	5.271*** (15.09)	4.981*** (13.58)
Historic Delinquency	0.944*** (9.93)	0.912*** (9.40)
Used Proportion Past Month	-0.00842*** (-18.54)	-0.00764*** (-16.93)
Previous Line Increase	-0.605*** (-8.37)	-0.482*** (-6.73)
Used Proportion Change Past Month	-0.00353*** (-5.27)	-0.00290*** (-4.41)
Close to Fail		1.713*** (10.11)
Recent Delinquency * Close to Fail		2.468** (2.17)
Historic Delinquency * Close to Fail		0.119 (0.49)
Used Proportion Past Month * Close to Fail		-0.0181*** (-9.60)
Previous Line Increase * Close to Fail		-1.478*** (-10.69)
Used Proportion Change Past Month * Close to Fail		-0.0197*** (-2.83)
Zillow Price Index Growth	-0.0107 (-0.81)	-0.00816 (-0.62)

Information about customer relationships

Why do they matter near the bank's failure?

Too bad there's no data on $ amounts…

	(1) Line Cut	(2) Line Cut
Deposit Account	-0.154***	-0.145**
	(-2.58)	(-2.40)
Other Loan	0.154**	0.0978
	(2.10)	(1.34)
Close to Fail		0.299**
		(2.37)
Deposit Account * Close to Fail		-0.0315
		(-0.25)
Other Loan * Close to Fail		1.139***
		(6.72)
Zillow Price Index Growth	-0.0107	-0.0114
	(-0.81)	(-0.92)

- Although the paper's title cites "Liquidity Risk Mitigation" there seems to be some effect of HELOC default risks on the probability of being cancelled.
  - More discussion of banks' motives and incentives would be helpful. Combine bank incentives with regulatory pressure?
  - Is there additional insight based on <u>when</u> the banks failed?

- The variable "Close to fail" carries
  - A significantly positive coefficient in tabled 3 and 4, but
  - An insignificant coefficient in Table 2

- Summary comment: Would welcome additional discussion of banks' motivations, including whether behavior changed as the crisis progressed.

The other two papers in this session evaluate market participants' risk focus(es) in the first few months of 2023.

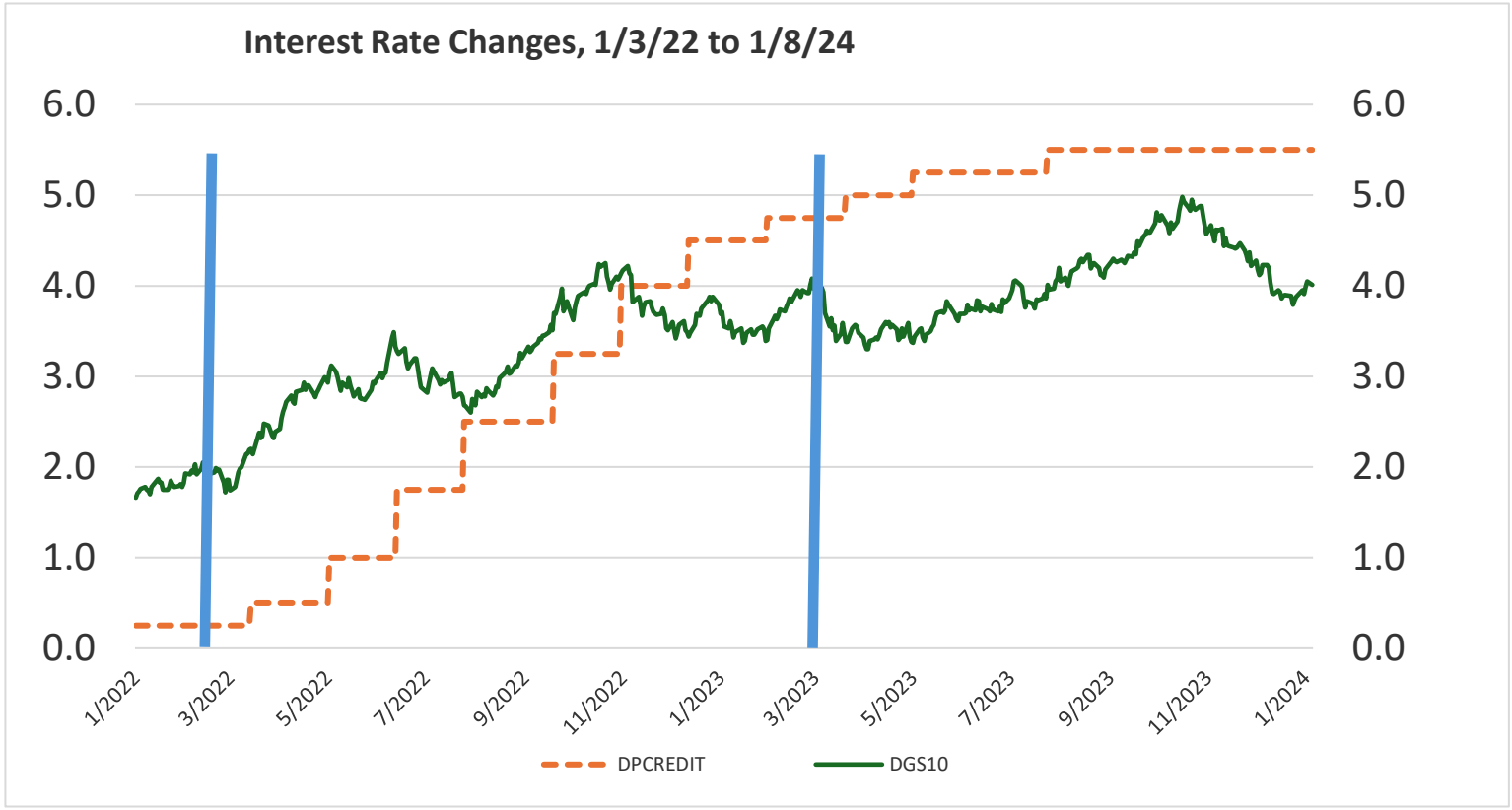
Revenge of the S&Ls: How Banks Lost a Half Trillion Dollars during 2022

Rebel A. Cole, ***Brian Silverstein***, Jon R. Taylor, Susan M. Wachter, Lawrence J. White

Investor Attention to Bank Risk During the Spring 2023 Bank Run

Fischl-Lanzoni, Hiti, Kaplan, and Sarkar

Revenge of the S&Ls



- Why did investors not price in the unrealized asset value losses?
- The potential problem for banks was clear for all to see as early as mid-2022.

Unrealized losses due to 2022 policy actions

- My paper with Sorin Sorescu evaluated unbooked losses at yearend 2022
  - Call Reports state unbooked losses on securities: $623 billion.
  - We estimated losses on loans due to rising interest rates: $466 billion.
  - Total estimated losses at yearend 2022 : 40% of CET1 in aggregate, widely distributed across banks.

- If all unbooked losses were fully reflected in bank balance sheets, many banks would not meet their minimum regulatory capital requirements.
  - roughly half of banks,
  - holding roughly half of all bank assets.

- Why was this situation not “top of mind” for bank investors in early 2023?

Whatever were investors thinking?

- Cole et al. compute daily ARs for 281 publicly traded banks with assets less than $250 billion
  - CAPM
  - FF 3-factor market model

- Identify top/bottom quartiles of balance sheet exposure (as of yearend 2022) to
  - *High Int Risk* (repricing maturity of the bank holding company security portfolio in top half of sample)
  - "*High Uninsured* (called "Liquidity risk") (proportion of deposits that were uninsured in top half of sample)
  - *High Unrealized Losses* (unbooked security losses (as % of TA) in top half of sample

- Also identify "Post SVB failure" dates: between March 9 and March 31.

Table 5: regress daily ARs on risk factors

	CAPM		FF-3		CAPM		FF-3		CAPM		FF-3		CAPM		FF-3	
High_Int_Risk ×Post SVB Failure	-8.84		-7.569										-11.09		-9.263	
	(-1.164)		(-1.010)										(-1.363)		(-1.149)	
High_Int_Risk	2.356		1.987										1.356		1.345	
	(0.87)		(0.78)										(0.47)		(0.49)	
High Uninsured x Post SVB					-25.069	***	-19.016	**					-24.572	***	-18.601	**
					(-2.990)		(-2.290)						(-2.990)		(-2.287)	
High Uninsured Dep					-6.555	**	-4.883	*					-6.619	**	-4.947	*
					(-2.308)		(-1.811)						(-2.312)		(-1.816)	
High Unrealized Loss x Post SVB									0.081		-0.359					
									(0.011)		(-0.048)					
High Unreal Losses									-3.411		-3.178					
									(-1.253)		(-1.241)					
Post SVB	-83.712	***	-63.033	***	-79.263	***	-59.645	***	-88.246	***	-66.698	***	-73.983	***	-55.234	***
	(-19.755)		(-14.868)		(-19.759)		(-14.230)		(-19.652)		(-15.051)		(-13.228)		(-9.418)	
Constant	-14.375	***	-6.987	***	-10.826	***	-4.037	*	-11.44	***	-4.358	**	-11.472	***	-4.677	**
	(-7.740)		(-4.045)		(-4.767)		(-1.873)		(-5.582)		(-2.210)		(-4.634)		(-2.030)	
Adjusted R-Squared	0.029		0.020		0.033		0.023		0.029		0.020		0.033		0.023	
Number of Observations	11,749		11,749		10,447		10,477		11,749		11,749		10,447		10,447	

- Implications: "In summary, we find **no evidence** that equity-market investors **priced interest-rate risk** in their reactions to the failure of SVB but **did price** banks' exposures to **uninsured deposits**, especially during the period after SVB's failure."

- It appears that equity investors began to price uninsured deposit exposure only after the horse was out of the barn – not much positive about market discipline from equity investors.

- The authors conclude by discussing various possible revisions to deposit insurance as ways to mitigate this uninsured deposit risk.

Empirical Evaluation of Cole et al.

- Specific complaints about variables' possible measurement errors, which might explain the insignificance of some estimated coefficients in their Table 5.
  - *High Unrealized Losses* measures only the securities portfolio ($623 billion)
    - Sorescu and I estimated capital losses on loans to be an additional $466 billion – 75% more
  - *Int Rate Risk* also focuses only on re-pricing in the securities portfolio
    - Loan losses can be estimated.
    - Without attention to capital value changes on liabilities ("Deposit beta"), *Int Rate Risk* could be very inaccurate (Drechsler et al.).
- Broader question about measurement error: how close is the connection between bank-level data on maturities and BHCs' total exposure to rate changes?
- Finally, I suggest that they look for interactive effect of interest rate risk and uninsured deposits in their Table 5

Investor Attention to Bank Risk During the Spring 2023 Bank Run

Fischl-Lanzoni, Hiti, Kaplan, and Sarkar

- Same data source as the “Revenge” paper
- The authors evaluate the effect of Moody’s credit announcements on banks’ stock return sensitivities.
- Study bank holding companies’ stock returns from Jan 3, 2022 – May 5, 2023

Calendar of events and bank groups

- 2022: Fed rate increases

- March 9, 2023 SVB failure
- March 10, 2023, Signature Bank failure
- March 14 : Moody's puts some banks on downgrade watch ("March DG Watch group")
- April 14-21 DG group and other regional banks were downgraded ("April DG group")

- Compare stock returns for the various affected and unaffected bank groups, to test whether bank share prices should have reacted to rating agencies' (negative) opinions
  - Hypothesis 1: Ratings are informative about event banks.
  - Hypothesis 2: Rating announcements coordinate limited attention of investors.

Methodology

1. Estimate market model for all available banks

$$R_{i,t} = \alpha_{0,i} + \sum_{j=1}^{5} \delta_{j,i} FF_{j,t} + \delta_{6,i}(KBWR_t - RF_t) + \epsilon_{it} \qquad (1)$$

2. Calculate abnormal returns using estimated coefficients from (1).

3. Construct “bank factor” measures of risk exposure
   a. UID, or uninsured deposits as % of assets
   b. Losses, or unrealized losses on AFS + HTM securities as % of assets
   c. Cash, or cash % as of assets
   d. CET1

4. Calculate market capitalization-weighted average stock returns of banks with in each High, Medium, Low exposure to each risk measure, each day.

5. The difference in average returns between the highest and the lowest terciles (High – Low) used to measure the impact of that risk factor.

Test regression:

$$Y_{i,t} = \alpha_0 + \alpha_i + \beta BankFactor_t + \sum_{j=1}^{5} \delta_j FF_{j,t} + \delta_6 Log(MVE)_{i,t-1}$$

Table 4: **Bank Balance Sheet Factor Beta: January to February 2023**

	Factor=%UID	Factor=% Losses	Factor=% Cash	Factor = CET1
Factor	0.14	0.08	0.33***	0.27**
	(0.14)	(0.16)	(0.09)	(0.11)
Mkt-RF	1.02***	1.05***	0.95***	0.96***
	(0.14)	(0.15)	(0.13)	(0.14)
SMB	0.57***	0.57***	0.42**	0.53***
	(0.19)	(0.19)	(0.17)	(0.17)
HML	0.63**	0.69**	0.59**	0.68***
	(0.26)	(0.27)	(0.23)	(0.25)
RMW	0.24	0.27	0.08	0.29
	(0.28)	(0.27)	(0.26)	(0.26)
CMA	-0.33	-0.42	-0.23	-0.49
	(0.37)	(0.39)	(0.32)	(0.36)
Log(Bank MVE)$_{t-1}$	-5.43***	-5.42***	-5.86***	-5.01***
	(1.77)	(1.79)	(1.65)	(1.62)
Obs	2,769	2,769	2,769	2,769
Adj R2	0.42	0.42	0.44	0.43
Bank FE	YES	YES	YES	YES

"Overall, immediately before the bank run, stock market investors were attuned to the risk emanating from lower levels of the more "traditional" factors (capital and cash) but not to higher levels of the two factors (*UID* and *Losses*) that became central during the bank run." p. (20)

Table 5: **Bank Balance Sheet Factor Beta: March 1 to May 5, 2023**

	Factor=%UID	Factor=% Losses	Factor=% Cash	Factor = CET1
Factor	0.45***	0.45***	0.42***	0.38***
	(0.13)	(0.13)	(0.10)	(0.11)
Mkt-RF	0.94***	1.07***	1.01***	1.09***
	(0.22)	(0.21)	(0.20)	(0.21)
SMB	0.38	0.38	0.27	0.43
	(0.32)	(0.32)	(0.28)	(0.32)
HML	2.11***	2.07***	2.10***	2.02***
	(0.31)	(0.26)	(0.25)	(0.29)
RMW	-0.45	-0.22	-0.35	-0.20
	(0.46)	(0.35)	(0.35)	(0.37)
CMA	-2.03***	-1.96***	-1.87***	-1.79***
	(0.46)	(0.41)	(0.44)	(0.45)
Log(MVE)_{t-1}	-3.52	-3.48	-3.69	-3.54
	(2.32)	(2.30)	(2.31)	(2.30)
Obs	3,332	3,332	3,332	3,332
Adj R2	0.39	0.39	0.40	0.39
Bank FE	YES	YES	YES	YES

"these results indicate a shift in investors' risk perceptions from before the crisis, consistent with increased sensitivity to *UID* and *Losses* risks following an information shock".

Testing information inferred from rating agencies' actions

- "How did investor perceptions change in the cross-section of banks and their risk exposures (e.g. uninsured deposits vis-a-vis unrealized losses) as information about bank risk arrived?"

Table C.1: **Bank Balance Sheet Factor Beta, Interacted with Bank Groups, March 1 to April 13**

	Factor=%UID	Factor=% Losses	Factor=% Cash	Factor = CET1
Factor	0.34**	0.22*	0.18	0.20
	(0.15)	(0.13)	(0.16)	(0.15)
March DG Watch × Factor	3.10***	3.10***	2.45**	2.73***
	(0.75)	(0.98)	(0.96)	(0.80)
Other Regionals × Factor	0.08	0.09	0.28	0.03
	(0.18)	(0.19)	(0.19)	(0.16)

Evidence that the market confined its concerns to banks that were identified as potentially troubled.

Empirical Evaluation of Fischl-Lanzoni et al.

- Good methodology
- Repeat my concerns about some of the explanatory variables: could measurement errors be biasing estimated coefficients?
  - *Losses* ignores loan losses and deposit franchise.
  - *CET1* ignores unrealized losses on any assets (including franchise value).
    - Include both variables in same regression?
    - Subtract losses from nominal CET1?
- Again, we see no strong evidence that equity market discipline can identify problems before they become obvious.
- But, then, neither could the regulators in this instance ….