Investor Attention to Bank Risk During the Spring 2023 Bank Run

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Investor Attention to Bank Risk

- Speed of SVB bank run suggests investors were surprised
  - How did they update beliefs about bank risk *before* and *during* run?
  - Do they update using all relevant information? Or
  - Do they have limited attention capacity, only focusing on salient information?
  - Affects what market participants & policymakers can learn from price dynamics during the run

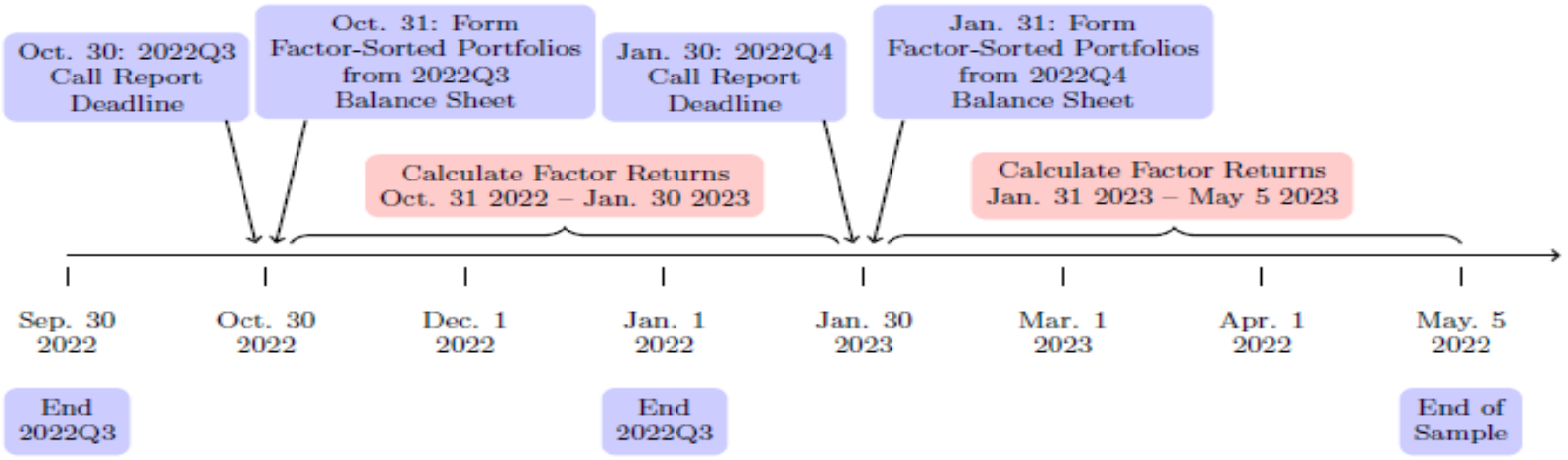
- Study investor perception of bank balance sheet (BS) risk using stock returns
  - Changes over time and across banks as information arrived

Content

- Methodology:
  - Bank risk measure
  - Information arrival proxies
- Informativeness of rating announcements
- How did perceptions of bank risk change during the run?
- How did perceptions of bank risk change in 2022?
- Conclude

Bank Balance Sheet Factor Beta

- Daily measure of bank risk: BS factor beta
  - Exclude failed & DG banks from factor construction to avoid mechanical effects
    - Failed banks are excluded from all analysis
  - Sort banks by BS variables in 2022Q4
    - UID: uninsured deposits/assets
    - HTM+AFS losses/assets
    - Cash/assets
    - CET1
  - High-low returns of bank portfolios
  - Consider Call Report submission deadlines (so part of investors' information set)



Cross-section of Information & Bank Risk

- Use ratings announcements as proxies for information arrival during run
- 4 groups of banks:
  - 5 banks put on DGW by Moody's on March 14
  - 12 banks DG between April 14 - 21 (including DGW banks)
  - 38 non-DG regional banks: in KRX
  - 23 Stress-tested banks: in 2022 stress tests + in KBW

- All banks other than stress-tested group appeared risky in 2022Q4
  - Including non-DG regional banks
  - March: highest UID; April: highest Losses

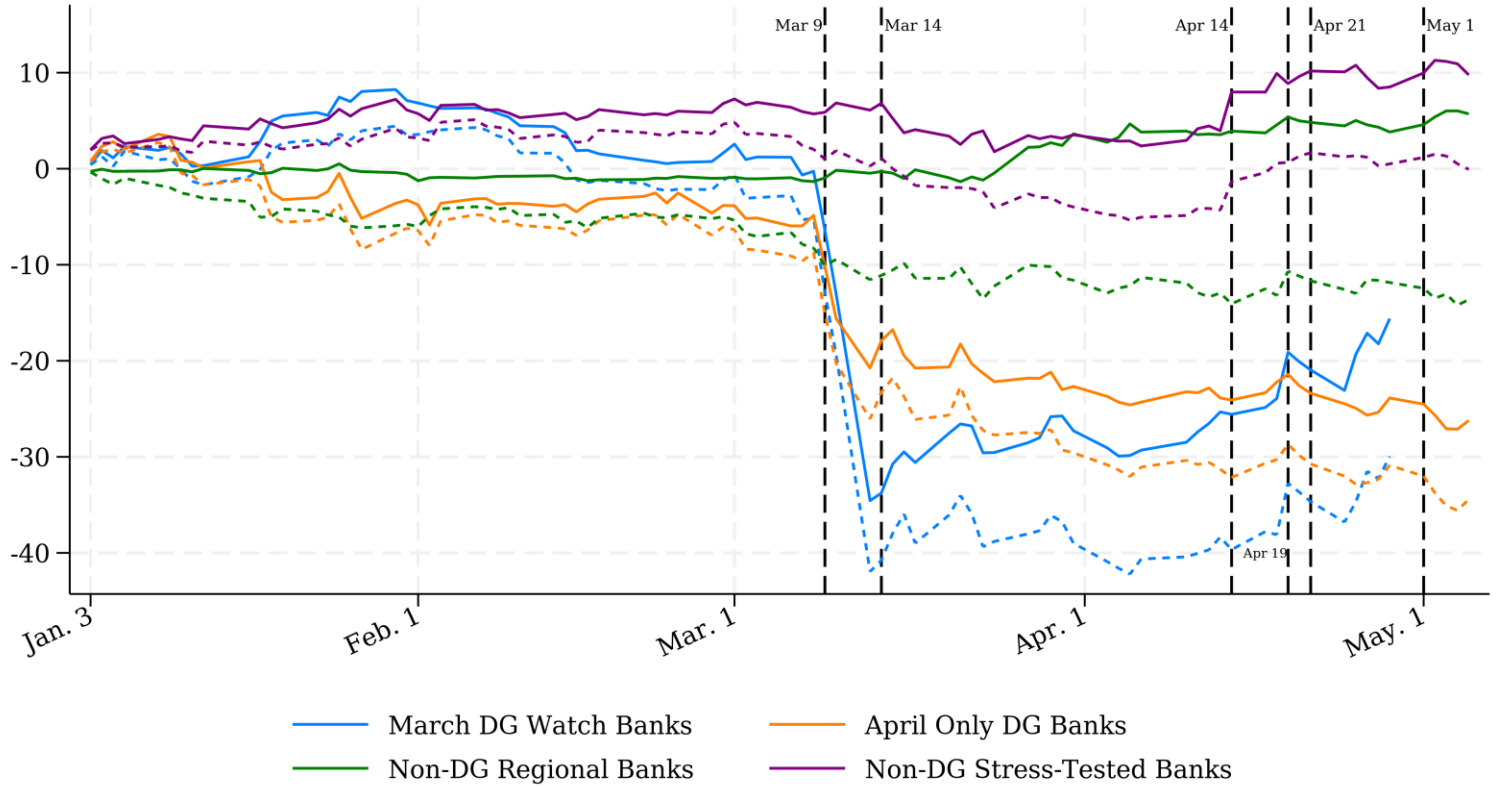
Table 1: **Bank Balance Sheet Characteristics as of 2022Q4, by Bank Group**

	Number of Banks	Assets ($B)	$\frac{Unin.Dep.}{Assets}$	$\frac{Losses}{Assets}$	CET1	$\frac{Cash}{Assets}$
SVB	1	211.79	74.01	8.35	12.05	6.14
SBNY	1	110.36	75.63	2.91	10.41	5.49
Silvergate	1	11.36	33.77	1.00	42.12	40.28
March DG Watch Banks	5	98.82	60.72	2.55	9.75	3.54
April Only DG Banks	7	196.72	40.14	3.05	11.57	4.00
Non-DG Regional Banks	38	34.05	45.19	2.63	11.86	4.05
Non-DG Stress-Tested Banks	21	846.77	36.71	2.10	11.14	11.59

Are Rating Announcements Informative?

- Are abnormal returns negative on announcement day?
- Calculate abnormal returns from Fama-French 5 factor model (+ regional bank index to account for crisis effects) estimated using 2022 data
- Result: rating announcements are not informative

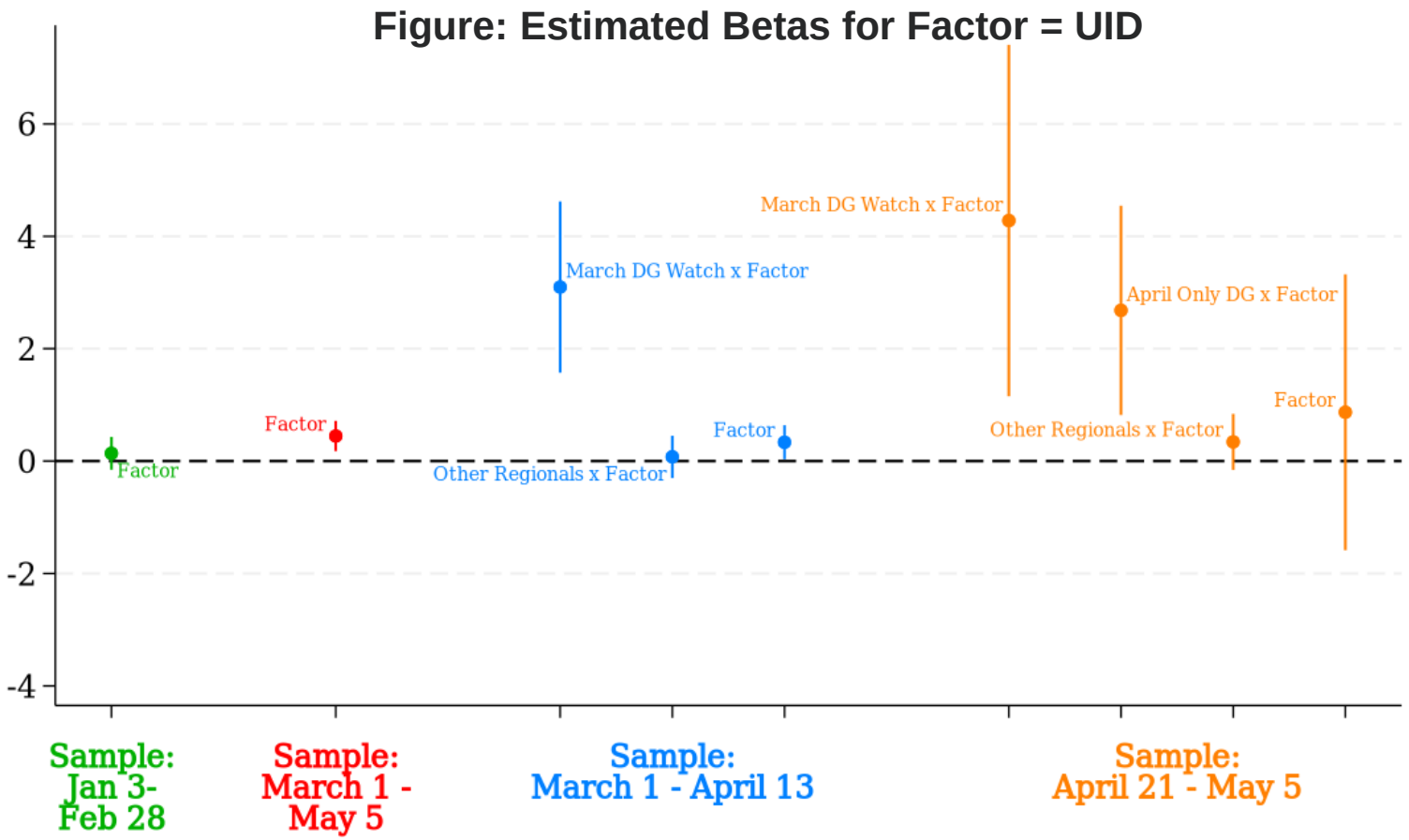
Figure: Cumulated Abnormal Stock Returns in 2023, by Bank Group



Solid (dashed) lines include (exclude) KBWR-RF in equations (1) and (2).

How did Investors Update Beliefs Following Run?

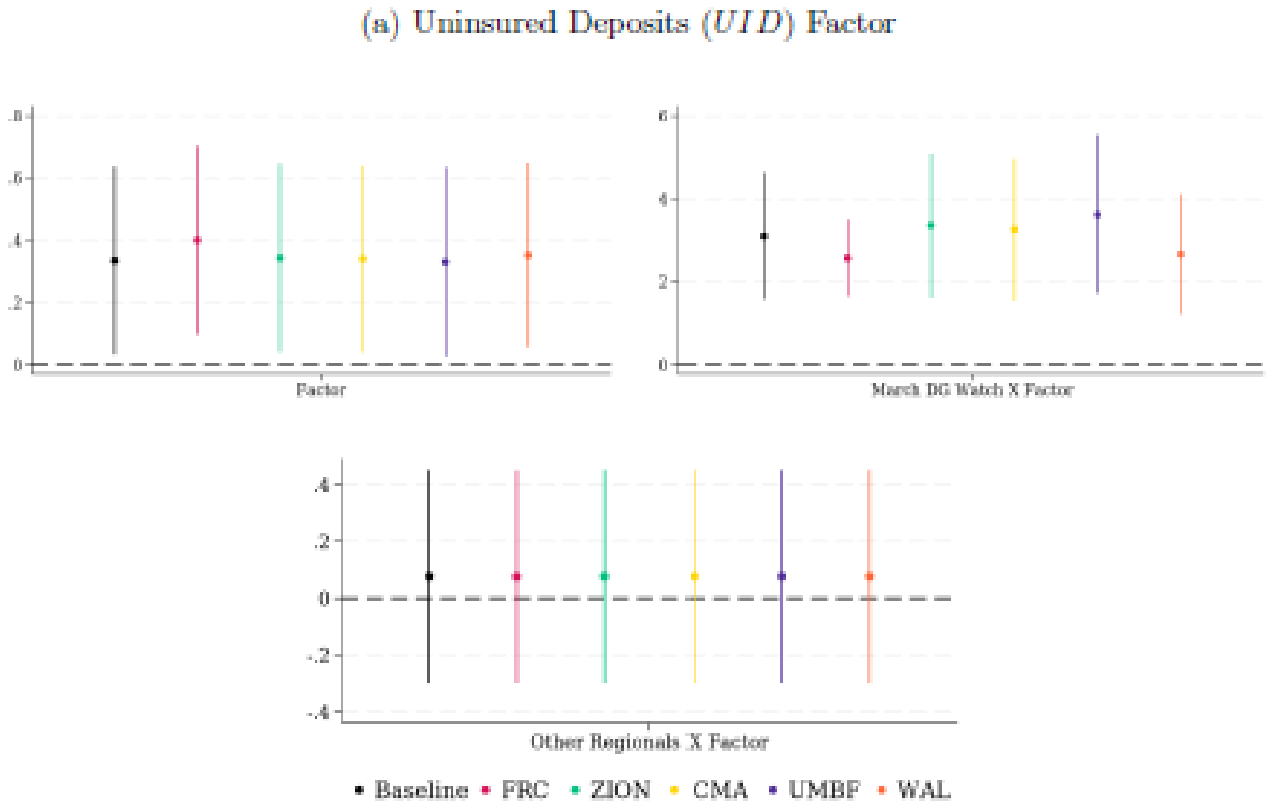
- Investors become more sensitive to bank risk after run
- But they update beliefs of bank risk only for event banks



Leave One Out Analysis

- Small number of banks may induce idiosyncratic effects
  - Leave one event bank out and re-estimate

- Results are robust



Limited Attention vs Prediction Model

- Possible explanations:
  - H1: Investors have limited attention capacity and coordinate on announcements to update their beliefs
  - H2: Investors have an accurate prediction model and focus on the same set of banks as rating agencies (consistent w uninformative ratings)

- Tests: estimate beta for 10 days pre- & post-announcement
  - H1: Identify announcement effects on betas of event banks
  - H2: Beta changes for event + other risky banks precede announcement days

Panel A: Including Mar. 9 – 13

		Factor × Mar. 1 – 13		Factor × Mar. 14 – 24		Factor × Mar. 27 – Apr. 13		Factor × DG – 9 days	
	N Banks	Change in β p50	% positive and $p < 0.05$	Change in β p50	% positive and $p < 0.05$	Change in β p50	% positive and $p < 0.05$	Change in β p50	% positive and $p < 0.05$
Factor = % UID									
March DG Watch Banks	5	0.60	100.00	0.26	40.00	0.18	0.00	0.49	60.00
April Only DG Banks	7	0.48	71.43	0.39	28.57	0.22	28.57	0.47	71.43
Other Regional Banks	38	0.13	26.32	0.29	42.11	0.25	15.79	0.37	39.47
Other Stress-Tested Banks	21	0.45	80.95	0.23	23.81	0.13	14.29	0.30	33.33
Factor = % Losses									
March DG Watch Banks	5	0.76	80.00	0.33	60.00	0.24	20.00	0.56	60.00
April Only DG Banks	7	0.40	57.14	0.07	14.29	-0.08	14.29	0.31	0.00
Other Regional Banks	38	0.17	31.58	0.26	31.58	-0.02	0.00	0.25	26.32
Other Stress-Tested Banks	21	0.33	38.10	-0.06	0.00	0.13	4.76	0.11	9.52

Crisis Effects vs Prediction Model

- Could the results for March 1-13 be wholly due to the bank run?
  - Repeat excluding March 9-13
  - Similar results, consistent w BS risk (March DWG UID; April Losses)

		Factor × Mar. 1 – 8		Factor × Mar. 14 – 24		Factor × Mar. 27 – Apr. 13		Factor × DG – 9 days	
	N Banks	Change in β p50	% positive and $p < 0.05$	Change in β p50	% positive and $p < 0.05$	Change in β p50	% positive and $p < 0.05$	Change in β p50	% positive and $p < 0.05$
Factor = % UID									
March DG Watch Banks	5	0.49	80.00	0.27	40.00	0.15	0.00	0.56	60.00
April Only DG Banks	7	0.65	42.86	0.41	28.57	0.18	28.57	0.47	71.43
Other Regional Banks	38	0.33	39.47	0.26	44.74	0.19	15.79	0.32	42.11
Other Stress-Tested Banks	21	0.72	57.14	0.18	28.57	0.12	14.29	0.24	38.10
Factor = % Losses									
March DG Watch Banks	5	0.47	20.00	0.33	60.00	0.25	20.00	0.58	60.00
April Only DG Banks	7	0.77	57.14	0.06	14.29	-0.02	14.29	0.32	0.00
Other Regional Banks	38	0.47	44.74	0.23	34.21	-0.02	0.00	0.21	31.58
Other Stress-Tested Banks	21	0.99	71.43	-0.05	4.76	0.16	4.76	0.09	14.29

- Investors did not coordinate on rating announcements
- Investors focused on event banks but also wrongly considered stress-tested banks as risky
- Did not consider non-DG regional banks as risky
- Consistent with a naïve prediction model (e.g., based on size alone)

Betas increased for large banks

Table 1: Bank Balance Sheet Characteristics as of 2022Q4, by Bank Group

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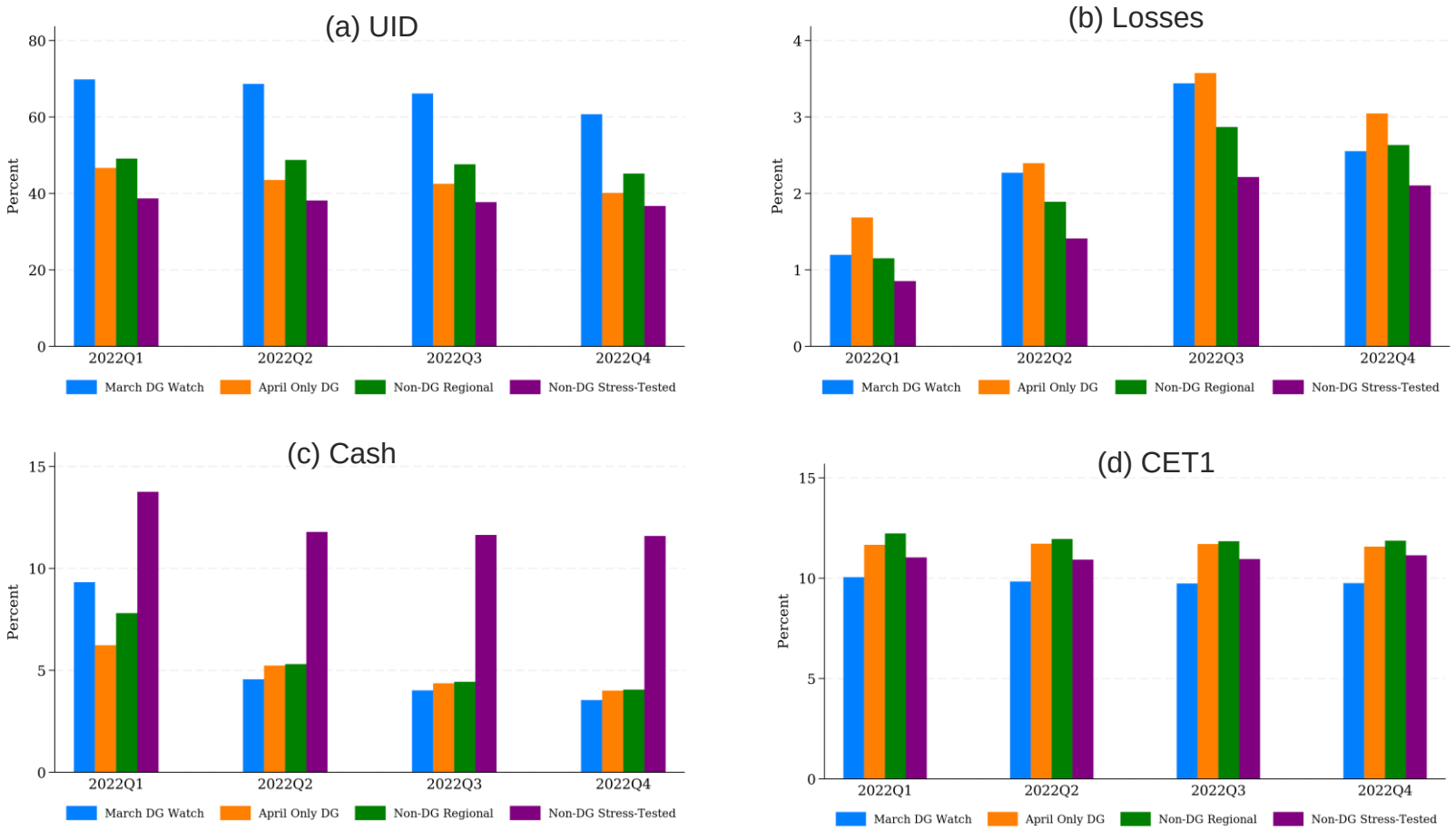
What about 2022?

- Predictability in 2022?
- Bank balance sheet risk was apparent from regulatory data in 2022

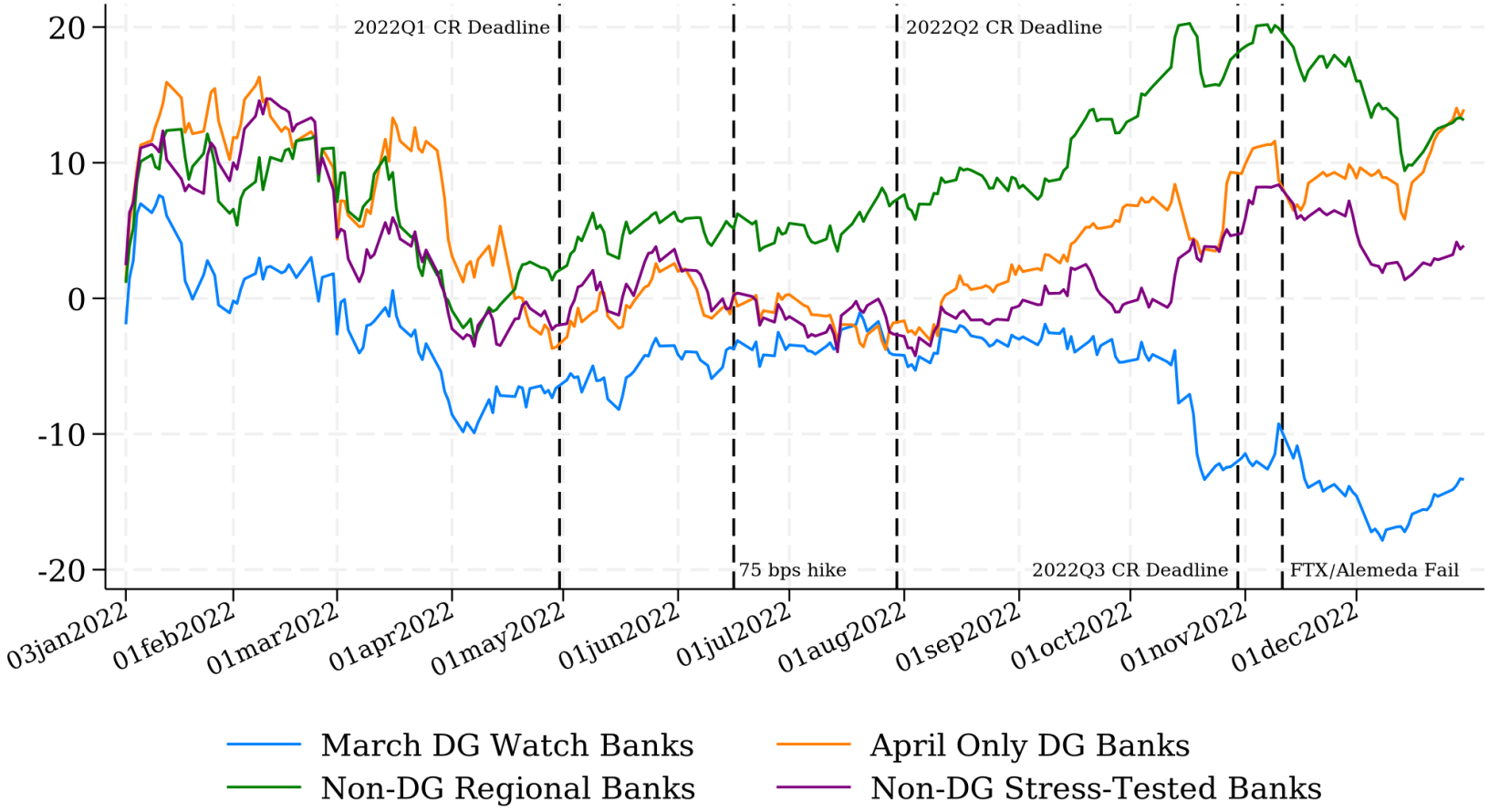
Figure: Bank Balance Sheet Characteristics in 2022, by Bank Group



Responses of Bank Returns to Information in 2022

- Information in 2022: Fed rate hikes, CR submission DLs, crypto winter in Q4
- March DGW bank returns fall in Q42022 (familiarity w UID but not Losses?)

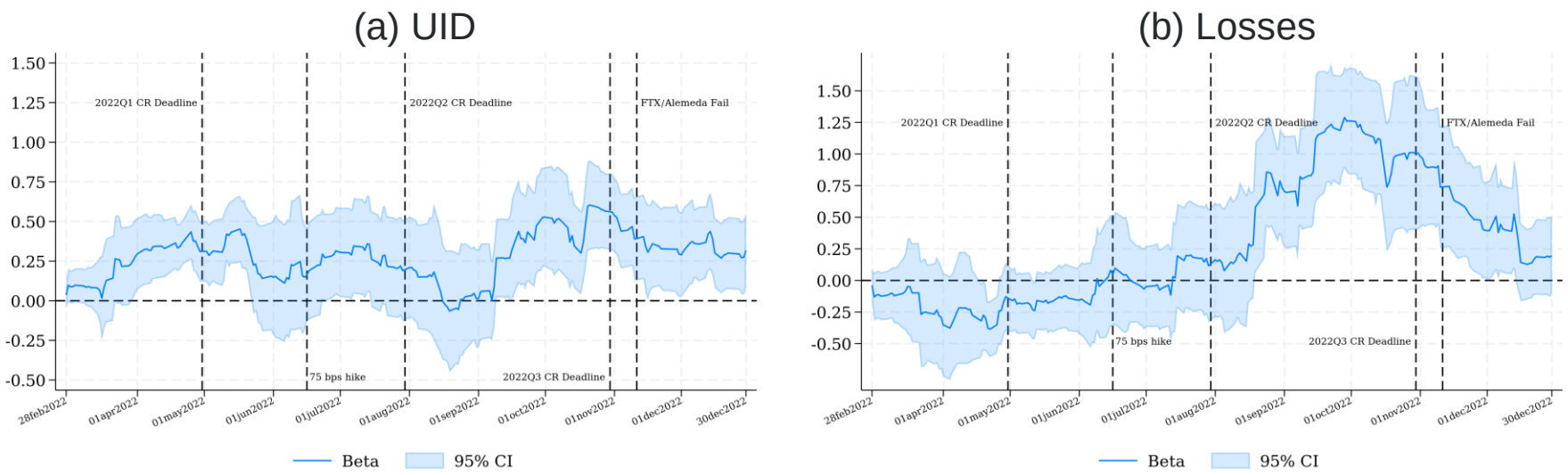
Figure: Cumulated Abnormal Stock Returns in 2022, by Bank Group



Perceptions of Bank Risk in 2022

- Estimate rolling window betas
- Temporary effects on beta around rate hikes and crypto events
  - Consistent w lack of persistent attention to bank risk
- All betas become insignificant by start of 2023
  - Did March DGW bank betas decline even during Jan-Feb 20223?

Figure: Bank Balance Sheet Factor Betas in 2022



Conclusions

- Investors' bank BS betas increase on average after bank run, but only for banks that were downgraded by rating agencies, even though the rating announcements were not informative

- This effect cannot be explained by the idea that investors with limited attention coordinate on the rating announcements

- Evidence is consistent with investors having a naïve prediction model
  - They correctly update the risk of event banks in March 1-8 (before announcements)
  - They also erroneously predict stress-tested banks to be risky and ignore non-downgraded regional banks

- Future work:
  - Estimate investor prediction model
  - Higher frequency measures of information arrival during bank run