Investor Attention to Bank Risk During the Spring 2023 Bank Run

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The views stated here are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of New York, or the Federal Reserve System.

Investor Attention to Bank Risk

- Sleepy depositors: speed of SVB deposit withdrawals suggests they were surprised (Dreschler, Savov, Schnabl, Wang, 2024)

- Can other interested parties discipline banks?
  - Bond market investors (Morgan 2002)
  - X (Twitter users) (Cookson et. al. 2023)
  - Very large depositors (Cipriani, Eisenbach, Kovner, 2024)
  - Bank supervisors (Gopalan and Granja, 2024)

- Did stock investor discipline banks during bank run?
  - Bank risk information was available in 2022
    - But investors may not act on it (Correia, Luck, Verner, 2024)
  - Did investors update beliefs about bank risk? Or
  - Coordinate on a few banks, unrelated to risk, based on public signals?
    - Limited attention (Hirschliefer 2015) or higher-order beliefs (Morris and Shin, 2002)
  - Coordination distorts price dynamics (Peng & Xiong, 2006; Van Nieuwerburgh & Veldkamp, 2010)

Balance Sheet Risk was Increasing in 2022

Figure 1: Bank Balance Sheet Characteristics in 2022, by Bank Group

(a) *UID*

(b) *Losses*

(c) $\frac{Cash}{Assets}$

(d) CET1 Ratio
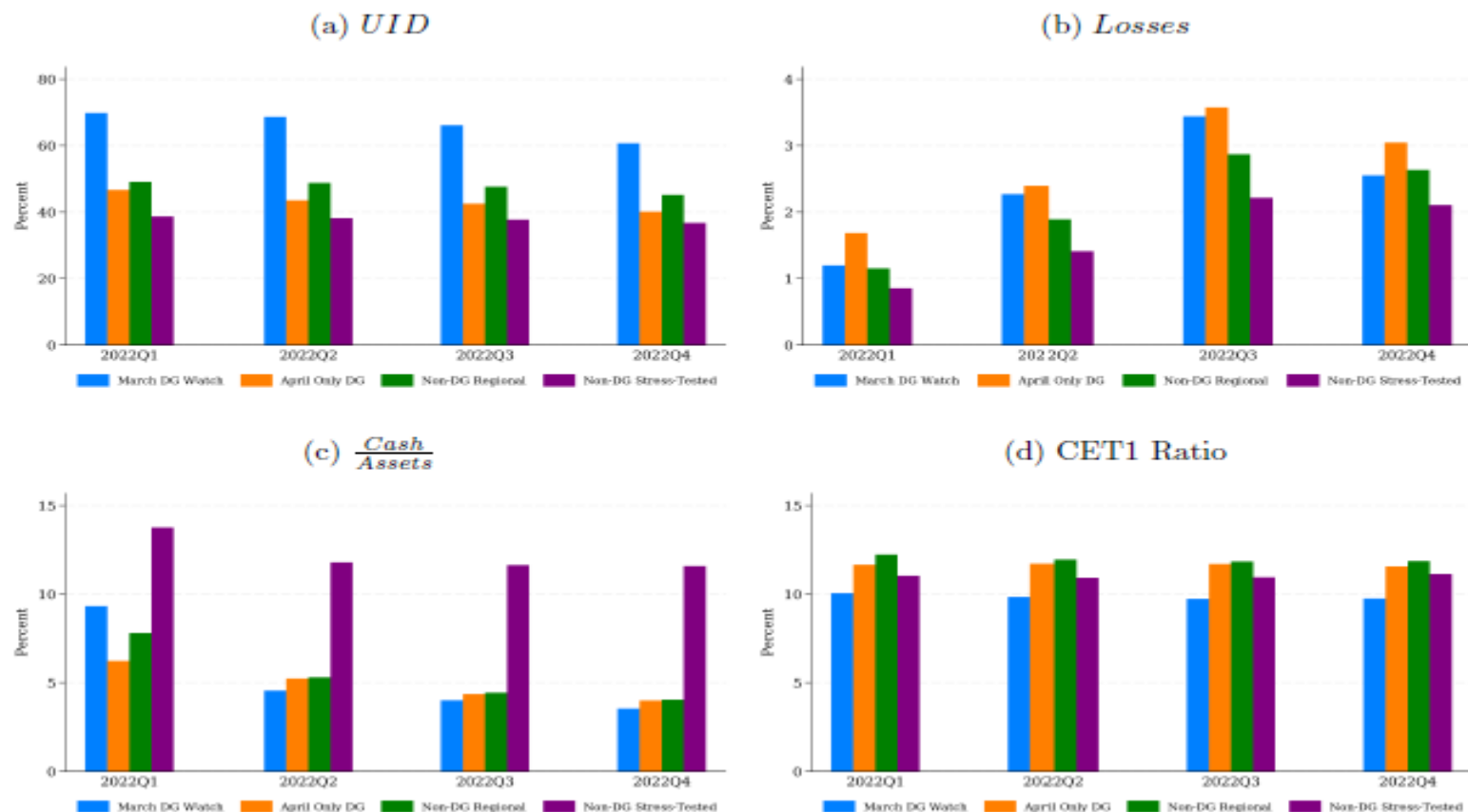
Content

- Bank risk measure: balance sheet betas

- Perceptions of bank risk change during the run
    - Higher risk perceptions for a limited set of banks

- Investor coordination on some banks based on public signals
    - Information arrival proxies: Bank publications
    - Beta and publications
   - Rating announcements

- 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 2022Q3
    - 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)
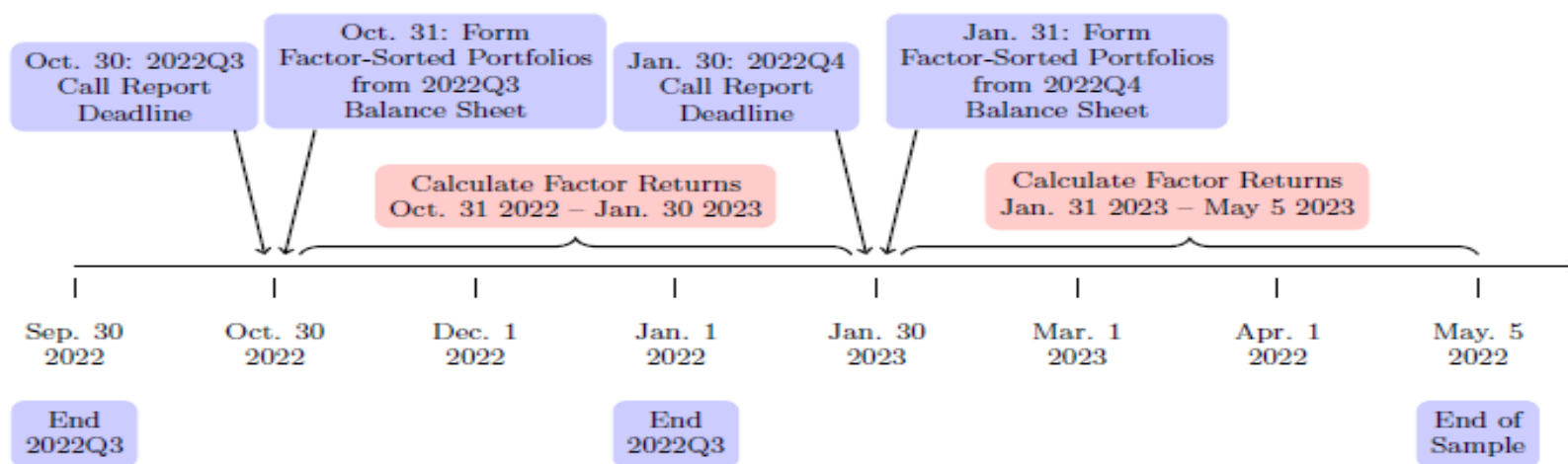
BS Betas Increased During Bank Run

Figure 2: Evolution of Factor Betas Before and During the Run
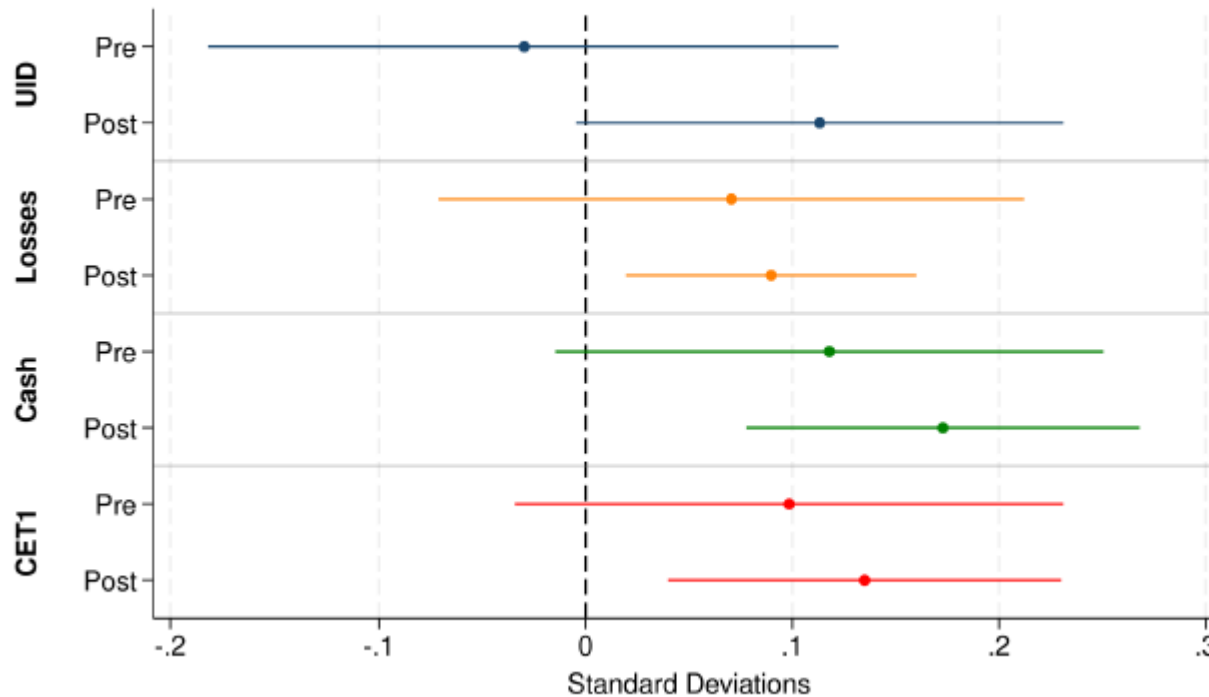
Note: This figure plots point estimates andf 95% confidence intervals.

- Standard Deviation (SD) units
- Pre sample: Jan – Feb 2023; Post sample: March – May 5 2023
- Other regressors: FF5, lagged bank MVE, bank size factor
- Includes bank fixed effects

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Cross-section of Information & Bank Risk

- Sample: 71 banks in stock indexes (most visible banks that investors pay attention to)
- 4 groups of banks:
  - Event 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
  - TBD: 21 fast run banks from (Cipriani, Eisenbach, Kovner, 2024)

- All banks appeared risky in 2022Q4 wrt stress-tested group
  - March: highest UID; April: highest Losses; Non-DG regionals sim to April

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

Banks with Higher Betas During the Run

- Figure shows scatter plots of beta estimates by bank, whether sig or not
- % banks w + sig β rose from <15% pre-run to 38% (UID) & 31% (Losses) during run

Figure 3: Bank Balance Sheet Betas Before and During the Run
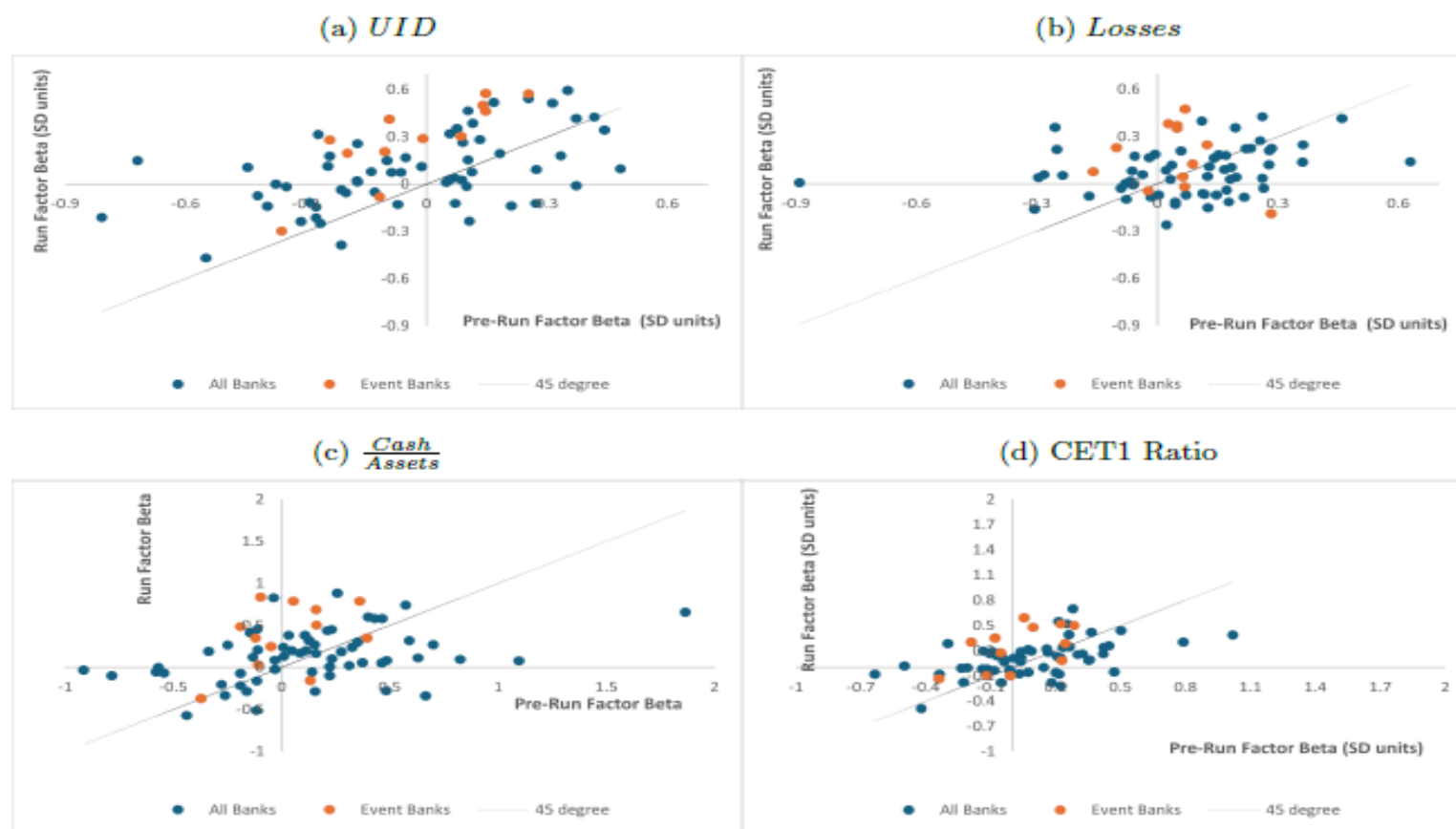
Changes in Bank Beta and Bank Risk Weakly Correlated

2022Q3 values of banks whose betas increased significantly (2nd row) vs those that did not (1st row)

-- For all banks (top 2 rows) and non-downgraded regionals (bottom 2 rows)

		N	Assets ($B)	Unin. Dep %	Losses %	Cash %	CET1 %	Eret %
Panel A: Factor=UID								
All Banks, Beta<0 or insig		53	38.05	44.53	2.45	4.40	11.02	2.09
All Banks, Beta>0 & sig		18	94.62*	55.85**	3.64**	3.93	9.96	1.97
Non-DG Regionals, Beta<0 or insig		32	26.48	45.42	2.57	3.13	11.14	1.81
Non-DG Regionals, Beta>0 & sig		6	33.50	60.95**	2.93	6.96	13.12**	2.12

Can 2022 balance sheet risk predict higher betas during the run?

Use prediction models from Correia, Luck and Verner (2024) and Cipriani, Eisenbach, Kovner (2024)

(a) *UID*

(b) *Losses*
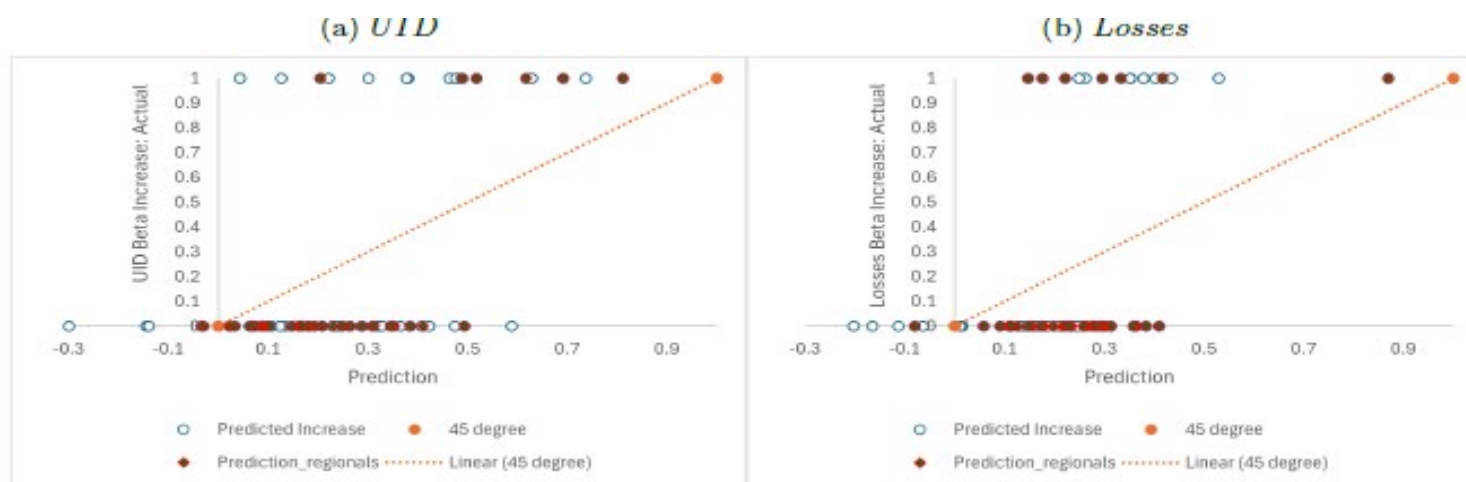
Hypotheses: Public Signals and Betas

- H1: News is informative of bank risk and returns during bank run

    - Reveals new information to investors who update their beliefs accordingly

- H2: News coordinates investor beliefs about bank risk during the run.

    - Investors coordinate on news to update betas even if it is not informative

- Measures of public signals:

    - Daily publication counts from Bloomberg NewsHeat, normalized by bank assets

        - Counted as long as pubs occur by 1159PM

        - May not affect returns the same day

    - Rating announcement dates

        - Announcement of downgrade watch by Moody's after market close on March 13 (we take March 14 as event day)

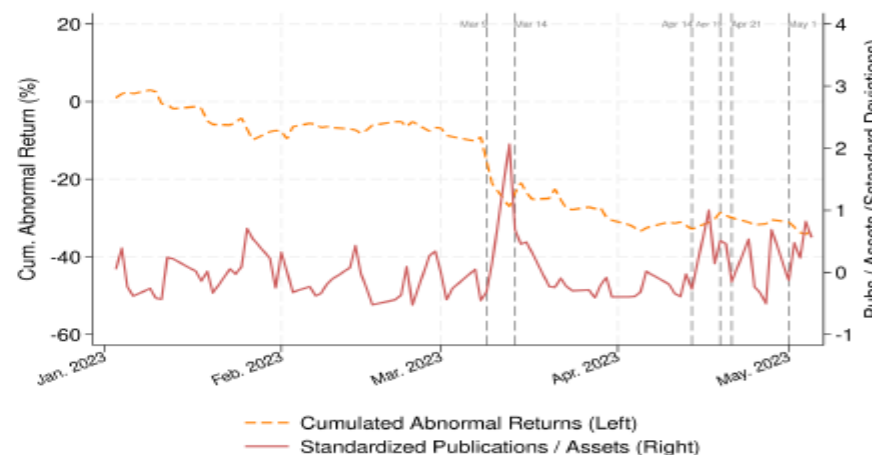   - Downgrades of these banks and additional banks between April 14-21

Returns and Standardized Publication Counts

- Publication counts (in SD units) correlate w risk events
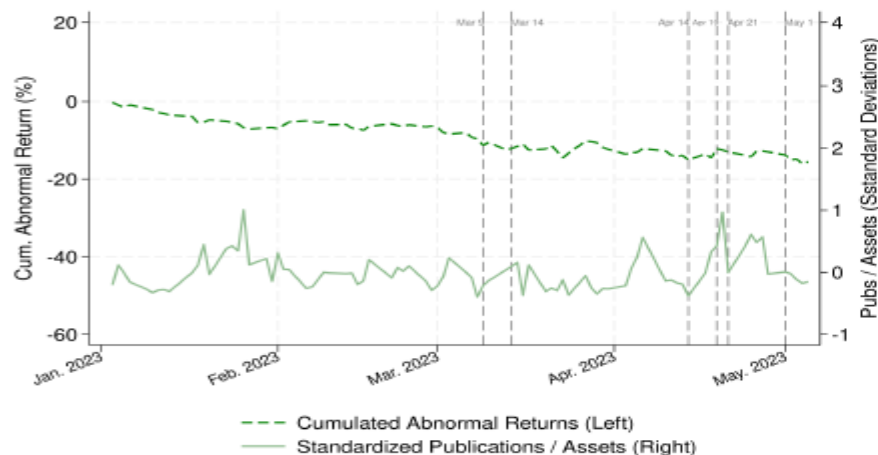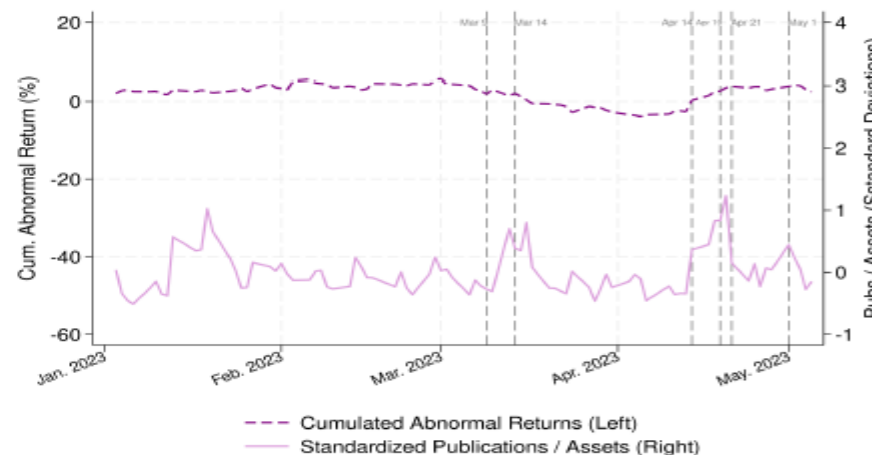

(a) March DG Watch
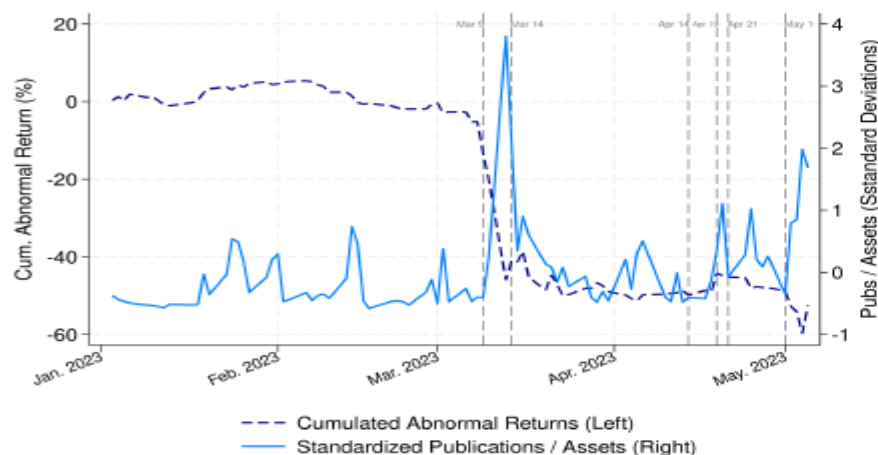
(b) April Only DG

(c) Non-DG Regionals

(d) Non-DG Stress-Tested

Publication Counts Are Informative of Returns

Significant effect of publications on abnormal returns up to 3 days after publications

Table 6: Effect of News on Bank Abnormal Returns: Before and during the run

	News=Pubcount		News=Pubcount		News=Pubcount_MA2		News=Pubcount_MA3	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
News*Pre	-0.01	0.05	3.03***	0.30	3.07***	0.40	4.78***	0.62
News*Event Banks*Pre			-2.80***	0.34	-0.57	0.51	-2.72***	0.66
News*Regionals*Pre			-2.29***	0.30	-1.91***	0.37	-3.25***	0.59
News*Post	-1.39***	0.03	0.10	0.22	0.42	0.39	0.66	0.47
News*Event Banks*Post			-1.67***	0.24	-1.15***	0.44	-0.35	0.51
News*Regionals*Post			0.70***	0.24	-0.01	0.39	0.51	0.47

Also includes 3 lags of dependent variable and bank fixed effects

# Publication Counts Are Informative of Betas

Significant effect on β even after 3 days

	Panel A: UID Factor					
	News=Pubcount		News=Pubcount_MA2		News=Pubcount_MA3	
	Estimate	SE	Estimate	SE	Estimate	SE
Factor*Pre	-0.03	0.08	-0.02	0.08	-0.03	0.08
Factor*Post	0.10*	0.05	0.10*	0.06	0.11*	0.06
Banksize Factor*Pre	0.10*	0.06	0.13**	0.05	0.14**	0.06
Banksize Factor*Post	0.11***	0.04	0.11***	0.04	0.11**	0.04
News*Pre	0.03	0.03	0.02	0.03	0.05	0.04
News*Post	0.03	0.03	0.03	0.04	0.01	0.04
News*Factor*Pre	-0.04	0.05	-0.03	0.05	-0.05	0.06
News*Factor*Post	0.05**	0.03	0.08**	0.04	0.10**	0.05

|	Panel B: Losses Factor					
	News=Pubcount		News=Pubcount_MA2		News=Pubcount_MA3	
	Estimate	SE	Estimate	SE	Estimate	SE
Factor*Pre	0.10	0.06	0.04	0.07	0.04	0.07
Factor*Post	0.15***	0.05	0.07**	0.03	0.07**	0.03
Banksize Factor*Pre	0.03	0.06	0.12***	0.04	0.12**	0.05
Banksize Factor*Post	0.06	0.05	0.14***	0.04	0.14***	0.04
News*Pre	0.01	0.03	0.02	0.03	0.04	0.03
News*Post	0.03	0.03	0.05	0.03	0.02	0.04
News*Factor*Pre	0.06	0.06	-0.03	0.05	-0.04	0.05
News*Factor*Post	0.05*	0.03	0.12***	0.03	0.11***	0.04

News Less Likely to be "Good" for Betas During Run

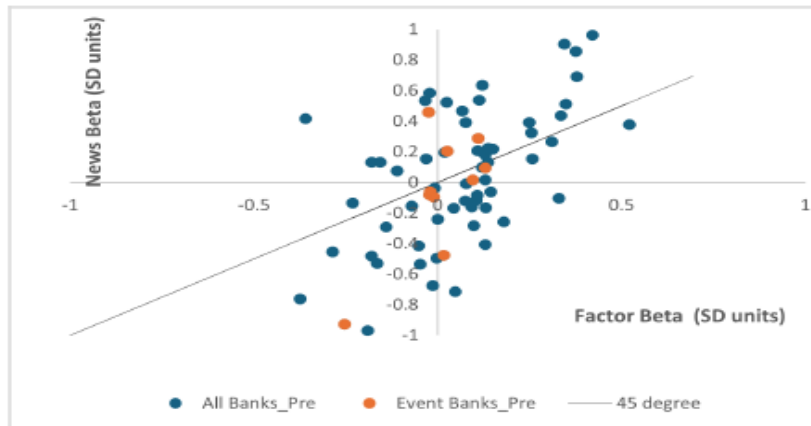News beta: coefficient of News*Factor in regression

(a) *UID* News Beta Pre-Run
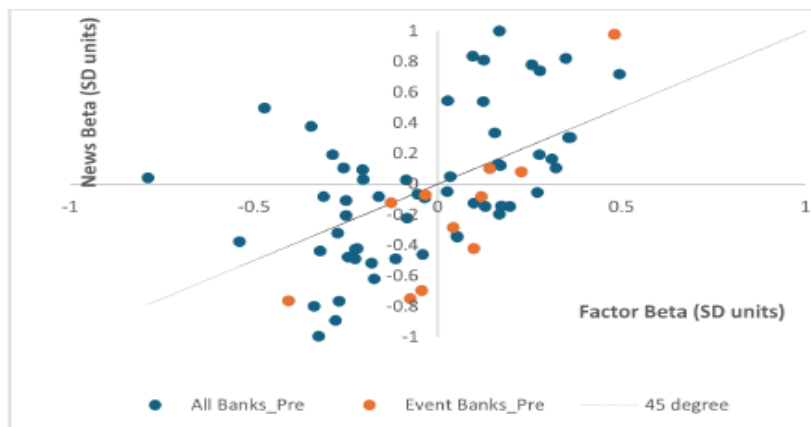
(b) *UID* News Beta Run
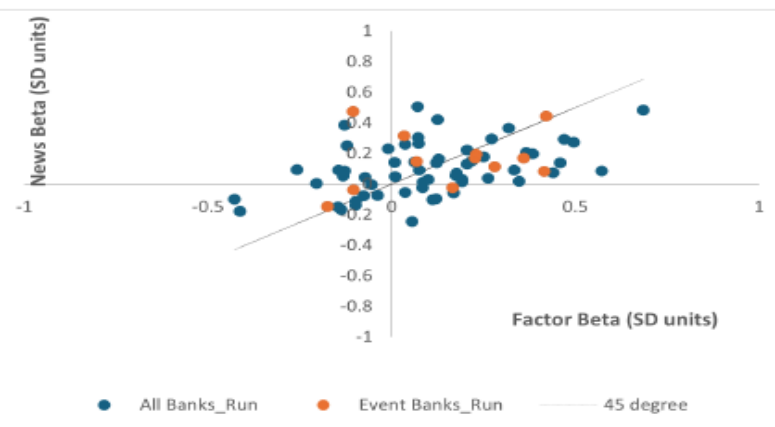
(c) *Losses* News Beta Pre-Run

(d) *Losses* News Beta Run
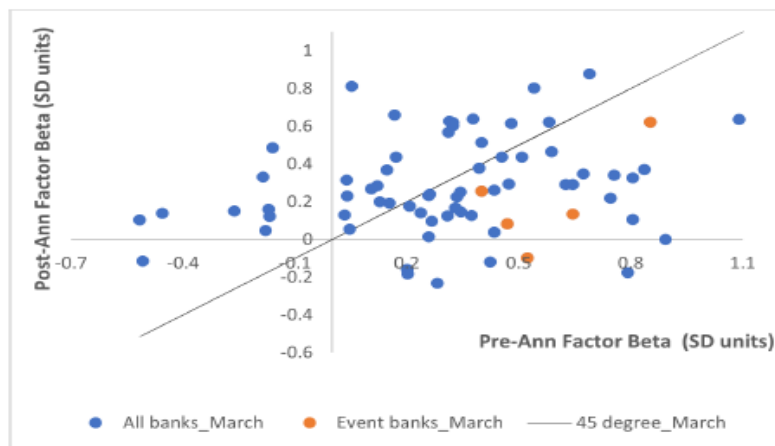
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News Beta and Bank Risk Weakly Correlated

Panel A: Factor=UID

	N	Assets ($B)	Unin. Dep %	Losses %	Cash %	CET1 %	PubCount %
All Banks, No Change in News Beta	53	42.69	44.30	2.45	3.82	10.98	7.63
All Banks, Higher News Beta	18	68.66	50.18**	3.04	6.38*	10.90	7.74
Non-DG Regionals, No Change in News Beta	32	29.73	46.01	2.75	3.13	11.14	8.03
Non-DG Regionals, Higher News Beta	6	18.45*	49.17	2.44	3.77	12.89*	17.05

Panel B: Factor=Losses

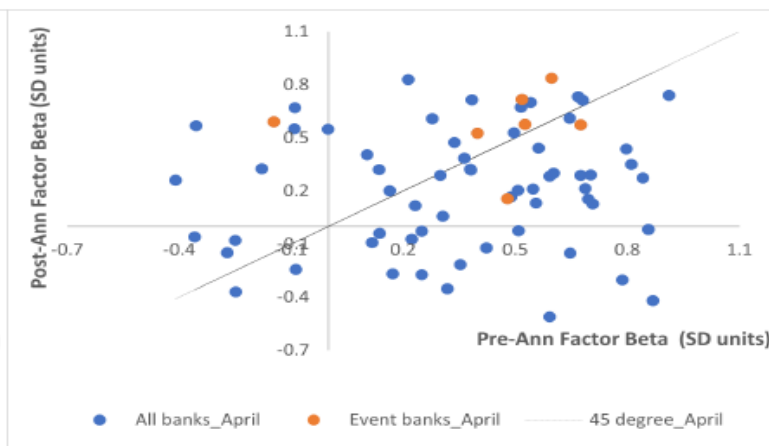|	N	Assets ($B)	Unin. Dep %	Losses %	Cash %	CET1 %	PubCount %
All Banks, No Change in News Beta	56	45.70	44.50	2.57	4.53	11.09	8.14
All Banks, Higher News Beta	15	41.40	51.56**	2.93	2.79	9.98*	7.25
Non-DG Regionals, No Change in News Beta	31	29.05	47.04	2.62	3.33	11.73	10.44
Non-DG Regionals, Higher News Beta	7	19.95	45.33	2.33	1.98	10.37	7.63

Rating Announcements Did Not Generally Coordinate Investor Actions

- Rating announcement mostly not informative of returns
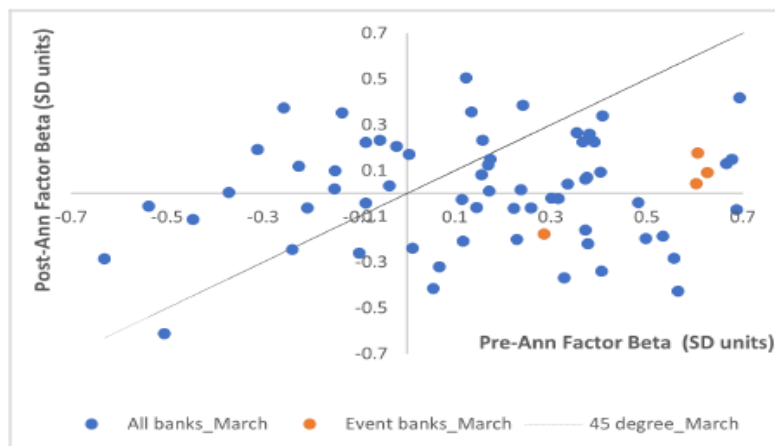- Betas increased before and not after March announcements
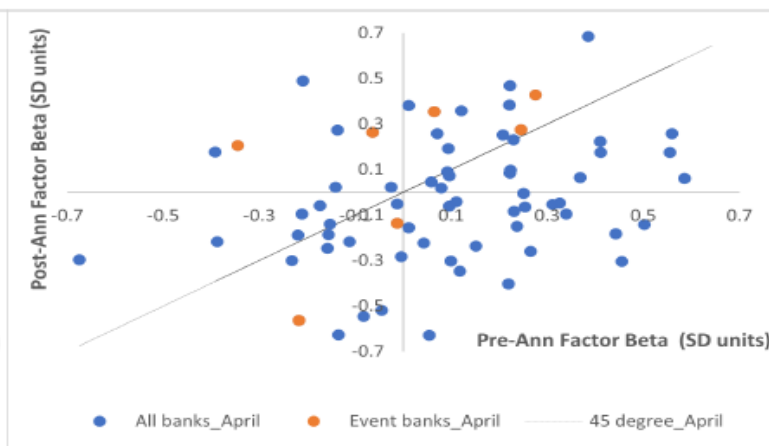

(a) *UID* Beta Around March Announcements
(b) *UID* Beta Around April Announcements
(c) *Losses* Beta Around March Announcements
(d) *Losses* Beta Around April Announcements

Conclusions

- Stock market investors have weak ability to discipline banks
  - Balance sheet betas increase on average during run
  - But weak correlation of higher betas with bank risk

- Investors coordinate on public signals to decide which banks to attend to
  - Even bank news published a few days prior significantly affect returns and betas
  - News betas weakly associated with bank balance sheet risk

- Open question: expectation of government support likely to affect investor perception of bank risk

- Ongoing work: whether Fed's Bank Term Funding Program (BTFP) affected investor perceptions of bank risk

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
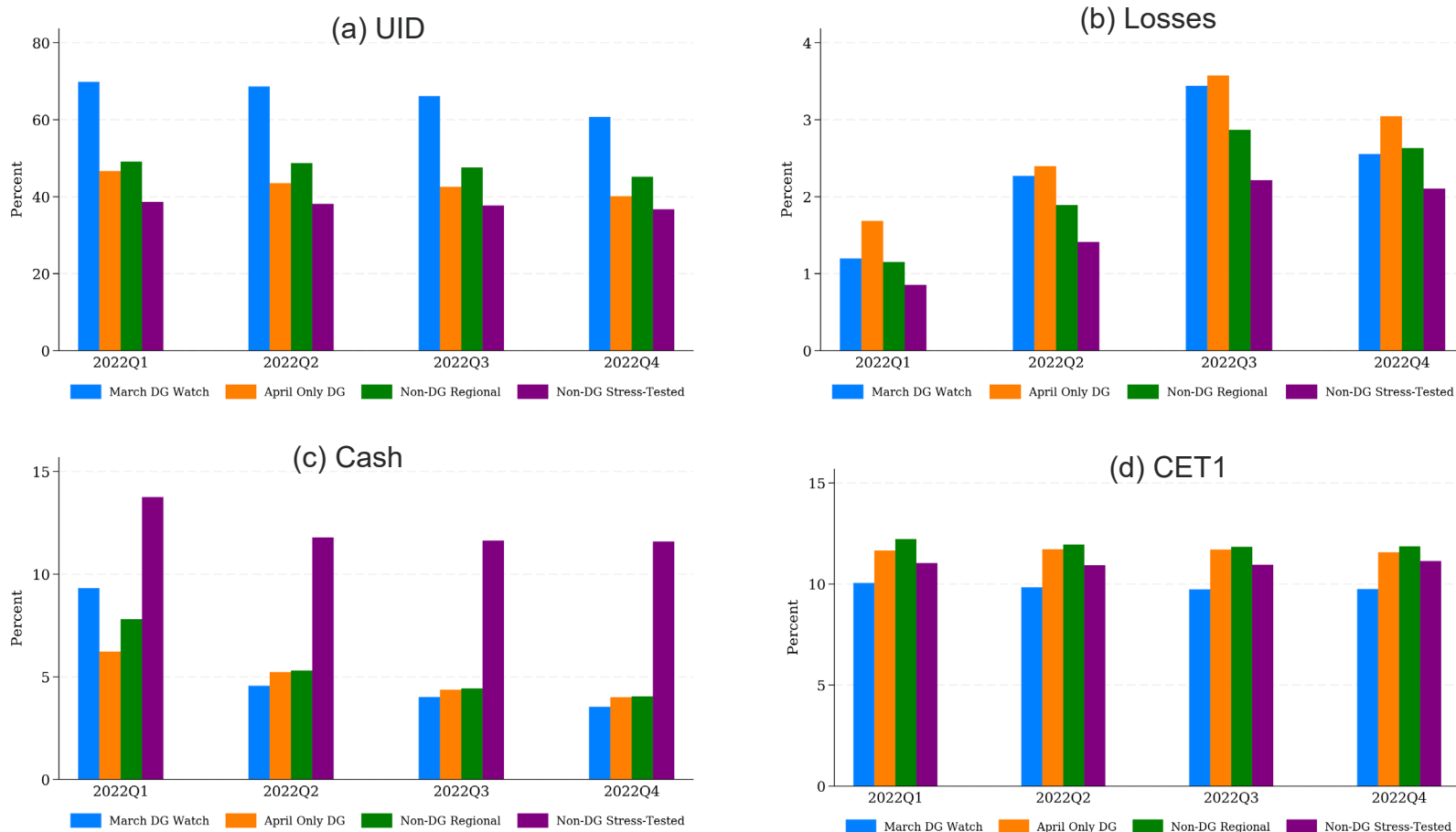
Responses of Bank Returns to Information in 2022

- 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
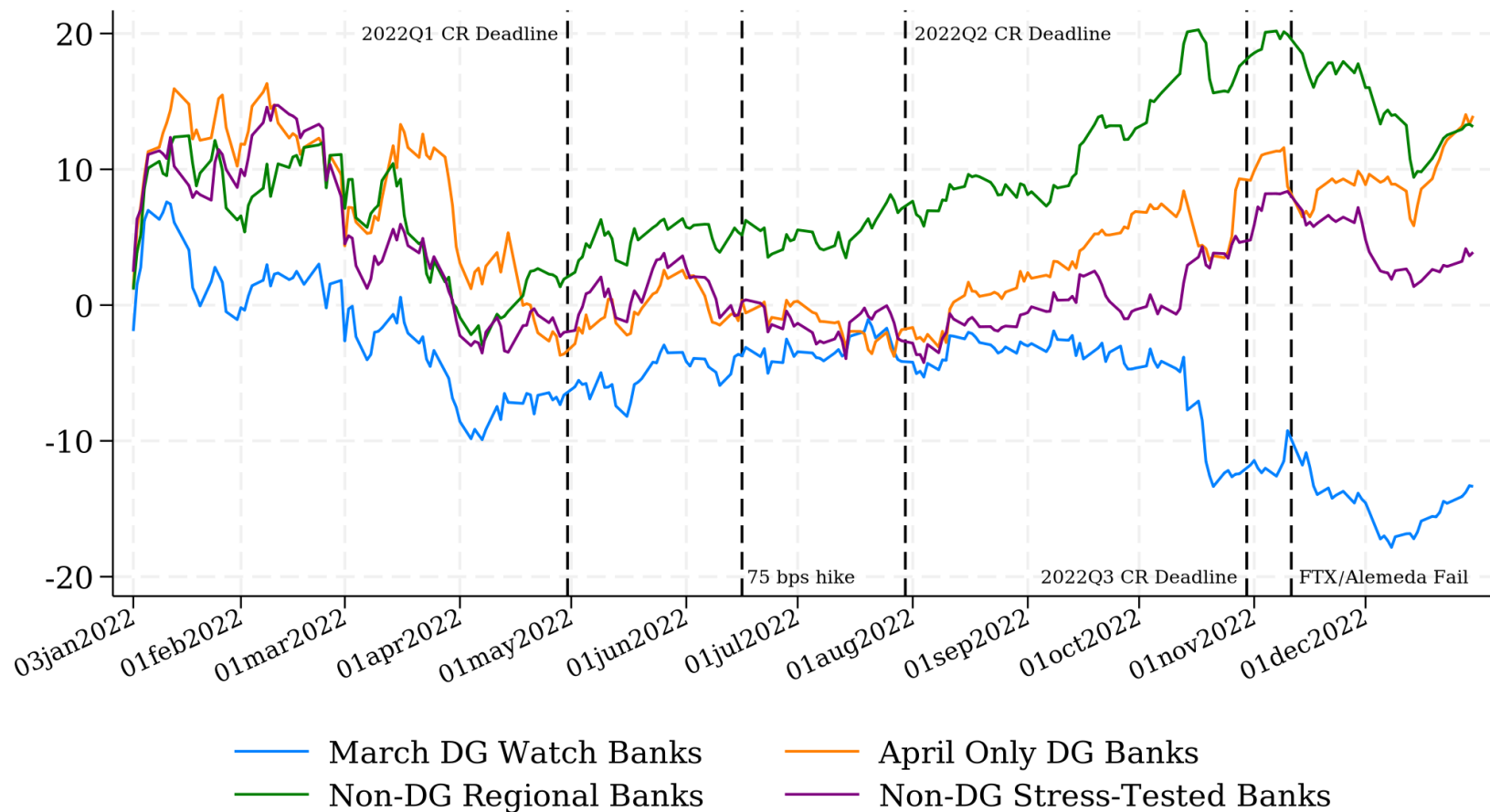
Perceptions of Bank Risk in 2022

- 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

(a) UID

(b) Losses
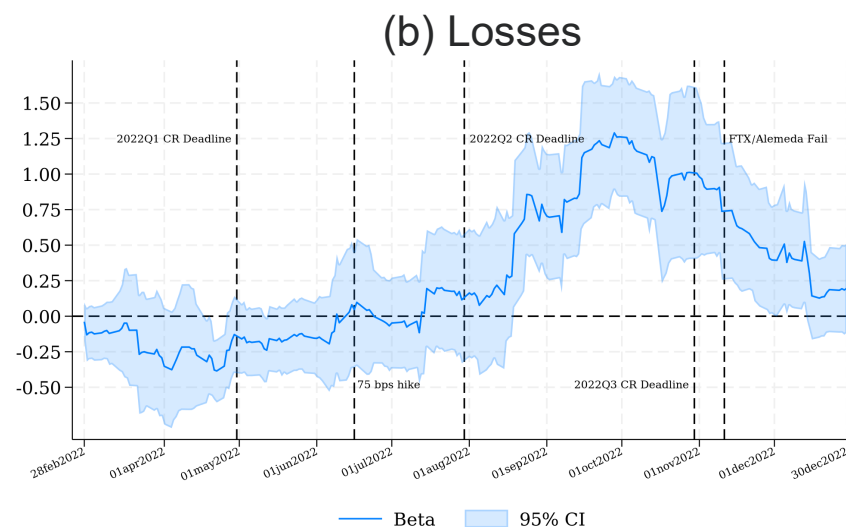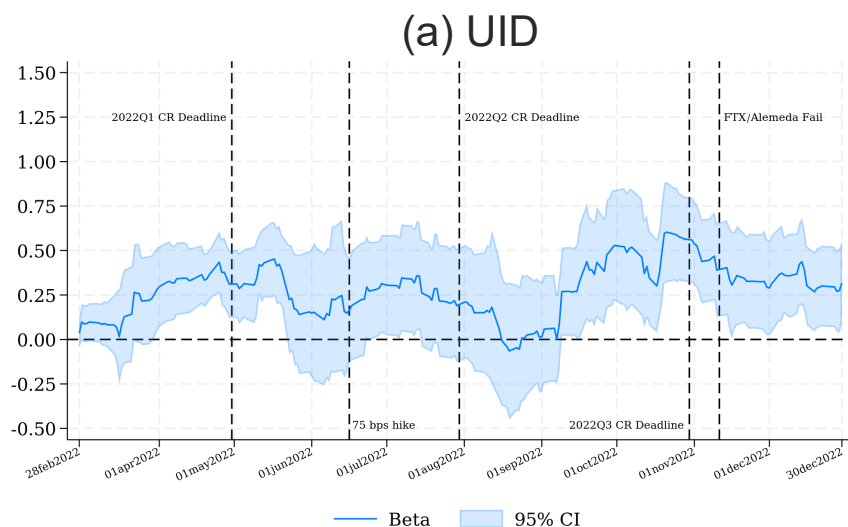
Leave One Out Analysis

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

- Results are robust

(a) Uninsured Deposits (UID) Factor