
Bank Branch Density and Bank Runs

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| MENDOZA COLLEGE OF BUSINESS

Banking Panic 2023



3/10/2023



3/12/2023



5/1/2023

Banking Panic 2023



3/10/2023

SVB (15TH)

- \$175B in deposits
- 17 branches



3/12/2023

Signature (32ND)

- \$104B in deposits
- 38 branches



5/1/2023

First Republic (19TH)

- \$166B in deposits
- 87 branches

Banking Panic 2023



SVB

- \$175B in deposits
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Signature

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First Republic

- \$166B in deposits
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Branch Density = Number of Branches/Total Deposits (in \$B)

→ 0.1

→ 0.36

→ 0.53

N	Mean	Std	10%	25%	50%	75%
294	9.23	5.783	1.95	4.992	9.026	12.961

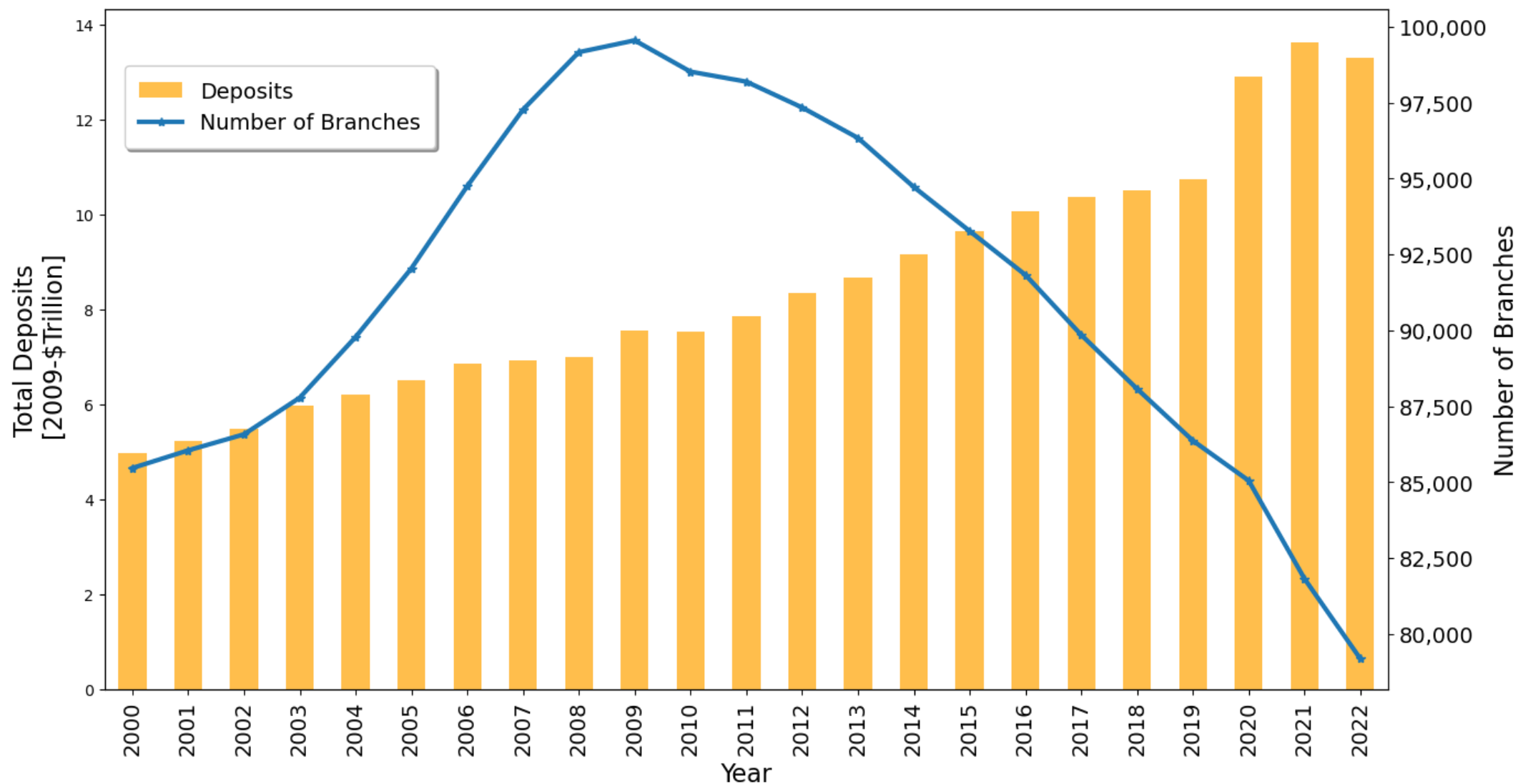
Paper Overview



- Banks with lower branch density:
 - Suffered greater decline in stock prices during the 2023 Banking Crisis.
 - Witnessed larger withdrawals of deposits (uninsured deposits, especially).
- Branch density reflects banks' underlying business strategies that attract more sophisticated depositors who are highly mobile in times of panic
 - More corporate deposits & larger average deposits per account
 - More urban, with higher income and education, younger
 - Investment in technology & deposit pricing allow banks to decouple the growth of deposits and physical branches

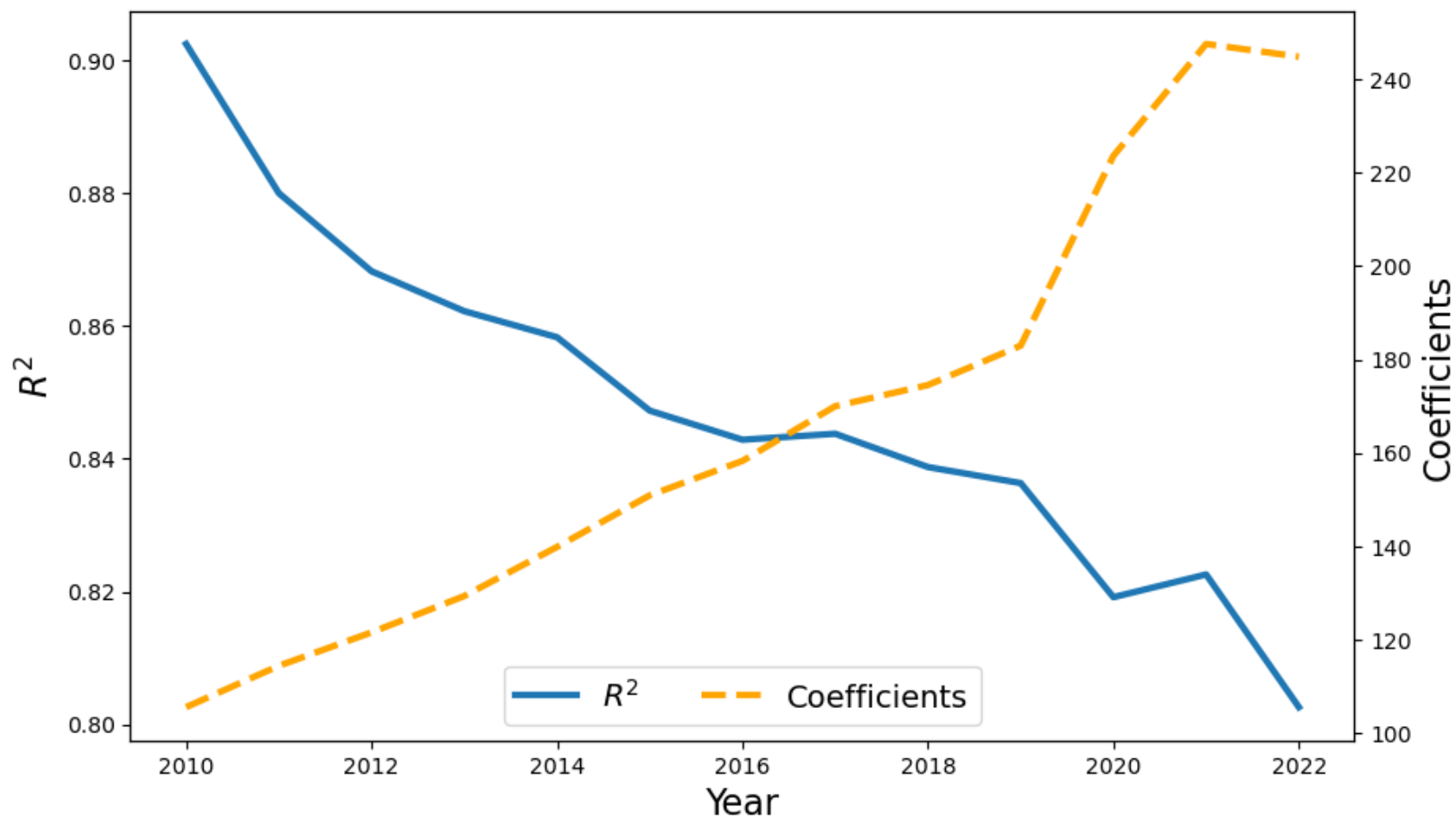
Branch Density - Basic Patterns

Branches and Deposits over Time

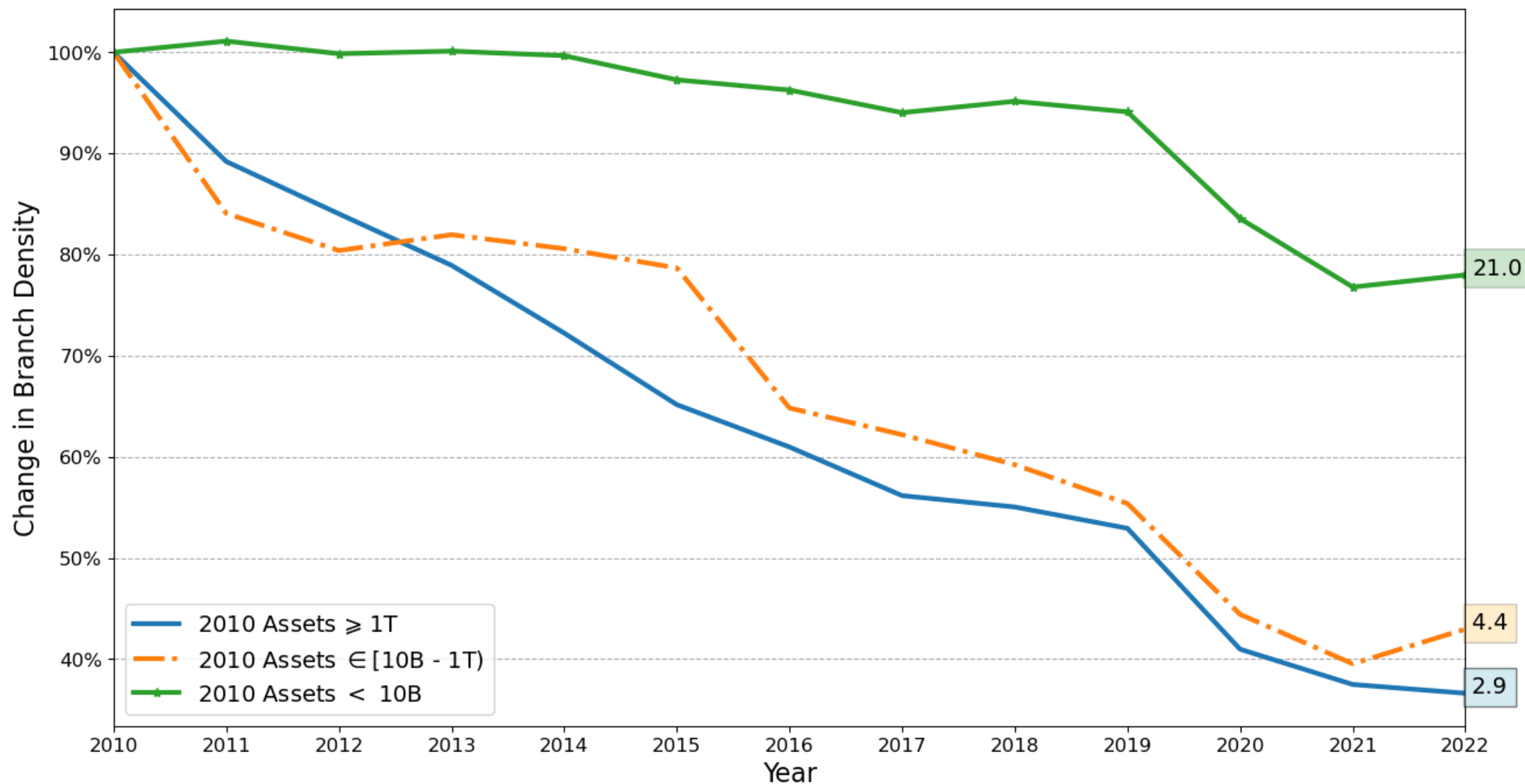


Branches and Deposits over Time

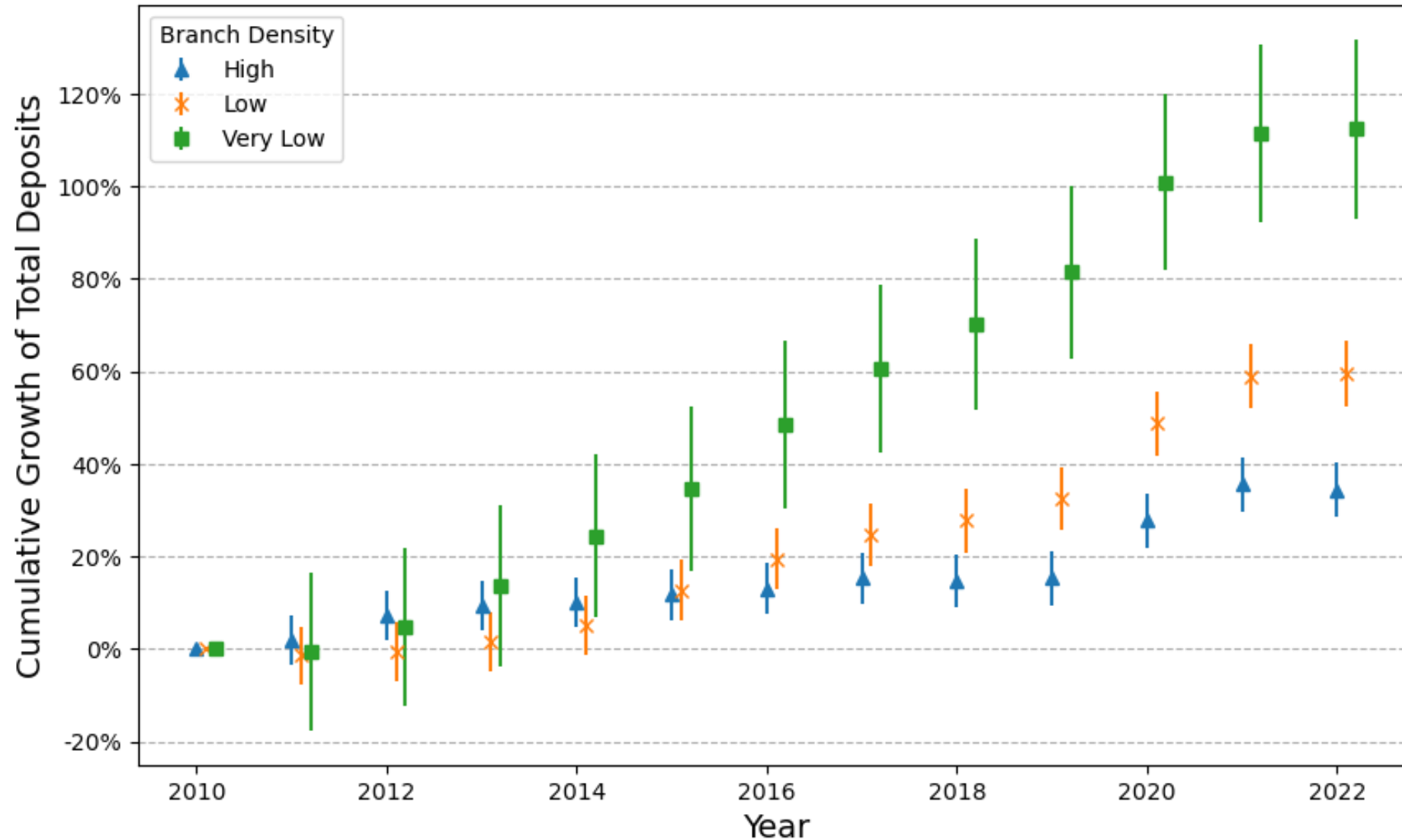
$$\text{Deposits}_i = \alpha + \beta \times \text{Number of Branches}_i + \varepsilon_i$$



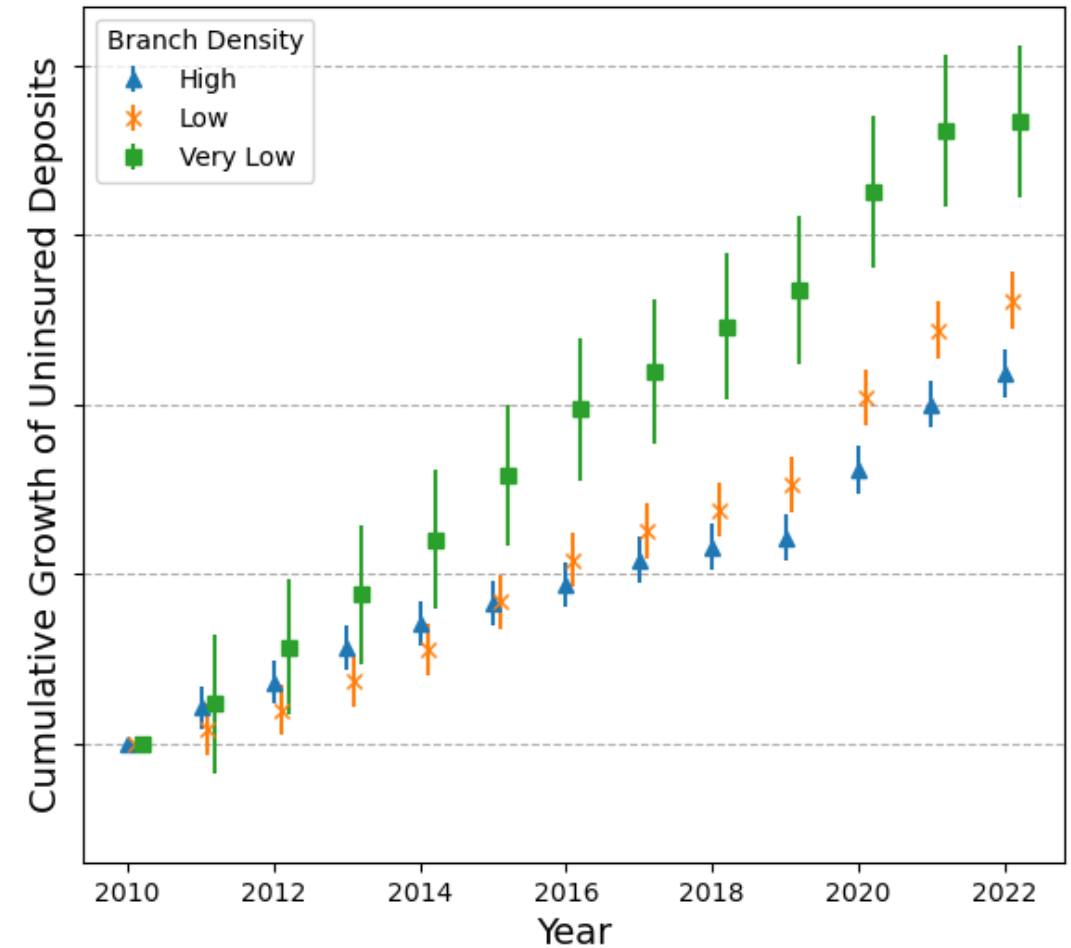
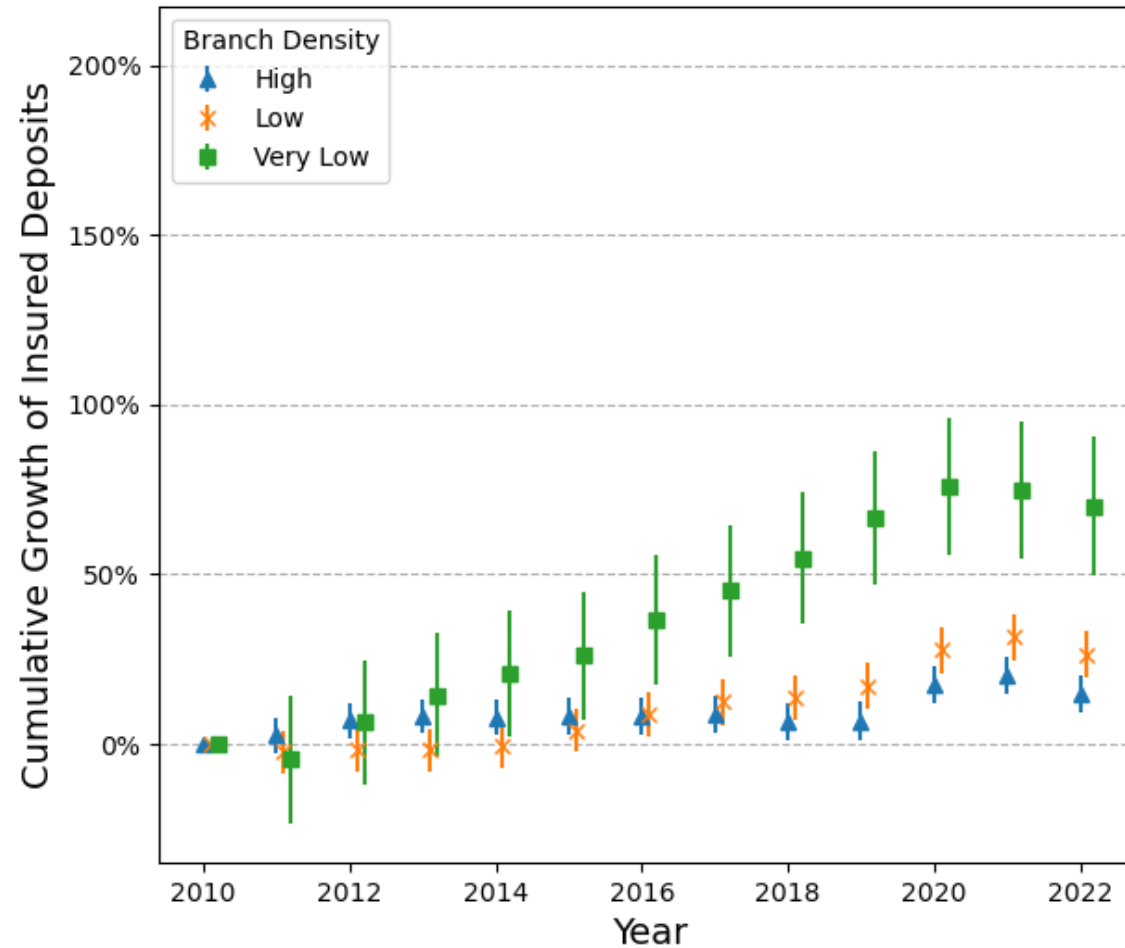
Branch Density by Bank Size



Deposit Growth 2010-22 by Branch Density



Deposit Growth 2010-22 by Branch Density



Branch Density by Bank



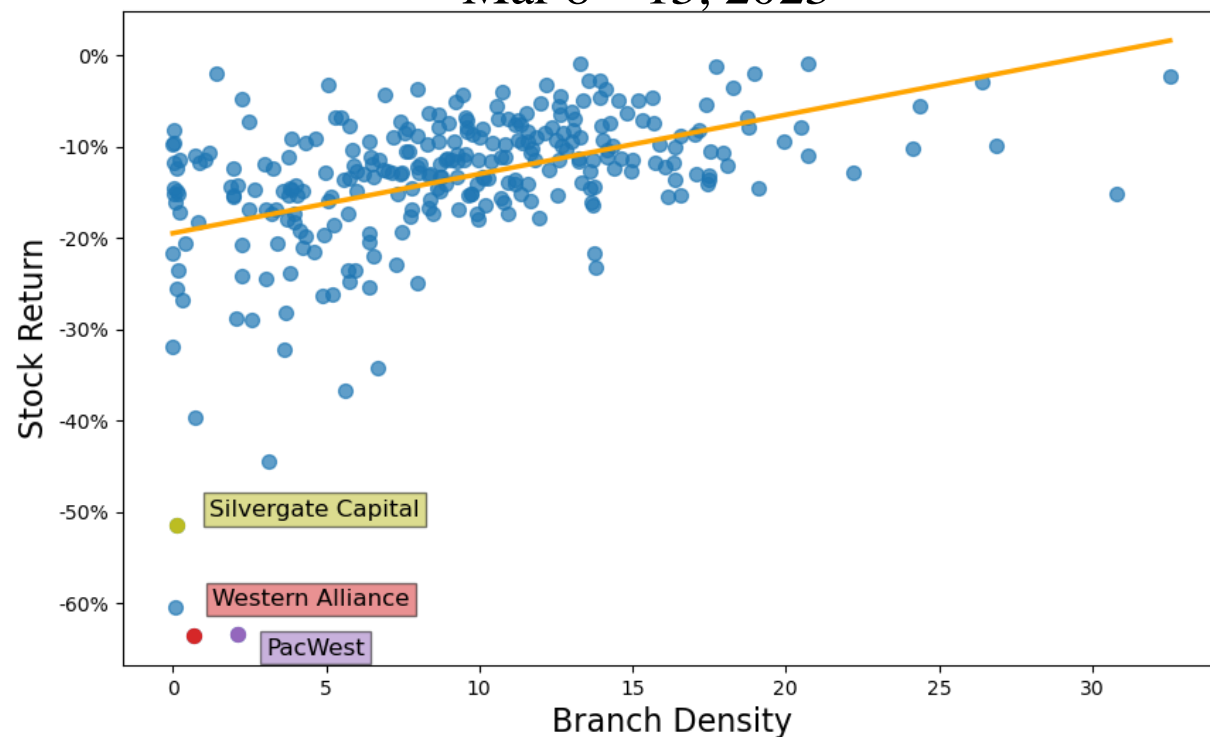
	Bank Name	Total Assets(\$B)	Total Deposits(\$B)	# Branches	Branch Density
Very Low Density (Top 3 by the Number of Branches)					
1	First Republic Bank	197.91	165.65	87	0.53
2	BNY Mellon Corporation	452.62	240.48	49	0.20
3	Signature Bank	115.97	104.14	38	0.36
Low Density (Top 3 by the Number of Branches)					
1	JPMorgan Chase & Co.	3841.31	2128.46	4819	2.26
2	Wells Fargo & Company	1881.14	1464.84	4768	3.25
3	Bank Of America Corporation	3111.61	1988.03	3906	1.96
High Density (Top 3 by the Number of Branches)					
1	Regions Financial Corporation	160.95	139.56	1294	9.27
2	First Community Bancshares	3.94	3.52	345	97.98
3	F.N.B. Corporation	41.75	33.77	341	10.10
Affected Banks					
1	First Republic Bank	197.91	165.65	87	0.53
2	PacWest Bancorp	40.95	34.35	72	2.10
3	Signature Bank	115.97	104.14	38	0.36
4	Western Alliance Bancorp	66.06	54.03	36	0.67
5	SVB Financial Group	214.40	174.96	17	0.10
6	Silvergate Capital Corporation	15.90	13.51	2	0.15

Branch Density & Stock Returns

Branch Density and Stock Prices

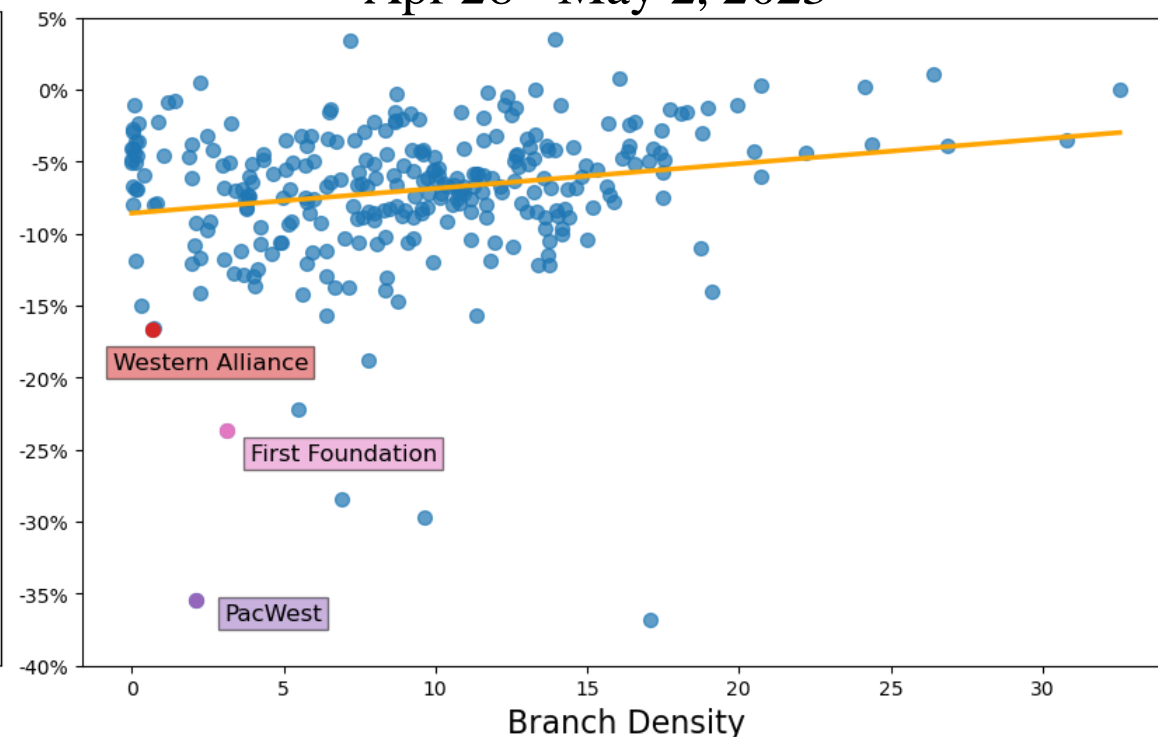
SVB Collapse

Mar 8 – 13, 2023



First Republic Collapse

Apr 28 - May 2, 2023



Branch Density and Stock Prices

	Return (SVB Collapse)	Return (First Republic Collapse)
Branch Density	0.69*** (0.12)	0.24*** (0.06)
Dep/Assets	-0.26*** (0.06)	-0.08** (0.04)
Insured Dep/Total Dep	0.09** (0.04)	0.03 (0.02)
MTM Losses	-0.17 (0.15)	-0.29*** (0.09)
Dep Growth 2019-2022	-0.05*** (0.02)	-0.00 (0.01)
N	212	212
R2	0.331	0.169
Size FE and Linear Control	X	X

Branch Density & Deposit Flows

Branch Density and Deposit Flows

	% Change between Q4 2022 – Q1 2023			Total Dep (if outflow = 1)
	Uninsured Dep	Insured Dep	Total Dep	
Branch Density	0.75*** (0.23)	-1.24*** (0.38)	0.02 (0.12)	0.20** (0.10)
Insured Dep /Total Dep	0.09 (0.06)	0.07 (0.11)	0.10*** (0.03)	-0.02 (0.02)
Dep/Assets	-0.07 (0.11)	0.10 (0.11)	-0.04 (0.08)	0.01 (0.03)
MTM Losses	-0.26 (0.20)	0.07 (0.21)	-0.04 (0.12)	0.01 (0.06)
Dep Growth 2019-2022	0.01 (0.05)	0.05** (0.02)	0.03 (0.02)	0.01 (0.01)
N	209	209	209	105
R-sq	0.078	0.167	0.078	0.106
Size FE and Linear Term	X	X	X	X

What is Behind Branch Density?

What is behind Branch Density?

- Banks with lower branch density performed worse. Why?
- Clientele Effect: These banks have business models that attract certain type of customers who are more likely to withdraw their deposits in times of crisis.
- Who are they and what attracts them?
 - Two hypotheses:
 - a. Digitally-oriented customers attracted by comprehensive IT services
 - b. Price-sensitive customers attracted by higher rates
 - Closely linked, but data supports the IT-based explanation more

Branch Density and Clientele Characteristics



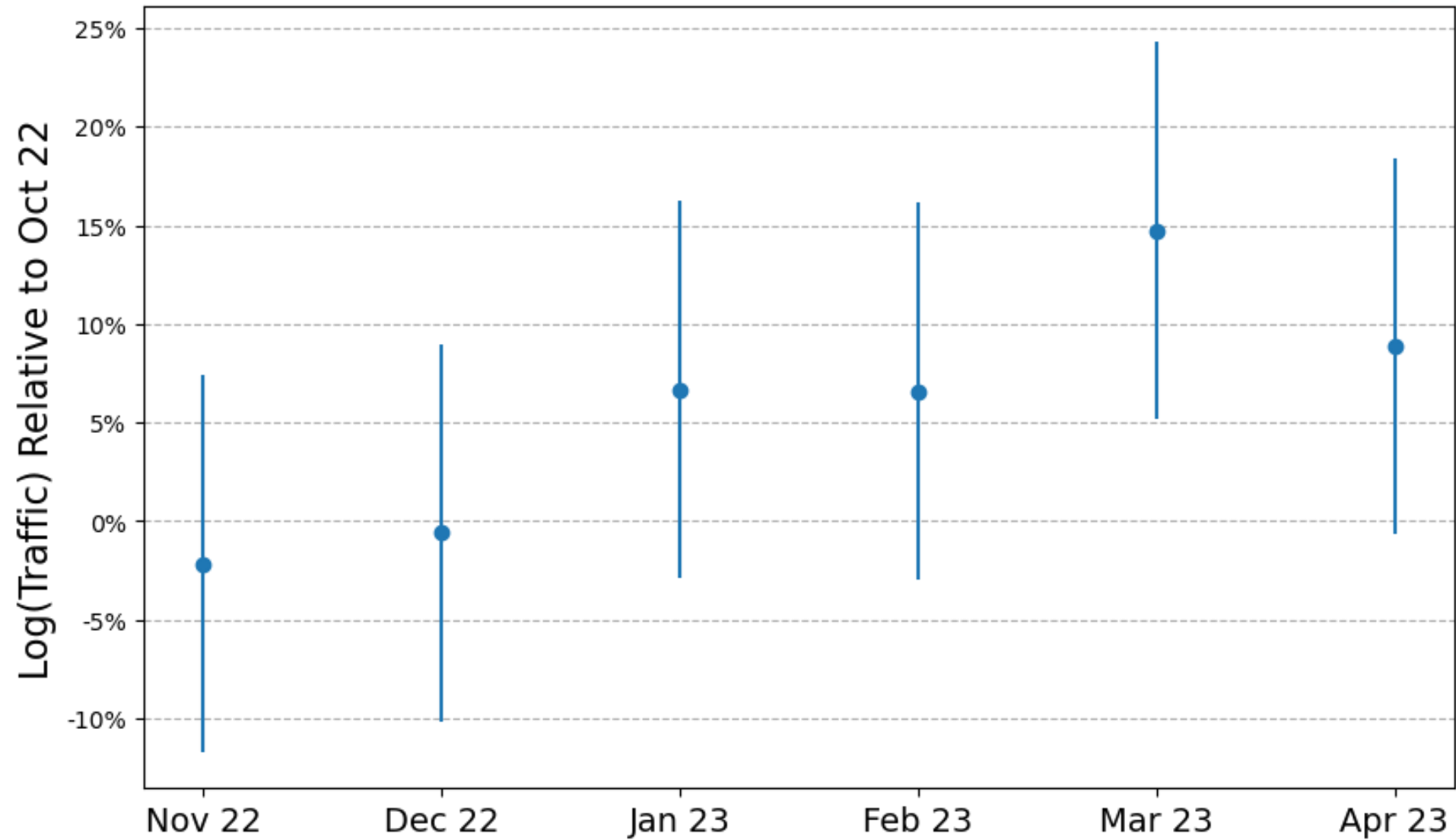
	Corporate Dep/Total Dep	Log(Avg Deposit)	Urban	Log(Income)	% 60+	% High Edu
Branch Density	-1.289*** (0.314)	-0.107*** (0.020)	-2.551*** (0.540)	-0.017*** (0.003)	0.164*** (0.048)	-0.785*** (0.122)
Insured Dep /Total Dep	-0.260*** (0.076)	-0.009 (0.007)	-0.242** (0.120)	-0.001 (0.001)	0.009 (0.016)	-0.039 (0.028)
Dep/Asset	-0.251** (0.099)	-0.041*** (0.007)	-0.094 (0.145)	-0.002* (0.001)	0.020 (0.015)	-0.119*** (0.044)
MTM Losses	-0.494** (0.242)	-0.011 (0.013)	0.344 (0.346)	0.007** (0.003)	0.057 (0.047)	0.183 (0.115)
Dep Growth 2019-2022	0.062*** (0.019)	0.005*** (0.002)	-0.048* (0.028)	-0.000 (0.000)	0.003 (0.004)	-0.008 (0.010)
Observations	212	212	212	212	212	212
R-squared	0.391	0.563	0.433	0.208	0.198	0.386
Size Controls	X	X	X	X	X	X

The Role of Digital Banking



	(1)	(2)	(3)
	Branch Density	Stock Return (SVB Collapse)	Stock Return (First Republic Collapse)
% Δ IT Budget 2017-2010	-0.018*** (0.004)	-0.0205*** (0.00670)	-0.00917*** (0.00298)
<i>N</i>	157	157	157
R ²	0.498	0.406	0.204
All Controls	Yes	Yes	Yes

Online Traffic to Banks' Websites



Branch Density and Online Traffic



	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Online Traffic Mar/Feb 23	Stock Return (SVB Collapse)		Stock Return (First Republic Collapse)		Uninsured Dep Change Q4 2022-Q1 2023	
Branch Density	-0.050*** (0.016)		0.594*** (0.128)		0.221*** (0.073)		0.579** (0.274)
Online Traffic Mar/Feb 23		-1.886* (0.996)	-1.427 (0.964)	-0.694 (0.460)	-0.523 (0.455)	-2.485** (1.132)	-2.033* (1.125)
All Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	181	181	181	181	181	180	180

The Role of Deposit Rates

	Deposit Rate 12M10K (1)	Deposit Rate 24M100K (2)	Stock Return (SVB) (3) (4)		Stock Return (First Republic) (5) (6)	
Deposit Rate 12M10K			-4.156** (1.663)		-2.276***	
Deposit Rate 24M100K			-2.894** (1.337)		-1.910*** (0.708)	
Branch Density	-0.036*** (0.009)	-0.042*** (0.010)				
Controls	X	X	X	X	X	X
N	201	200	201	200	201	200
R2	0.349	0.349	0.195	0.176	0.190	0.187

Technology vs Price – a Horserace



	(1) Deposit Rate	(2) Stock Return (SVB)	(3) Stock Return (First Republic)
IT Growth 2010-2017 (standardized)	0.173*** (0.035)	-1.558*** (0.529)	-0.531* (0.270)
Deposit Rate (standardized)		-0.552 (0.849)	-0.532 (0.390)
Observations	150	150	150
R-squared	0.349	0.314	0.265
Size Controls	X	X	X
All Standard Controls	X	X	X

Conclusions

- Branch density significantly declined over the last decade. Banks that invested in digital banking significantly expanded and attracted tech-savvy customers
- During 2023 crisis banks with low density experienced significantly lower stock returns and larger outflows of uninsured deposits.
- Disconnecting banking from physical branches located near its customers contributes to banking system instability
 - Remote deposits likely less stable/more correlated