BANKING ON UNINSURED DEPOSITS By Itamar Drechsler, Alexi Savov, Philipp Schnabl, Olivier Wang June 2023

Discussion by Sorin Sorescu Texas A&M University November 16, 2023





Silicon Valley Bank (Q4 2022)

Variable	Reported
Total Assets (\$B)	\$209.03
Total Liabilities (\$B)	\$193.57
Unbooked Losses (\$B)	\$12.02
Uninsured Deposits (\$B)	\$151.59
Liquidity (\$B)	\$12.66
Rate Earned on Assets	3.45%
Rate Paid on Liabilities	1.55%
Equity (\$B)	\$15.46
Capital Ratio (7% required)	15.26%
Stock Price per Share (\$)	\$257.60

Net Interest Rate Earned



Cash Availability Ratio*



* as a percentage of uninsured deposits



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Silicon Valley Bank





Example: Zions Bank





An explanation for the sequence of events

- > News about interest rate losses became public
 - = 8/15/2022 (Q2 2022)
 - = 11/15/2022 (Q3 2022)
 - = 2/15/2023 (Q4 2022)
- Market ignored news until the SVB run
- > Drechsler et al. (2023) explanation
 - Multiple equilibria
 - Not the typical Diamond and Dybvig (1983) run
 - Run caused by eroding franchise value of deposits



Contents

- I. Franchise Value of Deposits
- II. Bank Run Equilibrium
- III. Limitations, Suggestions, Implications



I. Franchise Value of Deposits



Franchise Value of Deposits

- Ability to raise funds by paying "below market" rates for deposits
- Sources
 - Market power
 - Banking services
 - Imperfect information
- More valuable under high interest rates



Illustration of Franchise Value

Balance Sheet

Ass	ets	Liabil	ities
Securities	\$500	Deposits	\$900
Loans	\$500		
		Equity	\$100

- > Suppose assets are long-duration
- > Sudden increase in policy rate
 - Drop in fair value of assets (Flannery and Sorescu, 2023)
 - Increase in franchise value of deposits (Drechsler et al., 2023)

Assumptions

- \geq Deposit beta (β) = 0.3
- > Old policy rate = 0%
- > New policy rate = 4.0%
- > Old interest on deposits = 0%
- > New interest on deposits = 1.2%
- > No initial deposit flight upon the increase in policy rate
- Normal withdrawal rate 10% per year



Illustration of Franchise Value

Т	D	(t)	I('	t)	V	V(t)	Ρ	VW(t)
0	\$	900.00			\$	(0.00)		
1	\$	820.80	\$	10.80	\$	(90.00)	\$	(86.54)
2	\$	748.57	\$	9.85	\$	(82.08)	\$	(75.89)
3	\$	682.70	\$	8.98	\$	(74.86)	\$	(66.55)
4	\$	622.62	\$	8.19	\$	(68.27)	\$	(58.36)
•••								
∞	\$	0.00	\$	0.00	\$	(0.00)	\$	(0.00)
Pre	Present value of withdrawals						\$	703.13

Franchise value = \$900 - \$703.13 = \$196.88

Legend

- D(t) = book value of deposits at time t
- I(t) = interest paid at time t at the rate of 1.2% per year
- W(t) = withdrawal at time t equal to 10% of D(t-1)
- PVW(t) = present value of withdrawal at time t, discounted at the market (policy) rate of 4.0%



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Policy Rate	Deposit Beta	Deposit Rate	Withdrawal (t=0)	Annual withdrawal rate	Franchise value
4.00%	30%	1.20%	\$0	10%	\$196.88
0.50%	30%	0.15%	\$0	10%	\$30.43
10.00%	30%	3.00%	\$0	10%	\$370.59
4.00%	70%	2.80%	\$0	10%	\$96.43
4.00%	10%	0.40%	\$0	10%	\$238.24
4.00%	30%	1.20%	\$200	10%	\$153.13
4.00%	30%	1.20%	\$800	10%	\$21.88
4.00%	30%	1.20%	\$900	10%	\$0.00



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Substitution: Tangible assets -> Franchise deposits





Franchise Value

- Intangible asset
- Estimated at over \$1 trillion at year-end 2022
- Costly to build and maintain
- > Offsets tangible asset duration
- > Assumptions
 - Future deposit betas equal to historic deposit betas
 - Deposit betas invariant to the level of the policy rate



II. Bank Run Equilibrium



Deposit Flight vs. Bank Run

Deposit flight

- Depositors withdraw their funds but because they can earn higher returns elsewhere
- No concerns about the bank's financial stability

Bank run

- A significant number of depositors rush to withdraw their deposits all at once
- Driven by concerns or rumors about the bank's financial stability
- Run causes sudden erosion in bank assets leading to collapse



Bank Run in Diamond and Dybvig (1983)



Run (withdrawal exceeds cash)





Bank Run in Drechsler et al. (2023)



Run (withdrawal destroys franchise)

Securities Sold	Uninsured withdrawal	
Franchise lost	Equity	
Frenchier	U. Deposits	
Franchise		
Loans	Insured Deposits	



Comparing the two bank runs

- > Drechsler et al. (2023) vs. Diamond and Dybvig (1983)
- Similar mechanics (multiple Nash equilibria)
- > Different underlying economics
 - Diamond and Dybvig (1983) run triggered by depositors preferences over cash > 0
 - Drechsler et al. (2023) run triggered by depositors preference over fair value equity > 0



Proposed solutions

> Options

- Cost (paid by shareholders)
- Accounting implications
- Raise additional capital when rates are high
 - Cost (paid by shareholders)
 - Should be part of Basel IV
- Lender of last resort
 - Moral hazard



III. Limitations, Suggestions, Implications



Model assumptions

- No "Too Big to Fail" policy
- Deposit β is constant
 - Time invariant
 - Rate invariant
- Constant interest rates (flat term structure)
 - Expectation Hypothesis assumption likely to yield same result
- Bank assets deplete through time
 - Franchise value of new deposits?



Suggestions

- Explain how the Nash equilibrium is obtained
 - Develop equilibrium mathematically so we can understand assumptions
- Model intertemporal decline in β due to IT improvements
 What if future deposit betas are higher?
- Term premium in the term structure of interest rates
 SVB likely invested in long-term bonds to earn the term premium
- Discuss contagion
 - Would a run on a bank trigger contagion as in Diamond-Dybvig?



Suggestions

Solutions other than the three proposed

- Narrow banks?
- Compensating liquid balance for uninsured deposits
- Full deposit insurance
- > Timing of drop in other bank stock prices
 - Information known since late 2022
 - Dropped occurred the day of SVB failure
- Expand on "one can think of U.S. debt as the world's uninsured deposit franchise"



Franchise value of the US Dollar

> Balance sheet of the Federal Reserve Sept 4, 2008

Assets		Liabilities			
SDR	2.2	Notes	835.3	Monetary Base	
Foreign Currency	0.0	Reserves	10.9	(M0)	
Gold	11.0	Reverse Repos	42.9		
Treasury Currency	38.8	US Treasury	5.0		
Loans & Other	414.2	Other deposits	51.8		
MBS	0.0				
US Gov Bonds	479.7	Capital	44.3	Comm. banks	
TOTALASSETS	945.9	LIAB + EQUITY	945.9		



Franchise value of the US Dollar

Balance sheet of the Federal Reserve April 19, 2023

Assets		Liabilities		
SDR	5.2	Notes	2,322.6	Monetary Base (M0)
Foreign Currency	18.9	Reserves	3,303.2	
Gold	11.0	Reverse Repos	2,634.1	
Treasury Currency	51.7	US Treasury	166.7	
Loans & Other	702.8	Other deposits	395.6	
MBS	2,593.9			
US Gov Bonds	5,274.3	Capital	2.2	Comm. banks
TOTALASSETS	8,657.8	LIAB + EQUITY	8,657.8	



Franchise value of US Dollar

- Is there a franchise value of the US Dollar?
- > What are the sources?





The Effect of an Increase in Fed Policy Rate

- If all deposits are insured (Section 3)
 - Deposit flights are possible
 - No bank runs
- If at least some deposits are uninsured (Section 4)
 - Bank run possible due to concerns about solvency
 - Systemic concerns
- > Assumes depositors "anchor on zero nominal return"
 - Nominal losses trigger runs
 - "Real" losses (or opportunity cost losses) do not

