FEDERAL RESERVE BANK *of* NEW YORK

The Bank-NBFI Nexus

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Banks and Beyond
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Overview

Are banks being disintermediated?

Why do Nonbank Financial Institutions (NBFIs) emerge?

Are there common principles explaining NBFIs growth and coexistence with banks?

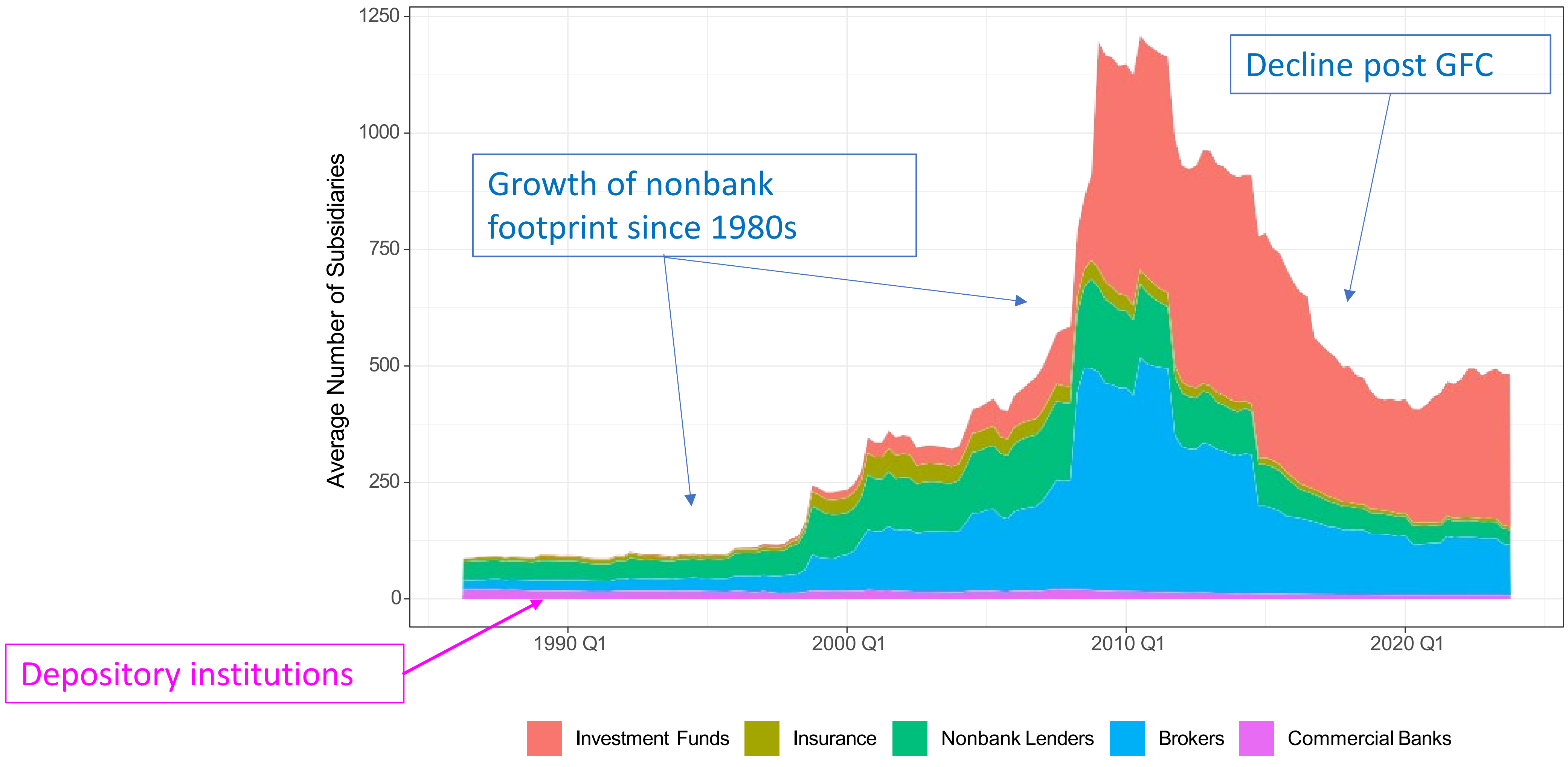
Overview

- Common principle: Efficient liquidity risk management
- If banks unrestricted, NBFIs grow *inside the banking firm*
  - *The Nonbank Footprint of Banks*, Cetorelli and Prazad, 2025
- Under regulatory restrictions, banks provide liquidity support to unaffiliated NBFIs
  - *Where Do Banks End and NBFIs Begin*, Acharya, Cetorelli and Tuckman, 2024

Evidence on the Expanding Boundaries of the Banking Firm

The Nonbank Footprint of Banks

Composition of BHC Subsidiaries by Activity



Source: FR Y6, FR Y10, Authors' elaboration

[The Nonbank Footprint of Banks]

A Population-Wide Phenomenon

Shares of BHCs with at least one subsidiary type, by NAICS code

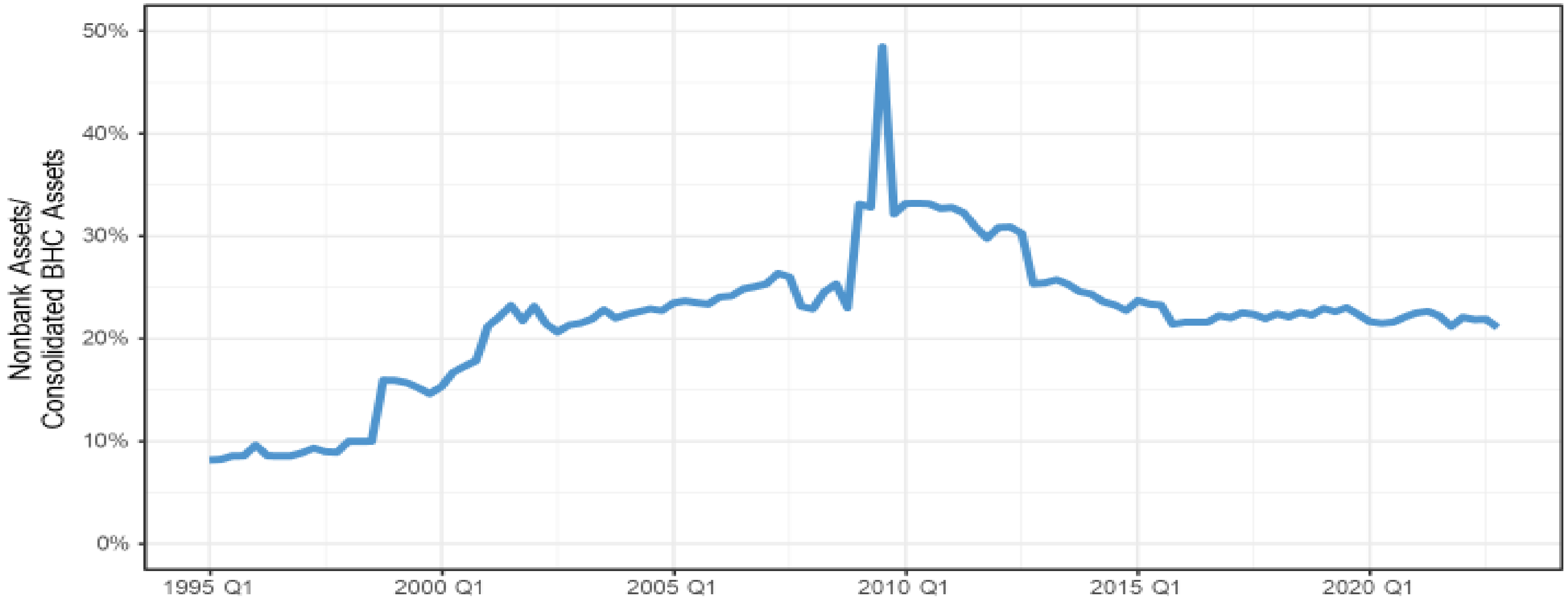
	1990 Q1	2000 Q1	2010 Q1	2020 Q1
Specialty Lenders (5222, 5223)	$\boxed{0.685}$	0.710	0.565	0.635
——-Credit Card Issuing (52221)	0.125	0.115	0.055	0.045
——-Sales Financing (52222)	0.410	0.425	0.345	0.300
——-Mortgage and Consumer Lending (52229)	0.570	0.575	0.400	0.420
——-Miscellaneous Lending Activities (5223)	0.285	0.270	0.250	0.310
Securities Brokerage (523)	$\boxed{0.675}$	0.730	0.660	0.685
——-Investment Banking (5231)	0.520	0.520	0.380	0.365
——-Miscellaneous Brokerage Activities (5232, 5239)	0.550	0.545	0.605	0.635
Insurance (524)	$\boxed{0.615}$	0.650	0.635	0.655
——-Insurance Carriers (5241)	0.480	0.365	0.275	0.305
——-Insurance Brokers (5242)	0.320	0.555	0.590	0.570
Investment Funds (525)	$\boxed{0.085}$	0.510	0.855	0.740
——-Employee Benefit Funds (5251)	0.000	0.015	0.015	0.015
——-Open-End Funds (52591)	0.020	0.040	0.080	0.075
——-Other Investment Funds (52599)	0.030	0.490	0.845	0.730

Source: FR Y6, FR Y10, Authors' elaboration

The Nonbank Footprint of Banks

Nonbank Subs a Significant Share of Total BHC Assets

Nonbank assets / Consolidated BHC Assets



Source: FR Y9LP, FR Y9c, Authors' elaboration

[The Nonbank Footprint of Banks]

And a Significant Share of NBFI Total Industry Assets

BHC-Affiliated NBFIs vs Aggregate NBFI Industry

	All Nonbanks	Broker-Dealers	Mutual Funds	Nonbank Lenders	Insurers
2005 Q1	0.084	0.190	0.234	0.223	0.082
2010 Q1	$\boxed{0.173}$	0.578	0.192	0.277	0.091
2015 Q1	0.111	0.617	0.189	0.194	0.004
2020 Q1	0.109	0.707	0.195	0.177	0.002

Source: FR Y9LP, FR Y9c, Flow of Funds, Authors' elaboration

The Nonbank Footprint of Banks

Why has the Banking Firm Expanded

Liquidity Synergies

- Kashyap, Rajan, and Stein (KRS) (2002) show that within commercial banks, deposits and credit lines are synergistic, as long as outflows are uncorrelated

- KRS argument is about bank *divisions*, but logic naturally extends to *subsidiaries* of modern banking firms

- If affiliated banks and nonbanks experience relatively uncorrelated liquidity outflows, then diversified BHCs can redistribute liquid assets among subsidiaries to economize on liquidity

The Nonbank Footprint of Banks

Testable Predictions

- Depository institution subsidiaries of BHCs with larger nonbank footprint have
  - Smaller cash buffers
  - Invest more
- Mechanism: Intracompany transfers. Larger reliance on internal funding transactions means smaller cash buffers
- Implicit lines of credit. Intracompany transfers especially large in times of need
- Regulation matters. With regulatory restrictions, intracompany transfers decrease, BHCs scale back nonbank footprint

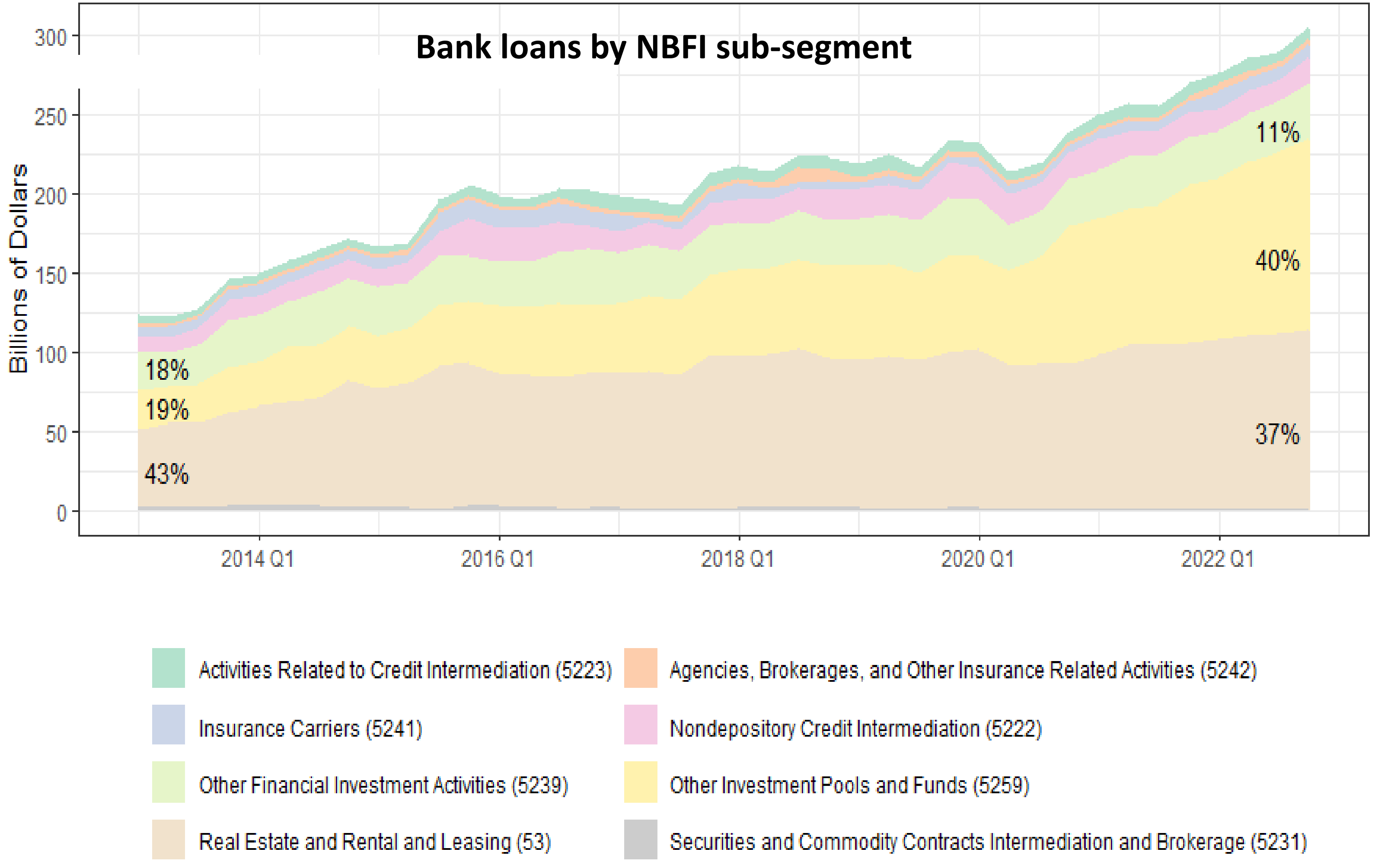
Impact on Regulatory Boundaries but not on Operational Boundaries

- Significant shrinkage of nonbank footprint of BHCs post GFC …
- … and significant growth of (unaffiliated) NBFIs
  - Nonbank mortgage lenders
  - Private credit funds
- Have banks finally succumbed?
- But NBFIs activity is financial intermediation ➔
  - Access to stable funding
  - Management of liquidity risk

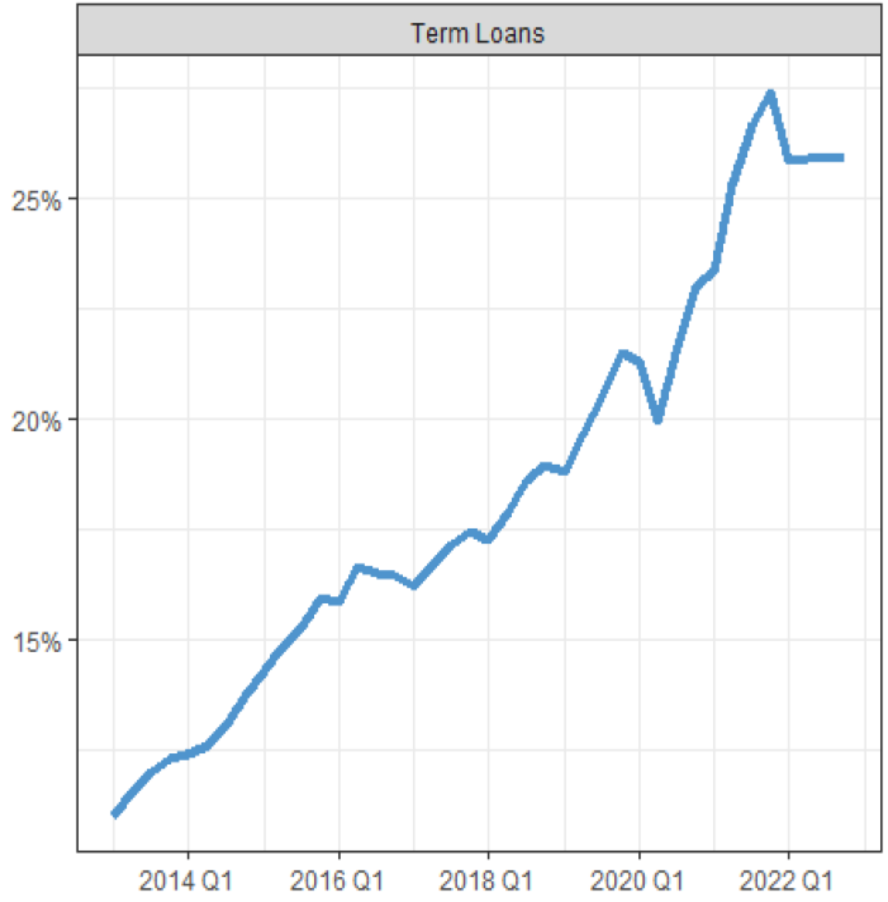
Where Do Banks End and NBFIs Begin?

Large Increase of Bank Loans to NBFIs Post GFC

Source: FR Y-14Q



NBFI loans as share of total bank loans

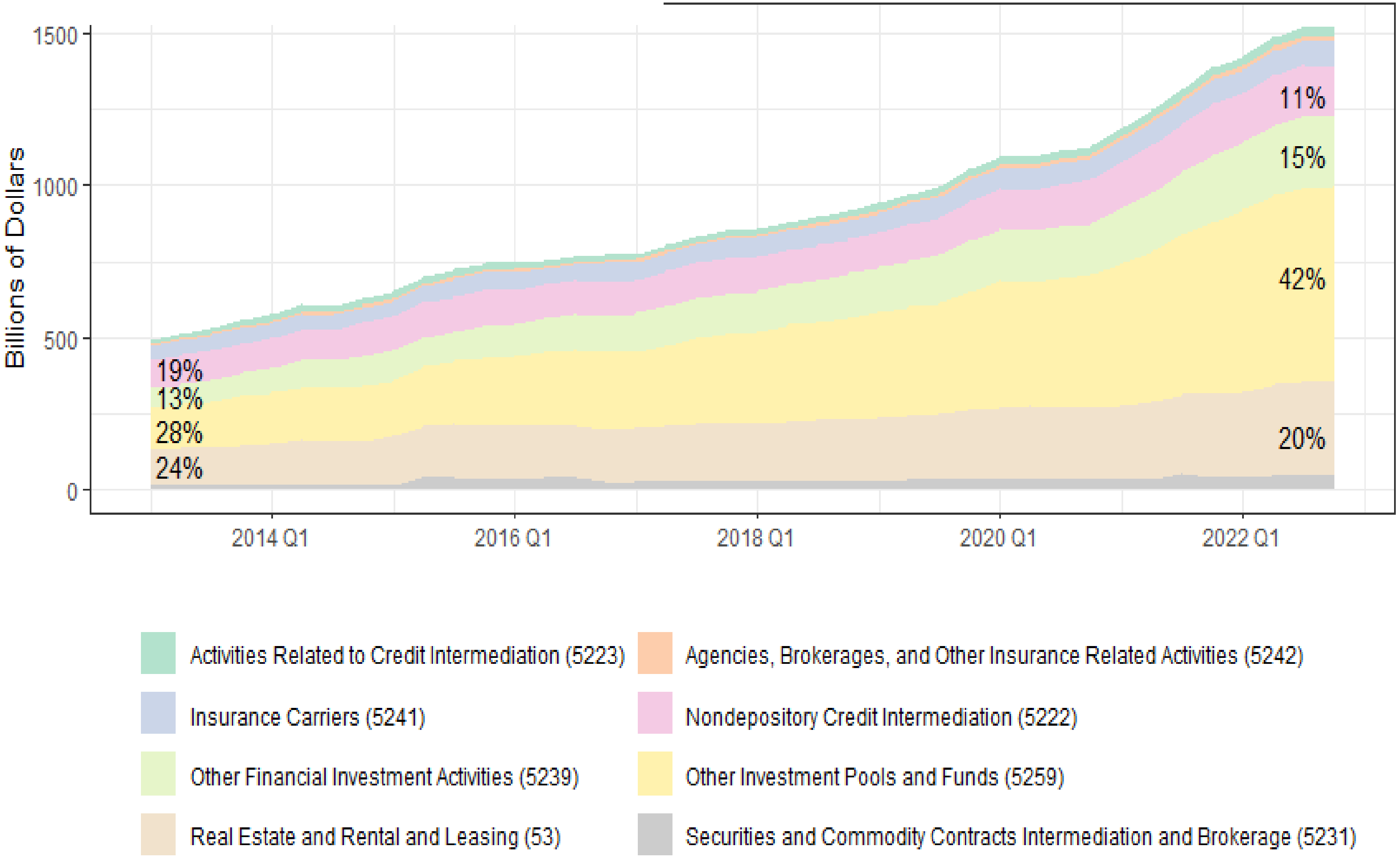


[Where Do Banks End and NBFIs Begin?]

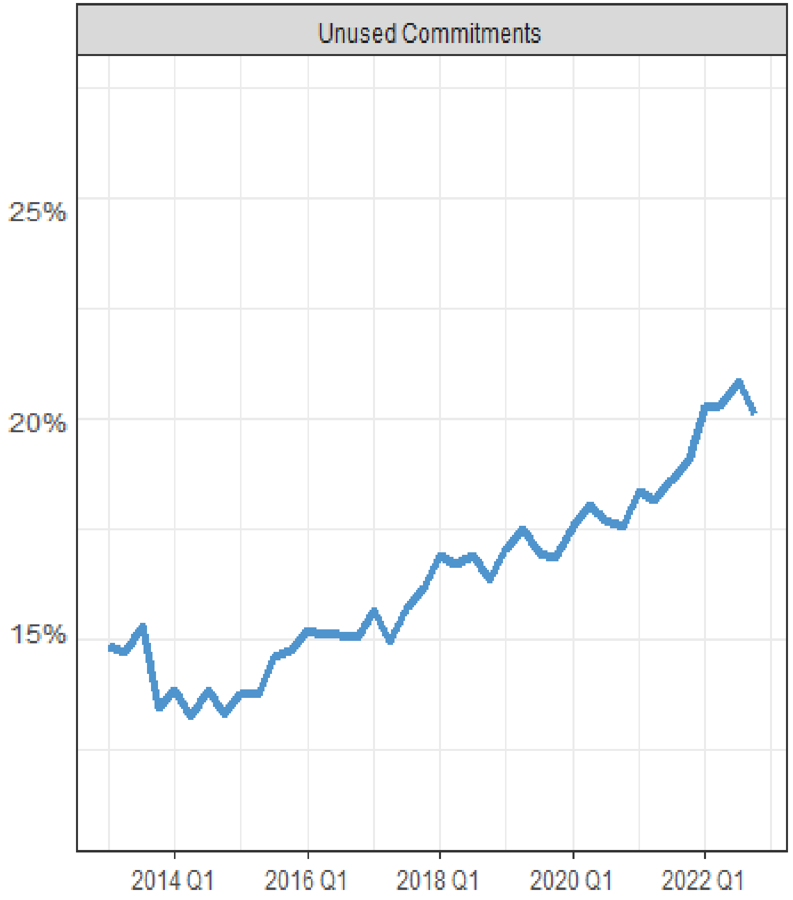
Large Increase in Credit Lines to NBFIs as Well

Source: FR Y-14Q

Bank credit lines by NBFI sub-segment

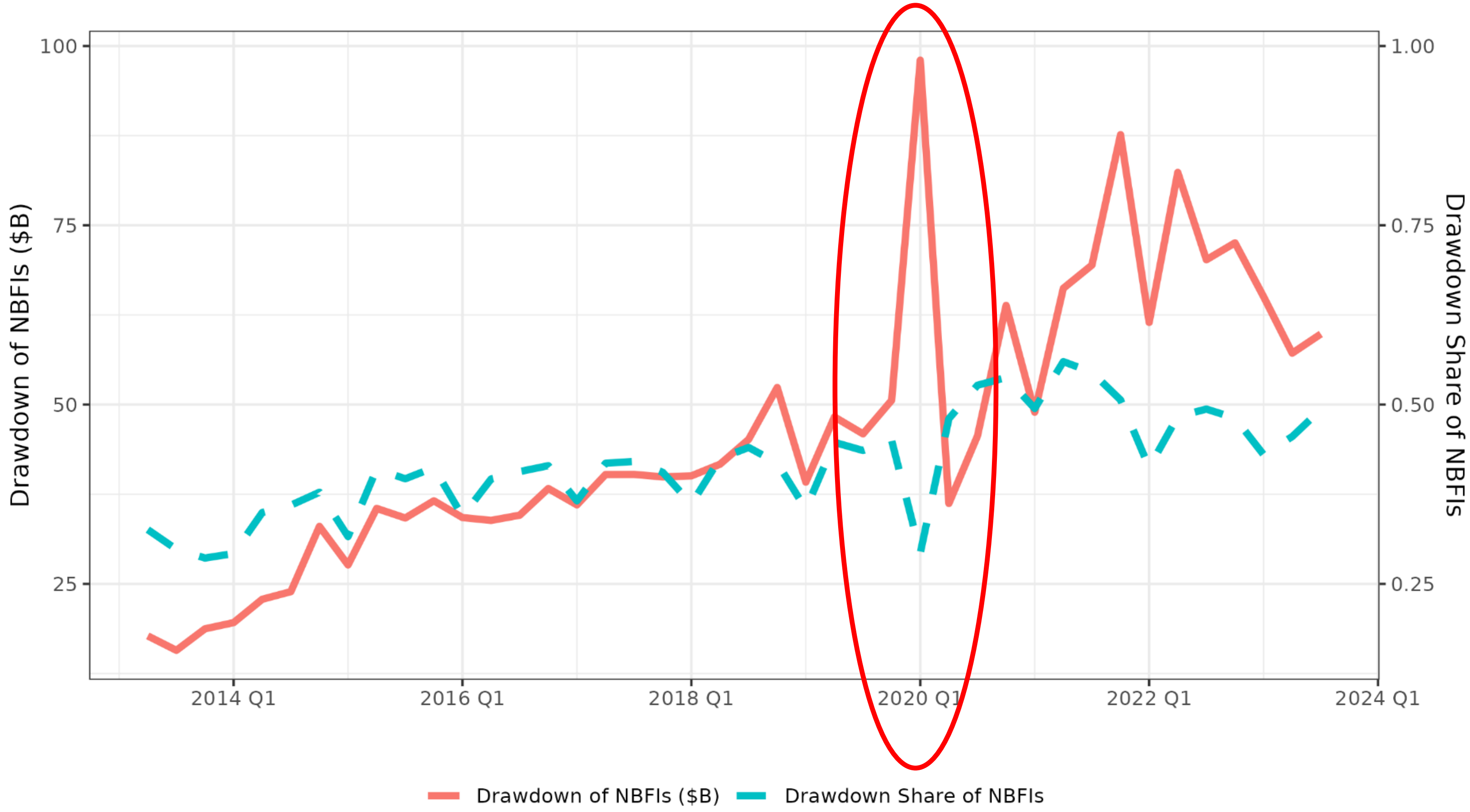


NBFI credit lines as share of total bank credit lines



[Where Do Banks End and NBFIs Begin?]

NBFI Credit Lines are Utilized in Stress Times



Source: FR-Y14

[Where Do Banks End and NBFIs Begin?]

Takeaways

- NBFIs an important – growing – component of financial intermediation ecosystem
- Big changes and yet much seems to remain the same
- Banks do not seem to be substituted away from NBFIs
- Banks front and center in backing NBFI growth
- Banks remain deeply on the hook as intermediation activities move “in the shadow”
- Credit risk moving from banks to NBFIs – Liquidity risk moving from NBFIs to banks

Takeaways

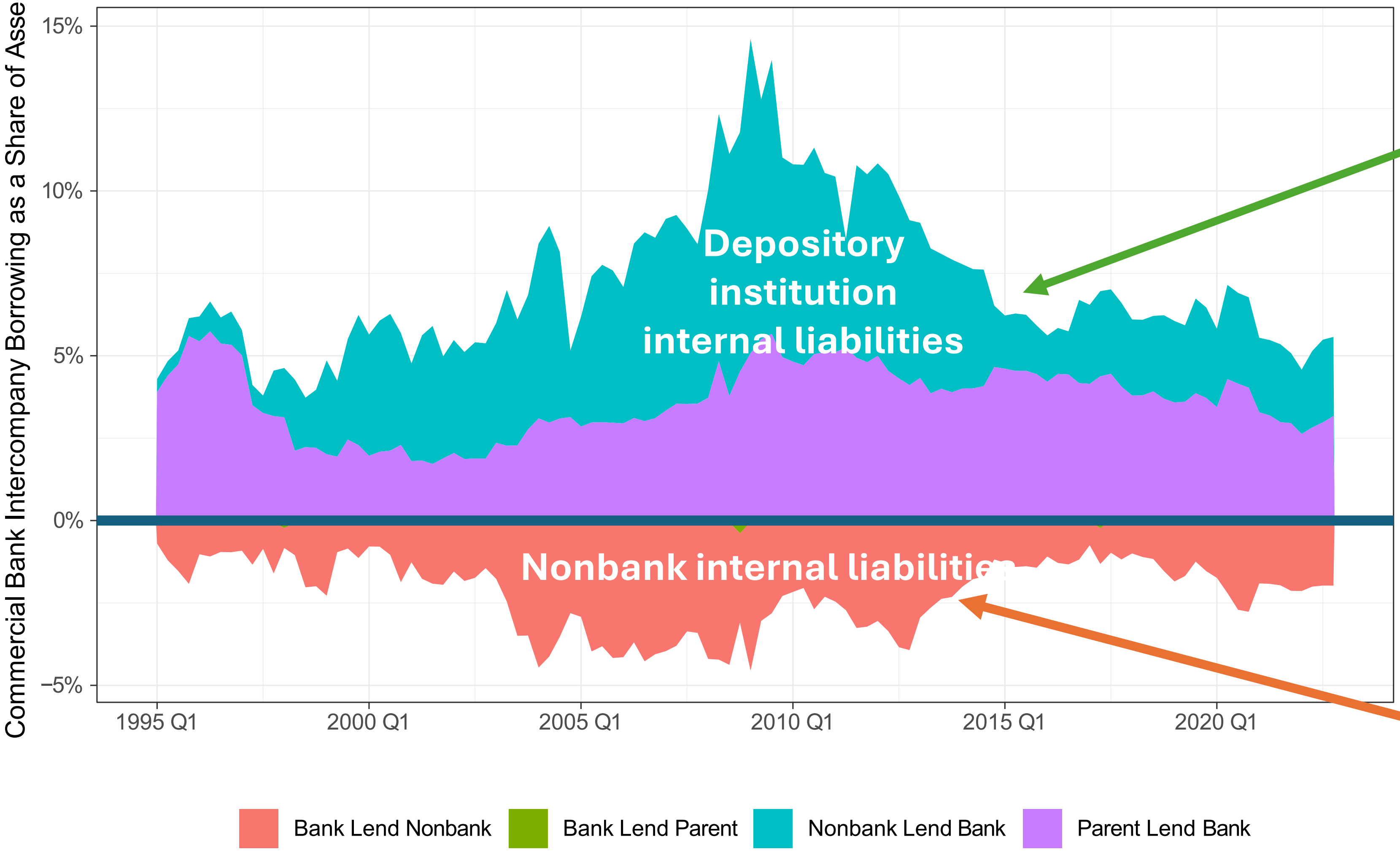
- Transfer of activities and risks likely not “neutral” from a systemic perspective
  - NBFIs not subject to the same level of prudential monitoring and regulation → higher likelihood of distress events
  - And no access to backstops → more likely transmission of distress to rest of the system
  - Inefficiently pushing activities out of banks/BHCs sacrifices cross-business synergies
- A *holistic* perspective on banks and NBFIs

Nonbank Assets Up → Cash holdings Down

Source: FR Y9LP, Call Report, Authors' elaboration

The Nonbank Footprint of Banks

Bank and Nonbank Subsidiaries Cross-Funding Dependency



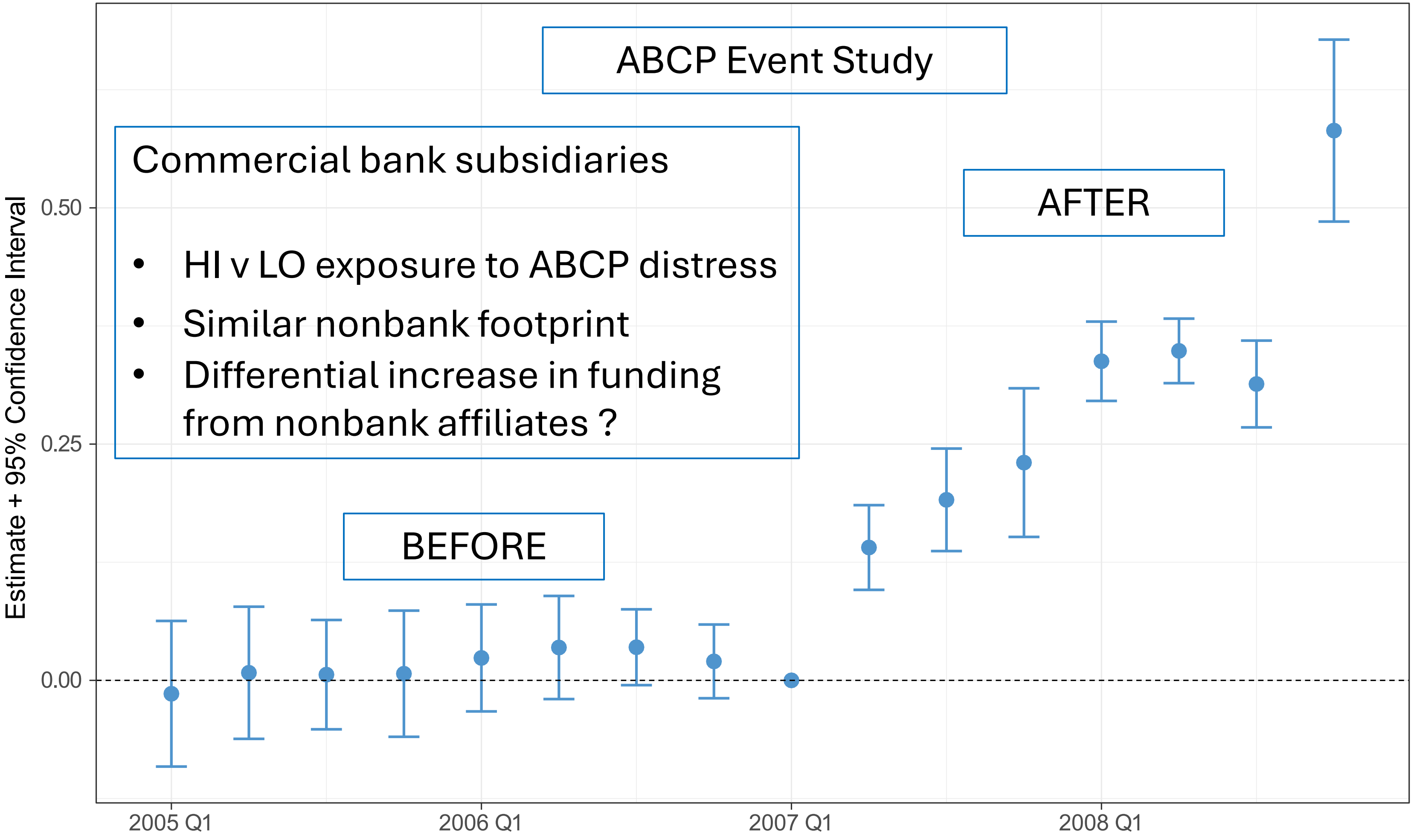
Bank subs hold significant share of liabilities that are claims of nonbank subs

Nonbank subs hold significant share of liabilities that are claims of bank subs

Source: FR Y9LP, Call Report, Authors' elaboration

[The Nonbank Footprint of Banks]

Do Internal Fundings Get Activated in Times of Need?

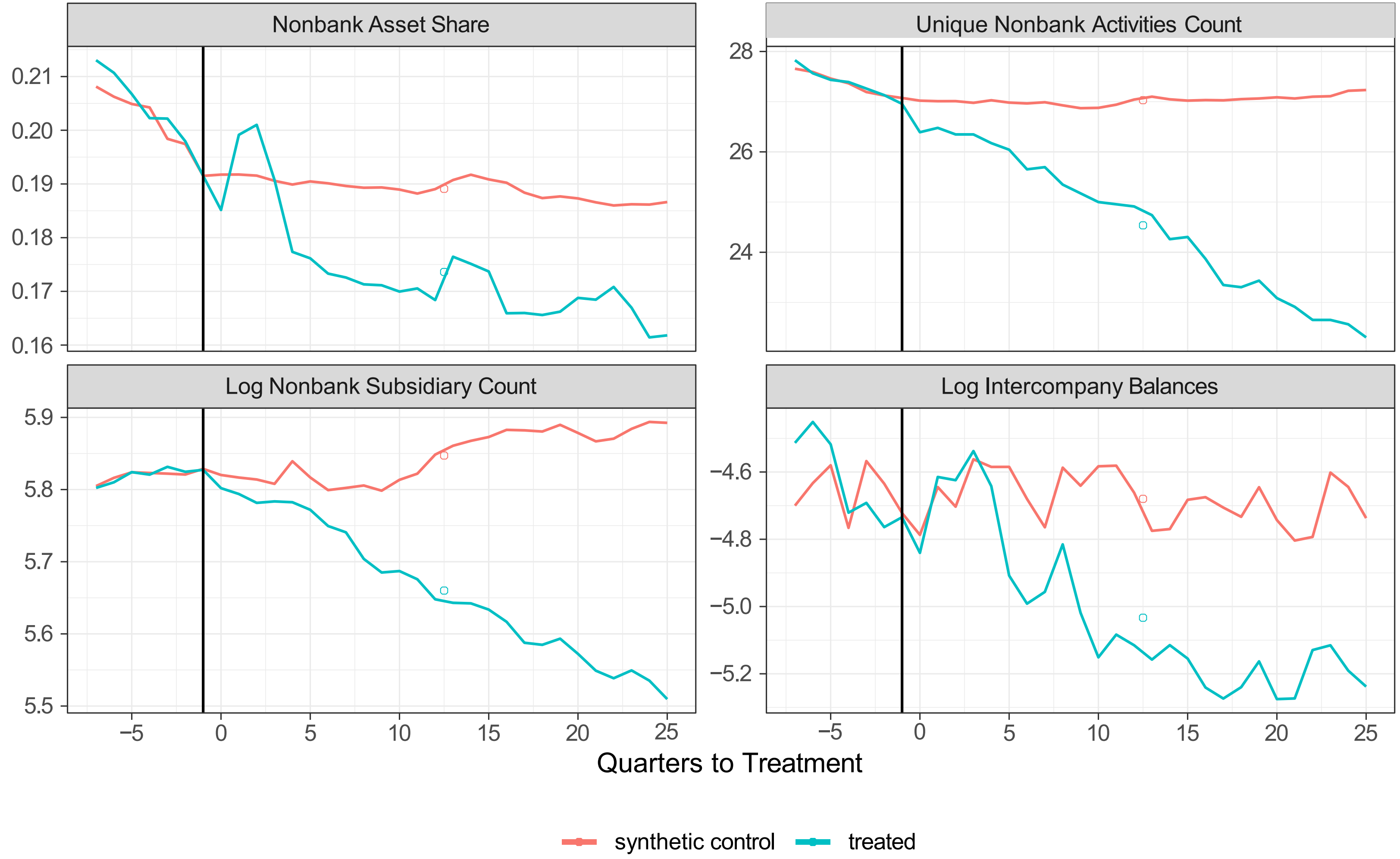


The Nonbank Footprint of Banks

Do BHCs Shrink Footprint if Cost of Internal Funding Increases?

Living Wills "treatment"

LWs explicit higher cost to internal funding



The Nonbank Footprint of Banks

From Apollo's 2023 10Ks

As a financial services company, we are exposed to liquidity risk, which is the risk that we are unable to meet near-term obligations as they come due.

Liquidity risk is a manifestation of events that are driven by other risk types (e.g., market, policyholder behavior, operational). A liquidity shortfall may arise in the event of insufficient funding sources or an immediate and significant need for cash or collateral. In addition, it is possible that expected liquidity sources, such as the AHL Credit Facility and AHL Liquidity Facility [Apollo's banks' credit facilities], *may be unavailable or inadequate to satisfy the liquidity demands described below. In particular, the spread of COVID-19, the war between Russia and Ukraine, and inflation and the responses by the U.S. Federal Reserve continue to contribute to volatility in the financial markets and may restrict the liquidity sources available to us and further may result in an increase of our liquidity demands. We primarily have liquidity exposure through our collateral market exposure, asset liability mismatch, dependence on the financial markets for funding and funding commitments. If a material liquidity demand is triggered and we are unable to satisfy the demand with the sources of liquidity readily available to us, it may have a material adverse impact on our business, financial condition, results of operations, liquidity and cash flows.*

Where Do Banks End and NBFIs Begin?

“From Whom To Whom” Flow of Funds

2023q1	HOLDERS															
ISSUERS	ABS	Banks	B/Ds	eREITs	FCs	GSEs	Life Ins.	MMMFs	mREITs	MFs	OFB	PC Ins.	PFs	Real	RoW	TOTAL
ABS	-	0.14	0.00	0.00	0.00	0.01	0.57	0.05	0.00	0.04	0.07	0.12	0.03	0.05	0.38	1.45
Banks	-	3.13	0.69	0.04	0.06	1.10	0.55	0.43	0.02	0.23	0.25	0.14	0.30	18.80	4.43	30.16
Broker/Dealers	0.00	1.37	1.29	-	-	0.11	0.01	0.46	-	0.03	0.00	0.00	-	0.57	1.59	5.38
Equity REITs	0.03	0.22	-	0.01								0.02	0.06	0.17	0.16	0.90
Finance Companies	-	0.20	0.00	0.00								0.04	0.09	0.29	0.45	1.34
GSE and Agency	-	3.21	0.10	0.00								0.14	0.41	1.89	1.36	9.12
Life Ins.	0.18	0.33	0.01	0.01								0.02	1.01	6.71	0.21	9.15
MMF	-	-	-	-								0.04	0.29	4.39	0.20	5.66
Mortgage REITs	-	0.04	0.07	0.00								0.01	0.02	0.04	0.20	0.52
Mutual Funds	-	0.01	-	-								0.03	4.87	10.70	1.05	18.14
Other Fin. Bus.	-	0.05	0.88	0.01								0.01	0.07	0.40	0.04	1.62
PC Ins.	0.00	0.04	-	0.01								0.20	0.06	1.88	0.33	2.55
Pensions	-	-	-	-								-	-	27.10	-	27.10
Real	1.27	16.20	0.68	0.26	1.20	10.50	3.48	1.21	0.33	3.37	0.19	1.21	12.40	43.40	22.10	117.80
Rest of World	0.00	3.80	0.52	0.01	0.47	0.10	1.16	0.44	0.00	0.93	0.23	0.57	0.67	8.26	-	17.15

HOLDERS

For the first time we can see funding interconnections across banks and NBFIs (and real sector)

ISSUERS

Figures are in $ Trillions. Source: Flow of Funds

Where Do Banks End and NBFIs Begin?

MATRIX OF DEPENDENCE

Banks holders of NBFI liabilities

ISSUERS \ **HOLDERS**	ABS	Banks	B/Ds	eREITs	FCs	GSEs	Life Ins.	MMMFs	mREITs	MFs	OFB.	PC Ins.	PFs	Real	RoW	TOTAL
ABS	0	10	0	0	0	1	40	3	0	3	5	8	2	3	26	100
Banks	0	10	2	0	0	4	2	1	0	1	1	0	1	62	15	100
Broker/Dealers	0	25						9	0	1	0	0	-1	11	30	100
Equity REITs	3	25						0	2	7	0	3	7	19	18	100
Finance Companies	0	15													33	100
GSE and Agency	0	35													15	100
Life Ins.	2	4													2	100
MMF	0	0													4	100
Mortgage REITs	0	8													38	100
Mutual Funds	0	0													6	100
Other Fin. Bus.	0	3													2	100
PC Ins.	0	1													13	100
Pensions	0	0						0	0	0	0	0	0	100	0	100
																100
Real Sector	1	14	1	0	1	9	3	1	0	3	0	1	11	37	19	100
Rest of World	0	22	3	0	3	1	7	3	0	5	1	3	4	48	0	100

10% of ABS Issuers liabilities

25% of B/Ds'

25% of eREITs'

15% of FCs'

35% of GSEs' …

Most nonbanks substantially dependent on banks

Source: Flow of Funds

The figures represent (in %) the composition of liabilities for each segment issuer (on each row), by each corresponding holder (on each column).

Where Do Banks End and NBFIs Begin?