Discussion: "Regulatory arbitrage within the firm" by Cetorelli and Kundu

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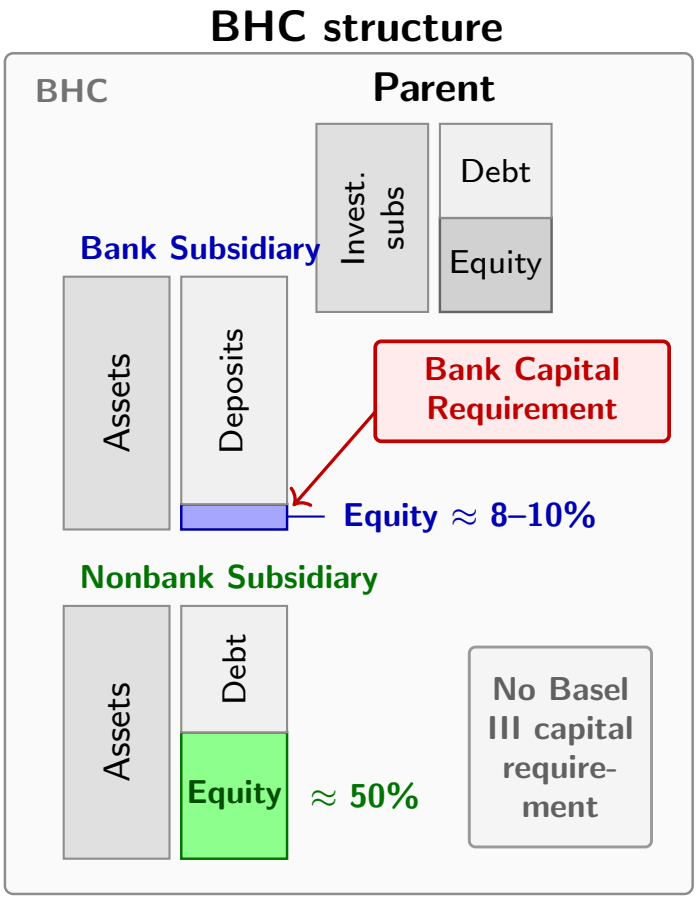
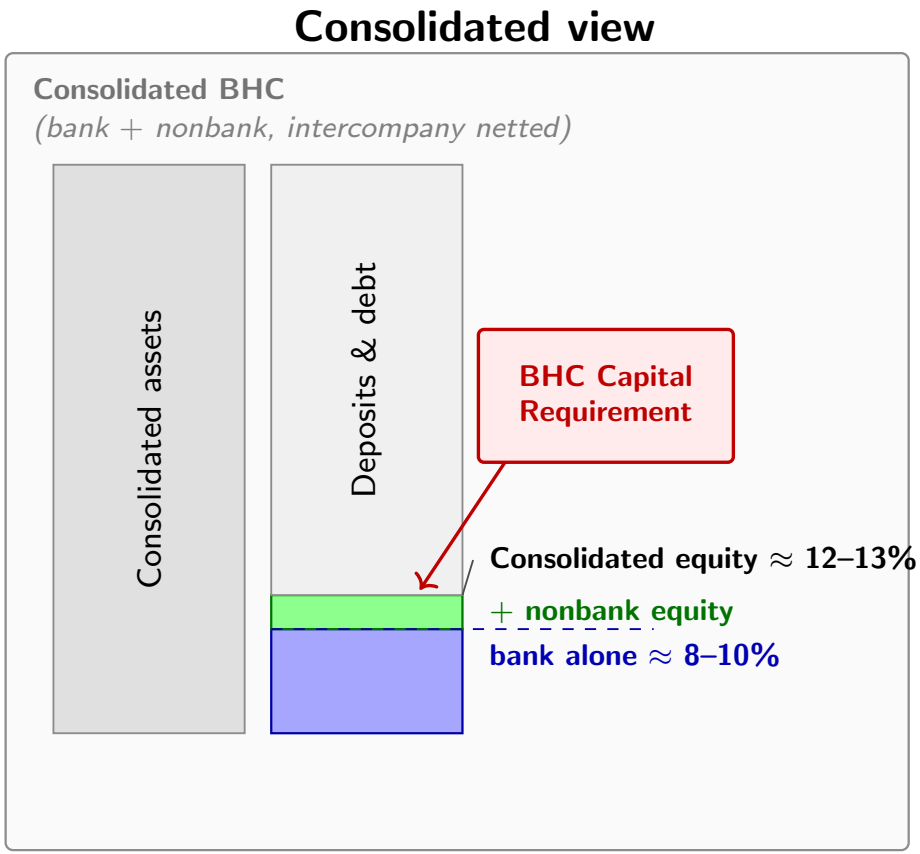
The paper in one slide

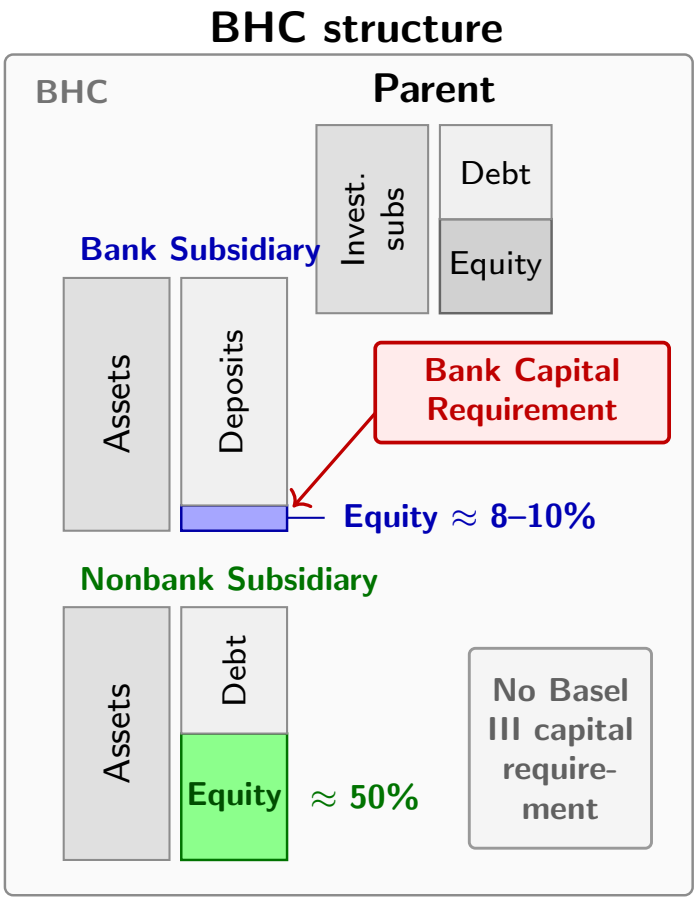
- Multi-entity financial organizations allocate capital group-wide. Regulation applies at bank and BHC, not nonbank subs; incremental constraint binds at bank
- **Question**: How does organization complexity impacts effects from Basel III (2014/15 ff) tightening on internal capital allocation and systemic risk

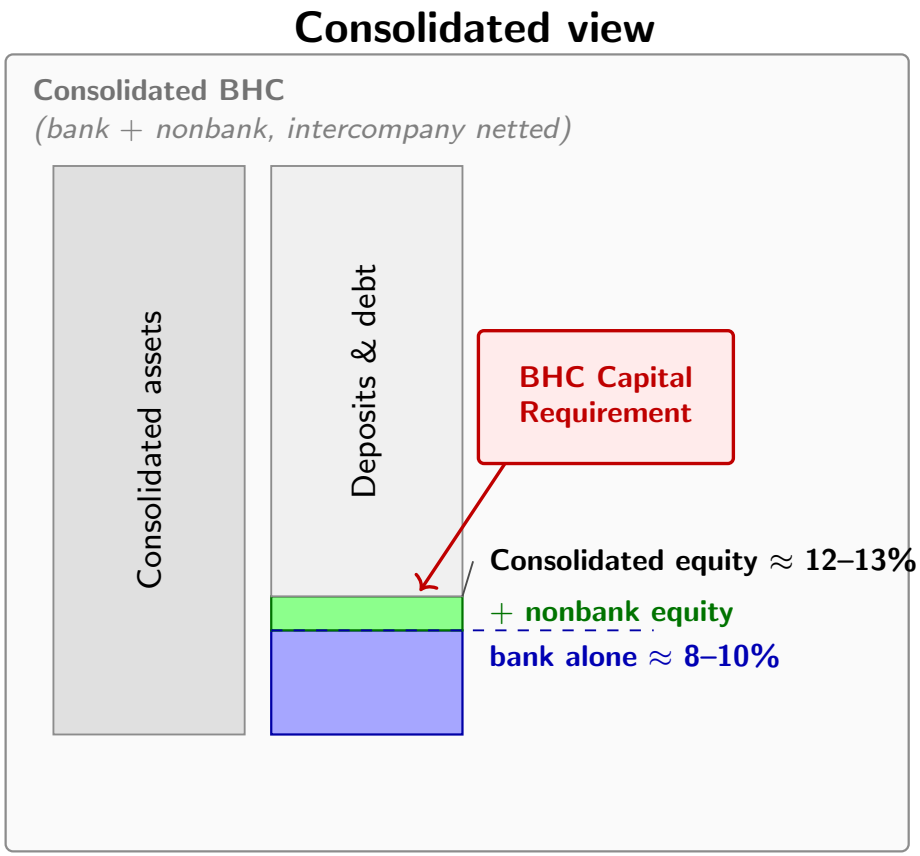




The paper in one slide

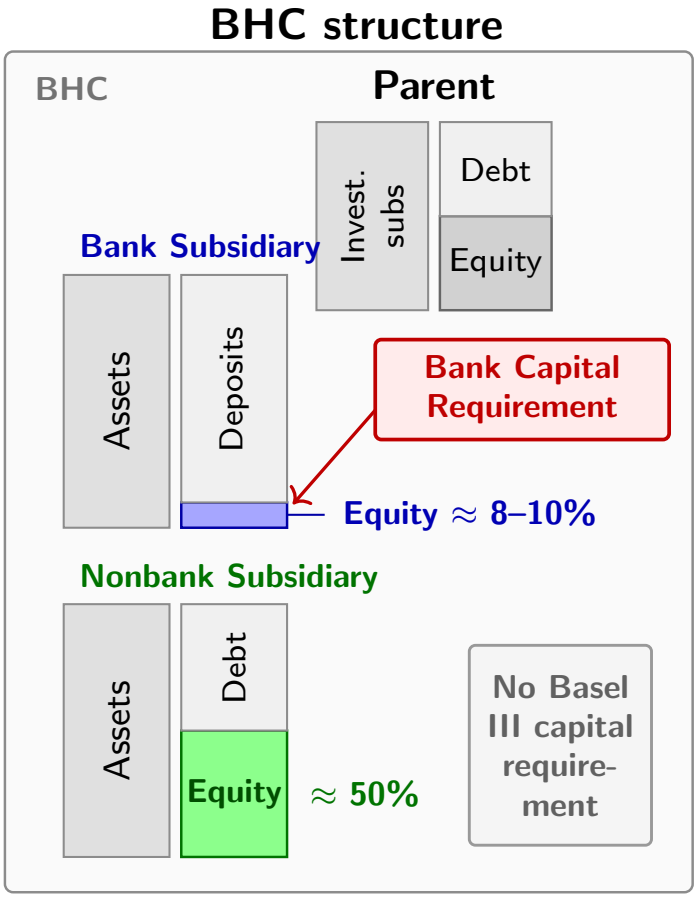
▶ **Data**: FR Y-9LP parent flows × FR Y-11 nonbank financials (+ call reports etc) make the internal capital market visible

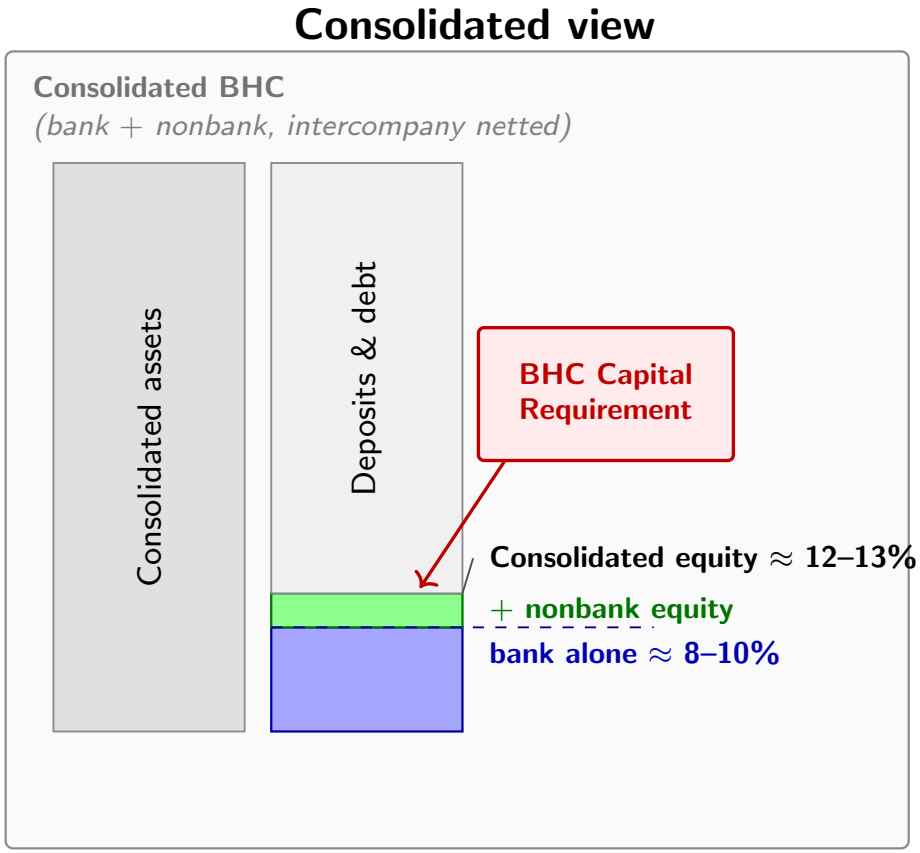




The paper in one slide

- **Claim 1 (within group equity shift)**: parent moves equity from the better-capitalized nonbank affiliates into the bank; $\kappa \uparrow$ raises nonbank activity *inside* the BHC
- **Claim 2 (regulatory arbitrage → systemic risk)**: nonbank capital buffers thin while its lending grows → distress can flow back to the bank





Discussion

Contribution

- regulatory incidence inside multi-entity banks creates internal-dividend mechanism: the Y-9LP $\times$ Y-11 link traces both sides of internal capital mkts (Stein, 1997), beyond internal-dividend evidence in Pogach and Unal (2020)
- neat: $\kappa \uparrow$ raises nonbank activity *within* the BHC, not only *outside* it (Buchak et al., 2018; Begenau and Landvoigt, 2022)

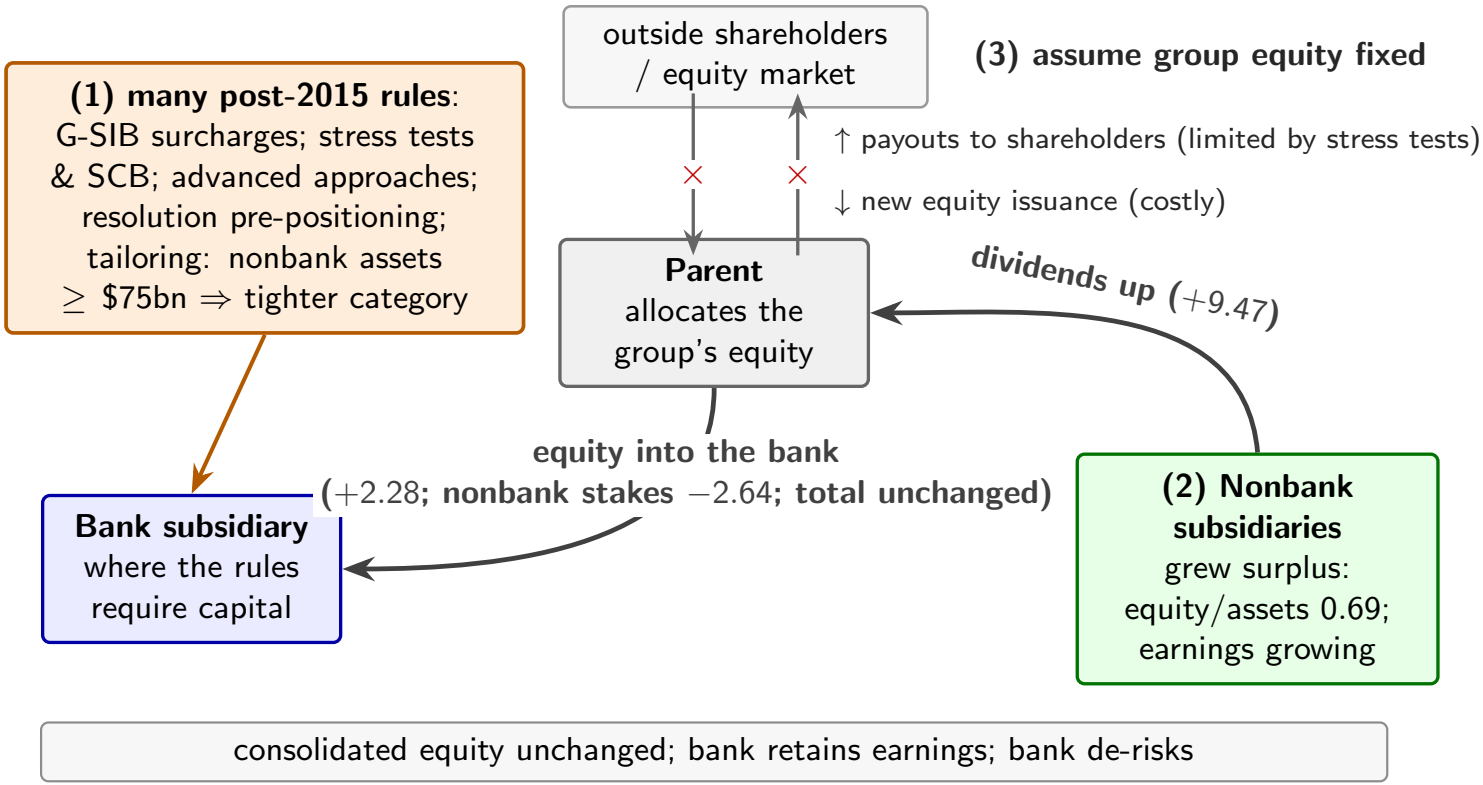
Comments

(C1) equity reallocation *caused* by org. structure & regulation, or are both reflections of large banks' business model?

(C2) does the business-risk reallocation *add* systemic risk?

My reading: the equity shift inside the group is convincingly documented; its causal attribution deserves more support; flows consistent with compliance not necessarily arbitrage

An alternative reading: compliance, not arbitrage



(1) many rules at once require capital at the bank and bhc

(2) nonbanks are much better capitalized than banks ⇒ equity surplus

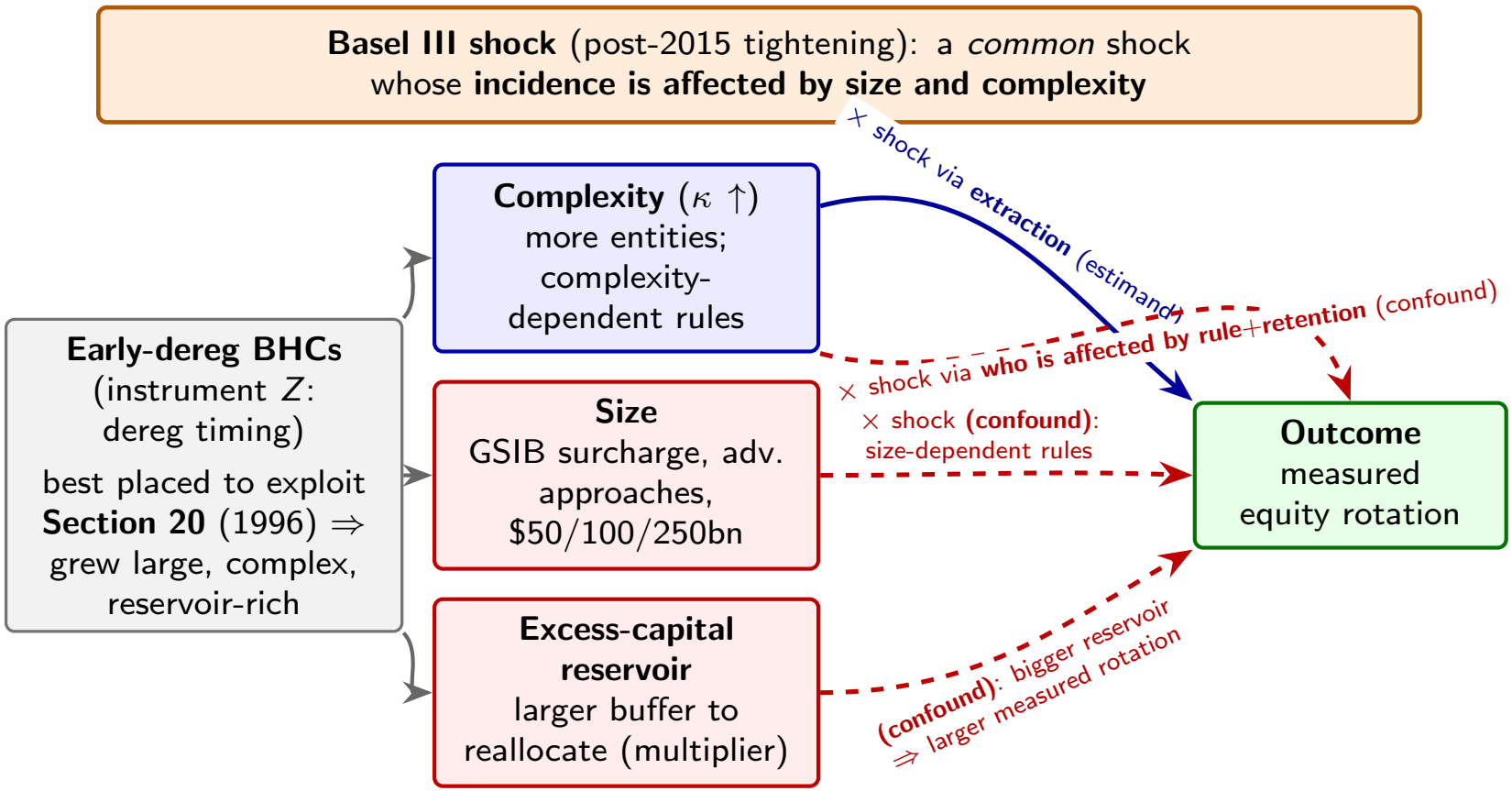
(3) assume group equity fixed: outside issuance is costly (as in the paper); payouts are limited by stress tests

⇒ same flows, different cause: regulations that require capital at the bank, not arbitrage

(C1) Why not yet separated in the data

- Internal reallocation flows after $\kappa \uparrow$ are compelling

Identification



(C1) Instrument loads on size-based post-2015 regimes

CCAR 2016 and deregulation timing

Group	N	Mean years from dereg.	Share early ($\leq$1986)
U.S. G-SIBs	8	10.9	0.88
CCAR 2016, domestically parented	25	9.6	0.92
All states with a deregulation date	50	7.7	0.56

$\Rightarrow$ reg. regimes are *buckets*, phase in 2016–19, and are *complexity*-dependent too

$\Rightarrow$ nonlinear size-thresholds are hard to purge with linear controls

(C1) Simulating bank equity increase w/o arbitrage

CK's model

- BHC w/ two subs $i \in \{B, N\}$; $R_i(E_i) = \alpha_i \log(1 + E_i)$;
  bank's capital req κ binds, nonbank's does not, internal equity cheaper
- $\kappa \uparrow \Rightarrow$ parent *extracts* equity from nonbank into bank

Simulate model extension

- **BHC j heterog.** α_{ij} and draw "early" vs "late" deregulating states

$\Rightarrow$ size and complexity differ ($C_j(\alpha)$; $A_j(\alpha)$); $R_{ij}(E_{ij}) = \alpha_{ij} \log(1 + E_{ij})$

- Post-2015 rules are size- *and* complexity-dependent (e.g., G-SIB score 2016–2019, tailoring by nonbank assets in 2018 EGRRCPA) $\Rightarrow$ higher bank targets

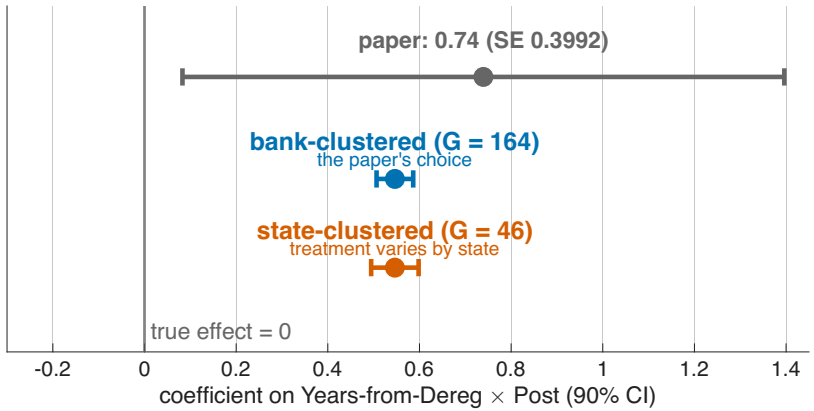
$\rightarrow$ **interacts with rules**: $\Rightarrow \kappa_j(A_j, C_j)$

- **retention**: higher capital targets $\Rightarrow$ more retained earnings

$\rightarrow$ $\hat{\beta} = 0.55$ on state years to R-N $\times$ post

- w/ linar complexity 0.14 (ns)
- Paper's sub-count$\times$ post?

$\rightarrow$ perfect control would absorb the paper's own premise: complexity's mod. effect



Inference and Suggestions

Precision and inference

- reduced form $t \approx 1.85$ (10% only), KP $F \approx 9.8$; treatment varies by state, yet SEs cluster by bank (Moulton) and the placebo reassigns at BHC level

Suggestions:

- years-from-dereg $\times$ quarter event study on bank excess capital: flat pre-2015 = parallel trends
- drop G-SIB/advanced-approaches firms; add regime$\times$quarter FE; control 2013 nonbank *share*, not count
- eq. (4) on zero-2013-nonbank BHCs ($\approx$43%), where exclusion requires a zero
- state-block permutation + state-clustered wild bootstrap (report BHCs per state)

(C2) Systemic risk from reg-driven equity reallocation?

Observed

- parent equity reallocation
- nonbank equity/assets -0.0771; nonbank assets unchanged
- nonbank past-dues and provisions rise; bank charge-offs fall
- Distance to Default $Z \downarrow$, Merton PD $+0.0168$: partly mechanical, b/c Z built from equity/assets, ROA, σ(ROA)
- intercompany exposures; parent injections after nonbank losses

Assumed or calibrated

- shock sizes (1–15%) and recapitalization targets
- *full* parental support in the stress test
- transmission λ (spillover)
- failure costs $L_B/L_N = 6$; (or range) correlations and system-wide spillovers

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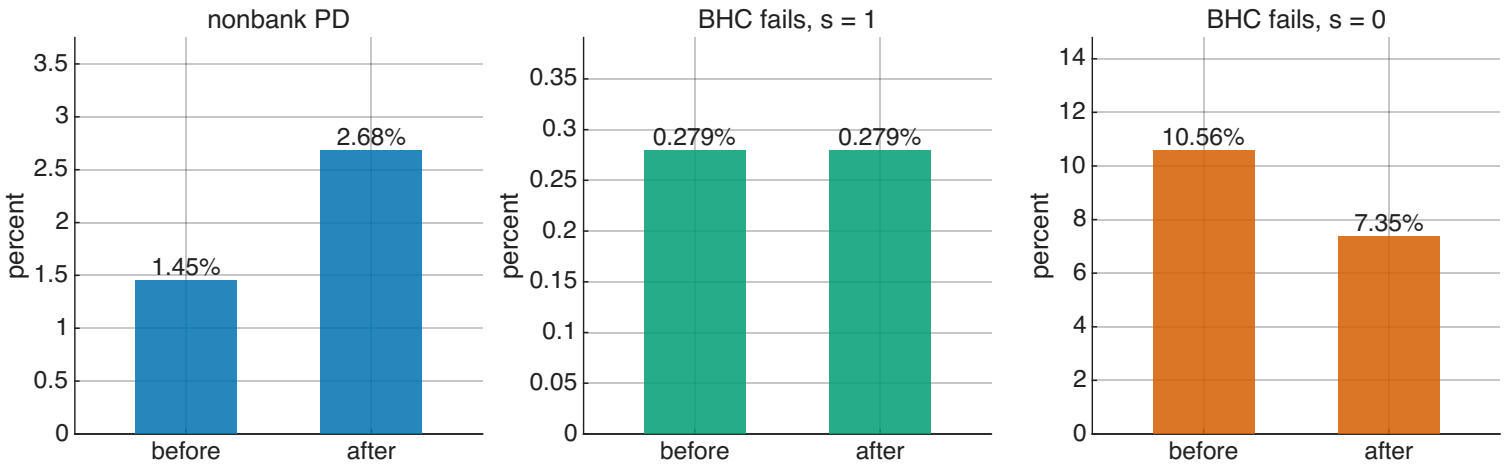
- Not yet shown: bank holding and systemic-risk *consequence*

(C2) The same equity shift need not raise group insolvency

- Regulation W (§23A/23B) constrains some bank-to-affiliate support channels
- Simulate model with two subs, replace λ (reduced form group insolvency determinant) with a "support for nonbank distress" rule

$\rightarrow$ group covers nonbanks losses from healthy banks' equity: $s = 1$

$\rightarrow$ no capital moves across entities: $s = 0$



$\rightarrow$ **left**: equity shift from banks to nonbanks increases PD: $E_N \downarrow \Rightarrow$ PD $\uparrow$

$\rightarrow$ **middle**: if the *healthy* affiliate's equity absorbs losses ($s = 1$), nothing changes; total equity constant;

$\rightarrow$ **right**: $s = 0$ case: the bank simply got safer

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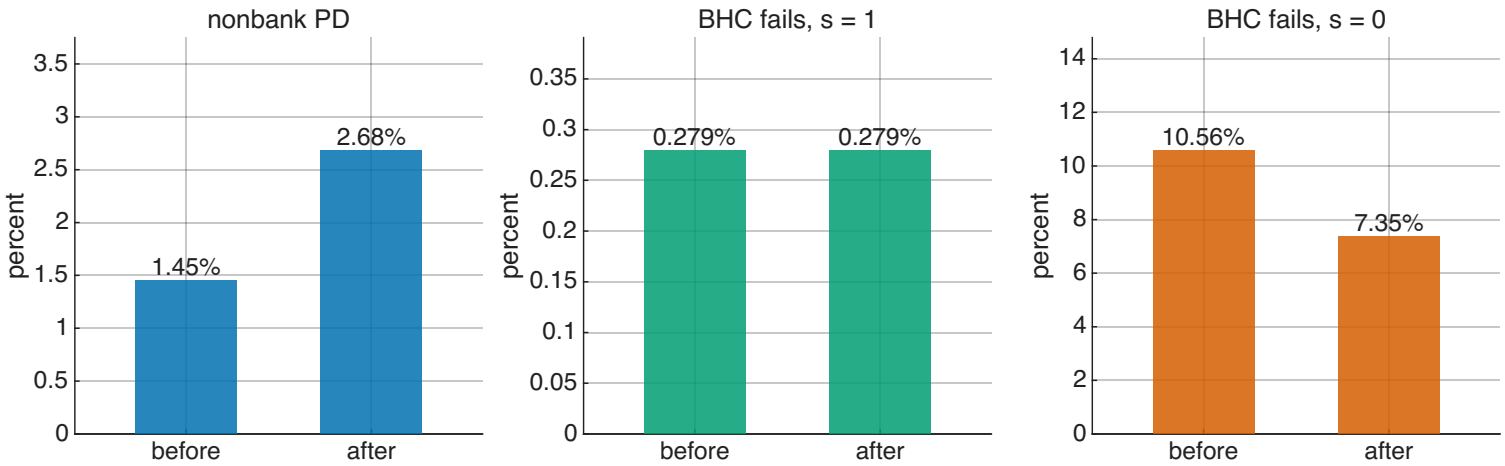

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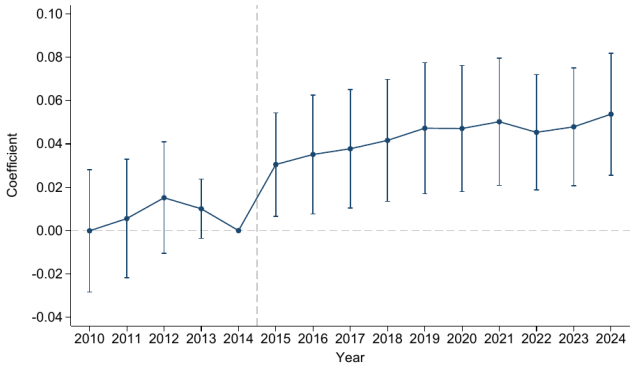
→ **What frictions & externalities would cause BHC risk to rise?**

(C2) Compliance & demand driving risk allocation changes

- Observe bank-safer / nonbank-riskier $\not\Rightarrow$ BHC risk increases $\not\Rightarrow$ systemic risk $\uparrow$

(a) the bank de-risks to comply: it tilts toward cash and securities, RWA & charge-offs fall: safer *and* more profitable

(b) demand for nonbank credit $\uparrow$ (better technology) & regulation push to nonbanks (Buchak et al., 2018; Begenau and Landvoigt, 2022); consumer credit is higher-delinquency



(d) Loan Share

paper event study (Fig. 9d): nonbank loan share, per extra year of dereg exposure: *consistent w/ complex banks progressively housing more lending in nonbank*

- Regulation drivers: Post-2015 consumer rules (CCAR/SCB, ATR-QM/TRID, MSR deductions) make bank consumer lending costly
- Suggestion: study standalone lenders (Jiang et al., 2020)

How to tell the stories apart

In the data: three observable margins separate arbitrage from compliance

- **Mean-reversion**: do 2024 nonbank equity ratios end up *below* pre-crisis and standalone broker-dealer / finance-company norms (arbitrage), or revert *toward* them (compliance)?
- **Arbitrage vs compliance**: sort the equity flows by 2013 distance-to-requirement at the bank (arbitrage) vs by G-SIB score / tailoring category (compliance)
- **Timing**: do the flows follow 2016–19 phase-ins and stress-test cycles (compliance) or a single 2015Q1 step?

In a model:

- **quantify the group's capital-allocation problem** (Stein, 1997): the paper's model extended with heterogeneous, time-varying bank requirements, issuance costs, payout rules, an explicit support rule (based on Reg W); a compliance-only calibration (arbitrage motive shut off) quantifies how much arbitrage is left to explain

Conclusion

Very interesting paper on a first-order question

- Equity shift inside the group convincingly documented: the Y-9LP $\times$ Y-11 link traces both sides of the internal capital market
- Causal attribution & systemic risk conclusions deserve more support
- Flows consistent with compliance: reg changes required capital at the bank; nonbank equity surplus funded it; arbitrage explanation not necessary

Open questions

i. motive: was the equity shift arbitrage against regulatory reform, or regulation working as intended?

ii. consequence: did the shift add group-level risk, or relocate risk that was already there?

iii. policy: extend entity-level requirements to nonbank affiliates, supervise the group's internal capital market (double leverage), cdots?

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