Discussion of “Pandemic Lending: The Unintended Effects of Model-based Regulation” Fiordelisi et al (2021).

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Idea behind the paper

Two banks $\{IRB, SA\}$; lending to firm j: $Y_{\{IRB,SA\},j}$; business cycle: z.

Effective capital requirement on the loan:

Standard Approach (SA):	$\text{capital requirement}_{SA}(z) \times \text{risk weight}_j^{SA}$
Internal Ratings Based (IRB):	$\text{capital requirement}_{IRB}(z) \times \text{risk weight}_j^{IRB}(z)$

Idea is that IRB risk weights are cyclical: $\frac{d\,\text{risk weight}_j^{IRB}(z)}{dz} \neq 0$

Points towards diff-in-diff:

$$\frac{dY_{IRB,j}}{dz} - \frac{dY_{SA,j}}{dz}$$

Test of binding capital requirements & Procyclicality

Key results

1. IRB banks cut lending to NFCs by ~2% relative to SA banks during pandemic. Conditional on size and capitalisation, no effect on other loan types.

2. Within borrower, IRB banks cut lending by ~8% relative to SA banks. Substitute to off balance sheet exposures.

Setting: Euro Area banks during the Covid pandemic; supervisory data including large exposures declaration (exposures > Eur300mn or 10% capital).

Identification challenges

1. Banks can drive business cycles. *Hence pandemic lending*
2. Business cycle shocks move demand for loans as well as supply *Look within borrower, Khwaja & Mian (2008)*
3. Banks select into using IRB approach and are different. No random assignment.

Banks select into IRB status

- Running internal rating models takes resources to run. Banks tend to be larger, more levered, more reliant on wholesale funding, lower RWA density. By definition different risk management.

	Standardised Approach				Internal-Rating Based Approach			
	N	Mean	Median	SD	N	Mean	Median	SD
Total Asset (Log)	1080	22.9946	22.8490	0.8059	420	25.2947	25.1391	1.5677
Equity Ratio (%)	1080	8.9210	8.7510	2.8396	420	7.5925	6.7914	2.8842
ROA (%)	1080	0.5668	0.5577	0.2224	420	0.5172	0.5075	0.1937
Deposit Ratio (%)	1080	86.5448	93.2632	15.3167	420	71.9651	71.0663	16.3200
RWA Density (%)	1080	39.0801	40.4030	9.9258	420	26.7971	25.4464	6.9811

- Behn et al (2016, JF) use portfolios within bank to deal with this issue; randomness due to incomplete transition. Better identification, so what is your marginal contribution? My take, Covid is a cleaner shock than the GFC.

- This setting:
  - Match on IRB and SA banks?
  - Investigate determinants of IRB status. Include all times *Post* (not just *Size, Capital Ratio*).
  - Do the well-capitalised compared to under capitalised for IRB vs SA.

Large exposures

- Are large exposures representative?
  - Relationship lending holds up better in crises (Beck et al (2018))
  - Other differences in Bank incentives.
  - Censoring.

- Only “foundation” IRB allowed for borrowers with revenues over EUR500mn (only model default prob.). Smaller borrowers have a systematically different regulatory treatment within IRB.

- It seems like you are able to atleast proxy for the capital absorption of the loan. Is there a way to directly test the mechanism? Does the effective risk weight rise for IRB banks? Definitely feasible at the bank level.

Issues with the Khwaja-Mian estimator

- Endogenous matching: banks choose borrowers based on their ratings model (Behn et al 2016).
  - Ratings model needs to be used for other purposes than for risk weighting.
  - For most loans, it doesn't seem like a big deal but more credible for large exposures.

- SUTVA assumption violated – SA and IRB banks are substitutes within firm (Berg et al 2020).
  - Overestimate total supply effect in this context.
  - Aggregate effects at the firm-level.

- Using between-loan variation misses effect of capital requirement changes that only occur at the bank level (Bahaj and Malherbe 2020).

Other comments/suggestions

- Is there an explanation for the different effect by loan type? Are NFC loan risk weights more sensitive to cyclical factors in internal ratings.

- *Capital x Post* coefficient being zero makes the paper hard to interpret. Suggests requirements are non-binding. But then *LowCap x Post* matters. Potential non-linearity. Should use *LowCap* throughout as well.

- Collapse pre- and post- windows into one observation to deal with serial correlation.

- Would comparing 2019 Q2&3 to 2020 Q2&3 not be the cleanest exercise? No seasonality, no intermediate period in 2020Q1.

- Consider heterogenous shock variable – e.g. severity of lockdown, to deal with IRB status being different across countries.

Very interesting paper, thank you!