Non-performing loan cleansing and bank supervision

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Discussion

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Motivation, research questions and results

Background:

- Since the global financial crises and the euro-sovereign debt crises, NPLs have reached a peak of € 1 trillion (9% of GDP) in 2015.
- A comprehensive set of measures put forth to address high NPLs, which gradually decreased to €638 billion in 2019 (EBA source).
- These measures include the ECB's NPL guidance (March 2017) and the related Addendum on loan loss provisioning -LLP (March 2018), released to avoid an "excessive build-up of **non-covered aged NPEs** on banks' balance sheets in the future"

The paper in a nutshell

- Goal: to measure the (*short term*) effects of the policy on (1) NPL disposal (write-off and sales); (2) Credit supply; (3) Firm outcomes (real effects). The concept of "NPL vintage" is key to the identification:
 - A 1% increase in the NPL vintage in the pre-policy years doubles the probability of NPL disposal after the policy
 - More exposed banks (i.e., those with higher weighted average vintage in the pre-policy yrs.) reduce credit, especially to riskier borrowers
 - Stronger real effects (lower bank debt, employment and investment) for firms borrowing from more exposed banks

Comments (overview)

- Advanced and well executed paper on a relevant matter, with a rich and granular dataset at various levels...with some "black holes"
- "New" quasi-natural experiment to test the stringency of supervision
- My focus: A few suggestions on how to reinforce the story telling to better understand three related issues:

- 1. How NPLs and NPL disposal may affect the bank balance sheet
- 2. The "key mechanisms through which banks react to the policy change"
- 3. Which loan / bank characteristics may affect NPL disposal

Comments and suggestions (1/3)

NPL vintage as a measure of exposure (of both loans and banks) to the policy shock. **But is all about NPL vintage**?

- Short term effect (five quarters after the release of the policy)
- Policy addressed (at the beginning) to new NPLs

Q1: Why should banks increase NPLs disposal after the policy shock and how?

Have banks increased LLPs after the policy?

Q2: Analysis of NPL disposal at the extensive margin only. Why not to study the effect on the intensity of disposal?

• You claim that "more exposed banks where forced to recognize risky loans and increase loan disposal, thereby creating pressure on their lending capacity". Why not to test this hypothesis directly? An analysis at the intensive margin of NPL disposal would be helpful to assess the magnitude of the measure

Comments and suggestions (2/3)

Q3: Which loan and bank characteristics explain the efficacy of the policy? What may drive NPL disposal (over and beyond) their vintage?

- Heterogeneity by loan category and collateral type: Any impact on LLP and/or NPL disposal? Are "loan-characteristics" FE sufficient? E.g.,
 - Predominance of unsecured loans in the NPL portfolio (nearly 75% on average, see Table 2).
 - NPLs are not all the same. Possibility to breakdown into bad loans, UTP, and past-due? (The "most expensive" to hold are the former)
 - Number of past due days (e.g., according to the EBA categories)
 - The level of coverage matters: NPL categories with low coverage ratios are the riskiest of all and the more difficult (costly) to dispose

Comments and suggestions (3/3)

Heterogeneity at the bank level:

- Any difference between SIs and LSIs?
- Capitalisation and coverage ratios as key drivers of a bank's ability to dispose NPLs

Q4: Clarify the composition of loan portfolio and bank sample in your descriptive statistics (Table 2 could be improved). E.g.,

- Coverage ratios at the loan and bank level
- Breakdown of NPLs in subcategories
- Number of banks in the sample? How many Sis?
- Unit of measures ...

Q1: Why should banks increase NPLs disposal after the policy shock and how (through which mechanism)

- A little bit of stylized facts on Loan Loss Provisions (LLPs), NPL disposal, and Coverage ratios dynamics in the pre-post policy
 - Effect on LLPs along with NPL disposal (higher LLPs are detrimental to profits and capital). The Addendum is a shock on provisioning practices...

 More focus on coverage ratios (in combination with capitalization), because the true risk is the uncovered portion of NPLs

Calendar provisioning: rationale and the role of coverage ratios

- NPLs are detrimental to bank balance sheet but what matters more than the absolute amount of NPLs is the level of loan loss coverage, that is the amount of loan loss reserves (LLRs), as this determines how losses originating from NPLs impact bank capital (Constâncio, 2017)
- Higher coverage ratios (LLRs to NPLS) imply lower potential credit losses (and lower impact on bank capital) in case of NPL write offs: NPL disposal becomes "cheaper"

Table 1: ECB's quantitative expectations on NPL provisioning

Vintage	Unsecured part	Secured part
2 years	100%	
3 years		40%
4 years		55%
5 years		70%
6 years		85%
7 years		100%

Calendar provisioning and the potential effects of the policy on bank balance sheets

	ECB's quantitative expectations on NPL provisioning					
Vintage	Unsecured part (NPL book value)	NPL book value (and Max Exp. Loss)	Secured part	NPL book value (and Max Exp. Loss)		
2 yrs	100%	0		100%		
3 yrs			40%	60%		
4 yrs			55%	45%		
5 yrs			70%	30%		
6 yrs			85%	15%		
7 yrs			100%	0		

A reinforced story telling How the policy can affect bank balance sheets and bank lending

- The goal of the measure: more timely and intense LLPs will increase loan coverage and thus, favor NPL disposal (mechanical effect).
- The rationale: by increasing coverage ratios, losses are minimized and capital is protected. But...
 - Increasing LLP is costly: negative impact on profits->retained earnings->capital
 - NPL disposal without increasing LLP may entail capital losses.
 - The magnitude of the losses depend on the level of the Loan Loss coverage (and recovery rate for secured loans).
- In all cases, there is a "Profitability Capital channel" potentially at work that can affect bank lending. It can be mitigated in case of:
 - Highly profitable/highly capitalized banks
 - Well "covered" banks. Coverage ratios are important as they reduce the need to adjust LLPs to stick to the new policy.
 - These banks are strong enough to increase LLPs & dispose NPLs. Independently on the vintage, these banks are better shielded from the policy shock

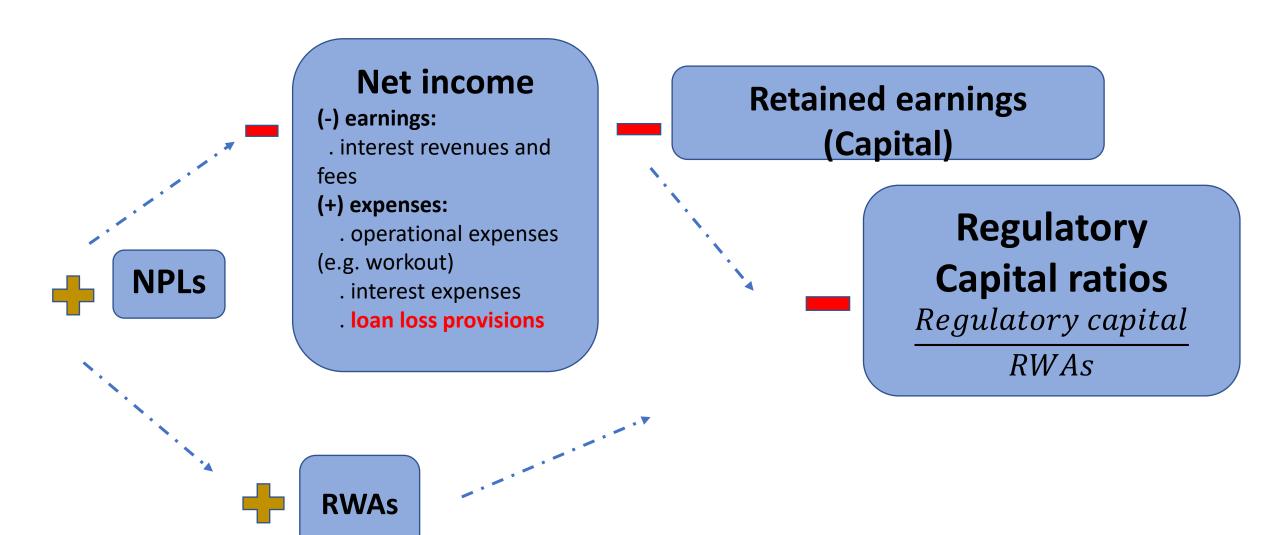
The role of bank-level characteristics

	(1)	(2)	(3)	(4)	(5)
Policy×log(1+Vintage)	0.0300**	0.0396***	0.0302***	0.0254**	0.0392***
	(0.0116)	(0.0121)	(0.0117)	(0.0116)	(0.0121)
Policy×log(1+Vintage)×Size	-0.0065	-0.0109**	-0.0067	-0.0041	-0.0100*
	(0.0053)	(0.0054)	(0.0053)	(0.0051)	(0.0052)
Policy×log(1+Vintage)×ROA		0.0373***) ` ´	,	0.0366**
		(0.0135)	J		(0.0152)
Policy×log(1+Vintage)×Capital			0.0115		-0.0008
			(0.0187)		(0.0201)
Policy×log(1+Vintage)×NPL ratio			` ′	-0.0239*	-0.0022
				(0.0143)	(0.0168)
Bank-Time FE	Y	Y	Y	Y	Y
Firm-Time FE	Y	Y	Y	Y	\mathbf{Y}
Firm-Bank FE	Y	Y	Y	Y	Y
Loan Type FE	Y	Y	Y	Y	\mathbf{Y}
Observations	1,654,107	1,654,107	1,654,107	1,654,107	1,654,107
R-squared	0.66	0.66	0.66	0.66	0.66
-					

Table 5: Accounting for bank-level heterogeneity in NPL disposal

- Are the interacted variables (Size, RoA,...) continuous or levels as of a given date? Not clear.
- Why not to focus on SIs, Low-RoA, Low-Capital, and High-NPLs banks?
- Complementary to capital: coverage ratios. Well covered banks are those (potentially) less affected by the policy. How do they behave vs. Low-Coverage ratio banks?
- Capital ratio: why not use risk-weighted capital ratios (given the detrimental effect of NPLs on both RWAs and the numerator of Capital ratios...).

How NPL affects bank balance sheets: effects on profitability, capital, and capital ratios



Provisioning policy, NPL vintage and bank lending firm level data

- More exposed banks cut lending after the policy change, especially to "risky" firms. Is this truly indicative of the fact that the policy "discourages financing zombie firms"?
- Risky firms are not necessarily zombies (true zombies are distressed firms that continue to receive credit, i.e., are still in the performing status).
- The mechanism may be motivated simply by the fact that granting loans to risky firms is more expensive in terms of capital absorption and provisioning.
- Blattner et al., 2023 (AER) is a very close paper that deserves much greater attention

Further comments. Policy and NPL disposal

Table 3: Policy and NPL disposals

	(1)	(2)	(3)	(4)	(5)
log(1+Vintage)	0.0071	0.0072	0.0155***	0.0128***	0.0153***
Policy $\times \log(1+Vintag)$	e) (0.0054) e) 0.0172 (0.0124)	(0.0048) 0.0171 (0.0108)	(0.0033) 0.0008 (0.0049)	(0.0046) 0.0191*** (0.0055)	(0.0049) 0.0166*** (0.0057)
Bank-Time FE	N	Y	Y	Y	Y
Firm-Time FE	N	N	Y	Y	Y
Firm-Bank FE	N	N	N	Y	Y
Loan Type FE	N	N	N	N	Y
Observations	1,654,107	1,654,107	1,654,107	1,654,107	1,654,107
R-squared	0.01	0.06	0.60	0.66	0.66

Notes: The table presents regressions results of a linear probability model at the NPL level, where the dependent variable is a dummy variable that equals 1 if the loan is disposed of in the next quarter as NPL, and 0 otherwise. Policy is a dummy variable that equals 1 for observations in the post-policy period (t > 2018q1) and 0 otherwise. Vintage is the number of months the NPL has been classified as such. The fixed effects that are included in each regression are noted in the lower part of the table. Standard errors are clustered at the bank-quarter level and reported in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.10.

- Show the effect of "policy" (what it the role of time?)
- Which are these Firm _time varying characteristics and these firm-bank (time invariant) characteristics that affect the results?

Further comments. Policy and NPL disposal: robustness

Table 4: Effect of policy on NPL disposals - Robustness tests

	Drop NPLs > 10% decline	Drop low-NPL banks	Drop rural banks & foreign credit institutions	Drop construction & real estate sector
	(1)	(2)	(3)	(4)
$\begin{aligned} &\log(1 + \text{vintage}) \\ &\text{Policy} \times \log(1 + \text{vintage}) \end{aligned}$	0.0135***	0.0179***	0.0174***	0.0127**
	(0.0049)	(0.0053)	(0.0057)	(0.0052)
	0.0206***	0.0147**	0.0133**	0.0132**
	(0.0060)	(0.0062)	(0.0065)	(0.0058)
Bank-Time FE Firm-Time FE Firm-Bank FE Loan Type FE Observations R-squared	Y	Y	Y	Y
	Y	Y	Y	Y
	Y	Y	Y	Y
	Y	Y	Y	Y
	1,394,607	1,494,992	1,431,013	1,158,527
	0.69	0.67	0.67	0.62

What is the rationale?

- E.g., Aren't the high-NPLs banks those more interested in reducing their bad loans, especially in the short run?
- Would not be more interesting to see whether even the low-NPL banks are impacted by the policy? The EBA cut off is based on European banks average...
- Are not SIs naturally more exposed to the policy shock?

Conclusions

Nice paper with a rich dataset on a super policy-relevant topic (credit risk remains among the supervisory risk priorities for the 2023-2025). How to improve it?

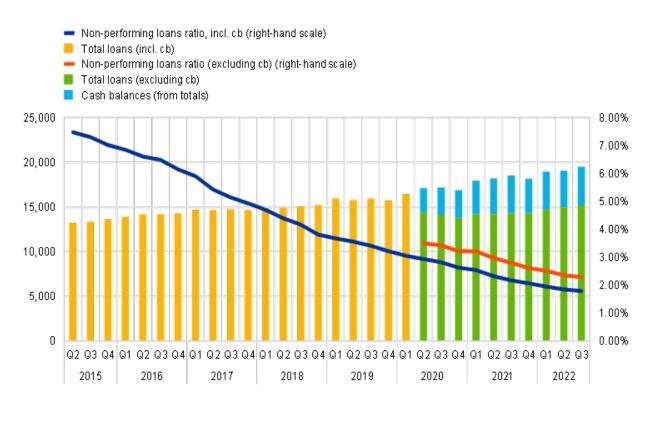
- Focus on the effect of the policy at the extensive margin. Why not even at the intensive margin?
- The 2018 Addendum sets a calendar provisioning. Why not looking at LLPs dynamics?
- More effort in identifying the sources of heterogeneity across banks and loans.
 Important for policy makers to better understand the role of coverage ratios and how it is intertwined with (risk based) capitalization.
- Rich dataset but some relevant information are missing.
- More cautious in interpreting the results in light of the zombie lending narrative.

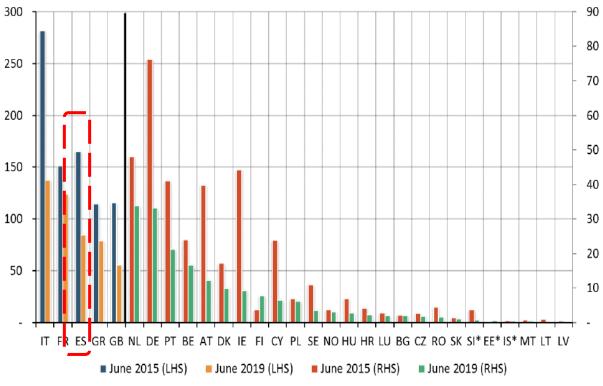
Thanks

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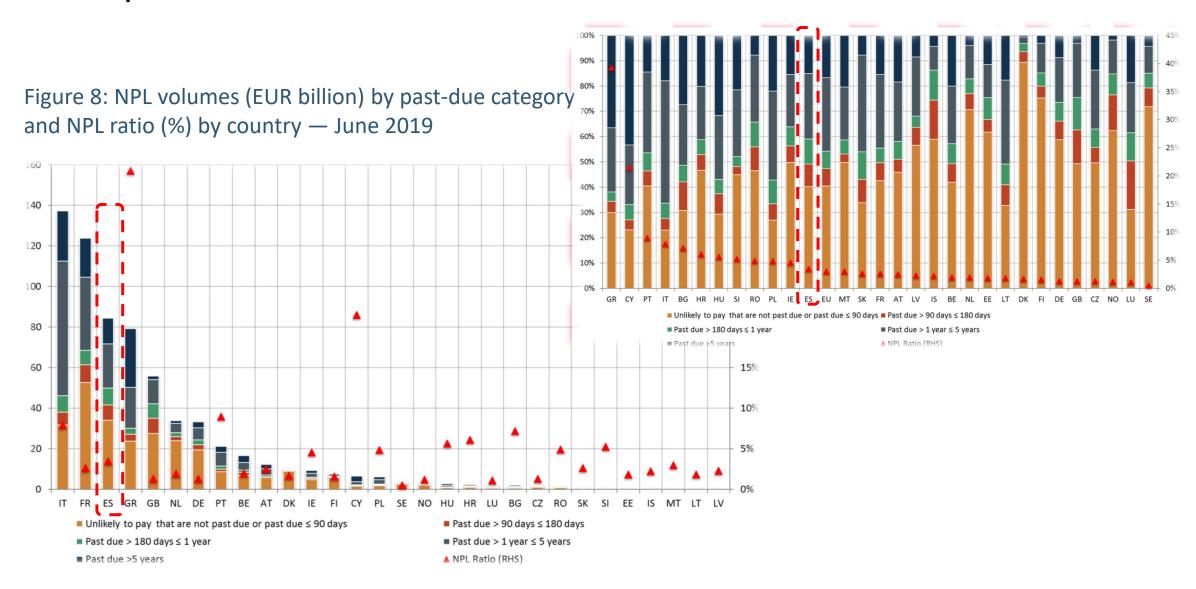
Decreasing trend since 2015

Spain among the High-NPL Countries





Different NPL composition



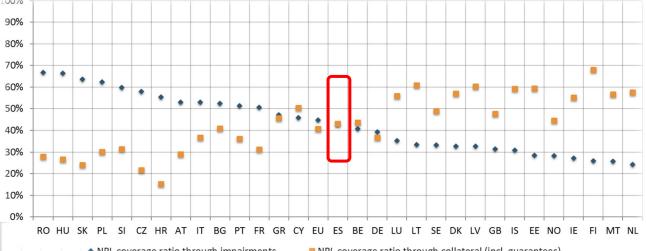
Coverage ratios dynamics with large across-bank differences

Figure 20: Coverage ratio (%), by country, and change in p.p. between June 2015 and June 2019

Change in p.p. since June 2015 (RHS)



Coverage ratio June 2019



"The differences across countries in coverage ratios can be mainly explained by differences in exposures to specific segments. NPLs to large corporates, for example, attract a higher level of provisioning than mortgages, which have higher collateral. Hence, a bank focused on business with corporate clients is likely to report a higher coverage ratio than a bank with a strong focus on mortgages" (EBA, Report on NPLs 2019)

NPL traded volumes €bn 2011 to 2022

