Marco Lo Duca
European Central Bank

Discussion of the paper "Beyond the LTV ratio: new macroprudential lessons from Spain"
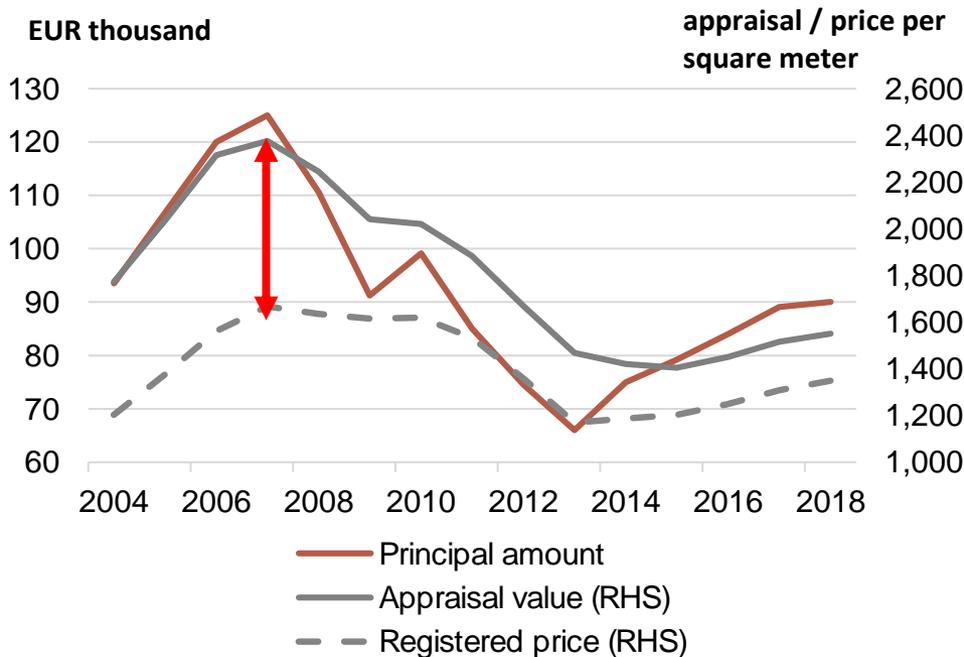
MPPG Workshop

Thursday, 10 October 2019

Banca d'Italia, Rome

Key messages

- **Motivation:** Lending standards and credit risk; borrower based measures
    - circumvention of LTV limit by Spanish banks to issue covered bonds through inflated appraisals
    - Higher appraisals (V) mean lower LTV ratios ➔ apparent good quality of lending (pre-crisis)

- **Research question:** role of lending standards at origination (beyond LTV) in explaining mortgage defaults (ex-ante analysis)

- **Data:** loan-level administrative (CdR) + loan-level from securitisations (European DataWarehouse)

- **Empirical methods:** logit regressions ; default explained by LTV, LTP (Loan-to-Price), LTI, LSTI and a number of loan/borrower characteristics

- **Key findings:** substantial Over-Appraisal (OA) before the crisis; LTP and LTI at orig. more important than LTV; non-linearity; effects change over the cycle (pre- and post-crisis)

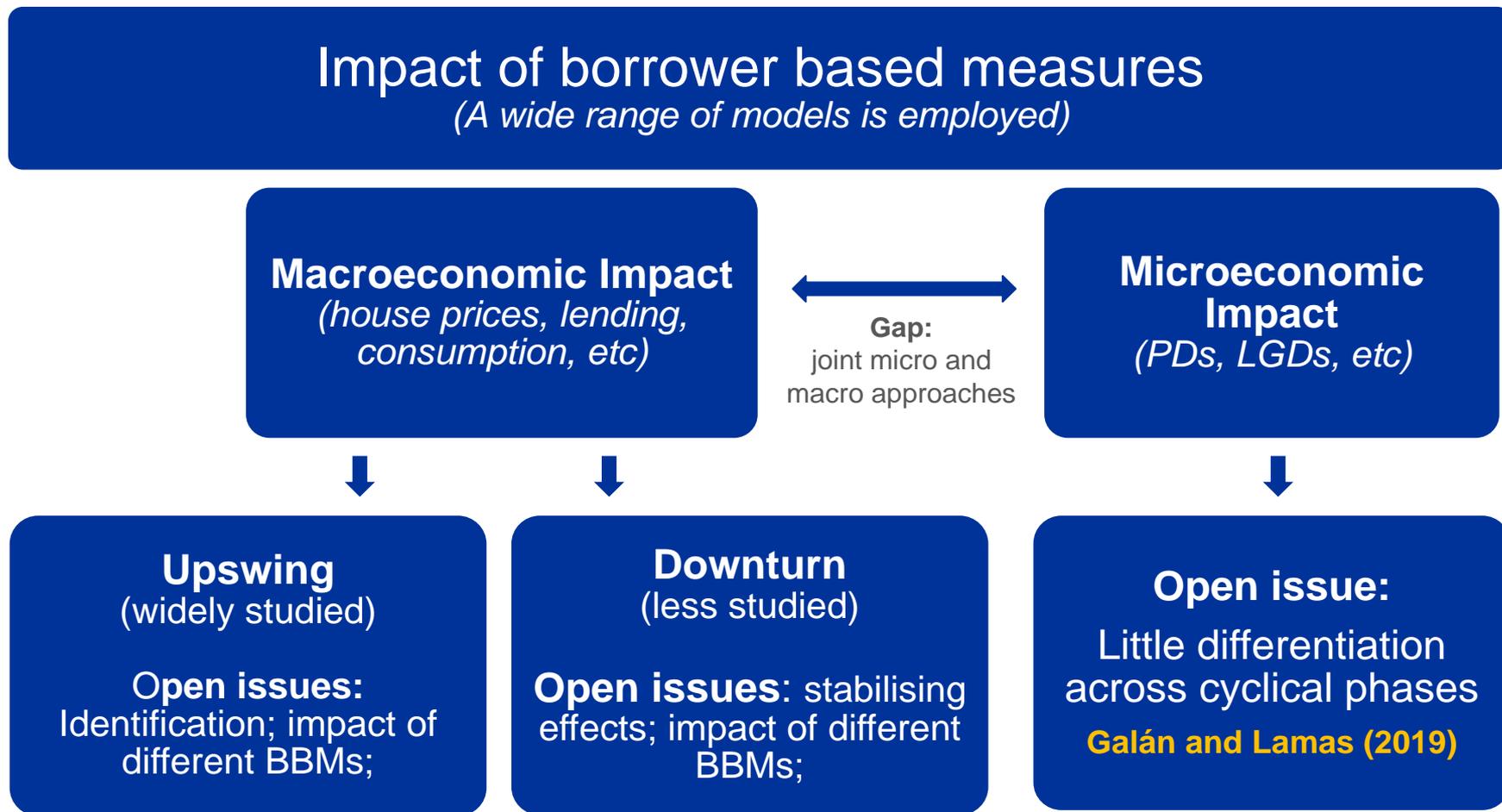# Astonishingly high Over-Appraisal: as high as 100% for 10% of the sample...

EUR thousand

appraisal / price per square meter

Legend:
- Principal amount
- Appraisal value (RHS)
- Registered price (RHS)

Source: Galán and Lamas (2019)

Panel A. CdR dataset (2004-2017)

	Observations	mean	median	p10	p90	Std. Dev.
LTV	5,636,729	60.83	63.5	22.1	91.8	25.4
LTP	1,292,179	93.74	91.7	51.9	136.9	34.3
OA	1,272,419	1.37	1.26	0.98	1.98	0.43
Maturity (years)	5,632,645	25.40	28.0	12.0	35.0	9.2
Second-hand	5,636,729	0.62	1.0	0.0	1.0	0.5
Subsidised-housing	5,636,729	0.12	0.0	0.0	1.0	0.3
Problematic loans	5,636,729	0.01	0.0	0.0	0.0	0.1

Very nice paper!

- Academic and policy relevance
  - Understanding lending standards / defaults / banking crises
  - Circumvention of policies
  - Design of macroprudential policies (borrower based measures)

- The analysis is carried out with comprehensive and granular data
  - Unique micro dataset (CdR): population of mortgages from credit register and administrative data merged together

- Simple but careful modelling choices

- Limitations acknowledged, well explained and addressed as much as possible

A tentative map of the literature on borrower based measures

Impact of borrower based measures
(A wide range of models is employed)

Macroeconomic Impact
(house prices, lending, consumption, etc)

Gap: joint micro and macro approaches

Microeconomic Impact
(PDs, LGDs, etc)

Upswing (widely studied)

O**pen issues:** Identification; impact of different BBMs;

Downturn (less studied)

Open issues: stabilising effects; impact of different BBMs;

Open issue: Little differentiation across cyclical phases

Galán and Lamas (2019)

Suggestion: strengthen the discussion of the placement of the article within the literature and reinforce the explanation of the value added in relation to existing papers

Suggestion 1: Strengthen the discussion of role of cyclical conditions in explaining the link between lending standards and default

- Brief discussion of the role of cyclical conditions already in…

  - Panel regression shows that lending standards at origination explain default also after controlling for "current" macroeconomic environment

    - <u>Comment:</u> please include explanation of the model

  - Estimation of the baseline models before and after the crisis: stronger role of LTI after the crisis;

- …but more can be done with these data

  - Macro conditions at origination affect the link (slope) between lending standards and default

    - Example: high LTV loan riskier when origination occurs at the peak of the real estate cycle (high valuations and/or flattening RE price dynamics

  - Macro conditions during the life of loans also interact with lending standards

Discussion: role of cyclical phases

Comment: to appreciate the benefits of sound lending standards it is important to consider their interactions with the macro environment

High LTV loans are riskier when they are originated in periods of high valuations

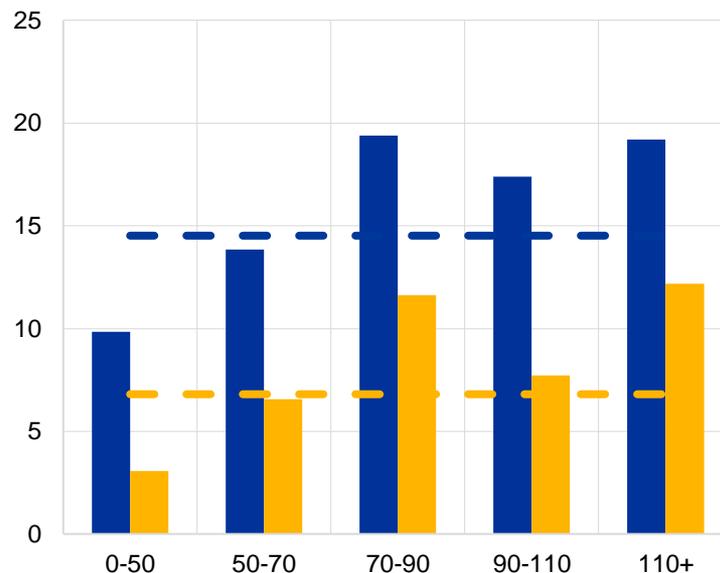(y-axis: probability of default, p.p.; x-axis: LTV buckets)

■ High overvaluation at origination
■ Normal times
▬ Average OV
▬ Average normal times
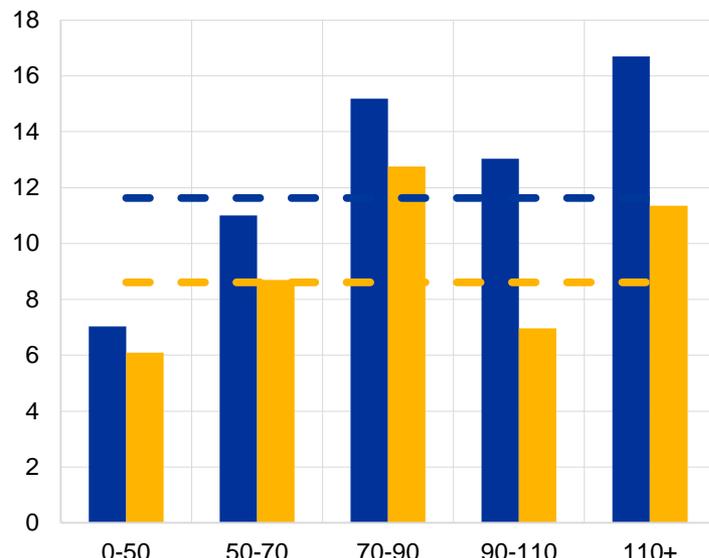
High LTV loans are riskier in downturns

(y-axis: probability of default, p.p.; x-axis: LTV buckets)

■ Low change in overvaluation
■ Normal times
▬ Average OV
▬ Average normal times

Source: EDW and ECB calculations
Notes: The charts shows average default frequency in LTV at origination buckets. Pooled loan-level data for BE, ES, FR, DE, IE, IT, NL and PT. Chart on the left: High overvaluation refers to periods in the top quintile of the aggregate price-to-income ratio, by country. Chart on the right: Low change in overvaluation refers to periods in the bottom quintile of the change between the aggregate price-to-income ratio at origination and at time of default/repayment, by country.

Suggestion 2: discuss unexplained effects / limits of lending standard policies / BB measures

- Large portion of default risk might be unexplained (size of the fixed affects by year of origination)

  - Demyanyk and Van Hemert (2009, RFS) "Understanding the subprime mortgage crisis "

  - "Vintage effects": in the years before the crisis the quality of mortgage loans deteriorated over time beyond observable borrower, loan and macro features

    - Explanation: non-measurable lending policies; interaction with cyclical conditions

Adjusted and unadjusted delinquency rates (Demyanyk and Van Hemert, 2009)
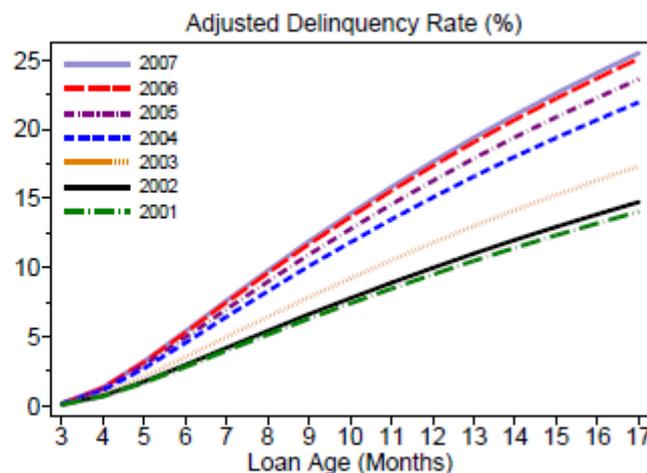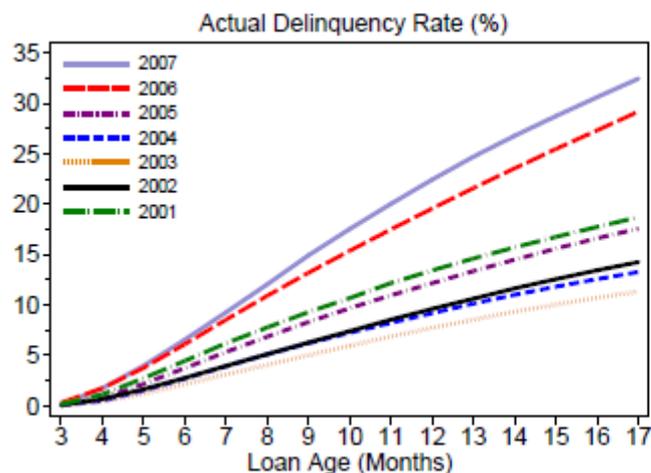
Suggestion 3: valorise the results on combinations of instruments

- Motivation: BB measures are increasingly used in combination

- The analysis shows interesting results indicating benefits from instrument combinations

  - Positive estimated coefficients of interactions among lending standards

    - Indication of synergies (or strategic complementarities)

    - Potential expansion of the discussion to averse scenarios

Table 4. Estimation Results. Lending standards indicators and problematic loans.
ED database

	Model 1B	Model 6	Model 7	Model 8
LSTI		0.0032***	0.0034***	0.0024***
LTV	0.0199***	0.0156***	0.0188***	0.0161***
Maturity	0.0203***	0.0271***	0.0730***	0.0266***
LSTI^2			-0.0000	-0.0000
LTV^2			-0.0001***	-0.0001***
Maturity^2			-0.0008***	-0.0011***
LSTI*Maturity				-0.0000
LSTI*LTV				0.0001***
LTV*Maturity				0.0003***

Very nice work! Suggestions: exploit more the data and the results either in the paper or in follow up work

Technical comments

- Possibility of studying the determinants of LGD with CdR data?

- Composition of the sample (CdR)
  - Defaulted loans; performing loans; repaid loan → implications for the logit
  - Very different number of observations across different regressions (Table 3)

- EDW
  - Choices in the construction of the sample and variables

- Explanation of the panel model for controlling for current macro conditions