INCOME-BASED TOOLS TO MITIGATE HOUSING MARKET RISKS: WHERE MIGHT WE HAVE BEEN WITHOUT THEM?

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INTRODUCTION

- Debt servicing obligations are central to household vulnerability and macro-financial risks.
- Macroprudential authorities increasingly rely on income-based borrower based measures (I-BBMs) – such as DTI or DSTI limits – to curb the issuance of highly leveraged mortgage loans
- This paper quantifies the costs and benefits of the I-BBMs across seven economies
  - Use a new "meso-econometric framework" (Elsayed et al, 2025)
  - Fill a significant analytical gap in policymaker toolkits (CGFS, 2023)
- **Overall**: I-BBMs deliver clear stabilisation benefits at a modest cost of constraining a small share of high-DTI/DSTI loans

CONTRIBUTION: POLICY PERSPECTIVE

- Macroprudential policy involves clear **trade-offs**:
  - Costs: visible, immediate, and concentrated on specific borrowers
  - Benefits: dispersed, longer-term, and harder to measure
- Quantification helps policymakers:
  - Make informed **decisions** about *when* and *how much* to intervene
  - **Communicate** why they are taking (or not taking) action
  - Enhance **operational independence** and policy influence, especially where powers are shared across institutions
- Data limitations can make quantification difficult and delay timely action

CONTRIBUTION: SCIENTIFIC PERSPECTIVE

- Despite growing use of I-BBMs, empirical evidence on their effects is limited
- Existing studies
  - Micro: focus on who gets constrained and household behaviour, eg DeFusco et al (2019), Tzur-Ilan (2023)
  - Macro: examine cross-country policy shifts (0/1 indicators), eg Kuttner and Shim (2016), Akinci and Olmstead-Rumsey (2018).
- Our contribution
  - Bridge the **micro-macro gap** by linking household-level constraints to macro stabilisations
  - Quantify both **costs** (restricted access to high-DTI/DSTI loans) and **benefits** (reduced volatility in key macro variables) of I-BBMs within a **unified** cross-country framework

EMPIRICAL FRAMEWORK

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Leverage the “Meso-econometric" framework of Elsayed et al (2025)

1. Integrate macro identification of SVAR models with external instruments (responses in Bank Lending Surveys) to identify lending standard shocks External instrument
   Lending standards shock IRFs
2. With micro identification to disentangle lending standards shocks into:
   - **Bank induced shocks**: banks' own lending standards that would have prevailed withouth I-BBM
   - **I-BBM induced shocks**: lending standards directly attributable to I-BBMs

$$\underbrace{\epsilon_{L,t}}_{\text{lending standards shock}} = \begin{cases} \epsilon_{L,t}^{BANK}, & t < T^*, \\ \underbrace{\epsilon_{L,t}^{BANK}}_{\text{Bank induced}} + \underbrace{\epsilon_{L,t}^{BBM}}_{\text{I-BBM-induced}}, & t \geq T^*, \end{cases} \tag{1}$$

3. Use two complementary methods to identify I-BBM shocks
   - *Variance minimisation*: attributes the smallest share of variance to I-BBM shocks
   - *K-method*: decomposes both shocks based on their estimated offsetting effect.

DISENTANGLE BANK and I-BBM SHOCKS

- Exploit the heterogeneous impact of the I-BBM across the borrower distribution
  - Compare the evolution of lending to borrower segments near the DSTI/DTI limit – the treatment group – against segments further below – the control group

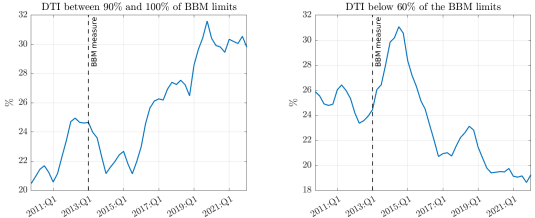


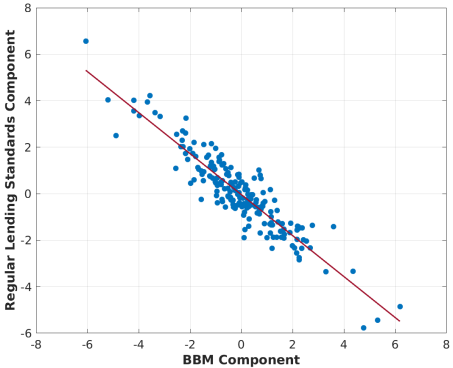
Figure: NL: Treatment group - above the limit (left) and control group - far below the limit (right)

- **Overall**: this framework let us quantify how strongly the I-BBM shocks **offset the procyclicality** of bank lending standards shocks and enables construction of **counterfactual paths** for credit and macro variables without I-BBMs.

RESULTS

DO I-BBM INDUCED SHOCKS OFFSET BANK LENDING STANDARDS SHOCKS?

Variance min. method

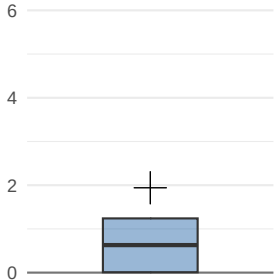


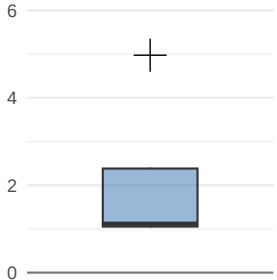
K-method

Economy	Estimated k	CI
France	1.04	[0.40, 1.68]
Hong Kong	0.998	[0.74, 1.28]
Ireland	0.94	[0.04, 1.85]
Korea	1.36	[0.20, 2.52]
Netherlands	1.14	[0.54, 1.74]
United Kingdom	1.29	[0.69, 1.99]

- Both methods suggest that I-BBMs-induced shocks tend on average to offset the procyclicality of bank-induced lending standards shocks

COSTS - SHARE OF LOANS THAT WERE CONSTRAINED BY I-BBM POLICIES





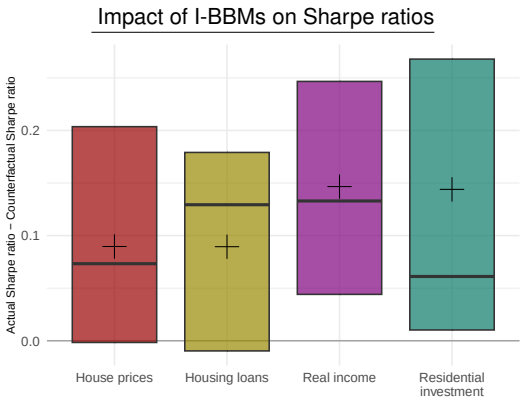
- Pooling data across all economies and all time periods since I-BBMs were introduced
  - On average, 0.5% – 2% of new lending was constrained by the I-BBM policies
  - Average maximum share of constrained new lending is between 1% – 6% of total new lending

BENEFITS - MACROECONOMIC STABILISATION

- Actual volatility (i.e. with I-BBM induced shocks) $\leq$ counterfactual volatility
  - I-BBMs stabilised house price growth and real income growth by around 10%
  - Less obvious stabilisation of housing credit

COSTS vs BENEFITS

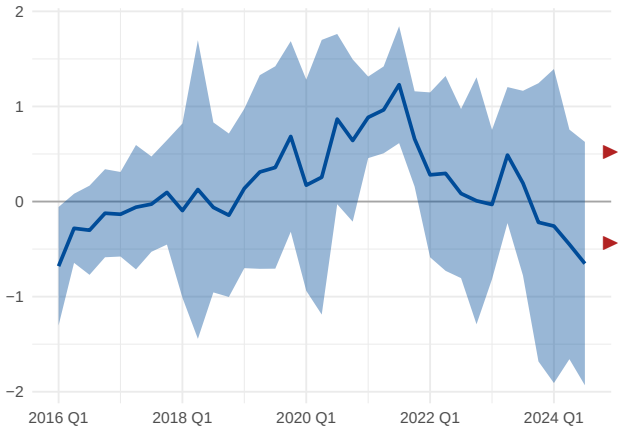
- Constraining around 0.5% to 6% of new housing loans
- Associated with a 10% reduction in volatility of real income growth, house price growth and residential income growth between 2019 and 2024
  - I-BBMs may have dampened macro volatility by about one quarter of that which occurred during the great moderation
- Sharpe ratios improve as well



INFLUENCE OF I-BBMs OVER TIME

TIME-SERIES VARIATION IN SHARE OF CONSTRAINED LENDING

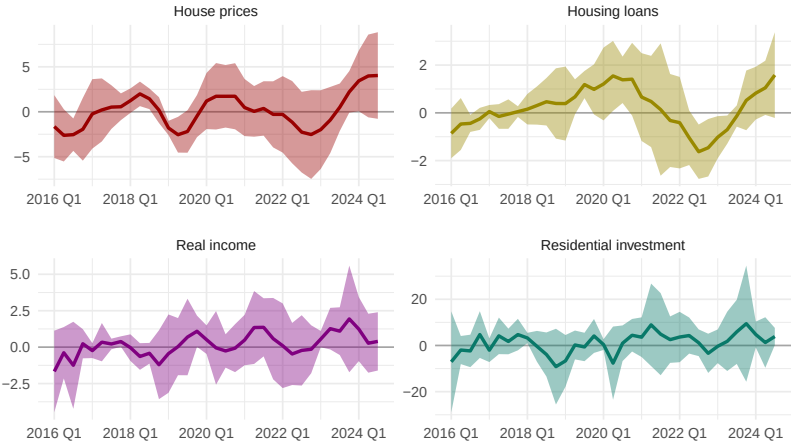
Mean standardised share of lending constrained by I-BBMs



- I-BBMs constrained access to loans as housing markets boomed
- More recently, I-BBMs have helped support access to high DSTI/DTI loans

TIME-SERIES IMPACT OF I-BBMS ON MACRO VARIABLES

Actual relative to counterfactual (mean across economies and SD)



- 2016-2023: Macro variables somewhat weaker than the counterfactual
- Post 2023: Macro variables somewhat stronger than counterfactual

CONCLUDING REMARKS

- We take a step towards quantifying some of the key costs and benefits of I-BBMs in a single framework
- **Overall**: I-BBMs deliver clear stabilisation benefits at a modest cost of constraining a small share of high-DTI/DSTI loans
- I-BBMs tend to counteract the procyclicality of banks' lending standards $\rightarrow$ reduce the need for frequent recalibration
- The framework can help policymakers calibrate, evaluate and communicate the costs and benefits of I-BBMs
  - Clearly there remains scope for further refinement
  - Hopefully this paper stimulates more research that quantifies the macroprudential policy calculus

Annex slides

INSTRUMENT STRENGTH OF PROXY VARIABLE

Model	F-Statistic
HK	Identified via sign/zero restrictions
IE	16.91
KR	9.49
NL	13.56
NZ	3.69
UK	10.49
FR	11.03

Table: **Instrument strength of the proxy variable used for the identification of the lending standard shocks:** First-stage F-statistics

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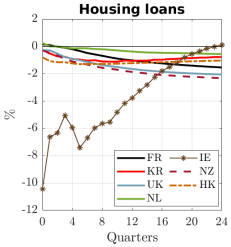
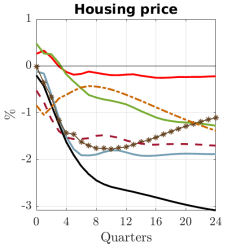
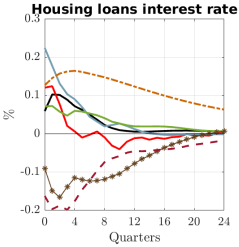
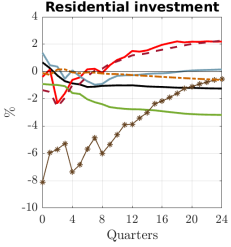
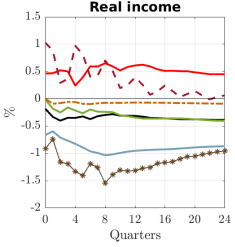
IMPACT OF LENDING SHOCKS











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CONTROL AND TREATMENT GROUPS

	Control	**Treatment**		T^*
	Far below limit	Just below limit	Above limit	
France	DSTI $<$ 20% and 10 $<$ Maturity $\leq$ 15 years		DSTI $>$ 35% and Maturity $>$ 25 years	2019 Q4
Hong Kong[1]	Mortgages not affected by macroprudential policy changes and DSTI within 10% of current limit	Mortgages affected by DSTI policy change and DSTI within 10% of current limit		2015 Q1
Ireland	2.5 $<$ LTI $\leq$ 3		LTI$>$ 3.5	2015 Q1
Korea	5% $<$ DSTI $\leq$ 15%		DSTI $>$ 40%	2019 Q4
Netherlands	DTI $<$ 60% of borrower-specific Nibud limit	90% $<$ DTI $\leq$ 100% of group limit		2013 Q1
New Zealand[2]	Owner occupiers: DTI $<$ 3 Investors: DTI $<$ 3		DTI $>$ 6 DTI $>$ 7	2024 Q3
United Kingdom	LTI $<$ 3		LTI $>$ 4.5	2014 Q3

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