The Effect of Macroprudential Policy Announcements on Systemic Risk

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Motivation

- **Macropru objective:** Maintain financial stability
- Evaluating **macropru effectiveness** comes with challenges:
  1. anticipation effects
  2. endogeneity concerns
  3. non-binding constraints
  4. regulatory arbitrage
- **This paper:** A solution to addressing these issues using high frequency identification techniques

Research Questions:

- Do macroprudential policy announcements affect financial markets?
- What are the effects of unanticipated macroprudential policy shocks on financial stability and the macroeconomy?

Contributions

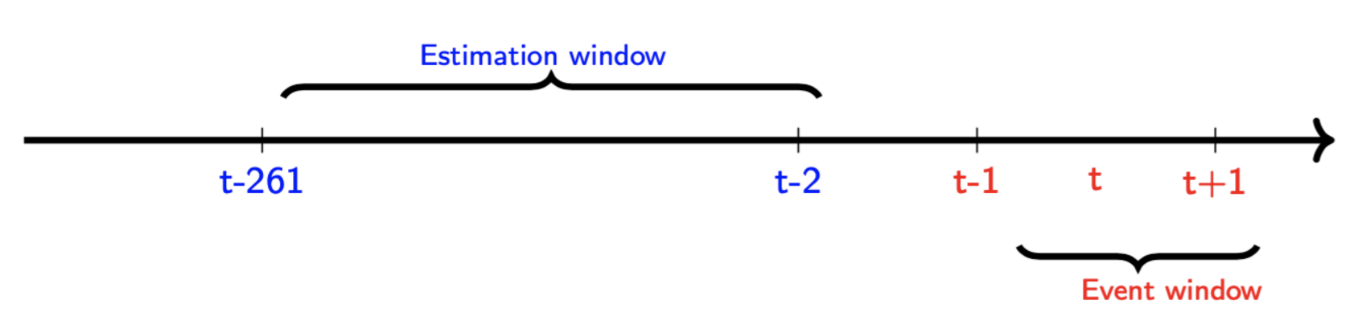
- New *daily* dataset on 44 UK macroprudential policy announcements (2009-2019)
- Identification of macroprudential policy shocks using market-based high frequency techniques
- New evidence on the effects of macroprudential policy announcements on systemic risk

Identification Strategy

- **No obvious financial instrument** trades based on macroprudential policy announcements
- Nonetheless, if these are **unanticipated**, they could have an impact on bank equity prices (most closely related to *future* bank expected profitability)
- What constitutes a macroprudential policy shock?

$$\Delta MaP_t^{shock} = \begin{cases} 1, & \text{if } \widehat{CAAR}_t^{Banks} < 0 \text{ (significantly)} \\ -1, & \text{if } \widehat{CAAR}_t^{Banks} > 0 \text{ (significantly)} \\ 0, & \text{if } \widehat{CAAR}_t^{Banks} = 0. \end{cases}$$

- For each of the macropru dates in our database, we conduct an event study:



- Next, we exploit **Factiva**, a digital news archive to exclude days which are 'contaminated' by other economic signals of a non-macroprudential policy nature
- We **exclude** 11 **'spurious' macrorprudential policy events**

Eight macroprudential policy surprises

Date	Event	CAAR[-1,1]	CAAR[-1,0]	CAAR[0,1]	CAR[0,0]
16 Dec 2010	Basel III	-4.3326%***	-1.6927%	-2.6153%**	0.0247%
		(0.0020)	(0.1355)	(0.0215)	(0.9753)
04 Nov 2011	G-SII Buffers	-2.9975%**	-1.6390%	-1.8067%	-0.4482%
		(0.0391)	(0.1654)	(0.1263)	(0.5902)
27 Jun 2013	CRD IV	-2.7029%**	-2.3429%**	-2.8696%***	-2.5096%***
		(0.0319)	(0.0232)	(0.0052)	(0.0006)
27 Oct 2014	PRA PS + EBA Stress Test	-3.1828%***	-1.0871%	-3.9078%***	-1.8121%***
		(0.0003)	(0.1273)	(0.0000)	(0.0004)
31 Oct 2014	Leverage ratio	1.6806%*	2.0174%***	1.9809%***	2.3177%***
		(0.0609)	(0.0061)	(0.0069)	(0.0000)
19 Feb 2016	O-SII Methodology + SSM	-2.4653%**	-2.9856%***	-0.3349%	-0.8553%
		(0.0121)	(0.0002)	(0.6741)	(0.1286)
29 Mar 2016	CCyB	-2.3971%**	-2.3222%***	-1.1828%	-1.1079%*
		(0.0258)	(0.0082)	(0.1769)	(0.0728)
25 Sep 2017	PRA Buffer	-2.0571%**	-1.7545%**	-1.6967%**	-1.3940%**
		(0.0440)	(0.0353)	(0.0415)	(0.0178)

Notes: This table presents the cumulative average abnormal returns (CAAR) from a portfolio of the 6 largest LSE-listed banks, following a macroprudential policy announcement. The estimation window is chosen to be (-261, -2). p-values in parenthesis are obtained under the normality assumption. *, **, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

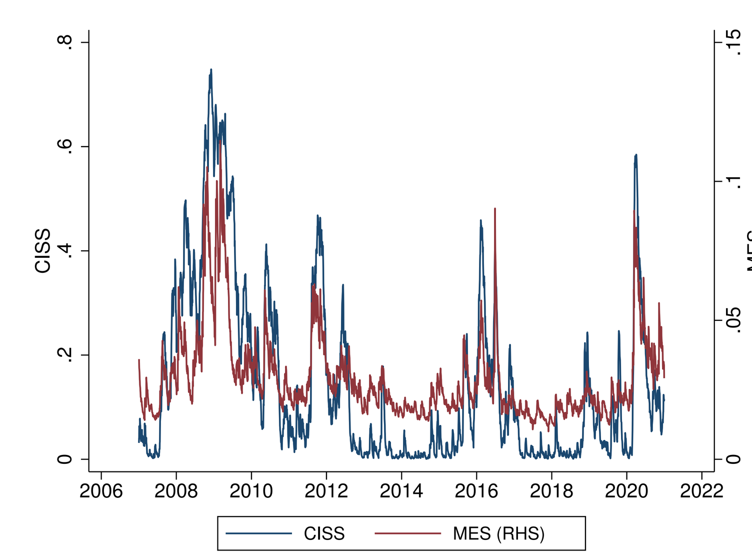
Impact of macroprudential policy announcements on systemic risk

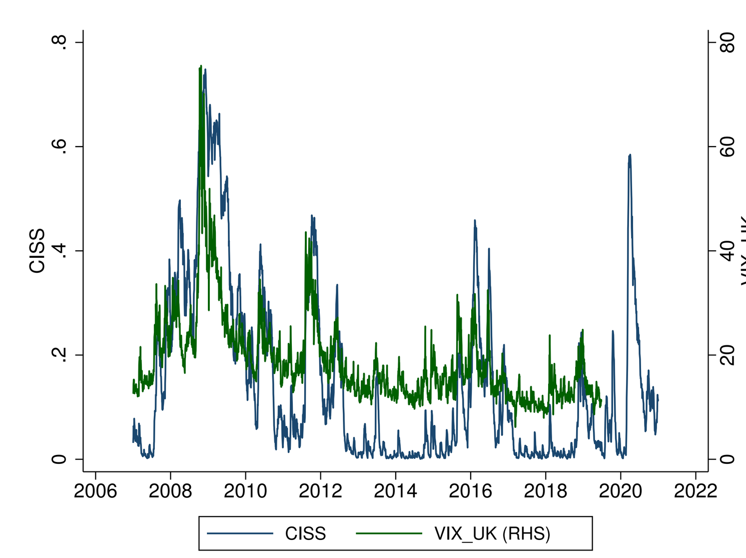
$$\Delta_h y_t = \alpha + \beta^h \Delta MaP_t^{shock} + \sum_{l=1}^{L} \delta_l^h \Delta y_{t-l} + \sum_{k=1}^{K} \phi_k^h \Delta X_{t-k} + \epsilon_{t+h}$$

where $\Delta_h y_t = y_{t+h} - y_t$ denotes the response variable of interest (i.e. the cumulative change in systemic risk between announcement day t and day t+h over varying prediction horizons h = 1,2,..., 60)

Systemic risk measures

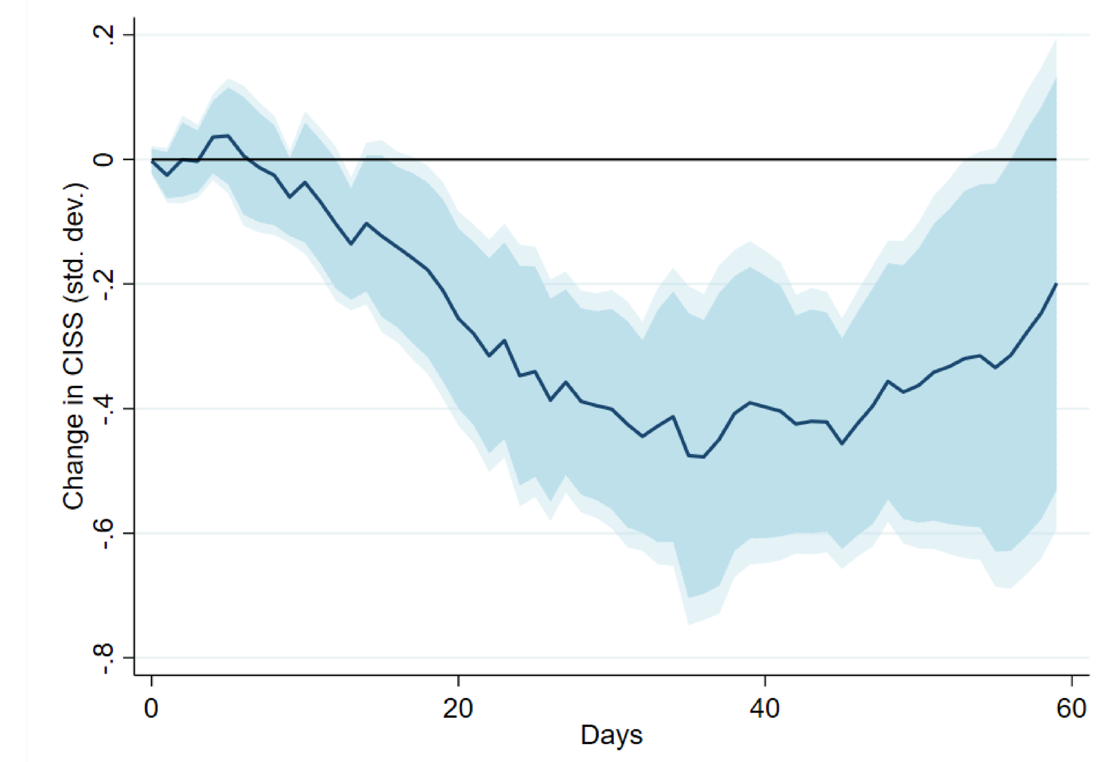
- Our main systemic risk measure: **Composite Index of Systemic Stress (CISS)** developed by Hollo et al. (2012)
- Other financial instability measures include the Marginal Expected Shortfall (MES), VIX^{UK}, Funding spreads for UK financial holding companies.





Effect of Δ MaP^{shock} on the Composite Index of Systemic Stress (CISS)

Unanticipated changes in MaP reduce CISS by 0.5 standard deviations

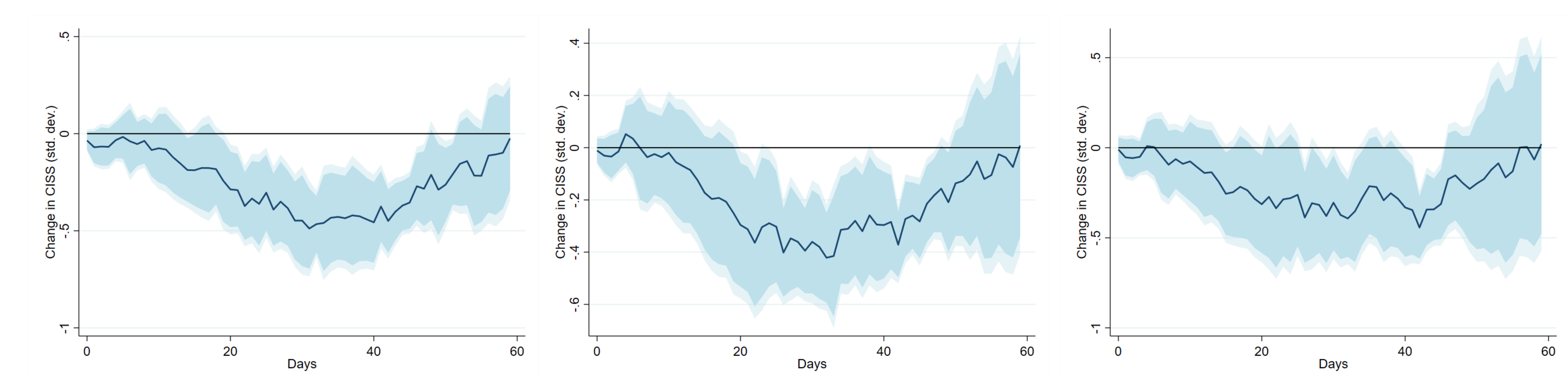


Notes: In line with local projection methods, each horizon is estimated separately. The blue solid line represents the $\{\beta^h\}_{h=1}^{60}$ estimates in standard deviation units. The dependent variable is $\Delta_h CISS^{UK}$, over the horizons considered. The independent variable is ΔMaP^{shock}. The light blue shaded areas denote the 95% and 90% confidence intervals around point estimates.

- Our result is robust to (i) alternative financial instability measures; (ii) placebo test; (iii) scaled shocks; (iv) excluding shocks with CB info effects; and (v) considering unanticipated vis-a-vis anticipated events

Effect of Δ MaP^{shock} on Equity and Bond Market Stress

Unanticipated changes in MaP reduce stress in bank and equity markets



(a) Bond Markets (b) Equity (financials) (c) Equity (non-financials)

Notes: In line with local projection methods, each horizon is estimated separately. The blue solid lines represent the $\{\beta^h\}_{h=1}^{60}$ estimates in standard deviation units. The dependent variable in panels (a), (b), (c) is the change in the CISS subindex in the bond markets, equity (financials) and equity (non-financials) respectively, over the horizons considered. The independent variable across all panels is ΔMaP^{shock}. The light blue shaded areas denote the 95% and 90% confidence intervals around point estimates constructed with robust standard errors.

Conclusion

- **Macroprudential policy announcements** do provide **new information** to financial markets
- Macroprudential policy announcements can **reduce perceived systemic risk** in the near-term, specifically in the (financial) equity and bond markets

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