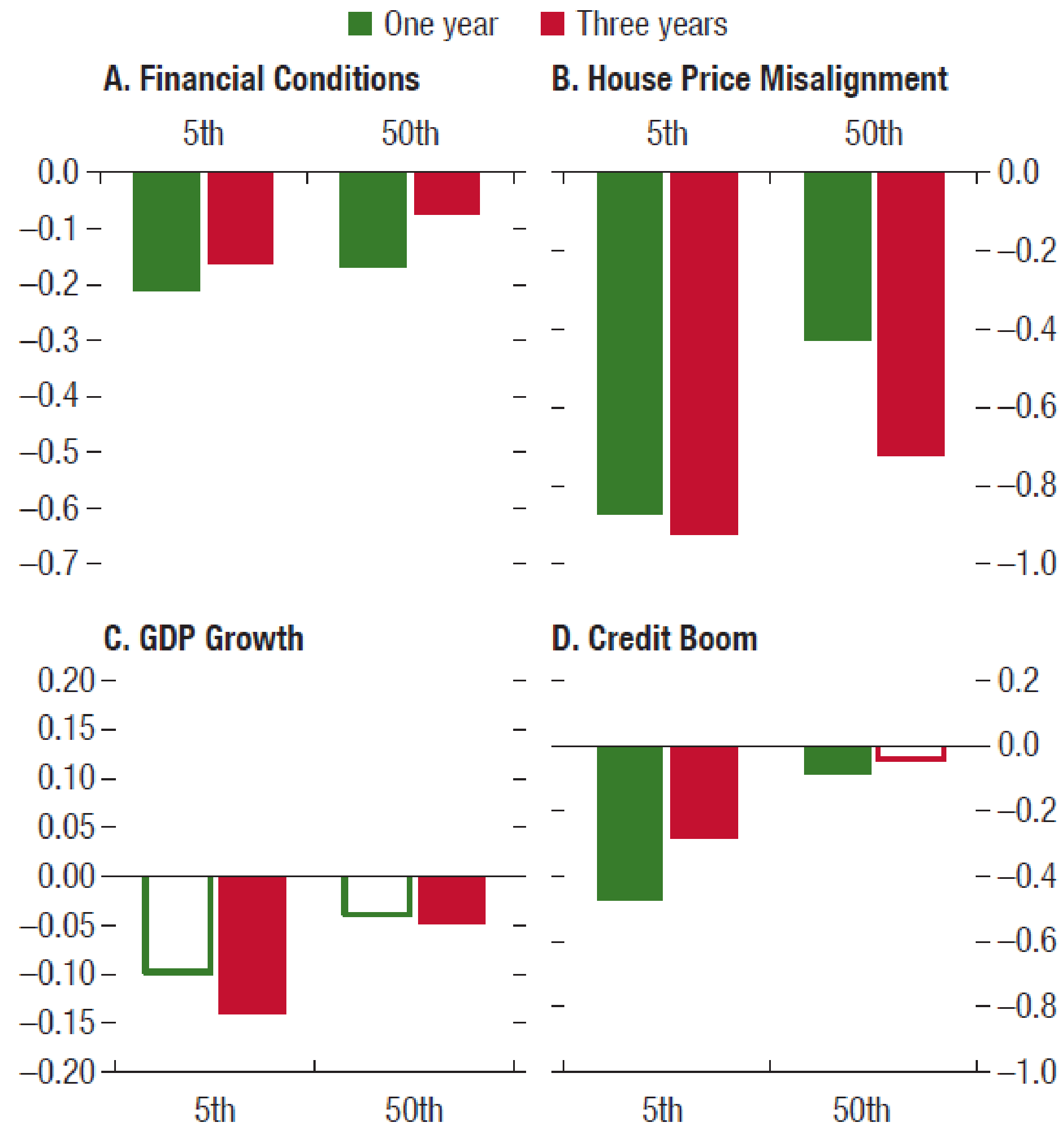# DOWNSIDE RISKS
TO HOUSE PRICES

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Monetary Policy Department
20 October 2020

3. Advanced Economies: Impact of Four Factors on Future Real House Prices
(One and three years ahead; 5th quantile and median coefficients)

4. Emerging Market Economies: Impact of Four Factors on Future Real House Prices
(One and three years ahead; 5th quantile and median coefficients)
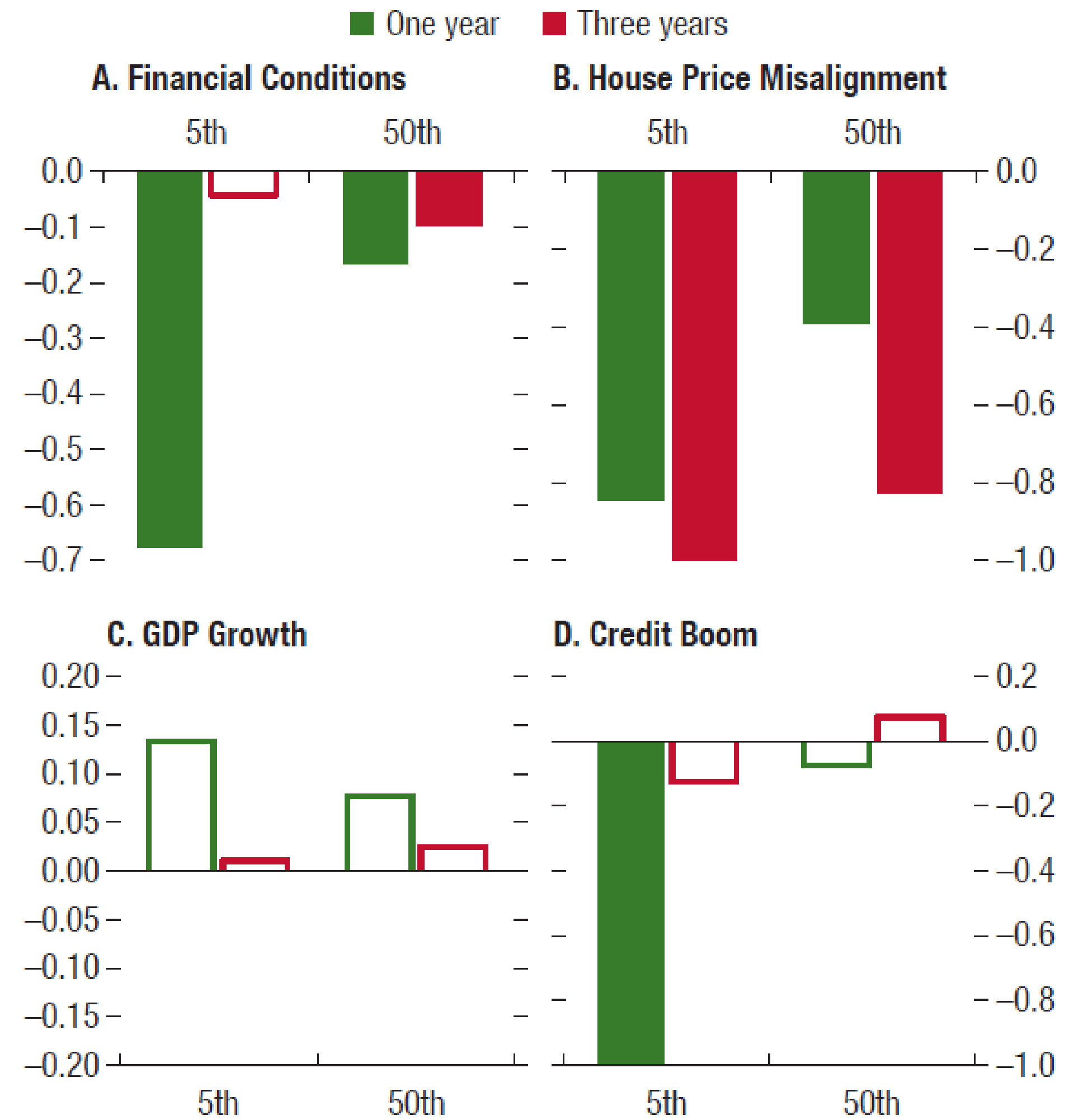
Source: IMF staff calculations.

Overview

period: 1996-2020Q2

frequency: Quarterly

Factor	variable
1.Household income development	GDP growth
2.House price misalignment	House price gap
3.Credit boom	Mortgage & prefinance growth
4.Financial condition	MRR
+ policy	Macro prudential policy index

Analysis framework

1. Modeling house price at risk
2. Baseline estimation
   • Quantile regression (Fixed effect for panel data)
3. Policy to mitigate downside risks
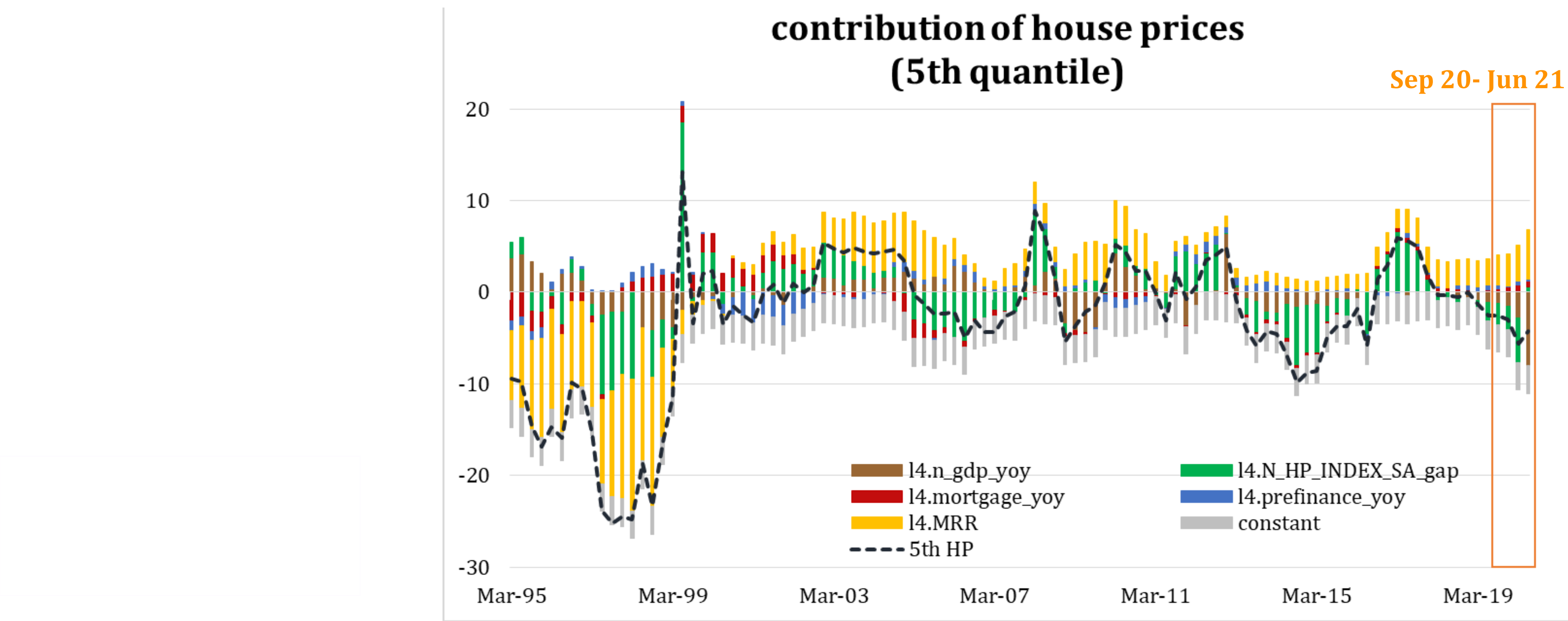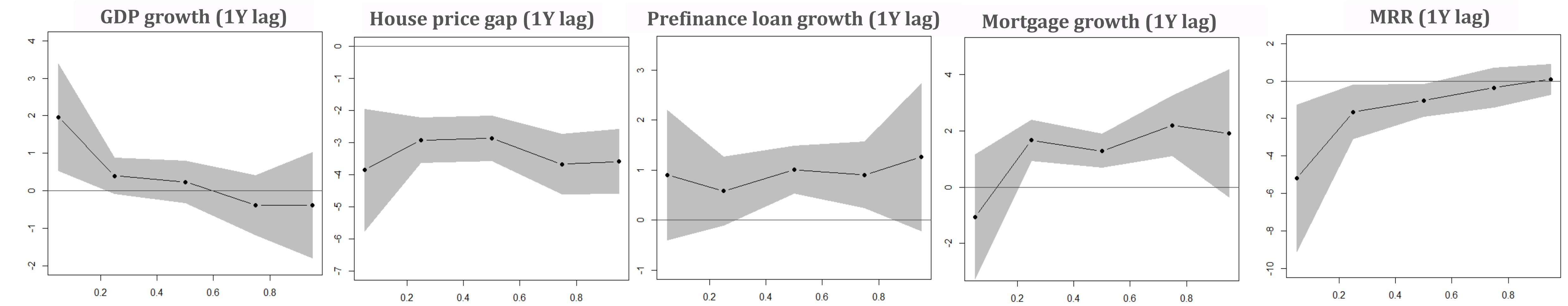4. Robustness test

3
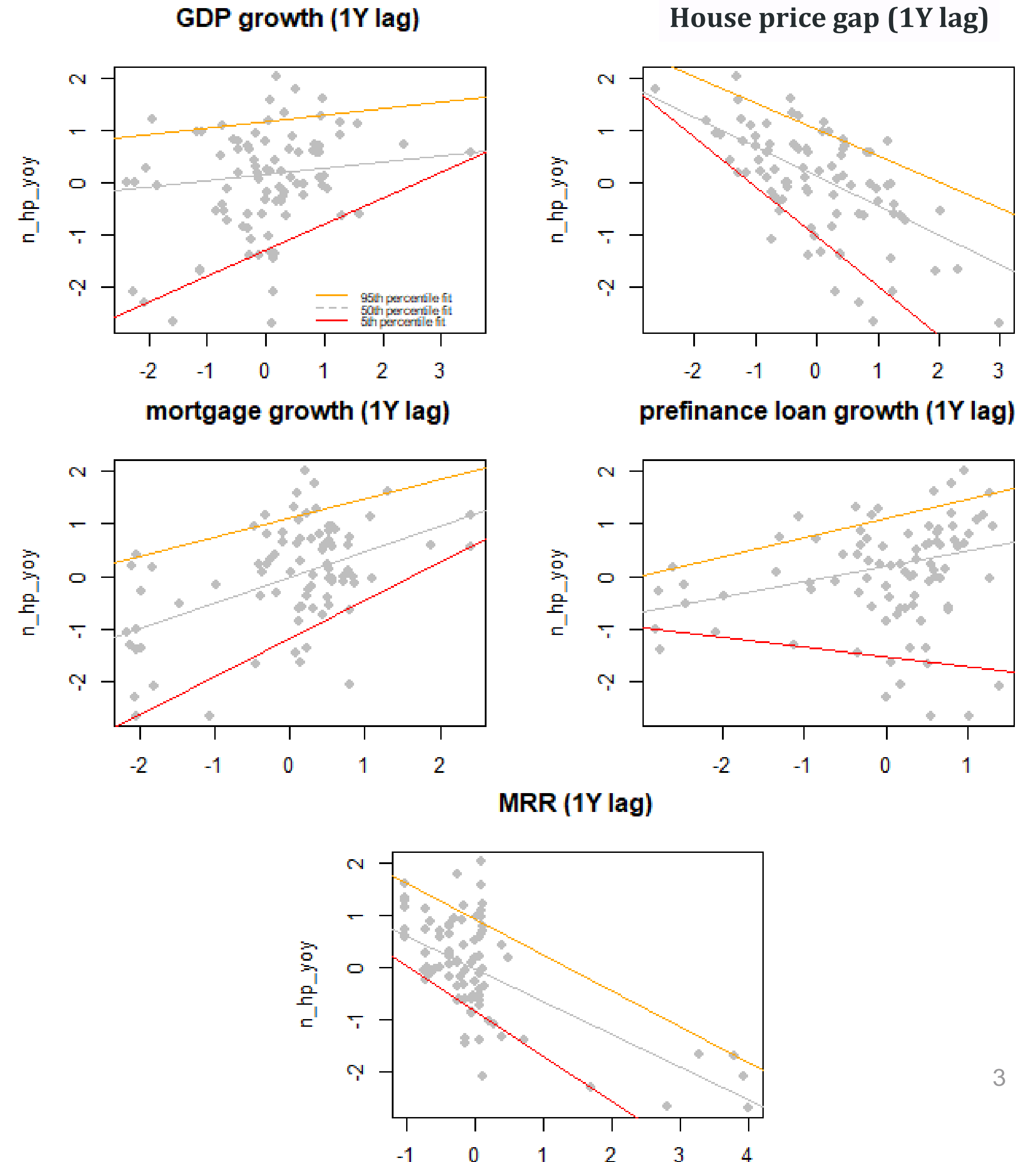
Empirical result

*estimated coefficients h period ahead, at a specific quantile τ; 90% confidence interval*

$$Y_{t+h,\tau} = \alpha_{h,\tau} + \beta_{h,\tau}X_t + e_{h,\tau}$$

GDP growth (1Y lag)

House price gap (1Y lag)

Prefinance loan growth (1Y lag)

Mortgage growth (1Y lag)

MRR (1Y lag)

**contribution of house prices
(5th quantile)**

Sep 20- Jun 21

l4.n_gdp_yoy
l4.mortgage_yoy
l4.MRR
5th HP

l4.N_HP_INDEX_SA_gap
l4.prefinance_yoy
constant

4

Policy to reduce downside risks

estimated coefficients h period ahead, at a specific quantile τ, $X = $ other variables, $M = $ measure

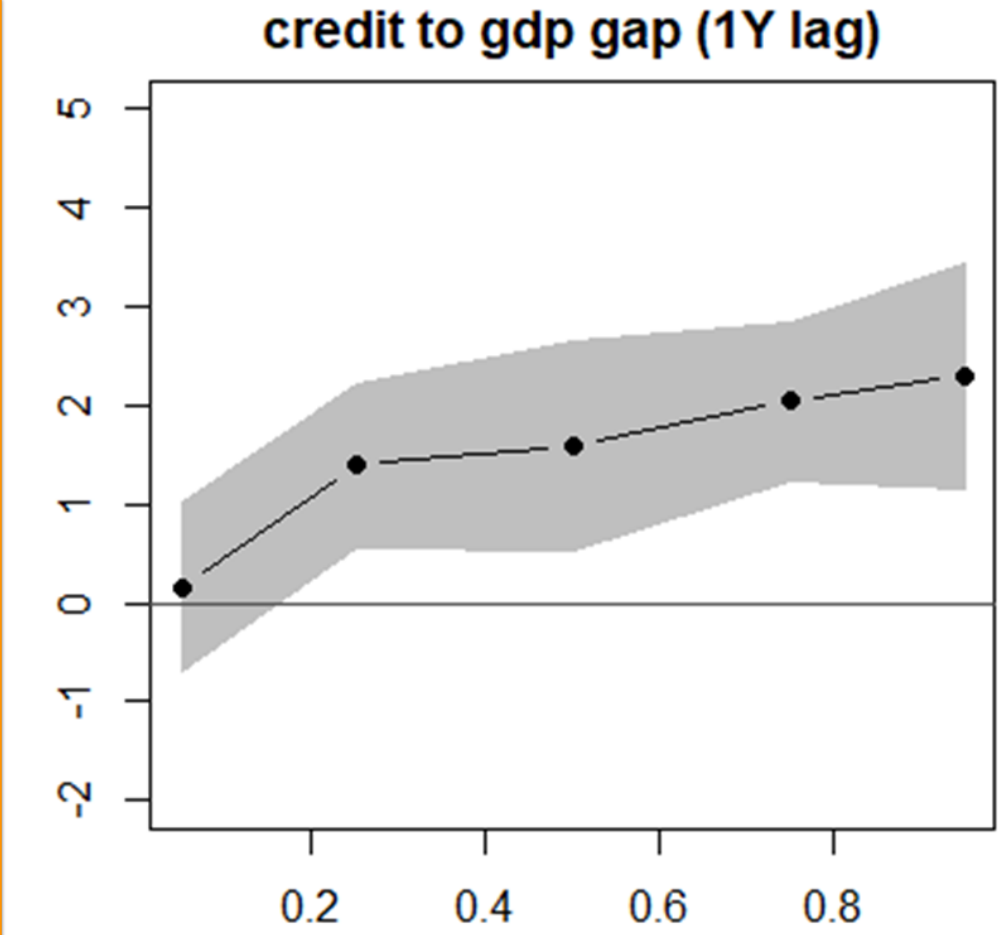$$Y_{t+h,\tau} = \alpha_{h,\tau} + \beta_{h,\tau}X_t + \lambda_{h,\tau}M_t + e_{h,\tau}$$
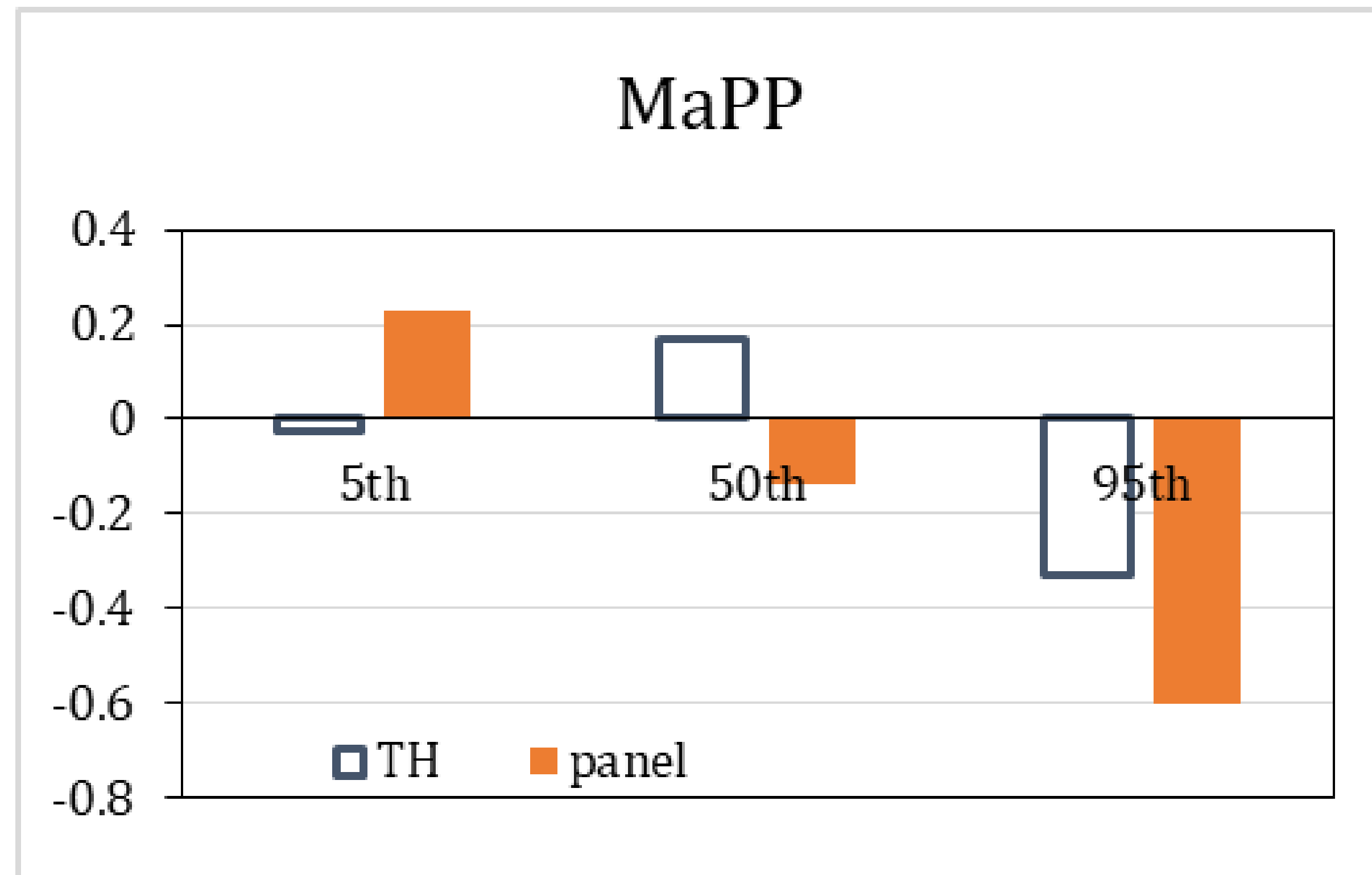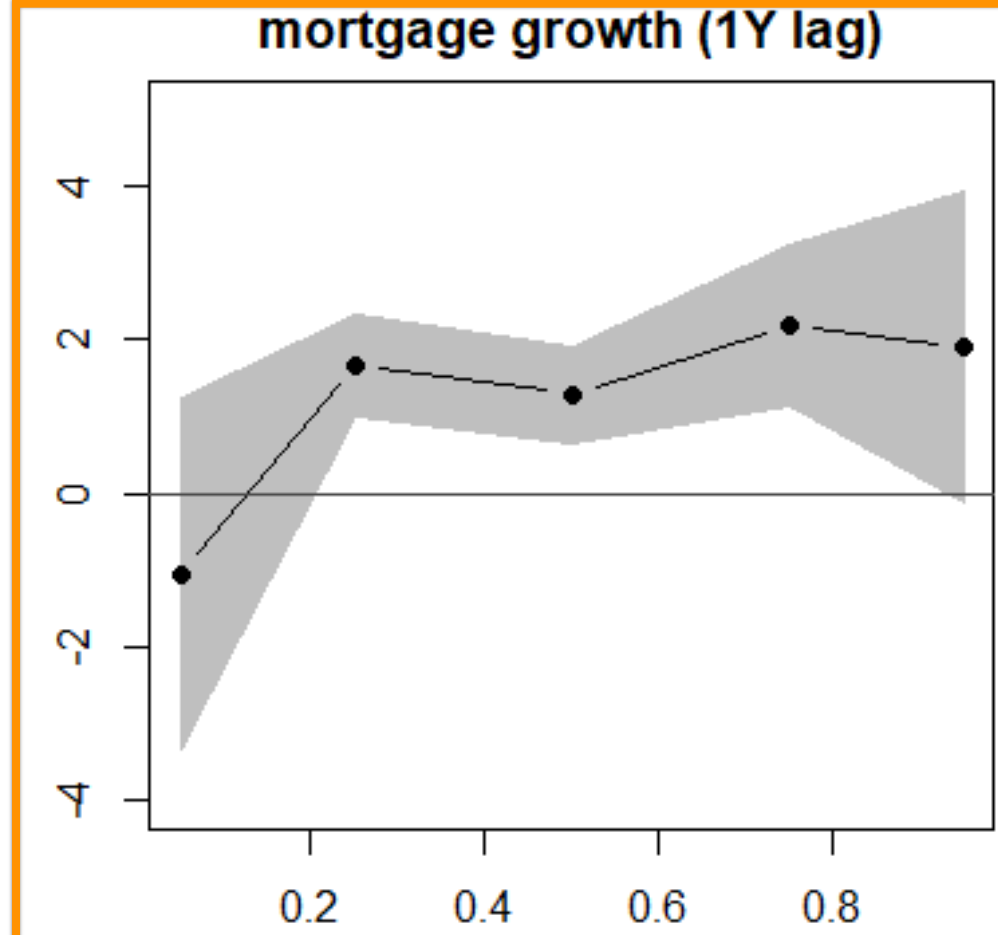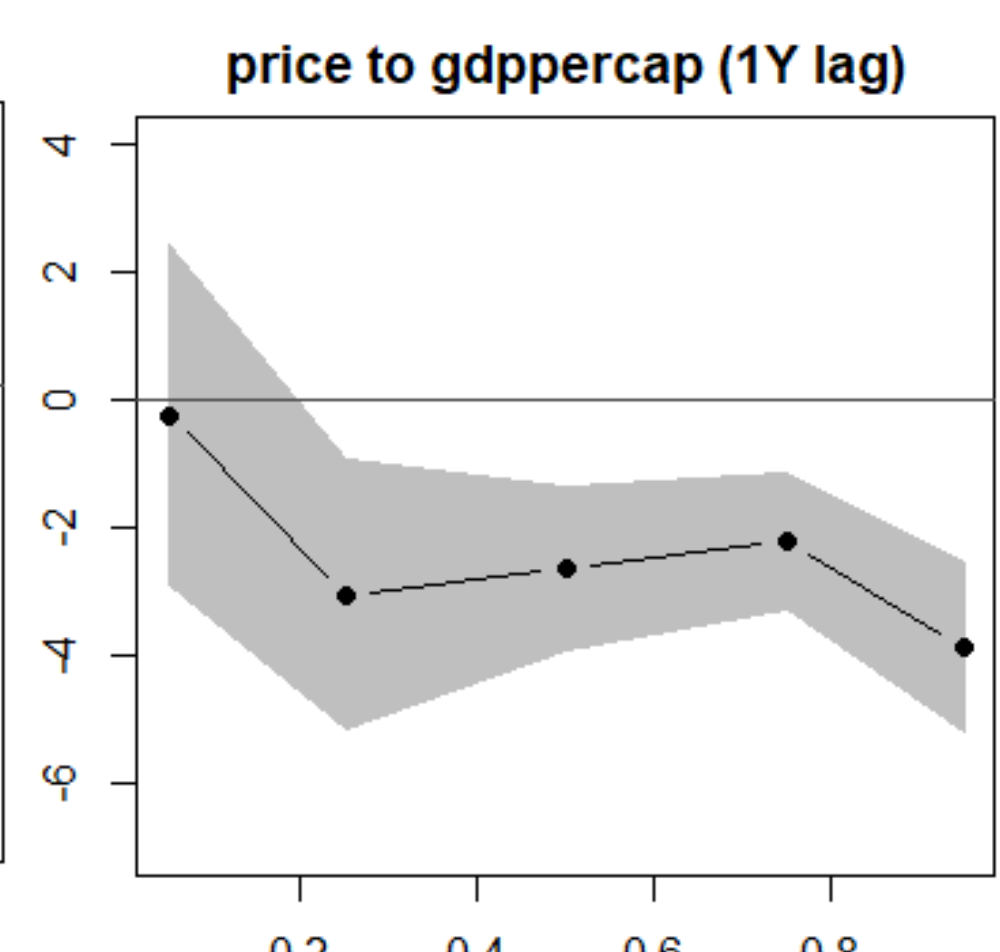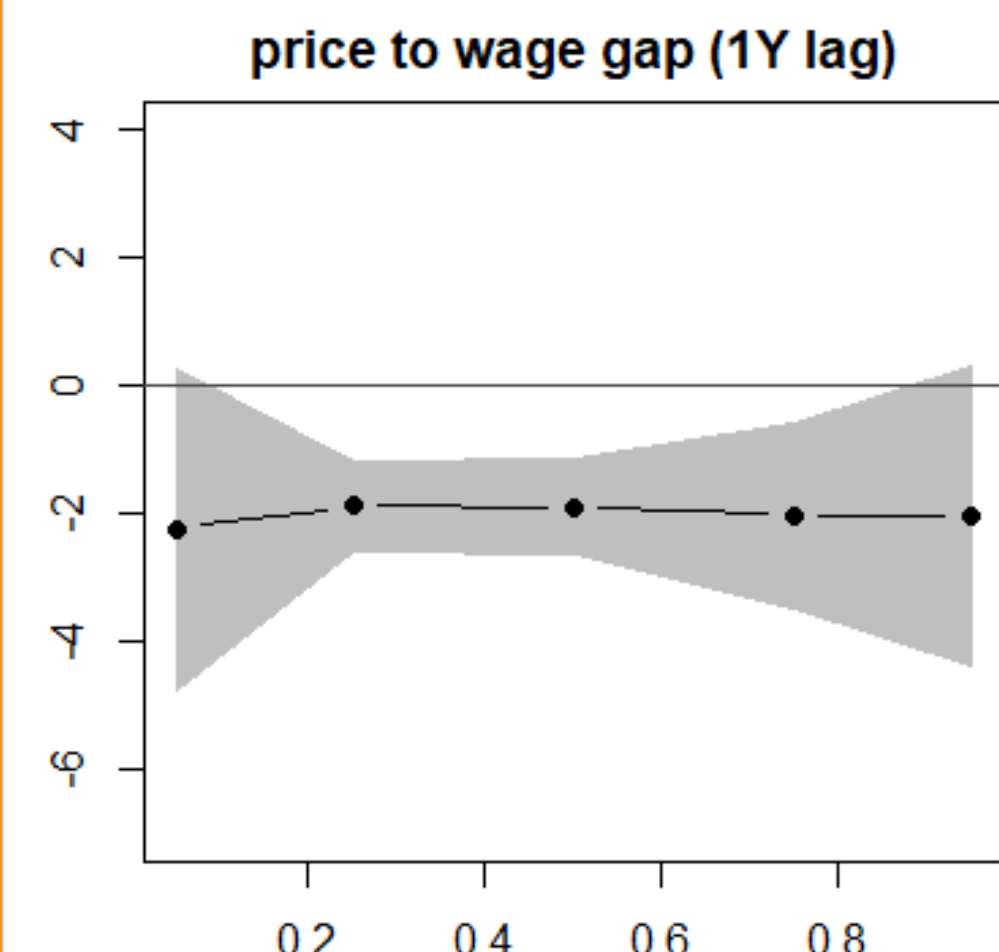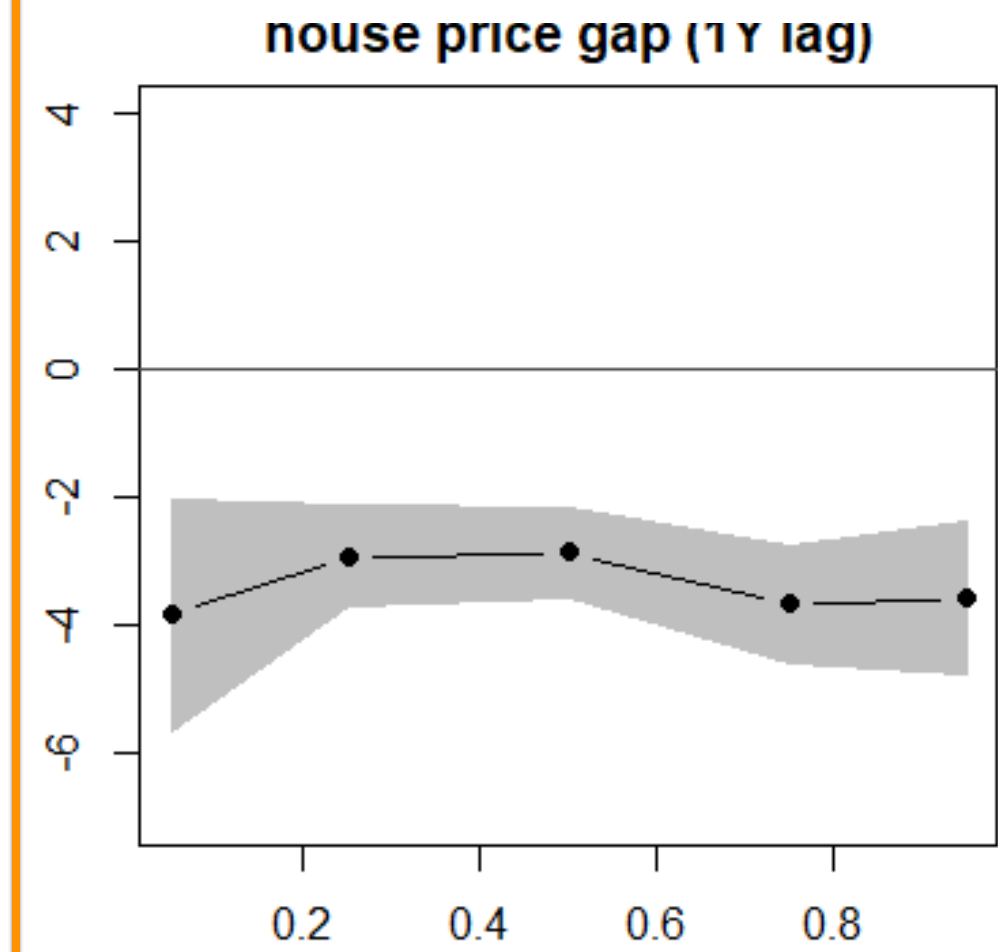

solid block = significantly different from zero at the 0.1 level
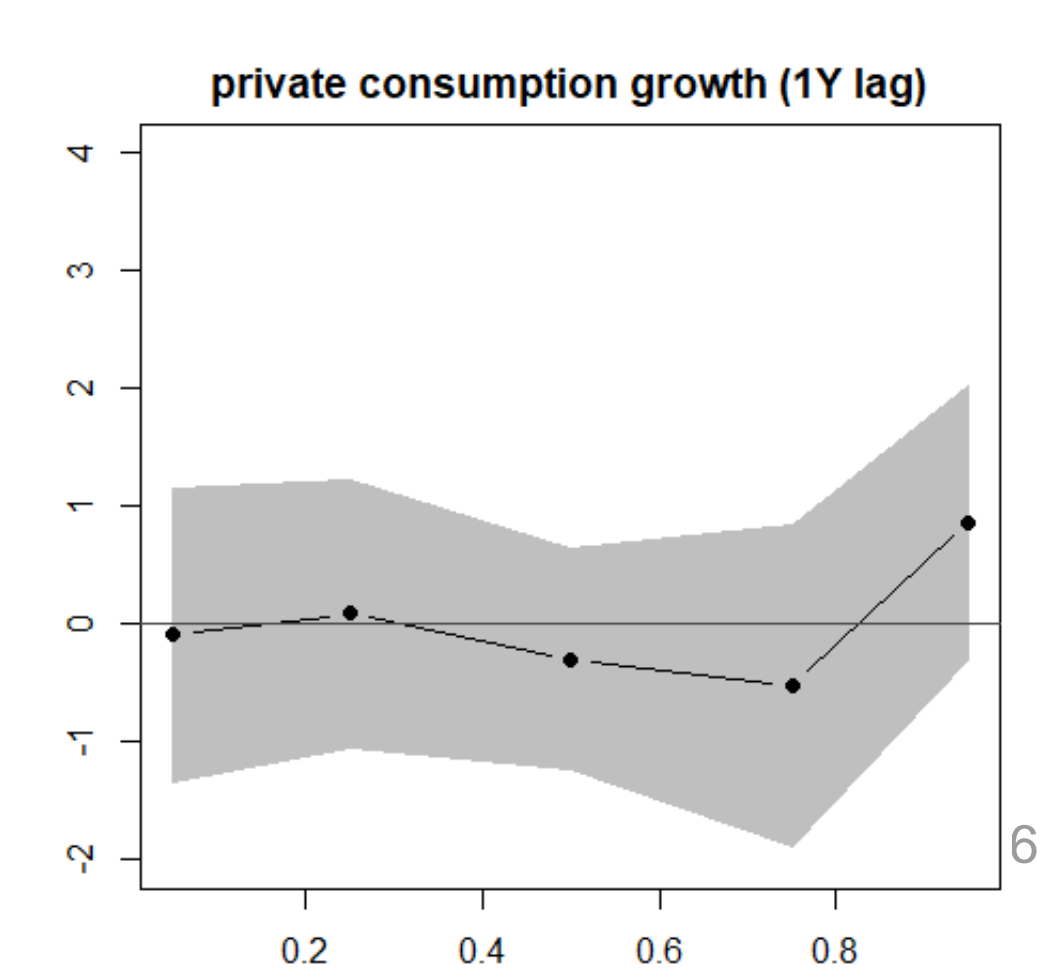
Alternative variables
Robustness check I

credit boom · misalignment · Income development

mortgage growth (1Y lag) · credit to gdp gap (1Y lag) · house price gap (1Y lag) · price to wage gap (1Y lag) · price to gdppercap (1Y lag) · gdp growth (1Y lag) · wage growth (1Y lag) · GNP growth (1Y lag) · private consumption growth (1Y lag)
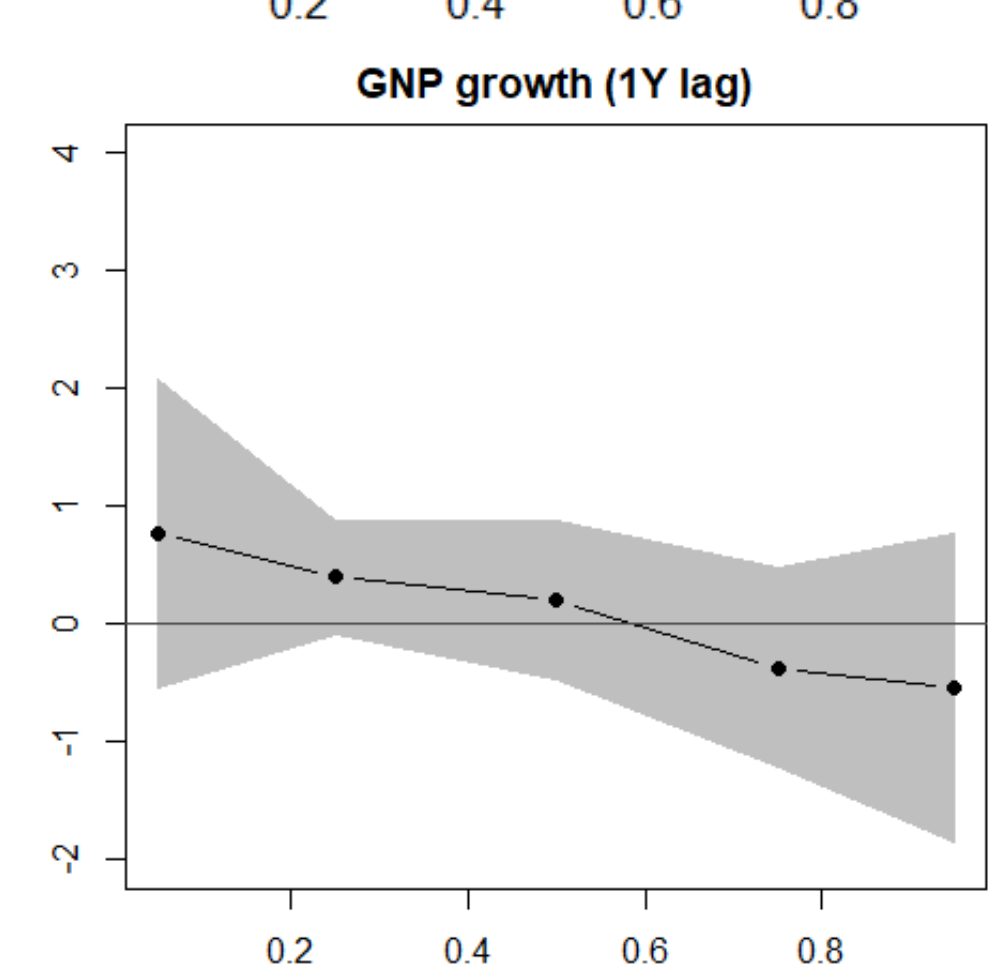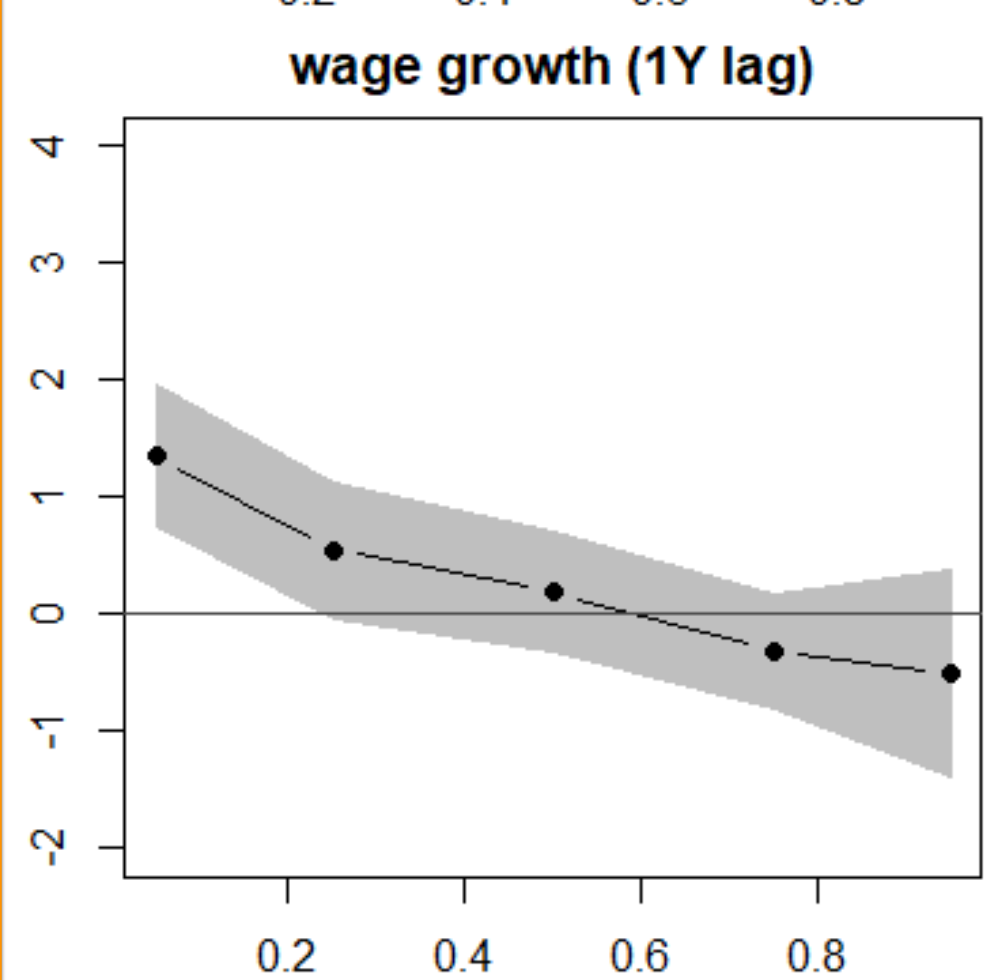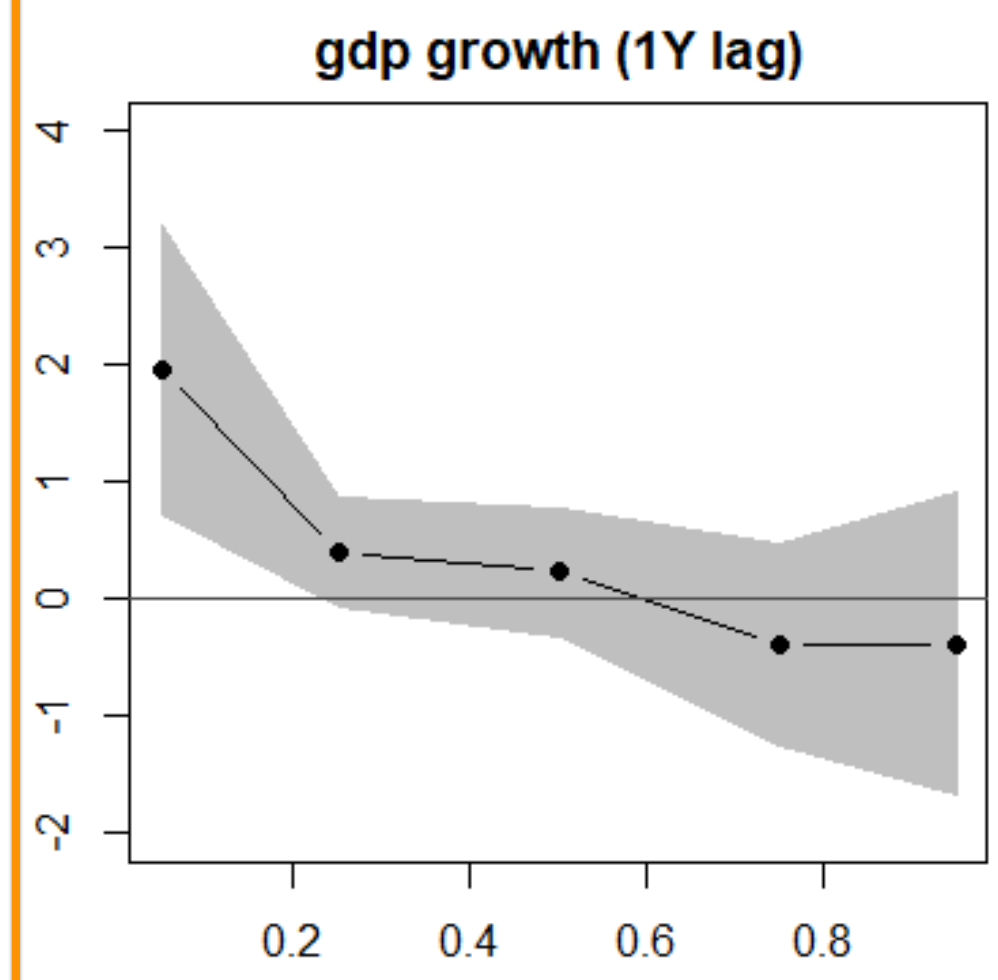
Panel data : 8 Asia pacific countries

Robustness check II
AU HK JP MY NZ SG KR TH

GDP growth
- 95th percentile fit
- 50th percentile fit
- 5th percentile fit

credit to gdp gap

house price to gdp percapita gap

MRR

GDP growth — TH, panel (5th, 50th, 95th)

Credit to GDP gap — TH, panel (5th, 50th, 95th)

House price gap — TH, panel (5th, 50th, 95th)
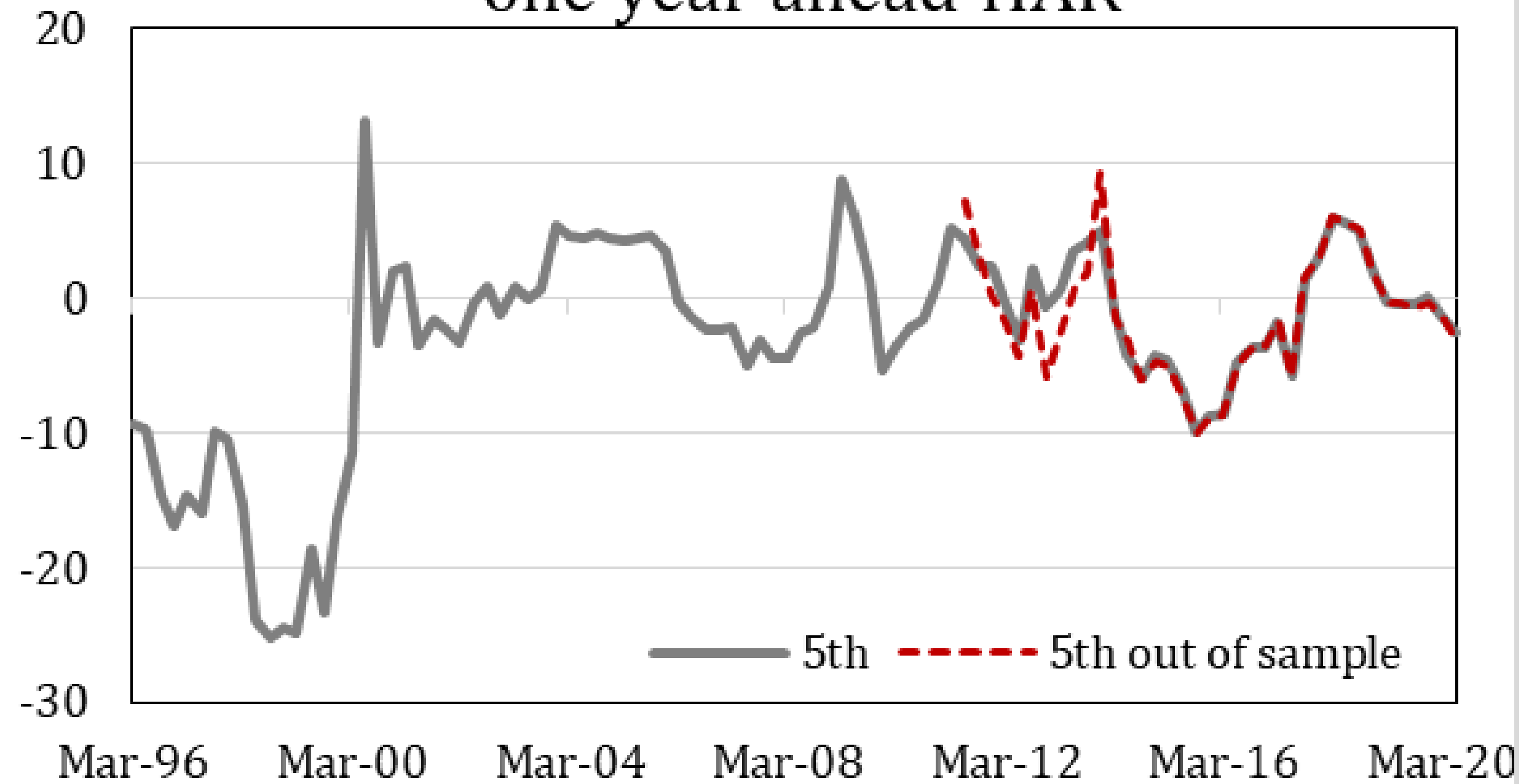
MRR — TH, panel (5th, 50th, 95th)
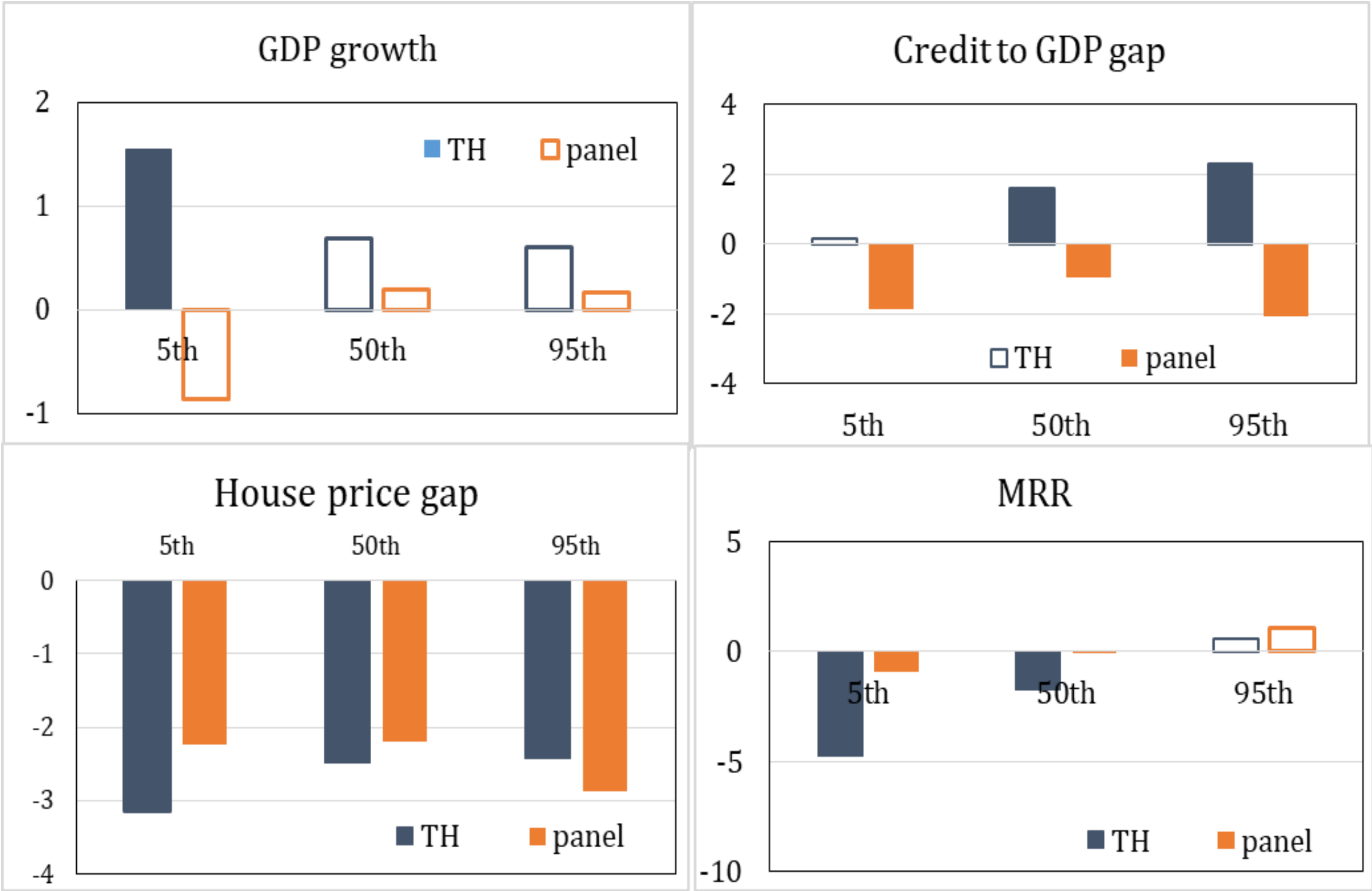
solid block = significantly different from zero at the 0.1 level

Out of sample model performance
Robustness check III

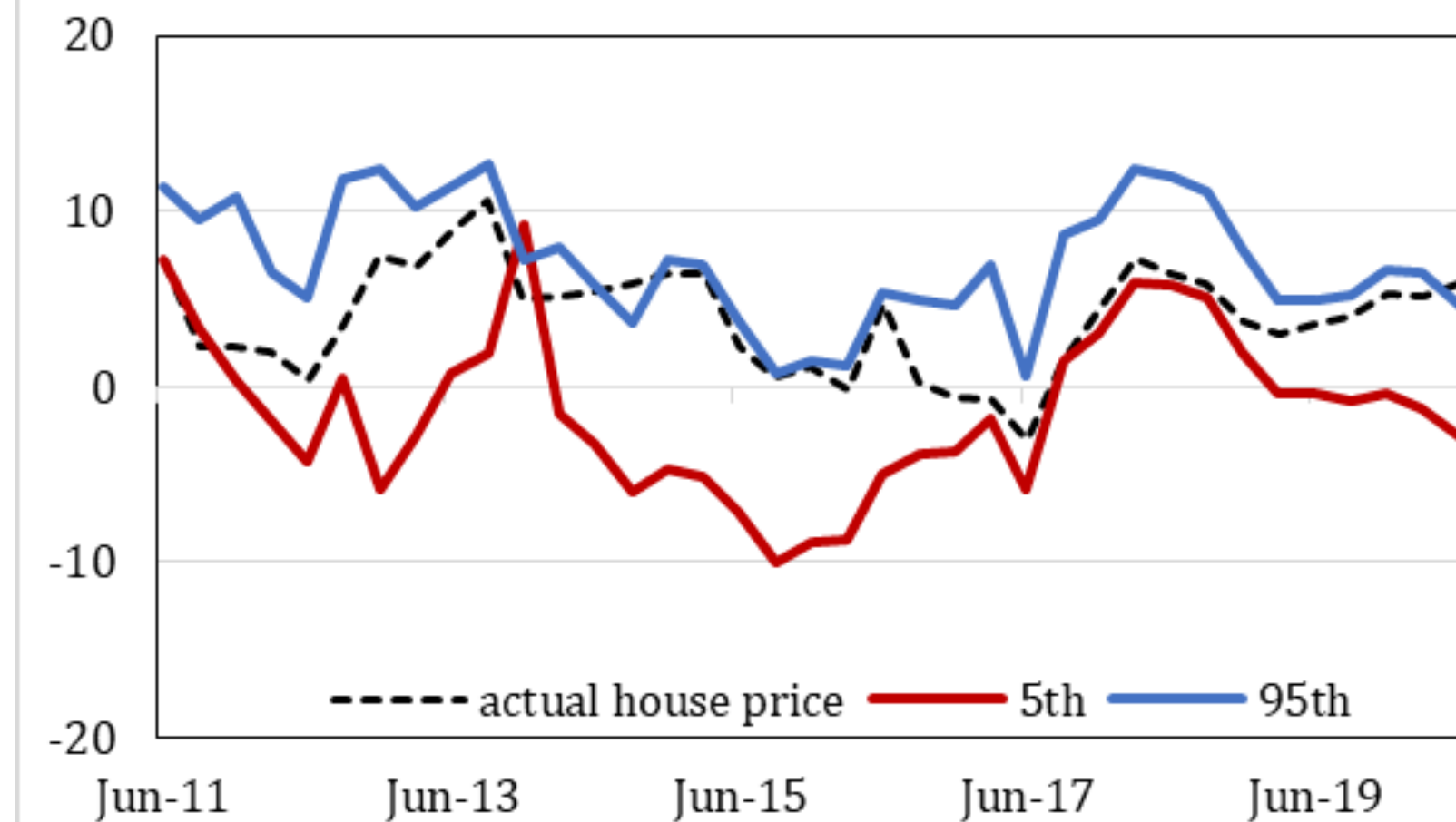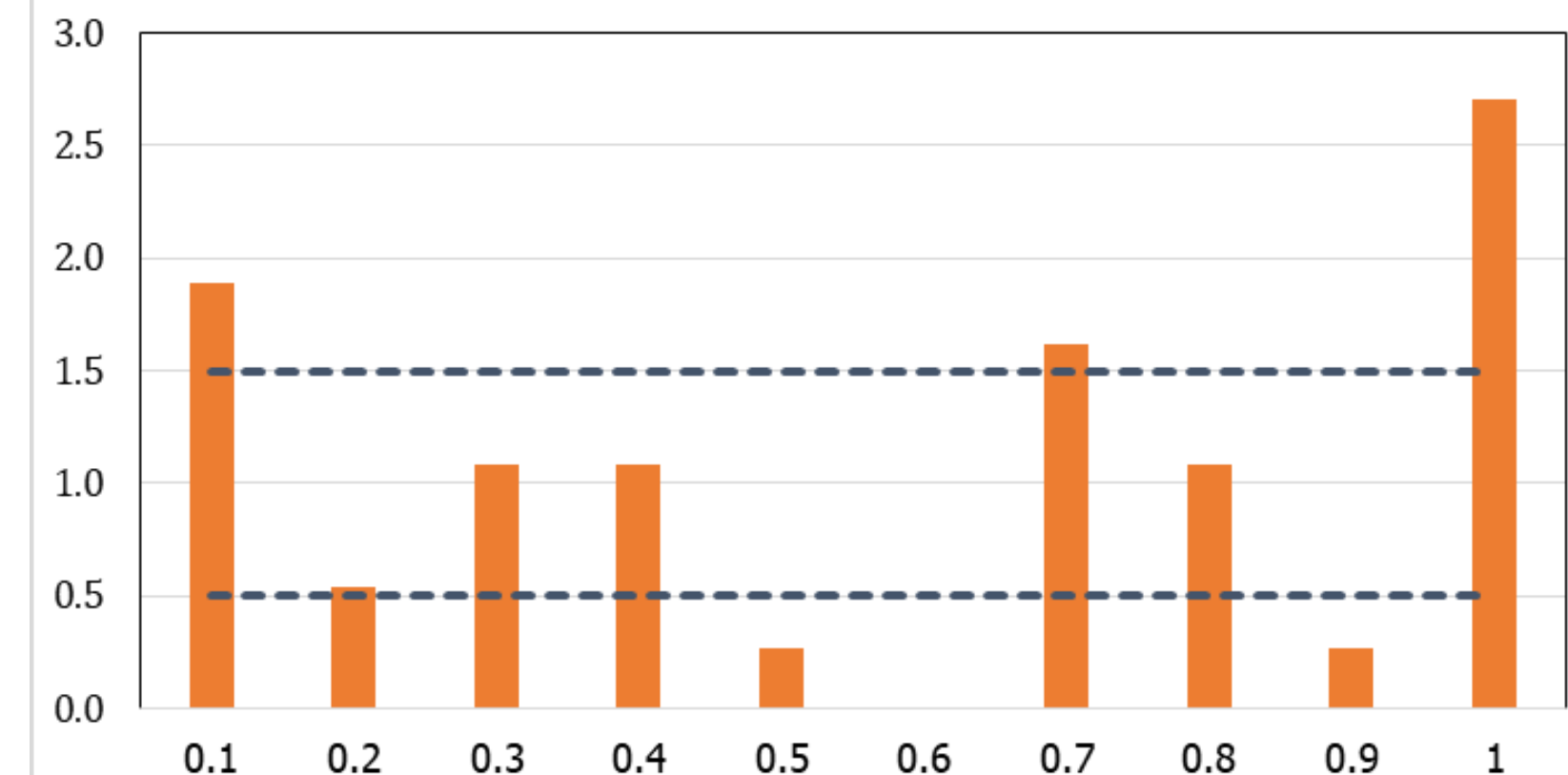## In and out-of-sample predictions for one year ahead HAR

Legend: —— 5th - - - 5th out of sample

out of sample prediction

Legend: - - - actual house price —— 5th —— 95th

PIT of house price estimated density

Quantile R-square
for 1Y ahead house price growth predictions **= 0.52**

Predictive distributions of house price risks

Conclusion
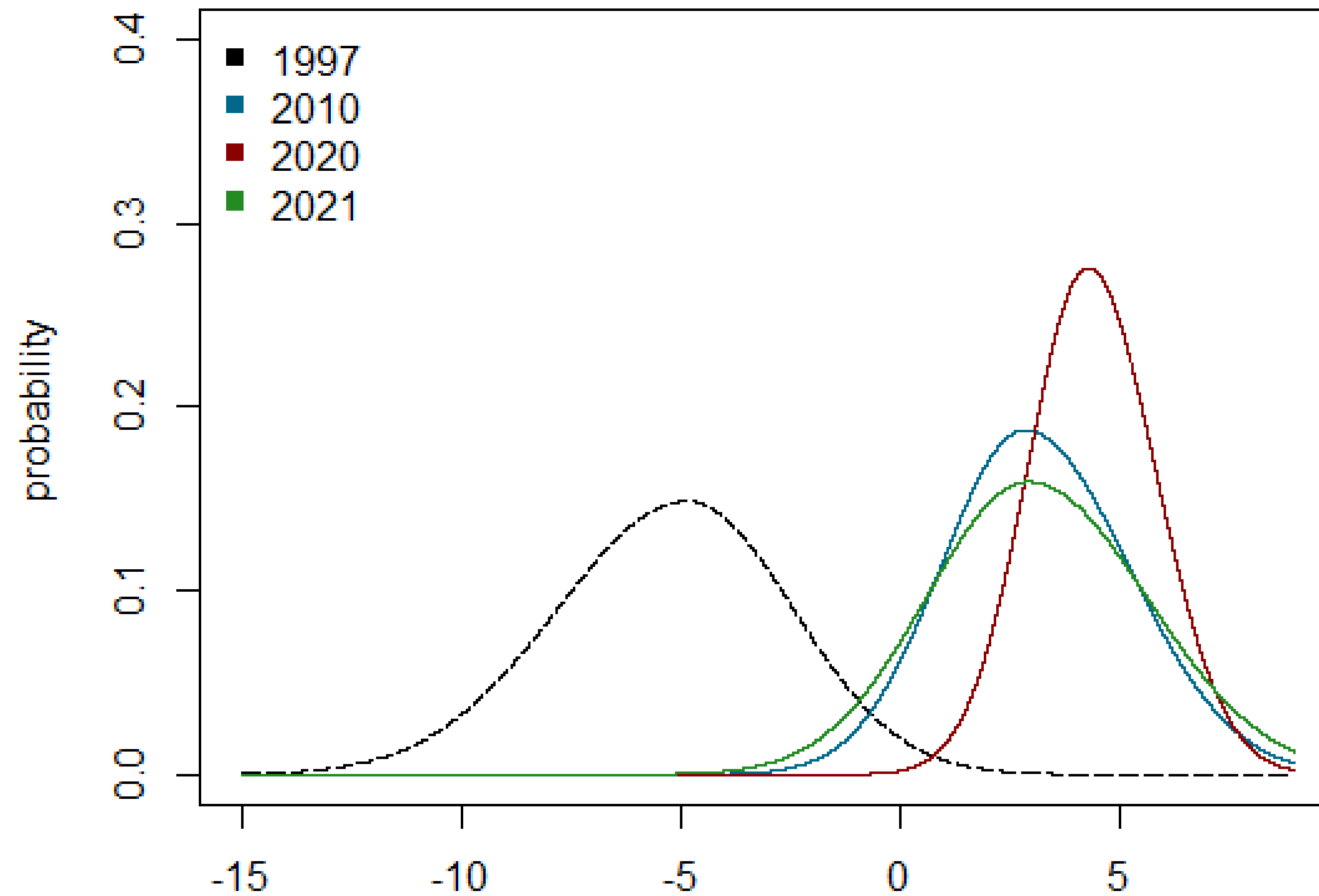
Asymmetric response

Current **income decrease**, **tighter financial conditions**, and **house price overvaluation** forecast higher the lower tail risk one year ahead, less response of the upper tail

Real time signal

Thailand House price at risk (2021 prediction) is relatively low (**higher risk**)

Policy

- **Tightening MaPP** reduces systemic risk across countries
- **Easing financial conditions** (monetary policy) lowers 1 year ahead house price at lower tail risk