



EUROPEAN CENTRAL BANK

EUROSYSTEM

Mortgage supply and house prices: a BVAR analysis for the Euro area

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Recent trends in the real estate market and its analysis

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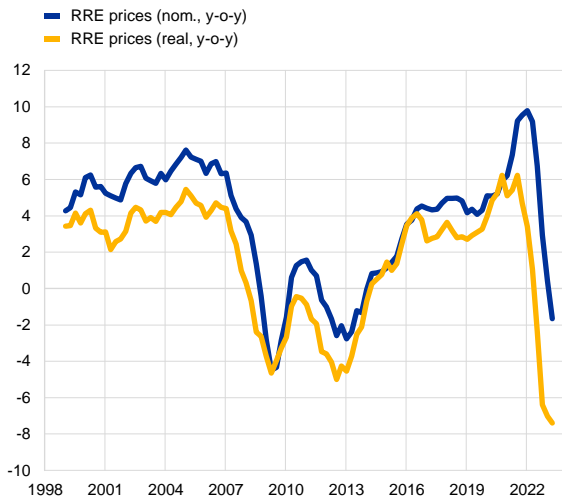
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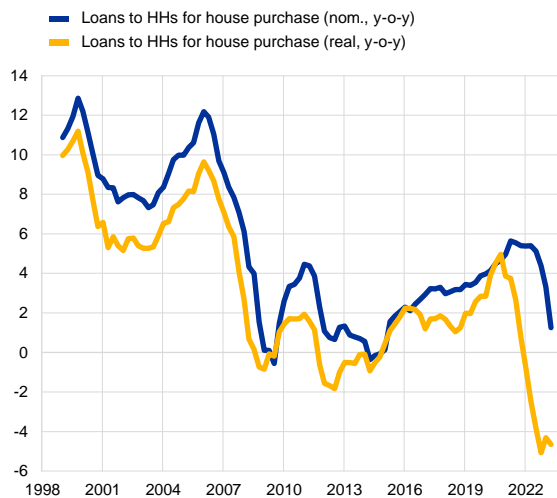
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Residential real estate markets in the euro area...

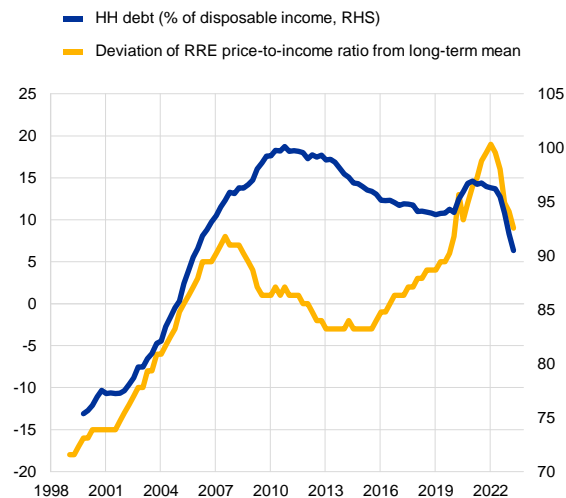
Euro area RRE prices (annual growth, percentage)



Euro area loans for house purchase (percentage)



Euro area HH debt and RRE price-to-income ratio (percentage)



Sources: ECB data, authors' calculation.

Note: Last observation: 2023 Q2 (2023 Q3 for loans). Nominal variables are deflated by HICP to obtain real values.

Motivation of the study

- What is the impact of monetary policy and of mortgage supply on housing markets?
- Is there feedback loop between mortgage lending and housing markets?
- Which are the shocks that can cause imbalances in housing markets?
- Which were the drivers of housing markets during the boom and during the downturn?
- What are the implications for monetary policy, financial stability and macroprudential policy?

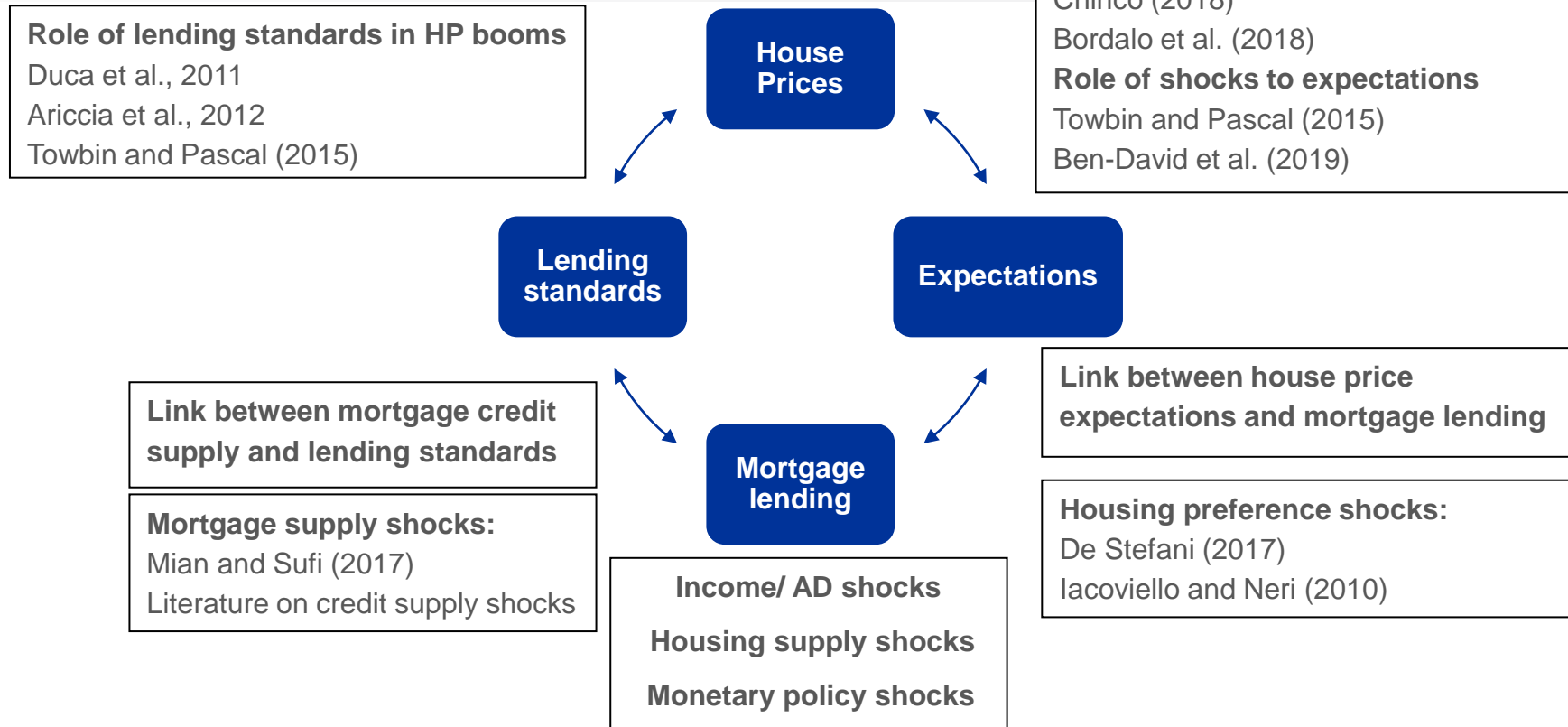
What we do in this study

- Bayesian VAR to assess the impact of shocks and the drivers of residential real estate markets in the euro area
 - We identify **simultaneously** a set of structural shocks relevant for policy making (monetary policy, demand, mortgage supply, housing supply)
 - **Two demand shocks** one related to household income; one related to preferences
 - We measure the **feedback loop** between house prices and mortgage lending
 - **Implications for financial stability** of the different shocks : analysis of dynamic responses of **house valuations** and **household debt ratios**
 - **Historical decomposition to assess the drivers** of housing price growth
- We discuss implications for macroprudential policy

Preview of the results of the study

- Feedback loop between RRE prices and mortgage lending
- Mortgage supply, housing supply and monetary policy shocks tend to increase fragilities in housing markets;
 - Overvaluation and household debt ratios increase over time in response to monetary policy, mortgage supply and housing supply shocks
- Monetary policy and mortgage supply shocks important drivers of housing markets both during the boom and in the downturn
- Results support active role of macroprudential policy to increase resilience when monetary policy is accommodative
 - Possible role for macroprudential policy in reducing the build-up of imbalances

Link between house prices and lending



Relevant literature

➤ House prices and monetary policy

- Jarocinski and Smets (2008), Musso et al (2011), Calza et al. (2013), Nocera and Roma (2017), Koeniger et al (2022), Gorea et al (2022)

➤ Role of credit supply

- Busch et al (2010), Eicmeier and Ng (2015), Helbling et al. (2011), Musso et al (2011), Meeks (2012), Gambetti and Musso (2012), Hristov et al. (2012), Fornari and Stracca (2012), Peersman and Wagner (2014)

➤ Role of housing demand

- Giuliadori (2005), Jarocinski and Smets (2008), Nocera and Roma (2017)

➤ Housing preference shocks

- Iacoviello and Neri (2010), De Stefani (2017)

➤ Housing supply

- Jarocinski and Smets (2008), Towbin and Weber 2015

Most of the papers focus only on selected shocks and do not attempt to provide more comprehensive decomposition of house prices (incl. in y-o-y terms)

Empirical approach - Housing BVAR model

• Model

- Bayesian VAR for the Euro Area aggregate
- 2 lags (Normal-Wishart prior, optimized hyperparameters)
- sample 2000 Q1 – 2021 Q3,
- log-levels (except interest rates)

• Endogenous Variables

1. Real RRE prices
2. Real lending for house purchase
3. Lending rate on new loans for house purchase
4. Shadow rate (average of Wu and Krippner estimates*)
5. Real residential investment
6. Real disposable income



Derived RRE vulnerability indicators

Price-to-income ratio

Debt-to-income ratio

Empirical approach - Housing BVAR model

Identification of structural shocks

	Housing Supply shock	Housing Preference shock	Income shock	Mortgage Supply shock	Monetary Policy shock
Residential Investment	-	0		0	0
RRE Prices	+	+		+	+
Mortgage Loans		+		+	+
Lending Rate		+		-	-
Shadow rate	0	0	0	0	-
Disposable Income	0	0	+	0	0

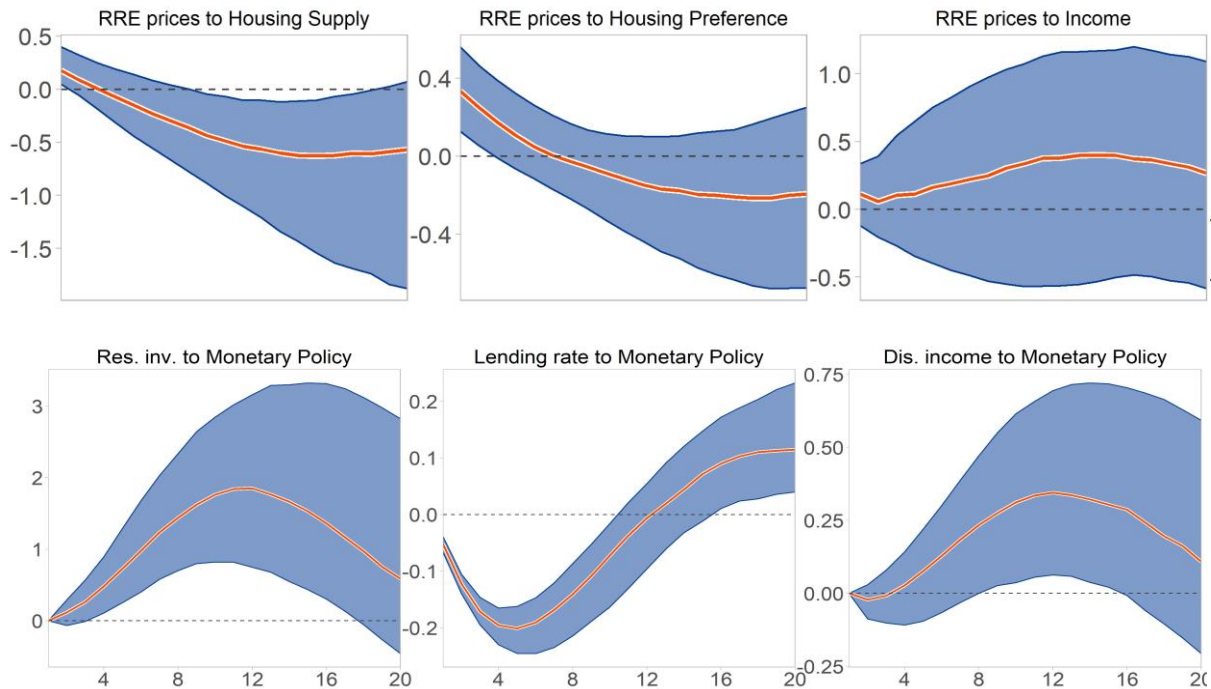
Notes: Shocks are imposed only on the impact period.

Housing preference shock: it captures increased preference to hold residential real estate assets

Mortgage supply shock: it captures easing conditions on mortgage loans (not driven by monetary policy)

Impulse response functions “make sense”

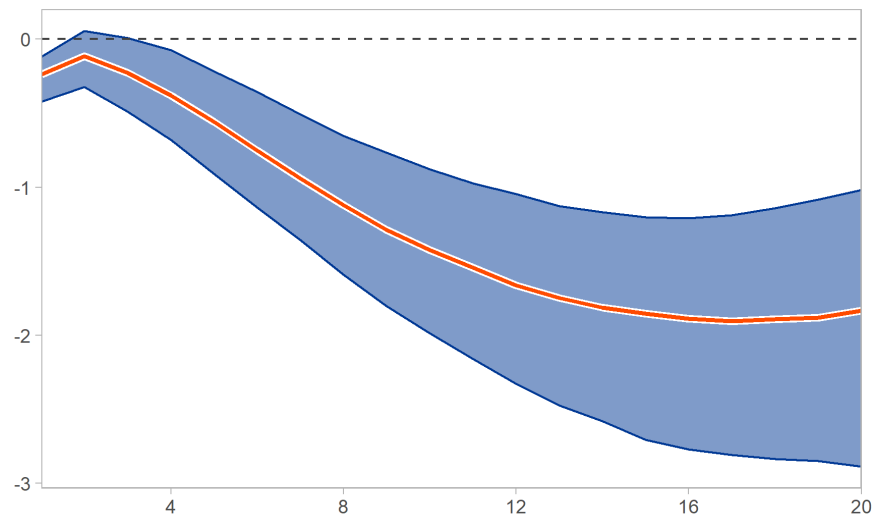
Selected impulse responses, 1std deviation shock
(Percent)



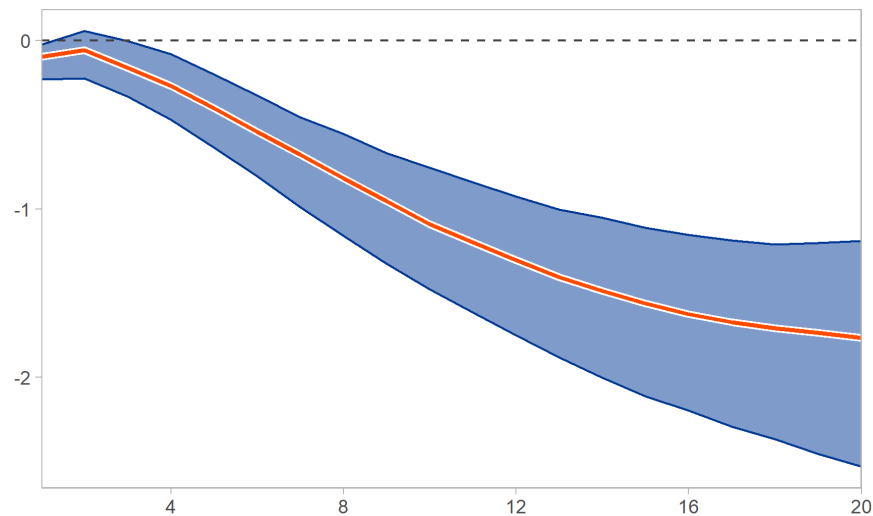
Effects of monetary policy on RRE prices and mortgage lending

- Responses of house prices and mortgage loans following the MP shock are persistent peaking after 4 years
- House prices decline and mortgage loans decline by almost 2% after 1 percentage point MP shock

Response of real RRE prices to 1pp MP shock
(Percentage)



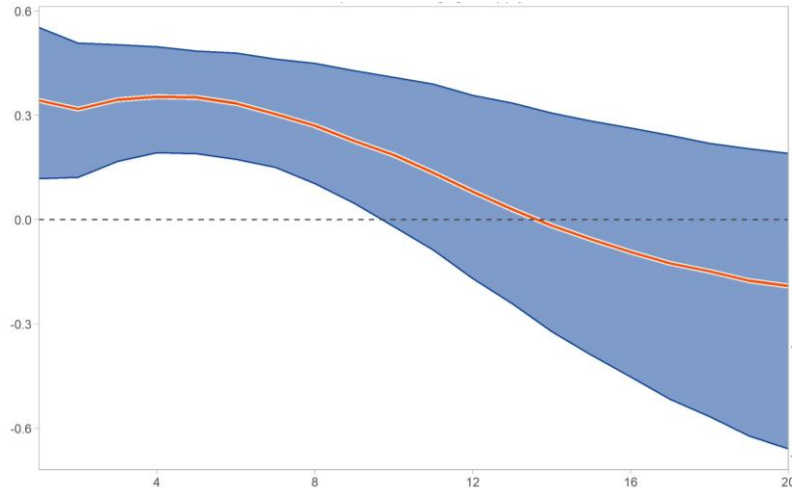
Response of real housing loans to 1pp MP shock
(Percentage)



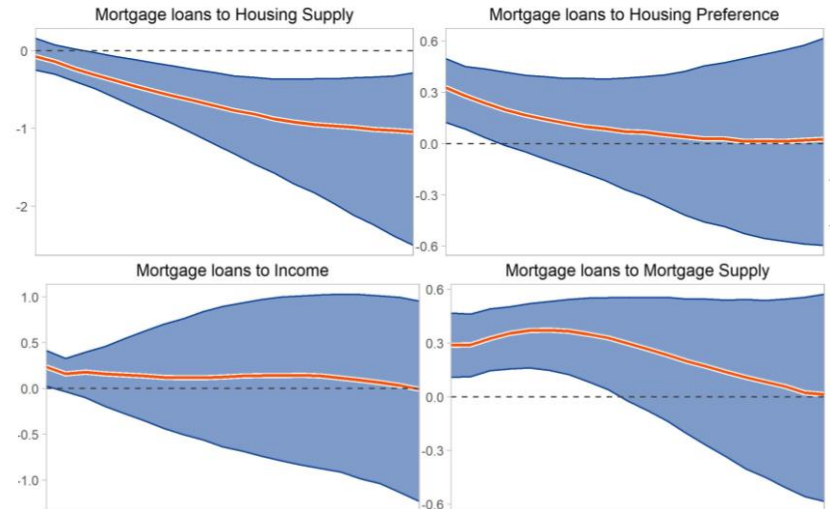
Evidence of feedback loops between RRE prices and mortgage lending

- RRE prices respond positively to a mortgage supply shock
- Mortgage lending always move in the direction of house prices

Response of real RRE prices mortgage supply shock (1 std deviation)
(Percentage)

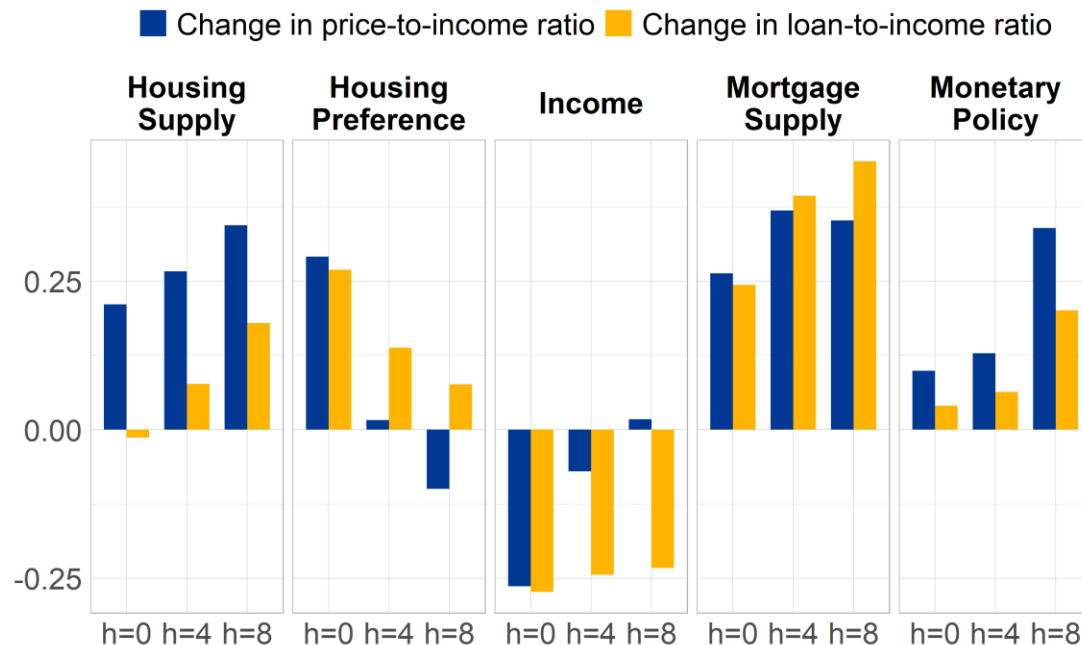


Response of mortgage loans to a non-monetary shocks (1 std deviation)
(Percentage)



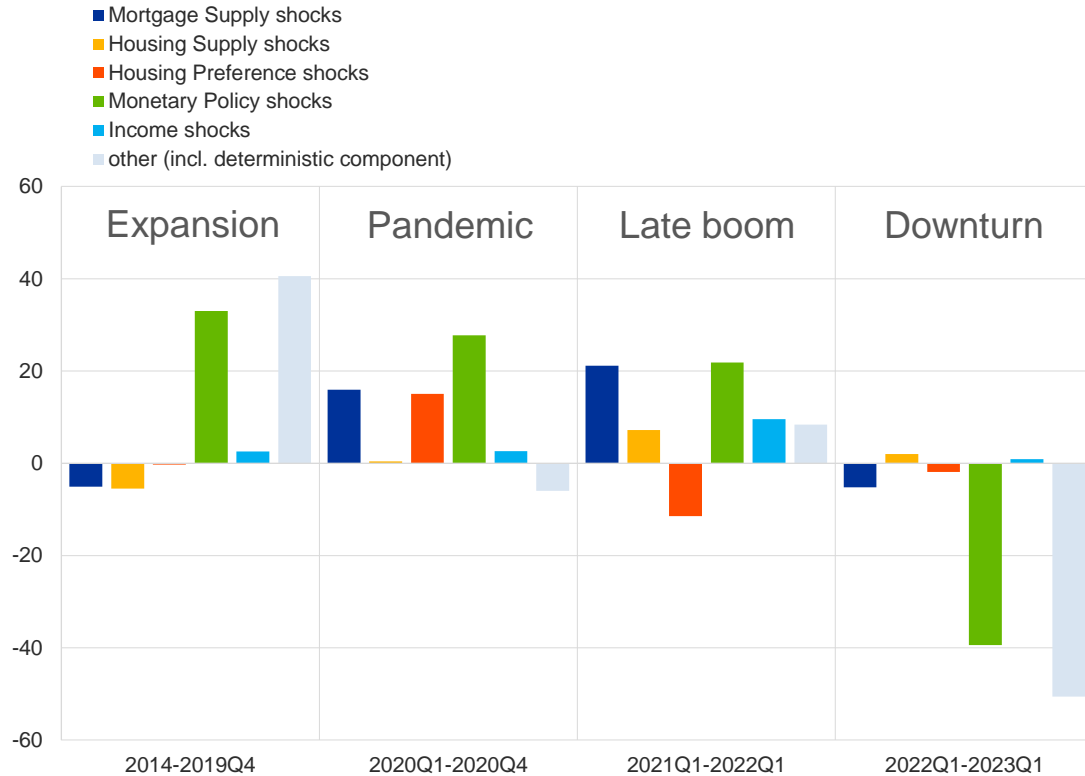
Implied responses of vulnerability indicators

- Housing supply, mortgage supply and monetary policy tend to **increase vulnerability indicators** over time
- Relatively fast transmission of mortgage supply shocks and strongest effect on debt ratios
- **Almost neutral effects** of housing preference shocks; **beneficial effects** of income shocks



Drivers of residential real estate prices

Historical decomposition of real RRE price growth over time



Macroprudential policy implications

- Accommodative monetary policy, mortgage supply shocks and housing supply shocks tend to increase vulnerabilities in housing market
 - Tighten macroprudential policy in response to these shocks to increase resilience (capital measures)
 - By affecting the mortgage supply, macroprudential policy can potentially reduce the accumulation of vulnerabilities in housing markets
- Negative mortgage supply shocks possible signal for softer stance of macroprudential policy (e.g. capital releases)
- No specific response of macroprudential policy to other shocks

Possible extensions of the model

- Is there a link between the mortgage supply shocks and bank lending standards?
- Are macroprudential measures correlated with the mortgage supply shocks?
- Panel version of the model (EA countries)

Conclusions

- Evident feedback loop between RRE prices and mortgage lending
- Mortgage supply, housing supply and monetary policy shocks tend to increase fragilities in housing markets
- Monetary policy and mortgage supply shocks important drivers of housing markets both during the boom and in the current downturn
- Macroprudential policy should be used early in the housing market cycle to increase resilience
 - Model results suggestive of possible role for macroprudential policy in reducing the build-up of imbalances in housing markets