Institutional investors and house prices*

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All views are our own and do not necessarily represent those of the Central Bank of Ireland, the European Central Bank or the Eurosystem.

Research questions

- Does the growing role of institutional investors in euro area residential real estate (RRE) affect market dynamics?

- If so, how?

Transaction-level dataset:

Shows a steady increase in institutional investor purchases of euro area residential real estate assets since 2010

Aggregate euro area analysis

1) When institutional investor demand ↑, then house prices ↑ and mortgage growth ↑

2) When monetary policy rate ↑, then investor demand ↓

Regional analysis
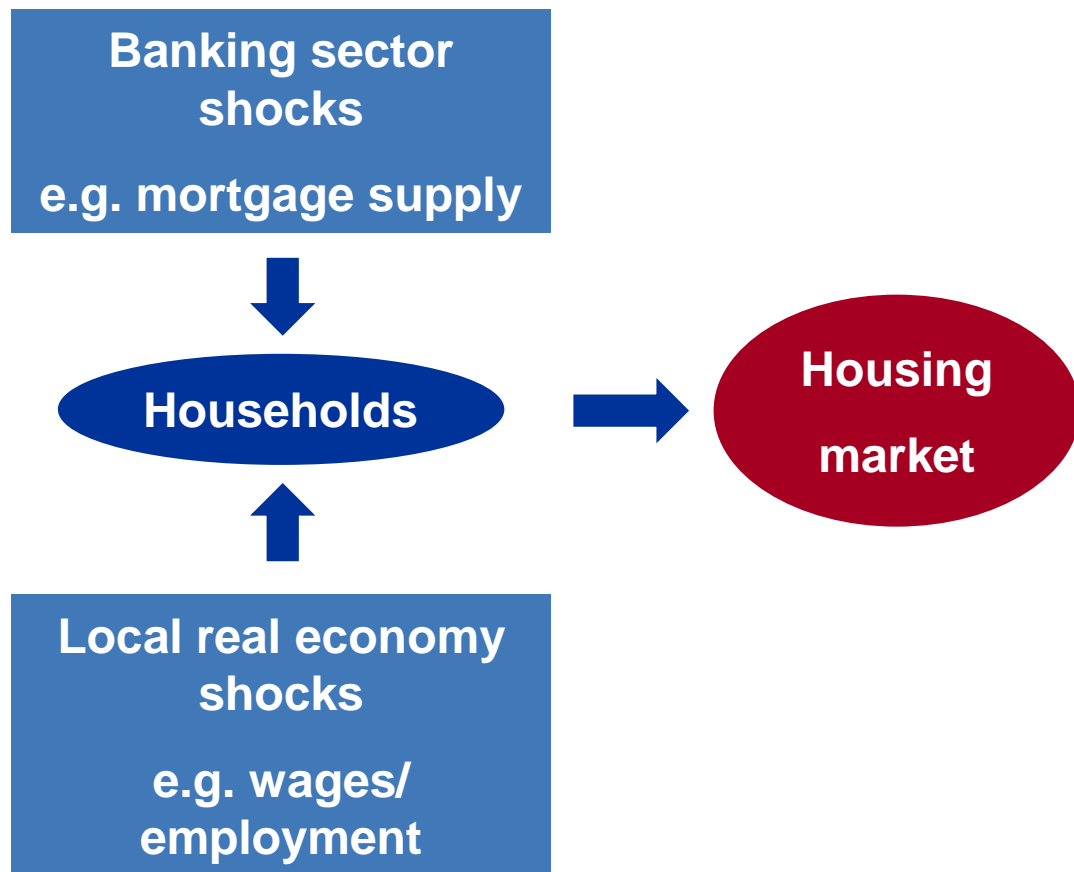
In regions with more institutional investors we find:

1) a weaker link between house price and local wage growth

2) a stronger impact of monetary policy on house prices

3) a link between global/ financial market shocks and house prices

Overview

1. **Motivation and literature**

2. Data set and descriptive statistics

3. Can institutional investors influence aggregate market dynamics? Euro area level analysis

4. Do institutional investors change the way RRE markets behave? Regional analysis
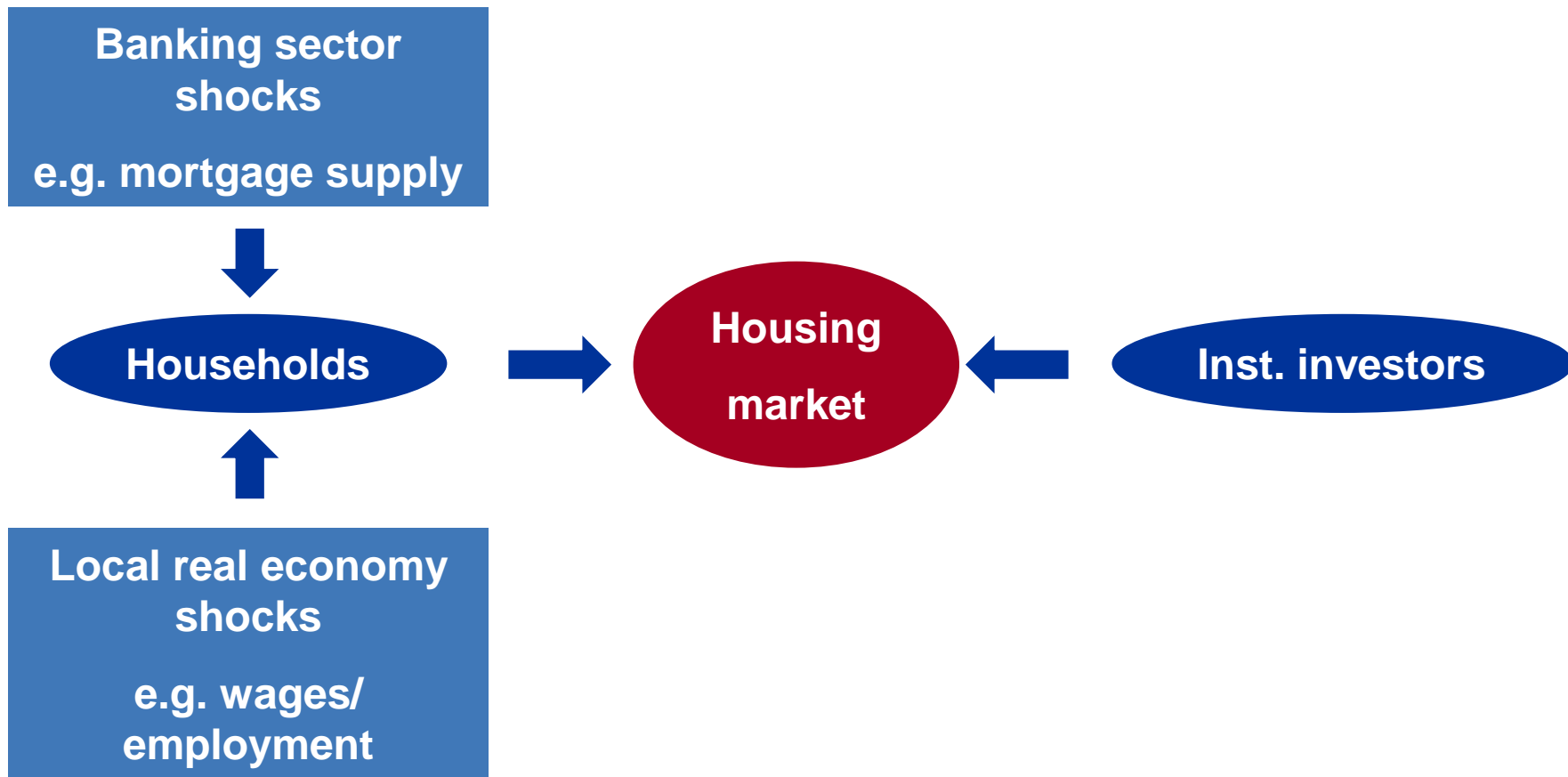
5. Conclusion

Motivation

- Analysis of residential real estate (RRE) markets typically focuses on households and banks which lend to them → limited understanding of the role of institutional investors

- Low for long monetary policy pushed investors into riskier asset classes – including real estate → could institutional investor demand have contributed to rising house price growth in recent years?

- This dynamic has reversed → might investor outflows amplify market correction? Or create spillovers for the banking sector?

- Amplified by investor risk-taking – e.g. leverage and liquidity mismatch → (systemic) financial stability concerns (e.g. real estate fund fire sales, major landlords selling assets)?

Banking sector shocks

e.g. mortgage supply

Households

Housing market

Local real economy shocks

e.g. wages/ employment

Motivation

Banking sector shocks
e.g. mortgage supply

EA mon. pol?

Global shocks
e.g. US monetary policy

Households

Housing market

Inst. investors

Local real economy shocks
e.g. wages/ employment

EA mon. pol?

Financial market shocks
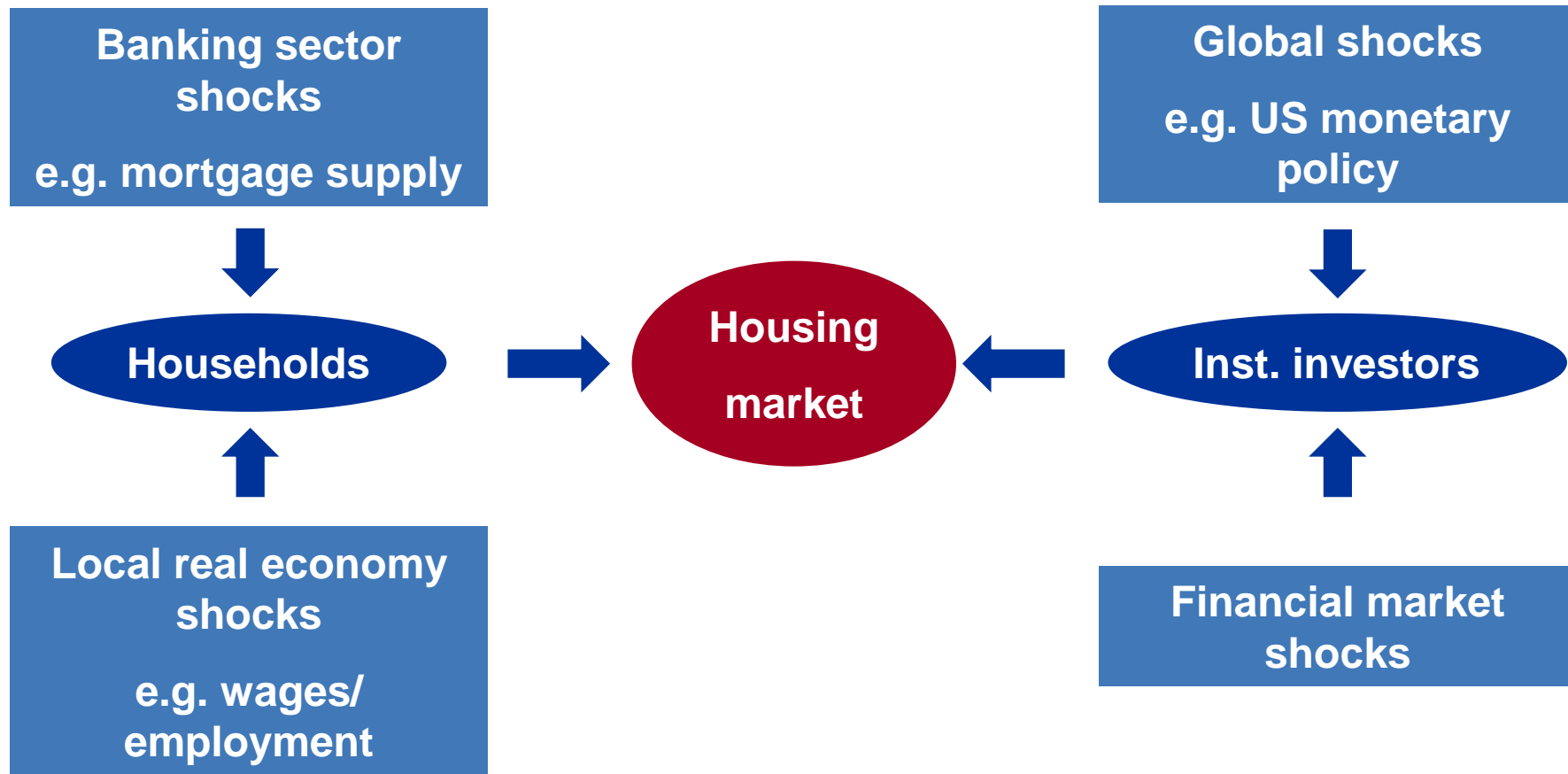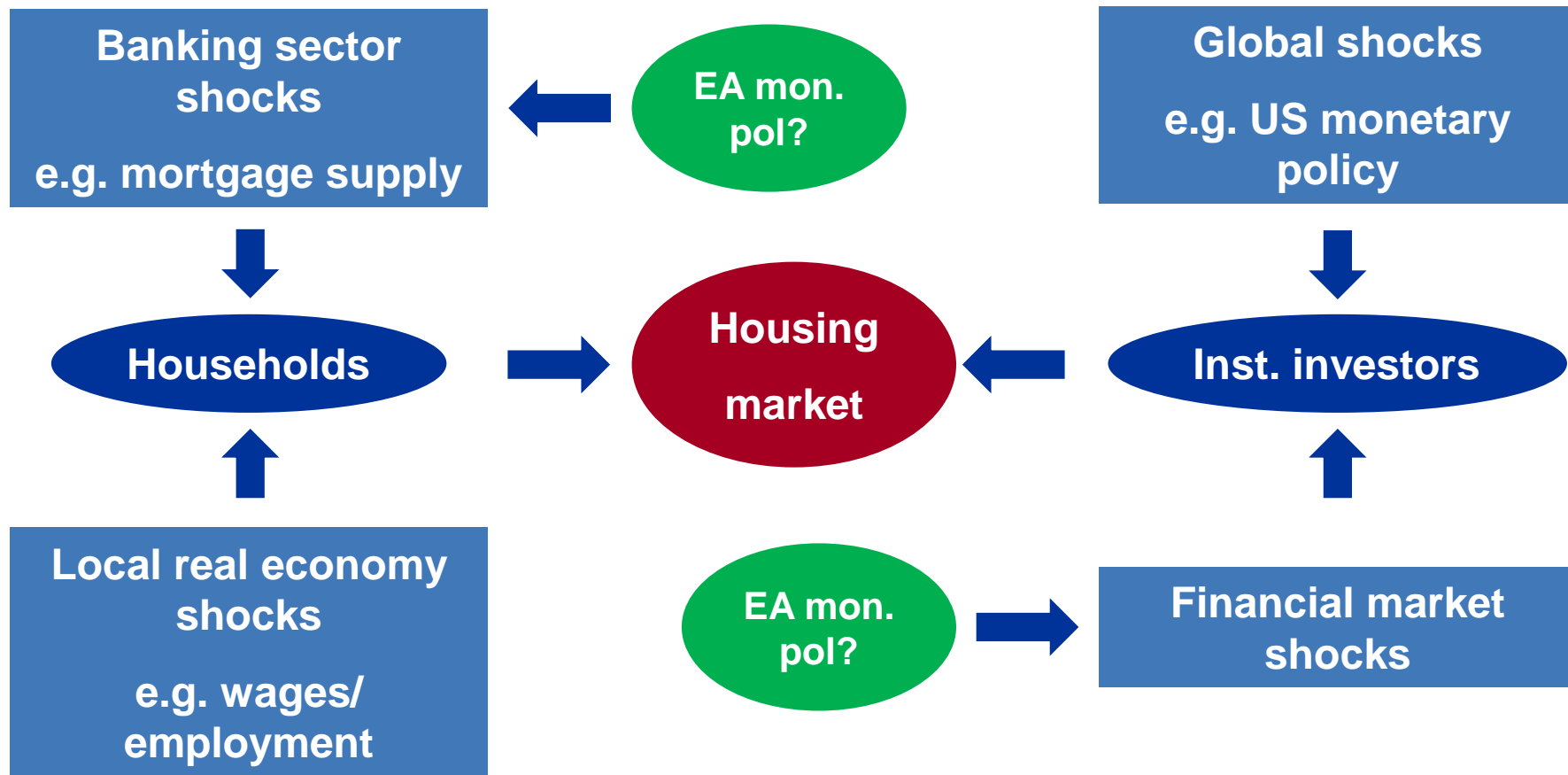
What can we learn from the literature?

The presence of institutional investors affects RRE market dynamics
– but the literature so far focuses on the US

- ➢ The presence of institutional investors in US housing markets is associated with increasing house prices and decreasing affordability and homeownership rates (US: Gay, 2015; Allen et al., 2017; Mills et al., 2019; Lambie-Hanson et al., 2019; Garriga et al., 2021).

- ➢ The growth of institutional real estate investments amplified the US real estate boom-bust cycle in the run-up to the global financial crisis (Alter and Dernaoui, 2020; Gao et al., 2020). One reason is that institutional investors have a stronger bargaining power and tend to purchase at a large discount compared to single-purchase buyers (Allen et al., 2017; Smith and Liu, 2020).

- ➢ Institutional investors' purchases can have also a spillover effect on nearby home values by reducing the supply of properties available for sale (Ganduri et al., 2023).

- ➢ The market entry of large institutional investors also predicts higher uncertainty and greater noise in real estate prices in the short and medium run (US, Cvijanovic, Milcheva and Van de Minne, 2021).

What can we learn from the literature?

Institutional investors' investments in RRE are linked to macroprudential and monetary policies

- The growth of institutional investors in RRE has been amplified by the tightening in lending standards in the aftermath of the GFC and by banking and macroprudential regulations (US, Gete and Reher, 2018; EA, Muñoz and Smets, 2022).

- This development can reduce the reliance of the housing market on bank funding, which is important in building broader and more integrated capital markets. At the same time, structural vulnerability in the fund sector, for example related to sudden outflows, can have adverse effects on local markets (Daly et al., 2023).

- The presence of institutional investors in the US is mainly related to search for yield (Garriga et al., 2021). In addition, loose monetary policy has been shown to lead to booms in real estate lending and house prices' bubbles in the US, especially in supply inelastic markets (Jordà et al., 2015; Aastveit et al., 2023).

- In the euro area, unconventional monetary policy has been a key driver of house prices since 2013, especially in regions with lower labour income and more widespread homeownership (Battistini et al., 2022).

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2. **Data set and descriptive statistics**

3. Can institutional investors influence aggregate market dynamics? BVAR analysis

4. Do institutional investors change the way RRE markets behave? Regional dynamic panel data analysis

5. Conclusion

Our transactions data set

- **RCA dataset**: provides transaction-level data on (euro area) commercial real estate markets

- This includes purchases of residential assets by non-households
  – e.g. companies, financial entities, governments, etc.

- Includes location of building, price, buyers, sellers, date of sale

- <u>Important caveat:</u> Dataset only provides a partial picture of all relevant transactions
    - Doesn't include purchases by households
      → can't calculate % of total purchases which are from institutional investors
    - Appears biased towards larger transactions
    - Data quality likely varies across countries

    But it's the only data we have ¯_(ツ)_/¯

    → so we approach total values with caution and focus on dynamics over time
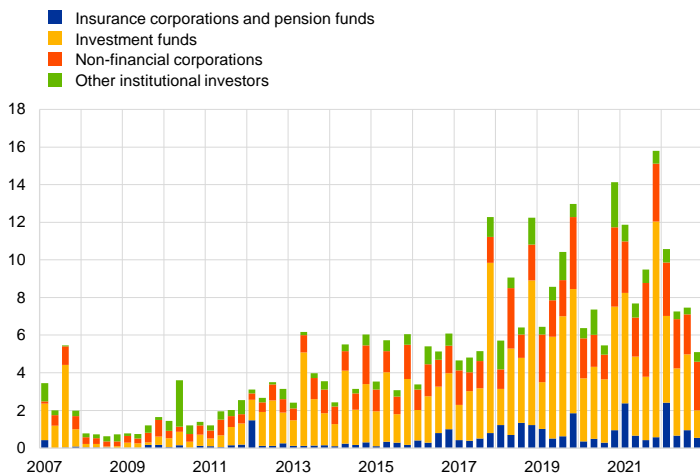
Key descriptive takeaways

- RCA data set provides transaction-level data on commercial real estate markets
- When RRE is bought by non-households it counts as CRE – think large housing complexes owned by companies or financial entities

Investment funds play an increasingly prominent role as buyers in EA RRE markets
Q1 2007 – Q4 2022
Quarterly transaction volume in bn EUR

Legend:
- Insurance corporations and pension funds
- Investment funds
- Non-financial corporations
- Other institutional investors

Where are buyers from?
Q1 2007 – Q4 2022
Quarterly transaction volume in bn EUR

Legend:
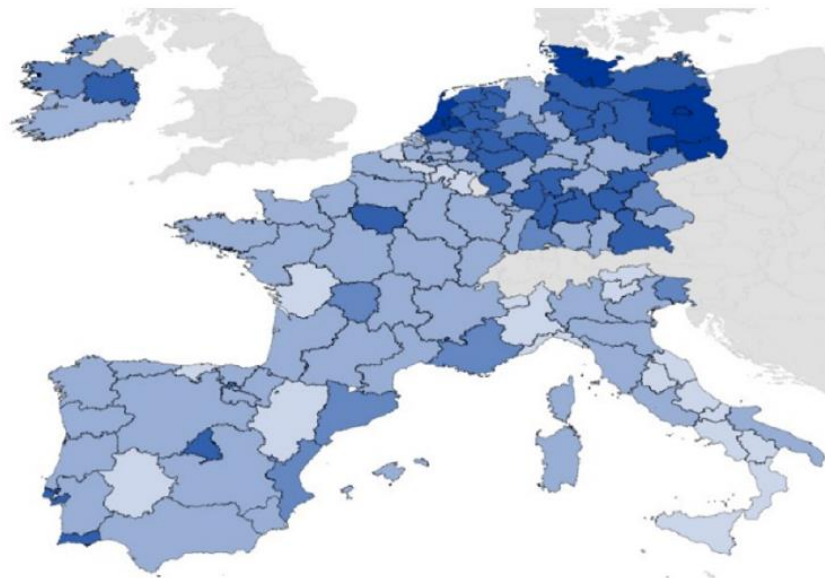- France
- Germany
- Netherlands
- Non-EA
- Other EA
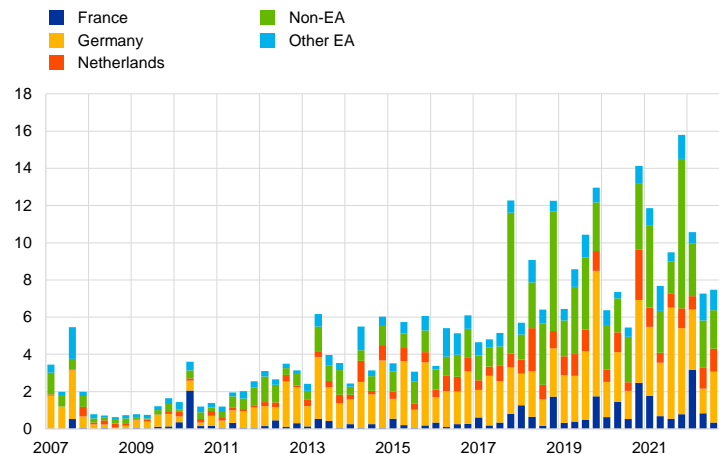
Source: RCA and ECB calculations.

Investor presence varies substantially across the euro area

Average investor participation rate by NUTS2 region
2007Q1-2021Q4, total transaction volume by institutional investors as a percentage of regional GDP

- ■ > 0.5
- ■ 0.1 - 0.5
- ■ 0.05 - 0.1
- ■ 0 - 0.05
- □ 0
- □ No data

Source: RCA, Eurostat, ECB calculations

Notes: Investor participation rate defined as total transaction volume by institutional investors in RRE divided by regional GDP. The chart shows data only for those regions where both transactions data and regional price data (taken from EDW) are available.

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3. **Can institutional investors influence aggregate market dynamics? VAR analysis**

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Empirical approach: Housing BVAR model* + inst. investor demand

- **Model:** Bayesian VAR, euro area aggregate, 2 lags (Normal-Wishart prior, optimized hyperparameters), sample 2007 Q1 – 2021 Q3, log-levels (except interest rates)

- **Endogenous Variables:**

  1. Real residential investment
  2. Real RRE prices
  3. Real lending for house purchase
  4. Lending rate on new loans for house purchase

  5. Shadow rate
  6. Real disposable income
  7. Institutional investor demand

- **Identification of structural shocks:**

	Housing Supply	Housing Preference	Income	Mortgage Supply	Monetary Policy	Institutional Investors
Residential Investments	-	+	*	0	0	+
RRE Prices	+	+	*	+	+	+
Mortgage loans	*	+	*	+	+	0
Lending rate	*	+	*	-	-	0
Shadow rate	0	0	0	0	-	0
Disposable income	0	0	+	0	0	0
Institutional Investors' purchases	*	*	*	*	*	+

Euro area analysis – results (I)

- **A demand shock from institutional investors** (i.e., 1SD unexpected increase in investors' gross purchases) leads to:

  - **Positive and persistent impact on RRE prices** (0.4 percent) and,

  - A positive, yet delayed, **impact on mortgage volumes** (0.2 percent)

➔ The price increase induced by institutional investor demand feeds through to banks' lending volumes via increased collateral values

➔ Potential for feedback loop dynamics: banks and non-banks are also indirectly linked via RRE markets
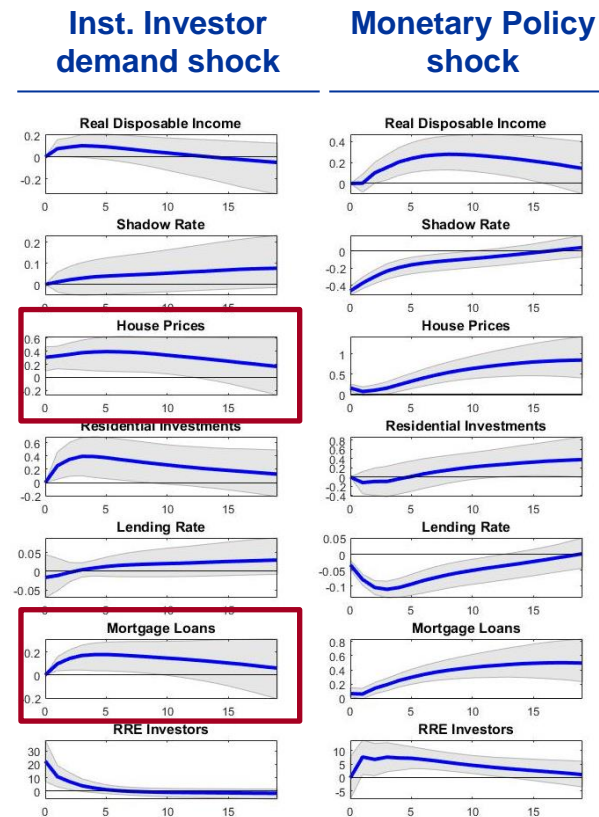
Euro area analysis – results (II)

- **An accommodative monetary policy shock** (i.e., 1SD unexpected decrease in MP short-term rate):

  - **Transmits to RRE** mainly through a **lower bank lending rate** and leads to a positive yet delayed response in house prices (standard literature).

  - **Positive impact on institutional investors' gross purchases**

➜ Evidence of institutional investors' search for yield in times of easing monetary policy

➜ **The presence of institutional investors tends to amplify residential real estate cycles and the impact of monetary policy surprises.**
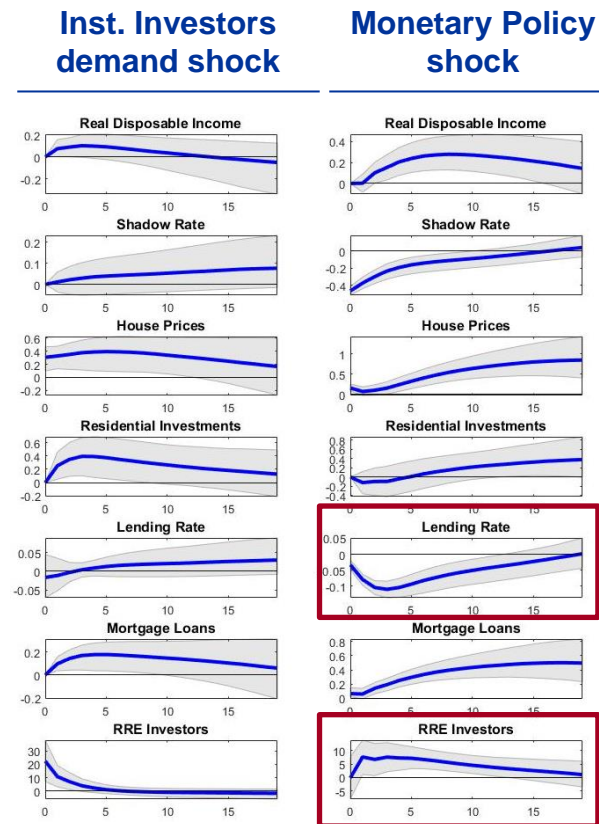
Inst. Investors demand shock — Monetary Policy shock

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Do markers with institutional investors behave differently?

Do markets with institutional investors behave differently?

1) Confirm EA results

$$\text{house price growth}_{i,t+4} = \alpha + \boldsymbol{\beta} * \text{investor demand}_{i,t} + X_{i,t} + \delta_j + \varepsilon_{it}$$

2) Does the presence of institutional investors affect market dynamics?

$$\text{house price growth}_{i,t+4} = \alpha + \boldsymbol{\beta} * \text{investors presence}_{i,t} * \text{macro}_{i,t} + $$
$$+ X_{i,t} + \delta_j + \varepsilon_{it}$$

$i =$ region

$t =$ time

$j =$ country (BE, DE, FR, PT, ES, NL, IE, IT)

δ_j : Country fixed effects – control for cross-country differences in regulation etc.

$X_{i,t}$: Time-region controls – current house price growth, GDP per capita, GDP growth, population growth.

OLS with clustered SE at the region level

"Investors demand": Total purchases by institutional investors, normalised by regional GDP, deviation from regional historical mean

"Investors presence": Total purchases plus total sales by institutional investors over previous 3 years, normalised by regional GDP;

"Macro": compensation of employees, EA shadow rate, US shadow rate, VSTOXX

$$house\ price\ growth_{i,t+4} = \alpha + \boldsymbol{\beta} investors\ demand_{i,t} + X_{i,t} + \delta_j + \varepsilon_{it}$$

VARIABLES	(1) No FE	(2) Country FE	(3) Region FE	(4) Region and Year FE Shadow rate
GDP per capita	0.000273***	6.51e-05	0.000595**	-0.000337
	(7.48e-05)	(5.33e-05)	(0.000257)	(0.000247)
House price growth	0.204***	0.0722**	0.0322	-0.0292
	(0.0350)	(0.0357)	(0.0356)	(0.0365)
GDP growth	0.109**	0.0425	0.0235	0.190***
	(0.0513)	(0.0556)	(0.0731)	(0.0577)
Population growth	-0.0329	0.855***	0.894**	0.839***
	(0.226)	(0.264)	(0.359)	(0.306)
Investor demand	1.091***	1.366**	0.934*	0.905**
	(0.415)	(0.559)	(0.504)	(0.402)
EA shadow rate				-0.412***
				(0.0881)
Constant	-1.401***	-0.358	-3.802**	3.667**
	(0.508)	(0.363)	(1.854)	(1.760)
Observations	6,476	6,476	6,476	6,476
R-squared	0.066	0.156	0.022	0.134
Country FE	NO	YES	NO	NO
Region FE	NO	NO	YES	YES
Year FE	NO	NO	NO	YES
Number of NUTS2			132	132

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: frequency is quarterly. Investor demand is winsorised, 5th percentile on the right tail of each NUTS2-level pooled distribution.

Do investors weaken the link between the real economy and house prices?

$$house\ price\ growth_{i,t+1} = \alpha + \boldsymbol{\beta} investor\ participation_{i,t} * comp.\ empl_{i,t} + X_{i,t} + \delta_j + \varepsilon_{it}$$

Yes, they do.

- Insulation of housing markets from local economic shocks.

- Higher likelihood of overvaluation of house prices and lower affordability (higher LTI).

- Higher vulnerability to sharp corrections in response to any turnaround in investor demand.

VARIABLES	(1) Compensation of employees No FE	(2) Compensation of employees Country FE
GDP per capita	5.72e-05***	1.44e-05
	(1.97e-05)	(1.49e-05)
House price growth	-0.0620	-0.194***
	(0.0498)	(0.0476)
GDP growth	-0.00193	0.000480
	(0.0113)	(0.00864)
Population growth	0.00987	0.812***
	(0.224)	(0.269)
Investors participation	11.06***	7.527**
	(3.728)	(3.740)
Compensation of employees growth	0.478***	0.316***
	(0.0664)	(0.0755)
Investor partic. # Comp. empl. growth	-1.464**	-1.081*
	(0.606)	(0.604)
Constant	-1.788***	-0.316
	(0.513)	(0.492)
Observations	1,544	1,544
R-squared	0.073	0.158
Country FE	NO	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: frequency is annual.

Do they change the link between EA monetary policy and house prices?

$$house\ price\ growth_{i,t+1} = \alpha + \boldsymbol{\beta} Investor\ participation_{i,t} * shadow\ rate_{i,t} + X_{i,t} + \delta_j + \varepsilon_{it}$$

Yes, they do.

- Lower funding costs from financial markets, higher capacity and willingness to increase leverage to purchase (more) real estate.

- Real estate returns become more attractive with low interest rates, driving a search for yield.

- Channels: intentional portfolio reallocation or inflows of funds from other investors making these types of decisions.

VARIABLES	(1) EA shadow rate Country FE	(2) EA shadow rate Region FE
House price growth	-0.105***	-0.139***
	(0.0360)	(0.0363)
GDP per capita (thousand)	0.0164	0.256
	(0.0517)	(0.235)
GDP growth	-0.00618	-0.0141
	(0.0659)	(0.0766)
Population growth	1.030***	1.035***
	(0.263)	(0.347)
EA shadow rate	-0.408***	-0.371***
	(0.0723)	(0.0845)
Investor presence	-0.459	0.443
	(0.494)	(1.112)
Investor partic. # EA shadow rate	-0.882***	-0.904***
	(0.278)	(0.294)
Constant	-0.140	-1.389
	(0.380)	(1.667)
Observations	6,452	6,452
R-squared	0.152	0.044
Country FE	YES	NO
Region FE	NO	YES
Number of NUTS2		133

Dependent variable: 4-quarter-ahead house price growth.
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: frequency is quarterly.

Do they create a link to global / financial market shocks?

$$house\ price\ growth_{i,t+1} = \alpha + \boldsymbol{\beta} Investor\ participation_{i,t} * VSTOXX_{i,t} + X_{i,t} + \delta_j + \varepsilon_{it}$$

Yes, they do.

- Where more institutional investors are present, shocks to financial markets are associated with lower house price growth.

- Volatility in markets can create downward pressure on house prices, as they affect the financing conditions of institutional investors.

VARIABLES	(1) Max VSTOXX 4q horizon	(2) Mean VSTOXX 4q horizon	(3) Max VSTOXX 12q horizon	(4) Mean VSTOXX 12q horizon
GDP per capita	6.99e-05	7.22e-05	0.000122**	0.000116**
	(5.34e-05)	(5.35e-05)	(5.28e-05)	(5.23e-05)
House price growth	0.0705**	0.0701*	-0.133***	-0.127***
	(0.0356)	(0.0356)	(0.0320)	(0.0320)
GDP growth	0.0516	0.0540	0.148**	0.133**
	(0.0541)	(0.0539)	(0.0603)	(0.0570)
Population growth	0.767***	0.755***	-0.357	-0.333
	(0.276)	(0.276)	(0.252)	(0.248)
Investor participation	3.584***	4.131***	4.164*	4.651*
	(1.055)	(1.265)	(2.321)	(2.401)
Max VSTOXX	0.0250**		-0.110***	
	(0.0104)		(0.0157)	
Investor partic. # Max VSTOXX	-0.0939***		-0.0938	
	(0.0324)		(0.0847)	
Mean VSTOXX		0.0338***		-0.144***
		(0.0124)		(0.0193)
Investor partic. # Mean VSTOXX		-0.130***		-0.131
		(0.0439)		(0.0992)
Constant	-1.041**	-1.196**	2.372***	2.971***
	(0.468)	(0.479)	(0.524)	(0.549)
Observations	6,476	6,476	5,411	5,411
R-squared	0.157	0.158	0.190	0.196
Country FE	YES	YES	YES	YES

Dependent variable: 4-quarter-ahead house price growth. Robust standard errors in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: frequency is quarterly.

Some caveats remain…

Maybe institutional investors just tend to be more active in more attractive markets which then also have higher growth? (e.g. richer parts of EA)

- Regional control variables and fixed effects should help to ensure that we compare dynamics **within** a given region

So maybe institutional investors are just good at predicting future house price increases? Reverse causality?

- Let's face it: This is a possible limitation in the analysis (open to suggestions!)
- VAR should account for most key factors institutional investors would base analysis on

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   BVAR analysis

4. Do institutional investors change the way RRE markets behave?
   Regional dynamic panel data analysis

5. **Conclusion**

Conclusions

We examine the growing role of institutional investors in euro area residential real estate (RRE) markets to understand if and how these players affect market dynamics

Key takeaways:

- We show that higher demand from institutional investors can lead to higher house price growth and also creates a feedback loop with mortgage lending.

- In regions with a high presence of institutional investors, we find a weaker link between house price growth and local macroeconomic fundamentals, and instead monetary policy and financial market shocks appear to play a larger role.

- Our findings imply that an increasing presence of institutional investors can expose RRE markets to new types of shocks and amplify overall market dynamics.

Thank you!

Used datasets

- European Data Warehouse
  - Panel dataset of securitised loans
  - We use it to compute regional house price growth

- MSCI Real Capital Analytics
  - Transaction-level data of large real estate deals
  - We use it to compute institutional investor purchase and sale volumes

- Bloomberg
  - Market indicators (e.g. VSTOXX)

- Eurostat
  - Demographic and macroeconomic regional data

- Shadow rate from Krippner (2015)