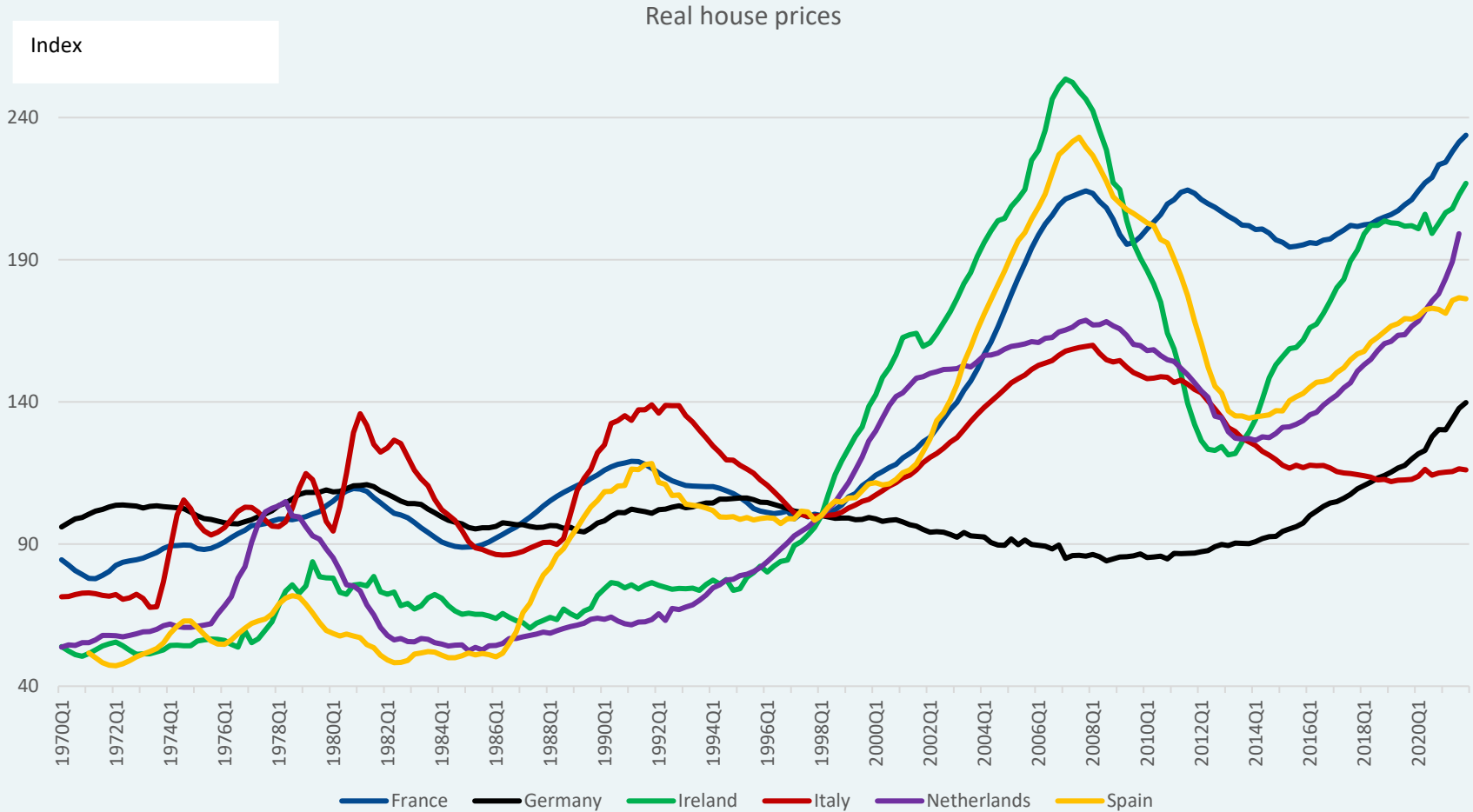


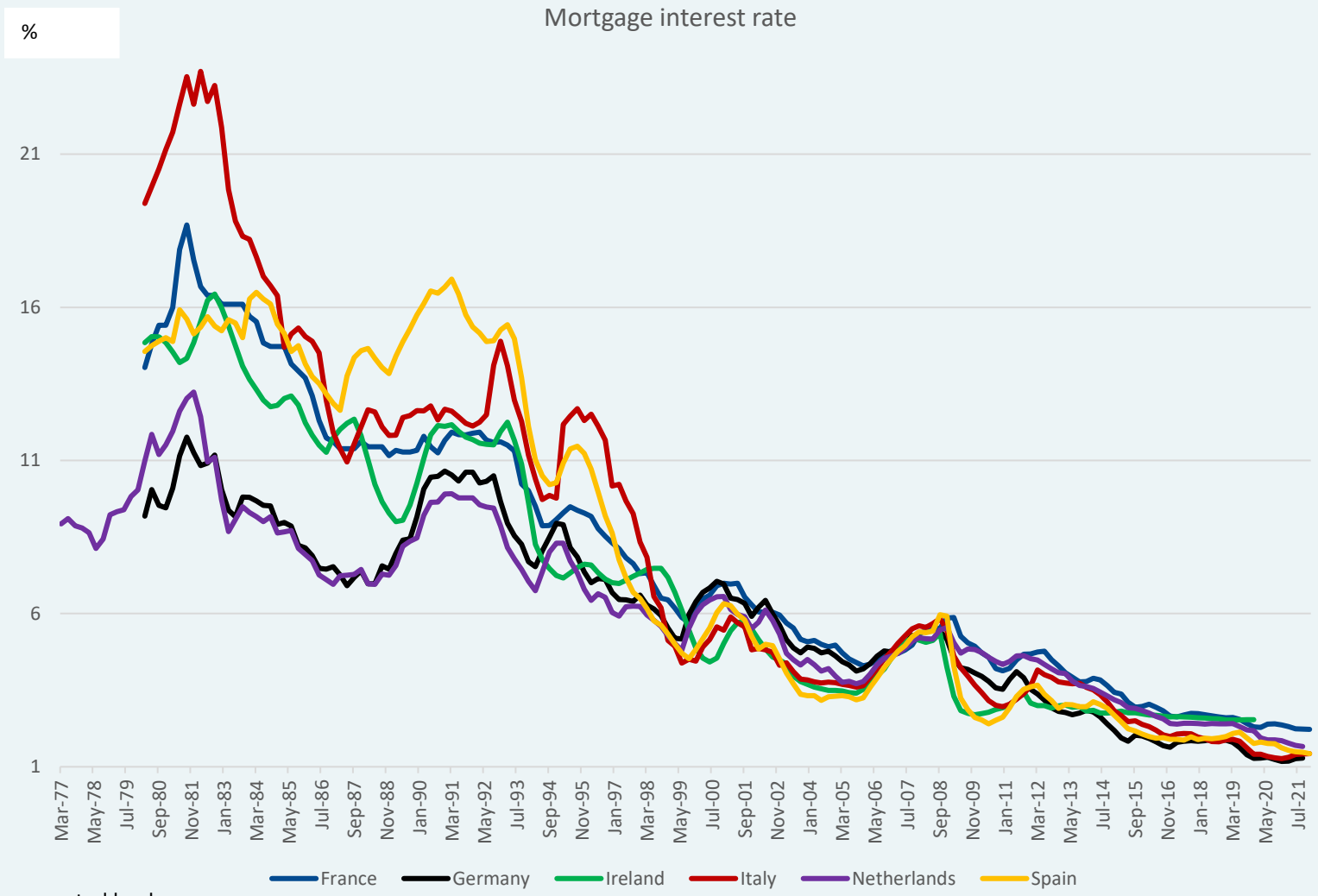
Real Estate Booms and Busts: Implications for Monetary and Macroprudential Policy in Europe

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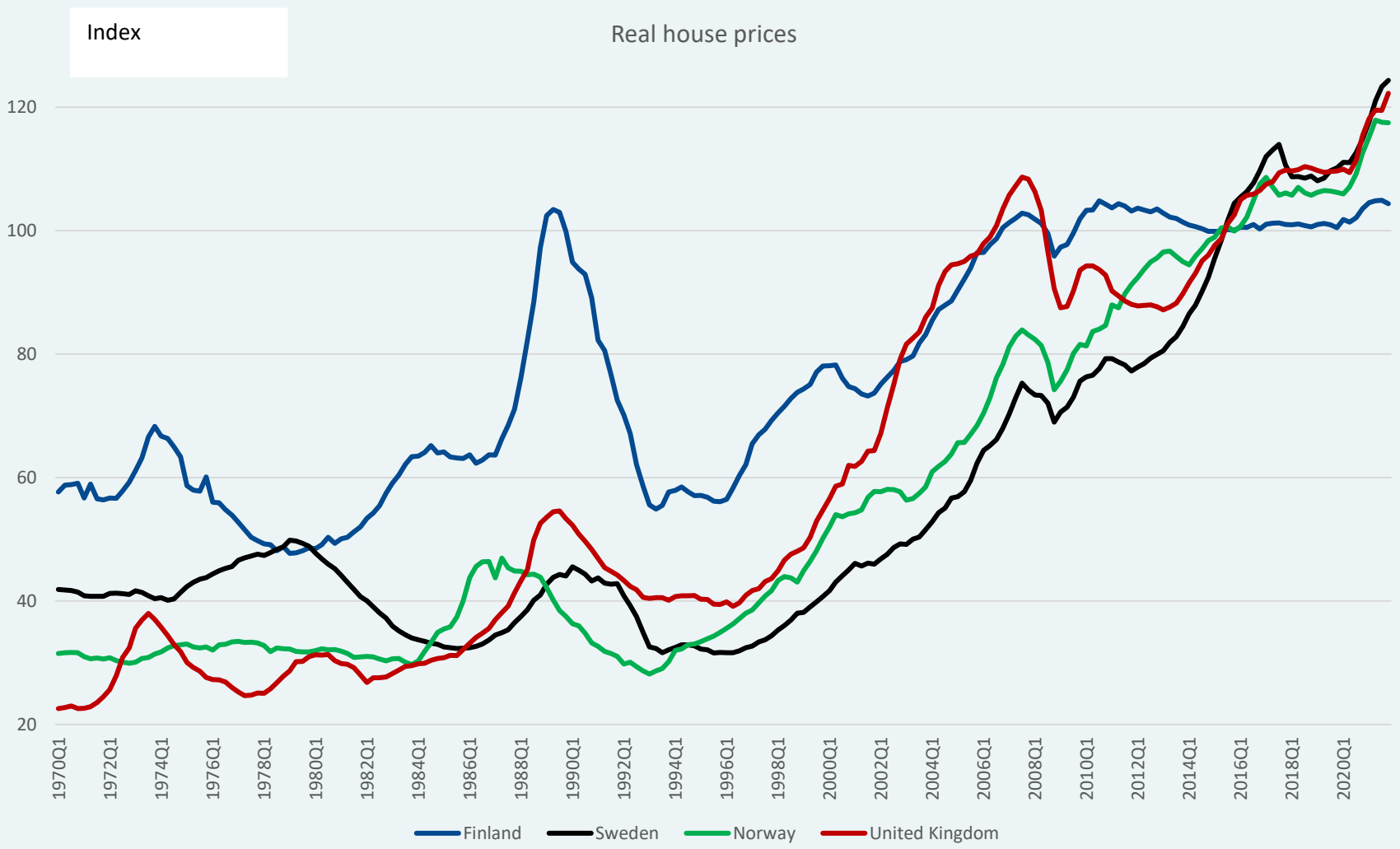
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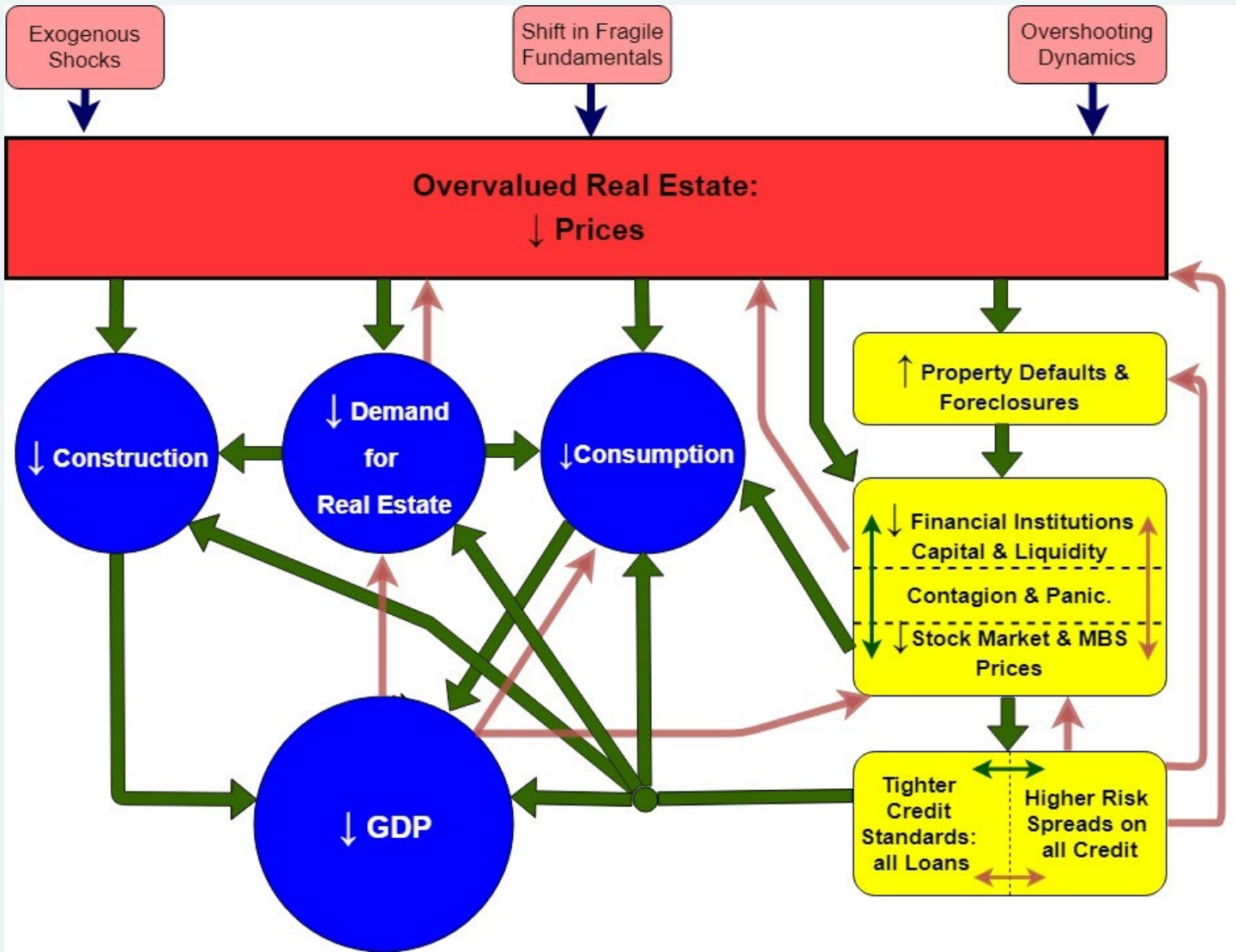
- Why *housing market history* matters.
- The role of *real estate in the financial accelerator* in the GFC.
- *Institutional differences* matter for financial stability and monetary transmission (Cerutti, Dagher & Dell’Ariccia, 2017, Calza, Monacelli, Stracca, 2013, Maclennan, Muellbauer and Stephens, 1998)
- *Six housing channels* for interest rates and lending standards to transmit to aggregate demand – including via non-performing loans (NPL).
- Do *central bank policy models* capture these channels of the credit cycle?
- Evidence from France on the six housing channels.
- Quantifying the 2-way interaction between lending standards and NPLs.
- Implications for improving the ESRB risk scoreboard.
- How commercial real estate differs from residential real estate.
- The new macroprudential framework, LAW and the risk outlook.





Source: central banks

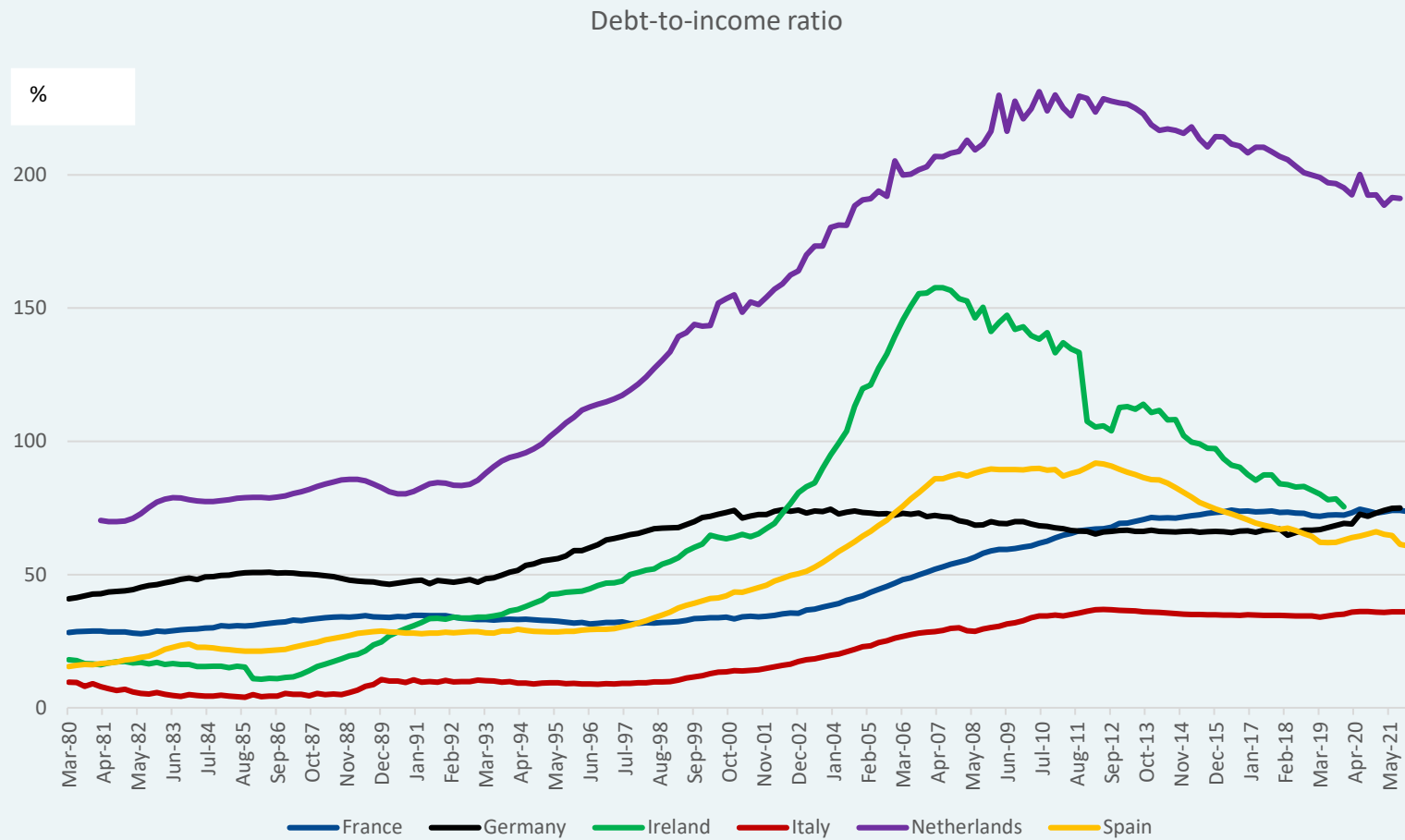




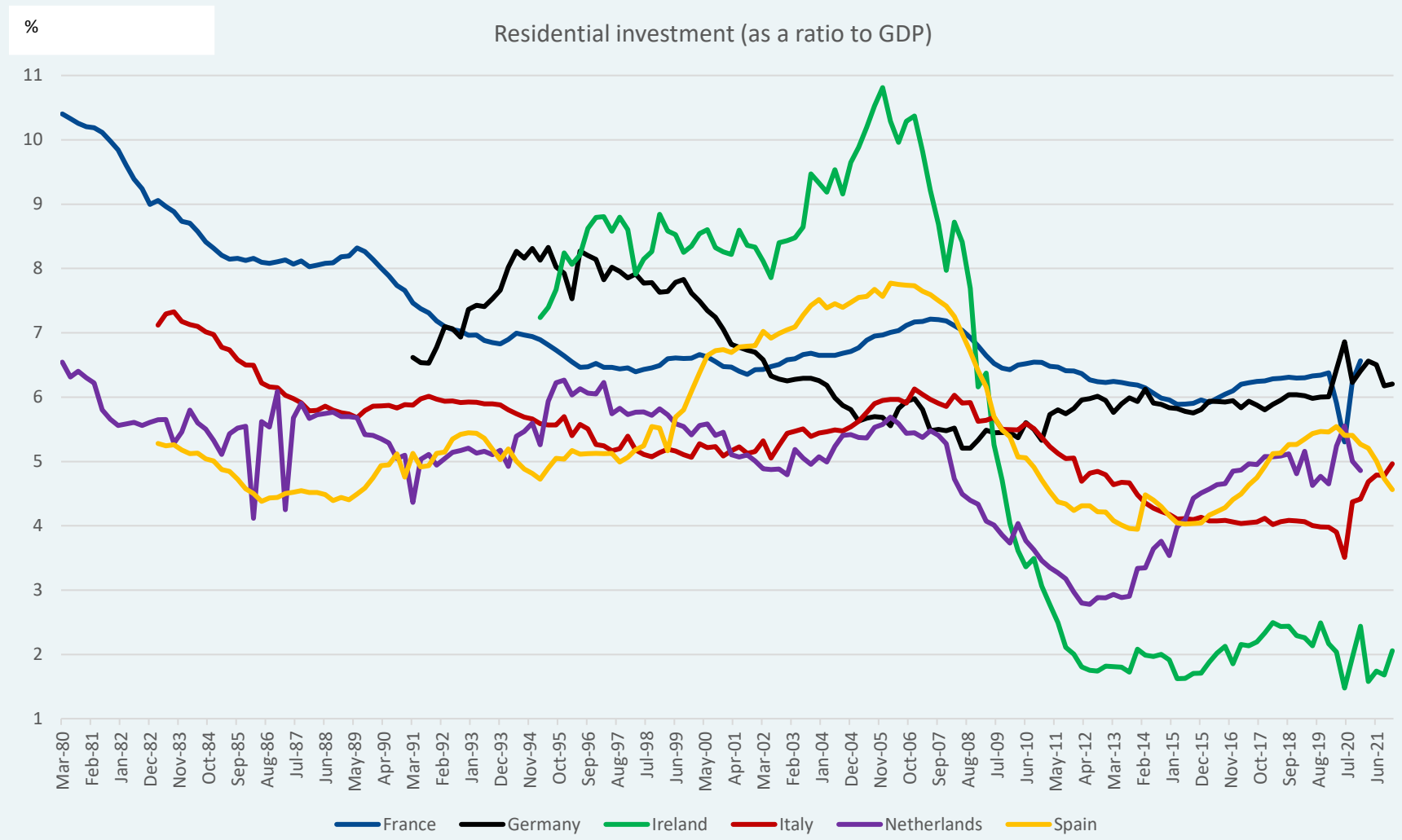
Channels and feedbacks	Key mechanisms	Sources of heterogeneity between countries: amplifying or stabilising?
<p>From falling house prices to the real economy, and back.</p>	<p>Lower construction volumes as profits fall and land banks lose value.</p>	<p>Pre-crisis ratio of real estate investment to GDP differs; elasticity of construction volumes to real estate prices differs; share of public sector housing differs.</p>
	<p>Lower consumer spending as collateral for home equity withdrawal falls.</p>	<p>Access to home equity loans and rates of owner-occupation differ.</p>
	<p>Lower spending on property services as real estate demand drops.</p>	<p>Ratio of property services to GDP differs, e.g., with degree of financialisation.</p>
	<p>Amplification as extrapolation of falling prices, and lower incomes further reduce demand for real estate.</p>	<p>Tendency to extrapolate is higher where homebuyers are more heavily geared, (high mortgage interest tax relief, high LTV) and where property taxes are weakly linked to current market values.</p>
<p>From falling house prices to the financial sector, and back.</p>	<p>Mortgage delinquencies and foreclosures rise.</p>	<p>Greater where lax regulation permits high levels of gearing both for banks and borrowers, and fixed-rate mortgages slow transmission of policy mitigation.</p>
	<p>Losses mount at financial intermediaries, undermining capital positions of banks.</p>	<p>Greater where high levels of maturity mismatch in funding mortgages. Lower where state or collective insurance schemes are widespread. ⁷</p>

Channels and feedbacks	Key mechanisms	Sources of heterogeneity between countries: amplifying or stabilising?
	Credit availability to the real estate sector falls and risk spreads rise.	Greater where systemic risk is high: varies with leverage, maturity mismatch, interconnectedness, complexity and mispricing of risk. Prudential regulation and financial sector structure matter.
	Amplification occurs via contagion in the financial sector and falling prices of financial assets (Brunnermeier, 2009; Bernanke, 2018).	Greater with high interconnectedness and complexity.
From the financial sector to the real economy. Amplification via feedback on real incomes.	Credit crunch and risk spreads rise.	
	Impact on investment.	Greater where NFCs have high debt levels and vulnerable balance sheets.
	Impact on consumption via credit crunch.	Greater where household debt levels are high, liquid assets low, and households depend on new credit.
	Impact on consumption via lower financial asset values.	Greater where high household illiquid financial assets to income ratios.
From the real economy to finance.	Fall in GDP and household incomes further impact profits in finance.	Greater where financial sector is heavily geared.

Mortgage debt to income ratios in 6 Euro area economies



The ratio to real GDP of residential investment (percent)



Housing channels of transmission of interest rates and lending standards to aggregate demand.

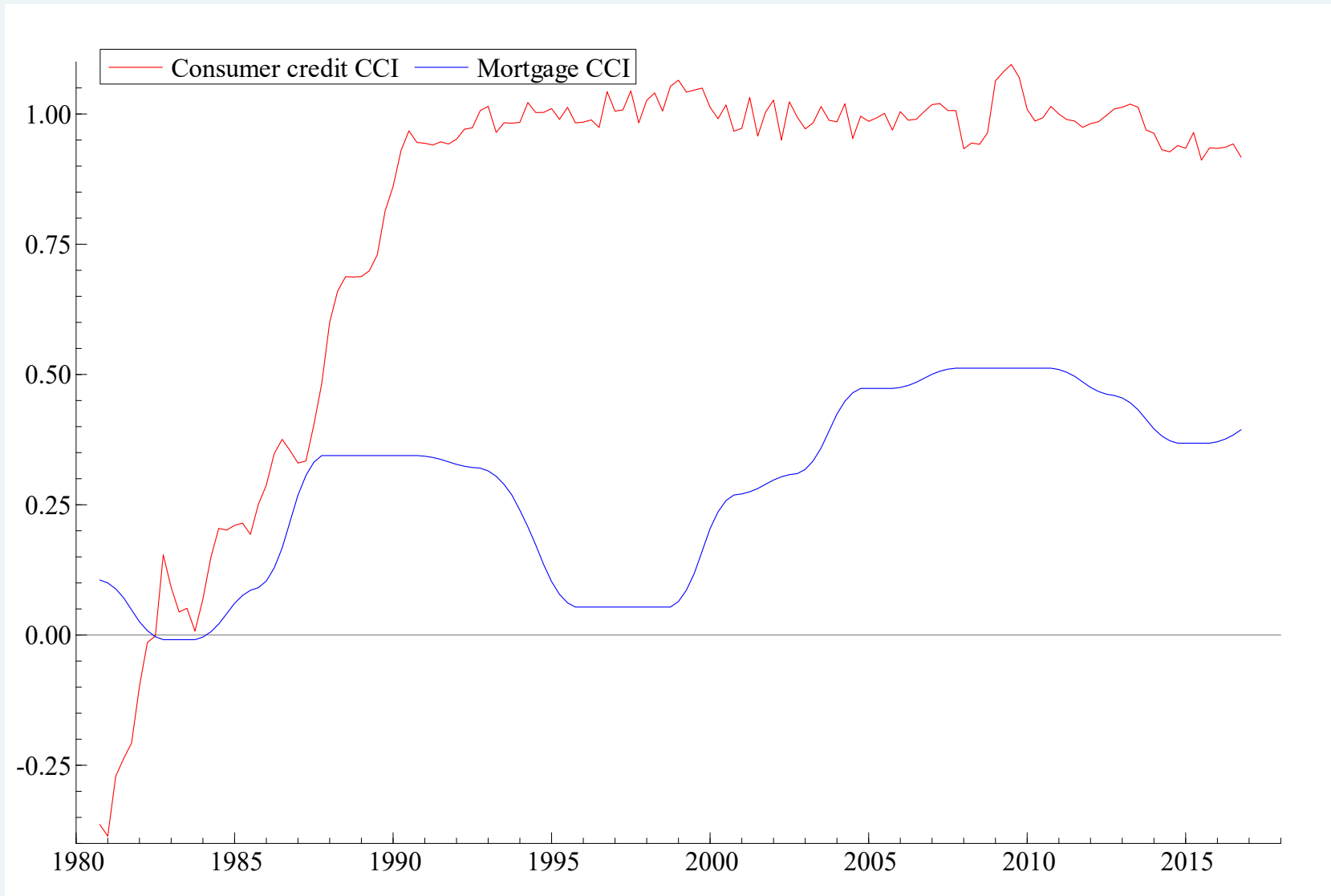
1. Via short rates (e.g., Euribor) and 10-year sovereign yields to mortgage interest rates;
2. to house prices;
3. to residential investment;
4. to consumer spending (including via household portfolios);
5. to mortgage debt; and
6. the 2-way interaction of lending standards and NPLs
 - The previous years' lending standards affect NPLs and recent NPLs feed back onto lending standards.

*In some countries, a seventh channel is possible:
via an effect of house prices on income expectations.*

How well do central bank policy models capture the 6 channels?

<i>Long-run transmission</i>	ECB-BASE	France	Germany	Ireland	Italy	Nether-lands	Spain
To mortgage rates	✓	✓	✓	✓	✓	✓	✓
incl. lending standards or bank balance sheets?	×	×	×	✓	✓	✓	×
To house prices	✓	×	✓*	✓	✓	✓	✓
incl. lending standards or bank balance sheets?	×	×	×	✓*	×	✓*	×
To residential investment							
via house prices	✓	×	✓	✓	✓	✓	✓
incl. lending standards or bank balance sheets?	×	×	×	×	×	×	×
To consumer expenditure							
via house prices inter alia	✓*	×	×	✓	✓*	✓	✓*
incl. lending standards or bank balance sheets?	×	×	×	×	×	×	×
To mortgage debt							
via house prices inter alia	×	×	×	✓	✓	✓	×
incl. lending standards or bank balance sheets?	×	×	×	✓	×	✓	×
To NPLs (or similar)	×	×	×	✓	✓	✓	×
incl. via past lending standards?	×	×	×	×	×	×	×
NPLs to lending standards	×	×	×	×	×	×	×

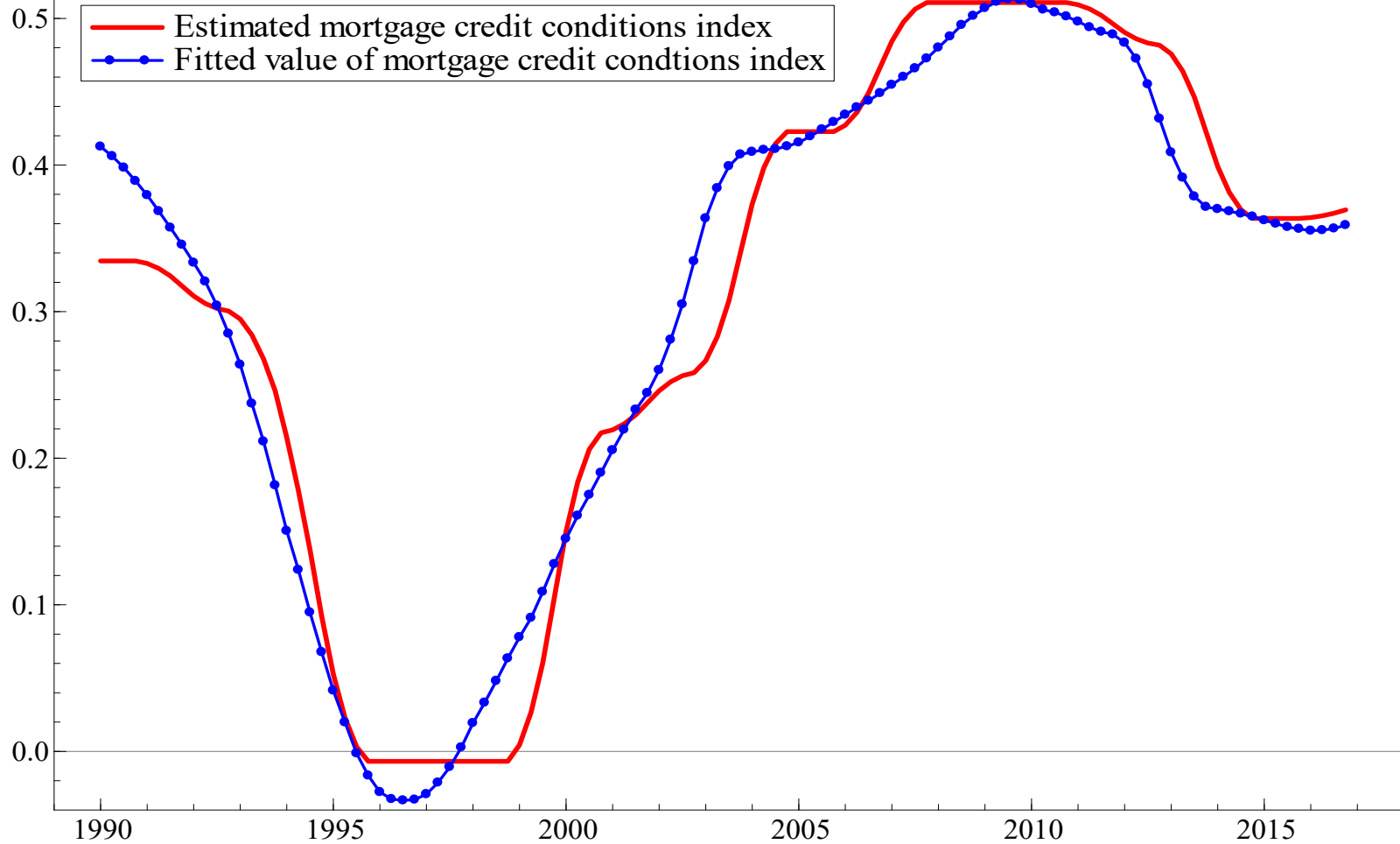
1. **Mortgage interest rate** is driven by short rates (+), long rates (+) and NPL ratio (+).
2. **House prices** (using inverse demand approach): are driven by the nominal mortgage rate (-), user cost (-), income/housing stock (+), demography (+) and lending conditions (+) (measured as a latent variable, Chauvin & Muellbauer, 2018).
 - *The latent variable for mortgage lending standards captures a common factor in house prices, mortgages and consumption, **after** a full set of economic and demographic factors have been controlled for.*
3. **Residential investment** is driven by the ratio of house prices to construction costs (+), nominal interest rates (-), demography (+) and the NPL ratio (-).
4. **Consumer expenditure** (using credit-augmented consumption function): driven by income (+), permanent income (+), real interest rates (-), liquid assets (+), debt (-), illiquid financial assets (+), housing wealth (+), the house price/income ratio (-) and lending conditions (+) (as latent variables, Chauvin & Muellbauer, 2018).
5. **Mortgage debt** is driven by income (+), permanent income (+), the nominal mortgage rate (-), house prices (+), demography (+) and lending conditions (+) (a latent variable, Chauvin & Muellbauer, 2018).
6. **NPLs** contd. below.



6. **NPL ratio both 4 and 8 quarters ahead**: can be forecast by recent short interest rates (+), the unemployment rate (+), the house price/income ratio (-), income growth (-), and averages of lending standards from 1 to 5 years ago (+) (as latent variables, Chauvin & Muellbauer, 2018).

- *Mortgage lending standards since 1990 are highly correlated with recent NPL ratios.*
- *A full model of mortgage lending standards back to the early 1980s also includes controls for exogenous credit liberalisation.*

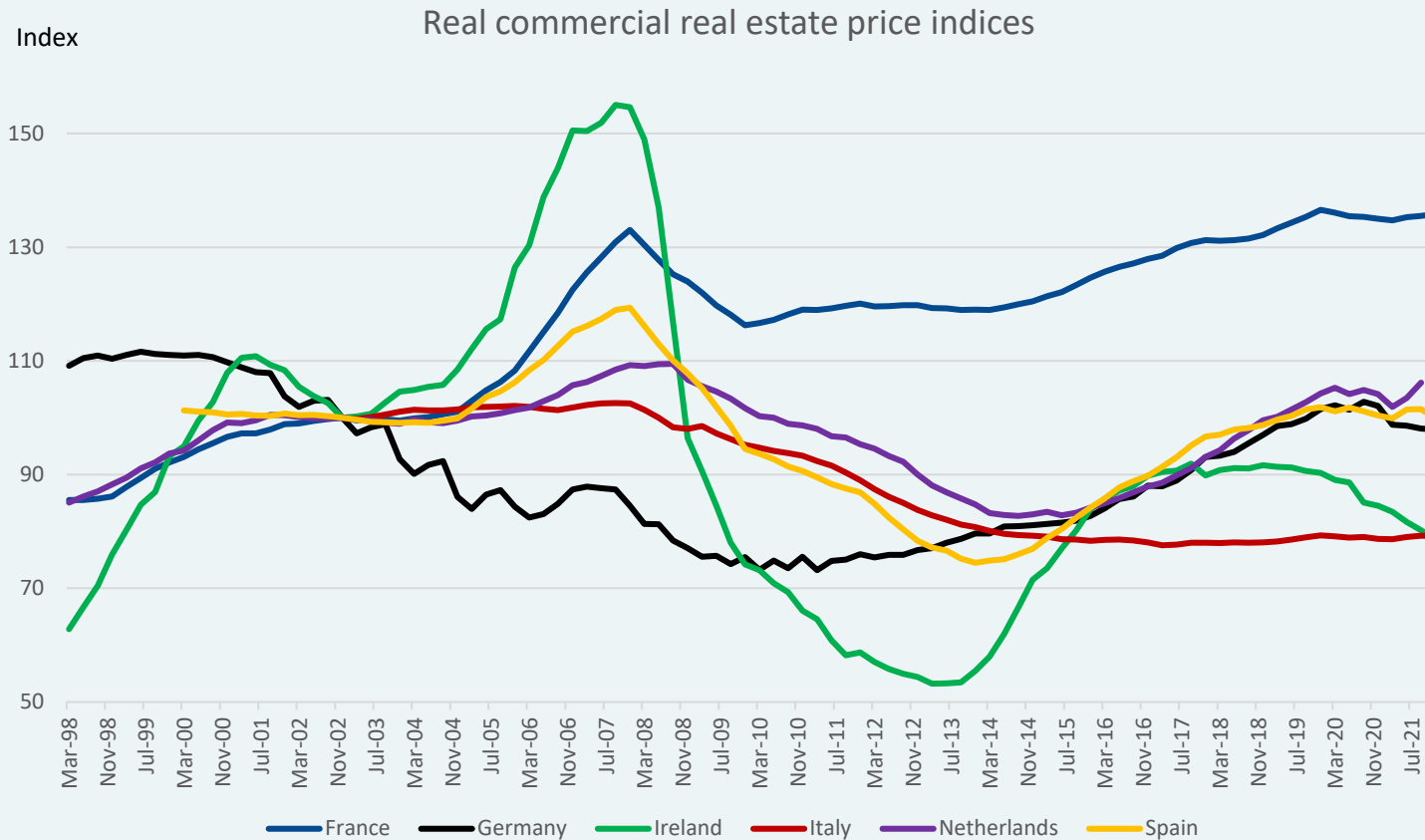
A perfect storm: years of lax lending conditions, followed by rise in interest rates and unemployment, and fall in house prices and in income growth.



- Connection between lending standards and the credit cycle:
 - Lending standards are an important driver of real estate prices, credit growth, consumer expenditure and residential investment (hence of economic activity); and, also of NPLs.
- Connection between NPLs and lending standards:
 - Higher NPLs lead to tighter lending standards, amplifying the downturn in the economy.
- Interest rates themselves affect NPLs and hence lending standards:
 - Interest rates are important drivers of real estate prices, credit growth, consumer expenditure and residential investment (hence of economic activity); and, also of NPLs.
- Fully appreciating the *complex real estate channels of monetary transmission* via interest rates and lending standards is key to understanding how credit shocks can be transmitted and amplified.
 - Implied close interconnection between monetary policy and macroprudential policy in the real estate context has had insufficient attention in modelling and policy-making.
- *Contrast between* a sophisticated appreciation of real estate in the credit cycle at the ESRB and central banks' financial stability teams, and a comparative under-emphasis by teams concerned with monetary policy.

- ESRB risk score-board: captures ‘collateral stretch’, ‘funding stretch’ and ‘household stretch’, with 10 detailed indicators.
 - Collateral stretch should warn of unwarranted price developments and *potential price misalignments* to provide early warning of the timing and the intensity of financial crises and housing downturns.
 - Funding stretch is intended to detect *too lax or ‘exuberant’ lending conditions*.
 - Household stretch is intended to detect *fragilities in household balance sheets*.
- Special survey of data from bank supervisors across the Euro area (Lang et al. 2020):
 - Captures information on LTIs, LTVs and DSTIs in 2016-18 for larger lenders.
- How to summarise all this information linked with lending standards?
- French evidence suggests that the latent variable approach is highly successful in extracting *an indicator of mortgage lending standards* (or non-price credit conditions), given the excellent forecasting performance for NPLs.

- A stripped down, 2-equation version for house prices and mortgage debt (checking for income expectations from an ancillary equation) could be rolled out for most Euro area countries, with panel methods compensating for gaps in historical data.
- Critical improvements in the house price model are the control for lending standards, and the estimates of the importance of extrapolative expectations of capital appreciation in user cost.
- Three benefits of the latent variable approach:
 1. The regularly updated latent variable estimate of mortgage lending standards would add a valuable new indicator for each country.
 2. The improved specification of the house price equation would give more accurate indications of potential over-valuation.
 3. Endogeneity issues make it hard to assess the success of macroprudential policy measures. The latent variable approach is designed to address endogeneity, and hence *assess impact of macroprudential on lending standards*.



Source: Data for Germany from VDP, data for remaining countries from MSC-IPD.

Notes: Missing index data for Germany and Italy are interpolated from data on quarterly growth rates. All CRE price indices are deflated by country level consumer expenditure deflators.

- ESRB (2015) discusses differences between CRE and RRE:
 - Higher default rates.
 - Greater cyclicity (?) because of importance of the collateral channel, the long gestation period for many development projects, and importance of cash-flow.
 - Larger role for institutional investors.
 - Greater exposure to international capital market cycles.
- *Another difference*: while CRE, like RRE, has an important link with investment cycle, unlike RRE, it has a weaker link with consumer spending.
- But in practice, CRE is quite *correlated* with RRE:
 - residential rental is part of CRE;
 - there are common shocks to credit conditions and interest rates;
 - international investors are now also prominent in top cities' RRE.
- Data issues concerning *measuring CRE*:
 - Defining 'CRE' is hard: should distinguish firms building housing and infrastructure, holding companies and funds invested in CRE.
 - Data gaps far worse than for RRE, more complex and opaque markets, data from private providers with partial coverage, comparability problems.

- Monetary easing *was intended to* increase aggregate demand from households, *but ...*
 - (i) The impact has varied a great deal by country:
 - For example, the housing wealth effect is ***different*** for different countries and time varying (since housing wealth has mainly a collateral effect where home equity withdrawal is available, for example low in Germany).
 - (ii) It has tended to be overstated:
 - Examples of how the effects on consumer spending are ***muted*** are from the negative longer-term effects of higher debt levels on consumption and the negative affordability effects of higher house prices on non-owners –even w/o credit cycle downturns or a financial crisis.
 - (iii) It has induced seriously negative side-effects:
 - Although higher house prices reduce Gini measure of wealth inequality (OECD (2021) and Dossche et al. (2021)), the ***gap has been widened*** between owners and non-owners, and between older and younger generations; and inequality increased within younger cohorts.
 - Moreover, credit-fuelled real estate booms have ***crowded out more productive investment***, with negative consequences for sustainable growth (Müller and Verner (2021)).

- Stellar work at the ESRB, the EBA, the ECB, at country central banks and at other regulators, backed by the BIS and the IMF.
- Given institutional heterogeneity in the Euro area, commendably they do not adopt a ‘one size fits all’ approach in real estate-linked macropru.
- Institutional heterogeneity - apart from principles of democratic control and subsidiarity – make it a functional necessity that the supra-national bodies (the ESRB, the ECB, the EBA) and national central banks and regulators co-ordinate.
- Welcome push from the supra-national bodies for:
 - Greatly improved cross-country data monitoring across CRE and RRE.
 - New instruments e.g., sectoral systemic risk buffers.
 - Minimum standards on the legal perimeter for borrower-based macropru measures.
- Current system where the ESRB issues warnings of risk build-up, recommendations for macropru tightening and follow-up checks on implementation, is largely working - subject to data constraints.
- The macroprudential tightening in the last few years is now validated by the current economic crisis, which otherwise is not far from a ‘perfect storm’.

- There is controversy on ‘leaning against the wind’ (e.g., Svensson vs. the BIS).
 - In the Euro area, LAW is even more difficult to implement because of *institutional heterogeneity in the real estate and credit markets* across countries.
 - Globally, LAW would have been less damaging than policies followed - provided that fiscal policy could have been expansionary - since low interest rate policy and QE caused *high real estate valuations with negative consequences* for financial stability and for sustainable growth.
 - Failures by governments to correct housing supply distortions and promote stabilising measures (e.g., market price-related property taxes and cutting mortgage interest tax relief), have *exacerbated high real estate valuations and made CB choices far harder*.
- The risk outlook.
 - For investors, real estate looks like an inflation hedge (such negative real interest rates, encourage leveraging up to pay back loan in devalued currency).
 - Suggests controlling leverage on CRE and BTL residential, which should also dampen inflation expectations.
 - Climate change has huge *real estate-related risk implications* (EC (2020) suggests that 40% of CO₂ emissions in continental Europe are housing-related).
 - *Holistic policy across public agencies* is needed (OECD (2021): ‘Build back better’).