BETTING THE HOUSE

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House prices in the news

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June 11, 2014 7:00 pm

IMF sounds global housing alarm

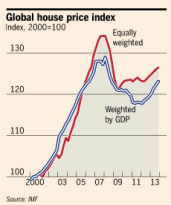
By Robin Harding in Washington

The world must act to contain the risk of another devastating housing crash, the International Monetary Fund warned on Wednesday, as it published new data showing house prices are well above their historical average in many countries.

The warning from the IMF shows how an acceleration in global house prices from already high levels has emerged as one of the major threats to economic stability, with countries making limited progress in keeping them under control.

Min Zhu, the IMF's deputy managing director, said the tools for containing housing booms were "still being developed" but that "this should not be an excuse for inaction".

House prices "remain well above the historical averages for a majority of countries" in relation to incomes and rents, Mr Zhu said in a speech to the Bundesbank last week, which was only released on Wednesday because it clashed with a European Central Bank announcement.



"This is true for instance for Australia, Belgium, Canada, Norway and Sweden," he said.

In the wake of the global recession central bankers have cut interest rates to record lows, pushing house prices to a level that the IMF regards as a significant risk to economies as diverse as Hong Kong and Israel.

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8:53 am ET
Apr 22, 2014

EUROPE

Scandinavia Is Looking Scary

There's something unsettling about Scandinavia.

No, not the local penchant for heavy metal rock, gloomy crime literature and angst-ridden cinema. But rather with the region's economies.

The trio of countries that form **Scandinavia**–Denmark, Norway and Sweden–have for years been the heartland of some of the world's highest standards of living. But it seems the pristine facade has been built on rather wobbly foundations.

Even though none is a member of the euro zone and Norway isn't even a member of the European Union, they're all manifesting a number of the single currency's problems, **not least falling inflation**. At the same time, households in all three countries carry huge debt burdens while all have also manifested symptoms of housing bubbles during recent years.

In March, Sweden slipped into deflation, with prices contracting 0.4% on the year, having long been on a downtrend. Denmark's inflation rate remains positive, but only just, with inflation running at 0.2% in the same month. Even Norway, which has seen higher rates of price growth during the past year has been seeing a downward trend in price pressures–its annual inflation rate in March was 1.8%, having averaged 2.2% during the past year.

Some economists have recently argued that Sweden has brought deflation and sub-par growth upon itself because its central bank, the Riksbank, has kept monetary policy too tight. But it seems the Riksbank had its eyes on other problems.

Sweden seems to be in the throes of **a housing bubble**. Prices are up nearly 70% on where they were at the start of 2005. Relative to average incomes, they are 17% above their long term average, and rents are more than 30% above. Given that it's a country with a small population but vast tracts of land, any significant divergence in prices from other economic trends, like nominal GDP growth, ought to set central bankers' alarms ringing. And when it's accompanied by high levels of debt, those alarms ought to keep them awake at night.

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Business > Mark Carney

Mark Carney: rising house prices pose biggest risk to recovery

Bank of England governor says shortage of homes is driving up prices, with housebuilding at half the rate in his native Canada

Phillip Inman, economics correspondent
The Guardian, Sunday 18 May 2014

Jump to comments (859)

The governor of the Bank of England, Mark Carney, said the UK housing market had 'deep, deep structural problems'. Photograph: Lefteris Pitarakis/PA

House prices are rising at their fastest rate in more than six years and have climbed 8.9% year on year, adding to worries about the property boom as the Bank of England governor became the latest senior figure to express concern.

Mark Carney warned on Sunday that the housing market posed the biggest risk to Britain's economic recovery as a shortage of new homes drives up prices.

The Telegraph

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George Osborne told to rein in Help to Buy by European Commission

European Commission calls on Chancellor to 'deploy appropriate measures' against rising house prices

George Osborne's flagship Help to Buy scheme must be reined in and council tax should be increased to stop house prices getting out of control, the European Commission has said.

In a dramatic intervention in UK Government policy, the commission called on the Chancellor to "deploy appropriate measures" because of rising house prices, particularly in London.

Broad context

Should we worry about mortgage and house price booms? Is there a tension between monetary and macro prudential policies?

Then and now...

- ECB: Spain/Ireland versus Core
- Fed: Bernanke ("Monetary Policy and the Housing Bubble")
- Norges Bank, Bank of Israel
- Riksbank versus Lars Svensson
- ECB decision *not* to buy real estate loans in TLTRO
- Bank of England versus Help to Buy
- Australia, Canada (?)

Focused questions

These are rare events, so we turn to large-sample historical evidence, rather than rely on theory or small-samples...

1. Do low interest rates cause booms in mortgage lending? and in house prices?

2. Do these booms in turn increase the odds of a financial crash?

What we do

- **Two novel historical datasets:** panel annual data on disaggregated lending + house prices
- **The trilemma creates a natural experiment:** exchange rate peg + open capital markets $\rightarrow$ exogenous fluctuations in monetary conditions
- **Local projections + IV:** to measure the effect of exogenous perturbations in monetary conditions on mortgage lending and housing prices
- **Machine learning tools:** use methods of binary classification to see if mortgage lending and housing prices affect likelihood of financial crises

What we find

Answers are yes and yes; but effects are amplified after WW2

1. **Mortgage lending ↑**
   After WW2, mortgage lending and home ownership rise strongly. Mortgages became dominant share of bank lending: from ⅓ to ⅔

2. **Interest rates → mortgages & house prices**
   Exogenous loose monetary conditions result in: (1) lower interest rates; (2) more mortgage lending; and (3) higher house prices

3. **Mortgages & house prices → financial crises**
   Increased mortgage lending and house price booms are associated with an increased likelihood of financial crises

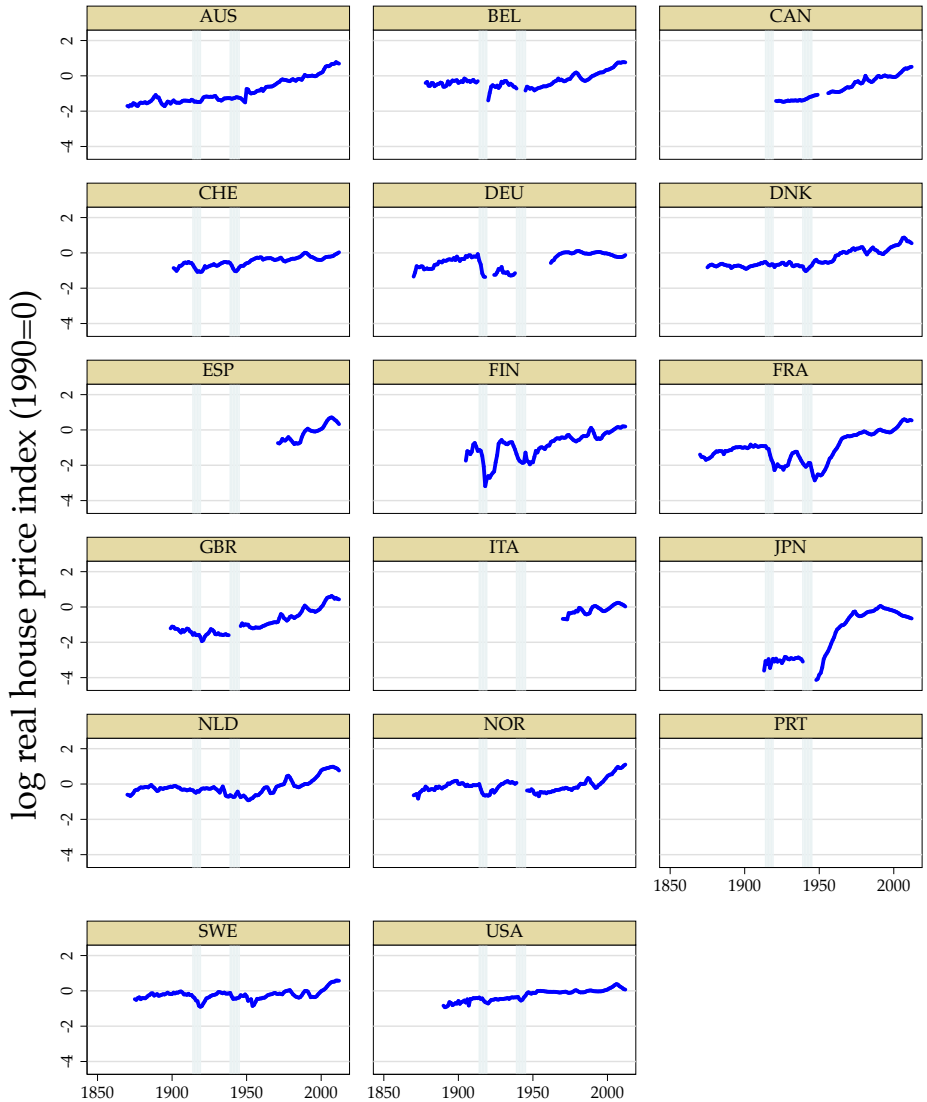
New annual data, $N = 17,143$ years

- Real estate credit: Jordà, Schularick and Taylor (2014)
- House prices: Knoll (2014)

Country	Mortgage loans	House prices	Type of house price index
Australia	1870–2011	1870–2012	Median price; partly mix-adj.
Belgium	1885–2011	1878–2012	Median price; partly mix-adj.
Canada	1874–2010	1921–2012	Avg. prices
Switzerland	1870–2011	1900–2012	Avg. prices; partly mix-adj.
Germany	1883–2011	1870–2012	Avg. prices; partly mix-adj.
Denmark	1875–2010	1875–2012	Avg. prices; SPAR
Spain	1904–2012	1970–2012	OECD after 1970 only
Finland	1927–2011	1905–2012	Av. sq. m. price; partly mix-adj. hed.
France	1870–2010	1870–2012	Repeat sales; partly mix-adj. hed.
U.K.	1880–2011	1899–2012	Avg. prices; partly mix-adj.
Italy	1870–2012	1970–2012	OECD after 1970 only
Japan	1893–2011	1913–2012	Avg. prices; partly mix-adj.
Netherlands	1900–2011	1870–2012	Repeat sales; partly SPAR
Norway	1870–2010	1870–2012	Repeat sales; hedonic
Portugal	1920–2012	——	No data
Sweden	1871–2011	1870–2012	Repeat sales; hedonic
U.S.	1896–2011	1890–2012	Repeat sales; partly mix-adj.

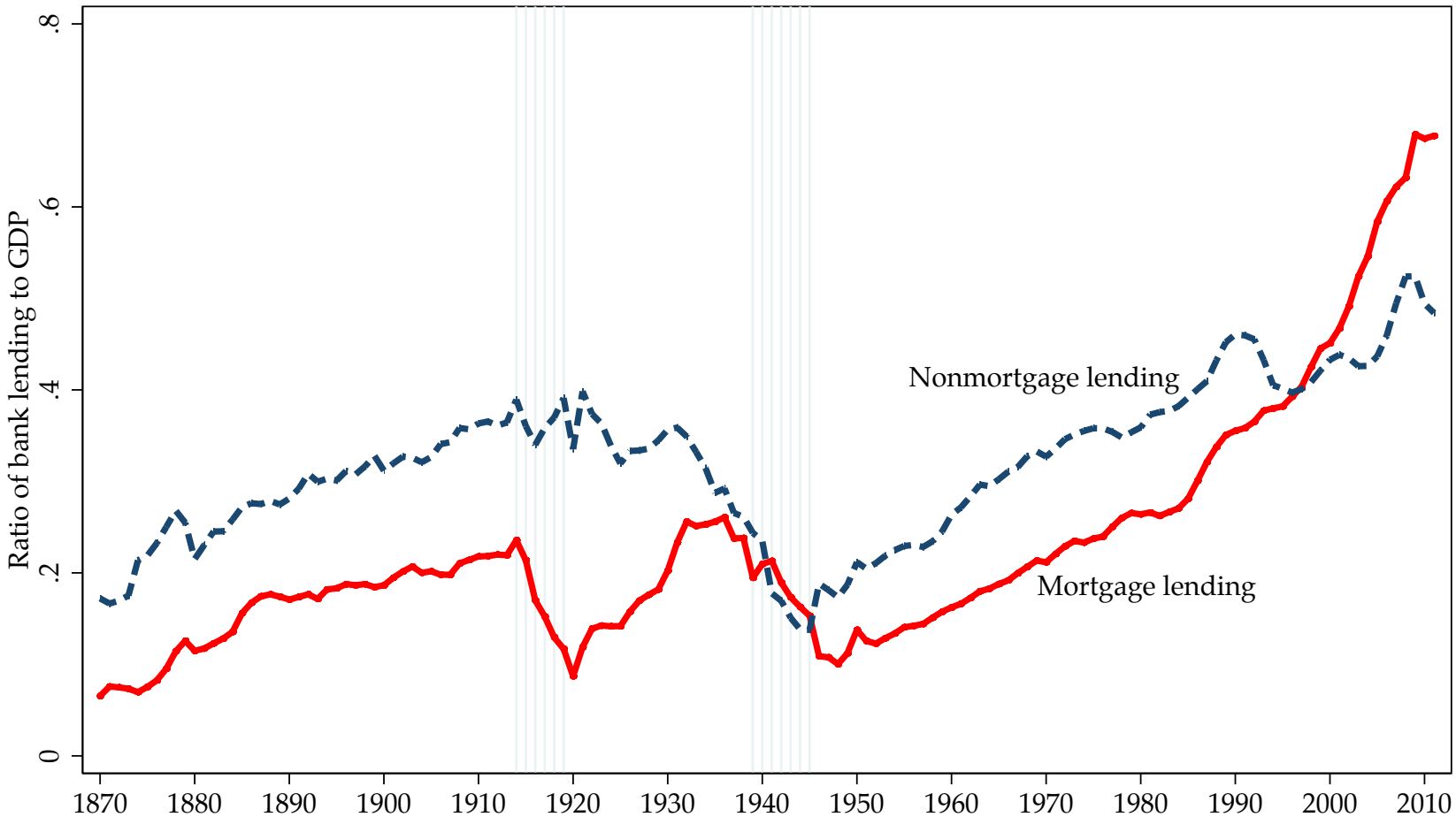
House prices

Real CPI deflated



Bank mortgage and non-mortgage lending

Relative to GDP

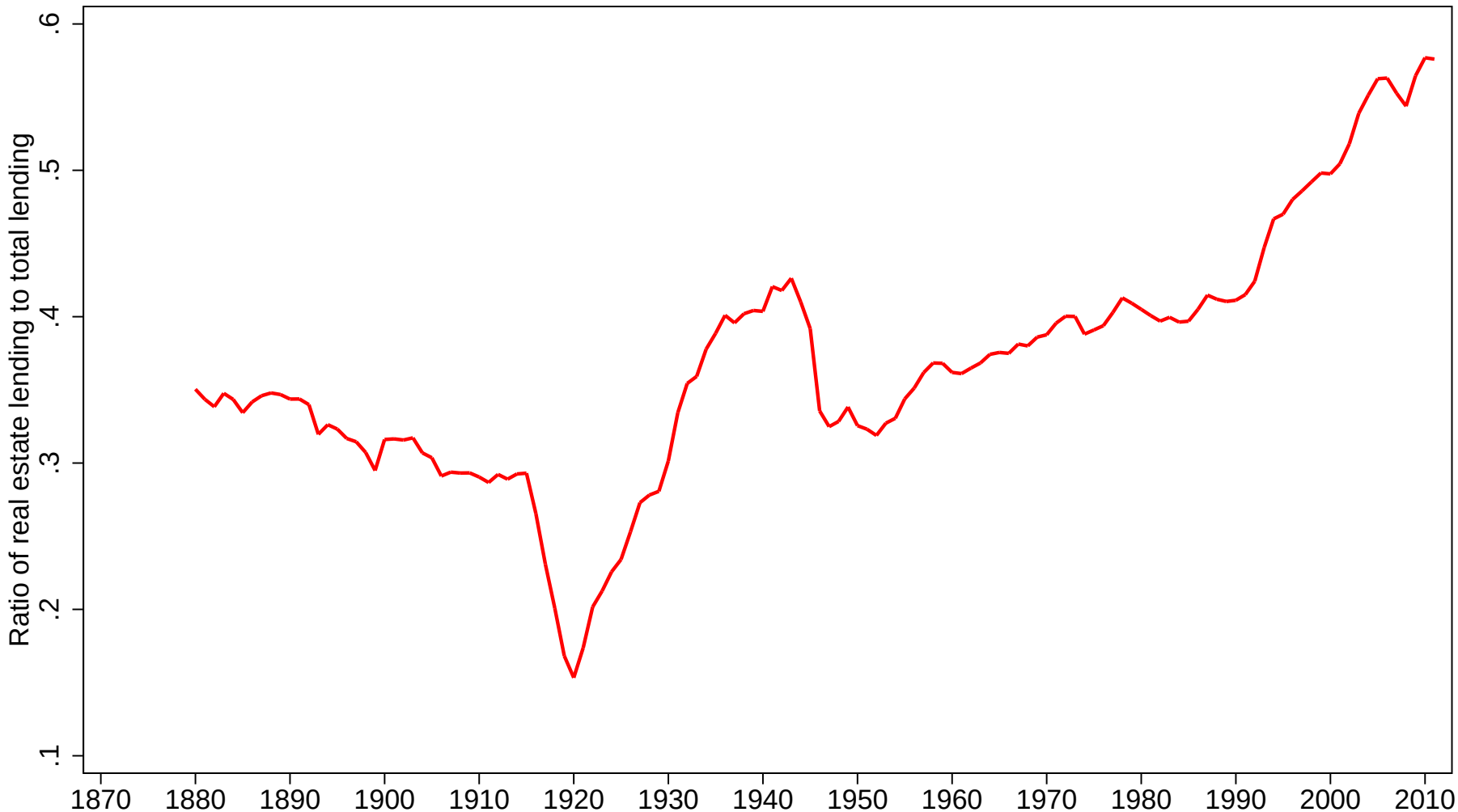


Great Depression vs. Great Recession

Share of mortgages in total lending

Lending is now mostly about mortgages

Share of real estate in total lending (17 country average)



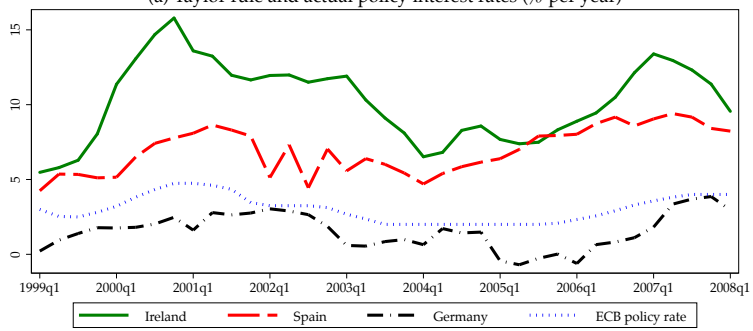
Summary of main developments

- Post-WII total bank lending as a ratio to GDP doubled relative to pre-WWII
- Post-WWII tripling of real estate lending, specially mortgages to households
- Mortgage lending is about 2/3 of the loan book of banks

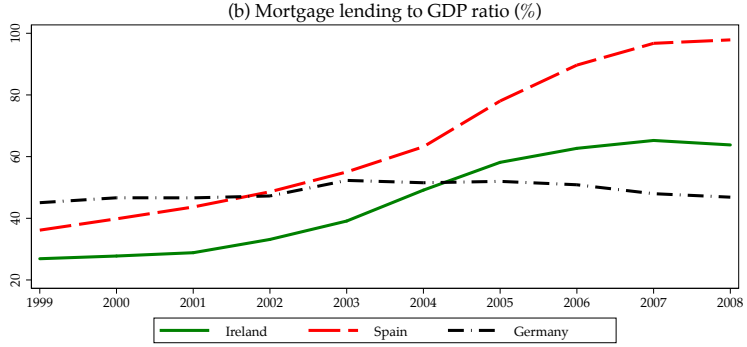
A European parable

Germany versus Spain and Ireland: Interest rates, mortgages, house prices

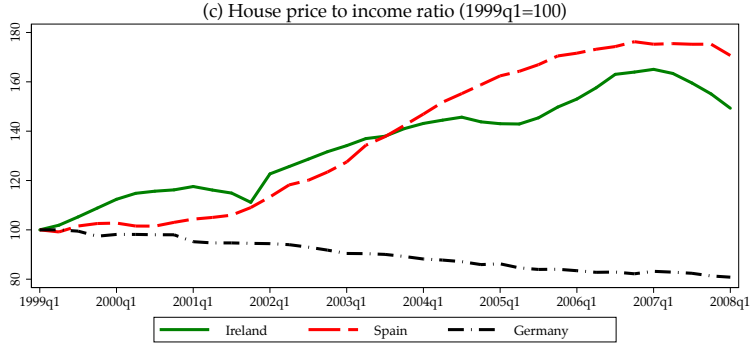
(a) Taylor rule and actual policy interest rates (% per year)



(b) Mortgage lending to GDP ratio (%)



(c) House price to income ratio (1999q1=100)



Methods: Local Projections + IV

Usual LP:
y = response vbl., r = impulse vbl. (s.t. interest rate)

$$\Delta_h y_{it-1} = \alpha_i^h + \beta^h \Delta r_{it} + \Delta W_{it}\Gamma^h + \Delta X_{it-1}\Phi^h + u_{it+h}$$

Selection on observables:

- ΔW_{it}: all contemporaneous variables except y and r
- ΔX_{it-1}: lags of all variables, including y and r

Selection on unobservables:

- Now use IV for Δr_{it} using z_{it} instrument
- But what instrument?...

The trilemma provides the instrument

Trilemma provides a natural experiment to identify exogenous perturbations to home short-term interest rate

$$\Delta r_{it} = a + b[PEG_{it} \times KOPEN_{it} \times \Delta r^*_{it}] + u_{it}$$

Data sources: Obstfeld/Shambaugh/Taylor, Ilzetzki/Reinhart/Rogoff, Quinn, JST

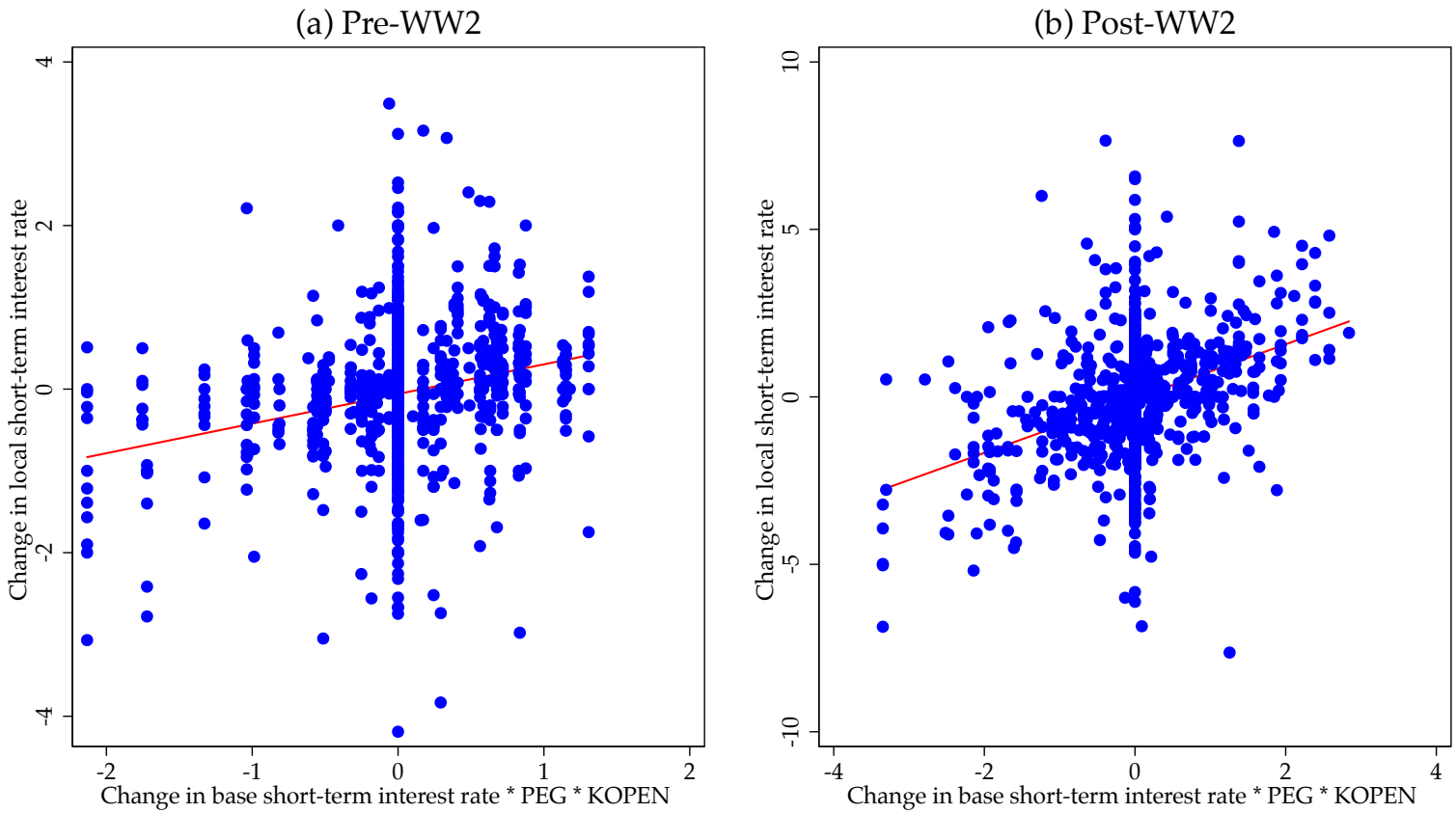
Base country	Pre-WW1	Interwar	Bretton Woods	Post-BW
UK (gold standard/BW base)	All countries		Sterling bloc: AUS, CAN	
UK/US/France composite (gold standard base)		All countries		
USA (BW/Post-BW base)			All other countries	Dollar bloc: AUS, CAN, CHE JPN, NOR
Germany (EMS/ERM/ Eurozone base)				All other countries

Base and home short-rates are correlated

Bivariate scatters

$$\Delta r_{it} = a + b\left[PEG_{it} \times KOPEN_{it} \times \Delta r^{*}_{it}\right] + u_{it}$$

Obstfeld/Shambaugh/Taylor simulations: $b < 1$ unless peg is ultra-hard (no band)



The instrument is relevant

Add vector of macro controls X

$$\Delta r_{it} = a + b[PEG_{it} \times KOPEN_{it} \times \Delta r^*_{it}] + \Theta X_{it} + u_{it}$$

Dependent variable: short-term interest rate

	No Controls			Controls		
	(1) All Years	(2) Pre-WW2	(3) Post-WW2	(4) All Years	(5) Pre-WW2	(6) Post-WW2
$\hat{b}$	0.68***	0.36***	0.81***	0.43***	0.29***	0.46***
	(0.06)	(0.11)	(0.06)	(0.04)	(0.06)	(0.06)
F-statistic	150.17	11.59	169.51	37.16	9.26	29.84
Observations	1875	876	999	1220	375	845

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Country-based cluster-robust standard errors in parentheses. The dependent variable is the short-term interest rate regressed on the instrument, fixed effects and when appropriate, controls. The set of controls includes: (i) the change in short-term interest rate; (ii) the change in long-term interest rate; (iii) the change in mortgages to GDP ratio; (iv) the change in real house prices as a ratio to per capita income; (v) real per capita GDP growth; (vi) the change in the investment to GDP ratio; (vii) the change in the ratio of non-mortgage loans to GDP ratio; (viii) CPI inflation; and (ix) the current account to GDP ratio. We include contemporaneous terms and two lags. The full sample starts in 1870 and ends in 2010. The pre-WW2 sample ends in 1938. The post-WW2 sample begins in 1946. World Wars omitted from all samples. See text.

LP-IV estimated responses

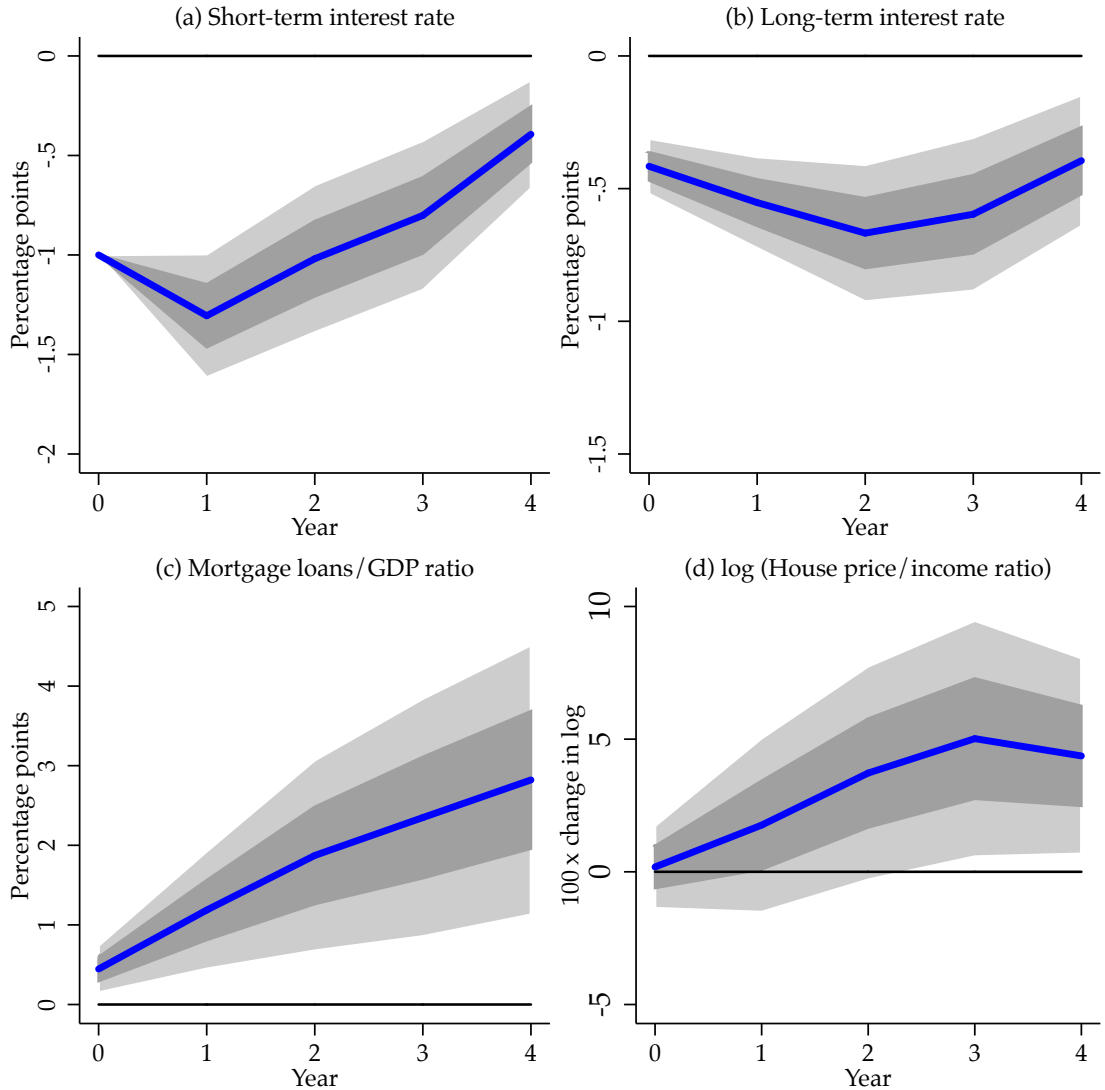
Baseline results: full control set, sample is all years

Responses	Year $h=0$	Year $h=1$	Year $h=2$	Year $h=3$	Year $h=4$
Δ_h *Short-term interest rate*	1.00	1.31***	1.02***	0.80***	0.39***
		(0.16)	(0.19)	(0.19)	(0.14)
Kleibergen-Paap		26.64	26.59	26.43	27.10
Δ_h *Long-term interest rate*	0.42***	0.55***	0.67***	0.60***	0.39***
	(0.05)	(0.09)	(0.13)	(0.15)	(0.13)
Kleibergen-Paap	35.58	35.24	35.29	34.66	35.21
Δ_h *Mortgage Loans/GDP*	-0.45***	-1.19***	-1.87***	-2.35***	-2.82***
	(0.15)	(0.38)	(0.61)	(0.76)	(0.86)
Kleibergen-Paap	28.44	28.08	27.90	27.97	28.49
Δ_h log *(House Price/Income)*	-0.18	-1.76	-3.72*	-5.02**	-4.37**
	(0.79)	(1.67)	(2.05)	(2.27)	(1.88)
Kleibergen-Paap	27.65	27.23	27.01	27.01	27.53

Notes: Δ_h denotes change from year $t-1$ to $t+h$. * $p<0.10$, ** $p<0.05$, *** $p<0.01$. Country-based cluster-robust standard errors in parentheses. Coefficient estimates of fixed effects and controls not reported. The set of controls includes: (i) the change in short-term interest rate; (ii) the change in long-term interest rate; (iii) the change in mortgages to GDP ratio; (iv) the change in real house prices as a ratio to per capita income; (v) real per capita GDP growth; (vi) the change in the investment to GDP ratio; (vii) the change in the ratio of non-mortgage loans to GDP ratio; (viii) CPI inflation; and (ix) the current account to GDP ratio. We include contemporaneous terms and two lags. The full sample starts in 1870 and ends in 2010. Kleibergen and Paap (2006) statistic for weak instruments reported. World Wars omitted. See text.

LP-IV estimated responses

"Boom experiment": exogenous perturbation in short-term rate of −100 bps



LP-IV estimated responses

Robustness check 1: OLS versus IV (attenuation bias)

Responses		Year $h=0$	Year $h=1$	Year $h=2$	Year $h=3$	Year $h=4$
Δ_h *Short-term interest rate*	OLS	1.00	0.69***	0.45***	0.38***	0.35***
			(0.06)	(0.04)	(0.05)	(0.07)
	IV	1.00	1.31***	1.02***	0.80***	0.39***
			(0.16)	(0.19)	(0.19)	(0.14)
Δ_h *Long-term interest rate*	OLS	0.34***	0.33***	0.32***	0.26***	0.26***
		(0.03)	(0.04)	(0.04)	(0.03)	(0.03)
	IV	0.42***	0.55***	0.67***	0.60***	0.39***
		(0.05)	(0.09)	(0.13)	(0.15)	(0.13)
Δ_h *Mortgage loans/GDP*	OLS	-0.11***	-0.15**	-0.25***	-0.29**	-0.45***
		(0.04)	(0.06)	(0.08)	(0.11)	(0.15)
	IV	-0.45***	-1.19***	-1.87***	-2.35***	-2.82***
		(0.15)	(0.38)	(0.61)	(0.76)	(0.86)
Δ_h log *House prices/income*	OLS	0.35	0.15	-0.33	-0.67	-0.90
		(0.33)	(0.40)	(0.48)	(0.51)	(0.56)
	IV	-0.18	-1.76	-3.72*	-5.02**	-4.37**
		(0.79)	(1.67)	(2.05)	(2.27)	(1.88)

LP-IV estimated responses

Robustness Check 2: Excluding controls (attenuation also)

Responses	Year $h=0$	Year $h=1$	Year $h=2$	Year $h=3$	Year $h=4$
Δ_h *Short-term interest rate*	1.00	1.34***	1.08***	0.91***	0.76***
		(0.08)	(0.09)	(0.11)	(0.13)
Kleibergen-Paap		65.14	65.01	64.50	64.43
Δ_h *Long-term interest rate*	0.40***	0.55***	0.64***	0.61***	0.49***
	(0.05)	(0.07)	(0.10)	(0.12)	(0.11)
Kleibergen-Paap	70.42	70.00	69.45	69.74	69.67
Δ_h *Mortgage loans/GDP*	-0.20***	-0.54***	-0.85***	-1.11***	-1.41***
	(0.07)	(0.18)	(0.31)	(0.39)	(0.49)
Kleibergen-Paap	64.50	64.44	64.09	64.06	63.64
Δ_h log *House prices/income*	-0.06	-0.81	-2.00	-2.87**	-2.96**
	(0.52)	(1.02)	(1.26)	(1.40)	(1.22)
Kleibergen-Paap	72.01	71.98	71.98	72.03	71.69

LP-IV estimated responses

Robustness check 3: Subsample sensitivity, including control set, year-4

Responses in year 4	All Years	Pre-WW2	Post-WW2	Set $z = 0$ 1946–72	Exclude 1946–72	Exclude 1914–72
Δ_4 *Short-term interest rate*	0.39***	0.36**	0.31*	0.36**	0.39**	0.30
	(0.14)	(0.18)	(0.18)	(0.16)	(0.16)	(0.23)
Kleibergen-Paap	27.10	9.67	26.59	27.84	25.07	21.16
Δ_4 *Long-term interest rate*	0.39***	0.40***	0.24	0.40***	0.41***	0.36*
	(0.13)	(0.15)	(0.15)	(0.14)	(0.14)	(0.18)
Kleibergen-Paap	35.21	8.89	33.23	34.07	32.21	25.27
Δ_4 *Mortgage loans/GDP*	-2.82***	-1.94	-2.67***	-2.95***	-3.10***	-3.47***
	(0.86)	(1.32)	(0.91)	(0.95)	(0.93)	(1.06)
Kleibergen-Paap	28.49	9.49	28.29	29.48	26.52	22.84
Δ_4 log *House prices/income*	-4.37**	-1.34	-5.37**	-4.66**	-4.38**	-5.88***
	(1.88)	(4.82)	(2.12)	(2.14)	(2.04)	(2.25)
Kleibergen-Paap	27.53	7.99	24.99	27.92	25.25	20.01

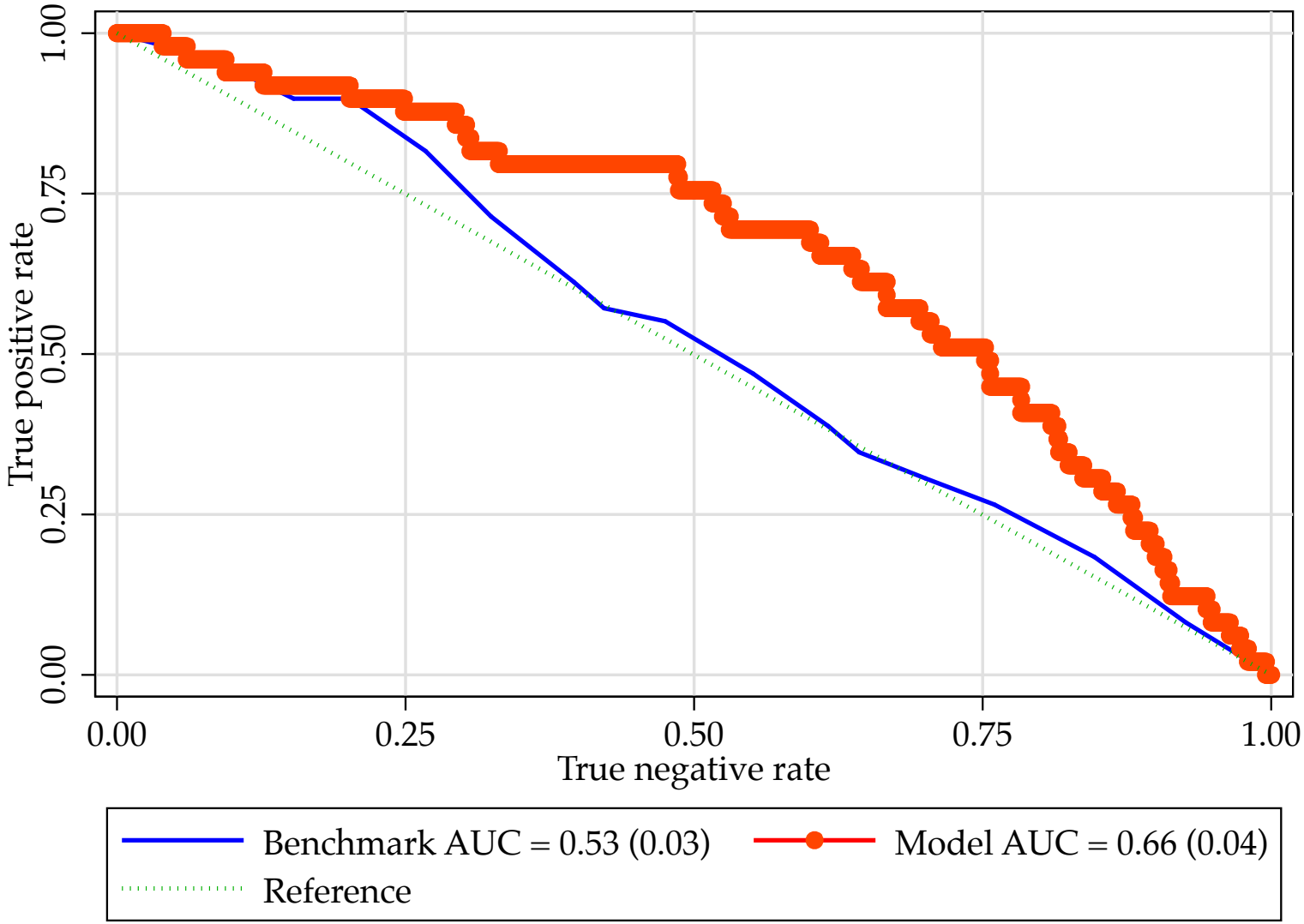
Financial crisis prediction

Binary classification based on mortgage lending and house prices

(a) Logit models, country fixed effects	(1) All years	(2) Pre-WW2	(3) Post-WW2
Mortgage loans/GDP, lagged 5-year change	0.17**	0.11	0.26**
	(0.08)	(0.14)	(0.10)
log *(House prices/income),* lagged 5-year change	0.07**	0.08	0.07
	(0.03)	(0.05)	(0.05)
Observations	1275	415	860
(b) Correct classification frontier statistics			
Model AUC	0.66	0.63	0.71
	(0.04)	(0.06)	(0.06)
Benchmark AUC, country fixed effects only	0.53	0.53	0.54
	(0.03)	(0.03)	(0.06)
H_0 : AUC model = AUC benchmark (p-value)	0.02	0.17	0.02

Financial crisis prediction

Binary classification based on mortgage lending and house prices



Conclusions

Patterns that emerge strongly after WW2...

1. *Changing role of banking:*
   Mortgage lending share from $\frac{1}{3}$ to $\frac{2}{3}$

2. *Fluctuations over the business cycle:*
   short rates $\rightarrow$ mortgages + house prices

3. *Predicting financial crises:*
   mortgages + house prices $\rightarrow$ financial crises

Background papers available in working paper form

- **Betting the House.** Just discussed.
- **The Great Mortgaging:** Discussion of new historical dataset of credit broken down by mortgages and non-mortgages. Long-run trends and business cycle fluctuations. Financial crises and type of credit buildups.