Capital Flows, Real Estate, and Local Cycles: Evidence from German Cities, Firms, and Banks

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* *The views expressed in this paper do not necessarily reflect the views or the position of the Deutsche Bundesbank.*

Motivation

- Capital flows are pro-cyclical (e.g., Kaminsky et al., 2005) and co-move with property prices (Jorda et. al., 2018), but not much causal evidence (e.g., Cesa-Bianchi et al. 2018)

- Real estate has a large weight in economies' income and wealth (Davis and van Nieuwerburgh, 2015 and Piazzesi and Schneider, 2015).

  - In the case of Germany:
    - ⋆ Buildings, structures, and land are about 65 percent of households' net worth, despite a 50 percent home ownership
    - ⋆ Construction investment is about 5 percent of GDP, or 20-25 percent of total investment, roughly split between commercial and residential, in line with the OECD average

- What is the role of real estate markets in the transmission of capital flow shocks?
  - Are there causal effects?
  - What are the mechanisms?

Paper's Contribution

- Proposes a new instrument for property prices: the city distribution of refugees
- Considers both commercial and residential real estate markets
- Sets up a new data set on city-level *commercial and residential* real estate data from Bulwiengesa AG (a proprietary provider) and matched bank-firm level data from Amadeus, Bista and the German credit register

Related literature

Macro evidence on link between capital flows and real estate prices is mixed: we take a more granular approach to the analysis of impact and transmission

- Adam et al. (2012), Aizenman and Jinjarak (2009), Bian and Gete (2015) and Gete (2017), and Sa and Wieladek (2015) find a positive association
- However, Favilukis et al. (2013, 2017) find that capital flows cannot explain the US housing boom
- Yet others document a strong association between capital inflows and house prices, but assume that households and firms are equally leveraged (e.g., Cesa-Bianchi, Cespedes, and Rebucci, 2015; Cesa-Bianchi, Ferrero, and Rebucci, 2018)

Literature on the role of foreign investors: we show that refugee inflows can have similar effects

- Sa (2016) finds that foreign investors have a positive impact on house price growth
- Favilukis and Van Nieuwerburgh (2017) find that an increase in out-of-town home buyers drives up local property prices

Literature on collateral channel: we consider both residential and commercial real estate in a property price boom without credit boom

- Households and firms: Iacoviello (2005), Liu et al. (2013), Chaney et al. (2012), Schmalz et al. (2017), Cvijanovic (2014)
- Distortive nature of house price booms (e.g., Chakraborty et al., 2018; Doerr, 2018)

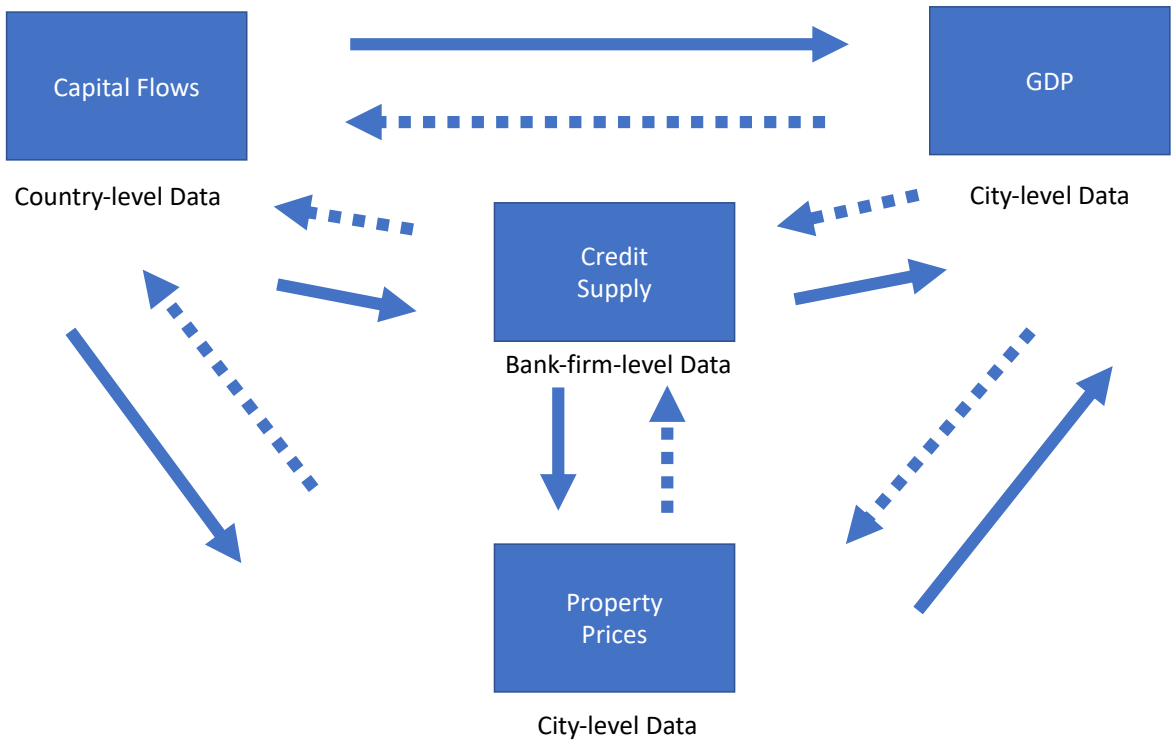
Preview of Results

1. Capital flow shocks, as measured by the spread of sovereign bonds in South Europe, have a stronger impact on output growth in cities with tighter real estate markets
   - For every 100-basis point increase in the PIGS spread, the most exposed cities grow 15-25 basis points more than the least exposed ones
   - The differential response of commercial property prices can explain most of this growth differential

2. Collateral affects the allocation of credit
   - Firms and sectors with higher share of tangible assets get a disproportionately larger share of credit

3. Firms with higher share of tangible assets **invest** more and **hire** more **without** significant TFP growth differences across sectors.
   - Capital allocation seemingly *not* distorted, consistent with the evidence of Gopinath et al. (QJE, 2017)

Road-Map


Capital Flows
GDP
Country-level Data
City-level Data
Credit Supply
Bank-firm-level Data
Property Prices
City-level Data

Empirical Strategy: Road-Map (cont.)

- **Measurement and identification**
  - We use the PIGS spread to measure bank inflows
  - We build a measure of real estate market tightness (or exposure) for identification by geographic variation
- **Main results**
  - Reduced form
  - First stage
  - IV Results
- **Mechanism**
  - Bank inflows, collateral and credit allocation
  - Firm-level employment, capital expenditure, TFP, and capital misallocation

Data

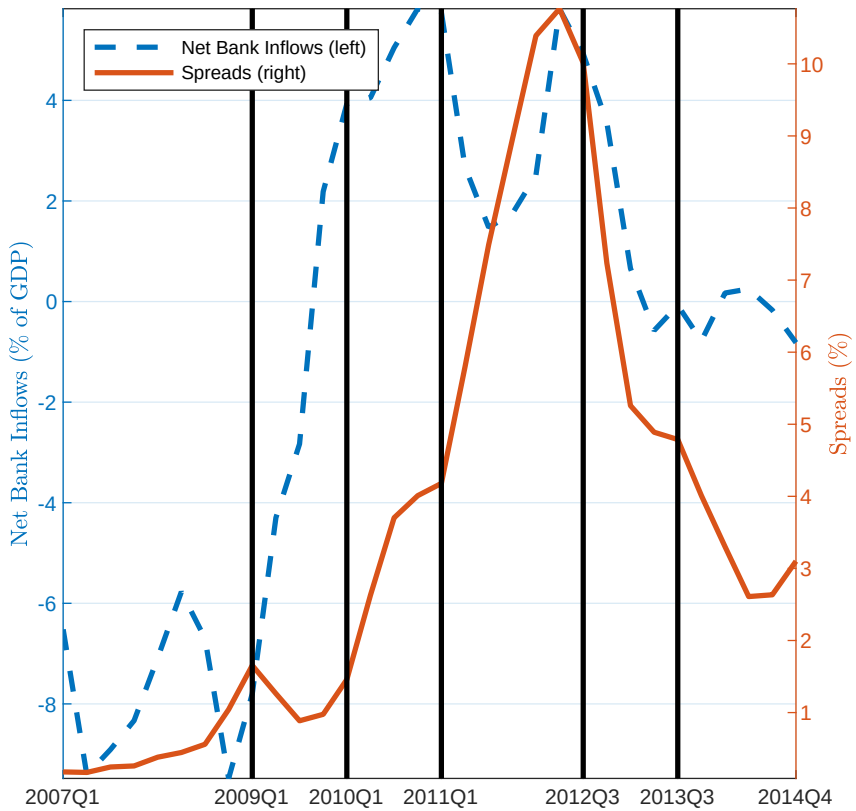
Matched city-level residential and commercial property price data from proprietary provider Bulwiengesa

- Annual frequency, from 2009 to 2014
- Coverage: 79 urban areas/cities matching the national account definition
- Residential indexes: average of detached homes, condominiums, and town houses prices, based on transaction and valuation data
- Commercial indexes: average of retail and office properties, based on transaction and valuation data
- Matching straightforward as datasets share a common city identifier

Matched bank-firm-level data from Amadeus, Bista, and the German credit register

- Quarterly frequency, from 2009Q1–2014Q4
- Coverage: 2/3 of all bank loans and 44% of German firms in the credit register
- Matching described in detail in the paper

Measurement: PIGS Spread, Bank Flows, and the European Crisis



NOTE. The five vertical lines mark the following events: (1) the beginning of the German recovery in 2009:Q1; (2) Greek bonds downgrade to junk status and the Troika's launch of the 2010 110-billion euro bail-out; (3) 2011 downgrade and euro area leaders disagreement on the rescue package for Greece; (4) "Whatever It

Measurement (Cont.): PIGS spread and bank portfolio rebalancing: when the spread widens, German banks retrench

	Country-Level	Country-Level	Country-Level	Country-Level	Country-Level	**Bank-Level**
	(1) Net Bank Inflows **Outside** Eurozone	(2) Net Bank Inflows **Inside** Eurozone	(3) **Gross** Bank Inflows **Inside** Eurozone	(4) **Gross** Bank Outflows **Inside** Eurozone	(5) Lending-Deposit Spread Domestic	(6) Foreign Assets of **Banks**
$Spread_t$	0.790	0.991***	-0.160	-1.151***	-0.115***	-0.246***
	(0.855)	(0.223)	(0.209)	(0.261)	(0.026)	(0.030)
Bank FE	-	-	-	-	-	Yes
Obs	60	60	60	60	48	89,651
R^2	0.033	0.216	0.009	0.238	0.247	0.844

NOTE. The regressions are based on quarterly data over the period 2000:Q1-2014:Q4.

Econometric Specification:

$$CF_t = \gamma * SPREAD_t + \varepsilon_t$$

where CF_t represents alternative measures of capital flows and the lending-deposit spread.

Identification: exposure to real estate market tightness

- Real estate market exposure at the city level defined as:

  "**Share of gross non-developable area**" $\times$ "**Share of refugees**"

  - Is the product of a traditional indicator of supply-side tightness (Saiz, 2010) and a novel demand-side one
  - German geography not well suited to use Saiz-type of supply elasticity instrument as developable area constrained mainly by land-use regulation instead of geography
  - We thus complement this supply variable with a demand-side indicator of real estate market tightness

Identification (Cont). Real Estate Exposure Components

Supply-side: Non-Developable Area

- This is the gross share of total area that cannot be developed according to zoning restrictions and geographic constraints

Demand-side: Share of Refugees

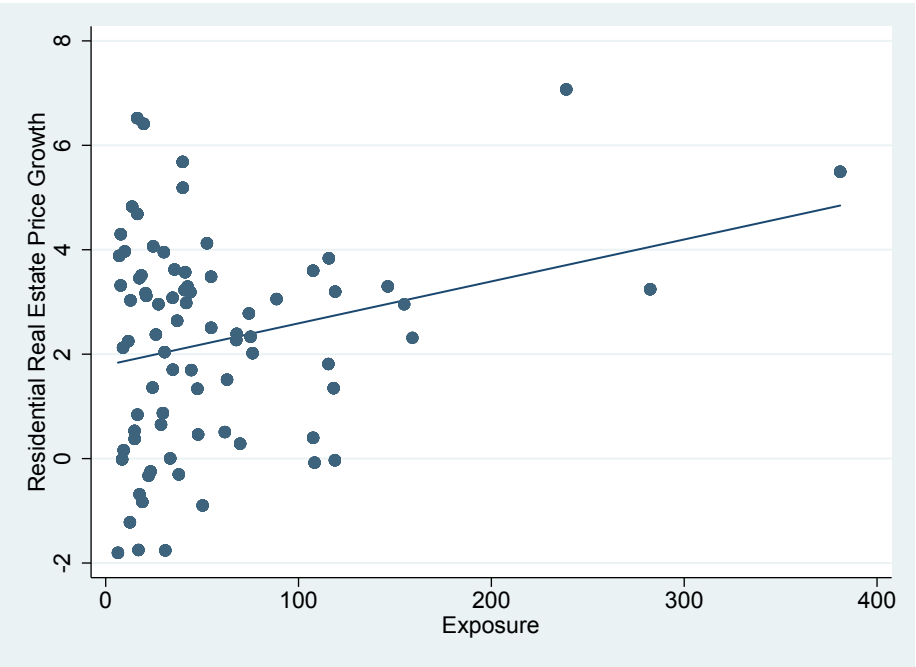
- Government allocates refugees across states following the Koenigsteiner Schluessel, established in 1949, and used also to allocate resources
- Quotas set based on lagged population (1/3) and tax revenue (2/3) criteria
- Each state uses its own distribution system, mainly population based
- Deviations from the norm are minor (Brookings, 2016)
- German policy makers complain that allocation rules put strain on local housing markets because they don't take population density or developable area into account.
- Unlikely impact on labor supply due to language barriers

City Refugee Allocation Rules and Housing Solutions

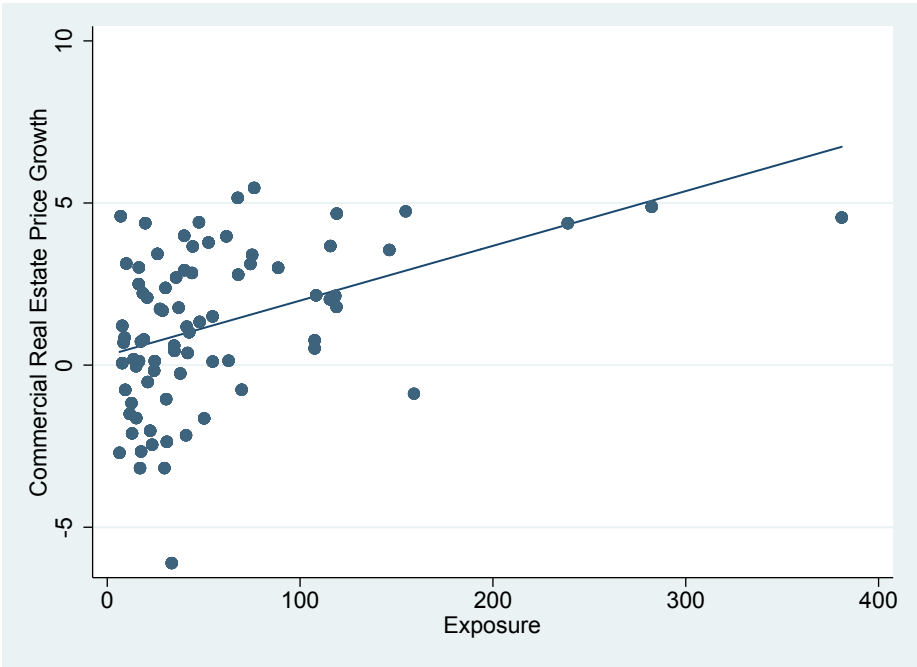
State	Allocation Criteria	Refugees in Independent Accommodations
Baden-Wrttemberg	Population	35.0
Bavaria	Population	32.0
Berlin	NA	17.0
Brandenburg	Population, number of employees	30.0
Bremen	NA	60.0
Hamburg	NA	25.0
Hesse	Population	50.0
Lower Saxony	Population	67.0
Mecklenburg-Vorpommern	Population	71.0
North Rhine-Westphalia	Population, total area	63.0
Rhineland-Palatinate	Population	78.0
Saarland	Population	79.0
Saxony	Population	53.0
Saxony-Anhalt	Population	72.0
Schleswig-Holstein	Population	62.0
Thuringia	Population level in 1998	57.0

Property Price Growth and Exposure

Panel A: Residential Real Estate

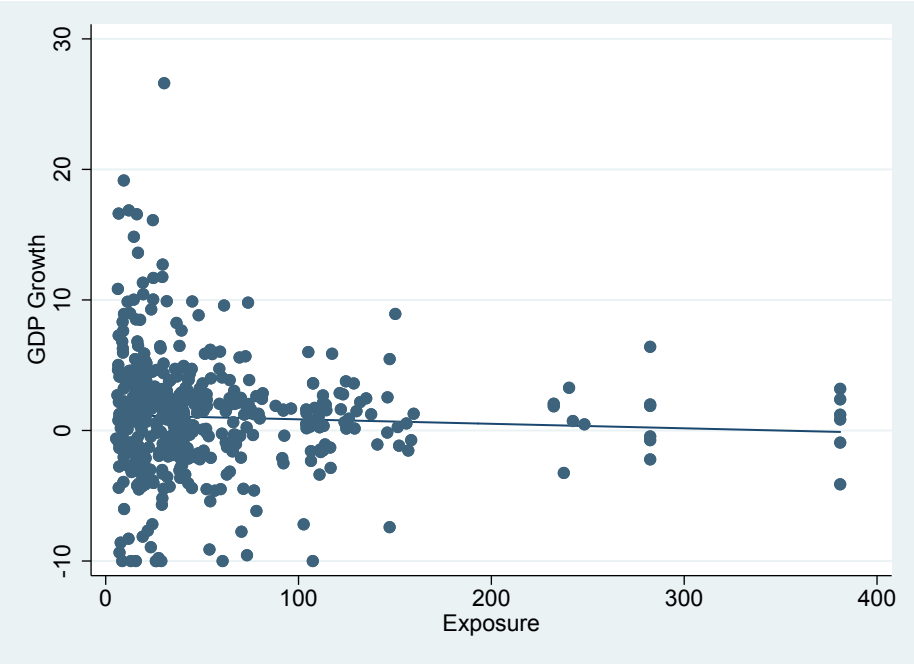


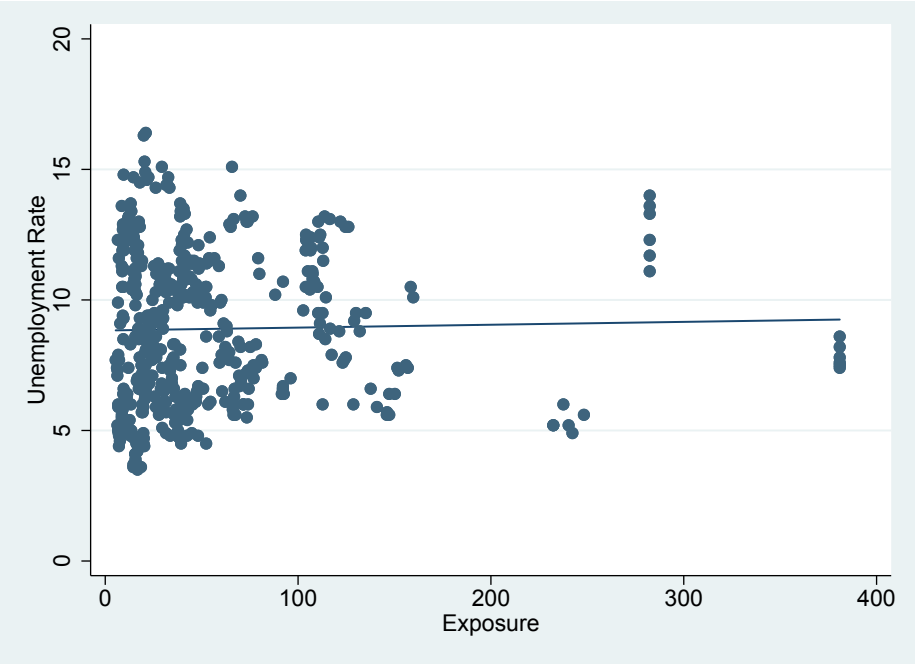
Panel B: Commercial Real Estate



NOTE. The correlation coefficient in Panel A (B) is equal to 25% (44%) with a p-value of 0 (0).

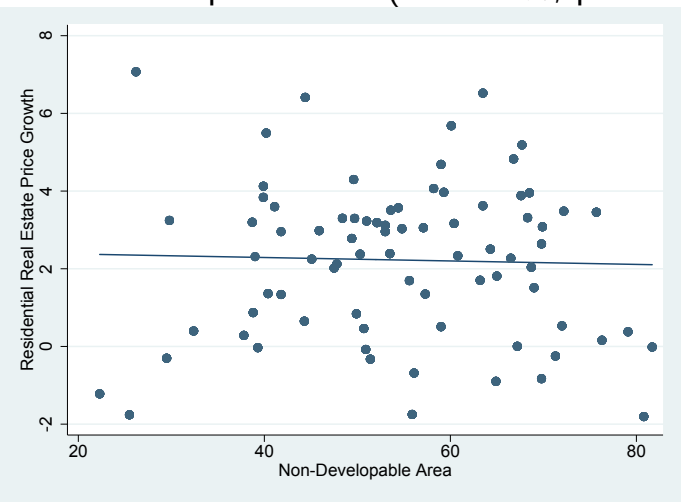
Exposure uncorrelated with city output growth and unemployment rate



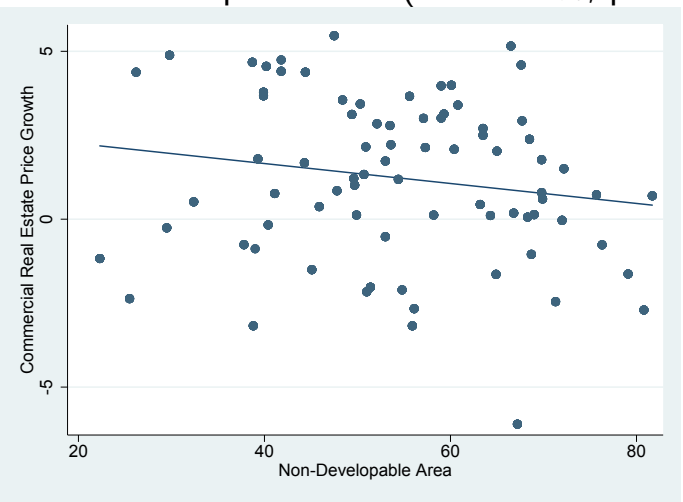


Property Price Growth and Instrument Components

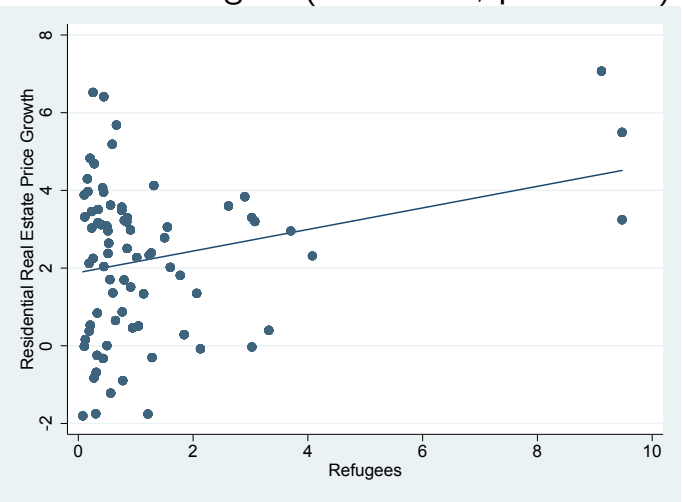
Panel A: Non-Developable Area (corr=-3%, p-value=52%)



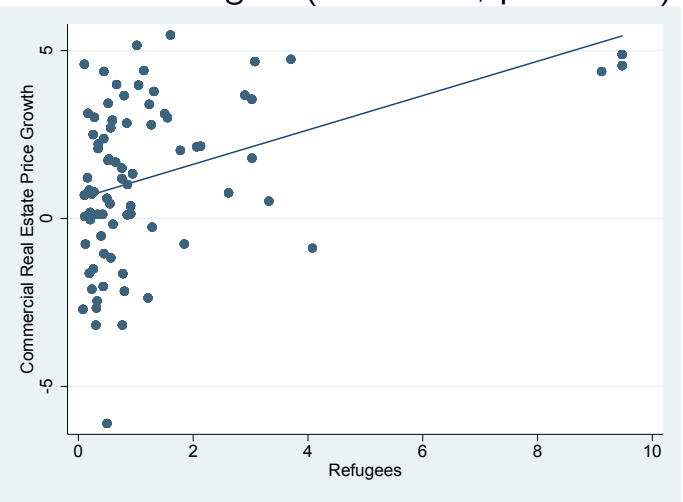
Panel B: Non-Developable Area (corr=-17%, p-value=0)



Panel C: Refugees (corr=25%, p-value=0)



Panel D: Refugees (corr=39%, p-value=0)



Commercial and residential property price changes are tightly correlated

NOTE. The correlation is 37%. The p value=0.

Reduced form (w/o outliers): bank inflows have a larger impact on output growth in cities with tighter real estate markets

	(1) ΔGDP	(2) ΔGDP	(3) ΔGDP	(4) ΔGDP
Spread_{t-1}	-0.049	-0.139**	-0.148**	-
	(0.044)	(0.064)	(0.071)	
$\text{Spread}_{t-1} \times \text{Exposure}_{t-1}$		0.002**	0.002***	0.002***
		(0.001)	(0.001)	(0.001)
Exposure_{t-1}		-0.014***	0.058*	0.035**
		(0.005)	(0.034)	(0.017)
Time FE	No	No	No	Yes
City FE	No	No	Yes	Yes
Obs	448	448	448	448
R^2	0.001	0.007	0.131	0.459

- Econometric specification:

$$\Delta GDP_{c,t} = \alpha_c + \alpha_t + \beta \cdot (\text{Spread}_{t-1} \times \text{Exposure}_{c,t-1}) + \gamma \cdot \text{Exposure}_{c,t-1} + \varepsilon_{c,t}$$

where c and t stand for city c and year t.

Reduced form (with outliers): weaker effects including city states

	(1) ΔGDP	(2) ΔGDP	(3) ΔGDP	(4) ΔGDP
Spread_{t-1}	-0.043	-0.101*	-0.102	-
	(0.043)	(0.058)	(0.064)	
$\text{Spread}_{t-1} \times \text{Exposure}_{t-1}$		0.001*	0.001*	0.001*
		(0.001)	(0.001)	(0.001)
Exposure_{t-1}		-0.008**	0.059	0.036**
		(0.004)	(0.036)	(0.017)
Time FE	No	No	No	Yes
City FE	No	No	Yes	Yes
Obs	466	466	466	466
R^2	0.001	0.005	0.127	0.461

Instrumental Variables: 2SLS

Econometric specification:

$$\begin{aligned} \Delta GDP_{c,t} &= \alpha_c + \alpha_t + \beta \cdot \text{REP}_{c,t-1} + \varepsilon_{c,t} \\ \text{REP}_{c,t-1} &= \alpha_c + \alpha_{t-1} + \gamma \cdot (\text{Spread}_{t-1} \times \text{Exposure}_{c,t-1}) + \eta_{c,t-1} \end{aligned}$$

where c and t stand for city c and year t.

First stage (Price levels): instrument relevant for both sectors, but weaker for residential

	Full sample	**Full** Sample	**Without** City States	**Without** City States
	(1)	(2)	(3)	(4)
	R*REP*	**C***REP*	**R***REP*	**C***REP*
$\text{Spread}_{t-1} \times \text{Exposure}_{t-1}$	0.005***	0.008***	0.005*	0.011***
	(0.001)	(0.001)	(0.003)	(0.002)
Time FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
F-Statistic	17.9	27.7	2.9	21.8
Obs	466	466	448	448
R^2	0.703	0.730	0.683	0.738

Second Stage (Price levels): both residential and commercial property price changes caused by bank inflows have an impact on output growth, but effect is not estimated precisely in the residential sector

	Full sample	Full Sample	No City States	No City States
	(1)	(2)	(3)	(4)
	ΔGDP	ΔGDP	ΔGDP	ΔGDP
$RREP_{t-1}$	0.235**		0.517	
	(0.11)		(0.326)	
$CREP_{t-1}$		0.165**		0.221***
		(0.082)		(0.077)
Time FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Obs	466	466	448	448
R^2	0.404	0.453	0.216	0.439

First stage (Price changes): instrument relevant for both sectors, but weaker for residential

	Full sample	Full Sample	Without City States	Without City States
	(1)	(2)	(3)	(4)
	$\Delta RREP$	$\Delta CREP$	$\Delta RREP$	$\Delta CREP$
$\text{Spread}_{t-1} \times \text{Exposure}_{t-1}$	0.001^{*}	0.004^{***}	0.002^{**}	0.006^{***}
	(0.001)	(0.001)	(0.001)	(0.001)
Time FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
F-Statistic	2.9	21.4	4.6	39.5
Obs	466	466	448	448
R^2	0.558	0.517	0.557	0.528

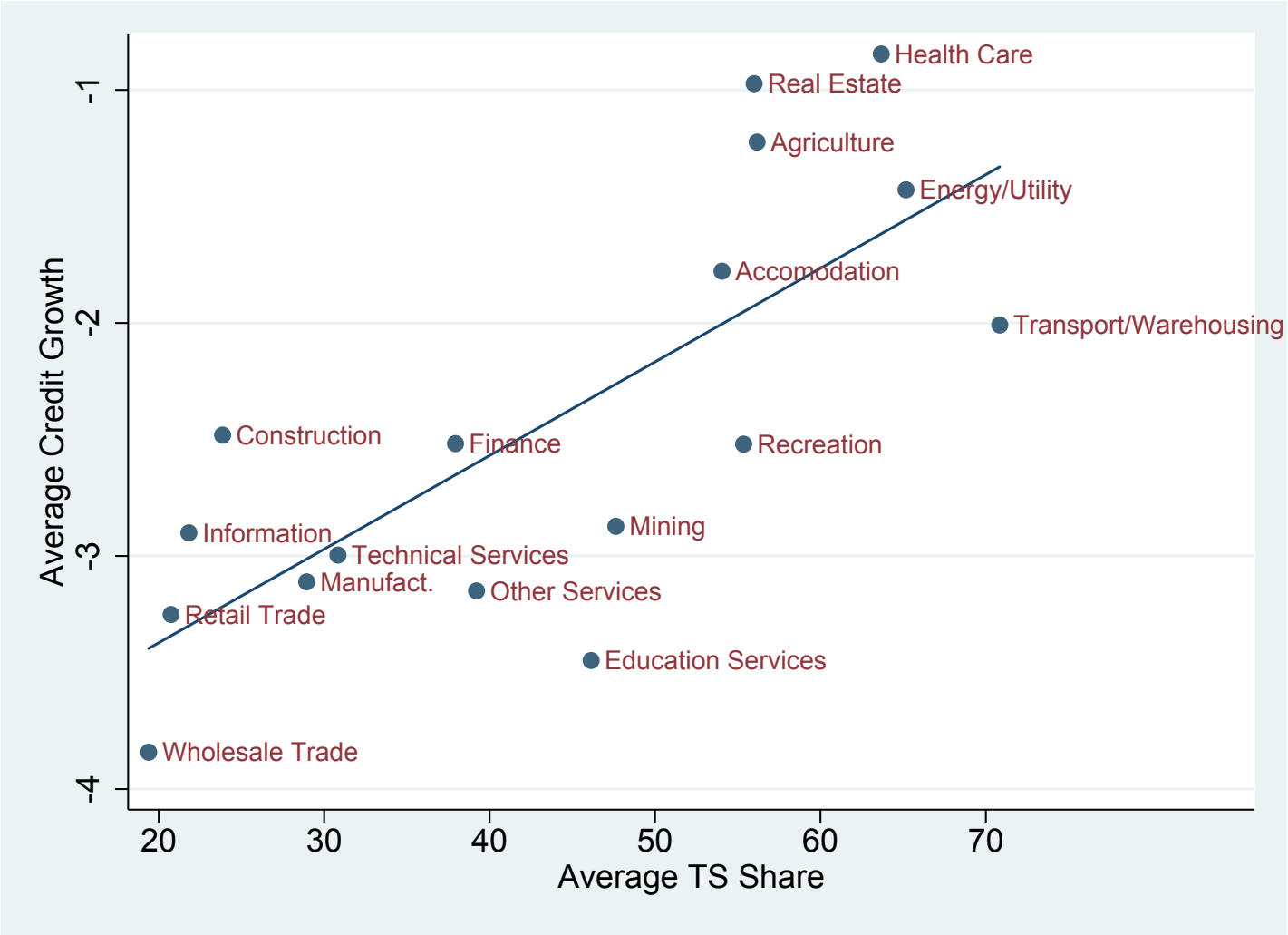
Same results with property price changes

	Full sample	Full Sample	No City States	No City States
	(1)	(2)	(3)	(4)
	ΔGDP	ΔGDP	ΔGDP	ΔGDP
ΔRREP$_{t-1}$	1.122		1.295	
	(0.839)		(0.781)	
ΔCREP$_{t-1}$		0.287*		0.443***
		(0.169)		(0.166)
Time FE	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes
Obs	466	466	448	448
R^2	0.147	0.437	0.034	0.414

A Horse Race between Residential and Commercial Sector (OLS Estimates)

	Full sample	Full Sample	Full Sample	Without City States	Without City States	Without City States
	(1)	(2)	(3)	(4)	(5)	(6)
	ΔGDP	ΔGDP	ΔGDP	ΔGDP	ΔGDP	ΔGDP
$\text{Spread}_{t-1} \times \Delta RREP_{t-1}$	0.020		0.008	0.024		0.010
	(0.021)		(0.023)	(0.022)		(0.024)
$\text{Spread}_{t-1} \times \Delta CREP_{t-1}$		0.039**	0.037*		0.040**	0.039*
		(0.017)	(0.020)		(0.018)	(0.020)
$\Delta RREP_{t-1}$	-0.101		0.008	-0.135		0.010
	(0.145)		(0.142)	(0.144)		(0.143)
$\Delta CREP_{t-1}$		-0.174*	-0.170*		-0.159	-0.153
		(0.097)	(0.095)		(0.102)	(0.099)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
City FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs	466	466	466	448	448	448
R^2	0.459	0.462	0.462	0.455	0.458	0.458

Credit Allocation. Credit grew more (fell less) in sectors with more collateral



Credit Allocation. Firms with more collateral receive more credit

	(1) ΔL	(2) ΔL	(3) ΔL	(4) ΔL	(5) ΔL
$\text{Spread}_{t-1} \times \text{TS}_{t-4}$	0.013***				
	(0.003)				
$\text{Spread}_{t-1} \times \text{TS}_{\text{Industry},t-4}$		0.014***			
		(0.003)			
$\text{Spread}_{t-1} \times (\text{TS}_{2008} * \text{CREP}_{t-4})$			0.011**		
			(0.005)		
$\text{Spread}_{t-1} \times \text{TS}_{t-4} \times \text{Interbank}_{t-1}$				0.467**	
				(0.231)	
$\text{TS}_{t-4} \times \text{Interbank}_{t-1}$				-3.832**	
				(1.813)	
$\text{Spread}_{t-1} \times \text{TS}_{t-4} \times \text{Net Foreign Assets}_{t-1}$					0.030*
					(0.017)
$\text{TS}_{t-4} \times \text{Net Foreign Assets}_{t-1}$					-0.370***
					(0.122)
Firm-Year FE	Yes	Yes	Yes	No	No
Firm-Year-Quarter FE	No	No	No	Yes	Yes
Bank-Year-Quarter FE	Yes	Yes	Yes	Yes	Yes
Obs	573,985	707,742	188,965	387,734	514,985
R^2	0.141	0.145	0.147	0.456	0.430

- Econometric specification:

$$\Delta \text{L}_{i,j,qy} = \alpha_{i,qy} + \alpha_{j,y} + \beta \cdot (\text{SPREAD}_{qy-1} \times \text{TS}_{j,qy-4}) + \varepsilon_{i,j,qy},$$

where $\{i, j, q, y\}$ stand for bank i, firm j, quarter q and year y.

Credit allocation (Cont.). Sectors with more collateral received a more than proportional share of credit

Dependent variable: ΔL	
$\text{Spread}_{qy-1} \times \text{I}_{\text{Agriculture}}$	2.980***
	(0.97)
$\text{Spread}_{qy-1} \times \text{I}_{\text{Energy/Utility}}$	1.053***
	(0.27)
$\text{Spread}_{qy-1} \times \text{I}_{\text{Transport/Warehousing}}$	0.628**
	(0.24)
$\text{Spread}_{qy-1} \times \text{I}_{\text{Information}}$	-1.635**
	(0.80)
$\text{Spread}_{qy-1} \times \text{I}_{\text{Real Estate}}$	0.960***
	(0.33)
Bank-Time FE	Yes
Firm-Year FE	Yes
Obs	708,714
R^2	0.133

- Econometric specification:

$$\Delta \text{L}_{i,j,qy} = \alpha_{i,qy} + \alpha_{j,y} + \beta \cdot (\text{SPREAD}_{qy-1} \times \text{I(SECTOR)}_j) + \varepsilon_{i,j,qy},$$

Firm-level and Industry-level Outcomes

	Firm-Level	Firm-Level	Firm-Level	Firm-Level	Industry-Level	Industry-Level
	(1)	(2)	(3)	(4)	(5)	(6)
	ΔINTEXP	ΔEMPL	ΔK	ΔTFP	ΔTFP	SD(TFP)
$\text{Spread}_{t-1} \times \text{TS}_{t-1}$	-0.031***	0.009***	0.144*	-0.002	-	-
	(0.01)	(0.00)	(0.08)	(0.01)		
$\text{Spread}_{t-1} \times \text{TS}_{\text{Industry},t-1}$	-	-	-	-	-0.016	0.005
					(0.02)	(0.03)
TS_{t-1}	1.279***	-0.042	1.225***	0.386***	-	-
	(0.16)	(0.07)	(0.34)	(0.08)		
$\text{TS}_{\text{Industry},t-1}$	-	-	-	-	1.308	0.335
					(0.86)	(1.14)
LDV_{t-1}	-0.369***	-0.484***	0.031	-0.425***	-0.358**	-0.024
	(0.01)	(0.03)	(0.03)	(0.03)	(0.12)	(0.21)
Firm FE	Yes	Yes	Yes	Yes	-	-
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	-	-	-	-	Yes	Yes
Obs	22419	41827	50774	15143	64	64
R^2	0.311	0.364	0.031	0.389	0.340	0.735

Robustness Checks

- Results are robust when we control for government stimulus programs in 2009-2010
- Results stronger when controlling for other firm variables interacted with the PIGS spread
- Results are robust when we construct the exposure measure with alternative supply or demand indicators
- Results unchanged using time-invariant measures of Exposure and Collateral

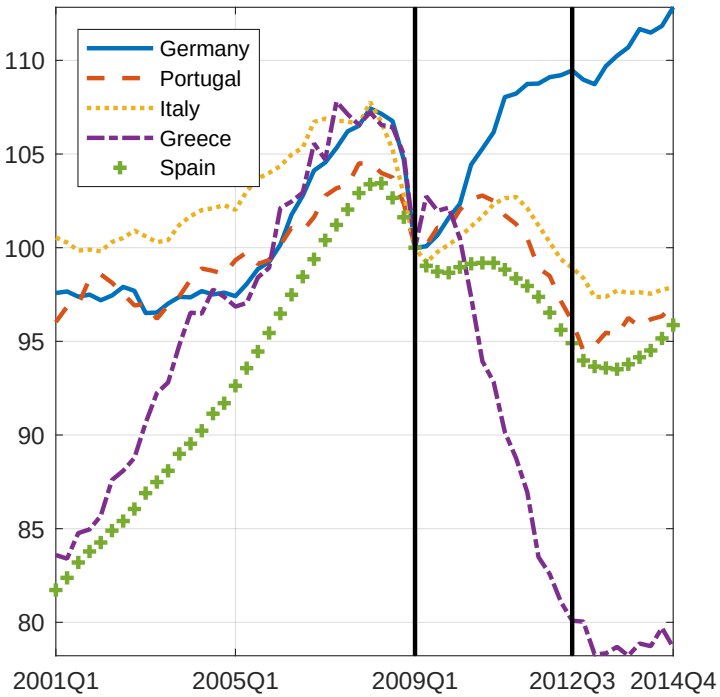
Conclusions

- Cities in which real estate market are tighter respond more to capital flow shocks
  - For every 100-basis point increase in the PIGS spread, the most exposed cities grow 15-25 basis points more than the least exposed ones
  - The differential response of commercial property prices can explain most of this growth differential
- Collateral affects credit allocation
  - Firms with a larger share of tangible assets in total assets receive a disproportionately larger share of total credit
  - Firms (and sectors) with higher share of tangible assets hire and invest more
  - But TFP grows as fast as in other sectors without evidence of capital misallocation

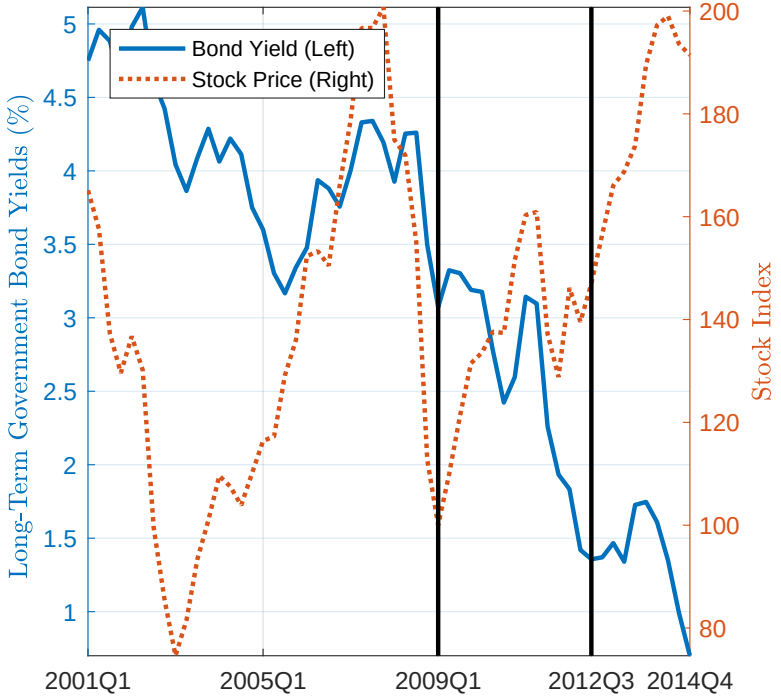
THANK YOU!

The German recovery starts in 2009:Q1 and continues throughout, much stronger than in the rest of Europe, with equity and bond prices soaring

Panel A: Real GDP (Index 2009:Q1=100)



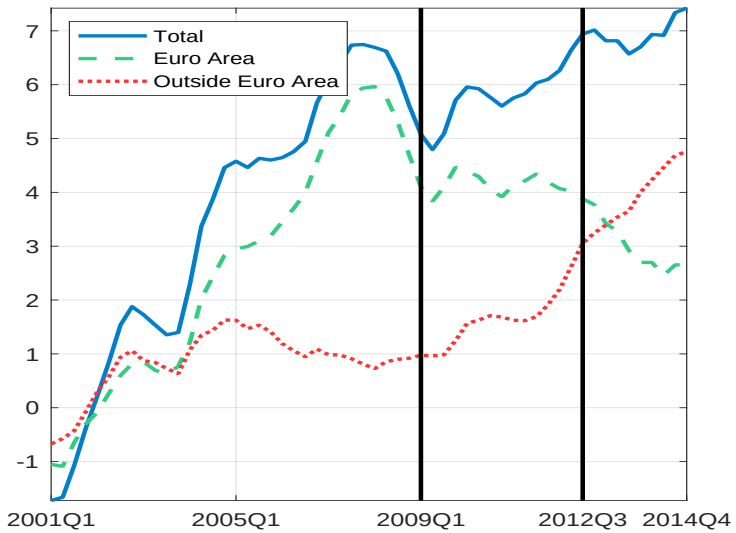
Panel B: Nominal Bond Yield and Stock Prices



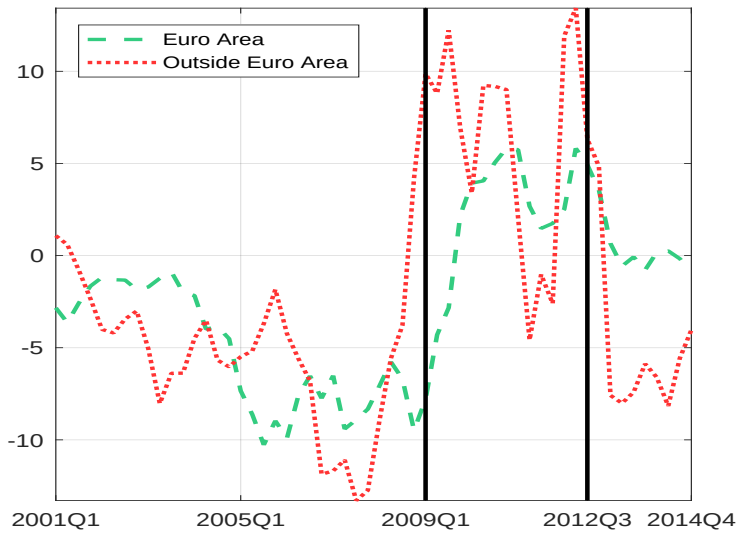
Note. The vertical lines mark the beginning of the recovery in 2009 and the "Whatever It Takes" speech by ECB Governor Draghi in 2012, respectively. Variables are normalized to 100 in 2009.

Post-2009, net capital **out**flows toward the rest of the Euro Area **decline**, while net outflows toward the rest of the world outside the Euro Area **increase** sharply. Banks' net foreign assets change dramatically as well

Panel A: Current Account Balances (% of GDP)



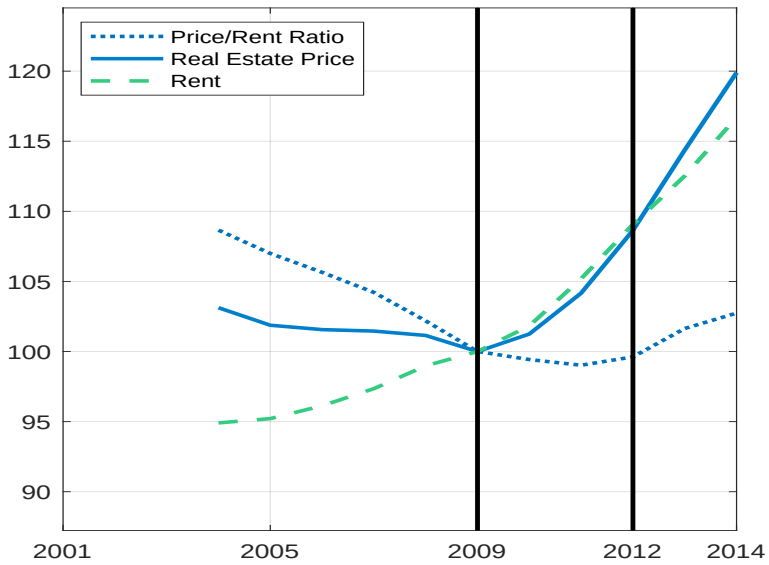
Panel B: Net Bank Inflows (% of GDP)



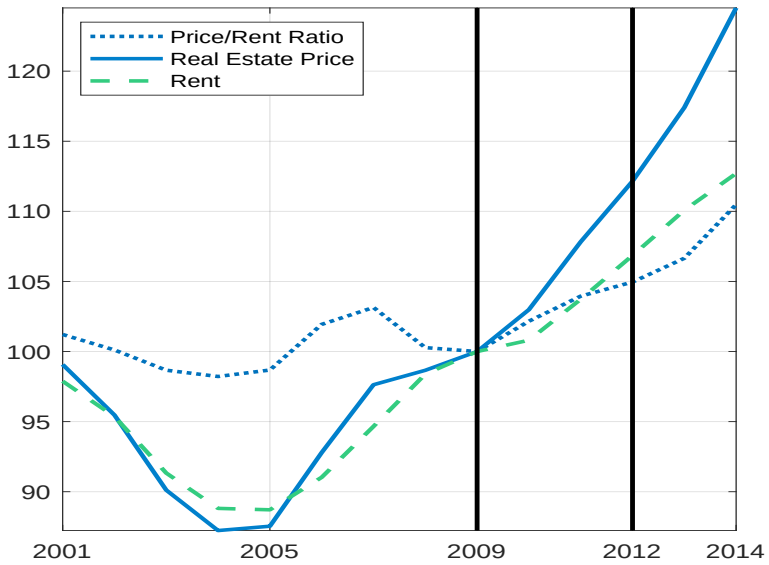
Note. The vertical lines mark the beginning of the recovery in 2009 and the "Whatever It Takes" speech by ECB Governor Draghi in 2012, respectively.

German real estate markets booming since 2009, with the commercial sector leading the residential one

Panel A: Residential Real Estate



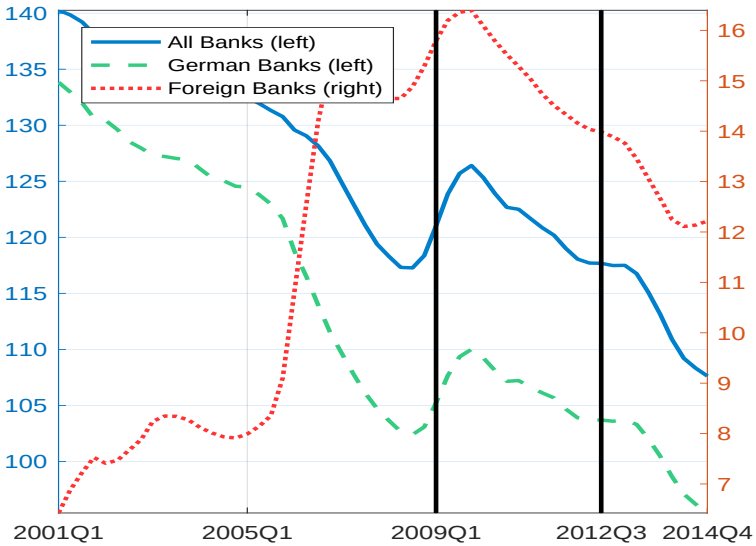
Panel B: Commercial Real Estate



Note. The vertical lines mark the beginning of the recovery in 2009 and the "Whatever It Takes" speech by ECB Governor Draghi in 2012, respectively. Variables are normalized to 100 in 2009.

Without a credit boom: credit grows slower than nominal GDP

Panel A: Bank Lending to Domestic Sector



Panel B: Bank Lending for Housing Purchases

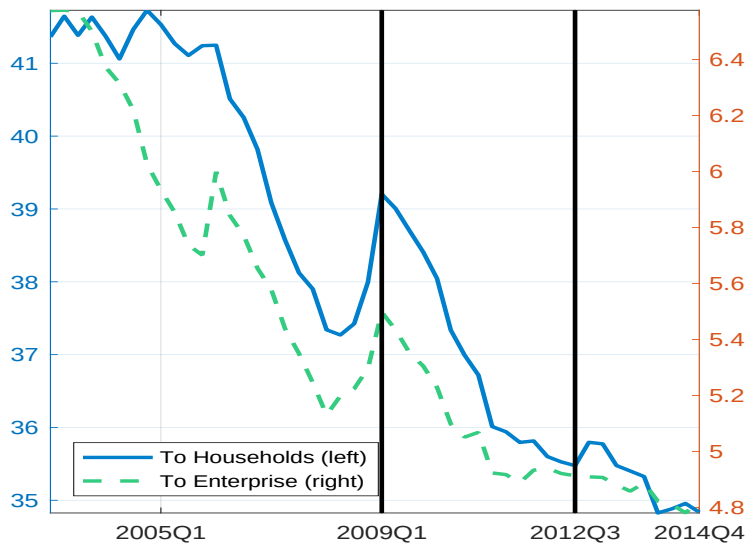
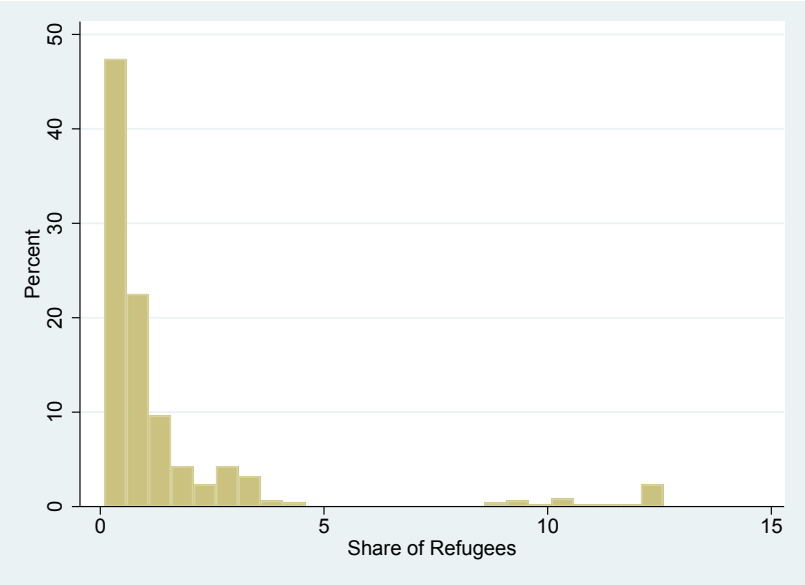


Figure: Credit aggregates as a share of GDP (In percent)

Note. The vertical lines mark the beginning of the recovery in 2009 and the "Whatever It Takes" speech by ECB Governor Draghi in 2012, respectively. Bank lending is the stock of bank loans as a percentage of GDP.

Only a few cities have a high average share of refugees



NOTE. Percent of cities with a given share of refugees. Share of refugees is defined as the percent of refugees in a given city relative to all German refugees in the same year.

Industry Definitions

NAICS Code	Industry Name	Average TS (in %)
11	Agriculture	56.2
21	Mining	47.6
22	Energy/Utility	65.2
23	Construction	23.9
31-33	Manufacturing	28.9
42	Wholesale Trade	19.4
44-45	Retail Trade	20.7
48-49	Transport/Warehousing	70.8
51	Information	21.8
52	Finance	37.9
53	Real Estate	56.0
54-56	Technical Services	30.8
61	Education Services	46.1
62	Health Care	63.7
71	Recreation	55.4
72	Accommodation	54.0
81	Other Services	39.2

Robustness Analysis: PIGS Spread and Bank Inflows 2007-2014

	Country-Level	Country-Level	Country-Level	Country-Level	Country-Level	Bank-Level
	(1) Net Bank Inflows Outside Eurozone	(2) Net Bank Inflows Inside Eurozone	(3) Gross Bank Inflows Inside Eurozone	(4) Gross Bank Outflows Inside Eurozone	(5) Lending-Deposit Spread	(6) Bank Share of Foreign Assets
$Spread_t$	0.485	0.976***	-0.026	-1.002**	-0.133***	-0.246***
	(1.086)	(0.330)	(0.339)	(0.404)	(0.041)	(0.030)
Bank Controls	-	-	-	-	-	Yes
Macro Controls	-	-	-	-	-	Yes
Bank FE	-	-	-	-	-	Yes
Obs	32	32	32	32	32	86,129
R^2	0.010	0.206	0.000	0.186	0.260	0.864

Robustness Analysis: Bank Flows, Real Estate Exposure, and City Business Cycles: Alternative Instruments

	Population Density	Refugees in 2009	Building Permits
	(1)	(2)	(3)
	ΔGDP	ΔGDP	ΔGDP
$\text{Spread}_{t-1} \times \text{Exposure}_{t-1}$	0.004*	0.001*	0.001**
	(0.002)	(0.001)	(0.001)
Exposure_{t-1}	-0.194	-	-0.109**
	(0.131)		(0.052)
Time FE	Yes	Yes	Yes
City FE	Yes	Yes	Yes
Obs	466	466	466
R^2	0.462	0.460	0.459

Robustness Analysis: Capital Flows and Bank Lending

	(1) ΔL	(2) ΔL	(3) ΔL	(4) ΔL	(5) ΔL
$\text{Spread}_{t-1} \times \text{TS}_{t-4}$	0.013***	0.015***	0.016***	0.014***	0.014***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
$\text{Spread}_{t-1} \times \text{EQ}_{t-4}$	-0.008*	-0.004	-0.009		
	(0.003)	(0.003)	(0.003)		
$\text{Spread}_{t-1} \times \text{ROA}_{t-4}$		-0.047***	-0.045***		
		(0.003)	(0.003)		
$\text{Spread}_{t-1} \times \text{TA}_{t-4}$			0.128***		
			(0.003)		
Firm-Year FE	Yes	Yes	Yes	Yes	Yes
Bank-Time FE	Yes	Yes	Yes	Yes	Yes
Obs	568,128	410,649	410,649	387,734	512,985
R^2	0.145	0.145	0.145	0.136	0.141