Home Away From Home?
Foreign Demand and London House Prices

Workshop on Demand for Safety

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Oxford, CEPR Oxford

University of Amsterdam, June 2015
London and the Lucas Puzzle

- Residential real estate in a time of globalization.
  - Cross-border ownership of this “non-tradable” asset.
  - “Global” cities on the frontlines.

- Shrill commentary: “oligarchs seeking safe haven,” “immigrants usurping housing stock.”
  - Rigorous evidence notably absent.
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- London: natural candidate for investigation
  - Liberal regime, visible issue, high-quality data.
  - But identification is a challenge.
Media Attention

- "The New York real-estate market is now the premier destination for wealthy foreigners with rubles, yuan, and dollars to hide." *New York Magazine* (2014)

- "The rising flow of foreign capital [...] has turned Vancouver into a truly global real estate market. [...] There is a search for better data on foreign buyers, which is only haphazardly tracked." *The Globe and Mail* (2014)

- "In recent years, Asian buyers have made an impact on cities around the world, with Hong Kong, Singapore, Mumbai, and London among the top locations for residential investment." *Financial Times* (2014)


- “There is a real lack of data to underpin a systematic study of the market impact of overseas investment in London." *Andrew Heywood* (2012), *International Union for Housing Finance*
London house price spread

Time series variation lines up with the dynamics of global uncertainty
This paper

- New approach to identify impacts of foreign demand on house prices in “global cities”.

- Identifying assumption: foreign capital exhibits **home bias abroad** within London.
  - Additional power of the cross-section.
  - More general methodological contribution.
This paper

- New approach to identify impacts of foreign demand on house prices in “global cities”.

- Identifying assumption: foreign capital exhibits home bias abroad within London.
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  - More general methodological contribution.

- Evidence that London housing is a safe-haven for foreign capital flows pushed by domestic risk.
  - Arbitrage frictions in real estate assist identification, illiquidity helps interpretation as flight-to-safety effect.

- Interesting insights into sources of these effects.
Illustrating the Method

- In late 2009 and early 2010, Greek economic and political risk rises.

- Suppose Greek residents purchase London real-estate as a safe-haven investment.

- Suppose also that their “preferred habitat” is parts of London with a higher concentration of Greek-origin residents.

- Also use other identifying variables: language share, high-income locations, etc.

- Then increases in Greek risk will predict London sub-region price increases that line-up with Greek-origin share.

- Important to control for variation in local economic conditions and characteristics of properties.
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- Then increases in Greek risk will predict London sub-region price increases that line-up with Greek-origin share.
  - Important to control for variation in local economic conditions and characteristics of properties.
Period of low global risk
Correlation coefficient: -12%

House price appreciation between 2001 and 2006

Share of foreign-born people in the 2001 census
Period of high global risk
Correlation coefficient: +38%

House price appreciation between 2007 and 2012
Share of foreign-born people in the 2001 census
Related Literature

- **Political economy explanations for the Lucas puzzle**

- **Home bias and loyalty based portfolio choice**

- **Real estate markets, capital and immigration flows**

- **International capital flows and contagion**

- **"Flight-to-quality” and safe-haven assets**
  Longstaff (2004), Beber et al. (2009), Campbell et al. (2010), Baur and McDermott (2010), and Ranaldo and Söderlind (2010).
Roadmap

1. Methodology and data
2. Results
3. Time series dynamics
4. Sources of foreign demand
5. Conclusions
Methodology - I

\[ \ln P_{i,t} = \delta_t + \phi_w + \beta X_{i,t} + \sum_{k \in K} \gamma_{k} f_{w} z_{t-1}^k + \gamma_{1} y_{w} z_{t-1} \]

\[ + \rho_{1} \ln \bar{P}_{w,t-1} + \rho_{2} \ln \bar{P}_{w,t-2} + u_{i,t}. \] (1)

- \( P_{i,t} \) : price of property \( i \), in electoral ward \( w \), in month \( t \),
- \( X_{i,t} \) : hedonic characteristics
Methodology - I

\[
\ln P_{i,t} = \delta_t + \phi_w + \beta X_{i,t} + \sum_{k \in K} \gamma_0^k f_w^k z_{t-1}^k + \gamma_1 y_w \bar{z}_{t-1} + \rho_1 \ln \bar{P}_{w,t-1} + \rho_2 \ln \bar{P}_{w,t-2} + u_{i,t}. 
\]  

1. \( P_{i,t} \): price of property \( i \), in electoral ward \( w \), in month \( t \),
2. \( X_{i,t} \): hedonic characteristics,
3. \( \bar{P}_{w,t-1} \): average prices in ward \( w \) in period \( t - 1 \),
4. \( f_w^k \): fraction of people in ward \( w \) who originate from country \( k \),
5. \( \{ z_{t-1}^k \}_{k \in K} \): risk in country/world-region \( k \) in period \( t - 1 \),
6. \( y_w \): ward-level indicator of desirability, e.g., net average income,
7. \( \bar{z}_{t-1} \): average level of risk across all countries/regions \( k \in K \).
8. Implementation: top quintiles of variables.
Methodology - II

- Ward-level and time period fixed effects.
- Cross-ward price spreads are persistent:
  - Past average prices $\ln P_{w,t-1}, \ln P_{w,t-2}$ on the right-hand side of equation (1).
- Spatial and temporal correlation across electoral wards:
  - Double-clustered standard errors at borough and time level.
- Slow-moving components of foreign risk:
  - Multiple regression for nine world regions.
- Robustness:
  - Interact mortgage interest rate with UK-born share.
  - Time-varying coefficients on aggregate share of foreigners.
  - Borough $\times$ year fixed effects.
World region joint estimation results
Hedonic regression framework

Residents linked to foreign countries
– estimation at the level of world regions –

Percent price change following risk shock

<table>
<thead>
<tr>
<th>Region</th>
<th>Registry dataset</th>
<th>Loans dataset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Europe</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Middle East</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>South-Central-America</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Russia</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Northern EU and North-America</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Africa</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>South Asia</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Net average income</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Data

- **Land Registry**
  - All residential property transactions in London: 2,425,603 observations, between 1995 and 2013.

- **Nationwide Building Society**
  - All residential mortgages with London property as collateral: 154,137 observations, between 1996 and 2012.

- **Office for National Statistics**
  - Neighbourhood Statistics and ward-level census data, including economic and environmental characteristics.
  - 624 wards, sampled in 2001 and 2011.

- **External developments**
  - Bond yield spreads: 10-year sovereign bond yields relative to the UK.
  - Economic policy uncertainty index of Baker, Bloom and Davis (2013).
Time variation in risk

ICRG risk indicators
(adjusted: 100−raw value; weighted by population shares)
Time variation in risk

ICRG risk indicators
(adjusted: 100–raw value; weighted by population shares)

17 August 1998
Government devalues the ruble and defaults on sovereign debt.

23 March 1998
Boris Yeltsin dismisses the prime-minister and dissolves the government.

Index value

1997 1999 2001 2003 2005 2007 2009 2011 2013
15 20 25 30 35 40 45 50 55

Russia
3 March 1996
The Spanish Socialist Workers’ Party loses the elections to the People’s Party by a very narrow margin, after 13 years of uninterrupted rule.

Early 1996
Series of crises coming close to the outbreak of military hostilities between Greece and Turkey, known as the Aegean Dispute.

1–2 May 2010
First financial aid programmes initiated by the EU, ECB and IMF.

27 April 2010
Greek government debt devalued to junk bond status by S&P.
Time variation in risk

ICRG risk indicators
(adjusted: 100–raw value; weighted by population shares)

December 1998
The US and the UK launch Operation Desert Fox, bombing military targets in Iraq. Saudi Arabia and the UAE initially deny the military use of local bases.

28 February 1997
Government coup in Turkey, leading to the overthrow of the incumbent Islamist rule.

18 December 2010
Protests in Tunisia lead to a series of widespread demonstrations in the Middle East and North–Africa, known as the "Arab Spring"
Shares of foreign-born people
Change between 2001 and 2011

$$\Delta f_{w,2011}^k = \alpha + \rho^k f_{w,2001}^k + \beta \Delta f_{w,2011}^{UK} + e_{w,2011}.$$
Roadmap

1 Methodology and data

2 Results

3 Time series dynamics

4 Sources of foreign demand

5 Conclusions
World region joint estimation results

Hedonic regression framework

Residents linked to foreign countries
– estimation at the level of world regions –

Percent price change following risk shock

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</table>
Estimation results

Summary

- Strong positive effects on relative house prices in wards with high shares of people originating from a particular country following periods of elevated risk in that country.

- Separate channel operates through ward-level net average income.


- Next: instrument transaction volumes using foreign risk.
Housing Transaction Volumes

- Interaction terms help explain:
  - Ward-year variation in housing transaction volumes. (Table 5, Panel A)
  - Comovement between prices and transaction volumes.

- Isolate the safe-haven component of housing demand:

\[
\ln V_{w,t} = \tau_t + \varphi_w + \sum_{k \in K} \chi_0 k f^k z^k_{t-1} + \chi_1 y w \bar{z}_{t-1} + v_{w,t},
\]

\[
\ln P_{i,t} = \delta_t + \phi_w + \beta X_{i,t} + \theta \ln V_{w,t} + \ln P_{w,t-1} + \ln P_{w,t-2} + u_{i,t}.
\]

Safe-haven demand ($\hat{\theta}$) 0.262***
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Methodology: Understanding Dynamics

- Construct monthly (cleaned of hedonics) **price spreads** \( \{s_{k,t}\} \) between top and bottom 20\% of wards sorted on foreign-origin share from country \( k \):

\[
s^k_t \equiv \ln \bar{P}_{w \in \{\text{high}_k\}, t} - \ln \bar{P}_{w \in \{\text{low}_k\}, t}
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Methodology: Understanding Dynamics

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s_{t}^{k} \equiv \ln \bar{P}_{w \in \{ \text{high}_k \}, t} - \ln \bar{P}_{w \in \{ \text{low}_k \}, t}
\]

- Specification:

\[
s_{t}^{k} = \mu^{k} + \delta_{t} + \rho_{1}s_{t-1}^{k} + \rho_{2}s_{t-2}^{k} + \zeta z_{t-1}^{k} + u_{t}^{k}
\]

- Separate countries with *a priori* low levels of political risk (Northern Europe and North America).

- Average levels of political risk
Understanding Spread Dynamics
Effects across risk deciles, Registry dataset

\[ s_t^k = \mu^k + \rho_1 s_{t-1}^k + \rho_2 s_{t-2}^k + \sum_{d=1}^{10} \zeta_d \text{decile}_d(z_{t-1}^k) + u_t^k \]
Understanding Spread Dynamics
Cross-country panel framework

<table>
<thead>
<tr>
<th></th>
<th>ICRG index</th>
<th>Yield spread vs. the UK</th>
<th>Policy uncertainty</th>
<th>ICRG index</th>
</tr>
</thead>
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<tr>
<td>(1)</td>
<td>(2)</td>
<td></td>
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<tr>
<td>Registry dataset</td>
<td>0.17***</td>
<td>0.11**</td>
<td>0.25**</td>
<td>0.42**</td>
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<tr>
<td></td>
<td>(0.06)</td>
<td>(0.04)</td>
<td>(0.11)</td>
<td>(0.20)</td>
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<tr>
<td>Loans dataset</td>
<td>0.27</td>
<td>0.02</td>
<td>0.70**</td>
<td>1.35***</td>
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<td></td>
<td>(0.23)</td>
<td>(0.13)</td>
<td>(0.33)</td>
<td>(0.50)</td>
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<tr>
<td>Country fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Time fixed effects</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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</tbody>
</table>
House price spreads
Temporary, but long-lived effects

\[ s_t^k = \mu^k + \sum_{q=1}^{Q} \rho_q s_{t-q}^k + \sum_{q=1}^{Q} \zeta_q z_{t-q}^k + u_t^k, \]

\[ z_t^k = \theta^k + \sum_{q=1}^{Q} \pi_q z_{t-q}^k + \varepsilon_t^k. \]
Understanding Spread Dynamics

Placebo tests I

\[ s_t^k = \mu^k + \delta_t + \rho_1 s_{t-1}^k + \rho_2 s_{t-2}^k + \beta \tilde{z}_{t-1}^k + u_t^k, \text{ for } \tilde{k} \neq k \]
Understanding Spread Dynamics
Placebo tests II

\[ s_t^k = \mu^k + \delta_t + \rho_1 s_{t-1}^k + \rho_2 s_{t-2}^k + \zeta z_{t-1}^k + \beta z_{t-1}^\tilde{k} + u_t^k, \text{ for } \tilde{k} \neq k \]

Effect of political risk on the same country’s price spread

Effect of alternative (placebo) randomly assigned levels of political risk

- Specification without time fixed effects
Roadmap

1 Methodology and data
2 Results
3 Time series dynamics
4 Sources of foreign demand
5 Conclusions
Sources of safe-haven effects

- Political economy explanations of the Lucas puzzle:
  - Wealthy individuals in poor countries most likely to suffer expropriation, achieve “escape velocity”.
  - Is this the only channel?

- Check whether foreign demand effects are non-linear in the price of the property.

- Does political risk also predict migration from source to destination?
  - Investor visas: consistent with the ultra-wealthy moving capital across.
  - National insurance registration: consistent with foreigners entering the UK labour market, different channel.

- Finally, explore cross-country variation in pattern of effects.
World region joint estimation results
Effects across price categories

Groups according to the 70th and 90th percentiles of the within-borough-year distribution of house prices
Political risk and capital inflows
A Cross-Country View

![Graph showing the relationship between change in political risk and increase in UK investor visas.](image-url)
Political risk and population migration
A Cross-Country View

Registrations with National Insurance

Increase in NI registrations (relative to 2008)

Change in political risk (ICRG index)

Increase in UK investor visas

Registrations with National Insurance

Increase in NI registrations (relative to 2008)
Country-by-country estimation results

Loans dataset

Safe haven effects in wards with high shares of residents linked to foreign countries (% price change following risk shock)

Safe haven effects in wards with high net average income (% price change following risk shock)

Loans dataset
Roadmap

1. Methodology and data
2. Results
3. Time series dynamics
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Conclusions

- Evidence in support of political economy explanations for the Lucas puzzle, using recent developments in the London housing market.

- Novel empirical method to identify the impacts of demand on asset prices.
  - Potentially useful whenever demand demonstrates cross-sectional (within asset class) as well as time-series variation.

- Detect strong, but ultimately temporary impacts of foreign risk on the London housing market.

- Insights into cross-country heterogeneity and sources of foreign demand: safe-haven effects and immigration.
List of countries

Grouping at the level of world regions

<table>
<thead>
<tr>
<th>Northern Europe and North America</th>
<th>Africa</th>
<th>Middle East</th>
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<tbody>
<tr>
<td>Austria</td>
<td>Nigeria</td>
<td>Congo</td>
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<td>Belgium</td>
<td>Sierra Leone</td>
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<td>Poland</td>
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<td>India</td>
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<td>Pakistan</td>
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<td>Sri Lanka</td>
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</tbody>
</table>

Methodology
List of countries
Average ICRG index of political risk

High-risk countries
- Somalia
- Iraq
- Nigeria
- Zimbabwe
- Pakistan
- Sierra Leone
- Algeria
- Bangladesh
- Congo
- Sri Lanka
- Kenya
- Lebanon
- Turkey
- Iran
- Egypt
- Syria
- India
- Russia
- Libya
- Israel
- China
- Brazil
- Saudi Arabia
- Argentina
- South Africa
- Romania
- Mexico
- Tunisia

Low-risk countries
- Jamaica
- Qatar
- Malaysia
- Greece
- UAE
- Spain
- Chile
- Cyprus
- Italy
- France
- Hong Kong
- Poland
- Czech Republic
- Japan
- Belgium
- USA
- Portugal
- Germany
- Singapore
- Australia
- Canada
- Austria
- Denmark
- New Zealand
- Netherlands
- Sweden
- Finland

Spreads analysis
Understanding Spread Dynamics

Placebo tests

\[ s_t^k = \mu^k + \rho_1 s_{t-1}^k + \rho_2 s_{t-2}^k + \zeta z_{t-1}^k + \beta z_{t-1}^\tilde{k} + u_t^k, \text{ for } \tilde{k} \neq k \]

Effect of political risk on the same country’s price spread

Effect of alternative (placebo) randomly assigned levels of political risk

Specification with time fixed effects
Capital inflows into the London market

Foreign purchases of commercial real estate

- Capital inflows into commercial real estate sector (high-risk countries)
- Aggregate level of political risk
Capital outflows and domestic political risk

Results from cross-country panel data

\[ \text{Outflows}_t^k = \mu^k + \delta_t + \rho \text{Outflows}_{t-1}^k + \tau^k t + \beta_0 z_t^k + \beta_1 z_{t-1}^k + \gamma X_t^k + \varepsilon_t^k. \]

<table>
<thead>
<tr>
<th>Capital outflows relative to GDP (in percent)</th>
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<tr>
<td>High-risk countries</td>
<td>Low-risk countries</td>
</tr>
<tr>
<td>(\beta_0)</td>
<td>(0.43^{**})</td>
</tr>
<tr>
<td>(0.21)</td>
<td>(0.21)</td>
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<tr>
<td>(\beta_1)</td>
<td>-0.44</td>
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Registrations for National Insurance
Correlation with political risk in the country of origin

Italy

Pakistan

Number of registrations by foreign nationals
Foreign risk (1–year lag for Italy and 2–year lag for Pakistan)