# Capital Gain: Firm Value Effects of Moving the Government to Berlin

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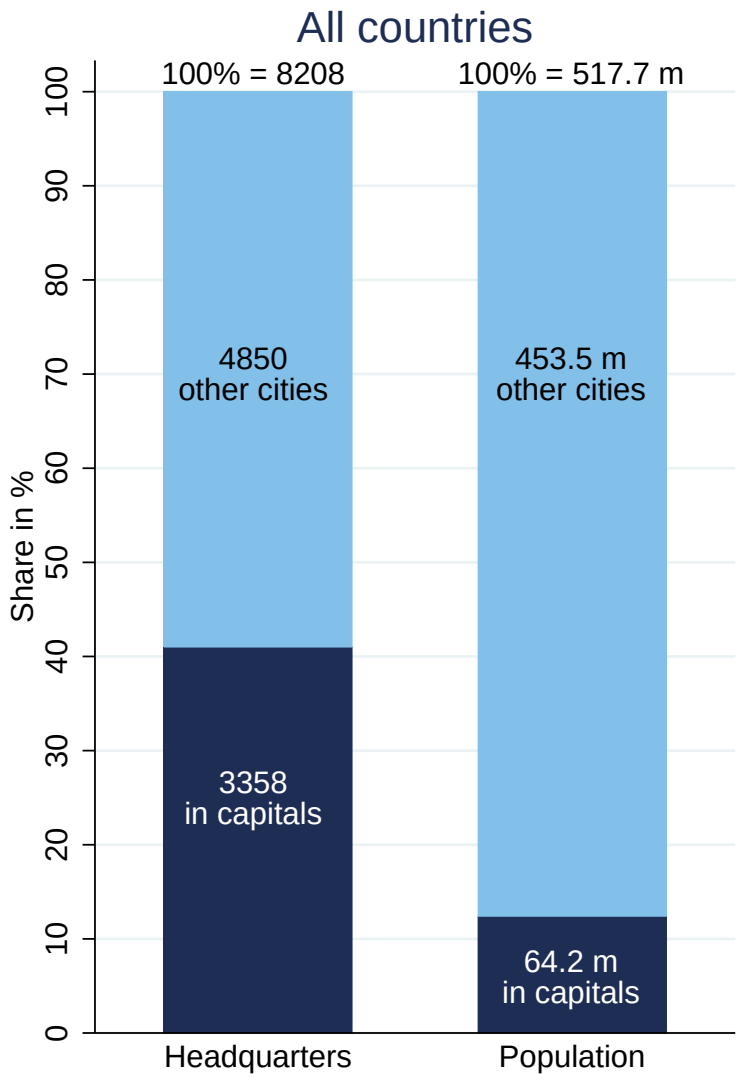
# Motivation

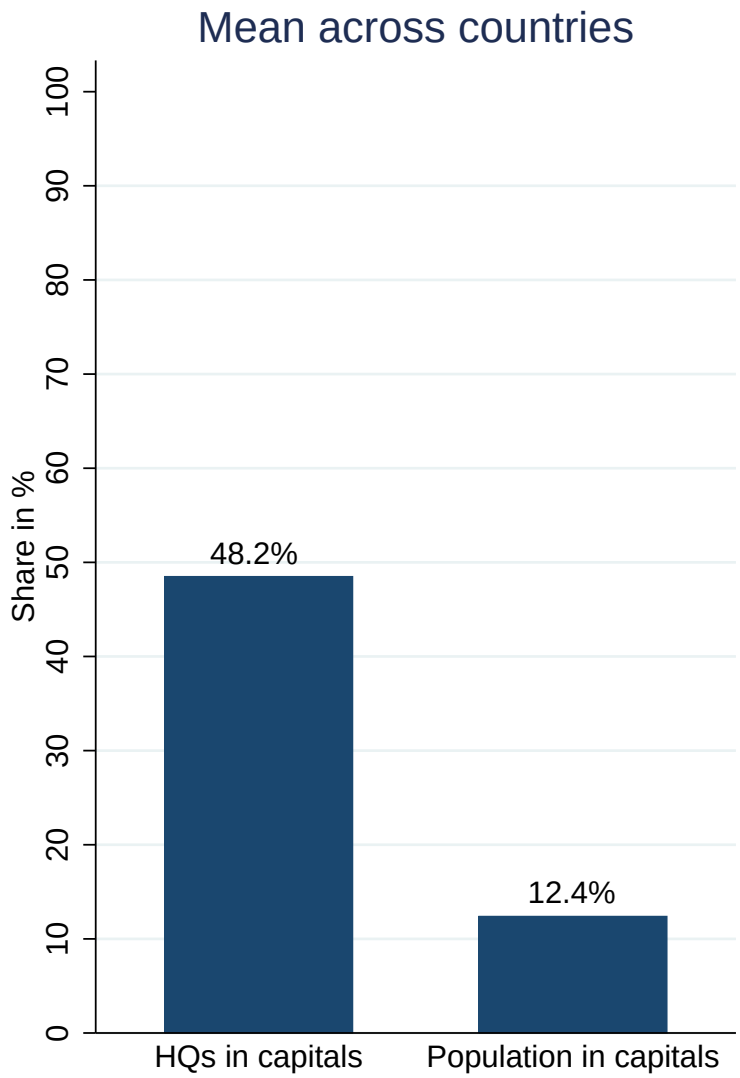
- Where do firms locate their headquarters (HQs)? What factors drive agglomeration?

- Literature so far: high HQs concentration in metropolitan areas with
  - high levels of business services
  - agglomeration of headquarters (in same sector of activity)
  - good airport facilities
  - low corporate taxes and wages

- What about geographic proximity to politicians?
  - infrastructure
  - coagglom. with government - high-skilled workers, "big plant"
  - influence on policy-making process

# Concentration of HQs and population in capital cities - Publicly listed firms EU-28 & EFTA (2013)



# This paper

- Estimate effect on value of firms with HQs in same city as government - difficult task
- Use unique event: decision to relocate German Federal Government from Bonn to Berlin in 1991 (after unification)
- Identify firm value effects via financial markets (publicly traded firms) - event study approach

# Characteristics of the relocation decision

- June 20, 1991: Vote by members of parliament that government relocates to Berlin (338 to 320 votes) - close vote
- Relocation decision was taken independently of other events related to the German unification - independent event
- Media polls among members of parliament in days before the decision rather favored Bonn - unpredictable result

$\Longrightarrow$ Excellent setting for event study framework

# Data

- Firm characteristics and location from Amadeus (2013) and yearly compendium on all incorporated German firms - "Handbuch der deutschen Aktiengesellschaften (1991)"
- Financial market data from Datastream
- Sample: Firms with at least one main headquarters in Berlin 1991 (22 firms - 27 securities)

# Model: Three-Factor Model (Fama-French)

$$R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_i SMB_t + \delta_i HML_t + \varepsilon_{it}$$

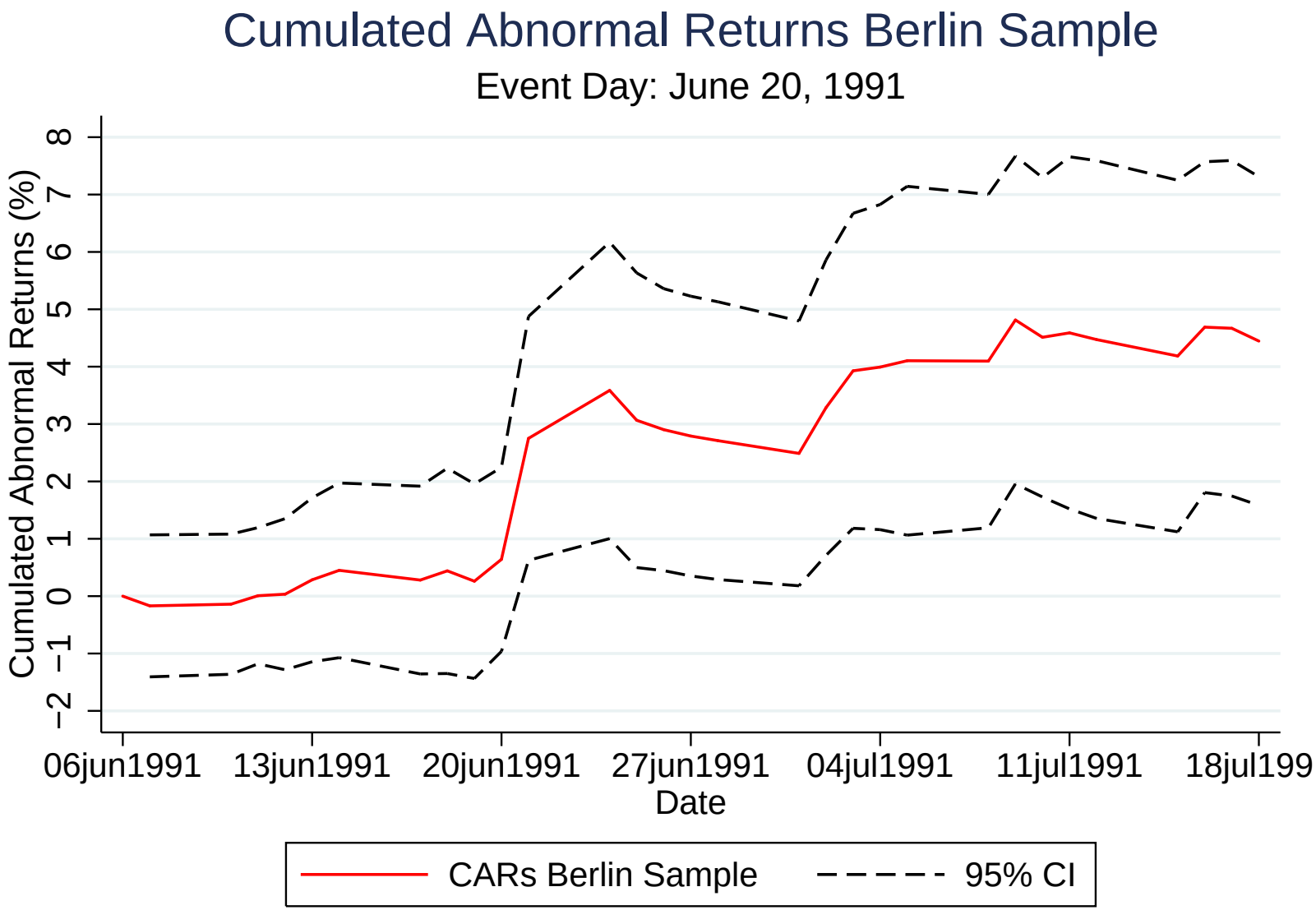
$$E[\varepsilon_{it}] = 0,\ Var[\varepsilon_{it}] = \sigma^2_{\varepsilon_i}$$

$R_{it}$ - Rate of return of security i on day t
$R_{mt}$ - Rate of return of market index on day t
$SMB_t$ - Rate of return ("Small minus Big") - size effects (market value)
$HML_t$ - Rate of return ("High minus Low") - book-to-market effects

$AR_{it} = R^*_{it} - \left(\hat{\alpha}_i + \hat{\beta}_i R^*_{mt} + \hat{\gamma}_i SMB^*_t + \hat{\delta}_i HML^*_t\right)$ - Abnormal returns

- Estimation window: -240 to -20 trading days
- 3 different event windows: (+1, +2); (+1, +5); (+1, +10)

# Results (I)


Cumulated Abnormal Returns Berlin Sample
Event Day: June 20, 1991
Cumulated Abnormal Returns (%)
−2
−1
0
1
2
3
4
5
6
7
8
06jun1991
13jun1991
20jun1991
27jun1991
04jul1991
11jul1991
18jul199
Date
CARs Berlin Sample
95% CI

# Results (II)

CARs for different event windows after relocation decision; event day: June 20, 1991

| Event Window | (+1, +2) | (+1, +5) | (+1, +10) |
|---|---|---|---|
| Mean | 2.95% | 2.17% | 3.35% |
| t-statistic | 2.83*** | 2.55** | 2.43** |
| Median | 2.14% | 0.89% | 2.52% |
| Positive CAR (%) | 77.8% | 63.0% | 62.7% |
| Sign-test p-value | 0.006 | 0.088 | 0.035 |
| Number of securities | 27 | 27 | 27 |

*, **, *** indicate significance at the 90%, 95%, and 99% level of confidence, respectively

# Robustness

- Robust to modification of model (Market Model, Mean-Adjusted-Return Model)
- Robust to application of industry/ sector indices instead of market index

Thank You!