The Impact of Sentiment on Stock Returns

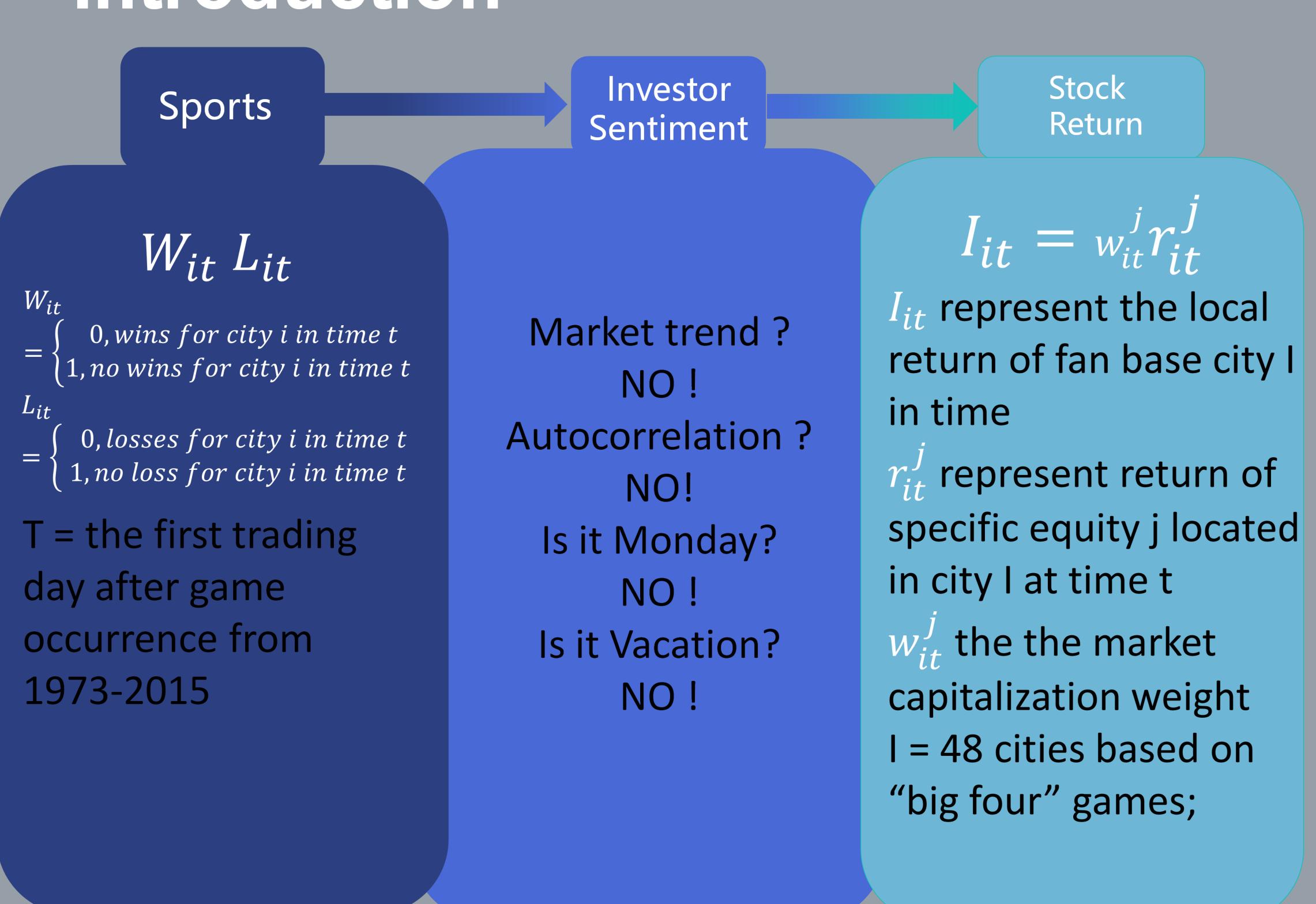
A Case Study from Professional Sports Leagues

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Introduction



$$I_{it} = \beta_0 + \beta_w W_{it} + \beta_l L_{it} + \gamma_1' X + u_{it}$$

Estimation Procedure

Step 1: Apply OLS to

$$I_{it} = \gamma_1' X + \epsilon_{it}$$

s. t. ϵ_{it} apply to GARCH(1,1)

Step 2: Apply fixed effect panel regression to

$$\epsilon_{it} = \beta_0 + \beta_w W_{it} + \beta_l L_{it} + u_{it}$$

s.t. $u_{it} = \mu_i + v_{it}$

OLS estimator:

 $\hat{\theta} = (X'X)^{-1}(X'y)$

SCC estimator:

$$V(\hat{\theta}) = (X'X)^{-1}\hat{S}_T(X'y)$$

 \hat{S}_t is defined in Newey and West

Empirical Results

robust loss effect

| Sports type | Xs | $\boldsymbol{\beta}_{w}$ | $t(\boldsymbol{\beta}_w)$ | β_l | $t(\boldsymbol{\beta_l})$ |
|-------------|-----------|--------------------------|---------------------------|-----------|---------------------------|
| MLB | Rm | 0.0129 | 1.43 | -0.0057 | -3.52 |
| | 3 factors | 0.0132 | 1.47 | -0.0053 | -3.32 |
| | 5 factors | 0.0131 | 1.47 | -0.0054 | -3.39 |
| NBA | Rm | 0.0050 | 3.98 | -0.0045 | -4.91 |
| | 3 factors | 0.0050 | 3.92 | -0.0045 | -4.93 |
| | 5 factors | 0.0050 | 3.93 | -0.0045 | -4.93 |
| NFL | Rm | 0.0590 | 0.94 | -0.0052 | -2.46 |
| | 3 factors | 0.0587 | 0.94 | -0.0056 | -2.83 |
| | 5 factors | 0.0587 | 0.94 | -0.0061 | -3.11 |
| NHL | Rm | 0.0057 | 3.52 | -0.0036 | -3.78 |
| | 3 factors | 0.0058 | 3.57 | -0.0035 | -3.72 |
| | 5 factors | 0.0058 | 3.57 | -0.0034 | -3.70 |

local characteristics matters

| Sports type | Xs | $\boldsymbol{\beta}_{w}$ | $t(\boldsymbol{\beta}_w)$ | $oldsymbol{eta}_{l}$ | $t(\boldsymbol{\beta_l})$ |
|-------------|-----------|--------------------------|---------------------------|----------------------|---------------------------|
| NFL | Rm | 0.0590 | 3.98 | -0.0052 | -2.46 |
| | 3 factors | 0.0587 | 3.92 | -0.0056 | -2.83 |
| | 5 factors | 0.0587 | 3.93 | -0.0061 | -3.11 |
| NFL+MLB | Rm | 0.0296 | 1.44 | -0.0042 | -3.83 |
| | 3 factors | 0.0297 | 1.44 | -0.0041 | -3.78 |
| | 5 factors | 0.0297 | 1.44 | -0.0040 | -3.70 |
| NFL+NBA | Rm | 0.0122 | 0.94 | -0.0040 | -5.09 |
| | 3 factors | 0.0121 | 0.94 | -0.0040 | -5.16 |
| | 5 factors | 0.0121 | 0.94 | -0.0040 | -5.14 |
| ALL | Rm | 0.0102 | 2.52 | -0.0039 | -6.87 |
| | 3 factors | 0.0102 | 2.57 | -0.0039 | -6.87 |
| | 5 factors | 0.0140 | 1.57 | -0.0040 | -3.40 |

What's more

Sports affect stock market return by influencing investor sentiment.

We also checked the extra effect of trading volumes and media coverage, and there's no evidence to deny the Loss Effect.

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