Rethinking Transparency
Theory and Evidence from the European Corporate Bond Market

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Agenda

- **Model structure and main insights**
  - The effect of transparency on liquidity depends on both the cost of dealer inventory and the degree of adverse selection
  - High inventory cost / low adverse selection → transparency reduces liquidity

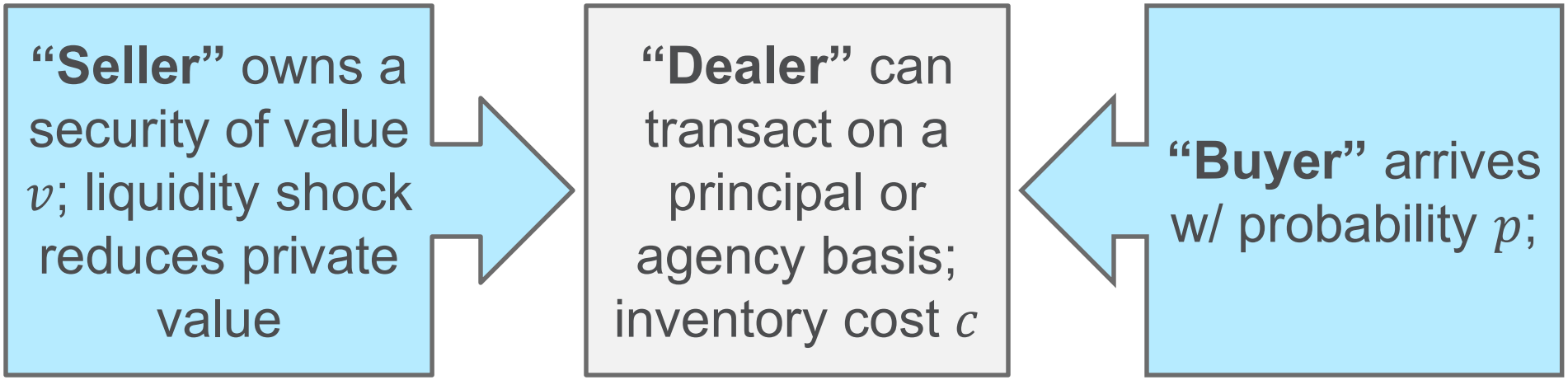
- **Testing our theory using transactions in European corporate bonds**
  - Constructing a European consolidated tape
  - Two Q-N experiments provide exogenous variation in transparency and the results align with our predictions

Contributions and Relationship to the Literature

1. **Theoretical literature on cost of inventory, trade protocols, liquidity**
   - Effect of inventory cost on trade protocols (e.g., Saar et al, 2022)
   - *We introduce uncertainty about security valuation and demonstrate that the effect of transparency depends on both inventory cost and the degree of adverse selection*

2. **Empirical literature transparency and liquidity**
   - Introduction of TRACE (e.g., Saar et al, 2022); transparency improved liquidity
   - *We create a consolidated tape of European corporate bond trades*
   - *Two quasi-natural experiments demonstrate that transparency reduces liquidity*

Model structure: One period, risk neutral players



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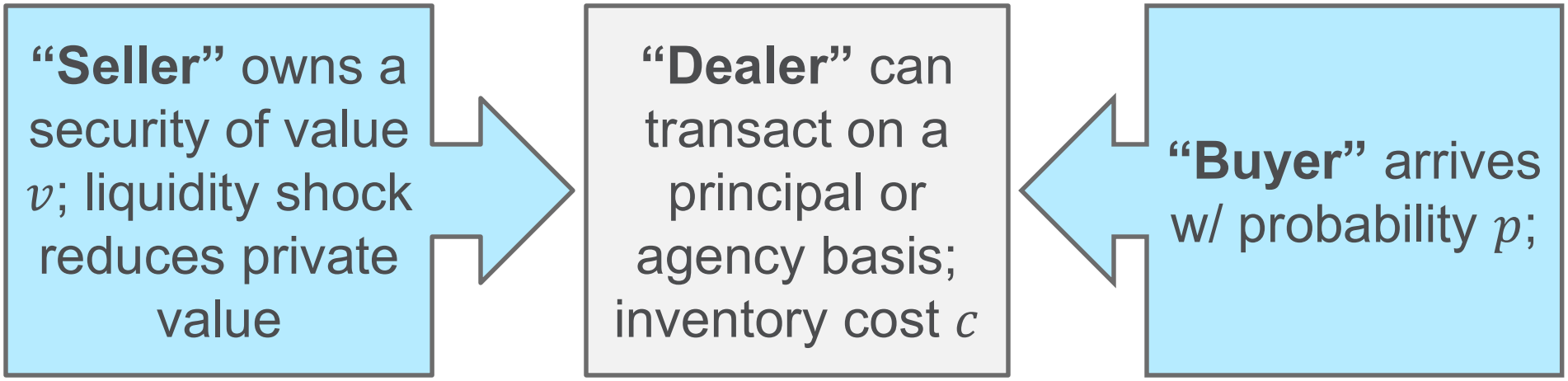

- **Principal trading:** dealer transacts sequentially with seller and buyer; holds security in inventory if buyer does not arrive

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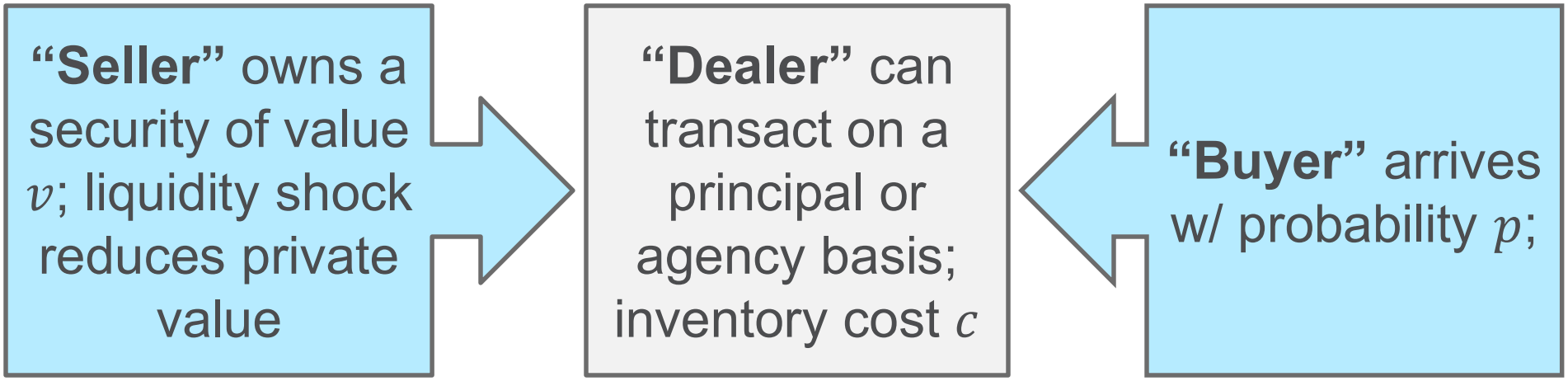

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- **Agency trading:** agree price with seller but only transact if buyer arrives
  - Seller sacrifices certainty / dealer has no risk of incurring inventory cost

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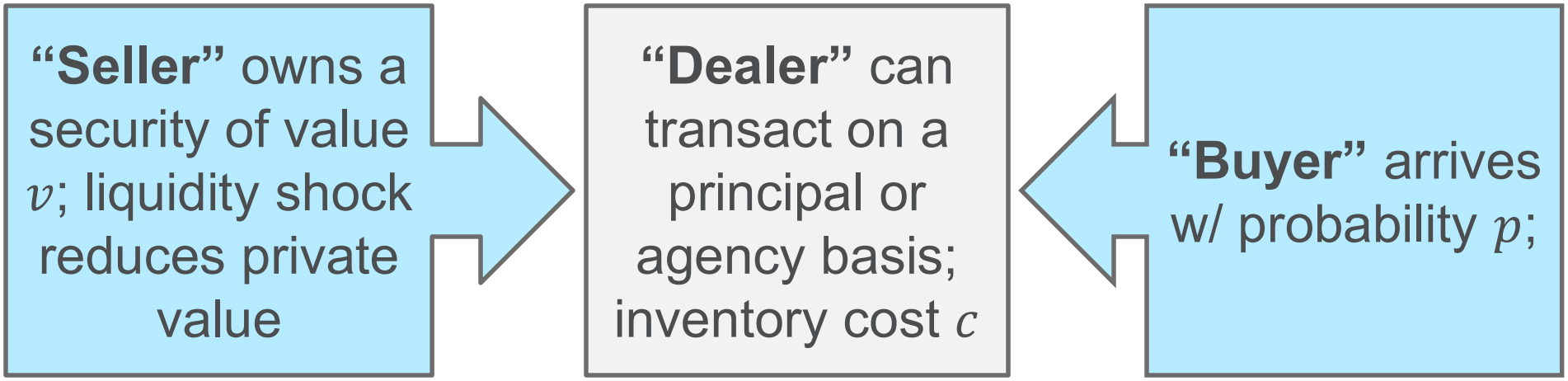

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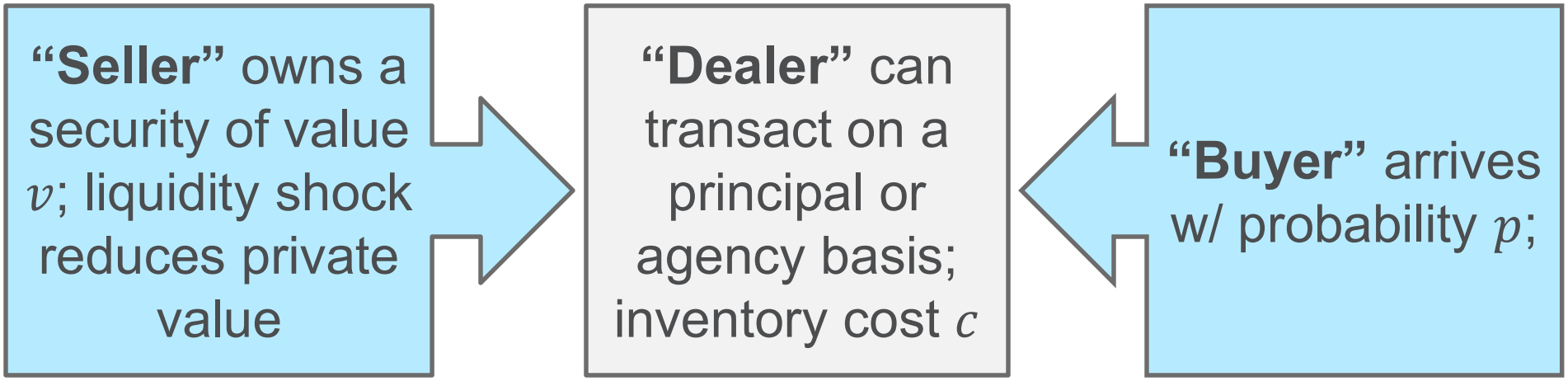
- **Agency trading:** agree price with seller but only transact if buyer arrives
  - Seller sacrifices certainty / dealer has no risk of incurring inventory cost
- **Menu to induce separation:** Cheap / uncertain agency trading (small liquidity shock) vs. expensive / certain principal trading (large liquidity shock)

Model structure: Information



- **Seller and dealer are informed:** know value v
- **Buyer is uninformed**
  - Transparency: can infer v from trade reporting
  - No transparency: Bayesian estimate of v based on equilibrium strategies

Inventory cost and **adverse selection** define the market environment

- **Pre-GFC: *Low inventory cost* and *high adverse selection***
  - Lax bank regulations
  - Trade reporting the only source of information about price of credit risk

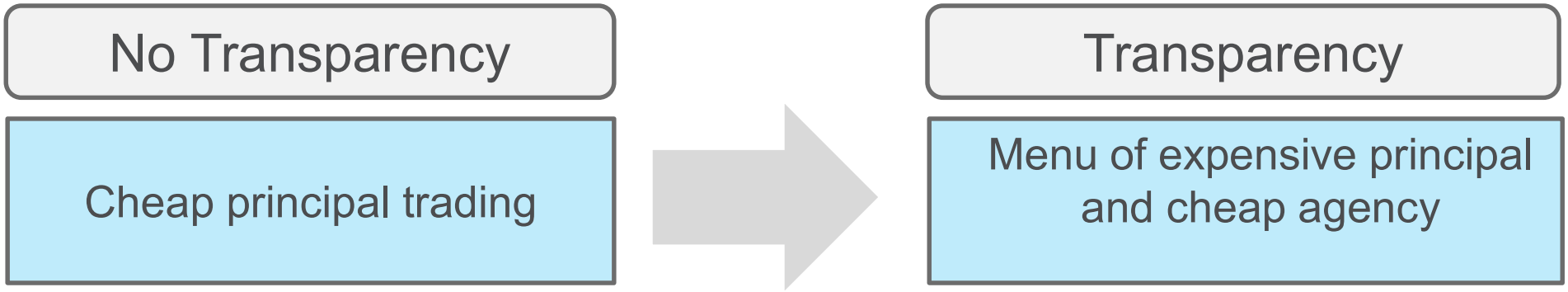
- **Transparency improves liquidity by unlocking two-sided principal trading**
  - Low inventory cost → limited consequence of holding inventory
  - High adverse selection → uninformed buyer pays a low price for inventory
  - Absent transparency, dealers prefer to sit on inventory; trade reporting increases volume and reduces bid-offer

Inventory cost and **adverse selection** define the market environment

- **Post-GFC (and current): *High inventory cost* and *low adverse selection***
  - Reforms increase cost of inventory
  - ETFs provide real-time clarity on price of diversified basket of bonds, only security-specific uncertainty remains

- **High inventory cost ~ liquidity depends on the transparency regime**
  - *High inventory cost* → dealer limits inventory, uses menu of expensive principal and uncertain agency trading…
  - ..but *Low adverse selection* → opacity increases market making profits in some securities
  - Dealer behaves as if inventory cost is “low” → cheap two-sided principal

High cost / low adverse selection: Imposing transparency forces dealer to internalize full cost of inventory



- **H1: Transparency increases the use of agency trading**
- **H2: Transparency increases bid-offer of principal trades**
- **H3: These effects are stronger for positions that are hard to "match" in the agency market**
  - Easy to match trades are insulated against a high inventory cost, and thus from the effect of transparency

We create a consolidated tape of dealer-to-client transactions in European corporate bonds

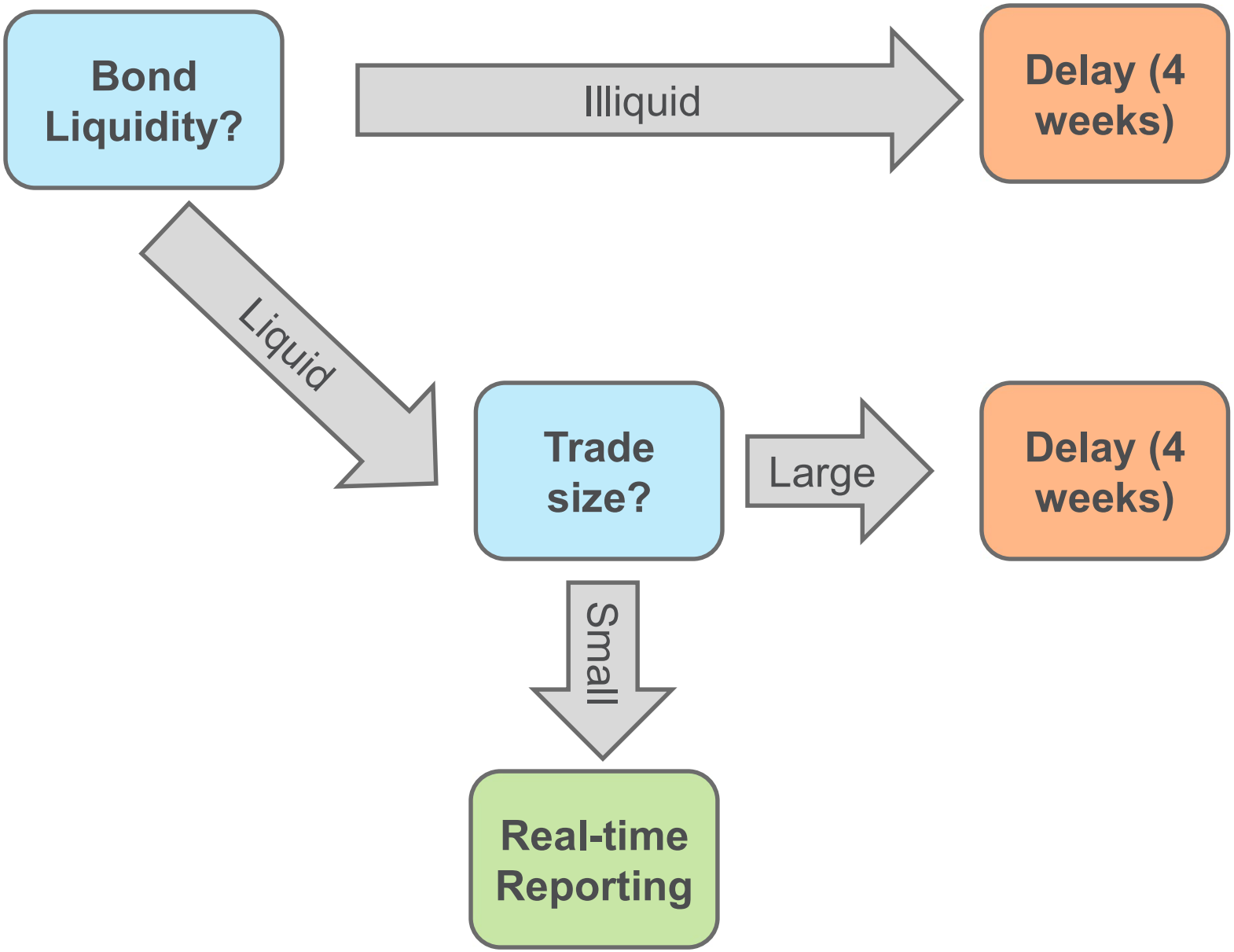
- MiFID II requires (dispersed) transaction reporting for corporate bonds
  - Aggregate and clean trades from [14] venues to construct a consolidated tape
  - Price, size, transaction and reporting time stamps, security ID for all dealer-to-client trades (NB: not direction)
  - Robustness checks (e.g., against the trade blotter of a large market-maker)
  - Nov 22 – Sep 23: 2.4mm transactions, 2 trillion euros, 5,000+ bonds

Identify roundtrip trades

- Same security, same size, as close in time as possible
- Compute Imputed Roundtrip Cost (IRC): $IRC = (Pmax - Pm_{in})/Pmi_n$
  - Distinguish agency ($\leq 15\ minutes$) from principal ($> 15\ minutes$) trades

Count Roundtrip Trades	666k
Mean trade size	€328K
Mean IRC (Agency / Principal)	14.5bp / 43bp
EU / UK	441k (66%) / 225k (34%)
Agency / Principal	37k (6%) / 629k (94%)

Trade reporting requirements vary by bond-trade: reporting for large trades and trades in “illiquid” bonds are delayed

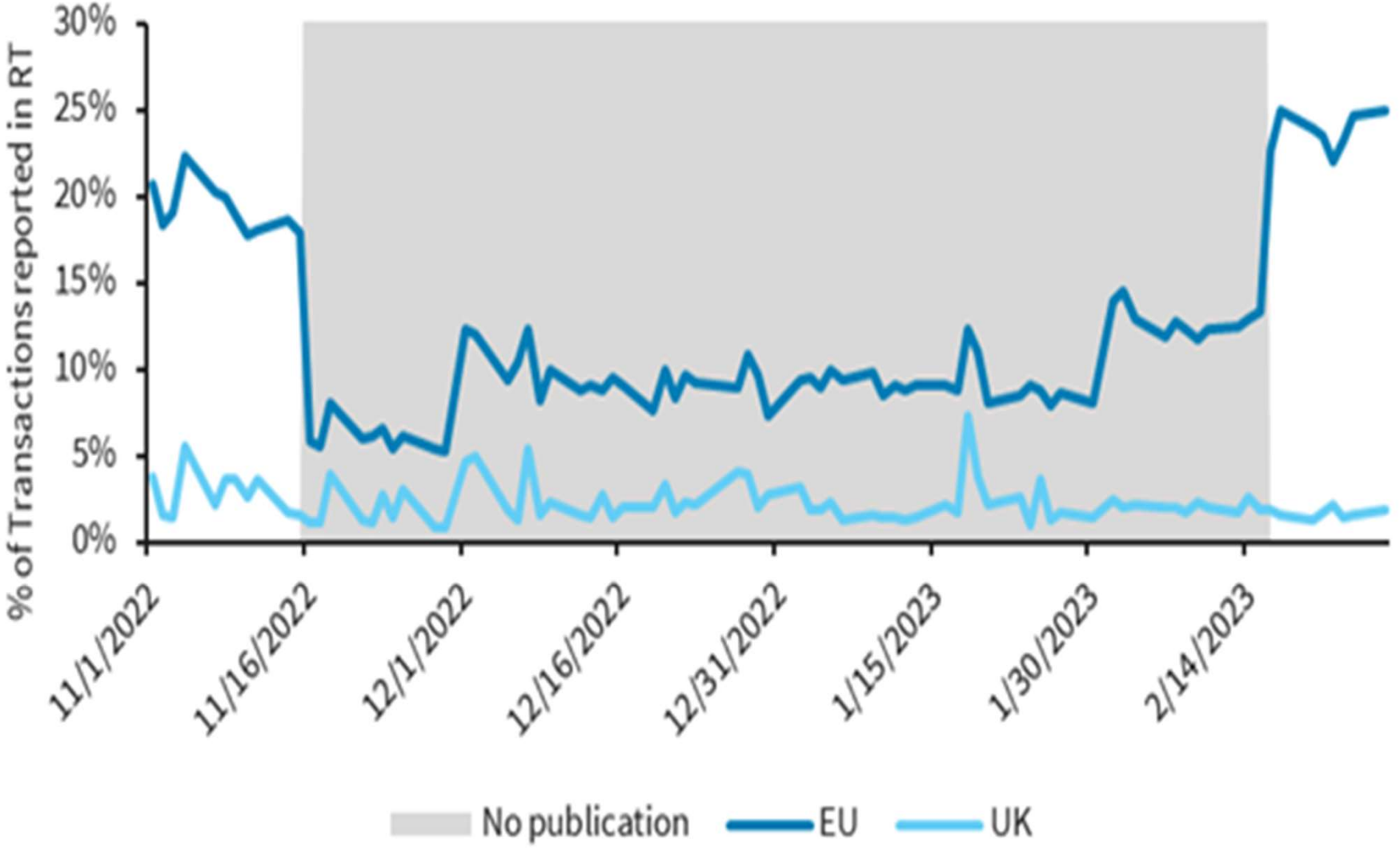


Two sources of exogenous variation in trade reporting

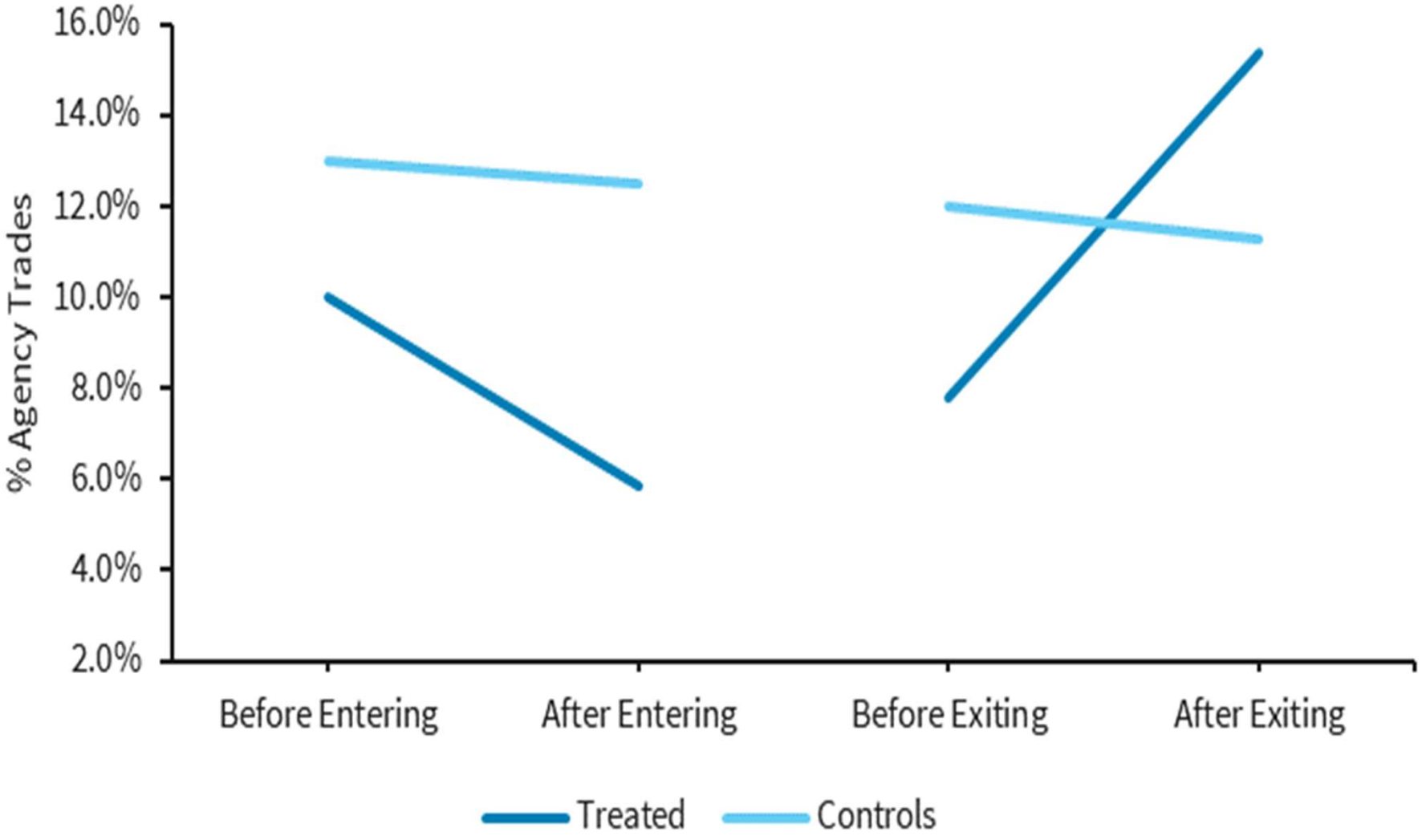
- **A data issue prevented ESMA from categorizing bonds by liquidity between 16-Nov-22 and 16-Feb-23**
  - Only bonds issued in prior 3 months categorized as “liquid”
  - DiD framework: “treated” bonds 3-6 months old (which switch from liquid to illiquid), “control” bonds <3 months old
  - 2-sided: as bonds enter and exit the “no publication” period

- **Brexit**
  - ESMA / FCA perform independent liquidity assessments
  - Some bonds are categorized differently → otherwise identical trades with different reporting requirements

Two DiD regressions: entering and exiting the “no publication period”



H1: Transparency increases use of the agency protocol (using window on either side of the data issue)



H2: Transparency increases bid-offer of roundtrip principal trades

$$IRC_{i,j,t} = \alpha + \beta_1 Treated_{i,j} \times Post_t + \beta_2 Treated_j + \beta_3 Post_t + \Gamma X_{i,j,t} + \Phi Z_{j,t} + \epsilon_{i,j,t}$$

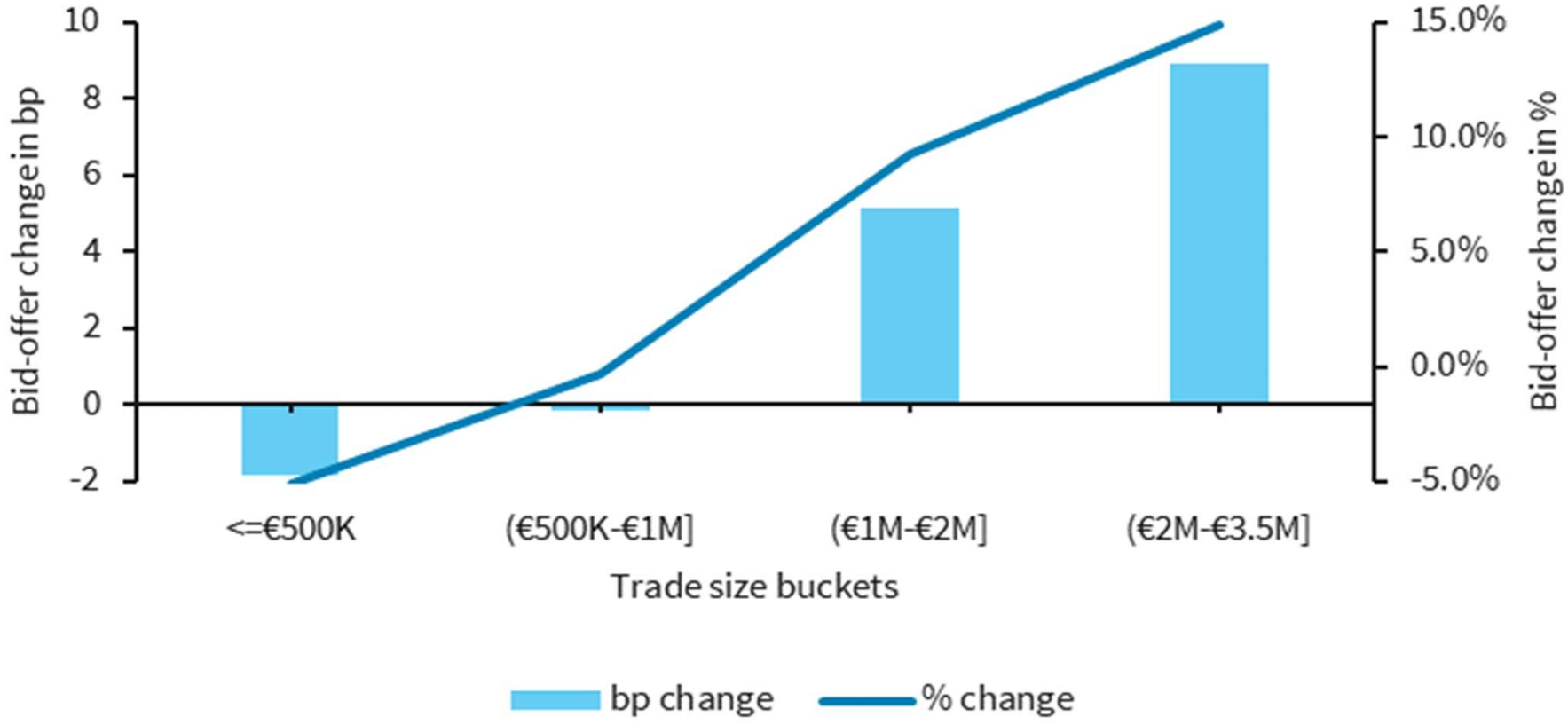
- β_1 is the (relative) change in IRC for principal trades in treated bonds as they enter (exit) the no publication period

	Imputed Roundtrip Cost (IRC)	
	(1) Entering the "no publication" period	(2) Exiting the "no publication" period
Treated x Post	-6.19***	3.23***
	(-2.50)	(2.85)
Treated	1.86***	0.11
	(3.00)	(0.14)
Post	-0.16***	-0.16***
	(-32.28)	(-32.31)
Window	2 weeks (either side)	4 weeks (either side)
Trades	3,157	11,875

H3: Effect on bid-offer is worse for trades that are difficult to "match" in the agency protocol

We proxy match probability with trade size and age of bond

Transparency increases the IRC more for **larger trades** and trades in **older bonds**



Conclusions and policy implications

- **Challenge consensus that transparency improves liquidity**
  - Market has evolved in important ways that alter the effect of transparency

- **Multiple jurisdictions are considering new or altered transparency regimes**
  - Consider adverse selection and inventory cost
  - European trade reporting: choose sliding scale to increase real-time reporting but maintain liquidity in large transactions
  - Trade reporting could reduce liquidity of off-the-run US Treasuries
    - Limited adverse selection; high inventory cost linked to leverage ratio