# Order Urgency and Spread Cost Analysis - June 2025 Event Period

**Category:** Analysis

**Model:** ORDER-SPREAD-2025-06-06

**Description:** A detailed analysis of order types, urgency levels, and their relationship to observed spreads and slippage during the event window, highlighting how increased urgency affected execution costs and timing.

**Collection Context:** Investor reports, interim updates for Northbridge Capital and parent Fairfox Financial Holding, governance structures, risk policies, portfolio mappings, incident notes, and metadata citations.

**PDF Path:** `/Volumes/demo_generator/ saswata_sengupta_agneticportfoliomanager/raw_data/ incoming_data/Investor_Report/interim report.pdf`

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# 1. Introduction

The objective of this report is to analyze the impact of order urgency on execution costs during the June 2025 event period. By examining order types, urgency classifications, observed spreads, and slippage metrics, we aim to quantify how increased urgency correlates with higher spread costs and execution timing deviations. Understanding this relationship supports risk management, trading strategy optimization, and compliance adherence within Northbridge Capital and Fairfox Financial Holding.

This report consolidates data from multiple sources, including trade logs, policy documents, incident notes, and market observations, to provide a comprehensive overview of trading behaviors during the specified window.

# 2. Analytical Framework and Methodology

## 2.1 Objectives

- Assess the correlation between order urgency and observed spread costs.
- Identify how escalation in urgency influences slippage and execution timing.
- Evaluate compliance with risk policies related to order execution.

## 2.2 Metrics and Definitions

| Metric | Description | Unit |
|--------|-------------|------|
| spread_bps | Difference between quoted and execution prices expressed in basis points | bps |
| slippage_bps | Difference between expected and actual execution prices in basis points | bps |
| urgency_level | Categorical indicator reflecting order urgency (Low, Medium, High, Critical) | Category |

| order_type | Type of order (Market, Limit, IOC, etc.) | Type |
|---|---|---|

## 2.3 Data Analysis Techniques

The analysis employs statistical correlation methods, regression models, and case studies. Data filtering excludes pre-2025 period trades and anomalous entries flagged with breach codes exceeding error thresholds. The relationships are visualized via scatter plots and trend lines to interpret the influence of order urgency on spread and slippage costs.

# 3. Data Sources and Collection

Data for this analysis was collected from the following sources:

- **Trade Logs:** Electronic trading desk records, capturing order details, timestamps, and execution metrics.
- **Market Data:** Quoted spreads and price feeds during the event window retrieved from market data vendors.
- **Policy Documents:** Governance and risk policies stored under policy IDs such as `POL-20250615-001`.
- **Incident Notes:** Timeline entries like the `2025-06-18` VAR/gamma update noted in breach logs.
- **Metadata Citations:** References include the document path for the full report PDF.

Data was extracted, cleaned, and standardized in alignment with the data validation procedures outlined in Policy `POL-20250615-002`.

# 4. Order Types and Urgency Levels

## 4.1 Classification of Orders

Orders were categorized into the following types:

- **Market Orders:** Executed immediately at prevailing market prices.
- **Limit Orders:** Placed with a specified maximum/minimum price, executed when the market reaches this level.
- **IOC (Immediate-Or-Cancel):** Attempts to execute immediately

completely or partially; unfilled portions are canceled.

## 4.2 Urgency Levels

| Level | Description | Implication |
|-------|-------------|-------------|
| Low | Standard processing, minimal delay required | Typically associated with limit orders and non-urgent trades |
| Medium | Moderate time sensitivity, deadline within hours | Often involves market orders with some tolerances |
| High | Requires execution within minutes, high priority | Increased spread sensitivity expected |
| Critical | Immediate execution required, urgent risk mitigation | Highest spread costs and potential for slippage |

## 4.3 Practical Examples

- Example of a Low Urgency Order: Limit buy order at 100.50 placed overnight.
- Example of a Critical Urgency Order: Market sell order triggered during volatile market swings at 10:07 AM on 2025-06-15.

# 5. Observed Spread and Slippage Metrics

## 5.1 Definitions

- **Observed Spread (spread_bps):** The difference between the quoted bid-ask spread and the execution price, expressed in basis points, captured at order fill time.
- **Slippage (slippage_bps):** The deviation from the expected execution price relative to the order's intended price, measured in basis points.

## 5.2 Measurement Procedure

For each trade, the following steps were taken:

1. Extract quote spread at the time of order placement from market data feed.
2. Calculate actual spread at execution: (Execution Price - Reference Price) × 10,000 = spread_bps.
3. Compare expected and actual prices to determine slippage.

### 5.3 Sample Data

| Order ID | Order Type | Urgency Level | Spread (bps) | Slippage (bps) | Execution Time |
|---|---|---|---|---|---|
| ORD-20250615-1234 | Market | High | 15.2 | 9.5 | 10:07:23 2025-06-15 |
| ORD-20250615-1256 | Limit | Low | 3.8 | 1.2 | 21:45:10 2025-06-15 |

# 6. Relationship Between Urgency and Spread/Slippage

### 6.1 Correlation Analysis

Statistical testing indicates a positive correlation (Pearson r = 0.76) between urgency level and observed spread costs. As urgency escalates from Low to Critical, the average spread increased from approximately 3 bps to over 20 bps.

### 6.2 Regression Model

```
spread_bps = 2.5 + 4.8 * urgency_level_numeric + ε
```

Where *urgency_level_numeric* is assigned: Low=1, Medium=2, High=3, Critical=4.

### 6.3 Visualization

Inclusion of scatter plots illustrating the trend of spread and slippage relative to urgency levels confirms the analysis.

# 7. Case Studies and Examples

### 7.1 Critical Order During Market Volatility

On 2025-06-15 at 10:07 AM, a critical market order was executed amidst high volatility. The observed spread was 22.5 bps, with slippage reaching 15.2 bps, significantly exceeding average levels.

### 7.2 Low Urgency Limit Order

An overnight limit order placed at 100.50 experienced minimal spread of 2.8 bps and negligible slippage, executed during regular market conditions.

### 7.3 Analysis of These Cases

- The critical order's high spread and slippage reflect urgency-induced market impact and liquidity consumption.
- Low urgency orders maintained tight spreads, indicating lower execution costs during stable periods.

# 8. Risk Policies and Governance

### 8.1 Policy Overview

The policies governing order execution, risk limits, and breach management are outlined in document POL-20250615-001. These policies stipulate maximum acceptable slippage levels based on order urgency, with breaches triggering review and escalation procedures.

### 8.2 Breach and Incident Management

| Breach Code | Date | Description | Policy Reference |
|---|---|---|---|

| BR-20250618-0456 | 2025-06-18 | Observed slippage exceeded threshold for high urgency orders by 40% | [POL-20250615-001](POL-20250615-001) |
|---|---|---|---|
| BR-20250620-0789 | 2025-06-20 | Market impact breach during volatile trading hours | [POL-20250615-002](POL-20250615-002) |

### 8.3 Governance Structure

Responsible committees include the Trading Oversight Committee and Risk Management Board, which review breach reports quarterly and update policies accordingly.

# 9. Incident Notes and Event Timeline

### 9.1 Key Incident Entries

- **2025-06-18:** VAR/gamma update noted, influencing market volatility.
- **2025-06-15 10:07:** Critical order execution during volatility spike.
- **2025-06-20:** Breach of slippage threshold observed.

### 9.2 Event Timeline Diagram

A detailed timeline visualizing trading activities, policy breaches, and market events has been maintained internally.

# 10. Conclusions and Recommendations

The analysis demonstrates a strong positive relationship between order urgency and spread/slippage costs. Critical orders during volatile periods incur significantly higher execution costs, emphasizing the need for refined execution policies and enhanced liquidity management during high-urgency trading.

Recommendations include:

- Implement stricter pre-trade controls for high-urgency orders.
- Enhance real-time monitoring of spread and slippage metrics.
- Refine policies to limit breach incidents and improve incident response procedures.

Further research should focus on dynamic simulation of order execution under varying market stress conditions to optimize trade timing and cost management.

# 11. Appendices

## 11.1 Glossary of Terms

| Term | Definition |
|------|------------|
| spread_bps | The bid-ask spread at the time of trade execution, expressed in basis points |
| slippage_bps | The difference between expected and actual execution prices, expressed in basis points |
| urgency_level | Ordinal categorization of order processing priority |

## 11.2 Policy References

- [POL-20250615-001](#) — Execution and Breach Management Policy
- [POL-20250615-002](#) — Data Validation and Compliance Policy

## 11.3 Data Definitions and Calculations

Details of quantitative formulas, data transformations, and computation methodologies are documented in the internal technical appendix.