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Minimizing Transaction Costs

Simulating Tradeable Markets for Funds and Asset Managers

Simudyne ——— Reality, re-engineered

Accurately model market dynamics with a high-fidelity agent-based market simulator: 300× faster than real time.

Counterfactual estimates have always been driven by real-world AB tests. With simulation technology, take that risk out of the market and into realistic agent-based simulation.

Generate realistic market conditions calibrated to historical data for backtesting and interactive forecasting. Discover the best parameters for your trades and visualize market slippage before going live.

Agent-based modeling

Modern firms AB test and risk real capital to drive trading decisions. The problem with relying on historical data and traditional models is that we only observe a single realization of historical events; this is no longer enough for quality pre-trade TCA.

Agent-based modeling (ABM) is a state-of-the-art simulation methodology that drives critical decision-making in nuclear physics, medical research and applied artificial intelligence. What's interesting about the ABM approach is that it focuses on capturing the market microstructure and the emergence of the price formation process.

These collective interactions are calibrated to generate market dynamics and stylized facts that match the specific price formation process for any selected security.

Simulating realistic market slippage

Calibrating an emergent model of market slippage was once an unreachable goal within quantitative modeling. Simudyne is the first and only company to provide a calibrated, agent-based simulation that generates a square root market impact that does not depend on an explicit model.

The model below, based on NASDAQ trading protocols, populates the market environment with four types of market participants: fundamental traders, momentum traders, market makers and noise traders.

You can see how market slippage from a single metaorder of AAPL results in both temporary and permanent impact.
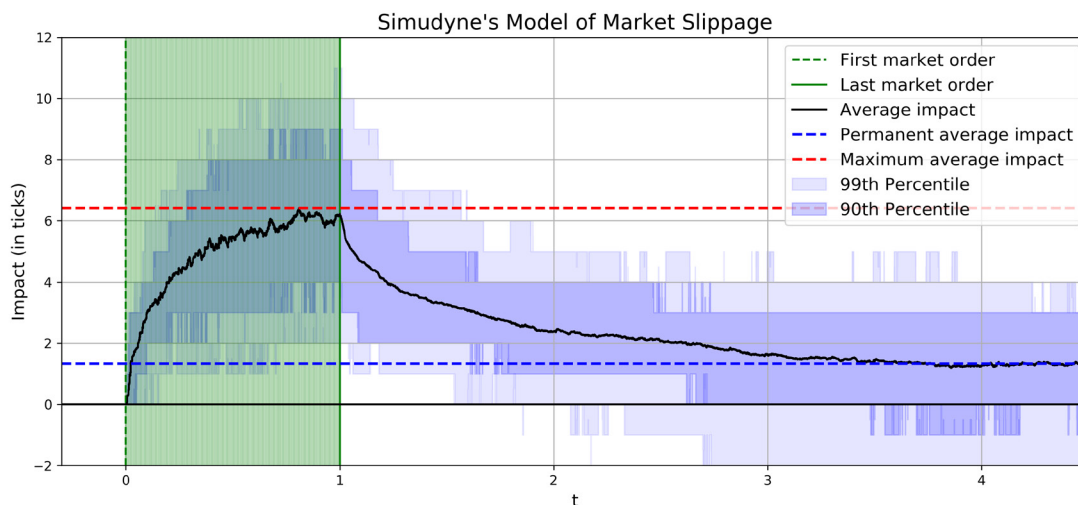
"Simudyne will completely reinvent how we think about transaction cost analysis. The potential of this technology is very significant for us."

- Managing Director, Tier 1 Bank

Practical applications

Delay Costs: Simulate impact of different delay periods between an investment decision and the actual execution to understand the effect of delays on the fund's PnL.

Timing Risks: Because ABM replicates our complex adaptive reality to incorporate market feedback, order scheduling can be optimized and benchmarked for best execution.

Market Impact: Order size and time horizon can be simulated using our ABM which incorporates realistic market dynamics and behaviors to understand true market impact before trades are executed.

Market Slippage: Test your trade execution in a risk free ABM that reports every single execution allowing you to see executed price of trade vs. initial entry price.

Opportunity Costs: Simulate any long-term price movements by injecting user defined agents into the ABM which can then react to internal and external signals. You can then estimate costs incurred from any canceled orders: your missed opportunities.

Ultimately, institutions now have a way to test their trading and execution strategies. They can know how their trades will perform before they are visible to the market, in order to attract clients, increase AUM and greatly reduce costs.

Want to know more? Visit www.simudyne.com to request a demo.

Contact

A: St Michael's Alley, London, EC3V 9DS

E: info@simudyne.com

W: simudyne.com

TW: twitter.com/simudyne

LI: linkedin.com/company/simudyne

Simudyne is a simulation technology company based in the City of London. It uses advanced analytics and applied AI alongside agent-based modeling and simulation to help organizations solve complex problems and make better decisions. With Simudyne, you will be better able to attract clients, investors and assets while reducing and often eliminating costs.

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