Simulating Financial Markets using MASON Framework*

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Abstract. AAA

Key words: Agent-based Modeling, Computational Social Science, Financial Markets

1 Motivation and Objectives

2 Platform Architecture

3 Verification of Correctness

4 Overview of Implemented Models

- Doyne Farmer et al. [2003]
- Lamba and Seaman [2007]
- Westerhoff [2004]
- Cont [2006]

* Prepared for the 2nd World Congress on Social Simulation, GMU, Fairfax, 14–17 July, 2008.

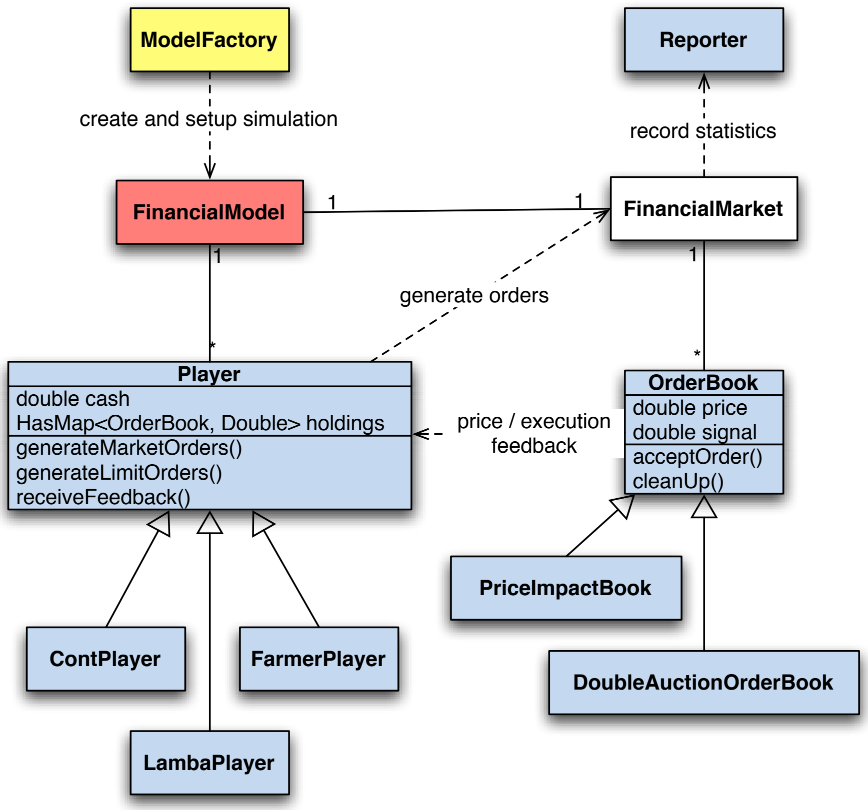


Fig. 1. High-level UML class diagram of the main components and relations in the FinancialMarketModel, including the main attributes of Players and OrderBooks. Agent classes (light blue) inherit from the MASON `Steppable` interface while the master class is implementation of MASON's `SimState`.

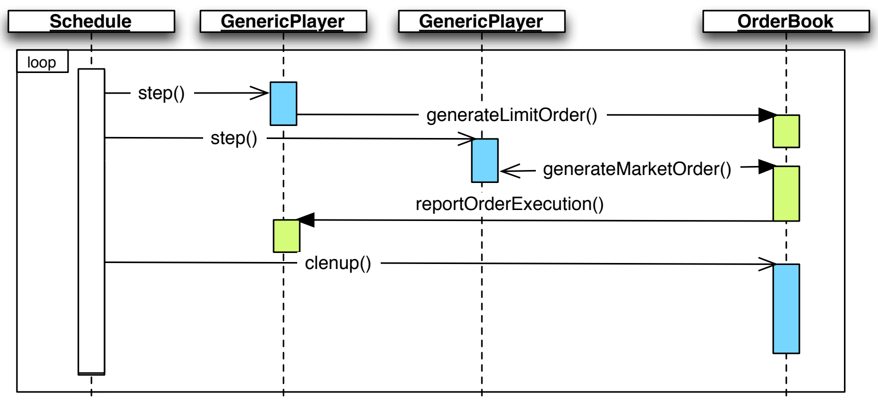
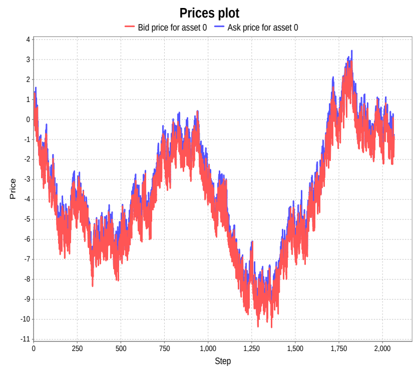
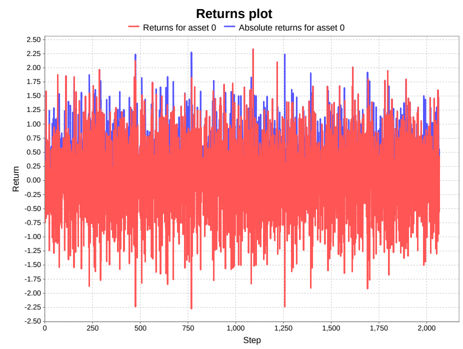


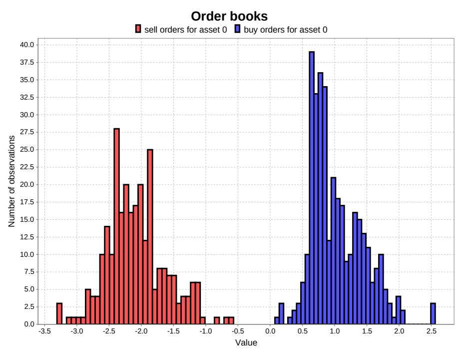
Fig. 2. High-level UML sequence diagram of the interactions between main object of the FinancialMarketModel.



(a) Ask and bid prices.

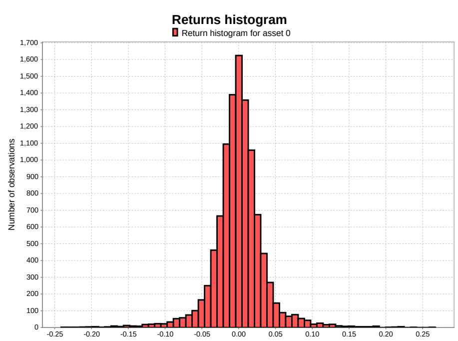


(b) Raw and absolute returns.

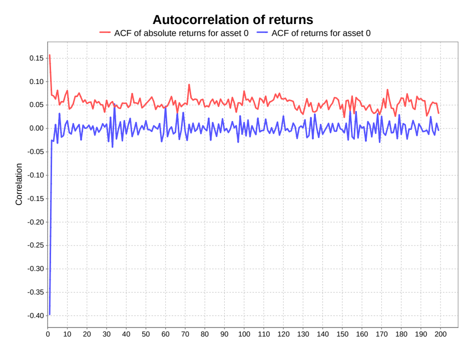


(c) Orderbook shape.

(d) Trade volumes.



(e) Returns histogram.



(f) Autocorrelation of returns.

Fig. 3. Examples of outputs and statistics from a single run of the FinancialModel simulation for default Farmer's parametrization.

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