Why study artificial intelligence in computer-simulated competitive markets? Our study is an attempt to identify those performance characteristics of double auctions that are consequences of their structure, from those that result from behavior of participating traders. The longer term goal of this effort is to understand the linkage between individual decisions in market settings on one hand, and aggregate market behavior on the other. Artificial intelligence (AI) appears to be a promising tool to study this linkage.

In this chapter, we report on three matched sets of computerized double auctions among buyers and sellers with exogenously given redemption value and cost schedules. Each set includes three auctions of six periods each as follows:

1. An auction involving human traders.
2. An auction involving artificially intelligent (i.e., program or AI) traders designed by the human traders who participated in the human trader auctions.
3. An auction involving “zero-intelligence” (ZI) computer traders.