THE YALE **STOCK MARKET GAME**

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Online Version
Yale AITS, Instructional Systems Design

First Draft, November 1973
Subsequent Drafts, 1974, 1975, 1977, 2006
Online Versions, 2011-2014

Thanks to Louis Rinaldi, Peter Liu, Samuel Cohen, Gabriel Rossi, Stefan Lewellen, William Goetzmann, and the many TA bankers and thousands of students who have already played this game in various versions.

Original Stock Market Game

- Objective is to beat the market
- Live game play in large trading room
- Each player starts with 5 shares of 4 companies, plus $200 cash (G: Green, Q: Orange, R: Red, Y: Yellow)
- Starting Portfolio:

5G @ 40 =	$200
5Q @ 40 =	$200
5R @ 40 =	$200
5Y @ 40 =	$200
Cash =	$200
TOTAL =	**$1,000**

- Equipment
  - Transaction display screen
  - Packets of starting portfolios (one for each player)
  - G, Q, R, Y Banks with card decks for stock market valuations

Value of Share of Stock

- Sum of 10 playing cards drawn randomly from double deck
  $V = \sum_{i=1}^{10} C_i$
  - Scoring is number on card
  - Face cards equal 10, ace equals 20
  - Black is positive x2, red negative
- Example: V = 24
  - Black: J, 9, 8, 6, 4 = 20+18+16+12+8
  - Red: A, Q, J, 8, 2 = -20-10-10-8-2
- Unconditional averages
  - Single card = 4
  - 10 cards = 40

Public and Private Info

Public Information

- Security Analyst Report (SAR)
  - Five cards randomly drawn +$20. (x=2) SARs per company, at start of game, and evenly time spaced through the game.
  - SAR = $\sum_{i=1}^{5} C_i + 20$
- Earnings Report (EPS)
  - At random, one card added, one card deleted. Difference reported publicly.
  - EPS = $+C_1 - C_2$

Private Information

- For (x=$2), a player can purchase a subset of 3 cards from full set of 10 cards from any company as often as desired, drawn with replacement

The Game Rules

- **Individual Play**
  - Each player has a portfolio, must trade at least once
  - Can share info with other players
- **Buy and Sell Transactions**
  - Place limit or market orders
  - Can hold positive or negative (short) positions
- **Credit Constraints**
  - Can short up to 5 shares of each company
  - Can borrow up to $200 @ 10%

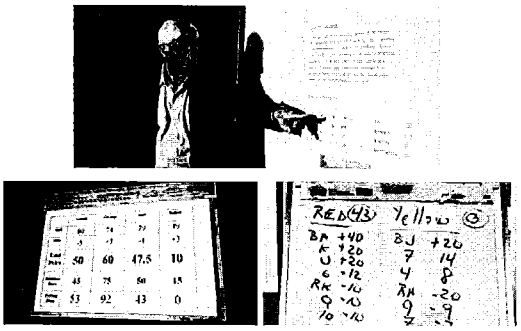
The Game Sequence

1. Log in using Yale student net I.D. at cmi2.yale.edu/smg
2. Game clock has starting and ending time
3. Start
   - Each player has portfolio 5G, 5Q, 5R, 5Y + $200
   - SAR report released x4 companies
4. Play
   - Trade, purchase info, manage portfolio
   - EPS reports at equal intervals in G, Q, R, Y
5. Game Ends
   - Liquidation valuation: 10 cards revealed x4
   - Market (Buy + Hold) value + return computed
   - Your portfolio value + return + rank computed

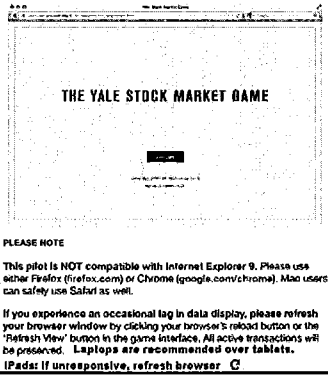
Live Gameplay

Video Link: http://mba.yale.edu/news_events/CMS/Articles/7021.shtml

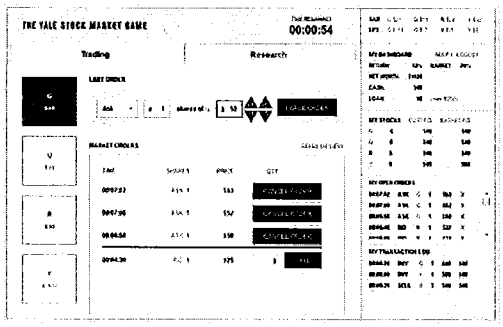
Live Game Results



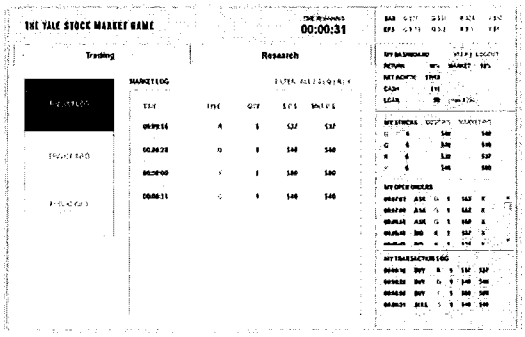
Join Online Game: cmi2.yale.edu/smg



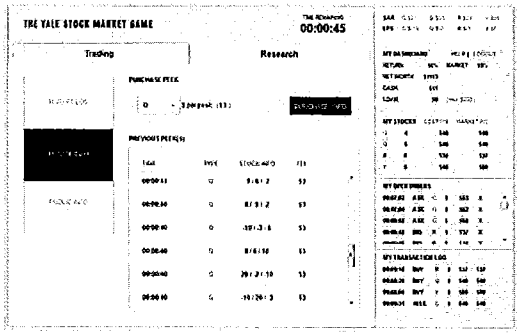
Trading



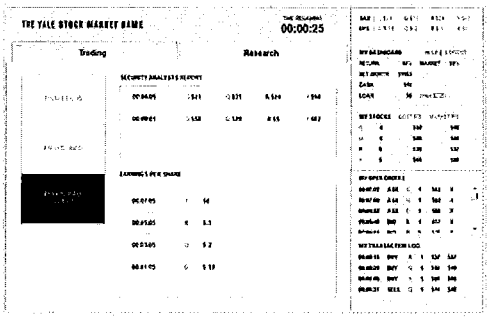
Research: Market Log



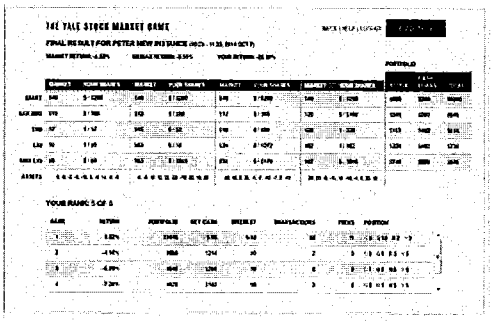
Research: Private Info



Research: Public Info



Final Valuation



Zero Sum Game

- Beating the market is a ZSG since weighted sum of returns from securities and portfolios must sum to market, except for costs.

$$R_m \equiv \sum_{i=1}^{n} W_i R_i \equiv \sum_{p=1}^{P} W_p R_p + \text{Costs}$$

market securities portfolios

- Outperformer excess returns are less than or equal to underperformer (negative) excess returns

Extended Games

Claims on Assets

- By viewing $\sum C_i$ as the assets, the game has been played in numerous forms

Common Stocks

Assets	5 Shares Stock

Mortgage Pools

Pooled Assets	Tranche	1 2 3

Corp Liabilities

Assets	Bonds Sub CV Bonds Stocks Warrants