* Market Clearing
  + every turn agents determine their price target for the asset
    - for institutional investors this is the current price that would allow them to make their expected return given their expected future price
    - TBD for retail investors
  + all agents with price target above the most recent market price put in a buy order
    - agents will attempt to buy as much as they can afford
  + all agents with price target below the most recent market price, who also own at least one share, put in a sell order
    - agents will attempt to sell all of the stock that they own
  + buy orders are matched by FIFO (on both buy and sell)
    - so the first buy order that comes in with max price X will be matched with to the first sell order that came in that had min price Y that was lower than or equal to max price X.
    - The price that each order settles at will be the price that is closest to the most recent market price and also greater than or equal to price Y but less than or equal to price X. This will then become the new market price.
    - The buy order will buy as much as it can from the seller. so if the buy order had a limit amount of Z, and seller had S shares to sell, and if the market price is P, then the buy amount will be the minimum of Z/P and S.
    - If the buyer purchased all of the sellers shares, and did not reach their ceiling, then they will be matched with another sell order to finish their amount.
    - similarly, sell orders will exist until their full amount has been sold.
    - this process will repeat until all buy orders or sell orders have been settled.
* institutional investors
  + institutional investors have an expected return for the asset that is equal to the CAPM. all institutional investors have the same expected return for the asset.
  + every turn institutional investors forecast the expected net income of the company.
    - this is randomly done with the same random normal distribution that is used for the actual company profits
  + they use this forecast to calculate an expected price by assuming a fixed P/E ratio. so given a new earnings (net income), a new price can be calculated.
  + these investors then determine the market price that will allow them to earn exactly the expected return. this becomes their price target, which they will use to make buy/sell decisions.
* retail investors
  + retail investors determine their initial price target randomly
    - random normal? but then what is mean and what is standard deviation?
  + retail investors will grow bigger relative to their profits (current net assets – initial net assets)
  + retail investors will move their price target closer to retail investors that have made more profit
    - if they’ve made the equivalent profit, they will not move
    - agents will move half the distance between their current price target and the minimum price target of agents with the max profit
  + is there an escape mechanism? like do agents sell at a certain profit level?
    - maybe another feature is a multiplier that once hit they decide to sell their asset holdings at
    - can also be a lower multiplier, that once lost the agent walks away from trading
    - almost like how you would approach gambling
  + how to show irrational exuberance?
    - agents that have made money will adjust their price target upwards (irrational exuberance)
      * some fixed percentage upwards?
    - agents that have lost money exponentially lower their price target
    - maybe irrational exuberance shows up in the agents risk tolerance – while the stock goes up, they keep pushing up their multiplier (and maybe also the profit makers push up their stock prices)
    - and when it goes down they start to exponentially lower their multipliers
      * exponentially, but from a low start, so 2% first loss, 4% next, etc.
* the company
  + the company will basically be a global variable
  + every so often it will announce its net income. institutional investors will use this for their price calculations.
  + the net income will be random-normally determined
    - it will be their last net income \* 1 + (random normal number with mean .02? and standard deviation .1)
* agent buying power
  + all agents start off with a certain amount of money
    - can make it a flat amount to start, but will likely change so that institutional investors have way more money
  + probably will never go broke, but can become priced out of the market.