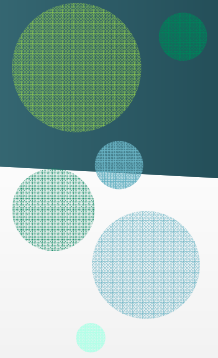




R on the Trading Desk

May 2013

What is a "Trading Desk"



- The fixed income markets are decentralized
- It is a many-to-many network connecting market makers (banks) with buy-side clients (mutual funds, etc)
- Market makers are in the business of providing immediacy of liquidity.
- Market makers stand ready to buy or sell, at any time and on demand, and take the other side of whatever trade a client wants to do.

What's a Trading Desk really about



- Because the trading desk is buying when customers are selling, and visa versa, they are always taking on risk on demand, where the decision is initiated by the client.
- So knowing what the clients are going to do let's the market maker be prepared. This is the same as a retailer anticipating demand and stocking their shelves with the products they think people are going to want to buy.
- It is about predicting human behavior through the traces they leave in numerical patterns of security prices
- Very similar to the Amazon.com "If you like that, you may also like this..."

What are the tools to get the job done

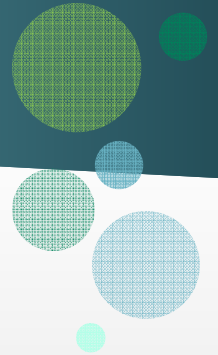


- It is the "Big Data" problem. Thousands of securities trade millions of times a day, leading to an explosion of data also driven by automated trading strategies.
- Evolution : Lotus 1-2-3 -> Excel -> R
- Driven by two factors:
- Academics joining Wall St. They wanted to use the tools they were used to
- The size of the data set, 65000 row max in Excel

Typical Setup

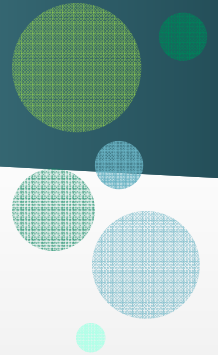
- Data connectors: SQL, OneTick, etc.
- Time Series specific packages: zoo, xts
- Manipulation: reshape
- RStudio : A huge improvement on lowering the bar to accessibility
- The more sophistication, the greater the understanding of testing and the use of those tools

Then what happened



- People realized that moving from a spreadsheet to a "real" language had the benefits we all know: version control, testing, maintainability, etc.
- Quants and traders started using the same tools and speaking the same language, which had a feedback loop of working closer and more efficiently together

What does the future hold



- On the positive side:
- R is an accepted tool
- Wide adoption leads to innovation
- The development occurring in the R community around larger data sets are in sync with the market needs

- Challenges:
- Too easy to do some things...one high profile error away from being put in the "penalty box"
- Python + Pandas...