Summary of Recent Internships

1. A Ph.D. student in finance at UNC is working on devising portfolio optimization rules in a dynamic multi-asset setting. This problem has been around for quite a while and there is no widely accepted method for optimal portfolio strategies when you include a variety of real-world issues. These include stochastic volatility, drawdown constraints, transaction costs, and time-varying risk aversion. The goal is to develop a set of algorithms that can be used to approximate optimal dynamic portfolio strategies in a fixed income setting.

2. A junior at UNC is working on estimating the sensitivity of our private label mortgage model to assumptions about home price appreciation volatility and correlation across regions. This project involves estimating the time-series properties of volatility and correlation and then determining the impact of different scenarios on different specific Alt-A and subprime bond prices.

3. A junior at Princeton is looking at the different characteristics that determine agency mortgage prepayments and writing a white paper on them. He is using eMBS (a prepayment database of the Agency universe) to stratify mortgage buckets utilizing our current themes and mortgage holdings to identify the important stratifications.

4. An undergraduate Math major from UNC has worked on a diverse set of projects that have accumulated on our "wish list" over the past few months and he will be continuing to work part time during this academic year.

   Most of his projects have been focused on automating tasks using VBA programming and SQL databases. Successful projects so far include:

   - a "bid history" SQL database that allows us to quickly identify when we cross paths with familiar bonds on BWIC's (bid lists).
   - an automated "offers scraper" tool that conveys daily dealer inventory activity.
   - SQL queries that summarize the collateral for bonds that we run through our model.

5. A rising Sophomore from Rhodes College – majoring in Economics and Business is performing some exploratory data analysis to help us understand a new time series data set that includes mortgage loan status (delinquency, foreclosure, negative equity) and home sales information (new, resale, reo, short sale) across a range of levels of geographic aggregation (national, state, CBSA, county, zip code). Phase II is to use this information to enhance our home price prediction capabilities.
Desirable Characteristics of Interns

Some characteristics we would most value in interns or full-time candidates for positions such as these are:

- Strong knowledge of probability, statistics, applied econometrics, and simulation/optimization methods
- Basic understanding of bond pricing and the mortgage market
- Ability to code in STATA, C#/++, SQL, VBA, and/or similar
- Curiosity about financial markets and the economy
- Good communication skills
- Ability to work and solve problems both independently and in teams