

# Final Project

**You may work on this project in groups of up to 5 students. You only need to hand in one copy of the project for each group. Provide a cover page with names of each group member. This is an in-class project, however, you are required to investigate carefully data sources and steps needed to complete this project prior to class. It is crucial that each group works independently. Maximum 100 points.**

*Each group will be assigned a MBS for this project.*

## Part I. Pricing Agency-type MBS

Use the assigned security. Assume that full and timely payment of scheduled principal and interest on this security is guaranteed by the U.S. government.

1. Generate a large number of paths of interest rates at the frequency and to horizon desired. You may refer to Fabozzi, p. 379 regarding approaches to generating interest rate paths.
2. Develop at least two alternative prepayment models (e.g. , you may consider a PSA model and the Bloomberg model). Please note that prepayment models reflect interest rate paths.
3. Calculate the cash flows of the security along each path.
4. Compute the value of the security as the average of the discounted values across paths. Comment on your finding.

## Part II. Pricing Private-label-type MBS

Use the assigned security. Now assume that timely payment of scheduled principal and interest on this security is guaranteed by a private financial institution, which is assigned a credit rating of an A by Standard and Poor's. Compute the value of the security using the approach specified in steps 1-4 above but now also adjust for the credit risk. Comment on your findings.