**From:** Dragos Bozdog <dbozdog@stevens.edu>   
**Sent:** Tuesday, October 11, 2022 8:51 PM  
**To:** Riley Heiman <rheiman@stevens.edu>  
**Subject:** Re: FE 680 Advanced Derivatives - Fall Semester Questions

Hello Riley,

Yes, you need to use convexity adjustment. The payoff of the derivative is equal to 6-year rate minus 2-year rate. So, if the forward bond price equals the expected bond price, then what is the expected yield on the bond with maturity in 6 years and in 2 years?

Regards,

Dragos

**From:** Riley Heiman <[rheiman@stevens.edu](mailto:rheiman@stevens.edu)>  
**Sent:** Tuesday, October 11, 2022 5:46 PM  
**To:** Dragos Bozdog <[dbozdog@stevens.edu](mailto:dbozdog@stevens.edu)>  
**Subject:** RE: FE 680 Advanced Derivatives - Fall Semester Questions

Hi Professor,

I’m working on HW 2, but I’m stuck on problem 4. For this problem do we have to use convexity adjustment?

Text

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**Problem 4**

Assume that the risk free-rate yield curve is flat at 5% (with continuous compounding). The payoff from a derivative occurs in 5 years. It is equal to the 6-year rate minus the 2-year rate at this time, applied to a principal of $1 million with both rates being continuously compounded. Calculate the value of the derivative. Assume that the volatility for all rates is 30%.

I would be entirely grateful if you can provide a hint.

Riley Heiman

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