

Individual problem set – do not work on with classmates. Submit each question in a separate worksheet in a single Excel file.

Suppose that you work at the Treasury desk of a primary dealer. At the time of the auction of the new May 15, 2023 note, (Wednesday, May 8, 2013), you have sold \$650 million par in the when-issued market, at an average bond-equivalent yield of 1.76%. Your bids at the primary auction were all at yields that were higher than the high yield which cleared the auction, of 1.81%. The note will be issued on Wednesday May 15, 2013 with a coupon rate of 1.75%, at a price of 99.453420. Your boss asks for an analysis of whether it makes sense to cover the shorts in the when-issued market now, or hold the short position until the next reopening auction. Looking at the calendar, we expect the next reopening auction for this note to be on June 12, 2013, for issuance on Monday, June 17, 2013.

On Thursday, May 9, 2013, the 1.75% May 15, 2023 note is trading in the when-issued market at 99-13 bid, 99-14 ask. Evaluate the following trade scenarios:

1. Cover the short position immediately in the when-issued market.
2. Wait to cover until the next auction in an unhedged position. At this point interest rates seem headed up, and your desk thinks the bond-equivalent yield on the 1.75% May 15, 2023 note has equal probability of being 1.60%, 1.75%, and 2% at the next auction. (And of course, there is no explicit bid-ask spread when buying at auction). The current overnight general collateral repo rate is 1.1%. You expect that the new on-the-run note will sell on special in repo, with average specialness of 200 basis points over the holding period. The haircut in the bilateral repo market for 10-year Treasury notes is 2%. Your firm's cost of capital is 8% on a continuously-compounded basis.
3. Hedge the short exposure using the 2% February 15, 2023 note. On May 16, 2013, this note is trading at 100-28 bid, 100-29 ask. With this trade you would partially hedge macroeconomic risks by going long this note for the holding period. Your desk assumes that the note will likely trade at a 12 basis point yield discount relative to the May (on-the-run) note (reflecting both the slope of the yield curve and the on-the-run premium) on June 17, 2013. However, they also believe that you should consider scenarios wherein this premium is as high as 18 basis points and as low as 6 basis points, in yield to maturity terms—treating the three scenarios as equally likely. You expect that the February 2023 note will trade as general collateral over the next month.

Show the P&L for each trade. If a trade entails multiple scenarios show the P&L in each case. Discuss the optimal trade under the circumstances, and firm assumptions. Provide a discussion of the relative risks associated with each trade.