**Repo Problem**

Bond dealers often finance their positions through the repo market. Since repos are very short-term (usually no more than a few days) collateralized loans, the interest paid on the repo is usually less than the interest earned on the bond that is being carried (when the yield curve is upward sloping). This allows the bond dealer to earn profits on (1) the spread, (2) any appreciation of the bond while it is owned, and (3) the carry. Note though, that there is risk to holding a bond.

Here is price data for a 5 ½ % Treasury bond with a maturity date of May 15, 2030, along with the repo rates, for a week in October 2024.

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|  | **Posted Treasury Quotes** | | **Overnight Repo Rates** |
| **Date** | **Bid** | **Ask** | **APR** |
| 10/7/24 | 101:18 | 101:20 | 5.30% |
| 10/8/24 | 101:19 | 101:21 | 5.31 |
| 10/9/24 | 101:21 | 101:23 | 5.32 |
| 10/10/24 | 101:24 | 101:26 | 5.33 |
| 10/11/24 | 101:23 | 101:25 | 5.34 |

Assume that on Monday October 7, an insurance company contacted you, a bond dealer, and sold you $100 million (face value) of the 5 ½ % 5/15/30 T-Bond at your quoted price. You carried the position in the repo market (one day at a time) for four days at a haircut of 0.5% before being contacted Friday morning (Oct. 11) by a pension plan that purchased the bond from you at your quoted price. For simplicity, assume that settlement occurs on the transaction dates. Calculate the following using **dollars and cents** (**NOT** percentages of face value):

1. The invoice price of the bond when you purchased it
2. The invoice price of the bond when you sold it
3. How much interest you earned for the time you held the bond
4. How much interest you paid on the Repo (you pay the entire amount when you receive the bond back – it is not paid each day – so consider compounding)
5. The net gain or loss on the round-trip transaction