Key for Spring 2013: Problem 1 from Final B for 2:30 Class

Assume capital markets are perfect and that Gnusmas and Elppa have identical assets. Gnusmas' outstanding equity has a market value of $150 million and has debt that matures for $250 million eight years from today. These bonds earn an interest rate of 7% per year. Elppa has no debt and its equity has a market value of $300 million. What set of transactions will generate an arbitrage profit today? Show that the conditions of arbitrage are met if the firm's value ends up at $200 or $350 million eight years from today. Note: calculations required.

\[ V_L = 150 + \frac{250}{(1.07)^8} = 150 + 145.50 = 295.50 < 300 \]

\[ \text{Buy} \quad \text{sell/short} \]

Buy Gnusmas' debt + equity and shortsell Elppa's equity

\[ \begin{array}{ccc}
\text{Trans} & \frac{-5}{+5} & \frac{-5}{+5} \\
\text{Buy Gnusmas' debt} & -145.50 & +250 \\
\text{Buy Gnusmas' equity} & -150 & +100 \\
\text{Short Elppa's equity} & \frac{+300}{+100} & \frac{-350}{-100} \\
\hline
\text{Total} & +4.50 & \end{array} \]