Questions 1 through 6 relate to Fixed-Income.

Jimmy Pickens Case Scenario

Jimmy Pickens works at SkyLine Capital Specialists (SLCS), an investment firm in the U.S. established by a group of experienced financial analysts and investment professionals. Pickens is a senior portfolio manager at the firm who heads a team of more than ten fixed income analysts. During his lunch break, Pickens was called by David Pressman, a fixed income manager at SLCS. Pressman wanted help in analyzing the impact that a trade in a bond issue would have on his portfolio's return. The bond under consideration was a 5 year, 11.5%, semiannual, $100 par corporate bond. The price of the bond in the market was $102.34 at the time of analysis. Pressman wanted to calculate the bond's effective annual return, assuming that coupons could be reinvested at 8% over his one year investment horizon. Pressman asked Pickens what the EAR for the bond would be if the expected horizon yield equaled 9.5%.

After Pickens assisted Pressman with his calculations, he talked about how single and multiple liabilities could be immunized to lock in a guaranteed rate of return over a particular time horizon. When talking about multiple liability immunization, Pickens made the following comment:

Statement 1: "To assure multiple liability immunization in the case of parallel rate shifts, managers selecting securities to be included in the portfolio must not only keep track of the matching of duration between assets and liabilities but also maintain a specified distribution for assets in the portfolio."

Pickens then talked about the various methods of immunizing multiple liabilities. He made the following comment:

Statement 2: "Perfect cash flow matching is less risky than combination matching which in turn is less risky than multiple liability immunization. However, cash flow matching is the most costly to implement, whereas multiple liability immunization is the least."

Pickens is currently managing a $50 million bond portfolio to immunize a payment to be paid after four years. The portfolio's mandate provides some degree of flexibility in pursuing active strategies so Pickens has decided to manage the portfolio using a contingent immunization strategy. The current rate at which he can immunize the asset portfolio is 5.67% and Pickens has determined that over the four year investment horizon, the portfolio must earn 4.00%.

Pickens is also managing a fixed income portfolio for Ryan Wicker, a chemical engineer working for Triple-E Chemicals (TEC) in USA. The portfolio is worth $3

million, and Wicker has instructed Pickens to use a long-term bond index as a benchmark for his portfolio. The index includes long-term corporate bonds, long-term government bonds, and long-term callable issues. To match the portfolio's risk factors with those of the benchmark, Pickens is using a multifactor model technique to identify the set of factors that drive the index's returns. Two of the risk factors that Pickens has identified are the spread duration and the sector duration. To ensure that the indexed portfolio closely tracks the benchmark with regards to these risk factors, Pickens matched the percentage weight in the various sectors and qualities of the benchmark index. Also, since Pickens knows that duration only captures the effect of small interest rate changes, he not only matched the duration, but also the convexity of the index, especially to replicate the index's exposure to call risk.

International diversification has always been Pickens argument for investing abroad. He believes that the world market offers attractive investment opportunities that can not only improve a 'domestic-only' portfolio's return, but can also significantly reduce its risk. For these reasons, Pickens just invested his own domestic, U.S. dollar, fixed income fund in Canadian bonds. However, the Canadian dollar is expected to depreciate significantly over his six month investment horizon, and Pickens wants the hedge the currency risk of his investment. To achieve his objective, he plans to enter into a six month forward contract with a promise to deliver Canadian dollars for Australian dollars. Pickens aims to eventually convert the Australian dollars received under the contract to U.S. dollars.

Pressman is applying a dedication strategy to accommodate the funding needs of a pension fund sponsored by Elton Enterprises (EE). The bond portfolio is worth $25 million and constitutes of fixed coupon Treasury bonds and intermediate term and long-term triple-A rated fixed rate corporate securities. Due to his interest rate expectations, Pressman did not invest the portfolio in securities with embedded options.

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1. The effective annual rate for the bond Pickens is analyzing is *closest* to:

   A. 10.8035%.
   B. 11.0958%.
   C. 15.5550%.

2. Pickens is *most* accurate with respect to:

   A. Statement 1 only.
   B. Statement 2 only.
   C. both statements 1 and 2.

3. Assuming semiannual compounding, for the $50 million bond portfolio that Pickens is managing, the initial dollar safety margin is *closest* to:

   A. $2,103,239.
   B. $3,111,898.
   C. $3,157,102.

4. With regards to his attempts to match the risk factors of Ryan Wicker's bond portfolio to those of the benchmark, Pickens is *most* accurate with respect to the matching of the:

   A. spread duration and sector duration only.
   B. sector duration and call risk only.
   C. neither the spread duration and sector duration, nor the call risk.

5. Which of the following is *most* accurate about the currency hedge that Pickens has used to hedge his Canadian investment?

   A. The hedge is known as a proxy hedge, since Pickens has used the Australian dollar as a proxy for the U.S. dollar.
   B. Relative to the U.S. dollar, the Australian dollar is expected to depreciate less than the Canadian dollar over the next six months.
   C. The Australian dollar is highly correlated with the Canadian dollar.

6. Which of the following source(s) of risk(s) does EE's pension fund *most likely* face?

   A. Interest rate risk only.
   B. Interest rate risk and cap risk only.
   C. Interest rate risk, cap risk, and contingent claim risk.