

EXAM FM QUESTIONS OF THE WEEK

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Week of May 1/06

On January 1, 2005 the term structure of annual effective yield rates on zero coupon bonds is 1 year maturity, 8% 2 year maturity, 9% 3 year maturity, 9.5% .

On January 1, 2005 Smith borrows \$1000 to be repaid in one year (at the 1 year zero coupon bond rate). Smith invests the \$1000 in a 3-year zero coupon bond.

On January 1, 2006 the term structure of annual effective yield rates on zero coupon bonds is 1 year maturity, 8% 2 year maturity, 9% 3 year maturity, 9.5% .

On January 1, 2006, Smith borrows enough to repay the loan due. This loan will be repaid in one year at the 1 year zero coupon rate.

On January 1, 2007 the term structure of annual effective yield rates on zero coupon bonds is 1 year maturity, 8% 2 year maturity, 9% 3 year maturity, 9.5% .

On January 1, 2007, Smith borrows enough to repay the loan due. This loan will be repaid in one year at the 1 year zero coupon rate.

Find Smith's gain on this transaction as of January 1, 2008?

The solution can be found below.

Week of May 1/06 - Solution

On Jan. 1, 2005 Smith invests \$1000 for 3 years at the 3 year zero coupon bond rate, so that investment will pay $1000(1.095)^3 = 1312.93$.

Smith owes 1,080 on Jan. 1, 2006 so he borrows that amount for 1 year at 8%.

Smith owes $1080(1.08) = 1166.40$ on Jan. 1, 2007 so he borrows that amount for one year at 8%. On Jan. 1, 2008 Smith owes $1166.40(1.08) = 1259.71$.

Smith's gain is $\$1312.93 - 1259.71 = 53.22$.