

RE 618 / Fin 618 – Real Estate Investment Analysis
Homework – Selecting Discount Rates – Solutions

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- 1) Livia is trying to determine the appropriate discount rate for analyzing a Class A apartment property in Memphis, TN. She has established the following information:

The current T-bill rate is 6.50 percent.

The current market risk premium for similar apartment properties is 4.00 percent.

The market cap rate for similar apartment properties is 8.25 percent.

Mortgage financing is available 8.50 percent with a 67 percent LTV ratio.

Expected inflation will be approximately 2.5 percent for the indefinite future.

Capital improvement expenses are expected to average 1 percent of NOI per year.

- a) What is the estimated discount rate for the property using the risk-premium approach?

$$r_p = 6.50 + 4.00 = 10.50\%$$

- b) What is the estimated discount rate for the property using the cap rate approach?

$$r_p = 8.25 + (2.50 - 1.00) = 9.75\%$$

- c) Using each of the discount rate estimates calculated above, estimate the required before-tax discount rate for an equity investor in this property.

Risk-premium approach

$$r_e = (10.50 - 0.67 \times 8.50) / 0.33 = 14.56\%$$

Cap rate approach

$$r_e = (9.75 - 0.67 \times 8.50) / 0.33 = 12.28\%$$

- d) Reconcile the estimates you obtained in part (c) to come up with an estimated before-tax discount rate for an equity investor in this property.

Assuming neither approach has an obvious advantage, the average of the two figures from part (c) is 13.42 percent. Rounded, I would probably use a discount rate of 13.50 percent.