

SS8 Applications of Economic Analysis to Portfolio Management

Brian O'Reilly is a capital markets consultant for the Tennessee Teachers' Retirement System (TTRS). The board asks about forecasting expected returns for major markets given that price earnings ratios are not constant over time and that many companies are repurchasing shares instead of increasing cash dividends. O'Reilly responds that the Grinold-Kroner model accounts for those factors and then makes the following forecasts for the European equity market:

- Dividend yield will be 1.95%
- Shares outstanding will decline 1.00%
- Long-term inflation rate will be 1.75% per year
- An expansion rate for P/E multiples of 0.15% per year
- Long-term corporate real earnings growth at 3.5% per year

- 1 Given O'Reilly's forecasts for the European market, the expected long-term equity return using the Grinold-Kroner model is closest to:
- A. 6.35%.
- B. 7.35%.
- C. 8.35%.

Solution: C.

According to the Grinold-Kroner model, the expected long-term developed market equity return is equal to the sum of the: 1) expected income return (dividend yield minus the percentage change in the number of shares outstanding), 2) expected nominal earnings growth return (long-term inflation rate plus long-term corporate earnings growth rate), and 3) repricing return (expansion rate for P/E multiples). In this case:

$$E(\text{Re}) = [1.95 - (-1.0)] + [1.75 + 3.50] + 0.15 = 2.95 + 5.25 + 0.15 = 8.35\%$$

To assess the attractiveness of emerging market equities, Fiske suggests that they use the data in Exhibit 1 and determine the expected return of small-cap emerging market equities using the Singer–Terhaar approach.

Exhibit 1			
Data for Analyzing Emerging Markets			
Asset Class	Standard Deviation	Correlation with GIM	Degree of Integration with GIM
Emerging small-cap equity	23%	0.85	65%

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Global investable market (GIM)	7.00%	
Additional information		
Risk-free rate: 2.5%		Illiquidity premium: 60 bps
Sharpe ratio for GIM and emerging small-cap equity: 0.31		

2 Using the data in Exhibit 1 and Fiske's suggested approach, the forecast of the expected return for small-cap emerging market equities is closest to:

- A. 9.5%.
- B. 8.9%.
- C. 9.9%.

Solution: A.

The Singer–Terhaar approach for determining the expected return on an asset class involves determining the risk premium arising from systematic risk as a weighted average of the risk premiums arising from a fully integrated market and fully segmented market, where the weights for the fully integrated market are the degree of integration of the markets. The risk premium for the fully integrated market is given by

$$RP_i = \sigma_i \rho_{i,M} \left(\frac{RP_M}{\sigma_M} \right) \text{ where } \frac{RP_M}{\sigma_M} \text{ is the Sharpe ratio for the world market portfolio.}$$

The risk premium for the fully segmented market is given by $RP_i = \sigma_i \left(\frac{RP_M}{\sigma_M} \right)$

In addition, if there are market imperfections, such as illiquidity premiums, they must be added in. Finally, the expected return on the asset class is determined by adding these risk premiums to the risk-free rate, in classical capital asset pricing model fashion.

Step 1:

Systematic risk premium in fully integrated market

$$\text{Risk premium: } RP_i = \sigma_i \rho_{i,M} \left(\frac{RP_M}{\sigma_M} \right) \quad (23\% \times 0.85 \times 0.31) = 6.06\%$$

Step 2:

Systematic risk premium in fully segmented market

$$\text{Risk premium: } RP_i = \sigma_i \left(\frac{RP_M}{\sigma_M} \right) \quad (23\% \times 0.31) = 7.13\%$$

Step 3:

Weight systematic risk premiums by degree of integration: $(0.65 \times 6.06 + 0.35 \times 7.13) = 6.43\%$

Step 4:

Add the illiquidity premium $6.43\% + 0.60\% = 7.03\%$

Step 5:

Add the risk-free rate $2.5\% + 7.03\% = 9.53\%$

Grey finds that RiteVal's economic commentary reveals a non-consensus view on inflation. Specifically, they believe that a near-term period of deflation will surprise many investors but that the current central bank policy will eventually result in a return to an equilibrium expected level of inflation.

Grey states: If RiteVal is correct, in the near-term our income producing assets, such as Treasury bonds and real estate, should do well because of the unexpected improvement in purchasing power. When inflation returns to the expected level, our equities are likely to perform well.

Cortez points out that RiteVal uses an econometrics approach to economic analysis, whereas GloboStats prefers a leading indicator-based approach. Cortez and Grey discuss these approaches at length.

3 Grey's statement regarding the impact of RiteVal's inflation scenario is most likely:

- A. Incorrect because of his comment about real estate.
- B. Incorrect because of his comment about equities.
- C. Correct.

Solution: A.

In deflation, real estate experiences downward pricing pressure (negative) and bonds benefit from improving purchasing power (positive). Therefore, Grey's comment about real estate is incorrect. In equilibrium, inflation at or below expectations is a positive for equities. The comment about equities is correct.

Sorenson is interested in learning how earnings-based and asset-based relative value models can be used to better manage the firm's investment portfolio. She first asks Dreschler to compare the Yardeni and Fed models. Dreschler responds by making these points:

- The Yardeni model assumes that the required rate of return on equity equals the T-bond yield.
- Although the Yardeni model captures a greater portion of the risk premium than the Fed model, it still does not accurately measure equity risk.
- Both the Yardeni model and the Fed model are consistent in the way they measure the earnings growth rate.

4 Which of Dreschler's comments about the Yardeni and Fed models is the most accurate? The comment regarding the:

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- A. Required return on equity.
- B. Equity risk.
- C. Earnings growth rate.

Solution: B.

The Yardeni model uses Moody's A rated corporate bond yield as the risk component of the model. Although an improvement over the Fed model, it is largely a default risk premium that does not accurately measure equity risk.