

**SLOAN SCHOOL OF MANAGEMENT  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

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Advanced Financial Economics III  
15.442J  
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**ASSIGNMENT 2** – Due Tuesday, October 14

The following questions all refer to Campbell (1991).

1. Algebra

- a. Derive eq. (1). Briefly explain what it means.
- b. Derive eq. (4).
- c. Derive eq. (5).

2. Data

- a. Replicate the results in Tables 1 and 2 for a VAR model with one lag.

The dataset ‘Assignment2\_data.xls,’ on my webpage, contains NYSE value-weighted returns, dividend yield, and one-month Tbill rates from 1926 – 2001 (monthly data). You can use either nominal or excess returns.

You may skip the ‘Stability’ tests. You can estimate the model using either OLS or GMM.

- b. Analyze the small-sample properties of the estimates in Table 1 and Table 2. Are the estimates biased? Are the standard errors reliable? Correcting for bias, what is the p-value for testing whether the variance of returns equals the variance of dividend news:  $\text{var}(h) = \text{var}(\eta_d)$  or, equivalently,  $\text{var}(\eta_d) / \text{var}(h) = 1$ ?

You should use Monte Carlo or bootstrap simulations to analyze the small-sample properties. Generate the sampling distribution under the null that returns are not predictable but maintaining the other features of the data (like persistence in DY).