

The following empirical question then arises naturally from the three partial-equilibrium theorems. Can the *same* value of the exogenous primitive  $\delta = \delta^*$  explain *simultaneously* the actually-observed values of the three economic-financial variables, so that  $E[r_e] - r_f \approx \Pi(\delta^*)$ ,  $r_f \approx \Phi(\delta^*)$ , and  $\sigma[r_e] \approx S(\delta^*)$ ? In other words, can the *three* degrees of freedom represented by  $\Pi(\delta)$ ,  $\Phi(\delta)$ , and  $S(\delta)$  be explained empirically by the *one* degree of freedom represented parsimoniously by  $\delta$  in this theory? The answer is “yes,” which we now proceed to show.

As was vetted in the previous section of the paper, equation (45) cannot literally be a true frequency description because of the huge mismatch between the observed sample variances of the two random variables  $g$  and  $r_e$ . Purely for analytical tractability, the model of this paper has treated structural parameter uncertainty *only* in its primitive driver, the growth rate. To make sense of (45) in such a model (whose stochastic equity returns are treated as being normally distributed with known standard deviation  $\sigma[r_e]$ ), we are allowed by a basic principle of operationalism to choose the as-if interpretation of story #2 over the more conventional interpretation of story #1. If we want to *conceptualize* the non-observable subjective growth rate of future consumption *as if* it is normally distributed, then in order to mesh seamlessly with equation (45) its as-if standard deviation  $\sigma[g_2]$  must be calibrated so that  $\sigma[g_2] = S(\delta) = \sigma[r_e]$ . Such a state-price-deflated calibration to equity-lognormal units of subjective future consumption is a harmless assumption for trying to understand the distribution of stock market returns, since it has no measurable consequences on aggregate equity. Choosing the interpretation of story #2 merely creates a convenient mental image for telling an observationally equivalent as-if parable about (45) holding in terms of the universally familiar normal probability distribution.

We now inquire whether the observationally-equivalent interpretation that the subjective future growth rate  $g$  is distributed *as if* it were normal with standard deviation  $\sigma[g_2] = S(\delta) = \sigma[r_e]$  renders along with (45) a consistent as-if story connecting together the actual parameter values of our economic world. In the following table, parameter settings have been selected that, I think, represent values well within the “comfort zone” for most economists. All rates are real and represented by annual values. The data are intended to be a stylized approximation of what has been observed for many countries over long periods of time.