

“The equity premium a puzzle” paper summary

The average return on stock has far exceeded the average return on short-term default debt. The question in this paper is whether this large differential in average yields can be explained by models from transaction cost, liquidity constraint, and other frictions absent in the Arrow-Debreu set-up. The simple class of economies studied is well suited for the question posed. But it is not suited for other issues, such as the volatility of asset prices. The low average real return and high average return on equity cannot simultaneously be rationalized in a perfect market framework because the elasticities of substitution between the year t and year $t+1$ consumption are small. Future consumption will exceed present consumption and real interest rates will be higher on average.

The data used in this study consists of five basic series (P, D, C, PC, and RF) for the period 1889-1978. Series P and D determined the average annual return on S&P 500 index. Series C determined the process on the growth rate of consumption. To determine the real return on a riskless asset, it used the series RF and PC. Lastly, the risk premium (RP) is calculated from the difference between the return on S&P500 and riskless asset.

In this paper, it assumes a variation of Lucas' pure exchange model and the growth rate of the endowment from a Markov process. Their assumption allows them to capture the non-stationarity in the consumption series. The joint process governing the growth rates in aggregate per capita consumption asset prices would be stationary and easily determined. Moreover, they assume that there is only one productive unit producing the consumption goods and only one equity share that is competitively traded. Therefore, the return on this share of equity is the market return. After that they formulate expressions for the equilibrium time t price of the equity share and the risk-free rate bill.

The result shows that given the estimated process on consumption, it demonstrates the set of values of the average risk-free rate and risk premium which are consistent with the model and result in average real risk-free rates between zero and four percent. The observed real return of 0.8 % and equity premium of 6% are clearly inconsistent with the predictions of the model. The largest premium obtainable with the model is 0.35 %, which is not close to the observed value.

A serious problem is that these errors bias their estimates of the growth rate of consumption and risk-free rate, so the inflation rate should be taken seriously. Another problem arises because of tax considerations. The theory is implicitly considering effective after-tax return which vary over income classes. In an attempt to relax the large discrepancy between theory and observation, they tested the sensitivity of the results to model misspecification. They found that these activities lead them to the conclusion that the result of the test is not sensitive to the specification of the process generating consumption. Indeed, by assuming stationarity, they biased the test towards acceptance.

If an individual accepts the Friend and Blume, the model's average risk-free rate is considerably larger than the sample average rate. On the other hand, if an individual is risk-neutral, one would wonder why the average return of equity was so high. This is not the only example of some asset receiving a lower return than that implied by Arrow-Debreu general equilibrium theory. In absence of such markets, there can be variability in individual consumption, but little in aggregate consumption. Such that non-Arrow-Debreu competitive equilibrium model may rationalize the large risk premium. To test such theories, it would be necessary to have consumption data by income or age group.