The Equity Premium A puzzle
Tanatat Bhurivatana 6204640137

The average return on equity is significantly more than the short-term risk-free debt. Over the period of 1889-1978, the average return according to S&P500 index yields 7 percent, which is considerably more than the risk free, less than 1%. This paper going to try and answer the question that the difference of the yield can be accounted for by model that abstract from transactions cost, liquidity constraint and other frictions absent from the Arrow-Debreu set-up. This paper use estimates that is designed to be a better estimate for better economics parameter, but not with the quantitative theoretical designed to for some other question. In intuitive reason for why the low average real return and high average return on equity cannot be rationalized in perfect market is that 1. The elasticity of substitution between t and t+1 is small. 2. Agent with high risk aversion tends to excessively discount compared to low risk aversion 3. Future consumption will probably exceed the present consumption and with the marginal utility of future consumption is more than the present real interest rate will be higher.

The data used is from the U.S. historical experience of the 1889-1978 consisting with 5 series, 1. Series P, Annual average S&P composite stock price index divided by consumption deflator. 2. Series D, Real annual dividend for S&P series. 3. Series C, per capita consumption on non-durable goods and services. 4. Series PC, a consumption deflator series 5. Series RF, nominal yield on riskless ST securities.

In the economy, asset prices and returns, in the paper they use the pure exchange model because the per capita consumption growth with assumption that the rate follows a Markov process allowing us to capture the non-stationarity in the consumption series. The economy they choose to use has a representative stand-in household. The paper then shows us various equation taken into account in this paper to lead to the conclusion.

The results, with parameter representing preferences as alpha and beta while for the technology are phi and lambda. The process required delta to be more than 1 and phi to be between 0 and 1 because it allows them to independently change the average growth rate of output by simply change mu and changing the variability of consumption by changing delta and the serial correlation by changing phi. These parameters are selected because the result matched the sample values of the US economy. The parameter alpha, imply the WTP to substitute consumption intertemporally with the maximum value of 10 else, it will contradict many studies. With alpha less than 10, it can be concluded that the results were the same for different consumption processes. The average real return on relatively ST riskless asset does not perfectly match the real bill. The estimated process on consumption gives the average risk-free rate and equity risk premium consistency with the result of average risk-free between 0 and 4 percent which can be obtained by changing alpha between 0 and 10 and beta between 1 and 0. While the observed of real return of 0.8 percent for risk free and 6 percent for equity premium is inconsistence and the largest premium able to obtain this paper model is 0.35% which is not close to the observed value.

The robustness of results, one problem that might offset the result is the inflation rate, but the error does not disturb the computed risk premium as they influence the risk-free rate and the computed risk amount in the same magnitude. A more serious problem is the tax consideration because it varies across each entity. The test appears to be robust for the case that growth rate grows independently even the one one-hundredths of a year to 2 years. They tested the sensitivity between theory and the result and found out that the changes are not sensitive to the change of mu at all and the sensitivity to delta is larger while phi has only a small sensitivity if not none at all.

The effects of firm leverage, the securities priced in the model does not correspond to the common stock that is traded in the US. The model only has 1 type of capital while there are plenty in reality. The paper concluded that the firm financial arrangement has no effect in resource allocation.

In conclusion, the writers emphasis that we focus on the wrong question and should focus on why the average risk-free rate is so low. This paper concur with Friend and Bleum with alpha exceeding 1 and some asset return maybe lower than what is implied by Arrow-Debreu general equilibrium theory. Also, they do not think that heterogeneity will change the outcome.