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**Essays on Productivity Risk in Asset Pricing**

I analyze the link between economic fluctuations and asset prices in a production economy. My research is based on the direct estimation of various specifications regarding productivity, a key driver of fluctuations in macro quantities and asset prices, and seeks to avoid being the error of reverse-engineering the exogenous productivity process to match asset pricing data.

My first essay, titled “Trend Growth Shocks and Asset Prices,” investigates how to justify a sizable long-run consumption risk in a production economy. I show that persistent trend growth shocks to productivity lead to such a sizable long-run consumption risk. I compare productivity that has a stochastic trend, the growth of which is predictable, to productivity with a deterministic trend. My premise, informed by the permanent income hypothesis, is that an economy characterized by the stochastic productivity trend would face greater future income risk. This economy would feature the present discounted stream of future consumption being more uncertain, compared to an economy with the deterministic productivity trend. I estimate the productivity process from U.S. data using the Kalman filtering technique and utilize it in a standard production economy model with Epstein-Zin recursive preferences. My findings are twofold. First, 95% of fluctuations in aggregate productivity growth is attributable to stochastic trend growth. Second, the economy facing the stochastic trend and a cycle generates a larger long-run risk in consumption, by a factor of roughly 12, compared to the economy with the deterministic trend and a cycle. As a result, agents facing trend shocks tend to save more and demand a higher equity premium.

My second essay (job market paper), titled “Asymmetric Dynamics of Positive and Negative Macroeconomic Shocks: Evidence and Implications,” documents the asymmetric effects of positive and negative shocks on macro quantities and asset prices through the channel of *positive and negative prospects*, the conditional expected values of future positive and negative shocks. I propose a novel process of macroeconomic growth in which an observed shock consists of positive and negative shocks that follow a newly proposed distribution, the Centered Exponential Difference (CED). A feature of the distribution is employed as a means of identifying the positive and negative shocks. These shocks drive fluctuations in the positive and negative prospects that determine all conditional moments of macroeconomic growth. The main empirical finding is that variation in the negative prospect causes considerable fluctuations in conditional moments. This result allows us to uncover the nature of risk that our economy faces over business cycles and to explain a stylized fact of business cycles—procyclical skewness and countercyclical volatility—and time variation in the equity premium. The second empirical result is that the positive and negative prospects in productivity have statistically significant impacts on both quantities and prices. Those impacts are more pronounced by the negative prospect than by the positive prospect. Last, the negative prospect in productivity tends to absorb the autocorrelation of growth rates in quantities. This result implies state-dependent expected economic recovery. That is, the negative prospect regulates the expected speed of economic recovery from recessions. I rationalize these empirical findings in a dynamic stochastic general equilibrium (DSGE) model in which households have Epstein-Zin recursive preferences. The model generates the asymmetric paths of macro quantities path to positive and negative shocks and matches well data on asset prices.