Research Working Papers

The Equilibrium Term Structure of Equity and Interest Rates

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Doh and Wu incorporate a time-varying market price of risk into an equilibrium asset-pricing model based on long-run consumption risks that generates the term structure of bond and equity risk premia consistent with U.S. data.

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We develop an equilibrium asset pricing model with Epstein-Zin recursive preferences that accounts for major stylized facts of the term structure of bond and equity risk premia. While the term structure of bond risk premia tends to be upward-sloping on average, the term structure of equity risk premia is known to be downward-sloping. The equilibrium asset pricing model with long-run consumption risks has difficulty matching these stylized facts simultaneously. The standard calibration of these models follows Bansal and Yaron (2004), in which agents prefer the early resolution of uncertainty and have the inter-temporal elasticity of substitution greater than one; this calibration implies an upward-sloping term structure of equity risk premia and a downward-sloping term structure of real bond risk premia. Although the standard model can match a downward-sloping term structure of equity risk premia by amplifying the short-run risk of dividend growth, it does not fully reconcile with empirical evidence implying an upward-sloping average yield curve and a downward-sloping term structure of Sharpe ratios of dividend strips. We extend a standard model in two dimensions. First, we incorporate time-varying market prices of risks by allowing marginal utility of consumption to be nonlinearly dependent on risk factors. Second, we endogenously determine expected cash flows and expected inflation as potentially nonlinear functions of risk factors. With these extensions, our model can match the average slope of both bond and equity risk premia together with the term structure of Sharpe ratios of dividend strips. At the same time, the model generates the behavior of the aggregate stock market return in line with the data.

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Article Citations

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Related Research

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