

# Market Performance

Lin, Favilukis partner to model equity premium puzzle adjustments

*In most of the standard equilibrium models used to explain equity market performance, the volatility of stock market returns is far too low.*

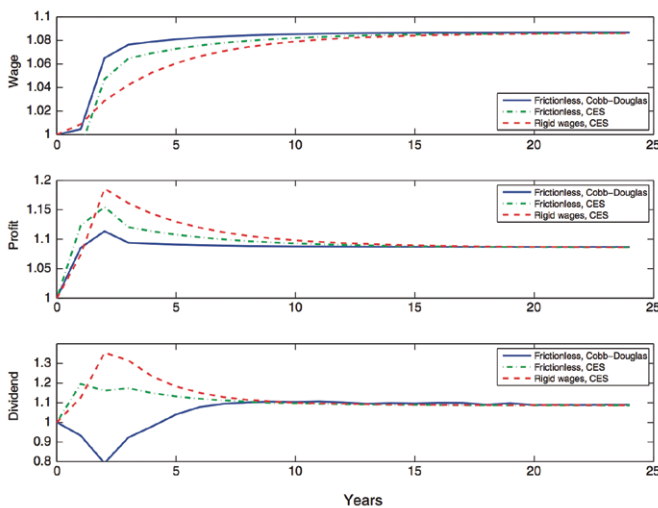
This muted volatility is closely related to the equity premium puzzle, a phenomenon whereby returns on “risky” stocks are historically much higher and more volatile than returns on “safer” government bonds.

Researchers are looking for ways to adjust the standard models to address these puzzling facts regarding the fluctuating prices of financial assets, such as aggregate stock market, portfolios with certain characteristics, etc. Xiaoji Lin, Ph.D., an assistant professor of finance at the Fisher College of Business at The Ohio State University, and Jack Favilukis, Ph.D., an assistant professor of finance at the University of British Columbia’s Sauder School of Business, are leveraging Ohio Supercomputer Center resources to better understand and address some of these riddles.

“A seemingly unrelated characteristic of these models is that wages are too volatile and too highly correlated with output,” explained Lin. “We show that the failure to match wage dynamics is closely related to the failure to explain financial data. Introducing sticky wages—a factor that accounts for workers’ earnings adjusting slowly to changes in labor market conditions—brings the model close to the data for these diverse financial phenomena. To our knowledge, we are the first to capture quantitatively such a wide array of financial moments in a reasonably calibrated general-equilibrium model.”

By introducing wage rigidity, Lin and Favilukis found they could greatly improve the model’s ability to match financial data quantitatively. Within standard models, they feel, wages are far too volatile and procyclical relative to the data, and, therefore, act as a hedge for the firm’s owners, making profits too smooth and dividends countercyclical. Thus, the equity volatility in the data is about four times that of standard models.

In Lin’s adjusted model, the average wage is smoother because of infrequent wage resetting and a higher complementarity between labor and capital. Therefore, both profit and dividend behavior are similar to the data, and the volatility of equity returns is now 75 percent that of the data. The model addresses several other hard-to-explain features of financial data: high Sharpe ratios, low and smooth interest rates, time-varying equity volatility and premium, a value premium and a downward-sloping equity term structure. •



(Left) These plots illustrate the impulse responses of the aggregate wage, aggregate profit and aggregate dividend to a positive productivity shock that lasts one year.

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