High Moments in Real and Financial Variables

Mihai Albu

March 2022

Abstract

Stocks exhibit time-varying variance and skewness, whereas for real variables, these higher moments are close to constant. I construct an equilibrium model with learning in which the DGP does not feature any variation in higher moments, but the resulting prices exhibit variation in these moments, in line with the data.

JEL Classification: G12

Keywords: Variance, Skewness, Macro finance

1 Introduction

Stocks exhibit time-varying variance and skewness, whereas for real variable, these higher moments are close to constant.

The literature has focused so far mainly on the impact of second-moment shocks.

The studies of McDonald and Siegel (1986), Dixit, Dixit, and Pindyck (1994), Bloom (2009) and Bloom, Floetotto, Jaimovich, Saporta-Eksten, and Terry (2018) use a real option channel to explain why uncertainty suppresses investment. In relation to asset prices, Bansal and Yaron, 2004; Boguth and Kuehn, 2013; Croce, Lettau, and Ludvigson, 2015; Johannes, Lochstoer, and Mou, 2016; Ai and Kiku, 2016; Segal, 2019; Segal, Shaliastovich, and Yaron, 2015,show that uncertainty shocks increase the equity premium.

In this study construct an equilibrium model with learning in which the DGP does not feature any variation in higher moments, but the resulting prices exihibit variation in these mo-

ments, in line with the data.

[Details to be updated]

2 Conclusion

Endogenous higher moments can arise from learning.

References

Ai, H., Kiku, D., 2016. Volatility risks and growth options. Management Science 62, 741–763.

Bansal, R., Yaron, A., 2004. Risks for the long run: A potential resolution of asset pricing puzzles. The journal of Finance 59, 1481–1509.

Bloom, N., 2009. The impact of uncertainty shocks. Econometrica 77, 623–685.

Bloom, N., Floetotto, M., Jaimovich, N., Saporta-Eksten, I., Terry, S. J., 2018. Really uncertain business cycles. Econometrica 86, 1031–1065.

Boguth, O., Kuehn, L.-A., 2013. Consumption volatility risk. The Journal of Finance 68, 2589–2615.

Croce, M. M., Lettau, M., Ludvigson, S. C., 2015. Investor information, long-run risk, and the term structure of equity. The Review of Financial Studies 28, 706–742.

Dixit, A. K., Dixit, R. K., Pindyck, R. S., 1994. Investment under uncertainty. Princeton university press.

Johannes, M., Lochstoer, L. A., Mou, Y., 2016. Learning about consumption dynamics. The Journal of finance 71, 551–600.

McDonald, R., Siegel, D., 1986. The value of waiting to invest. The quarterly journal of economics 101, 707–727.

Segal, G., 2019. A tale of two volatilities: Sectoral uncertainty, growth, and asset prices. Journal of Financial Economics 134, 110–140.

Segal, G., Shaliastovich, I., Yaron, A., 2015. Good and bad uncertainty: Macroeconomic and financial market implications. Journal of Financial Economics 117, 369–397.