Economic Inquiry / Volume 24, Issue 3 / pp. 429-441

FUTURES MARKET BACKWARDATION UNDER RISK NEUTRALITY

TIMOTHY F. BRESNAHAN, PABLO T. SPILLER

First published: July 1986
https://doi.org/10.1111/j.1465-7295.1986.tb01821.x

Abstract

J.M. Keynes first introduced the theory of normal backwardation in futures markets. In the language of (British) commodities markets, a backwardation is an excess of the spot price over futures prices. As is well-known, Keynes suggested that this might be explained as a risk premium. Less well known is that Keynes actually proposed two distinct theories of backwardation.

Of these two theories of backwardation, the latter has recently received much attention. The purpose of this paper is to formalize Keynes' first theory, his liquid stocks theory, with an eye to its eventual empirical test.

We follow the recent formalizations of the risk premium theory by assuming the existence of perfectly competitive asset markets. To emphasize the differences between the two theories, however, we assume that there are well-funded risk neutral investors. Thus, risk premia cannot explain backwardation under our assumptions. Instead, backwardations arise because of interactions between equilibrium in the commodities exchange, both in spot and futures trading, and the production, consumption and storage decisions taken on the real side of the economy.

References

Blau, Gerda. Some Aspects of the Theory of Futures Trading. Review of Economic Studies, 194445, 1–30.

Google Scholar

Breeden, D.T. Consumption Risk in Futures Markets. Journal of Finance, May 1980, 503–20.

Google Scholar

Bresnahan, T.F. and V.Y. Suslow. *Inventories as an Asset: The Volatility of the Price of Copper*. Department of Economics, Stanford University, mimeograph, 1983.

Google Scholar

Carlton, D.W. Uncertainty, Production Lags, and Pricing. American Economic Review, February 1977, 244–49.

Google Scholar

Cox, J.C., J. E. Ingersoll, Jr., and S.A. Ross. The Relation between Forward Prices and Futures Prices. Journal of Financial Economics, December 1981, 321–46.

Google Scholar

French, K.R. A Comparison of Futures and Forward Prices. Journal of Financial Economics, November 1983, 311–42.

Google Scholar

Grauer, F.L.A., and R.H. Litzenberger. The Pricing of Commodity Futures Contracts, Nominal Bonds and Other Risky Assets under Commodity Price Uncertainty. Journal of Finance, March 1979, 69–83.

Google Scholar

Grauer, F.L.A., and J. Rentzler. Are Futures Contracts Risky?, unpublished manuscript, 1980.

Google Scholar

Gray, R.W. The Search for a Risk Premium. Journal of Political Economy, June 1961, 250–60.

Google Scholar

Hicks, J.R. *Value and Capital.* London : Oxford University Press, 1946.

Google Scholar

Jagannathan, Ravi. *An Investigation of Commodity Futures Prices using the Consumption Based Intertemporal Capital Asset Pricing Model*. CSFM Discussion Paper, No. 65, Columbia Graduate School of Business, New York , 1983.

Google Scholar

Keynes, J.M. *Treatise on Money, V. II: The Applied Theory of Money.* New York : Harcourt, 1930.

Google Scholar

A.E. Peck, ed. Selected Writings on Futures. Chicago Board of Trade, Vol. 2, 1977.

Google Scholar

Reagan, Patricia. Inventory and Price Behavior. Review of Economic Studies, January 1982, 137–42.

Google Scholar

Richard, S.F. and M. Sundaresan. A Continuous Time Equilibrium Model of Commodity Prices in a Multigood Economy. Journal of Financial Economics, December 1981, 347–71.

Google Scholar

Rockwell, Normal Backwardation, Forecasting, and the Returns to Commodity Futures Traders. *Food Research Studies*, **Vol. VII**, 1967; reprinted in Peck, A.E., (ed.) *Selected Writings on Futures.* Chicago Board of Trade, Vol. 2, 1977.

Google Scholar

Samuelson, P.A. Intertemporal Price Equilibrium: A Prologue to the Theory of Speculation. Weltwirtschaftliches Archiv, 1979, 181–219.

Google Scholar

Scheinkman, José A. and Jack Schectman. A Simple Competitive Model with Production and Storage. Review of Economic Studies, July 1983, 427–41.

Google Scholar

Tirole, J. Asset Bubbles and Overlapping Generations. Econometrica, September 1985, 1071–1100.

Google Scholar

Telser, L.G. Futures Trading and the Storage of Cotton and Wheat. Journal of Political Economy, June 1958, 233–55.

Google Scholar

Citing Literature