

# FUTURES MARKET BACKWARDATION UNDER RISK NEUTRALITY

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## 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.

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