

Extended Abstract

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Paper/Poster Title	Why hedging, as practiced for storable commodities, is not an option for dairy farmers: a critical discussion
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Abstract prepared for presentation at the 98th Annual Conference of The Agricultural Economics Society will be held at The University of Edinburgh, UK, 18th - 20th March 2024.

Abstract	<i>200 words max</i>
<p>It is common practice in the literature to apply the same hedging practices (i.e., full hedging and minimum variance hedging) to storable and non-storable commodities. But is this approach also suitable for fluid milk? Dairy farmers have very different hedging objectives than grain farmers. The former want to lock in favourable forward prices for fluid milk, while the latter are looking for profitable storage margins for grain. In this paper, we will discuss not only why standard hedging practices are inappropriate when the goal is to lock in a favourable forward price for fluid milk but also which hedging practice should be used instead.</p>	
Keywords	Hedging, storage hedge, forward price hedge, fluid milk.
JEL Code	Q11, Q13.
Introduction	<i>100 – 250 words</i>
<p>After the Second World War, there was a controversial debate as to whether or not futures markets should be introduced for non-storable commodities. Ultimately, however, the proponents of the introduction prevailed, and futures markets for non-storable commodities were introduced. The last futures market for a non-storable commodity to be introduced in the United States was the market for fluid milk in 1996.</p> <p>Like other futures markets, the fluid milk futures market has attracted some interest in the literature. In particular, several hedging studies have been conducted for fluid milk over the past three decades.</p> <p>What the fluid milk hedging studies had in common with the earlier literature was that they all assumed, without further analysis, that the same hedging practices (i.e., full hedging and minimum variance hedging) that work for storable commodities can also be applied to non-storable commodities.</p> <p>But can this generalization simply be made? Can hedging practices developed for storable commodities really be applied to fluid milk hedging? Dairy farmers hedge for a completely different purpose than grain farmers: while dairy farmers hedge to lock in favourable forward prices for milk yet to be produced, grain farmers hedge to lock in profitable storage margins for grain to be stored after harvest.</p>	

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Methodology	<i>100 – 250 words</i>
<p>In this paper, we will explain why the previous generalization cannot be made. First, we will discuss the reasons why standard hedging practices are not the right tool if the goal is to lock in a favourable forward price for fluid milk. We will then illustrate what hedging practice should have been used instead to lock in a forward price for fluid milk.</p>	
Results	<i>100 – 250 words</i>
<p>There are two key points that call into question the applicability of standard hedging practices to fluid milk. The first point is that in milk production, we are not dealing with the basis (= spot price – futures price) but with the forward basis (= forward price – futures price). In contrast to the basis, the forward basis does not track the current price of storage, but the expected cost of transportation, which as a price forecast, is inherently random. However, a non-random basis is a prerequisite for basis trading (i.e., full/minimum variance hedging).</p> <p>More importantly, transportation costs are not the relevant variable on which dairy farmers base their hedging decisions. Dairy farmers are primarily interested in the selling price of fluid milk and whether this price at least covers their production costs. Consequently, from a dairy farmer’s point of view, the forward basis does not offer the technical or economic conditions that would make it suitable for basis trading.</p> <p>Instead of standard hedging practices, dairy farmers should use forward price hedging. A forward price hedge follows the same logic as a crush margin hedge commonly used by soybean processors or ethanol producers. The only difference is that a forward price hedge focuses only on a single futures market rather than multiple futures markets because the intent is to lock in a forward price, not a margin.</p> <p>Like other hedging practices, forward price hedging is simple: to lock in a favourable forward price, a dairy farmer simply needs to take a short position on the futures market (note that there is no spot market transaction involved in the first step of a forward price hedge as in basis trading). The short position serves two purposes: first, it protects the dairy farmer from future spot price fluctuations. Second, it locks in the current futures price. The futures price can be thought of as a reference price from which the actual realized spot price is later derived. Later, when the production takes place, and the milk is sold, the short position in the futures market is closed by buying a long futures contract. The actual realized spot price is then equal to the local spot price at the time of production plus the profit from the futures market transaction.</p>	
Discussion and Conclusion	<i>100 – 250 words</i>
<p>Our work is important because it challenges the widely held view in the literature that standard hedging practices (i.e., full hedging and minimum variance hedging) are</p>	



applicable to all hedging objectives. This is not true. When the objective is to lock in a forward price, a forward price hedge is required.