

Why Teach Grain Merchandising and Basis Trading in Commodity Marketing, Futures and Options, and Price Risk Management Courses?

Risk management and basis trading are key activities for agribusiness firms involved in the procurement, merchandising, processing, and marketing of grain and other commodities. The importance of these activities has been highlighted by globalization which has led to increased price volatility and competition for US grain. The grain industry is international in scope with major players such as Cargill and Archer Daniels Midland (ADM) buying and selling grain within hundreds of countries worldwide. Evidence of globalization of the grain industry is visible in terms of elevator bids at major US ports, which reflect international supply and demand conditions. Price shocks to world grain markets are quickly transmitted via bids at these ports to the hinterland (McKenzie 2005). However, a major advantage of US grain industry over foreign competition is ease of access to developed commodity risk management markets (e.g. Chicago Board of Trade futures and options markets). In order to remain competitive merchandising firms increasingly rely on basis trading skills, which developed alongside the futures markets, to provide a cost-effective yet profitable service to grain buyers throughout the world. Thus globalization can be seen as a driving force behind greater price risk and increased competition within the US grain industry. With this in mind, the grain industry's need for students with price risk management and basis trading skills has never been keener. Thus a major objective of this study is to make available a "fun" risk management computer game – "Basis Trader" – to agribusiness instructors and students. It is hoped that the game will better prepare agricultural students to meet these global market challenges by bridging the gap between theoretical academic risk management course materials and practical industry texts.

Greater price volatility translates into higher levels of risk for agribusinesses at all levels of the marketing chain. It is of vital importance that agricultural students who intend to cultivate careers within the US grain and oilseeds industries develop the necessary skills to manage price risk. Price risk management education has long been a key objective of United States Department of Agriculture (USDA) and the land-grant university system. Most land-grant universities offer price risk management and futures and options courses. Although many excellent risk management education materials – including books and software programs – have been developed to supplement such courses, attention has been focused almost exclusively at the farm level. Thus, there is currently a lack of undergraduate agribusiness course materials designed to instruct students in risk management and basis trading skills at the merchandising level of the grain industry. Yet conversations with grain experts, agribusiness leaders and former students – now employed in the industry – would suggest there is a great need for graduating students to possess these merchandising skills.

Indeed, the biggest users of commodity risk management tools such as futures and options contracts are grain merchandising firms. The term grain merchandiser encompasses all agribusiness firms involved in the procurement, handling, storing, and re-distribution and processing of grain. As such grain merchandisers include country grain elevators, shippers and exporters, processors, and feeders. All of these types of firms are exposed to high levels of price risk on a daily basis. In order to manage this price risk merchandising firms hedge their cash positions using futures contracts and are

referred to as basis traders, where basis is defined as the difference between cash and futures prices for a given commodity and market location. Unlike farmers who are price oriented, merchandisers focus on basis movements. In fact basis quotes are the accepted means by which grain is traded within the industry. Risk management skills needed to merchandise grain at this important level of the marketing chain are fundamentally different to the risk management skills useful in marketing grain at the producer level. Collins (1997) alludes to the differences between farmer and merchandiser hedging, and notes that the basis trading activities of merchandisers have been well understood by academics since Working (1953) described them over half a century ago. However, this awareness has not resulted in a rigorous treatment of basis trading in agricultural undergraduate marketing and risk management courses.

It is envisaged that “Basis trader” software would compliment existing farm oriented risk management software, and its inclusion within the curricula of agribusiness marketing and futures and options courses would provide students with a comprehensive understanding of risk management procedures used in agriculture. “Basis Trader” game was developed at the University of Arkansas in 2006 using Department of Agricultural Economics funding and a University teaching grant. The game provides an engaging way for students to learn about commodity marketing tools like futures contracts and various elevator contracts offered to farmers. It explores concepts such as basis trading and hedging by simulating basis movement, historical basis patterns, inventory management, and the procurement and sale of grain based upon actual data collected from grain elevators in Arkansas, Tennessee, Illinois, Kansas, South Dakota and Wisconsin. Players take on the role of grain merchandisers seeking to market corn, soybeans and wheat, and can choose from a number of different market locations. Players are faced with a number of marketing and risk management decisions, including the following: how much grain to hedge; what contract months to hedge against; how long to store grain; and when to sell it. Problem solving skills are emphasized in terms of making marketing decisions with respect to current and historical futures spreads, current and historical basis levels, elevator storage capacity, and the cost of storing grain over time. As well as being of practical importance in the grain industry, these skills are also underpinned by cost-of-carry and theory of storage models, which are at the cornerstone of derivative pricing theory. Indeed the game could be used to demonstrate the principles behind the cost-of-carry model in a formal lecture setting.

“Basis Trader” game has been tested over the last year in two of Dr. McKenzie’s courses: AGECE 3373, covering the basic theory and operation of futures and options markets; and AGECE 4373, exploring advanced price risk management concepts for producers and grain merchandisers. The game has been well received by students with perhaps the greatest compliment being the fact that students continued to play it after official class time had ended!

On a final note it should be emphasized that although basis trading concepts were originally developed to manage risk in the grain industry, basis trading is now widely used in a number of financial and natural resource markets. For example, banks trade basis in Treasury Bonds markets, while energy companies use basis trading to manage price risk in oil and natural gas markets. The concepts and skills of basis trading are applicable to any markets where both derivatives and underlying cash instruments trade side by side, and they are useful tools to acquire for a wide range of career paths.

References:

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