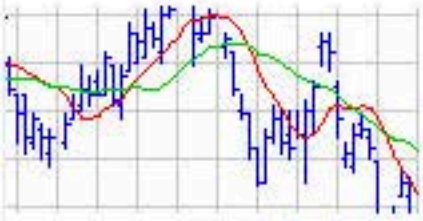
NCCC-134

APPLIED COMMODITY PRICE ANALYSIS, FORECASTING AND MARKET RISK MANAGEMENT



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The NCCC-134 Committee is a USDA CSREES regional committee that has been in existence for over 25 years. The Committee was originally numbered the NCR-134 Committee. However, the purpose of the committee has always been the same. The committee organizes an annual meeting where research on "Applied Commodity Price Analysis, Forecasting, and Market Risk Management" is presented and discussed by academics and industry professionals from across the US and the globe. Our work emphasizes applied research, solid communication, and usefulness. Our meeting is a national and international forum for applied research discussion.

This website contains announcements regarding the annual committee meeting and conference, information on the paper proposal submission process, the program and other details for the next meeting, information on the executive committee, and how to contact the committee chair.

There are also links below to an archive of papers written for past conferences. These papers are also posted at the University of Minnesota Libraries website AgEcon Search. Please contact the paper authors regarding questions and comments. Please contact the committee chairs for organizational questions including how to participate and formally be involved with the committee.

Matthew A. Diersen *Matthew C. Roberts*

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Are New Crop Futures and Option Prices for Corn and Soybeans Biased? An Updated Appraisal

Katie King and Carl Zulauf
Year: 2010

Abstract

This study revisits the debate over whether a bias exists in new crop December corn and November soybean futures and option prices. Some evidence of bias is found in December corn futures and December corn puts, but the evidence is substantially muted when transaction costs are included. The study also examines if information contained in the widely-followed World Agriculture Supply and Demand Reports (WASDE) issued by the U.S. Department of Agriculture as well as the implied volatility from new crop corn and soybean options are incorporated efficiently into December corn and November soybean futures prices. Previous studies have examined the immediate incorporation of public information into futures prices. This study examines whether public information is incorporated efficiently from the perspective of the change in price between the first non-limit close following the release of a WASDE report and the first contract delivery day. The May WASDE is the first release of the calendar year to include estimates of the forthcoming new crop year's supply and demand. For both the December corn and November soybean regressions, the intercept, change in stocks-to-use ratio between the current and new crop year reported in the May WASDE, and option market implied volatility are significantly different than zero at the 95 percent confidence level. The current crop year's stocks-to-use ratio is not statistically significant. These results held in general for both the May and June WASDE releases, although some sensitivity occurred when the May WASDE observation period was divided in half and for the June WASDE. All variables were statistically insignificant at the July and August WASDEs. These results are not consistent with market efficiency until the July WASDE is released. However, because only 24 observations exist, these results fall more into the category of something that needs to be monitored in the future rather than as a direct confrontation to the theory of market efficiency.

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Pre-Spreading and Returns to Storage

Andrew McKenzie and Amanda Simpson
Year: 2010

Abstract

Returns to storage at the farm level have received much attention in the literature. The main objective of this paper was to analyze returns to storage at the elevator or merchandising level. Specifically basis trading and pre-spreading marketing strategies are empirically evaluated with respect to an October- March storage period in North Central Illinois corn. Results indicate that basis trading strategy is able to enhance returns to storage and reduce the risk associated with storing grain. Although pre-spreading strategy results in higher returns to storage for some years, there is no systematic evidence that pre-spreading can enhance returns or reduce risk above and beyond a simple basis trading strategy.

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Examining the Risk-Return Relationship between Agribusiness Stocks and the Market

Jerey H. Dorfman and Myung D. Park
Year: 2010

Abstract

Volatility and the trade-off between risk and returns have been considered key components of finance theory at least since Merton's intertemporal capital asset pricing model (ICAPM, 1973). In this study, we employ several bivariate GARCH-M models to investigate Merton's ICAPM for agribusiness industries and examine the best specication to use in estimating the relationship of asset returns in these industries with the broader market. The expected positive relation between stock return and its risk holds for both industries and we found a high posterior probability of a positive tradeo for the agricultural production portfolio.

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RIN Risks: Using Supply and Demand Behavior to Assess Risk in the Markets for Renewable Identification Numbers used for Renewable Fuel Standard Compliance

Dustin J. Donahue, Seth Meyer, and Wyatt Thompson
Year: 2010

Abstract

Congress has mandated that more biofuels be used over the next decade. To ensure compliance with the mandate, RINs are used to track biofuels that fuel blenders mix into motor fuels for domestic consumption. RINs may be traded, and the prices of RINs are affected by the ability of blenders and biofuel producers to comply with the mandate. There are four components to the mandate, one of which relates specifically to cellulosic biofuels, and the EPA has the authority to waive any or all components of the mandate. The purpose of this paper is to gain insight into the interactions between cellulosic biofuel technology and the mandate. To achieve this, the prices of RINs are simulated through the use of an economic model under scenarios varying both levels of technology and the enforcement or waiver of the cellulosic component. If the non-cellulosic components of the mandate are not waived, RIN markets are found to contain the effects that might otherwise be transmitted to crops markets. Higher levels of cellulosic biofuel technology are found to increase compliance costs in the presence of a mandate waiver but lower compliance costs if the mandate is not waived.

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The Impact of Biofuel Mandates and Switchgrass Production on Hay Markets

Kwame Acheampong, Michael R. Dicks, and Brian D. Adam
Year: 2010

Abstract

The Renewable Fuel Standard mandates in the Energy Independence and Security Act of 2007 (EISA 2007) will require 36 billion gallons of ethanol to be produced in 2022, 16 billion gallons of which is to be produced from cellulosic feedstocks. To meet the mandate, it is estimated that 24.7 million acres would be used to produce 109 million tons of switchgrass in 2025. Since the majority of these acres likely would be converted from land currently producing hay, cattle production will be reduced. As a step toward understanding the impacts of biofuel mandates on cattle markets, a linkage between hay production and hay prices needs to be established. For lower quality hay, the results indicate that a 10% decrease in Oklahoma production led to a 5% increase in Oklahoma price. For all hay, including higher quality alfalfa hay, the price increase was only 2% because of the large effect of Texas hay production.

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Forecasting Agricultural Commodity Prices Using Multivariate Bayesian Machine Learning Regression

Andres M. Ticlavilca, Dillon M. Feuz, and Mac McKee
Year: 2010

Abstract

The purpose of this paper is to perform multiple predictions for agricultural commodity prices (one, two and three month periods ahead). In order to obtain multiple-time-ahead predictions, this paper applies the Multivariate Relevance Vector Machine (MVRVM) that is based on a Bayesian learning machine approach for regression. The performance of the MVRVM model is compared with the performance of another multiple output model such as Artificial Neural Network (ANN). Bootstrapping methodology is applied to analyze robustness of the MVRVM and ANN.

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Ethanol Futures: Thin but Effective? —Why?

Roger A. Dahlgran
Year: 2010

Abstract

This study examines the paradox where the ethanol futures market provides effective hypothetical hedges yet the use of this market is shunned by those with ethanol cash market positions because of its limited volume and open interest. Examining this issue requires describing ethanol cash, futures, and swaps markets, and ethanol contracting practices. We observe that ethanol futures open interest is about two percent of annual U.S. usage compared to nine percent in gasoline markets. We also observe that an attempt by a single refiner to fully hedge its production would significantly alter the volume/open interest profile of the ethanol futures market. In this respect, the ethanol futures market is thin. The ethanol

futures market is nonetheless efficient except in the final month of a contract's life. We examine causality relationships between the ethanol futures and swaps markets and find that the futures market adjusts to swaps market disequilibrium but the converse does not hold. The implications of these findings are (1) because futures equilibrium open interest adjusts to changes in swaps equilibrium open interest, the futures price reflects conditions in the deeper swaps market as well as in the futures market, (2) because of (1) using the futures settlement price for marking swaps to market provides secure bonding in the over-the-counter ethanol derivatives (swaps) market, and (3) inefficiencies in the futures market during the last month of a contract's life are likely due to the swaps market's use of the cumulative average of the futures prices during the last month of the swap contract's life.

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Producers' Grain Marketing Decisions: A Study in the Canadian Markets

Stefanie Fryza and Fabio Mattos
Year: 2010

Abstract

This paper investigates the dynamics in the decision-making process of producers in Western Canada, where they must market their crop through the Canadian Wheat Board(CWB). The CWB offers several marketing alternatives to producers, which provide distinct combinations of return, risk, and cash flow. Pool pricing is the default alternative in which the CWB markets the grain for producers, while Producer Payment Options (PPO) represent instruments that producers can use to price their grain by themselves through the CWB. Preliminary analysis of 13,335 producers suggests that there is great heterogeneity in individuals marketing behaviour and that almost all producers who use PPO contracts deliver part of their crop to the pool accounts. This suggests that pool pricing is still largely used as the main marketing alternative, although producers seem to respond to price signals provided by the CWB and futures markets. Additionally, no clear evidence that producers who use PPO contracts are able to consistently outperform the pool was found. There also appears to be no direct relationship between PPO usage and pricing performance, implying that the adoption of PPO contracts appears not to be related to better or worse marketing performance. However, this point still needs further investigation with the complete data set and estimation of the regression models adopted in this study.

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Do USDA Announcements Affect the Correlations Across Commodity Futures Returns?

Berna Karali and ChangKeun Park
Year: 2010

Abstract

The value of USDA reports has long been a question of interest for researchers and practitioners. Many economists have investigated whether the scheduled public report releases have any impact on commodity prices. In general, it is shown that markets are e±cient; that is, prices move only when the reports contain \news". However, the impact of announcements on the correlations among related commodity prices has not been explored outside of ¯nancial asset markets. The purpose of this study is to simul- taneously measure the impact of selected USDA reports on the conditional variances and covariances of returns on related commodity futures contracts using a bivariate GARCH model. It is shown that several of the reports considered contain new informa- tion for the market participants as futures return volatilities and

correlations between the returns are found to move on announcement days. The largest movements in return volatilities are observed on days with Grain Stocks, Hogs and Pigs, Livestock, Dairy, and Poultry Outlook, and WASDE releases.

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Reexamination of the Impact of the Removal of CBOT Corn and Soybean Futures Contract Delivery from Toledo, Ohio

Daniel Sanders, Matthew Roberts, and Carl Zulauf
Year: 2010

Abstract

Beginning with delivery on the July 2006 contract, non-convergence became an issue in the Chicago wheat futures contract. Despite several changes to the contract, convergence remains an issue. Recently, some have proposed eliminating Toledo, Ohio as a delivery point for the Chicago wheat contract. One concern is the potential impact this proposal could have on the cash-futures basis in the Toledo and surrounding delivery areas. To examine this issue, the impact of the removal of Toledo as a delivery point for corn and soybeans futures contracts beginning with contracts expiring in 2000 is examined. The changes in the Toledo and other Ohio corn and soybean basis conflict both in direction and significance, by crop and relative to changes in the corn and soybean basis in Illinois and Iowa. Thus, no consistent empirical evidence is found to support the claim that eliminating the Toledo switching district in 2000 as a delivery point for corn and soybeans had a serious detrimental effect on the corn and soybean basis in Ohio. These findings suggest that replacing Toledo as the primary delivery point for the Chicago wheat contract would not be expected to have a substantially negative impact upon the Ohio wheat basis.

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Measuring and Explaining Skewness in Pricing Distributions Implied from Livestock Options

Michael Thomsen and Andrew McKenzie
Year: 2010

Abstract

We characterize volatility skews implied by options on futures for hogs and cattle. Both markets have shown a persistent leftward skew. The skew is much more pronounced in live cattle. As a practical matter, the volatility skew is evidence that the cost of using options to insure against large price declines has been considerably more expensive than the cost of using options to insure against similarly large price increases. Out-of-the-money put options are expensive in livestock markets and this is especially the case for out-of-the-money put options on cattle futures. We also examine the relationship between the volatility skew and the ex ante physical returns distribution. We do this by measuring volatility skews just before releases of USDA reports and determine whether they can be empirically linked to the direction of the large price changes that often result. Some responses in live/lean hog futures prices could be explained by characteristics of the pre-report volatility skew. However, there was little evidence linking the volatility skew to post-report responses in live cattle futures.

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The Basis Effects of Failures to Converge

Berna Karali, Kevin McNew, and Walter Thurman
Year: 2010

Abstract

We study the spatial patterns to wheat basis (spot price minus futures price) for wheat contracts between 2005 and 2009. Restricting our attention to a single delivery market—Toledo, Ohio— and to cash markets within 100 miles of Toledo, we measure the co-movement of basis at inland markets with basis at Toledo. We examine the degree to which that co-movement is disrupted for contracts that failed to converge at delivery time.

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Comparing Different Models to Cross Hedge Distillers Grains in Iowa: Is It Necessary to Include Energy Derivatives?

Juan M. Murguia and John D. Lawrence
Year: 2010

Abstract

The actual and expected increase of corn based ethanol production in the Midwest has increased the availability of Distillers Grains that are used in the feeding and egg industry as source of protein and energy. Since no future market has existed for this product, no previous studies have found significant results for Iowa and no geographical market integration has been found, the use of corn, soybean meal (SBM) and energy futures contracts is analyzed to hedge Distillers Grains prices in Iowa. Alternative models are estimated and evaluated. Results indicate that there are potential opportunities for cross hedging DDG (Distillers Dried Grain) in Iowa using corn, SBM and energy futures that effectively decrease price risk up to 86% for a 13 week hedge.

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Price Mean Reversion and Seasonality in Agricultural Commodity Markets

Na Jin, Sergio Lence, Chad Hart, and Dermot Hayes
Year: 2010

Abstract

Schwartz's (1997) two-factor model is generalized to allow for mean reversion in spot prices. Our modeling also acknowledges that commodities exhibit seasonality patterns in the spot price. A Bayesian MCMC algo- rithm is developed to estimate our model. Estimation of the Schwartz model is done by imposing appropriate restrictions to our model.

Estimation results are obtained based on monthly observations of soybean futures prices and options prices from the Chicago Board of Trade over period from January 1978 to January 2010. We empirically estimate and compare our model with the Schwartz model, and show how the assumption of mean reversion in spot prices and seasonality a ect the prediction of futures prices and option premium with short and long times to maturity.

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A Comparison of Hedging Strategies and Effectiveness for Storable and Non-Storable Commodities

Janelle Mann and Peter Sephton
Year: 2010

Abstract

This research questions whether the hedging potential of a futures market differs between storable and non-storable commodities. The relationship between asset storability and hedging effectiveness was examined using five years of daily cash and futures data for eight commodities. Three hedge ratios were estimated for each commodity – the naive (1:1) hedge ratio, the OLS hedge ratio, and either the BEKK-GARCH hedge ratios or the ECM-GARCH hedge ratios depending on whether or not the cash and futures price series were cointegrated. Results indicate that the futures market for livestock performed poorly in its hedging function compared to the futures market for other commodities; however, there was insufficient evidence to conclude that this holds for all non-storable commodities.

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Impact of Mandatory Price Reporting on Hog Market Integration

Jason Franken, Joe Parcell, and Glynn Tonsor
Year: 2010

Abstract

We examine whether mandatory price reporting (MPR), which is intended to facilitate transparent pricing, has impacted pricing relationships among U.S. hog markets. Hog markets are cointegrated both prior to and following enactment of MPR, but are not fully integrated in either period. That is, prices at alternative locations do not adjust one-for-one with price changes in other locations. Further, markets adjust to price shocks in other locations more slowly following MPR, which may be a coincidence associated with decreases in the proportion of spot market hog transactions.

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How Strong are the Linkages among Agricultural, Oil, and Exchange Rate Markets?

Julieta Frank and Philip Garcia
Year: 2010

Abstract

Highly fluctuating agricultural prices have rekindled questions regarding the influence of volatile oil and exchange rates markets on dynamic behavior. Using weekly cash data from 1998 to 2009 and VAR and VECM procedures, we estimate the linkages among several agricultural grain and livestock commodities, oil, and exchange rates. We identify a structural break in mid 2006, and perform the analysis for each period. In the first period, agricultural commodity prices are most influenced by idiosyncratic factors as reflected in own lagged prices, and exchange rates and crude oil have limited effect on agricultural markets. In the second period the effect of own lags in the agricultural markets are smaller and the effect of the exchange rate and crude oil are more pronounced, especially in the corn market. In recent years, agricultural commodity markets appear more dependent on exchange rates and to a lesser extent on oil prices.

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Price Discovery and Convergence of Futures and Cash Prices

Gerald Plato and Linwood Hoffman
Year: 2010

Abstract

Prices for corn, soybeans, and wheat futures contracts traded on the Chicago Mercantile Exchange and corresponding cash prices at delivery locations frequently failed to converge to the per bushel cost of delivering on futures contracts from 2000 to 2009. We found that convergence failure did not adversely effect the incorporation of market fundamentals from unanticipated information. Essentially identical mark fundamentals, from unanticipated information was incorporated into futures and cash prices when convergence failed. Futures and cash prices moved closer together as contract maturity approached even when they did not converge all the way to the per bushel contract delivery cost, indicating that arbitrage was occurring between the two prices but not completed. Without arbitrage the prices would most likely not incorporate identical market fundamentals from unanticipated information when convergence failed. Our results indicate that the failure to complete the arbitrage between futures and cash prices by driving the difference between them down to per bushel delivery cost at contact maturity affected the ability of the two prices to reflect identical market fundamentals.

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On the Relationship of Expected Supply and Demand to Futures Prices

Hans Walter P. Chua and William G. Tomek
Year: 2010

Abstract

Expectations about future economic conditions are important determinants of commodity prices. This paper presents a relatively simple model that makes futures prices for corn a function of expected production and inventories and of variables that account for demand shifts. The intent is to provide an historical, objective context for new price and quantity observations, which may help market analysts.

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The Forward Contract's Income Shifting Option and Implications on the Forward Basis

Mindy L. Mallory and Scott H. Irwin
Year: 2010

Abstract

Previous studies have documented a cost of forward contracting grain relative to hedging in the futures markets. Our study quantifies the value of the income shifting option to forward contracting. An income shifting option refers to the fact that at harvest-time, a farmer can chose to sell uncontracted bushels of corn in the spot market or forward contract to sell after the first of the year. This option has non-trivial tax implications under a progressive tax system. By shifting income to the next tax year, a farmer can reduce the current year's income level and avoid a higher marginal income tax rate. Further, if country elevators have market power, they can capture some of the value of this income shifting option by offering a weak forward delivery January basis bid. In a sufficiently captive draw area, an elevator knows that a farmer will be willing to accept a weak January forward basis bid so long as he still receives some income tax benefits from deferring sales to the next tax year.

This option is most valuable during years when farmer income is high. Therefore, in this study we posited that during years of high farmer income we would see forward basis bids which are abnormally lower and appreciate at a slower rate than the harvest-time immediate delivery bids. We measure this effect using basis bids from elevators in seven regions in Illinois from 1980 to 2009. We find that a 1% increase in yield above trend level decreases the January delivery forward basis bids by 3 cents per bushel; we also find that the January delivery forward basis bids appreciate at 44% the rate of the immediate harvest-time delivery basis bids.

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The Long Run and Short Run Impact of Captive Supplies on the Spot Market Price: An Agent-Based Artificial Market

Tong Zhang and B. Wade Brorsen
Year: 2010

Abstract

This paper seeks to reduce the gap between theoretical research that shows a potentially large price-depressing effect of captive supplies and empirical work that finds any pricedepressing effect of captive supplies is small. An agent-based model is developed that matches the results of Xia and Sexton (2004) as well as our generalization of their model. We relax Xia and Sexton's (2004) assumption of no supply response by captive feeders, which reduces the price depressing effect of captive supplies. Finally, the agent-based model is used to simulate packers choosing both captive supply quantities and spot market quantities. Packers in the relaxed agent-based model choose no captive supplies and thus reach the Cournot solution. The research narrows the gap between theoretical models and the empirical work on captive supplies that shows little effect on prices, but a gap remains.

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Uncovering Dominant-Satellite Relationships in the U.S. Soybean Basis: A Spatio-Temporal Analysis

Daniel A. Lewis, Todd H. Kuethe, Mark R. Manfredo, and Dwight R. Sanders
Year: 2010

Abstract

Time series analysis shows that local soybean basis levels have some tendency to follow or be determined by the basis levels at export locations (Toledo and U.S. Gulf). Processing centers tend to show the most independence in basis discovery. Spatial modeling shows that each local basis produces a "spillover" and impacts neighboring basis levels. The spatial linkages are greatest during the spring and tend to be the lowest during fall. The results suggest that soybean basis discovery may be concentrated at export locations within the U.S. marketing system. Moreover, these dominant-satellite relationships are strongest during the spring season. Market practitioners may utilize this information when forming expectations for basis levels during the marketing year.

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Theory of Storage and Option Pricing: Analyzing Determinants of Implied Skewness and Implied Kurtosis

Marin Bozic and T. Randall Fortenbery
Year: 2010

Abstract

Options on agricultural futures are popular financial instruments used for agricultural price risk management and to speculate on future price movements. Poor performance of Black's classical option pricing model has stimulated many researchers to introduce pricing models that are more consistent with observed option premiums. However, most models are motivated solely from the standpoint of the time series properties of futures prices and need for improvements in forecasting and hedging performance. In this paper we propose a novel arbitrage pricing model motivated from the economic theory of optimal storage. We introduce a pricing model for options on futures based on a Generalized Lambda Distribution (GLD) that allows greater flexibility in higher moments of the expected terminal distribution of futures price. We show how to use high-frequency data to estimate implied skewness and kurtosis parameters. We propose an economic explanation for variations in skewness based on the theory of storage. We use times and sales data for corn futures and options on futures for the period 1995-2009. After controlling for changes in planned acreage, we find a statistically significant negative relationships between ending stocks-to-use and implied skewness and kurtosis, as predicted by the theory of storage.

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Returns to Traders and Existence of a Risk Premium in Agricultural Futures Markets

Nicole M. Aulerich, Scott H. Irwin, and Philip Garcia
Year: 2010

Abstract

This paper analyzes the existence of a risk premium following the Keynesian theory of normal backwardation. A natural experiment using actual trading observations of commodity index traders is used to determine if passively holding long positions opposite hedgers earns a risk premium. Daily profits of traders are calculated in 12 markets from 2000-2009 using data from the CFTC internal large trader reporting system. Results show the commodity index traders have negative profits in 9 out of 12 commodities, resulting in an approximate net loss of -$6.9 billion. A measure of monthly return on investment does not show consistent positive profits and on average the return is negative. The evidence does not support the existence of a positive risk premium.

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The Feasibility of Rail Track Delivery as an Alternative Settlement Option for KCBT Wheat Futures Contracts

Daniel M. O'Brien and Jay O'Neil
Year: 2011

Abstract

Railcar or "track" delivery is an alternative delivery mechanism considered by the Kansas City Board of Trade in 2010 to help bring about cash-futures convergence. Track delivery would provide an alternative way to physically deliver wheat via railroad cars without relying on the issuance of warehouse receipts from delivery point elevators. This study shows that during the May 2010 through February 2011 period profitable opportunities to deliver wheat on KCBT futures existed from selected Kansas, Oklahoma and Nebraska grain elevator locations where basis was wider than rail transportation and grain elevator handling costs. Barriers to adoption of track delivery include timely, seasonal delivery of railcars from country locations to delivery locations in Kansas City and availability of railcar-weighing scales for determination of weights and measures at country elevator locations. The niche for railcar track delivery is that it could provide an extreme punitive outer bound for wheat basis levels, defining an outer limit on hard red winter wheat cash-futures price differentials.

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Grain Marketing Tools: A Survey of Illinois Grain Elevators

Ryan Stone, Colin Warner and Rick Whitacre
Year: 2011

Abstract

The basic services offered by country elevators are very similar (purchasing, conditioning and storing grain), country elevators attempt to differentiate themselves from their competition by offering customers a variety of cash grain marketing tools. These tools range from the basic cash forward contracts to minimum price contracts to the so called "new generation grain marketing contracts". The purpose of this paper is to report the results of a 2010 survey of Illinois country grain elevator managers. The primary objective of the survey was to determine the marketing contracts grain elevator firms operating in Illinois offer their customers and the extent to which these contracts are used by the elevator's customers.

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Hedging and Cash Flow Risk in Ethanol Refining

Roger A. Dahlgran, and Jingyu Liu
Year: 2011

Abstract

Interviews with ethanol refinery risk managers reveal that, at least for the firms represented, (a) working capital to fund margin accounts is limited so the optimal deployment of this capital is a major concern, and (b) these firms hedge with smaller positions than those indicated by the traditional price risk minimization theory. In response to those observations, this study examines the relationship between hedge outcome price risk and price risk induced intra hedge cash flow risk. A simulation analysis of a simple long hedge indicates that the sum of hedge outcome risk and intra hedge cash flow risk is minimized at hedging levels well below the levels that minimize only the hedge outcome risk. The model is generalized to apply to a commodity processor using ethanol refining as a specific example. While the preliminary results are promising, data deficiencies prevent pursuing the analysis to its logical completion. Steps for extending this study using higher quality data are proposed.

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Price Discovery in U.S. and Foreign Commodity Futures Markets: The Brazilian Soybean Example

Gerald Plato and Linwood Hoffman
Year: 2011

Abstract

Trader direct access to the order matching systems on United States and foreign commodity futures markets reduces or eliminates the cost of changing trading venues. The Dodd-Frank Act recognizes that price discovery could now more readily shift to foreign futures markets if futures market regulations in the United States were more stringent than those for foreign futures markets. Price discovery is the incorporation of market fundamentals into price. It is done by traders that make trades based on informed judgments about market fundamentals The Act does not provide guidance on how to measure price discovery. We examine the use of the Gonzalo- Granger Decomposition to measure the relative soybean price discovery contribution of the Chicago Mercantile Exchange and the Brazilian Mercantile and Futures Exchange. Daily opening and closing soybeans prices from the two exchanges are used in the examination. We provide evidence that there is exchange of soybean price fundamentals between the two exchanges after the beginning of direct trader access between the two exchanges. Simultaneous soybean transaction prices are required for making reliable estimates of the relative contribution of each futures exchange to soybean price discovery.

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The Informational Content of Distant-Delivery Futures Contracts

Kristin N. Schnake, Berna Karali, and Jeffrey H. Dorfman
Year: 2011

Abstract

The futures markets have two main goals: price discovery and risk management. Because management decisions often have to be made on a time horizon longer than the time until expiration of the nearby futures contract, the question of distant-delivery futures contracts' ability to assist in price discovery is important. We focus on soybean and live cattle distantdelivery futures contracts and test for the informational value added to nearby contracts. Two tests for information value provide partially conflicting results due to the different information measures employed. If being able to predict the price trend is sufficient, then we find some information value in distant-delivery futures contracts, while if accurate point estimates of future spot prices are desired the results are negative. Surprisingly, we do not find the expected dichotomy between the storable (soybeans) and non-storable (cattle) commodities.

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Evaluation of Market Thinness for Hogs and Pork

Jason Franken and Joe Parcell
Year: 2011

Abstract

We investigate thinness of hog and pork markets in terms of quantity and representativeness of negotiated transactions. Transactional volume imparts marginally greater confidence in pricing precision for Iowa-Southern Minnesota negotiated hogs than for the national carcass cut-out, suggesting that contracts tying prices to the former rather than the latter may be more representative of industry conditions. Extending mandatory price reporting to pork may remedy this discrepancy. Despite declining volume, terminal hog markets may price accurately off of Iowa-Southern Minnesota prices. Hog quality differentials across procurement methods are documented, and quality of negotiated hogs is shown to decline with volume.

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Marketing Strategies in the Canadian Beef Sector

Julieta Frank, Derek Brewin, and María José Patiño
Year: 2011

Abstract

The Canadian beef sector has undergone a structural change since the outbreak of BSE in 2003 and a higher U.S./Canadian dollar exchange rate variability. Hedging beef prices and the U.S. dollar using the futures market may help producers and other beef market participants to alleviate some of their price risk. We assess the hedging usefulness of the CME Group futures contract in total price risk reduction for Canadian cattle market participants and we examine the implications of exchange rate variability on optimal commodity hedging. Futures hedging after BSE removes approximately 35% of the risk, and a combined commodity and currency hedge after BSE was discovered removes approximately 50% of the risk. Hedge ratios are in general low, approximately 0.29 when a combined cattle-currency hedge is performed.

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Changes in Liquidity,Cash Market Activity, and Futures Market Performance:Evidence from Live Cattle Market in Brazil

Fabio Mattos and Philip Garcia
Year: 2011

Abstract

This paper describes developments in the Brazilian live cattle market in the last decade, which resulted in an almost tenfold increase in futures trading, and investigates their effects on futures market's price discovery and risk transfer functions. Higher trading volume appears to have modestly reinforced the long-run relationship between spot and futures markets, strengthened the role of futures market in the pricing process, and led to a more rapid transmission of market information between spot and futures markets. In terms of risk transfer, the results provide little evidence that the live cattle futures contract offers effective hedging opportunities, either under low or high trading volume. The findings are consistent with previous studies in the sense that even low trading volume is enough to establish links between spot and futures markets. However, the absence of hedging opportunities when futures trading increases was somewhat surprising and raises questions for future research.

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Elimination of the Coffee Export Quota System Revisited: Evaluating International-to- Retail Price Transmission

Jun Lee and Miguel I. Gómez
Year: 2011

Abstract

We revisit the impact of the International Coffee Agreement (ICA) on international-to-retail price transmission. We account for two distinct dimensions (e.g. symmetry vs. asymmetry and linearity vs. nonlinearity) of price transmission from international to retail coffee prices in France, Germany and the United States. We show that ignoring these two features of the price transmission process may lead to misleading impact assessments of the ICA elimination in 1990. Our results confirm the presence of threshold effects in price transmission in both periods (ICA and post-ICA) in the three countries. Our estimates show that, in the long-run, the speed of adjustment toward equilibrium becomes faster during the post-ICA period in France and Germany. Our results suggest that, for France and Germany, changes in international prices did not influence retail prices in the short-run during the ICA period; in contrast, retail prices responded to changes in international prices in the post-ICA period. We find differences between the two European countries and the United States. Our results indicate that changes in international prices influenced U.S. retail prices in both periods. Nonlinear impulse response analysis indicates that ICA elimination increased the speed of adjustment toward the long-run equilibrium, given a shock in international coffee prices. Overall, our results show that ignoring nonlinearities and asymmetries in price transmission may lead to incorrect impact assessment of policies affecting global agricultural supply chains.

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A Comprehensive Evaluation of USDA Cotton Forecasts

Olga Isengildina-Massa, Stephen MacDonald and Ran Xie
Year: 2011

Abstract

This study provides a comprehensive examination of accuracy and efficiency of all USDA cotton supply and demand estimates for the U.S. (including unpublished price forecasts), China and rest of the world (ROW) over1985/86 through 2009/10. Our findings show that USDA overestimated China's exports and underestimated China's domestic use and ROW imports. Based on correlation of forecast errors with levels, estimates of U.S. domestic use, ending stocks and China's exports were too extreme while forecasts of China's ending stocks and ROW production and exports were too conservative. Correlations with past errors suggest that USDA tends to repeat errors in ROW production forecasts and overcorrect errors in ROW exports forecasts. Significant positive correlation between subsequent revisions indicating forecast "smoothing" was detected in the U.S. production, domestic use, exports and ending stocks forecasts, China's imports, domestic use and exports forecasts and the ROW production and domestic use forecasts. While China's ending stocks and production forecasts significantly improved over time, (unpublished) U.S. price forecasts became worse. Based on correlations of errors we conclude that better forecasts of U.S. ending stocks and domestic use forecasts, China's imports and ROW ending stocks and exports forecasts are essential for improving U.S. cotton price forecasts.

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The Impact of Ethanol Production on Local Corn Basis

Kathleen Behnke and T. Randall Fortenbery
Year: 2011

Abstract

The focus of this study is on the impact local ethanol plants have on corn basis. Basis is the difference between the local cash price and the nearby futures contract price, and accounts for variation in the supply and demand in the local market relative to the national market. It is predicted that the entrance of an ethanol plant into a local cash market will increase corn demand, resulting in an increased cash price relative to futures.

The data employed consists of cash corn prices from 153 grain buyers in eight different Midwestern states from Fall 1999 through Summer 2009. In addition to affects from local ethanol production, it is predicted that basis is influenced to by the ratio of local to national corn production, transportation costs, storage opportunity costs, and seasonal factors. To estimate corn basis performance a spatial error component model is adopted that accounts for both spatial dependencies and panel structures in the data.

Results show that ethanol production within a 50-mile region of a county centroid has a small yet positive impact on local corn prices. The estimated impact of a 50 million gallon per year plant is a 0.425 cent per bushel increase in basis. These findings are smaller than the impacts found in previous work using a more limited time frame, but found to be consistent with earlier work when the time series is truncated to match sample periods from previous work. This suggests that some of the local price impacts dissipate with time.

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Examining the Relationship Between Physical Stocks of Commodities and Open Interest in Related Futures Markets

Daniel Sanders, Corinne Alexander and Matthew Roberts
Year: 2011

Abstract

The price volatility observed in futures markets, beginning in 2006 and continuing through to the present, has posed challenges to commercial traders attempting to use these markets to hedge their price risk. Additionally, speculative activity in these markets is seemingly on the rise, with large index funds drawing the ire of many as a possible driver of price volatility and high price levels. Taken in concert, these issues have led some to question the ability of the markets to continue to provide for adequate hedging functionality. In this paper, we attempt to determine if the rate at which commercial traders hedge in the markets has changed by testing for structural change in the relationship between open interest and physical grain stocks. A significant structural break is found in the wheat market in late 2004. A more detailed examination of the break is done by incorporating smooth transition and threshold models, with the positive relationship between open interest and stocks shown to decline to statistically zero around the structural break. Given the development of non-convergence in the wheat market at this time, it suggests that wheat hedgers might be using alternative hedging outlets. Overall, the estimated models show generally poor fits, indicating that there might be other factors than are present in the structural model influencing hedgers' positions in futures markets.

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Identifying Jumps and Systematic Risk in Futures

Sijesh C. Aravindhakshan and B. Wade Brorsen
Year: 2011

Abstract

A variety of multivariate jump-diffusion models have been suggested as models of asset prices. This paper extends the literature on (joint) mixed jump-diffusion processes in futures markets by using the CRB index futures to represent systematic risk in commodity prices. We derive (joint) mixed bivariate normal distributions and likelihood functions for estimating the parameters of jump-diffusion processes. Likelihood ratio tests are used to select among nested models. The empirical results show the presence of downside jumps and significant systematic risk in wheat futures returns. Amin and Ng's (1993) model with a single counter of jumps fits better than other jump-diffusion processes considered. The jump components did not have significantly more systematic risk than the continuous component. In terms of wheat prices, one standard deviation jumps are 14 cents per bushel and two standard deviation jumps are 29 cents per bushel and are within the price limits. These jumps occur once in every six business days and are mostly crashes.

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Volatility Spillovers in the U.S. Crude Oil, Corn, and Ethanol Markets

Andres Trujillo-Barrera, Mindy Mallory, and Philip Garcia
Year: 2011

Abstract

This paper analyzes volatility spillovers from energy to agricultural markets in the U.S. which have increased due to strong crude oil price volatility and the large growth in ethanol production in the period 2006-2011. Results suggest that spillovers from crude oil to corn and ethanol markets are similar in magnitude over time, and are particularly significant during periods of high turbulence in the crude oil market. Volatility spillovers between corn and ethanol also exist, but primarily from the corn to ethanol market. The findings provide clear evidence of the stronger linkages between corn and ethanol that have been created during the biofuel era.

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Highly variable prices or excessive volatility? Is a supply management program warranted? An Extension Dairy Economist's Perspective

Cameron S. Thraen

Year: 2011

Abstract

During the past decade the U.S. dairy market has been subject to periodic swings in dairy commodity and milk prices. The U.S. All Milk price reached an historic high of $21.90 (nominal dollars) per hundredweight in November, 2007 before retreating to a low of $11.30 recorded in June of 2009. This rapid decline in milk price has become the focal point for the claim of 'excess volatility' in milk prices and a call for the introduction of a federal government mandated supply management program for U.S. dairy production sector. This program, if adopted, would be included in the next dairy title of the 2012 agricultural farm legislation, and is outlined in two bills, the Costa bill HR5288 and the Sanders bill S-82010. The intent of these proposed programs would be to greatly diminish this perceived 'volatility' in milk price. The research approach will be to use modern time-series modeling techniques to determine the nature of the 'volatility' versus 'variability' in milk and dairy product prices over the past ten years. The empirical analysis will assess the variability for both dairy commodity prices (butter, cheese, nonfat dry milk, and whey), and a proxy for the Federal Order 33 Blend Price. The results of this empirical investigation reveal that while dairy commodity prices exhibit significant periods of volatility and volatility spikes, there is no evidence that this volatility is growing over time. Following upward swings in volatility dairy prices and the farm milk price return to lower levels represented by the long run variance for each price series.

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'Investing' in Commodity Futures Markets: Are the Lambs Being Led to Slaughter?

Dwight R. Sanders and Scott H. Irwin

Year: 2011

Abstract

Investments into commodity-linked investments have grown considerably over the last five years as individuals and institutions have embraced alternative investments. However, unlike investments in equities or real estate, commodity futures markets produce no earnings and are arguably not even a capital asset. So, the source of returns and the expected returns for commodity futures investments is unclear. This paper examines the history of returns for static long-only futures investments over five decades. The research highlights the following features of commodity futures investments: 1) returns to individual futures markets are zero, 2) returns to futures market portfolios depend critically on the weighting schemes and the embedded trading strategy, and 3) historical returns are not statistically different from zero and are driven by price episodes such as 1972-1974.

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Dynamic Inter-relationships in Hard Wheat Basis Markets

William W. Wilson and Dragan Miljkovic
Year: 2011

Abstract

The basis values for hard red spring wheat (HRS) have escalated radically, experienced extraordinary levels of volatility (risk), have been subject to a squeeze during 2008, and all these have important implications for market participants. These observations are particularly important to marketers in the Northern Great Plains in the United States, as well as for Canadian marketers. The purpose of this paper is to develop a model to explore the dynamic relationships and interdependencies among terminal market basis values for milling quality higher-protein wheat. Specifically, we seek to identify factors impacting basis values for 13, 14, and 15% protein HRS wheat in addition to the intermakret wheat spread between Minneapolis and Kansas City wheat futures. We specify a vector autoregression (VAR) model to explore these relationships. Exogenous structural variables are specified in addition to dynamic inter-relationships including seasonal variability, inter-temporal variability and dynamic interdependencies among these markets and relationships. The results of interest are that: 1) basis values for these wheat markets been trending up, and have become more volatile; 2) factors impacting this variability is primarily the protein level in HRS, and production of HRW and Canadian (on high protein basis); 3) HRW protein supplies are not significant in the basis equations, but, do have an impact on the interrmarket wheat futures spread; 4) Quality factors have a significant impact on basis values, notably vomitoxin, falling numbers and absorption. There are also dynamic interrelations that are important. Important is that all four prices converge quickly towards long-term equilibrium. In addition there are seasonal impacts, dynamic bases interactions, trends, and lagged impacts of protein levels.

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How Do Canadian Wheat Producers' Make Marketing Decisions?

Stefanie Fryza and Fabio Mattos
Year: 2011

Abstract

The purpose of this paper is to investigate how Western Canadian wheat producers' make their marketing decisions. In Canada wheat must be marketed through the Canadian Wheat Board (CWB), which offers several marketing contracts providing distinct combinations of return, risk, and cash flow. Pool pricing is the default alternative in which the CWB markets the grain for producers, while Producer Payment Options (PPO) represents instruments that producers can use to price their wheat outside the pool. Results indicate that previous use of a PPO contract tends to reduce its use in the current year. Previous performance is also found to be an important variable, with higher performance in previous year leading to more use of PPO contracts in the current year. In addition, producers seem to follow price signals to choose marketing contracts, specially the difference between the futures price and the expected pool price.

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Testing the Performance of Multiproduct Optimal Hedging with Time-Varying Correlations in Storable and Non-storable Commodities

Hernan A. Tejeda and Barry K. Goodwin
Year: 2011

Abstract

Recent steady growth in the volatility of commodity markets, and the increasing need for proper risk management tools in production settings that make use of inputs and outputs in futures markets, may be addressed via multiproduct hedging. This study determines and contrasts the effectiveness of multiproduct optimal hedging – that incorporate time-varying correlations – between storable and non-storable commodity settings, especially during recent periods of increased volatility. A soybean complex is considered for storable production-related commodities, and a feedlot operator is considered for non-storable production-related commodities.

Multiproduct optimal time-varying hedge ratios are determined via a multivariate state dependent model of regime switching dynamic correlations. This model estimates time-varying correlations for multiple series in different correlation regimes (i.e., the conditional correlations matrix is not constant in this model). Two correlation regimes are estimated for the time periods considered, for both storable and non-storable production settings. More importantly, significant improvement of multiproduct hedging is determined for the storable commodity setting – soybean complex- over simple hedging strategies with time-varying correlations and the naïve strategy (1:1 hedge ratio). However, there is no significant improvement found for the nonstorable commodity setting – feedlot operator – over simple hedging strategies with time-varying correlations; yet there is improvement over a naïve hedging strategy. These latter results are corroborated using two different data sets for cash prices of feeder and live cattle.

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A Quantile Regression Approach to Analyzing Quality-Differentiated Agricultural Markets

Anton Bekkerman, Gary W. Brester, and Tyrel McDonald
Year: 2011

Abstract

Hedonic models are commonly used to quantify the value of characteristics implicit in a product's price. However, when products are heterogenous across quality levels, using traditional parametric methods for estimating characteristic values may provide poor inferences about quality effects. We propose using a quantile regression framework for estimating the value of characteristics in quality-differentiated products. Semi-parametric quantile regressions allow the data to flexibly identify and estimate quality effects across a conditional price distribution. Using purchase price data from a bull auction, we show complementary non-linear relationships exist between quality and bull carcass and growth traits. Improved precision in understanding consumer valuation of product characteristics across quality market segments can help producers tailor products for each segment.

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A Spatial Approach to Estimating Factors that Influence the Corn Basis

Michael K. Adjemian, Todd Kuethe, Vince Breneman, Ryan Williams, Mark Manfredo, and Dwight Sanders
Year: 2011

Abstract

It is well known that supply and demand fundamentals at any location affect the local basis. Because grain markets are tied together by spatial arbitrage, the local basis may also be affected by the supply and demand factors at neighboring locations. Whether or not this is the case, the corn basis is highly clustered across the United States; as such, OLS estimates of basis determinants may be inconsistent. We apply a spatial econometrics framework to adequately control for spatial effects, and find that the county-level corn basis is characterized by spatial spillovers: supply and demand factors in a given county affect its own basis, but also radiate out over space affecting the basis at neighboring counties. We find that unobserved basis determinants are also spatially correlated.

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Returns to Individual Traders in Agricultural Futures Markets: Skill or Luck?

Nicole M. Aulerich, Scott H. Irwin, and Philip Garcia
Year: 2011

Abstract

Using individual trader data from the CFTC reporting system for the period January 2000 to September 2009, the paper investigates whether non-commercial traders in the corn, live cattle, and coffee futures markets persist in making profits. Two out-of-sample measures of skill—the Fisher Exact ranking test and a test to assess significant differences in the magnitude of profits of the top and bottom traders—are used to analyze trader's ability to consistently perform well for monthly, quarterly, and annual time horizons. The findings identify significant persistence in rankings—traders in the top half of the profit distribution in a time period tend to stay in the top half in the next period. Differences in magnitude of profitability between the top and bottom deciles also provide support that persistent skill exists among the top 10% of traders. Detailed examination of annual rankings for those traders who were most continuously in the markets further reveals persistence in profits for a smaller subset of traders, and some indication of persistence in the face of losses.

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The Role of Long Memory in Hedging Strategies for Canadian Commodity Futures

Janelle Mann
Year: 2011

Abstract

This research paper investigates whether ICE futures contracts are an effective and affordable strategy to manage price risk for Canadian commodity producers in recent periods of high price volatility. Long memory in volatility is found to be present in cash and futures prices for canola and western barley. This finding is incorporated into the hedging strategy by estimating hedge ratios using a FIAPARCH model. Findings indicate that the ICE futures contracts for canola is an effective and affordable means of reducing price risk for canola producers and should be considered as part of a price risk management strategy. On the other hand, the findings indicate that the ICE futures contract for western barley is not as effective as a means of reducing price risk for western barley producers; however, it is affordable. At the current time, western barley producers should consider alternative means of price risk management; however, the ICE futures contract should be reconsidered after modifications to contract specifications come into effect.

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Oligopsony Fed Cattle Pricing:
Did Mandatory Price Reporting Increase Meatpacker Market Power?

Xiaowei Cai, Kyle W. Stiegert,and Stephen R. Koontz
Year: 2011

Abstract

The Livestock Mandatory Price Reporting Act became law in April 2001 with the intent to provide more transparent market information to cattle producers. A criticism of mandatory price reporting (MPR) is that the increased price transparency may actually increase oligopsony power exercised by beef packers. We examine beefpacking margins using time periods before and after MPR was implemented with a Markov model that tests for switching between cooperative and noncooperative pricing. Switching is indicative of noncompetitive conduct and we examine the duration and magnitude of market power. One key finding is that market power is two times higher after MPR than before. The second is that, while this study produces some of the largest measures of market power associated with fed cattle pricing, market power remains rather small and is consistent with prior research. Last, we offer the caveat that there is more occurring in fed cattle and beef markets during last 20 year than the transition from voluntary to mandatory price reporting. So MPR is likely not the only cause of increased market power. But there is clearly more market power exercised in fed cattle markets after 2001 than before.

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Futures Market Failure

Philip Garcia, Scott H. Irwin, and Aaron D. Smith
Year: 2011

Abstract

In a well-functioning futures market, the futures price on the expiration date equals the price of the underlying asset on that date. An unprecedented episode of non-convergence in Chicago Board of Trade (CBOT) corn, soybeans, and wheat began in late 2005, and with the exception of some brief periods, largely persisted through 2010. Most recently, the Kansas City Board of Trade (KCBOT) wheat contract also has demonstrated convergence problems. During this unprecedented and extended episode of non-convergence, futures contracts have expired at prices up to 35 percent greater than the prevailing cash grain price. Using a rational expectations commodity storage model, we show how such non-convergence can be produced by the institutional structure of the delivery market. Specifically, we show how a wedge between the marginal cost of storing the physical commodity and the cost of carrying the delivery instrument causes non-convergence. We fit the model to corn, soybeans, and wheat and find strong support for our model.

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Have Commodity Index Funds Increased Price Linkages between Commodities?

Jeffrey H. Dorfman and Berna Karali
Year: 2012

Abstract

To shed more light on the ongoing debate on the role of commodity index funds on recent commodity price spikes, we investigate the linkages between commodity futures prices surrounding the time period of increased index fund activity. We take a Bayesian approach to test stationarity and cointegration of commodity pairs and trios. We find that simple correlation coefficients between futures prices and the probability of nonstationarity of the series have increased over time as the size of index fund trading became larger. However, our cointegration test results show no evidence for an increase in cointegration.

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An Evaluation of the USDA Sugar Production and Consumption Forecasts

Karen E. Lewis and Mark R. Manfredo
Year: 2012

Abstract

The performance of the USDA domestic sugar production and consumption forecasts for marketing years 1993/1994 through 2009/2011 was evaluated. Using USDA sugar forecast information, U.S. sugar policy attempts to operate at no cost to the government by maintaining sugar prices above the government loan-rate. Results suggest no evidence that U.S. sugar policy is negatively impacted by the USDA sugar production and consumption forecasts. Also, new policies formed under the 2008 Farm Bill are not impaired by USDA sugar production and consumption forecasts. Overall, the results suggest that the USDA has done an outstanding job of forecasting domestic sugar production and consumption over the sample period.

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Price Explosiveness and Index Trader Behavior in the Corn, Soybean, and Wheat Futures Markets

Xiaoli Liao-Etienne, Scott H. Irwin and Philip Garcia
Year: 2012

Abstract

The purpose of this paper is to assess whether index investment Granger causes grain futures price movements during explosive periods. A forward and backward recursive procedure developed by Phillips, Shi, and Yu (2012) is used to detect and date-stamp explosive periods in in the price of corn, soybean, and wheat futures traded on the CBOT, as well as wheat futures traded on the KCBT between January 2004 and February 2012. The statistical tests indicate that most of these grain futures markets experienced explosive periods between the end of 2007 and first half of 2008, as well as in the second half of 2010. If CITs are indeed responsible for the sharp price fluctuations as claimed by Masters (2008, 2009)

and others, they are mostly likely to have led the price movement during these explosive periods. Using dummy variables to reflect the explosive periods identified with the PSY procedure, we investigate the relationship between commodity index (CIT) positions and changes in futures prices. We find that no Granger causality can be established from changes in CITs net long positions to returns in corn, soybeans, and KC wheat futures in either explosive or non-explosive periods, consistent with the results from the traditional Granger causality test. For wheat futures traded on the CBOT, estimation results show that CITs Granger cause returns in explosive and non-explosive periods. Examination of the impulse response function, however, suggests that the effect is relatively small and dissipates quickly. Overall, the results from the modified Granger causality test differentiating explosive from non-explosive periods provide additional evidence that CITs are mostly likely not responsible for the large price movement observed in grain futures between January 2004 and February 2012.

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The Behavior of Bid-Ask Spreads in the Electronically Traded Corn Futures Market

Xiaoyang Wang, Philip Garcia and Scott H. Irwin
Year: 2012

Abstract

This paper is the first to study liquidity costs based on actual observed bid-ask spreads (BAS) in commodity futures markets. Using electronically-traded corn futures contracts, we calculate the BAS directly faced by market participants, avoiding estimation problems encountered previously. Over the extended horizon that a contract is traded there exist a pronounced non-linear U-shaped maturity pattern, and a strong seasonality consistent with the term structure of implied volatilities. Statistical analysis in the nearby and next nearby periods, in which most trading activity occurs, indicates that the BAS is generally small (well below two ticks), despite the turbulent market in the 2008 to early 2010 sample period. As in open outcry markets, the BAS responds to daily volume and price volatility, particularly over the last 40 non-expiration month trading days. For the next nearby contracts, a significant declining trend exists in the BAS independent of daily volume and volatility. In both periods, USDA Grain Stock and Production-WASDE announcements significantly widen the BAS, as do short-term price trends. The index fund roll has little impact on the BAS, but contract specific effects are present reflecting a seasonal pattern where the BAS is lowest in December, and highest in September. Week-day effects are relatively weak in magnitude or non-existent.

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Usage Determinants of Fed Cattle Pricing Mechanisms

Matthew A. Diersen and Scott W. Fausti
Year: 2012

Abstract

Proposed cattle slaughter facilities in the upper Midwest have renewed interest among feedlot operators in the most appropriate mechanism to use when selling cattle. Buyers are also interested in the mechanisms that may have different benefits and seasonal patterns based on established behavior of other buyers in the region. In this paper we model the shares of fed cattle traded using different pricing mechanisms. The intent is to build a forecasting model of shares considering fundamental factors and seasonality. There is regional variation in the use of mechanisms. A Seemingly

Unrelated Regression estimation procedure was used to analyze market shares. More variability of forward pricing and negotiated live pricing methods was explained compared to formula pricing and grid pricing methods.

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Price Discovery, Volatility Spillovers and Adequacy of Speculation in Cheese Spot and Futures Market

Marin Bozic and T. Randall Fortenbery
Year: 2012

Abstract

We investigate price discovery, volatility spillovers and impacts of speculation in the dairy sector. Examining the time series properties of cheese cash and implied futures price we find that the unit root hypothesis is strongly rejected for cash prices, while unit roots cannot be rejected for nearby futures prices in the framework that carefully controls for rollovers. To explain this result, we built a model that illustrates the time series properties of the nearby futures price series for a futures contract written on a second-order stationary cash series and identified the mean-reverting nonlinear dynamics that will occur at rollovers. Given the time series properties of the cash and futures series we propose an error-correction model using spreads between cash and the second nearby futures instead of the cointegration vector. To account for volatility dynamics we propose an extension of the BEKK variance model that we refer to as GARCH-MEX. That model does not restrict the sign of the additional regressors on the conditional variances, and can easily insure positive-definiteness of the conditional covariance matrix. We find that the flow of information in the mean model is predominantly from futures to cash, while volatility spillovers are bidirectional. It is possible that cash prices that include unfilled bid/offers react differently to increases in volatility in futures prices than sales cash prices, indicating that liquidity in the cash market is reduced with increase in conditional volatility of the futures price. Utilizing GARCH-MEX model we find strong evidence against the hypothesis that excessive speculation is increasing the conditional variance of futures prices. If anything, speculation may in fact be inadequate, and further research with daily speculative positions and high-frequency futures prices is needed to identify the effect of increased speculation on realized volatility of futures prices, bid-ask spread and magnitude of slippage.

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The Food Corporation of India and the Public Distribution System: Impacts on Market Integration in Wheat, Rice, Pearl Millet, and Corn

Mindy Mallory and Kathy Baylis
Year: 2012

Abstract

This paper examines the spatial integration of major staple commodity markets in India. We consider wheat, rice, pearl millet, and corn markets. This set represents the two most highly regulated crops, wheat and rice; and two that are regulated to a lesser degree, pearl millet and corn. Our data come from the states of Bihar, Haryana, Uttar Pradesh, and West Bengal, states that produce a large share of India’s cereal grains. Access to food remains an important issue for India as it develops. Because of this, the Indian government regulates the markets for staple foods heavily, requiring almost all grain be marketed through government licensed mandis. The government enforces a minimum price in the regulated markets by placing government buyers in each market that will purchase any amount of grain meeting minimum

quality standards at the minimum support price. This activity results in the government being the primary entity engaged in the storage of staple food crops. These market interventions discourage private investment in storage capacity among farmers and traders who handle grain in the private sector, which could impact market integration and efficient price transmission. However, we find the strongest evidence for market integration in the rice markets, which is one of the most regulated of the crops considered. Therefore, there seems to be some benefit from the government's market making activities that may compensate for a lack of infrastructure to facilitate market integration

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Pass-Through and Consumer Search: An Empirical Analysis

Timothy J. Richards, Miguel I Gómez and Jun Lee
Year: 2012

Abstract

Retail-price pass-through is one of the most important issues facing manufacturers of consumer- packaged goods. While retailers tend to pass wholesale prices through to consumers quickly and completely, they often do not pass trade promotions on. Currently, asymmetric pass-through is commonly thought to result from retailers. Exercise of market power. Alternatively, it may be due to consumer search behavior, and retailers' competitive response. We test this theory using a panel threshold asymmetric error correction model (TAECM) applied to wholesale and retail scanner data for ready-to-eat cereal for a number of retailers in the Los Angeles metropolitan market. We find that consumer search behavior contributes significantly to imperfect pass-through. By allowing pass-through to depend on market power and consumer search costs, we find results that are contrary to the conventional wisdom. Namely, market power causes retail prices to fall quickly and rise slowly, while consumer search costs cause retail prices to rise quickly and fall slowly precisely the "rockets and feathers" phenomenon.

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Road Block to Risk Management - How Federal Milk Pricing Provisions Complicate Class 1 Cross-Hedging Incentives

John Newton and Dr. Cameron Thraen
Year: 2012

Abstract

In 2000 the USDA introduced new methods to price milk used to produce class 1 bev- erage milk in the U.S. This shift in the dairy policy complicated hedging incentives by exposing traders to basis risk and increasing milk price uncertainty. We use empir- ical analysis to compute generalized optimal hedge ratios and estimate autoregressive models to forecast the basis associated with cross-hedging class 1 milk using exchange traded milk futures. The results indicate that while milk futures contracts do provide risk management opportunities for cash market participants, market participants are trading price risk for highly variable basis risk. Exchange traded milk futures contracts only capture a portion of the variance in the beverage milk cash price, the closing basis fails to converge to some predictable level, and for risk-averse agents basis reduces the utility gained from hedging. Policy and market options may be considered to improve risk management in the beverage milk sector. These options include: allow forward contracting in class 1 milk, alternative price discovery methods, and the introduction of an exchange traded uid milk contract.

Analyzing Crop Revenue Safety Net Program Alternatives and Implications on Marketing Decisions

Jim A. Jansen, Bradley D. Lubben, and Matthew C. Stockton
Year: 2012

Abstract

This study evaluates the crop revenue effects of combining federal farm income safety net programs, crop insurance policies, and marketing arrangements. Eight representative farms across Nebraska are used to stochastically simulate the financial impact of nine risk management strategies to determine the optimal outcome during the 2011 production year. Procedures utilized to evaluate the stochastic results included the Expected Value, Coefficient of Variation, Stochastic Dominance, StopLight, and Stochastic Efficiency with Respect to a Function. Results indicate that out of the set of predefined strategies, the portfolio combination involving the government program choice of the Direct and Counter-Cyclical Program, crop revenue insurance with the fall harvest option, and hedging for the simulated time period provides the optimal outcome across the majority of representative farm scenarios in 2011.

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The Increasing Participation of China in the World Soybean Market and Its Impact on Price Linkages in Futures Markets

Maria Alice Móz Christofoletti,Rodolfo Margato da Silva,and Fabio Mattos
Year: 2012

Abstract

This paper examines price linkages between soybean futures contracts traded in China, U.S, Brazil and Argentina for the period ranging from 2002 to 2011. The main findings show that U.S. prices still appear to have a dominant role to explain price changes in international markets. Results also indicate stronger linkages between prices in China and in the other three markets, especially after 2006. This result suggests the Chinese market has become more integrated with international markets in recent years, which might reflect the growing participation of China in international trade and the development of its soybean futures contract.

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A Jump Diffusion Model for Agricultural Commodities with Bayesian Analysis

Adam Schmitz, Zhiguang Wang, and Jung-Han Kimn
Year: 2012

Abstract

Stochastic volatility, price jumps, seasonality, and stochastic cost of carry, have been included separately, but not collectively, in pricing models of agricultural commodity futures and options. We propose a comprehensive model that incorporates all four features. We employ a special Markov Chain Monte Carlo algorithm, new in the agricultural commodity derivatives pricing literature, to estimate the proposed stochastic volatility (SV) and stochastic volatility with jumps (SVJ) models. Overall model fitness tests favor the SVJ model. The in-sample and out-of-sample pricing and hedging results for corn, soybeans and wheat generally, with few exceptions, lend support for the SVJ model.

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Marketing Choices by Texas Cotton Growers

Jason D. Pace and John R. C. Robinson
Year: 2012

Abstract

Recent changes in farm programs, cotton supply and demand fundamentals, and cotton price patterns have likely shifted how producers market their cotton. This paper examines cash marketing choices by southwestern cotton producers in 2010. Hedging is included an explanatory variable, along with other independent variables studied in previous research. Producer marketing behavior was modeled in a multinomial logit framework as a discrete choice among forward contracting with a merchant, post-harvest cash contracting with a merchant, contracting with a merchant pool, or contracting with a cooperative pool. Data were collected from a mail survey of the population of cotton growers in Texas, Oklahoma and Kansas. The most important determinants of cotton cash marketing choices were 1) prior participation in cooperative pools, beliefs about the value of pre-harvest pricing, beliefs about the performance of merchant pools, willingness to accept lower prices to reduce risk, and several socio-economic variables.

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How Does “Cost Risk”Influence Producers' Decision to Hedge?

Elisson de Andrade and Fabio Mattos
Year: 2012

Abstract

Several studies have investigated transaction costs in futures trading and found that optimal hedge ratios tend to be smaller in their presence. However, those studies consider transaction costs deterministically, i.e. hedgers know the exact amount of transaction costs when the hedge is placed. The current research relies on the notion that some transaction costs are uncertain when the producer decides to place a hedge. The uncertainty originates from the fact that some costs, such as margin deposits and taxation, depend on the trajectory of futures prices during the hedging period. The objective of the paper is to investigate how the uncertainty associated with transactions costs can influence producers’ decision to hedge. In addition, a broader range of costs involved in hedging operations will be introduced. Two main results emerge from this study. First, consistent with previous studies, introduction of transaction costs in futures trading leads to smaller hedge ratios. Second, allowing for uncertainty in transaction costs does not seem to have a larger impact on hedge ratios. In fact, the introduction of stochastic transactio

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Commodity Price Comovement: The Case of Cotton

Joseph P. Janzen, Aaron D. Smith, and Colin A. Carter
Year: 2012

Abstract

During the commodity price boom and bust of 2007-2008, cotton futures prices rose and fell dramatically in spite of high levels of inventory. At the same time, correlation between cotton and other commodity prices reached historically high levels. These two observations underlie concerns that cotton prices during this period were poor signals of cotton market fundamentals and that the cotton market was ’taken along for a ride’ with other commodities. The apparent coincidence of extreme price movement across a broad range of commodities requires an explanation. Were cotton prices driven by the same set of macroeconomic factors as the other commodities? Did cotton markets suffer from supply disruptions at the same time that the other commodities faced disruptions? What was the role of futures market speculators and the rise of commodity index trading?

Economists have been writing about excessive or unexplained comovement among commodity prices since at least Pindyck and Rotemberg (1990). Using this literature as a starting point, we identify potential explanations for commodity price comovement. Past studies have accounted for macroeconomic activity, and cotton-specific supply and demand changes. Tang and Xiong (2010) suggest that speculative pressure due to broad-based commodity index trading may also cause comovement among commodity prices. We develop and estimate a structural vector autoregression model to test the relative contribution of these effects to observed cotton prices. We find that supply and demand shocks specific to the cotton market are the major source of cotton price variation. There is scant evidence of comovement-type effects. While most cotton price spikes are driven by shocks to current net supply, the 2007-2008 spike was caused by higher demand for inventories.

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Forecasting Corn and Soybean Basis Using Regime-Switching Models

Daniel J. Sanders and Timothy G. Baker
Year: 2012

Abstract

Corn and soybean producers in the core production areas of the U.S. have experienced a notable jump in basis volatility in recent years. In turn, these increasingly erratic swings in basis have increased producers' price risk exposure and added a volatile component to their marketing plans. This paper seeks to apply regime-switching econometrics models to basis forecasting to provide a model that adjusts to changing volatility structures with the intent of improving forecasts in periods of volatile basis. Using basis data from 1981 through 2009 from ten reporting locations in Ohio, we find that although models using time series econometrics can provide better short run basis forecasts, simple five year moving average models are difficult to improve upon for more distant forecasting. Moreover, although there is statistical evidence in favor of the regime-changing models, they provide no real forecasting improvement over simpler autoregressive models.

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Exploring Underlying Distributional Assumptions of Livestock Gross Margin Insurance for Dairy

Marin Bozic, John Newton, Cameron S. Thraen and Brian W. Gould
Year: 2012

Abstract

Livestock Gross Margin Insurance for Dairy Cattle (LGM-Dairy) is a recently introduced tool for protecting average income over feed cost margins in milk production. In this paper we examined the assumptions underpinning the rating method used to determine premium charged for LGM-Dairy insurance contract. The first test relates to assumption of lognormality in terminal futures prices. Using high-frequency data for futures and options for milk, corn and soybean meal we estimate implied densities with flexible higher moments. Simulations indicate there is no strong evidence that imposing lognormality introduces bias in LGM-Dairy premiums. The rest of the paper is dedicated to examining dependency between milk and feed marginal distributions. LGM-Dairy rating method imposes the restriction of zero conditional correlation between milk and corn, as well as milk and soybean meal futures prices. Using futures data from 1998-2011 period we find that allowing for non-zero milk-feed correlations considerably reduces LGM-Dairy premiums for hedging profile with substantial feed amounts declared. Further examination of the nature of milk-feed dependencies reveals that Spearman's correlation coefficient is mostly reflecting tail dependence. Using empirical copula approach we find that non-parametric method of modeling milk-feed dependence decreases LGM-Dairy premiums more than a method that allows only for linear correlation. Unlike all other situations in portfolio risk assessment where extremal dependence increases risk, in agricultural margins, tail dependence between inputs and outputs may actually decrease insurance risk, and reduce actuarially fair premiums.

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Foreign Exchange Pass-Through and the Potential Use of Grain Export-Denominated Trade Weighted Indices

Allister Keller and Ron McIver
Year: 2012

No Abstract Available

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Density Forecasts of Lean Hog Futures Price

Andres Trujillo-Barrera, Philip Garcia, and Mindy Mallory
Year: 2012

Abstract

High price variability in agricultural commodities increases the importance of accurate forecasts. Density forecasts estimate the future probability distribution of a random variable, offering a complete description of risk. In this paper we investigate density forecast of lean hog prices for the 2002-2012 period for two weeks horizons. We estimate historical densities using GARCH models with different error distributions and generate forward looking implied distributions, obtaining risk-neutral densities from the information contained in options prices. Real-world densities, which incorporate risk, are obtained by parametric and non parametric calibration of the risk-neutral densities. Then the predictive accuracy of the forecasts is evaluated and compared. Goodness of fit and out of sample log-likelihood comparisons indicate that real-world densities outperform risk-neutral and historical densities, suggesting the presence of risk premiums in the lean hog markets. For the historical density forecasts, GED error distributions for the GARCH estimations show an adequate predictive accuracy. Meanwhile, historical densities with normal and t-distributions show a discrete performance.

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The Price Responsiveness of U.S. Wheat Export Demand by Class

Daniel O'Brien and Frayne Olson
Year: 2012

Abstract

The objective of this research is to analyze the factors affecting the price responsiveness of disaggregated classes of U.S. wheat exports. Factors examined in this study that are likely to influence U.S. exports on a class-by-class basis include wheat prices – own price and cross price effects from wheat classes and competitive substitutes such as feedgrains; supply-demand balances by wheat class for major export sellers & import buyers; ocean freight costs for U.S. grain exports; and exchange rates for the U.S. dollar & other currencies. Using public data from domestic and international sources, single equation models of U.S. wheat export demand were developed, with one group of U.S. wheat export competitor models by wheat class, and a second group of U.S. wheat export share models by class. Results indicate that both own price and cross price responsiveness of U.S. exports was found in hard red winter and hard red spring wheat

class exports. Soft white wheat and soft red winter wheat exports were unresponsive to own or cross price effects, but instead responded to changes in world wheat and corn supply-demand balances. Ocean freight rates, U.S. currency exchange rates and quarterly period seasonal factors also at times influenced U.S. wheat exports in these results. Additional factors likely to influence class-by-class U.S. wheat exports that are not explicitly examined in this study include the proportion of food versus feed quality wheat by class as is most common in individual exporting and importing countries, and protein and quality factors for U.S. wheat by class. Future applied research efforts will need to account for these factors.

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Reexamining the Interaction between Private and Public Stocks

Carl R. Zulauf
Year: 2012

Abstract

It is commonly-accepted that public stocks reduce private stocks. In contrast, empirical estimates range from no displacement to 100 percent displacement. Utilizing the concept of options, a conceptual model was developed. It implies the displacement effect is nonlinear, decreasing as public stocks increase. Displacement reaches zero when public stocks are large enough to cover all shortfalls in quantity demanded at the public stock release price. In addition, the displacement effect depends on the slope parameter of the commodity's demand equation, the probability distribution of price, and the relationship between market price and public stock release price. A bootstrap regression analysis of carryout stocks of U.S. wheat from the 1953-54 though 1971-72 crop years was conducted. Consistent with the conceptual model, the displacement effect decreased as the amount of public stocks increased. Zero displacement was reached when public stocks equaled 100 percent of annual consumption. The displacement effect of the first unit of U.S. wheat public stocks did not differ statistically from 100 percent. While this analysis finds that the displacement of private stocks is a substantial cost of a public stock policy, it also suggests that the accumulation of public stocks can enhance total stocks, especially if the country is willing to accept the large private stock displacement cost of the first units of public stocks. Thus, the policy decisions regarding public stocks are more interesting than if the displacement of private stocks by public stocks is either none or 100 percent.

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Hedging and Speculative Pressures: An Investigation of the Relationships among Trading Positions and Prices in Commodity Futures Markets

Georg V. Lehecka
Year: 2013

Abstract

This study provides a systematic empirical investigation of lead-lag relationships among trading positions and prices in commodity futures markets. It employs Toda-Yamamoto Granger-causality tests applied on a variety of measurements of hedging, speculative, and index trader position activities and futures prices. Weekly futures market positions from the Commodity Futures Trading Commission (CFTC) and prices are examined for 24 commodities (1995 to 2011) based on Commitments of Traders (COT) reports and twelve commodities (2006 to 2011) based on Commodity Index Trader Supplement (CIT) reports. In particular, this study empirically examines whether pressures on prices due to hedging and speculative activities can be identified, and whether they have changed due to structural changes in commodity futures markets. Results suggest little systematic lead-lag relationship from hedging and speculative activities to prices. In contrast, there is strong evidence that prices tend to lead traders' hedging and speculative activity. These results appear to be generally persistent over commodities, measurements of hedging and speculation, and periods. In summary, hedging and speculative pressures may not be helpful in explaining prices in commodity futures markets; to the contrary, prices may cause traders to change their positions.

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Determination of Factors Driving Risk Premiums in Forward Contracts for Kansas Wheat

Mykel Taylor, Glynn Tonsor, and Kevin Dhuyvetter
Year: 2013

Abstract

Forward contracts are a risk management tool used by farmers to eliminate adverse price and basis movements prior to harvest. Elevators offering these forward contracts will offset their risk exposure by hedging their position in the futures market. However, the elevators are still exposed to basis risk and will, in turn, charge a premium to the farmers as compensation. Since 2007, basis volatility for hard red wheat in Kansas has increased, causing greater risk exposure for elevators offering forward contracts. The result has been an increase in average risk premiums of $0.06 to $0.10 per bushel. The primary factors driving this increase in the risk premium are basis and futures volatility, basis forecasting errors by elevators, and elevator- and time-specific fixed effects. The impact of this study is an increase in information for farmers on the relative costs of decreasing their basis risk exposure in a more volatile market.

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Have Farmers Lost Confidence in Futures Markets?

Mark Welch, Rob Hogan, Emmy Williams, John Robinson, David Anderson, Mark Waller, Stan Bevers, Steve Amosson, Dean McCorkle, and Jackie Smith

Year: 2013

Abstract

Since 2007, the environment for trading futures contracts has changed significantly. In late 2012 graduates of the Texas A&M AgriLife Extension Master Marketer program were surveyed to assess the degree to which the changing climate of futures and options trading is impacting their confidence in futures markets and their perception of their ability to implement price risk management strategies.

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How Do Producers Decide the "Right" Moment to Price Their Crop? An Investigation in the Canadian Wheat Market

Fabio Mattos and Stefanie Fryza

Year: 2013

Abstract

This research investigated the timing of marketing decisions in the Canadian wheat market. Cox proportional hazard models were estimated to explore how the timing of producers' decisions were affected by market-based variable, which included an indicator showing whether current prices were above producers' benchmark on a given day, 10-day average spread between current prices and producers' benchmark, 10-day price trend and price volatility over 10 days. Marketing data for 17,338 producers who executed 59,184 transactions between 2003/04 and 2008/09 were used in the analysis. Overall results indicate that all variables affected timing decisions in producers' marketing choices. However, the signs of the estimated coefficients tended to vary across contracts and years, suggesting that producers could change their pricing behavior over time and response to the covariates could also depend on characteristics of the contracts and how they relate to producers' marketing strategies.

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Risk Premiums and Forward Basis: Evidence from the Soybean Oil Market

Karen E. Lewis, Mark R. Manfredo, Ira Altman, and Dwight R. Sanders

Year: 2013

Abstract

Soybean oil is a primary ingredient in a number of food products, and is also one of the primary oils used in the production of biodiesel. Thus the price volatility of soybean oil represents a major input price risk to food and energy companies.

Forward pricing is often extended to end-users by soybean oil processors where the forward price quote is a function of futures price and basis. If the end-user locks in the basis component, the processor assumes the risk of any basis fluctuations. This research examines if soybean oil processors extract a premium for assuming this risk. Using forward basis quotes and realized basis values for soybean oil provided by The Trade News Service, Inc., it was found that soybean oil processors do not charge an embedded cost for their forward pricing services. Furthermore, the results suggest that the absence of a statistically significant embedded cost may be due to the inability of soybean oil processors to adequately forecast soybean oil basis levels.

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The Quality of Price Discovery Under Electronic Trading: The Case of Cotton Futures

Joseph P. Janzen, Aaron D. Smith, and Colin A. Carter
Year: 2013

Abstract

We estimate the effect of electronic trade on the quality of price discovery in the Intercontinental Exchange cotton futures market. Between 2006 and 2009, this market transtioned from floor-only trade to parallel floor and electronic trade and then to electronic-only trade. We use a random-walk decomposition to separate intraday variation in cotton prices into two components: one related to information about market fundamentals and one a “pricing error” related to market frictions such as the cost of liquidity provision and the transient response of prices to trades. We find that on a typical day during the electronic-only period, the standard deviation of the pricing error is half what it was on a typical day during the floor-only period. This drop reflects a substantial improvement in average market quality, much of which is associated with an increase in the number of trades per day. We report three additional findings: (i) market quality was significantly more volatile during the electronic trading period than the prior periods meaning that there were more days with large deviations from average market quality, (ii) market quality was poor immediately following the closure of the floor and (iii) market quality was better on days when public information was released in the form of USDA crop reports but worse on days where prices change by the maximum imposed by the exchange.

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A Nonparametric Search for Information Effects from USDA Reports

Jeffrey H. Dorfman and Berna Karali
Year: 2013

Abstract

The question of report value has been unsettled in the literature with results varying somewhat across studies and across reports. We employ two nonparametric tests to investigate the potential information value of USDA crop and livestock reports. If the daily returns on futures contracts differ on days with report releases when compared to non-announcement days for a sizeable number of commodities, we consider the report to contain valuable information. Results indicate value in five of the USDA reports investigated, with six other reports showing little or no information value in the markets examined. Most of our results confirm and add robustness to earlier results, but there are some differences both for certain reports and certain commodities.

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Revisiting the Determinants of Futures Contracts: The Curious Case of Distillers' Dried Grains

Anton Bekkerman and Hernan A. Tejeda
Year: 2013

Abstract

A futures market for distillers' dried grains (DDGs) was introduced on the Chicago Mercantile Exchange in early 2010, but became inactive only four months after its inception. While many new futures contracts do not develop into high-volume traders, significant interest from DDG cash market participants seemed to indicate that this contract could be successful. This study determines whether factors found in the literature to affect the success of futures contracts may have predicted the ineffectiveness of the DDG contract. We also test the impacts of market participants and the activeness of supporting futures markets, and use the empirical to determine whether the lack of activity in the ethanol futures market may have contributed to the ineffectiveness of the DDG contract. Estimation results indicate that while the existing literature would have predicted a high likelihood of success for a DDG futures contract, accounting for the inactiveness of the ethanol futures market led to the opposite conclusion.

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Measuring Asymmetric Price Transmission in the U.S. Hog/Pork Markets: A Dynamic Conditional Copula Approach

Feng Qiu and Barry K. Goodwin
Year: 2013

Abstract

This paper introduces the application of copula models to the empirical study of price transmission, with an empirical application to the U.S. hog/pork markets. Our copula approach corrects the potential bias in estimation that results from ignoring the volatility by modeling the marginal distribution of price changes through GARCH models. We also develop and apply a flexible time-varying copula framework to estimate dynamic transmission coefficients /elasticities. The model results confirm the existence of time-varying and asymmetric behaviour in price co-movements between the farm and retail markets. Positive upper and zero lower tail dependences provide evidence that big increases in farm prices are matched at the retail level whereas negative shocks at the farm level are less likely to be passed on to consumers. The application of copula techniques provides multiple, useful extension and generalizations of conventional approaches for modeling asymmetric transmissions processes on the degree of market integration and its response to price shocks under the extreme market conditions.

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How Much Would It Be Worth to Know the WASDE Report In Advance?

Trent T. Milacek and B. Wade Brorsen
Year: 2013

Abstract

Past research has shown that prices move in response to WASDE reports, but have only looked at price movements right before and right after the reports. This research seeks to determine the profitability of trading based on knowing the next WASDE report at the time of the current report. The research should help traders evaluate investments in efforts to predict the report. First, a trade and hold model is used to determine the profits of trading based on whether ending stocks will be up or down in the next WASDE report. Second, a price forecast model using an ending stocks regression is used to forecast price at the next WASDE report release. The intercept of the model is calibrated so that the model predicts the current price without error; the slope is based on report data from no more than the last two years of data. Using the forecasted price, the position of the trading model's profit calculation can change daily based on where the closing price of the commodity is in relation to the price prediction. Profits were averaged on a days-til-report, monthly, and yearly basis. Both models were profitable and the most profitable day to trade was the report release day. However, the trade and hold model outperformed the variable position model which suggests more work is needed to increase the forecasting power of this model. This might be accomplished by using additional years of data or by a form of Bayesian smoothing to improve the forecasts.

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Asymmetric Price Transmission in the U.S. Beef Market: New Evidence from New Data

Veronica F. Pozo, Ted C. Schroeder and Lance J. Bachmeier
Year: 2013

Abstract

We examine price transmissions among farm, wholesale and retail U.S. beef markets using two types of retail level price data, one collected by the Bureau of Labor Statistics (BLS) and the other one collected at the point of sale using electronic scanners. Although some evidence suggests that BLS prices are bias (do not account for volume sales and discounted prices), we find no evidence of asymmetric price transmissions in the response of retail prices to changes in upstream prices. Our findings have important implications for the U.S. beef market efficiency. Since retailer price adjustments to farm and wholesale price changes are symmetric, the U.S. beef market is not as inefficient as found in previous studies.

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Bubbles in Grain Futures Markets: When are They Most Likely to Occur?

Xiaoli L. Etienne, Scott H. Irwin, and Philip Garcia
Year: 2013

Abstract

Unprecedented changes in commodity prices since 2004 have had worldwide repercussions, often acting as a destabilizing economic and political influence. In this paper, we use a recently developed multiple bubble testing procedures to detect and date-stamp bubbles in corn, soybean, and wheat futures markets. To account for conditional heteroskedasticity and small sample bias, inferences are derived using a recursive wild bootstrap procedure. We find that the markets experienced price explosiveness about 2% of the time. Using a logit model which accounts for bias due to the rare occurrence of an event, we find that bubbles are more likely to occur in the presence of large aggregate global demand, low stocks to use ratios, and a weak US dollar. While commodity index traders had no effect on the probability of an explosive episode, speculative activity exceeding the minimum level required to absorb hedging activities as measured by the Working's T reduces considerably the probability of a bubble.

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Do Roll Returns Really Exist? An Analysis of the S&P GSCI

Paul E. Peterson
Year: 2013

Abstract

Roll returns for the S&P GSCI commodity index are analyzed using index calculation procedures for the S&P 500 stock market index. S&P GSCI daily index values are calculated and validated against the official index values for the five-year period January 2007-December 2011. Index values are then calculated using divisor adjustment methods for the S&P 500. Roll returns are found to be caused by the unique index calculation procedures used by the S&P GSCI during roll periods.

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Smoothing in USDA's Commodity Forecasts

Olga Isengildina, Stephen MacDonald, Ran Xie and Julia Sharp
Year: 2013

Abstract

This study investigates the rationality of monthly revisions in annual forecasts of supply, demand, and price for U.S. corn, cotton, soybeans, and wheat, published in the World Agricultural Supply and Demand Estimates over 1984/85 through 2011/12. The findings indicate that USDA's forecast revisions are not independent across months, and that forecasts are typically smoothed. Adjustment for smoothing in a subset of forecasts (2002/03 – 2011/12) showed weak results: marginal improvements in accuracy were limited to wheat production and cotton production and domestic use while deterioration in accuracy was observed in all other cases. Smoothing coefficients were highly unstable over time. Case studies for corn focused on correction for a structural break and the impact of forecast size and direction, but did not lead to improvements in accuracy. Case studies for October revisions of soybean production forecasts suggest that ten year rolling estimation and correcting for outliers using leverage may help improve accuracy in the adjusted forecasts.

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The dynamics of the Ukrainian farm wheat price volatility: Evidence from a dynamic conditional correlation GARCH model development

Linde Gotz, Kateryna Goychuk, Thomas Glauben and William H. Meyers
Year: 2013

Abstract

This paper investigates the development of price volatility in the Ukrainian wheat market from 2005 till 2012 within a dynamic conditional correlation GARCH model. The results indicate that the export controls in Ukraine have not significantly reduced price volatility on the domestic wheat market. On the contrary, our findings suggest that the multiple and unpredictable interference of the Ukrainian government on the wheat export market has substantially increased market uncertainty which led to pronounced additional price volatility in the market.

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Testing the Effectiveness of Using a Corn Call or a Feeder Cattle Put for Feeder Cattle Price Protection

Hernan A. Tejeda and Dillon M. Feuz
Year: 2013

Abstract

This paper studies the effect, from an options market perspective, that the substantial increase in corn prices and volatility has had on the feeder cattle market. An empirical study is conducted to compare the effectiveness of a feeder cattle operator using either a corn 'call' or a feeder cattle 'put' to mitigate the margin risk from price volatility. Specifically, the operator sets feeder cattle price conditions at different periods of the year and applies either option strategy. The period studied is from 2003 to 2012. Results are of higher margin variability for the latter years as anticipated – where corn faced much increased demand. In general, operations using a corn call resulted in a bit higher margin variability than operations using a feeder cattle put for most of the years considered. This is not as anticipated, given the broader and more diversified market for corn options – reflected in the much larger number of 'at the money' or nearest 'in the money' transactions at expiration - in comparison to the thinner feeder cattle options market. However, this may be due to the much fewer number of 'at the money' or nearest 'in the money' transactions for feeder cattle puts (i.e. many cases having no puts traded or be all 'out of the money'), which results in less margin variability. Another finding is that operators who set price conditions in May (instead of July or October) generally through a corn call, did not experience substantial increase of margin variability - especially during a very volatile 2009 year. This may respond to mostly circumventing changing conditions in the corn market during summer and fall season, with the arrival of new crop information.

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Actuarially Fair or Foul? Asymmetric Information Problems in Dairy Margin Insurance

John Newton, Cameron S. Thraen, and Marin Bozic
Year: 2013

Abstract

There is a wide consensus in the academic literature that asymmetric information in the form of adverse selection and moral hazard has resulted in sizable financial outlays for governmentsponsored crop insurance programs - ultimately becoming a costly means of transferring risk from farmers to the government. In this analysis we combine simulation and structural modeling techniques to forecast dairy income-over-feed-cost margins and show how asymmetric information problems may drive industry consolidation, production growth, and unforeseen program costs for a recently proposed government-sponsored dairy producer margin insurance program. We conclude by presenting second-best solutions in contract design to the insurance problems of moral hazard and adverse selection.

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Pricing and Hedging Calendar Spread Options on Agricultural Grain Commodities

Adam Schmitz, Zhiguang Wang, and Jung-Han Kimn
Year: 2013

Abstract

The calendar spread options (CSOs) on agricultural commodities, most notably corn, soybeans and wheat, allow market participants to hedge the roll-over risk of futures contracts. Despite the interest from agricultural businesses, there is lack of both theoretical and empirical research on pricing and hedging performances of CSOs. We propose to price and hedge CSOs under geometric Brownian motion (GBM) and stochastic volatility (SV) models. We estimate the model parameters by using implied state-generalized method of moments (IS-GMM) and evaluate the in-sample and out- of-sample pricing and hedging performances. We find that the average pricing errors of the SV model are 0.79% for corn, 0.75% for soybeans and 1.2% for wheat; the pricing and hedging performance of the SV model are mostly superior to the benchmark GBM model, both in and out of sample, with only one exception where the out-of-sample hedging error for the GBM model for market makers is slightly better than the SV model.

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Information Transmission between Livestock Futures and Expert Price Forecasts

Jason Franken, Philip Garcia, Scott H. Irwin, and Xiaoli Etienne
Year: 2013

Abstract

We evaluate dynamic interaction between four expert forecasts, futures prices, and realized cash hog prices. Lag structures of three variable vector autoregression indicate dynamic interaction among futures and cash markets and that past forecasts impact cash prices. Causal analysis of model residuals reveals contemporaneous causation of cash prices by futures prices and by some forecasts, and in all cases indicates causal structures consistent with the chronological ordering of prior day futures, subsequent forecasts, and cash prices realized one quarter later. Error decompositions following this ordering indicate expert forecasts are somewhat more important to futures and cash markets than previously believed.

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Price Density Forecasts in the U.S. Hog Market: Composite Procedures

Andres Trujillo-Barrera, Philip Garcia, and Mindy Mallory
Year: 2013

Abstract

We develop and evaluate quarterly out-of-sample individual and composite density forecasts for U.S. hog prices using data from 1975.I to 2010.IV. Individual forecasts are generated from time series models and the implied distribution of USDA outlook forecasts. Composite density forecasts are constructed using linear and logarithmic combinations, and several straightforward weighting schemes. Density forecasts are evaluated on goodness of fit (calibration) and predictive accuracy (sharpness). Logarithmic combinations using equal and mean square error weights outperform all individual density forecasts and all linear combinations. Comparison of the USDA outlook forecasts to the best logarithmic composite demonstrates the consistent superiority of the composite procedure, and identifies the potential to provide hog producers and market participants with accurate expected price probability distributions that can facilitate decision making.

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Price Discovery in the U.S. Fed Cattle Market

Kishore Joseph, Philip Garcia, and Paul E. Peterson
Year: 2013

Abstract

We study price discovery in the U.S. fed cattle market, examining the interaction among weekly live cattle futures, negotiated cash fed cattle, and boxed beef cutout prices. Extensive testing and innovation accounting based on directed acyclic graphs of error-correction resid- uals indicates that the futures price continues as the dominant source of information in the fed cattle market. While the cash cattle price has a strong predictive in uence on the boxed beef price, the boxed beef price plays only a marginal role in price discovery.

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Have Extended Trading Hours Made Agricultural Commodity Markets More Risky?

Nathan S. Kauffman
Year: 2013

Abstract

In May 2012, the Chicago Mercantile Exchange extended trading hours for several agricultural commodities, including corn. Since then, trading during the release of a key U.S. Department of Agriculture report known as the World Agricultural Supply and Demand Estimate has been possible. Some concerns have been expressed that trading through the release of important market information might generate higher price volatility in agricultural commodity markets. The purpose of

this paper is to examine the effect of extended trading hours on intraday price volatility in corn futures markets. The results suggest that trading during the information releases in 2012 has led to brief periods of excessive volatility immediately after the reports were released, but the higher volatility did not persist much beyond 60 minutes. The paper also highlights the role of higher liquidity in absorbing potential market shocks.

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How Could We Have Been So Wrong? The Puzzle of Disappointing Returns to Commodity Index Investments

Scott Main, Scott H. Irwin, Dwight R. Sanders, and Aaron Smith
Year: 2013

Abstract

Investments into commodity-linked investments have grown considerably since their popularity exploded—along with commodity prices—in 2006 through 2008. Numerous individuals and institutions have embraced alternative investments for their purported diversification properties and “equity-like” returns; yet, real-time performance has been disappointing. As an example, Morningstar reports that the iShares S&P GSCI Commodity Index Trust lost an annualized 9.1% in the 5 years ending December 31, 2012. The puzzling aspect of this poor performance is that it occurred at a time when the overall trend in commodity prices was sharply upward. In this paper, we explicitly show that the disappointing returns for commodity index investments were not directly caused by the futures market structure, i.e., “contango.” Rather, the implicit—and unavoidable—cost of holding physical commodities is inherent in futures prices and thereby creates a necessary performance “gap” between the returns to long-only futures positions and observed spot market prices.

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Impacts of Crop Conditions Reports on National and Local Wheat Markets

Ryan Bain and T. Randall Fortenbery
Year: 2013

Abstract

The USDA releases crop condition reports that contain crop progress and growing conditions estimates for various crops including corn, soybeans, and winter wheat. Previous work has investigated national market impacts from various USDA reports. However, this work is new because it investigates crop conditions report releases for price impacts on winter wheat at both the local and national level. The primary tools for analysis are parametric tests and the nonparametric Savage scores test. The results suggest that crop conditions reports may be anticipated by the futures markets prior to release, with similar though non-significant impacts felt in local cash markets. These results contrast significantly with those found in similar studies for corn and soybeans.

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The 'Necessity' of New Position Limits in Agricultural Futures Markets: The Verdict from Daily Firm-Level Position Data

Dwight R. Sanders and Scott H. Irwin
Year: 2014

Abstract

Regulators are proposing new position limits in U.S. commodity futures markets while the actual impact of long-only index funds on futures prices continues to be debated. Researchers have noted the data limitations—frequency and market breadth—associated with using data compiled by the U.S. Commodity Futures Trading Commission (CFTC). This research addresses these shortfalls by using daily position data for a specific long-only index fund. The empirical analysis focuses on the firm-level position data across 13 U.S. agricultural futures markets. The firm-level data are shown to be representative of the overall index fund industry. Empirical tests fail to find any evidence linking the firm's trading with market returns. However, there does appear to be a consistent negative relationship between the firm's roll transactions and changes in calendar price spreads. Notably, the direction of this impact is opposite of price-pressure hypothesis. The results of this study, and others, indicate that a clear verdict can be reached—new limits on speculation in agricultural futures markets are unnecessary.

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Quantifying Public and Private Information Effects on the Cotton Market

Ran Xie, Olga Isengildina-Massa, Julia L. Sharp, and Gerald P. Dwyer
Year: 2014

Abstract

The study evaluates the impact of four public reports and one private report on the cotton market: Export Sales, Crop Progress, World Agricultural Supply and Demand Estimates (WASDE), Perspective Planting, and Cotton This Month. The best fitting GARCH models are selected separately for the daily cotton futures close-to-close, close-to-open, and open-to-close returns from January 1995 through January 2012. In measuring the report effects, we control for the day-of-week, seasonality, stock level, and weekend-holiday effects on cotton futures returns. We find statistically significant impact of the WASDE and Perspective Planting reports on cotton returns. Furthermore, results indicate that the progression of market reaction varied across reports.

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Forecasting of Futures Prices: Using One Commodity to Help Forecast Another

Anzhi Li and Jeffrey H. Dorfman
Year: 2014

Abstract

Managers of businesses that involve agricultural commodities need price forecasts in order to manage the risk in either the sale or purchase of agricultural commodities. This paper examines whether commodity price forecasting model performance can be improved by the inclusion of price forecasts for other commodities within the model specification. We estimate 760 dfferent models to forecast the prices of hog, cattle, corn, and soybean and find strong support for the inclusion of other commodity price forecasts in the best forecasting models. Unfortunately, the out-of-sample performance of these models is mixed at best. Still, the results suggest more work is called for to determine how best to use other commodity price forecasts to improve forecasting performance.

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How Do Agricultural Futures Prices Respond To New Information About Drought Conditions?

Kathleen Brooks, Fabio Mattos, and Karina Schoengold
Year: 2014

Abstract

This study tests whether information provided by the U.S. Drought Monitor impacted futures prices for commodities between 2000 and 2012. Results based on the November futures prices for soybeans indicate that there is a statistically significant difference in mean and variance of absolute percentage price changes between days when the Drought Monitor is released and other days. Further analysis suggests that the effect of the Drought Monitor information varies during the year. In particular, absolute percentage price changes are generally smaller on report days than on non-report days during the winter and spring, but are larger on report days than on non-report days during the summer. Finally, focusing on the impact on prices of the magnitude of drought conditions, there is evidence that larger areas under extreme drought conditions lead to larger absolute price changes.

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Chewing the Cud on Using Multi-Commodity Hedge Ratios To Manage Dairy Farm Risk

John Newton, Cameron S. Thraen, and Marin Bozic
Year: 2014

Abstract

This study examines the risk management opportunities for regional mailbox milk prices and composite income-over-feed-cost margins using alternative milk and input cost risk management strategies. Multi-commodity hedge ratios are

estimated using cash and futures market data over 2001 to 2013. Our analysis shows that at sufficient hedging horizons single- or multi-commodity hedge ratios may reduce up to 65% of the margin price risk, 39% of the milk price risk, and may outperform naïve pricing arrangements designed to replicate regulated milk pricing provisions. Cross-hedging using milk and feed futures is an imperfect hedge and remains exposed to basis risk due to the spatial value of feed and the regulatory burden of Federal and State milk pricing and pooling programs.

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Spatial Price Efficiency in the Urea Market

Zhepeng Hu and Wade Brorsen
Year: 2014

Abstract

Urea fertilizer is widely used in the U.S., however, most urea is not openly traded and formula pricing is common. This study measures the efficiency of spatial urea prices in the New Orleans-Arkansas River urea market and the New Orleans-Middle East urea market. The vector error correction model (VECM) and Baulch's (1997) parity bound model (PBM) are used. Nonlinearity testing finds no threshold effects. Thus, we do not include threshold values in our vector error correction models. Parameter estimates of vector error correction models show that violations of spatial price equilibrium are corrected faster in the Arkansas River-New Orleans urea market than the New Orleans-Middle East urea market. Results from the parity bound model show that in the New Orleans-Middle East urea market, price spreads are found greater than transportation costs in about 23% of the time. So, the New Orleans-Middle East market is a moderately inefficient market rather than a perfectly efficient market.

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Portfolio Investment: Are Commodities Useful?

Lei Yan and Philip Garcia
Year: 2014

Abstract

This paper investigates the usefulness of commodities in investors' portfolios within a mean- variance optimization framework. The analysis di
ers from previous research by considering multiple investment tools including individual commodity futures contracts, three generations of commodity indices and by controlling for estimation error in portfolio optimization pro- cess. Rather generally, the results demonstrate that including individual commodities or the first- and second-generation commodity indices do little to enhance portfolio performance. Similarly, when an initial portfolio is diversied, the risk-reducing ability of agricultural commodities is much weaker than identied by previous research. In contrast, including the third-generation indices substantially improves the portfolio's Sharpe ratio by generating higher returns and lower risk.

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Bayesian Analysis of a Comprehensive Model for Agricultural Futures

Adam Schmitz, ZhiguangWang, and Jung-Han Kimn
Year: 2014

Abstract

Agricultural futures price features stochastic volatility, seasonal spot price volatility, and stochastic cost-of-carry. We propose a single comprehensive model that inludes all these features. We apply the proposed model to analyze the corn futures market from January 3rd, 1989, to December 31st, 2008. We conduct parameter estimation using Markov chain Monte Carlo (MCMC) with a novel dynamic tuning scheme. We also employ a parallel MCMC scheme for state variable estimation. Parameter estimates and model errors indicate the comprehensive model to be e
ective for modeling corn futures.

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Return and Risk Performance of Basis Strategy: A Case Study of Illinois Corn and Soybeans, 1975-2012 Crop Years

Sanghyo Kim, Carl Zulauf, and Matthew Roberts
Year: 2014

Abstract

The study examines if a storage strategy based on the cash-futures basis (the basis strategy) has been profitable over the 1975-2012 crop years for Illinois corn and soybeans. The study first examines the means and standard deviations of annual net storage returns obtained from hedged and unhedged storage when routinely storing each year and when using the basis strat- egy. For both the period of higher commodity prices since 2005 and the pre-2006 period, the basis strategy is found to (1) improve net returns to hedged but not unhedged storage and (2) lower the return risk for both hedged and unhedged storage. Previous studies have not exam- ined the basis strategy's impact on the return risk for unhedged storage. To further investigate the performance of the basis strategy in these two periods, the performance of the expected net return to storage in forecasting the observed net storage return is examined. Given the panel structure of the data, a Fixed E
ects (FE) model was chosen to estimate since the re- gion specic e
ects are of interest. However, signicant cross-equation correlations are found in the disturbances, a characteristic not investigated in previous studies. Thus, a Fixed E
ects (FE) Panel Seemingly Unrelated Regressions (PSUR) is estimated. Forecast performance of the observed net storage return by the expected net storage return was found to be unbiased in the pre-2006 period. Forecast performance deteriorated somewhat in the post-2006 period as some forecasts were found to be biased. The decline in forecast performance is consistent with the lack of convergence that has been noted in the soybean and especially corn futures markets during some of the years since 2006.

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Soybean Oil Spatial Price Dynamics

JewelwayneS. Cain and Joe L. Parcell
Year: 2014

Abstract

We analyze the price relationship of refined-bleached-deodorized (RBD) soybean oil prices among four regional U.S. markets (Central Illinois, U.S. Gulf, West Coast, and East Coast). Econometric time-series methods were used to detect price integration, linkages, and responsiveness for each oil type and among each market. Results show that the four markets have remained price-integrated in the long run. This implies that the markets are spatially efficient. The results, however, also suggest that the level of market efficiency may have decreased to some extent after the U.S. biodiesel production surge in the mid-2000s.

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The Competitive Position of the Black Sea Regionin World Wheat Export Markets

Daniel M. O'Brien and Frayne Olson
Year: 2014

Abstract

Differences in physical quality characteristics among classes or types of wheat are often reflected in global cash wheat prices in general, and in wheat prices and sales involving major Black Sea Region exporters Russia, Ukraine and Kazakhstan in particular. Black Sea Region wheat export markets appear to be somewhat associated with each in other in terms of price dynamics, while still exhibiting important differences. Differences in wheat class quality characteristics and logistical-transportation factors play an important role in determining the competitive, cointegrated nature of world and Black Sea Region wheat market price relationships, along with the dynamics of changing wheat supply-demand balances. Black Sea Region wheat prices display some degree of price interrelatedness for milling quality wheat, but not complete uniformity. Ukraine milling wheat export prices show evidence of being cointegrated with German milling wheat export prices, but less so with with those of Russia. Russian milling wheat export prices appear to be cointegrated with both U.S. hard red winter and soft red winter wheat export prices, but less so with those of the Ukraine. Kazakhstan milling wheat export prices show evidence of being somewhat associated with Russian milling wheat export prices, but not so with those in Ukraine.

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Sources of Roll-Related Returns in the S&P GSCI Excess Return Index

Di Hu and Paul E. Peterson
Year: 2014

Abstract

Standard & Poor's Goldman Sachs Commodity Index (S&P GSCI) is the largest tradable commodity index fund in the world with more than $80 billion in S&P GSCI-related investments. Investors have been led to believe that investing in the S&P GSCI during periods of rising commodity prices will be profitable. However, the return performance of the S&P GSCI rarely equals the price change of its underlying spot commodities over the long run. This paper examines the historical excess returns of S&P GSCI futures holdings from 2007 to 2013, duplicating the official S&P GSCI trading methods, and finds that S&P GSCI excess returns differ from returns on corresponding investments in commodity futures due to the interaction between term structure effects and futures returns.

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The Performance of U.S. Ethanol Futures Markets on the World Stage

Roger A. Dahlgran, Waldemar Antônio da Rocha de Souza, Jingyu Liu, and Xiaoyi (Dora) Yang
Year: 2014

Abstract

This study examines the feasibility of Brazilian ethanol dealers using the U.S. ethanol futures contract as a price-risk management vehicle. This application is appropriate given that the U.S. and Brazil are the world's largest and second largest ethanol producers. This specific application is part of a larger consideration as to how U.S. futures markets perform for hedging international commodities. This study considers the reasons why U.S. ethanol contracts might and might not work as hedging vehicles for Brazilian ethanol inventories prior to conducting an empirical investigation. Our empirical hedge ratio model formulates three components of price risk for international users of U.S. futures markets. These are (1) the risk of commodity price change given the initial currency exchange rate, (2) the risk of exchange rate change, given the commodity's initial price, and (3) the risk of covariation between the commodity' price and the currency exchange rate. Based on these sources of price risk, the hedging portfolio consists of the U.S. ethanol futures contract and the Brazilian real futures contract. Our analysis reveals that the U.S. ethanol futures contract provides little price-risk protection for Brazilian ethanol holder while the Brazilian real futures contract offers some protection. In contract, we present results from crude oil futures markets where the U.S. crude oil futures contract gives the bulk of price risk protection and the currency futures contract provides much less. We conclude (1) that the ethanol findings are not universal and depend on the provisions of the U.S. ethanol futures contract and (2) the contracts traded on the Brazilian futures exchange do not compete directly with the U.S. contracts.

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A Structural Approach to Disentangling Speculative and Fundamental Influences on the Price of Corn

Xiaoli L. Etienne, Scott H. Irwin, and Philip Garcia
Year: 2014

Abstract

Corn prices experienced enormous volatility over the last decade. In this paper, we apply a structural vector autoregression model to quantify the relative importance of various contributing factors in driving corn price movements. The identification of structural parameters is achieved through a data-determined approach—the PC algorithm of Directed Acyclic Graphs. We find that, in general, unexpected shocks in aggregate global demand and speculative trading activities do not have a statistically significant effect on corn price movements. By contrast, shocks in the crude oil market have large immediate effects that persist in the long-run. The forecast error variance decomposition suggest that at the two-year horizon, variations in crude oil prices account for over 50% of the total corn forecast error variances. We also find that, consistent with theory, unexpected shocks in market-specific fundamentals also have large negative effects on price movements. In addition, unexpected residual shocks play an important role in corn price movement, especially in the short-run.

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How Large Is the Agricultural Swaps Market?

Paul E. Peterson
Year: 2014

Abstract

This study is the first detailed examination of trading activity in the agricultural swaps market, covering 22 major agricultural commodities during the first 13 months of reporting under the Dodd-Frank Act. It is also the first to quantify the size of the agricultural swaps market using actual transaction data and three different metrics. The notional value of U.S. agricultural swaps traded during this period was $51 billion, or approximately 22% of the gross market value for “other commodities” reported by the Bank for International Settlements. However, the volume of agricultural swaps trading is equivalent to a small fraction of the volume for exchange-traded futures and options on the same commodities.

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Competing for Wheat in the Great Plains: Impacts of Shuttle-Loading Grain Facilities on Basis Patterns

Anton Bekkerman, Mykel Taylor, Gage Ridder, and Brian Briggeman
Year: 2014

No Abstract Available

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Marketing Strategies for Soybeans in 1997-2012: Performance Persistence and Risk-return Tradeoffs

Fabio Mattos and Kathleen Brooks
Year: 2014

Abstract

This working paper discusses preliminary ideas of a research project that explores the performance of marketing strategies. In this first step only strategies using futures contracts for soybeans are examined. A set of 26 marketing strategies was simulated between 1997 and 2012 based on November futures prices and cash prices in Nebraska. Initial findings suggest that mean returns tend to be higher (lower) when larger (smaller) portions of crop are sold with futures contracts, and when those sales happen in the summer (spring and fall). However, those strategies that yield higher returns also bring larger dispersion of returns, which raises the need to discuss tradeoffs between risk and return. Finally, it was investigated whether a group of strategies could consistently outperform the others, but no evidence was found to support this idea.

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