

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.



Mark R. Manfredi

Dwight R. Sanders

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The Impact of Foot-and-Mouth Disease (FMD) on Hog, Pork, and Beef Prices: The Experience in Korea

Jae Sun Roh, Sang Soo Lim, and Brian D. Adam

Year: 2006

Abstract

Korea experienced two outbreaks of foot-and-mouth disease (FMD), one in the year 2000 and one in 2002. After the first outbreak, prices for hogs, pork, and beef dropped 15-20% before the government began an intervention program. The effects of these two outbreaks are examined using Box and Tiao's intervention analysis model and a GARCH model. Although the second outbreak resulted in many times more animal deaths than the first outbreak, its effect on prices was much smaller. The reason may be because the government's response to the first outbreak set a precedent for the second one.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Soybean Acreage Response in Brazil

Mauricio Moraes

Year: 2006

Abstract

This paper advances Williams and Thompson (1984) by updating their work and by explicitly accounting for price and yield risk in the analysis of acreage response in Brazil for soybeans and by assessing model specification. Empirical equations were estimated using seemingly unrelated regression (SUR). The robustness of the model was evaluated in the battery of misspecification tests suggested by McGuirk et al. (1993) and McGuirk et al. (1995). The results of the testing procedure suggest that the model is fairly robust in terms of normality, heteroscedasticity and functional form. The results point to parameter instability in the soybean model. The approach to the problem of parameter instability involved dividing the data in two periods and estimating regressions for each period. The signs of the significant coefficients were consistent with expectation, particularly for the second period. Soybean acreage is explained mainly by past acreage, expected prices of soybeans and land competing crops (cotton, rice, and corn), and price and yield risk. Results suggest that market signals played a reduced role in the soybean acreage growth in early years. In contrast, in recent years producers in Brazil became more sensitive to changes in prices and risk. Measures of short-run price elasticity of soybean acreage response are similar to the one obtained by William and Thompson (1984) for soybean supply. Long-run elasticities are significantly smaller.

Click [here](#) for a copy of the paper in Adobe's PDF format.

U. S. and Canadian Livestock Prices: Market Integration and Trade Dependence

Dragan Miljkovic

Year: 2006

Abstract

Cointegration of Canadian and U.S. livestock prices points to the existence of market integration in the period 1996:1 to 2004:12 even though the trade flows of livestock and beef products were non-existent for many months in 2003 and 2004 (suggesting market segmentation) due to livestock/beef import bans by both countries due to BSE. It was also determined that Canada's trade dependence in livestock and beef is cointegrated with Canadian and U.S. livestock prices. However, as the trade dependence variable is shocked, the effects on Canadian and U.S. prices are opposite although one would expect that in an integrated market the price responses to an exogenous shock would be similar or statistically identical. This result reinforces the case against the use of cointegration in determining presence (or absence) of market integration. Empirical results in this article raise some very difficult questions. Gains from trade are well documented. Yet, once a country is very trade dependent, the prices in it are much more vulnerable to exogenous shocks that reduce the trade flows. Canadian livestock prices plummeted and stayed low following the BSE incident and U.S. (and Japanese) import bans on Canadian livestock and beef. Given the long cycles and high sunk cost in the livestock and beef industry, immediate adjustment (reduction in production) for Canadian producers was difficult and always unlikely. Moreover, the possibility of import bans being lifted in the near future may have further shaped their expectations and prolonged the decisions on herd reduction. In the meanwhile, U.S. prices increased following Canada's trade dependence shock due to BSE and remained above the original long-run equilibrium price.

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An Assessment of the Livestock Mandatory Reporting Act

Clement E. Ward

Year: 2006

Abstract

Federal government funding for public price reporting began in 1914. Since then, most public market reporting for livestock and meat has relied on voluntary participation by market participants. Populist support in 1999 led to passage of the Livestock Mandatory Reporting Act which replaced the decades old voluntary reporting system with a mandatory system for livestock and meat. Questions were raised by policymakers and others in discussions of the Act's renewal as to effectiveness of the mandatory reporting system. This paper draws from available information to assess the Act's effectiveness since its initial implementation. Satisfaction or dissatisfaction with the Act depends on one's expectations for what the Act was to accomplish or problems the Act was argued to address. Mandatory price reporting for many – after a rocky start – has enhanced the transparency and accuracy of reported prices while increasing the amount and timeliness of information in some needed areas.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Multiple Horizons and Information in USDA Production Forecasts

Dwight R. Sanders and Mark R. Manfreda

Year: 2006

Abstract

USDA livestock production forecasts are evaluated for information across multiple horizons using the direct test developed by Vuchelen and Gutierrez. Forecasts are explicitly tested for rationality (unbiased and efficient) as well as for incremental information out to three quarters ahead. The results suggest that although the forecasts are often not rational, they typically do provide the forecast user with unique information at each horizon. Turkey and milk production forecasts tended to provide the most consistent performance, while beef production forecasts provided little information beyond the two quarter horizon.

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Is Storage at a Loss Merely an Illusion of Aggregation?

Jason R.V. Franken, Philip Garcia, and Scott H. Irwin

Year: 2006

Abstract

The storage at a loss paradox of positive inventories despite inadequate spot-futures price spread coverage of storage costs is an unresolved issue of long-standing interest to economists. Alternative explanations include risk premiums for futures market speculators, convenience yields from having inventories on hand, and the mismeasurement/aggregation of data. T-test analyses of disaggregated data suggest soybean price behavior consistent with intertemporal arbitrage conditions and corn price behavior that may imply convenience yields.

Click [here](#) for a copy of the paper in Adobe's PDF format.

The Effects of Hurricane Katrina on Corn, Wheat and Soybean Futures Prices and Basis

Angel Lara-Chavez and Corinne Alexander

Year: 2006

Abstract

Hurricane Katrina caused considerable damage to transportation infrastructure, grain export facilities, and to some crop areas in 2005. Assuming that financial market participants considered the disruption of the grain transportation system by Katrina as having an important impact on fundamental supply and demand factors, futures and/or national basis would subsequently adjust. The objective of this research was to determine the reaction in corn, wheat, and soybean futures and basis due to Katrina using an event study methodology. One parametric (Constant mean return) and one nonparametric procedure (Corrado's rank test) were used to define whether there were statistically significant abnormal returns. During Katrina abnormal returns were larger on the wheat futures market than on the corn and soybean futures markets, which could be partially explained by the timing of the Katrina's landfall with the grain export activities. However, there were only a few statistically significant daily abnormal returns in the futures prices due to the hurricane. There was some evidence of significant cumulative abnormal returns in the corn and wheat futures markets prior to and surrounding the Katrina's landfall. In conclusion, the majority of the corn market reaction to Katrina's damage occurred in the basis and not in the futures market. For the soybean market there was weak evidence of significant reaction in both basis and futures prices. In the case of wheat, the basis was not evaluated and wheat futures prices reacted to the disruption caused by Katrina. The reaction in the corn, wheat and soybean futures prices due to Katrina could have been moderated by the presence of large stocks and large expected production levels of these grains in 2005 or simply by the fact that the damage caused by the hurricane did not affect fundamental supply and demand factors; rather, they only affected transportation logistics.

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A Term Structure Model for Commodity Prices: Does Storability Matter?

Chuanyi Lin and Matthew C. Roberts

Year: 2006

Abstract

Econometric models of commodity prices have been estimated for more than 80 years, but both structural and time series models require ad hoc assumptions to capture all the features of commodity price series. Commodities can be broadly divided into two categories: storable and non-storable. The purpose of this study is to investigate the effects of storability on commodity futures pricing, especially whether meats can be reasonably approximated by storable commodity term structure models. From the empirical analysis of seven commodity futures prices, the two-factor Schwartz model is found to perform well for less storable commodities.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Empirical Confidence Intervals for WASDE Forecasts of Corn, Soybean and Wheat Prices

Olga Isengildina, Scott H. Irwin, and Darrel L. Good

Year: 2006

Abstract

This study suggests that confidence intervals for WASDE forecasts of corn, soybean, and wheat prices may be improved if they are estimated using an empirical approach. Empirical confidence intervals are calculated following Williams and Goodman's (1971) method and use historical forecast errors to estimate forecast error distributions which is then used to predict confidence limits for future forecast errors. Three procedures for empirical distribution estimation are compared: 1) histogram, 2) changing distribution, 3) fixed distribution. The results suggest that the fixed distribution approach using logistic distribution provided accurate confidence intervals for WASDE corn, soybean, and wheat price forecasts.

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Is the Local Basis Really Local?

Mark R. Manfreda and Dwight R. Sanders

Year: 2006

Abstract

Conventional wisdom suggests the local cash – futures basis is determined from local supply and demand conditions. However, it may be the case that local elevators look to other locations, such as terminal locations, and adjust for transportation differentials when determining the basis for their particular market. If so, certain grain marketing locations (e.g., export and interior terminal locations) may play an important role in discovering and ultimately determining the basis for other local markets. This hypothesis is examined for the #2 yellow corn basis at various export terminal (Gulf; Toledo), river terminal (Illinois River; Omaha) and interior (S. Central Illinois; N. Central Iowa; Denver) locations. Specifically, if the basis calculated at one market location is found to lead the basis at another market location, then this suggests that the leading market plays a role in determining the basis for the other market. The findings suggest that corn basis calculated at the export terminal markets of Toledo and the U.S. Gulf, as well as the Illinois River, may indeed provide valuable information in determining the basis for other river terminal and interior locations.

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Value of Single Source and Backgrounded Cattle as Measured by Health and Feedlot Profitability

Babatunde Abidoye and John D. Lawrence

Year: 2006

Abstract

Commingling cattle in the feedlot increases the odds of cattle getting sick. However, backgrounded cattle are less susceptible to diseases which allow the generalizing statements like "backgrounding is just like single source". Using data from over 15,000 cattle fed in 12 Iowa feedlots, we show that although backgrounded cattle do better than preconditioned cattle commingled in the feedlot, they have poorer carcass quality, health, and performance than single source cattle. Backgrounded cattle should be discounted \$8.24/head relative to single source, and only received a small premium over multi-source preconditioned cattle though not significantly different.

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Price and Profit: Investigating a Conundrum

Carl R. Zulauf, Gary Schnitkey, and Carl T. Norden

Year: 2006

Abstract

Although few in number, studies consistently find that price explains little, if any, of the variation in profit across farms. This contrasts with farmers' opinions regarding the importance of price, as well as the use of price supports as a primary policy instrument. Using farm level data from the Illinois Farm Business Farm Management program for calendar years 1996 through 2004, a potential explanation for this conundrum is identified. Price is significantly more correlated with a farmer's variation in management return from year to year (approximately, +0.45) than with the variation in management return across farmers (approximately, +0.10). Thus, the conundrum arises out of different perspectives: farmers focus on the performance of their own farm over time while studies have focused on the variation among farms.

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The Value of Information Provision at Iowa Feeder Cattle Auctions

Harun Bulut and John D. Lawrence

Year: 2006

Abstract

Controlling a variety of feeder cattle characteristics, and market and sale conditions, we estimate that certified vaccinations claims along with at least 30 days weaning claims bring in a premium of \$6.13/cwt, which is nearly two times of that for similar uncertified claims, compared to no vaccinations and weaning claims at all in Iowa feeder cattle auctions. This indicates that the third-party certification is supported in the market as a tool to signal quality in terms of vaccinations and weaning claims towards preconditioning.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Farmers' Subjective Perceptions of Yield and Yield Risk

Thorsten M. Egelkraut, Bruce J. Sherrick, Philip Garcia, and Joost M. E. Pennings

Year: 2006

Abstract

Using survey responses of Illinois corn farmers to differently framed yield questions, we examine their subjective information by relating stated yields and risk to the corresponding objective county measures. The results show that farm-level yields can be best characterized by soliciting probabilistic information, which provides more accurate yield assessments than an open-ended frame and consistent estimates of producers' subjective risk. Moreover, we find that overconfidence can be confused with differences in relevant information and that using recent data may be more appropriate in examining subjective risk statements. Our results are important for agricultural policy-makers and researchers, particularly those who work with surveys that include questions about producers' yields.

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A Comparative Evaluation of Cash Flow and Batch Profit Hedging Effectiveness in Commodity Processing

Roger A. Dahlgran

Year: 2006

Abstract

Agribusinesses make long-term plant-investment decisions based on discounted cash flow. It is therefore incongruous for an agribusiness firm to use cash flow as a plant-investment criterion and then to completely discard cash flow in favor of batch profits as an operating objective. This paper assumes that cash flow and its stability are important to commodity processors and examines methods for hedging cash flows under continuous processing. Its objectives are (a) to determine how standard hedging models should be modified to hedge cash flows, (b) to outline the differences between cash flow hedging and profit hedging, and (c) to determine the effectiveness of hedging in reducing cash flow variability. A cash flow hedging methodology is developed. This methodology is similar to that used for batch profit hedging. This methodology balances the daily cash flow destabilizing effect of futures positions against the periodic cash flow destabilizing effect of cash price changes. The resulting cash flow hedges are simulated for soybean processors. These hedges are less effective than batch profit hedging. The reduction in cash flow variance achieved through hedging, though small, is nonetheless statistically significant.

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Probability Distortion and Loss Aversion in Futures Hedging

Fabio Mattos, Philip Garcia, and Joost M.E. Pennings

Year: 2006

Abstract

We analyze how the introduction of probability distortion and loss aversion in the standard hedging problem changes the optimal hedge ratio. Based on simulated cash and futures prices for soybeans, our results indicate that the optimal hedge changes considerably when probability distortion is considered. However, the impact of loss aversion on hedging decisions appears to be small, and it diminishes as loss aversion increases. Our findings suggest that probability distortion is a major driving force in hedging decisions, while loss aversion plays just a marginal role.

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Smart Money? The Forecasting Ability of CFTC Large Traders

Dwight R. Sanders, Scott H. Irwin, and Robert Merrin

Year: 2007

Abstract

The forecasting ability of the Commodity Futures Trading Commission's Commitment's of Traders data set is investigated. Bivariate Granger causality tests show very little evidence that traders' positions are useful in forecasting (leading) market returns. However, there is substantial evidence that traders respond to price changes. In particular, non-commercial traders display a tendency for trend-following. The other trader classifications display mixed styles, perhaps indicating that those trader categories capture a variety of traders. The results generally do not support the use of the Commitment's of Traders data in predicting market movements.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Inventory and Transformation Hedging Effectiveness in Corn Crushing

Roger A. Dahlgran

Year: 2007

Abstract

In response to the development of the U.S. ethanol industry, the Chicago Board of Trade (CBOT) launched the ethanol futures contract in March 2005. This contract is promoted by the CBOT as allowing ethanol producers to hedge corn crushing using strategies similar to those used in soybean crushing. The similarities end, however, when the lack of short-term correlation between corn and ethanol prices is compared to the strong correlation between soybean and soy product prices. This contrast motivates the examination of the price risk management capabilities of the CBOT's ethanol futures contract.

Standard hedging methodology is applied to weekly cash and futures price data from March 23, 2005 through March 7, 2007. Findings include (1) for two- to eight-week hedging horizons, the ethanol futures contract effectively hedges ethanol inventory price risk. The effectiveness of the hedge increases with the hedging horizon. Thus, ethanol producers and brokers can use the ethanol futures market to reduce the price risk of holding ethanol inventories. (2) Contrary to anecdotal evidence, ethanol futures are not significantly inferior to gasoline futures for hedging ethanol price risk and for a four-week hedge they are significantly superior to gasoline futures. Thus, ethanol producers and brokers get greater price risk protection from hedging with ethanol futures than with gasoline futures. (3) The corn crushing hedge, utilizing corn and ethanol futures contracts, is an effective means to "lock in" a processing margin. The effectiveness of this hedge

increases as the hedging horizon increases. Finally, to understand the processing hedge, the corn crush hedge and the soybean crush hedge were compared. I found that (4) the price risk of corn crushing is greater than that of soybean crushing and the effectiveness of corn crush hedging exceeds that of soybean crush hedging. This difference is explained by the high correlations in the soybean complex.

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Economics of Increased Beef Grader Accuracy

Maro A. Ibarburu, John D. Lawrence, and Darrell Busby

Year: 2007

Abstract

Carcass data from more than 38,000 cattle was used to compare the called and measured yield grade in two different periods: before and after the slaughter plant incorporated another grader in the line to improve grading accuracy. The study shows that the graders accuracy significantly increased. The higher accuracy affected all yield grades, but most notably resulted in more called yield grade 4 and 5 carcasses. This analysis will develop insight of what will be the effect of instrument grading that will be more accurate than previously called grades.

The results are expressed as the conditional distribution of the called yield grade for a given value of the measured yield grade. The pricing grid currently used by the industry was used to analyze the effect of the graders errors on the expected values of the premiums on both periods and by yield grade. The results show that the company has an incentive to improve accuracy of grading. Simulating the results of measured vs. called yield grade over prices at the time and a standard industry grid showed that the plant can benefit by \$1.32 per head by increasing grading accuracy.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Impacts of Alternative Marketing Agreement Cattle Procurement Volumes on Packer Costs: Evidence from Plant-Level P&L Data

Stephen R. Koontz, Mary K. Muth, and John D. Lawrence

Year: 2007

Abstract

It has been argued that access to captive supply cattle improve the economic efficiency of beef packing facilities. However, this argument has not been subject to hypothesis testing. This work models the cost efficiencies associated with captive supplies or cattle we refer to as being sourced through alternative marketing agreements (AMAs). We find that slaughter and processing costs are lower ceteris paribus for AMA cattle than for cash market cattle. We find that plants that slaughter cattle from AMA sources operate at higher monthly volumes ceteris paribus and lower average costs per head. And we find that plants that slaughter cattle from AMA sources have more predictable volumes ceteris paribus and have lower average costs per head. If AMAs were limited or prohibited then packing industry efficiency would be negatively impacted and that fed cattle prices would be negatively impacted.

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Economic Analysis of Pharmaceutical Technologies in Modern Beef Production

John D. Lawrence and Maro A. Ibarburu

Year: 2007

Abstract

Cattle production is the largest single agricultural sector in the U.S. with cash receipts of \$49.2 billion in 2005. Like the rest of agriculture cattle producers have adopted efficiency and quality improving technology to meet consumer demands for a safe, wholesome, and affordable food supply. This research uses meta analysis to combine over 170 research trials evaluating pharmaceutical technologies in the cow-calf, stocker, and feedlot segments of beef production. These results were used to estimate the farm level economic value of parasite control, growth promotant implants, sub-therapeutic antibiotics, ionophores, and beta agonists for the industry in 2005. The Food and Agriculture Policy Research Institute (FAPRI) model of U.S. agriculture was used to estimate the impact on beef production, price, and trade and the rest of agriculture if these pharmaceutical technologies were not available.

Using 2005 prices and production levels the cost savings of the five pharmaceutical technologies evaluated was over \$360 head over the lifetime of the animal. Selling prices would have to increase 36% to cover the increase in costs. The resulting industry would have a similar beef cow inventory, lower beef production, and higher prices from retail through to producers. However, the higher prices do not fully offset the higher cost of production.

Some consumers are requesting "natural" or organically produced beef and a portion of consumers are willing to pay a premium for these products. However, if pharmaceutical technologies were not available in the US cost of production would rise forcing some producers and resources out of cattle production. The smaller industry and domestic beef supply, increased net beef imports, and higher prices to all consumers.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Meat Processors Purchasing and Sale Practices: Lessons Learned from the GIPSA Livestock and Meat Marketing Study

John D. Lawrence, Mary K. Muth, Justin Taylor, and Stephen R. Koontz

Year: 2007

Abstract

The meat value chain is a complex organization with multiple participants performing numerous value added functions. Perhaps the most complex and least well understood segment is that downstream from the packer, e.g., the processor, wholesaler, exporter, retailer and food service (or restaurant) operator. One portion of the Livestock and Meat Marketing Study provided an overview of marketing and pricing methods used in this sector and, in particular, the results of analyses of the relationship between use of alternative marketing arrangements (AMAs) and the distribution and sales of meat products downstream from the packer. The analyses include both beef and pork products, are descriptive and focus on the relationships among industry participants beyond the packing plant. The information used includes the results of the industry interviews, data from the industry surveys, and transactions data from meat processors.

Primary conclusions related to meat processing, distribution, and sales, are as follows:

- Firms differ greatly in the sales, purchase, and pricing methods for meat. Firms rely heavily on the spot market but also use other methods. They also mix-and-match purchase and pricing methods, e.g., buying on the forward market, but pricing on a formula.
- Meat processors play an important distribution role in the meat value chain by purchasing large lots from a few sources and selling small lots to many firms.
- Packers sort cattle purchased under various marketing arrangements to meet the needs of its buyers, but aggregate transactions data suggest that downstream marketing arrangements have little or no relationship to cattle purchase methods or branded beef sales programs.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Information Content in Deferred Futures Prices: Live Cattle and Hogs

Dwight R. Sanders, Philip Garcia, and Mark R. Manfredo

Year: 2007

Abstract

The marginal forecast information contained in deferred futures prices is evaluated using the direct test of Vuchelen and Gutierrez. In particular, the informational role of deferred futures contracts in live cattle and hogs is assessed from the two- to twelve-month horizons. The results indicate that unique information is contained in live cattle futures prices out through the ten-month horizon, while hog futures prices add incremental information at all tested horizons. Practitioners using futures-based forecasting methods are well-served by deferred hog futures prices; however, live cattle futures listed beyond the 10 month horizon are not adding incremental information.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Do Big Crops Get Bigger and Small Crops Get Smaller? Further Evidence on Smoothing in USDA Crop Production Forecasts

Olga Isengildina-Massa, Scott H. Irwin, and Darrel L. Good

Year: 2007

Abstract

The purpose of this paper is to determine whether smoothing in USDA corn and soybean production forecasts is concentrated in years with relatively small and large crops. The sample consists of all USDA corn and soybean production forecasts released over the 1970 through 2006 crop years. Results show that USDA crop production forecasts in both corn and soybeans have a marked tendency to decrease in small crop years and increase in big crop years. The magnitude of smoothing is surprisingly large, with corn and soybean production forecasts cumulatively revised downward by about 6 to 7 percent in small crop years and upward by about 5 to 6 percent in large crop years. Crop condition ratings are useful in predicting whether the current year is likely to be a small, normal, or big crop year. Hence, there appears to be an opportunity for the USDA to incorporate additional information into the forecasting process to reduce or eliminate the smoothing inherent in different types of crop years.

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The Cattle Price Cycle: An Exploration in Simulation

Matthew C. Stockton and Larry W. Van Tassell

Year: 2007

Abstract

The simulation of commodity prices has been undertaken using a myriad of techniques, with some omitting the cyclical component and others ignoring the presence of inter-temporal relationships expressed as autoregressive errors. This study examines the periodicity of cattle prices and the modeling of the cattle cycle for simulation purposes. The AIC criterion is used to determine lengths of various cycles to be included in a harmonic model, with a chained modeling approach providing the best representation of the cattle cycle.

Click [here](#) for a copy of the paper in Adobe's PDF format.

The Effect of Ethanol Production on the U.S. National Corn Price

Hwanil Park and T. Randall Fortenbery

Year: 2007

Abstract

A system of equations representing corn supply, feed demand, export demand, food, alcohol and industrial (FAI) demand, and corn price is estimated by three-stage least squares. A price dependent reduced form equation is then formed to investigate the effect of ethanol production on the national average corn price. The elasticity of corn price with respect to ethanol production is then obtained. Results suggest that ethanol production has a positive impact on the national corn price and that the demand from FAI has a greater impact on the corn price than other demand categories. Thus, significant growth in ethanol production is important in explaining corn price determination.

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Cross-Hedging Distillers Dried Grains: Exploring Corn and Soybean Meal Futures Contracts

Adam Brinker, Joe Parcell, and Kevin Dhuyvetter

Year: 2007

Abstract

Ethanol mandates and high fuel prices have led to an increase in the number of ethanol plants in the U.S. in recent years. In turn, this has led to an increase in the production of distillers dried grains (DDGs) as a co-product of ethanol production. DDG production in 2006 is estimated to be near 11 million tons. A sharp increase in ethanol production and thus DDGs is expected in 2007 with an increase with the number of ethanol plants. As with most competitive industries, there is some level of price risk in handling DDGs and no futures contract available for this co-product. Ethanol plants, as well as users of DDGs, may find cross-hedging DDGs with corn or soybean meal (SBM) futures as an effective means of managing risk. Traditionally, DDGs are hedged using only corn futures.

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Measuring the Influence of Commodity Fund Trading on Soybean Price Discovery

Gerald Plato and Linwood Hoffman

Year: 2007

Abstract

The increase in commodity fund trading in the agricultural commodity futures markets has raised concern that this trading is degrading the price discovery performance of these markets. We used the Beveridge-Nelson Decomposition procedure to estimate the price discovery performance of the soybean futures and spot markets. We found that the price discovery performance of the soybean futures market has improved along with the increased commodity fund trading. Our results indicated that a portion of the price discovered in the soybean futures market is passed to the spot market.

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Insights into Trader Behavior: Risk Aversion and Probability Weighting

Fabio Mattos, Philip Garcia, and Joost M.E. Pennings

Year: 2007

Abstract

The objective of this study is to investigate how professional traders in futures and options markets behave under risk and uncertainty. Our preliminary findings suggest that most traders exhibit concave utility functions for gains and convex utility functions for losses, while their weighting functions are inverse s-shaped. However, differences in magnitude of the risk aversion parameters and the degree of probability weighting can lead to distinct behavior even if the shapes of utility and weighting functions are the same. Further, the typical pattern of prospect theory is more prevalent under risk but not as much under uncertainty. More combinations of shapes for utility and weighting functions are found under uncertainty, suggesting that different types of behavior emerge when people need to make their own assessments about the likelihood of events. Finally, our results are consistent with evidence of loss aversion and disposition effect found in studies of trading behavior in futures markets.

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Profit Margin Hedging

Hyun Seok Kim, B. Wade Brorsen, and Kim B. Anderson

Year: 2007

Abstract

Some extension economists and others often recommend profit margin hedging in choosing the timing of crop sales. This paper determines producer's utility function and price processes where profit margin hedging is optimal. Profit margin hedging is shown to be an optimal strategy under a highly restricted target utility function even in an efficient market. Although profit margin hedging is not the optimal rule in the presence of mean reversion, it can still be profitable if prices are mean reverting. Simulations are also conducted to compare the expected utility of profit margin hedging strategy with the expected utility of other strategy such as always hedging and selling at harvest strategies. A variance ratio test is conducted to test for the existence of mean reversion in agricultural futures prices process. The simulation results show that the expected utility of profit margin hedging strategy is highest. The paired difference tests for the profit margin hedging and other two strategies shows that the expected utilities of profit margin hedging strategies are not significantly different from those of always hedging strategy, but are significantly different from those of selling at harvest strategy except when the transaction cost is considered. The results of variance ratio test indicate that there is little evidence that futures price of wheat follows mean reverting process.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Implicit Value of Retail Beef Brands and Retail Meat Product Attributes

Jennifer M. Dutton, Clement E. Ward, and Jayson L. Lusk

Year: 2007

Abstract

Consumers reveal preferences for fresh beef attributes through their retail beef purchases. Hedonic pricing methods were used to estimate the value consumers place on observable characteristics of fresh beef products, especially on retail beef brands. Primary data were collected from 65 randomly generated grocery stores located in three metropolitan areas, Oklahoma City and Tulsa, Oklahoma, and Denver, Colorado. Retail beef package data were collected on 462 ground products, 175 roast products, and 756 steak products.

There was some evidence retail beef brands command a price premium compared with unbranded, generic products. In this study, branding programs classified as "special" (i.e. no antibiotics, no hormones, all natural) offered the largest price premiums, but "other" types of branding programs offered price premiums as well. Price premiums for special brands were \$1.45/lb. for ground products and \$5.87/lb. for steak products. Labeling variables were not consistently significant in this study, indicating that labels associated with a brand name might offer consumers the most reassurance for their purchasing decision.

The most important attributes affecting retail price per pound of ground beef products are store location (metropolitan area), store type, type of product, fat content, package size and type, expiration dates, brands and labels. Store location (metropolitan area) was important but store

type was less important for explaining steak items than ground items. Steak prices were influenced by cut type, USDA quality grade, package size and type, and slightly by expiration date.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Measuring Liquidity Costs in Agricultural Futures Markets

Julieta Frank and Philip Garcia

Year: 2007

Abstract

Estimation of liquidity costs in agricultural futures markets is challenging because bid-ask spreads are usually not observed. Spread estimators that use transaction data are available, but little agreement exists on their relative accuracy and performance. We evaluate four conventional and a recently proposed Bayesian estimators using simulated data based on Roll's standard liquidity cost model. The Bayesian estimator tracks Roll's model relatively well except when the level of noise in the market is large. We derive an improved estimator that seems to have a higher performance even under high levels of noise which is common in agricultural futures markets. We also compute liquidity costs using data for hogs and cattle futures contracts trading on the Chicago Mercantile Exchange. The results obtained for market data are in line with the findings using simulated data.

Click [here](#) for a copy of the paper in Adobe's PDF format.

To What Surprises Do Hog Futures Markets Respond?

Julieta Frank, Philip Garcia, and Scott Irwin

Year: 2007

Abstract

We re-assess the effect of new information contained in the Hogs and Pigs Reports (HPR) focusing on the rationality of the announcements. We find that HPR preliminary numbers are irrational estimates of the final numbers and market expectations before the announcements are also irrational estimates of HPR numbers. Based on these results we modify the conventional measure of new information entering into the market (i.e., announcement - market expectation), and incorporate final estimates and the market's best forecast into the analysis. Results show modest statistical differences between the conventional and modified measures of surprise; however some economic differences, as large as 27 cents/cwt, emerged. We also find that, as expected, marketings information has a larger effect on short-term price changes and breedings information has a larger effect on long-term price changes.

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Economically Optimal Distiller Grain Inclusion in Beef Feedlot Rations: Recognition of Omitted Factors

Crystal Jones, Glynn Tonsor, Roy Black, and Steven Rust

Year: 2007

Abstract

With the rapid expansion of the ethanol industry, the feeding landscape familiar to the feedlot industry is changing. While concerns regarding rising corn prices persist, many within the industry are looking at distiller's grains, a by-product of ethanol production, to serve as a feed substitute. The question remains as to what extent these two feed sources are substitutable. The purpose of this study is to identify the economically optimal inclusion rate of distiller's grains in beef feedlot rations, considering an array of often omitted factors. Most currently prevailing recommendation rates are strictly biologically based and frequently reference only one feeding trial. Unique economic factors considered in this research include the impact of by-product inclusion rates on animal performance (utilizing recently conducted meta-analysis from 17 relevant feeding trials), enhanced likelihood of death loss from heightened sulfur content, and manure disposal costs. Results indicate that excluding these factors can significantly impact optimal inclusion levels and that reliance on a single or few feeding trials may greatly bias results.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Using Basis and Futures Prices as a Barometer in Deciding Whether to Store Grain or Not

Mounir Siaplay , Kim B. Anderson, and B.Wade Brorsen

Year: 2007

Abstract

The purpose of this paper is to determine the importance of the strength and weakness of basis and futures prices as barometers for producers to use in deciding whether to store or not. Basis is the single most important market signal for wheat producers to use when deciding whether to store or sell their wheat at harvest. While some models indicated low futures prices were a signal to store, results were fragile and inconsistent.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Meat Slaughter and Processing Plants' Traceability Levels Evidence From Iowa

Harun Bulut and John D. Lawrence

Year: 2007

Abstract

In the United States (U.S.), there is no uniform traceability regulation across food sector. Food and Drug Administration (FDA) implemented one-step back and one-step forward traceability over the industries under its jurisdiction. U.S. Department of Agriculture (USDA), which oversees meat, poultry and egg production, requires some record keeping as part of food safety regulation. Particularly, a two-part-system has developed; live animal traceability and meat traceability with slaughter and processing plants in between. This paper studies the question of whether (and if so how) meat plants' traceability levels vary with respect to the following factors; product specific (credence versus experience and search attributes, branded versus commodity meat, being exporter), organizational (spot market versus contracting), food safety related, and plant specific (a quality assurance system in place, number of sources, size, capital-labor ratio, etc.).

Click [here](#) for a copy of the paper in Adobe's PDF format.

Outlook vs. Futures: Three Decades of Evidence in Hog and Cattle Markets

Evelyn V. Colino and Scott H. Irwin

Year: 2007

Abstract

The purpose of this paper is to provide a comprehensive evaluation of the accuracy of outlook forecasts relative to futures prices in hog and cattle markets. Published forecasts from four prominent livestock outlook programs are available for analysis. Most of the series begin in the mid- to late-1970s and end in 2006. Root mean squared error (RMSE) comparisons indicate, with one exception, no meaningful differences in forecast accuracy between outlook forecasts and futures prices. The null hypothesis that futures prices encompass outlook forecasts is rejected in 9 of 11 cases for hogs and 7 of 8 cases for cattle, clearly indicating that outlook forecasts provide incremental information not contained in futures prices. The magnitude of decline in RMSE from combining outlook forecasts and futures prices is non-trivial in almost all cases. The reduction in RMSE for composite forecasts averages -6.3% and -9.0% in hogs and cattle, respectively. Overall, the results of this study provide compelling evidence of the substantial economic value of public outlook programs in cattle and hogs.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Differences in Prices and Price Risk across Alternative Marketing Arrangements Used in the Fed Cattle Industry

Mary K. Muth, Yanyan Liu, Stephen R. Koontz, and John D. Lawrence

Year: 2007

Abstract

Information on typical differences in prices and price risk (as measured by the variances of prices) across marketing arrangements aids fed cattle producers in making choices about methods to use for selling fed cattle to beef packers. This information is also useful for policy discussions on merits and drawbacks of alternative marketing arrangements. As part of the congressionally mandated Livestock and Meat Marketing Study, we investigated differences in prices and price risk for fed cattle cash market and alternative marketing arrangements. The modeling approach, which is similar to a hedonic model, controls for differences in cattle quality and delivery month and accounts for the within- and across-week correlation in prices. The analysis uses a recent data set for the October 2002 through March 2005 time period and includes sale lots of six or more cattle purchased by the 29 largest beef packing plants in the United States. The results indicate that marketing agreements, which are long-term ongoing agreements between fed cattle producers and packers that use formula pricing, offered the best trade-off between price level and price risk for both beef and dairy breed fed cattle. Prices were within \$0.01 per pound carcass weight for both beef and dairy breed fed cattle sold under marketing agreements instead of through direct trade, but they were 18% to 20% less volatile. While auction barn prices were higher than all other methods, they were also the most volatile. Forward contracts had the lowest average price and the most volatile prices. The results also indicate that larger and higher quality lots were associated with higher average prices and lower variance of prices.

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The Impact of Measurement Error on Estimates of the Price Reaction to USDA Crop Reports

Nicole M. Aulerich, Scott H. Irwin, and Carl H. Nelson

Year: 2007

Abstract

This paper investigates the impact of USDA crop production reports in corn and soybean futures markets. The analysis is based on all corn and soybean production reports released over 1970-2006. The empirical analysis compares the typical OLS event study approach to the new Identification by Censoring (ITC) technique. Corn and soybean production reports are analyzed both separately and together for impact in corn and soybean futures prices. ITC proves to be the more useful method because it avoids the pitfalls of errors in variables that cause downward bias in OLS coefficients. Price reaction coefficients estimated via ITC are one to four times larger than OLS estimates for a one price and one event analysis. In the two price, two event case, ITC estimates are one to six times larger. Market reaction to the unanticipated information in USDA forecasts is substantially larger than estimated in previous studies.

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Implications of Growing Biofuels Demands on Northeast Livestock Feed Costs

Todd M. Schmit, Leslie Verteramo, and William G. Tomek

Year: 2008

Abstract

The relationship between complete-feed prices and commodity feedstock prices are estimated to analyze the effect of higher commodity prices on feed costs, with particular attention towards the price effects and substitutability of corn distillers dried grains with solubles (DDGS). Assuming the historical positive correlation between corn and DDGS prices, each \$1/ton increase in the price of corn increases per ton feed costs between \$0.45 and \$0.67 across livestock sectors. A negative price correlation would offset some of the cost increases, but under most scenarios feed costs are expected to be at or above those experienced in 2007.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Do Farmers Hedge Optimally or by Habit? A Bayesian Partial-Adjustment Model of Farmer Hedging

Jeffrey H. Dorfman and Berna Karali

Year: 2008

Abstract

Hedging is one of the most important risk management decisions that farmers make and has a potentially large role in the level of profit eventually earned from farming. Using panel data from a survey of Georgia farmers that recorded their hedging decisions for four years on three crops we examine the role of habit, demographics, farm characteristics, and information sources on the hedging decisions made by 106 different farmers. We find that the role of habit varies widely. Information sources are shown to have significant and large effects on the chosen hedge ratios. The farmer's education level, attitude toward technology adoption, farm profitability, and the ratio of acres owned to acres farmed also play important roles in hedging decisions.

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Wheat Variety Selection: An Application of Portfolio Theory to Improve Returns

Andrew Barkley and Hikaru Hanawa Peterson

Year: 2008

Abstract

This presentation will report results of research that shows that a portfolio of wheat varieties can enhance profitability and reduce risk over the selection of a single variety. Many Kansas wheat farmers select varieties based on average yield. This study uses portfolio theory from business investment analysis to find the optimal, profit-maximizing and risk-minimizing combination of wheat varieties in Kansas.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Do Transaction Costs and Risk Preferences Influence Marketing Arrangements in the Illinois Hog Industry?

Jason R.V. Franken, Joost M.E. Pennings and Philip Garcia

Year: 2008

Abstract

Studies of hog industry structure often invoke risk reduction and transaction costs explanations for empirical observations but fail to directly examine the core concepts of risk behavior and transaction costs theories. Using a more unified conceptual framework and unique survey and accounting data, this study demonstrates that that risk preferences and asset specificity impact Illinois producers' use of contracts and spot markets as suggested by theory. Factor analytic methods limit measurement error for indirectly observable risk and transaction costs variables employed in logit regressions. In particular, related investments in specific hog genetics and specific human capital regarding the production process increase the probability of selecting long-term contracts over spot markets. Producers who perceive greater levels of price risk and/or are more averse to it appear more (less) likely to use long-term contracts (spot markets), and hence, to make such investments.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Hay Price Forecasts at the State Level

Matthew A. Diersen

Year: 2008

Abstract

Higher prices for major crops (e.g., corn, soybeans and wheat) have received considerable attention by analysts, researchers, and producers. A common perception is that acres can be readily bid away from other crops to quickly return to equilibrium price levels. Seldom mentioned are crops that do not trade on a national platform. Principal among these crops probably would be hay from alfalfa and grass. A balance sheet model is developed at the state level for South Dakota. As a state with typically large carryover stocks of hay and multiple markets served, South Dakota presents a stark contrast to states with more stable production, supply, and use. Several structural relations and equations are presented to forecast acres, supply, and price through an inverse demand function. A discussion follows on how to update the price forecast as additional information is obtained. Suggestions are also offered on extending the model to other states.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Can Real Option Value Explain Why Producers Appear to Store Too Long?

Hyun Seok Kim and B. Wade Brorsen

Year: 2008

Abstract

Previous studies suggest that producers tend to store crops longer than makes economic sense. Since decisions to sell are irreversible, there can be a real option value from waiting to sell grain. This real option value may explain why producers appear to store too long. A seasonal mean reversion model is estimated that allows prices to be a random walk within a season, but mean reverting across crop years. Unless prices are extremely low, it is optimal for producers to sell before the mean reversion begins. Thus, the real option value of waiting cannot explain why producers seem to store at a loss in the latter part of crop years.

Click [here](#) for a copy of the paper in Adobe's PDF format.

A Comparison of Threshold Cointegration and Markov-Switching Vector Error Correction Models in Price Transmission Analysis

Rico Ihle and Stephan von Cramon-Taubadel

Year: 2008

Abstract

We compare two regime-dependent econometric models for price transmission analysis, namely the threshold vector error correction model and Markov-switching vector error correction model. We first provide a detailed characterization of each of the models which is followed by a comprehensive comparison. We find that the assumptions regarding the nature of their regime-switching mechanisms are fundamentally different so that each model is suitable for a certain type of nonlinear price transmission. Furthermore, we conduct a Monte Carlo experiment in order to study the performance of the estimation techniques of both models for simulated data. We find that both models are adequate for studying price transmission since their characteristics match the underlying economic theory and allow hence for an easy interpretation. Nevertheless, the results of the corresponding estimation techniques do not reproduce the true parameters and are not robust against nuisance parameters. The comparison is supplemented by a review of empirical studies in price transmission analysis in which mostly the threshold vector error

correction model is applied.

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Hedge Effectiveness Forecasting

Roger A. Dahlgran and Xudong Ma

Year: 2008

Abstract

This study focuses on hedging effectiveness defined as the proportionate price risk reduction created by hedging. By mathematical and simulation analysis we determine the following: (a) the regression R2 in the hedge ratio regression will generally overstate the amount of price risk reduction that can be achieved by hedging, (b) the properly computed hedging effectiveness in the hedge ratio regression will also generally overstate the amount of risk reduction that can be achieved by hedging, (c) the overstatement in (b) declines as the sample size increases, (d) application of estimated hedge ratios to non sample data results in an unbiased estimate of hedging effectiveness, (e) application of hedge ratios computed from small samples presents a significant chance of actually increasing price risk by hedging, and (f) comparison of in sample and out of sample hedging effectiveness is not the best method for testing for structural change in the hedge ratio regression.

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Dynamic Decision Making in Agricultural Futures and Options Markets

Fabio Mattos, Philip Garcia and Joost M. E. Pennings

Year: 2008

Abstract

This paper investigates the dynamics of sequential decision-making in agricultural futures and options markets. Analysis of trading records of 12 traders identified considerable heterogeneity in individual dynamic trading behavior. Using risk measures derived from the deltas and vegas of trader's portfolios, we find nearly half the traders behavior is consistent with a house-money effect and the other half with loss aversion. These findings correspond closely to expected behavior inferred from elicited utility and probability weighting functions. The results call into question more aggregate findings that discount probability weighting to develop risk measures which support the notion of more uniform, less heterogeneous, behavior. Understanding behavior in a prospect theory context appears to call for investigation of both the probability weighting and utility functions. Our findings also suggest that strategies for loss-averse traders who consolidate gains and avoid using gains in risk-seeking market activities are effective.

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On Term Structure Models of Commodity Futures Prices and the Kaldor-Working Hypothesis

Gabriel J. Power and Calum G. Turvey

Year: 2008

Abstract

Both prices and the volatility of storable agricultural commodity futures contracts have been rising since 2005 and particularly since 2007. This paper aims to answer two principal questions: (i) How has the behavior of these futures prices over time and across maturities changed with the rise of biofuels and their demand-side pressure on corn and related crops?, and (ii) Is there now stronger or weaker evidence of the Kaldor-Working convenience yield-storage hypothesis, whereby futures price backwardation can be explained by the high value of remaining inventory stocks when these are near stockouts? The empirical application is to Chicago Board of Trade corn, wheat and soybeans futures. To make use of all available futures data rather than only the nearby, this paper adopts a recently developed affine term structure model approach and conducts estimation in state-space form using the Kalman filter. A novel aspect of the research is that it allows an arbitrary number N of state variables, where more variables provide further precision and curvature but at a higher computational cost. It is found that a three-state variable model containing both random walk and mean reversion components provides the most parsimonious fit during 1988-2004, but that a simple one-state variable model is optimal for the period 2005-2007. The main implication is that futures prices since 2005 behave much more like a "random walk" than before. Also, the model allows us to estimate the term structure of volatility and it is found that distant maturity futures should be expected to be much more volatile than historically normal. Two practical but only tentative implications are: (a) hedgers should use significantly lower hedge ratios than before, and (b) for traders, the classic Black-Scholes option pricing solution should perform better now than it has historically. Lastly, the paper finds partial empirical support for the convenience yield relationship with relative inventory stocks, especially for soybeans and wheat.

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The Shape of the Optimal Hedge Ratio: Modeling Joint Spot-Futures Prices using an Empirical Copula-GARCH Model

Gabriel J. Power and Dmitry V. Vedenov

Year: 2008

Abstract

Commodity cash and futures prices have been rising steadily since 2006. As evidenced by the April 2008 Commodity Futures Trading Commission Agricultural Forum, there is much concern among traditional futures and options market participants that the usefulness of commodity derivatives has been compromised. When basis risk is particularly high, dynamic hedging methods may be helpful despite their complexity and higher transaction costs. To assess the potential benefits of dynamic hedging in volatile times, this paper proposes a novel, empirical copula-based method to estimate GARCH models and to compute time-varying hedge ratios. This approach allows a nonlinear, asymmetric dependence structure between cash and futures prices. The paper addresses four principal questions: (1) Does the empirical copula-GARCH method overcome traditional limitations of dynamic hedging methods? (2) How does the empirical copula-GARCH hedging approach perform, for storable agricultural commodities, compared with traditional GARCH and Minimum Variance (static) hedging methods? (3) Is dynamic hedging more or less effective in the post-2006 biofuels expansion time period? (4) How sensitive is the ranking of methods to the hedging effectiveness criterion used? Preliminary findings suggest that the empirical copula-GARCH approach leads to superior hedging effectiveness based on some, but not all, risk criteria.

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Impacts of government risk management policies on hedging in futures and options:LPM2 hedge model vs. EU hedge model

Rui (Carolyn) Zhang, Jack E. Houston, Dmitry V. Vedenov, and Barry J. Barnett

Year: 2008

Abstract

The main objective of this study is to compare the impacts of government payments and crop insurance policies on the use of futures and options measured from a downside risk hedge model with the impacts analyzed by the expected utility (EU) hedge model. Understanding the effects of government-provided risk management tools on the private market risk management tools, such as futures and options, provides value to both crop farmers and policy makers. Comparison of the impacts from the two hedge models shows that crop farmer will hedge less in futures under the LPM2 model than under the EU hedge model. This finding indicates that model misspecification is another reason for the phenomenon that farmers actually hedge less in futures than predicted by the EU model. From the perspective of exploring new research techniques, this study applied two relatively new simulation concepts, copula simulation and conditional kernel density approach, to make the simulation assumptions less restrictive and more consistent with observations. The copula simulation applied in this study allows yield and price to have more flexible joint distribution functions than multivariate normal; the conditional kernel density approach used in farm yield simulation enables the variance of farm yield varies with county yield rather than being constant.

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Cash Settlement of Lean Hog Futures Contracts Reexamined

Julieta Frank, Miguel I. Gómez, Eugene Kunda and Philip Garcia

Year: 2008

Abstract

In 1997 the Chicago Mercantile Exchange replaced its live hog futures contract with a cash settlement mechanism based on a Lean Hog Index. Although cash settlement was expected to increase the use of the contract as a hedging tool, producers and packers are concerned that convergence between cash and futures prices is not occurring and that the volatility of the lean hog contract basis has increased in recent years. The purpose of the paper is to reexamine cash settlement of lean hog futures contracts as a hedging tool, focusing on basis behavior and management of basis risk. We also investigate alternative hedging instruments that take into account location differences between regional cash prices and the CME lean hog index. Our results indicate that basis has widened and its variability prior to expiration has increased in the cash settlement period. Nevertheless, there is no evidence that ex-ante basis risk has increased, suggesting that the ability to forecast basis prior to expiration has not decreased with cash settlement. Our findings indicate that a contract on a regional basis can reduce producer price risk and may increase market returns. The benefits of a regional basis appear to accrue from providing the producer with an opportunity to manage the variability in returns associated with both the price level and basis.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Volatility Persistence in Commodity Futures:Inventory and Time-to-Delivery Effects

Berna Karali and Walter N. Thurman

Year: 2008

Abstract

Most financial asset returns exhibit volatility persistence. We investigate this phenomenon in the context of daily returns in commodity futures markets. We show that the time gap between the arrival of news to the markets and the delivery time of futures contracts is the fundamental variable in explaining volatility persistence in the lumber futures market. We also find an inverse relationship between inventory levels and lumber futures volatility.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Market Depth in Lean Hog and Live Cattle Futures Markets

Julieta Frank and Philip Garcia

Year: 2008

Abstract

Liquidity costs in futures markets are not observed directly because bids and offers occur in an open outcry pit and are not recorded. Traditional estimation of these costs has focused on bidask spreads using transaction prices. However, the bid-ask spread only captures the tightness of the market price. As the volume increases measures of market depth which identify how the order flow moves prices become important information. We estimate market depth for lean hogs and live cattle markets using a Bayesian MCMC method to estimate unobserved data. While the markets are highly liquid, our results show that cost- and risk-reducing strategies may exist. Liquidity costs are highest when larger volumes are traded at distant contracts. For hogs the market becomes less liquid prior to the expiration month. For cattle this occurs during the expiration month when the liquidity risk is also higher. For both markets this coincides with periods of low volume. For the nearby contract highest trading volume occurs at the beginning of the month prior to expiration and lowest trading volume occurs in the expiration month. For both commodities the cumulative effect of volume on price change may lead to liquidity costs higher than a tick.

Click [here](#) for a copy of the paper in Adobe's PDF format.

The Adequacy of Speculation in Agricultural Futures Markets:Too Much of a Good Thing?

Dwight R. Sanders, Scott H. Irwin, and Robert P. Merrin

Year: 2008

Abstract

Long-only commodity index funds have been blamed by other futures market participants for inflating commodity prices, increasing market volatility, and distorting historical price relationships. Much of this criticism is leveled without any formal empirical support or even cursory data analyses. The Commodity Futures Trading Commission makes available the positions held by index funds and other large traders in their Commitment's of Traders report. In this research, we make an initial assessment of the size and activity of index funds in traditional agricultural futures markets. The results suggest that after an initial surge from early 2004 through mid-2005, index fund positions have stabilized as a percent of total open interest. Speculative measures—such as Working's T—suggest that long-only funds may provide a benefit in markets traditionally dominated by short hedging.

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Hedging Effectiveness around USDA Crop Reports

Andrew McKenzie and Navinderpal Singh

Year: 2008

Abstract

It is well documented that “unanticipated” information contained in USDA crop reports induces large price reactions in corn and soybean markets. Thus, a natural question that arises from this literature is: To what extent are futures hedges able to remove or reduce increased price risk around report release dates? This paper addresses this question by simulating daily futures returns, daily cash returns and daily hedged returns around report release dates for two storable commodities (corn and soybeans) in two market settings (North Central Illinois and Memphis Tennessee). Various risk measures, including “Value at Risk,” are used to determine hedging effectiveness, and “Analysis of Variance” is used to uncover the underlying factors that contribute to hedging effectiveness.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Assessing the Value of Coordinated Sire Genetics in a Synchronized AI Program

Joe Parcell, Daniel Schaefer, Dave Patterson, Mike John, Monty Kerley, and Kent Haden

Year: 2008

Abstract

Synchronized artificial insemination was used to inseminate cows using different types of sire genetics, including low-accuracy, calving-ease, and high-accuracy. These three calf sire groups were compared to calves born to cows bred using natural service. We found substantial production efficiency gains, carcass merit improvement, and economic value to calves born to cows following a synchronized artificial insemination program with high-accuracy semen included. The economic advantage to the high-accuracy calf sire group was computed to be in the neighborhood of \$40 to \$80/head, relative to the natural service calf sire group.

Click [here](#) for a copy of the paper in Adobe's PDF format.

How Much Can Outlook Forecasts be Improved? An Application to the U.S. Hog Market

Evelyn V. Colino, Scott H. Irwin and Philip Garcia

Year: 2008

Abstract

This study investigates the predictability of outlook hog price forecasts released by Iowa State University relative to alternative market and time-series forecasts. The findings suggest that predictive performance of the outlook hog price forecasts can be improved substantially. Under RMSE, VARs estimated with Bayesian procedures that allow for some degree of flexibility and model averaging consistently outperform Iowa outlook estimates at all forecast horizons. Evidence from the encompassing tests, which are highly stringent tests of forecast performance, indicates that many price forecasts do provide incremental information relative to Iowa. Simple combinations of these models and outlook forecasts are able to reduce forecast errors by economically significant levels. The value of the forecast information is highest at the first horizon and then gradually declines.

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Hedging in Presence of Market Access Risk

Glynn T. Tonsor

Year: 2008

Abstract

Existing literature predominantly assumes perfect knowledge of production methods when deriving optimal futures position hedging rules. This paper relaxes this assumption and recognizes situations where producers interested in hedging may not know the exact input mix that will subsequently be used in their physical operations. This uncertainty is built into a conceptual model subsequently used to demonstrate the impacts of this risk on optimal hedging behavior.

Click [here](#) for a copy of the paper in Adobe's PDF format.

The Marketing Performance of Illinois and Kansas Wheat Farmers

Sarah N. Dietz, Nicole M. Aulerich, Scott H. Irwin, and Darrel L. Good.

Year: 2008

Abstract

The purpose of this paper is to investigate the marketing performance of wheat farmers in Illinois and Kansas over 1982-2004. The results show that farmer benchmark prices for wheat in Illinois and Kansas fall in the middle-third of the price range about half to three-quarters of the time. Consistent with previous studies, this refutes the contention that Illinois and Kansas wheat farmers routinely market the bulk of their wheat crop in the bottom portion of the price range. Tests of the average difference between farmer and market benchmark prices are sensitive to the market benchmark considered. Marketing performance of wheat farmers in Illinois and Kansas is about equal to the market if 24- or 20-month market benchmarks are used, is slightly above the market if a 12-month price benchmark is used, and is significantly less than the market if the harvest benchmark is used. The sensitivity of marketing performance to the market benchmark considered is explained by the seasonal pattern of prices. While Illinois producers performed slightly better than their counterparts in Kansas, notable differences in performance across these two geographic areas is not observed.

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Implication of Cotton Price Behavior on Market Integration

Yuanlong Ge, Holly H. Wang, and Sung K. Ahn

Year: 2008

Abstract

The cotton market in China is highly interactive with international markets, especially, the US market. The prices in these two markets can reveal important market relations. Investigating the data of futures prices from the New York Board of Trade (NYBOT) and the Zhengzhou Commodity Exchange (CZCE) using several time series methods, we find a long-run cointegration relationship between these I(1) series. Furthermore, a bi-directional Granger Causality between these two futures markets is detected with Generalized Autoregressive Conditional Heteroskedasticity (GARCH) error specifications. We also find the relationship is impacted by the Chinese exchange rate policy change in the 2005.

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Organic Premiums of U.S. Fresh Produce

Travis A. Smith, Biing-Hwan Lin, and Chung L. Huang

Year: 2008

Abstract

The study uses the 2005 Nielsen Homescan panel data to estimate price premiums and discounts associated with product attributes, market factors, and consumer characteristics, focusing on the organic attribute for 5 major fresh fruits and 5 major fresh vegetables in the United States. The results suggest that the organic attribute commands a significant price premium, which varies greatly from 13 cents per pound for bananas to 86 cents per pound for strawberries among fresh fruits and from 13 cents per pound for onions to 50 cents per pound for peppers among fresh vegetables. In terms of percentages, the estimated organic price premiums vary from 20% above prices paid for conventional grapes to 42% for strawberries among fresh fruits and from 15% above prices paid for conventional carrots and tomatoes to 60% for potatoes. Furthermore, prices paid for fresh produce are found to vary by other product attributes, market factors, and household characteristics.

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The Effect of Prior Gains and Losses on Current Risk-Taking Using Quantile Regression

Fabio Mattos and Philip Garcia

Year: 2009

Abstract

This paper investigates the dynamics of sequential decision-making in agricultural futures and options markets using a quantile regression framework. Analysis of trading records of 12 traders suggests that there is great heterogeneity in individual trading behavior. Traders respond differently to prior profits depending on how much risk their portfolios are carrying. In general, no significant response is found at average and below-average levels of risk, but response can become large and significant at above-average levels of risk. These results are consistent with studies which argued that behavior may be uneven under different circumstances, and calls into question the adoption of conditional mean framework to investigate trading behavior. Focusing the analysis on the effect of prior profits on the conditional mean of the risk distribution can yield misleading results about dynamic behavior.

Click [here](#) for a copy of the paper in Adobe's PDF format.

Does Futures Price Volatility Differ Across Delivery Horizon?

Berna Karali, Jeffrey H. Dorfman, and Walter N. Thurman

Year: 2009

Abstract

We study the difference in the volatility dynamics of CBOT corn, soybeans, and oats futures prices across different delivery horizons via the smoothed Bayesian estimator of Karali, Dorfman, and Thurman (2010). We show that the futures price volatilities in these markets are affected by the inventories, time to delivery, and the crop progress period. Some of these effects vary across delivery horizons. Further, it is shown that the price volatility is higher before the harvest starts in most of the cases compared to the volatility during the planting period. These results have implications for hedging, options pricing, and the setting of margin requirements.

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Evaluating the Dynamic Nature of Market Risk

Todd Hubbs, Todd H. Kuethe and Timothy G. Baker

Year: 2009

Abstract

This study examines the systematic risk present in major crops for the United States and three corn-belt states. An index of commodities is used in conjunction with cash receipts to generate dynamic estimates of the systematic risk for each crop and state. In our study, we find that beta estimates from a time varying parameter model (FLS) and OLS formulation are substantially different. From our graphs of betas over time, one gains insight into the changing nature of risk and the impact of institutional and macroeconomic events. Systematic risk is shown to increase for most crops over the analyzed period with significant changes in volatility after the collapse of the Bretton Woods Accord.

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Live and Feeder Cattle Options Markets: Returns, Risk, and Volatility Forecasting

Lee Brittain, Philip Garcia, and Scott H. Irwin

Year: 2009

Abstract

The paper examines empirical returns from holding thirty- and ninety-day call and put positions, and the forecasting performance of implied volatility in the live and feeder cattle options markets. In both markets, implied volatility is an upwardly biased and inefficient predictor of realized volatility, with bias most prominent in live cattle. While significant returns exist holding several market positions, most strategies are strongly affected by a drift in futures market prices. However, the returns from selling live cattle puts are persistent, and evidence from straddle returns identifies that the market overprices volatility. This overpricing is consistent with a short-term risk premium whose effect is magnified by extreme changes in market conditions.

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Price Volatility, Nonlinearity and Asymmetric Adjustments in Corn, Soybean and Cattle Markets: Implication of Ethanol-driven Shocks

Hernan A. Tejeda and Barry K. Goodwin

Year: 2009

Abstract

Grain prices have risen sharply since 2005 and 2006 affecting livestock markets by increasing feed prices and leading to significant volatility shocks. The high price levels and magnitude of sustained high volatilities has raised concerns for many sectors of the economy, in particular those with direct relation to these markets. Policy makers are analyzing the interrelationships among these markets, and the effects of energy market shocks on agricultural markets. This study considers a threshold structure in a multivariate time-series model that evaluates these market linkages, capturing asymmetric correlations between grain and livestock prices, including volatility spillovers. We empirically study the impact of corn usage for ethanol production in the evolution of the above mentioned prices. Results are compared to previous scenarios where corn, soybean and livestock production and consumption did not face the corn demand for ethanol production. We find positive dynamic correlations between corn and soybean and feeder and fed cattle prices, consistent with the literature. And we find an inverse or negative relation between corn and feeder/calf prices for the period post mandated ethanol production, as anticipated by the literature for increased corn prices. Also, we find there are adjustment costs inhibiting price transmission between the crops and the live cattle market, in the form of modifying feeding rations. More relevantly, we identify plausible asymmetric effect on the correlations between the markets, especially when considering the period for the ethanol driven corn consumption versus previous periods of corn consumption. These asymmetric correlations are the result of spillover effects.

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Grain Futures Markets: What Have They Learned?

Joseph M. Santos

Year: 2009

Abstract

Taken together, studies that examine how well commodity futures markets perform find that risk premiums are common—and so unbiasedness is not—and markets are not uniformly efficient across commodities or forecast horizons. This large body of research sheds important light on whether and to what extent commodity-futures markets forecast optimally future spot prices and, so, enable commercials to manage price risk by effectively parsing out much of it to speculators, a process that improves the total welfare of an economy with competitive but otherwise-incomplete markets. Nevertheless, that speculators can, in effect, improve welfare in this way has done little to quell popular hostilities toward futures markets. Such hostilities—and, in particular, those directed at speculators—in North America date to the inception of these markets in the nineteenth century, and have contributed to the unflattering depiction of the early futures exchange as an inchoate and poorly managed institution that initially served only the (illegitimate) aspirations of gamblers, an original-sin creation narrative that surely compromises the legitimacy of modern futures markets. Unfortunately, economists' understanding of early commodity-futures markets is particularly fragmented—the extant literature focuses almost exclusively on the post-World War II era—and, as such, claims regarding the performance of early futures markets remain largely unsubstantiated in any quantitatively measurable sense. In this paper, I test and compare the efficiency properties of wheat, corn, and oats futures prices on the Chicago Board of Trade (CBT) from 1880 to 1890 and from 1997 to 2007. I demonstrate that, on balance, these nascent nineteenth-century grain-futures markets were, like their contemporary counterparts in this case, mostly efficient. As such, these results support the claims of early proponents of futures markets who argued that the development of the futures exchange was shaped primarily by commercial interests who sought to mitigate price risk.

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The Effects of the Micro-Market Structure for Kansas Grain Elevators on Spatial Grain Price Differentials

Daniel M. O'Brien

Year: 2009

Abstract

Corn and wheat cash prices in Kansas are affected by a number of local supply-demand, market structure, transportation access and other factors. Kansas corn prices in 2008 were affected by form of business organization, local feedgrain production and livestock feed usage, elevator storage capacity, access to railroad grain handling facilities, and to a limited degree by the number of competitors in local markets. Geographic proximity to grain ethanol plants did not have a positive impact on local corn prices, although a number of mitigating factors may exist. Kansas wheat prices in 2008 were affected by local wheat production, elevator storage capacity, the number of competitors in local markets, and by location relative to flour mills. Evidence of operating cost and efficiency differences among grain elevators indicate the presence of market power in local Kansas grain markets.

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The Relative Performance of In-Sample and Out-of-Sample Hedging Effectiveness Indicators

Roger A. Dahlgran

Year: 2009

Abstract

Hedging effectiveness is the proportion of price risk removed through hedging. Empirical hedging studies typically estimate a set of risk minimizing hedge ratios, estimate the hedging effectiveness statistic, apply the estimated hedge ratios to a second group of data, and examine the robustness of the hedging strategy by comparing the hedging effectiveness for this "out-of-sample" period to the "in-sample" period. This study focuses on the statistical properties of the in-sample and out-of-sample hedging effectiveness estimators. Through mathematical and simulation analysis we determine the following: (a) the R² for the hedge ratio regression will generally overstate the amount of price risk reduction that can be achieved by hedging, (b) the properly computed hedging effectiveness in the hedge ratio regression will also generally overstate the true amount of risk reduction that can be achieved, (c) hedging effectiveness estimated in the out-of-sample period will generally understate the true amount of risk reduction that can be achieved, (d) for equal numbers of observations, the overstatement in (b) is less than the understatement in (c), (e) both errors decline as more observations are used, and (f) the most accurate approach is to use all of the available data to estimate the hedge ratio and effectiveness and to not hold any data back for hedge strategy validation. If structural change in the hedge ratio model is suspected, tests for parameter equality have a better statistical foundation than do tests of hedging effectiveness equality.

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Revenue Risk Reduction Impacts of Crop Insurance in a Multi-Crop Framework

Joshua D. Woodard, Bruce J. Sherrick, and Gary D. Schnitkey

Year: 2009

Abstract

This study develops a multi-crop insurance model which is employed to evaluate crop insurance decisions when several crops are produced jointly. The results suggest that the diversification effects derived from producing multiple crops can substantially alter the risk reduction impacts of crop insurance versus if the decision is viewed from the perspective of a single crop. Further, the relatedness of crop production and price responses among crops differs considerably across insurance products and strategies. As a result, insurance strategies that might provide the maximum risk reduction for an individual crop do not necessarily carry over to the multi-crop case.

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Cotton Futures Dynamics: Structural Change, Index Traders and the Returns to Storage

Gabriel J. Power, and John R.C. Robinson

Year: 2009

Abstract

The commodity bull cycle of 2006-2008 and subsequent dramatic price decline have been a source of hardship for traditional commodity market participants such as producers and merchant/shippers. The usefulness of futures markets has been called into question, especially given that some market movements did not appear to be justified by economic fundamentals. An emerging research literature examines the possible influence of futures traders, and particularly the non-traditional Index Traders, on the well-functioning of futures markets and underlying commodity markets. Cotton is a relatively under-studied commodity that is of particular importance for producers in the South and Southwest. To this end, this paper asks the following questions: (1) What role have (primarily long-only) Index Traders played, if we simultaneously account for important ongoing changes in cotton economic fundamentals? (2) Have seasonal and long-run patterns of convenience yield and price volatility changed during or since the commodity bull cycle? (3) How well do the data support a theory of storage model using the concept of convenience yield, and has the relationship changed with the commodity bull cycle? The results presented in this paper suggest that traditional, well-established economic relationships for cotton futures markets clearly have been disrupted during the period 2006-2009. However, we find no direct evidence to support the claim that Index Traders are responsible for changes in prices or volatility.

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Comparison of Hedging Cost with Other Variable Input Costs

John Michael Riley and John D. Anderson

Year: 2009

Abstract

Recent spikes in commodity prices have led to higher margin amounts and option premiums. For the most part, producers have always attributed their lack of use in reducing risk via futures and options markets to the high cost associated with the use of these markets. This study determines the relative costs of hedging with futures and options and compares these with the costs of other variable inputs. We find that with the exception of hedging corn with both tools and soybeans with options the costs of hedging has only increased at roughly the same rate as all other inputs.

Click [here](#) for a copy of the paper in Adobe's PDF format.

A Comparison of the Effectiveness of Using Futures, Options, LRP Insurance, or AGR-lite Insurance to Manage Risk for Cow-calf Producers

Dillon M. Feuz

Year: 2009

Abstract

A comparative analysis was performed looking at using cash, futures, options, or insurance to manage the price of calves for cow-calf producer. Risk can be reduced with the futures market and with options or LRP insurance. Options and LRP insurance are equivalent in the amount of risk that is reduced. AGR-Lite does not appear to be an effective policy at reducing risk for cow-calf producers.

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Liquidity Costs in Futures Options Markets

Samarth Shah, B. Wade Brorsen, and Kim B. Anderson

Year: 2009

Abstract

The major finding is that liquidity costs in futures options market are two to three times higher than liquidity costs in the futures market. Liquidity cost is one potential factor to consider when choosing between hedging with a futures contract or with an option contract. While there is considerable research that estimates liquidity costs of futures trading, there is little comparable research about options markets. This study, for the first time, attempts to determine and compare liquidity costs in options and futures markets. The study uses July 2007 wheat futures and options contracts traded on Kansas City Board of Trade. Two measures of liquidity costs were used for both options and futures markets. One measure of liquidity costs in options markets is the average bid-ask spread that is calculated from the available bidask quotes. A new measure of liquidity costs in options markets is derived based on the Black model and it uses trade prices instead of observed bid-ask quotes. The liquidity costs in the options market was estimated to be 1.60 cents per bushel using observed bid-ask spreads and it was 1.37 cents per bushel when the new measure was used. Liquidity costs in the futures markets are estimated using Roll's measure and average absolute price changes. The estimates were 0.45 and 0.49 cents per bushel, respectively for futures contracts. A positive relation was found between option liquidity

costs and moneyness of the option. Days to expiration of the contracts was not statistically significant in explaining the liquidity cost of the option.

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Optimal Length of Moving Average to Forecast Futures Basis

Robert B. Hatchett, B. Wade Brorsen, and Kim B. Anderson

Year: 2009

Abstract

Futures prices when combined with a basis forecast provide a reliable way to forecast cash prices. The most popular method of forecasting basis is historical moving averages. Given the recent failure of longer moving averages proposed by previous studies, this research reassesses past recommendations about the best length of moving average to use in forecasting basis. This research compares practical preharvest and storage period basis forecasts for hard wheat, soft wheat, corn and soybeans to identify the optimal amount of historical information to include in moving average forecasts. Only with preharvest hard wheat forecasts are the best moving averages longer than 3 years. The differences in forecast accuracy among the different moving averages are small and in most cases the differences are not statistically significant. The recommendation is to use longer moving averages during time periods (or at locations) when there have been no structural changes and use last year's basis after it appears that a structural change has occurred.

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Commercial Grain Merchandisers: What Do They Need to Know?

Brandon Kliethermes, Joe Parcell, and Jason Franken

Year: 2009

Abstract

Little information exists on grain merchandisers, their characteristics, and the skills needed to be successful. This research contributes toward filling this gap. A summary of survey responses from 230 experienced grain merchandisers quantifies personal characteristics, skills perceived as important, and desire for executive education. Parametric analyses identify factors contributing to merchandisers' salaries and their interest in establishing a certification process. Interestingly, experience but not formal education significantly enhances salaries.

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A Speculative Bubble in Commodity Futures Prices? Cross-Sectional Evidence

Dwight R. Sanders, Scott H. Irwin, and Robert P. Merrin

Year: 2009

Abstract

Recent accusations against speculators in general and long-only commodity index funds in particular, include: increasing market volatility, distorting historical price relationships, and fueling a rapid increase and decrease in commodity inflation. Some researchers have argued that these market participants—through their impact on market prices—may inadvertently prevented the efficient distribution of food aid to deserving groups. Certainly, this result—if substantiated—would counter the classical argument that speculators make prices more efficient and thus improve the economic efficiency of the agricultural and food marketing system. Given the very important policy implications, it is crucial to develop a more thorough understanding of long-only index funds and their potential market impact. Here, we review the criticisms (and rebuttals) levied against (and for) commodity index funds in recent U.S. Congressional testimonies. Then, additional empirical evidence is added regarding cross-sectional market returns and the relative levels of long-only index fund participation in 12 commodity futures markets. The results suggest that index fund positions across futures markets have no impact on relative price changes across those markets. The empirical results provide no evidence that long-only index funds impact commodity futures prices.

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A Limited Information Bayesian Forecasting Model of the Cattle SubSector

Babatunde Abidoye and John D. Lawrence

Year: 2009

Abstract

The first step towards forecasting the price and output of the cattle industry is understanding the dynamics of the livestock production process. This study follows up on the Weimar and Stillman (1990) paper by using data from 1970 to 2005 to estimate the parameters that characterizes the cattle output supply. The model is then used to estimate forecast values for the periods 2006 and 2007. Bayesian limited information likelihood method is used to estimate the parameters when endogeneity exists between these variables. The forecasting ability of the model for a twostep ahead forecast for majority of the variables are relatively good and test statistic of the forecast are reported.

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Do Composite Procedures Really Improve the Accuracy of Outlook Forecasts?

Evelyn V. Colino, Scott H. Irwin and Philip Garcia

Year: 2009

Abstract

This paper investigates whether the accuracy of outlook hog price forecasts can be improved using composite forecasts in an out-of-sample context. Price forecasts from four wellrecognized outlook programs are combined with futures-based forecasts, ARIMA, and unrestricted Vector Autoregressive (VAR) models. Quarterly data are available from 1975.I through 2007.IV, which allow for a relatively long out-of-sample evaluation period after permitting model specification and appropriate composite-weight training periods. Results show that futures and numerous composite procedures outperform outlook forecasts. At intermediate horizons, OLS composite procedures perform rather well. The superiority of futures and composite forecasts decreases at longer horizons except for an equal-weighted approach. Importantly, with just few exceptions, nothing outperforms the equal-weight approach significantly in any program or horizon. Overall, findings favor the usage of equal-weighted composites, a result that is consistent with previous empirical findings and recent theoretical papers.

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