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Managing Overnight Corn Price Risks: E*Hedging versus Tokyo

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This study investigates whether U.S. corn merchants can effectively manage the overnight price risk of cash corn purchased after the Chicago Board of Trade closes at 1:15 p.m. on either the electronic Project A market or in the corn contract traded on the Tokyo Grain Exchange. While neither market provides a very effective alternative using traditional measures of analysis, e*hedging on Project A is more effective than hedging in Tokyo. Both could be very effective for those merchants in the market every day. However, trading of corn futures contracts on Project A remains thin and likely illiquid, limiting its usefulness.

Key Words: corn, e*hedging, electronic markets, futures markets, hedging, overnight price risks, Project A, Tokyo Grain Exchange

Cash corn merchants in the U.S. have long faced the problem of how to manage the short-term price risks of grain purchased after the Chicago Board of Trade (CBOT) futures market closes at 1:15 p.m. In recent years, two new markets have emerged which enable these merchants to hedge price risks overnight. In 1996, the CBOT initiated Project A, a mechanism for trading futures contracts electronically at night. The same corn contract traded daytime on the CBOT trades electronically on Project A. In 1993, prior to Project A, the Tokyo Grain Exchange (TGE) began trading a corn futures contract designed as an alternative to the CBOT corn contract.

This study examines: (*a*) the daily co-movement and behavior of prices between Chicago and Tokyo corn futures markets, and between Chicago daytime and Project A markets, and hence, (*b*) the feasibility and effectiveness of e*hedging cash corn overnight on Project A versus hedging in the TGE. This analysis is useful to domestic corn merchants and to grain importers and exporters in managing overnight price risks, and to market arbitragers. We find that e*hedging on Project A shows promise as being reasonably effective, certainly more effective than hedging in Tokyo, but that trading on Project A is possibly too thin and illiquid to be a viable hedging alternative for many large cash grain merchants.

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In the next section, we provide a historical perspective describing the contracts in the Chicago and Tokyo markets. This is followed by a section outlining the framework of analysis, data, and methodology. Results are then presented, contrasting Tokyo and Project A outcomes. The final section offers a discussion of the implications and conclusions.

Historical Perspective

Traditionally, cash corn merchants in the U.S. have not had available a mechanism for hedging grain that is purchased in the afternoon after daytime futures trading on the CBOT is closed. One marketing strategy, of course, is to immediately cash sell or forward cash contract this purchased grain (providing there is another buyer available), thereby passing on the price risks to the next party. Another procedure, commonly used by cash merchants who purchase corn in the U.S., is to "take protection"—which means that if their cash price bid during the day, when the CBOT is open, is P cents below the nearby futures contract (basis of $-P$ cents), then their bids after the daytime CBOT closes will be $P+X$ cents below the nearby futures (basis of $-[P+X]$ cents). The merchants lower their bids for cash corn in the afternoon and overnight, giving themselves more "protection" in case prices fall before they can sell futures contracts the next morning on the CBOT to hedge these cash transactions. The size of X (termed a downside risk premium) varies depending on location, the merchant's view of the market, expectation of overnight price changes, level of risk aversion, and competition for acquiring grain. This procedure leaves the grain merchant bearing the cash price risks for a few hours until the next morning. Two hedging alternatives now exist: e*hedging on Project A, or hedging in the Tokyo Grain Exchange.

The first overnight hedging alternative was initiated in 1993, when the TGE launched its corn futures contract with specifications different from the CBOT contract. Because of the time difference between Chicago and Tokyo, a corn merchant in the U.S. can hedge (or cross-hedge) the price risk on cash corn purchased after the CBOT futures market closes (1:15 p.m.) in the Tokyo market during the night. This corn merchant would not have to wait until the following morning when the CBOT opens (9:30 a.m.) to hedge in the futures market. A second mechanism for hedging these price risks has now been in place since 1996, electronic hedging (e*hedging) on Project A at the CBOT. The launching of trading corn futures contracts on Project A resulted partly because the CBOT became concerned that the TGE market was drawing trades away from the daytime futures market at the CBOT, and partly because of the general move toward electronic trading of futures contracts.

Recent trading volume of corn futures contracts in these markets is shown in table 1. Clearly, the Tokyo futures contract grew very rapidly in trading volume in its short history, reaching a volume of just 3 million fewer contracts than the Chicago contract by 1997, but then diminishing considerably in 1998. The trend in both markets is similar, with trading volume peaking in 1996, and then declining,

Table 1. Trading Volume of Corn Futures Contracts: Chicago, Tokyo, and Project A (1994–99)

Year	Chicago (total)	Tokyo	Project A
1994	11,529,884	3,053,244	—
1995	15,105,147	6,899,593	—
1996	19,620,188	16,034,716	134,621
1997	16,984,951	13,856,595	160,737
1998	15,795,493	7,267,043	184,495
1999	15,724,493	8,107,879	200,305

except for Tokyo in 1999.[1] In contrast, the volume of corn futures contracts traded on electronic Project A steadily increases, but remains quite small. Project A volume is now only slightly more than 1% of the CBOT corn trading volume.

The corn contract traded electronically on Project A is identical to the contract traded by open outcry during the day on the CBOT. Table 2 details the contract specifications of this corn futures contract traded in Chicago and the corn futures contract traded on the TGE in Tokyo. There are several differences between CBOT and TGE contracts, including size, deliverable grade, tick size, price limits, contract months, currency, and last day of trading. Most notable is that the Chicago market trades continuously from when the market opens until closing time. In contrast, the Tokyo market is not open continuously, but it has at least four different trading sessions during the day. However, this difference does not impact our analysis, as we assume all trades are conducted at either the opening or closing times for the day for both markets. Nevertheless, the different contract specifications may impact individual market participants.

Framework of Analysis, Data, and Methodology

The Time Line

Tokyo is 15 hours ahead of Chicago (standard time). Hence, when the Chicago market closes at 1:15 p.m., it is 4:15 a.m. the next morning in Tokyo (see figure 1). The Tokyo exchange opens 4 hours and 45 minutes after the Chicago market closes. This creates a gap when neither market is open. Similarly, the last trading session in Tokyo closes at 4:00 p.m. (Tokyo time), which corresponds to 1:00 a.m. in Chicago the same day. The market in Chicago will not open for another 8½ hours, creating another time gap when neither market is open. However, the corn contract

[1] The Tokyo contract is 21% smaller in size than the Chicago corn contract.

Table 2. Contract Specifications (Corn Futures): Chicago Board of Trade and Tokyo Grain Exchange

Description	Chicago Board of Trade	Tokyo Grain Exchange
Trading unit	5,000 bushels	100,000 kg (3,937 bushels)
Deliverable grades	No. 2 yellow corn at par and substitutions at differentials established by the exchange	No. 3 yellow corn produced in the USA with less than 15% moisture
Price quote	Cents and quarter-cents/bushel	Yen per 1,000 kg
Tick size	¼ cent/bushel ($12.50/contract)	10 yen per 1,000 kg (1,000 yen per contract)
Daily price limit	12 cents/bushel ($600/contract) above or below the previous day's settlement price (expandable to 18 cents/bushel); no limit in the spot month (limits are lifted two business days before the spot month begins)	400 yen per 1,000 kg, if the standard price is under 15,000 yen; 500 yen per 1,000 kg, if the standard price is from 15,000 yen to, but not including, 25,000 yen; 600 yen per 1,000 kg, if the standard price is from 25,000 yen to, but not including, 35,000 yen; 700 yen per 1,000 kg, if the standard price is from 35,000 yen and up No price limits in the current month from the 1st day of the month proceeding the delivery month
Contract months	December, March, May, July, and September	January, March, May, July, September, and November within a 12-month period
Last trading day	7th business day preceding the last business day of the delivery month	15th day of the month (or nearest business day) preceding the delivery month
Last delivery day	Last business day of the delivery month	Last business day of the delivery month
Trading hours	9:30 a.m.–1:15 p.m. central time, Monday–Friday; trading in expiring contracts closes at noon on the last trading day	Morning: ‣ 1st session, 09:00–10:00 ‣ 3rd session, 11:00–12:00 Afternoon: ‣ 1st session, 13:00–14:00 ‣ 3rd session, 15:00–16:00
Delivery locations	Chicago, St. Louis, and Toledo	The pier of Kashima, Chiba, Kawasaki, and Yokohama ports

on Project A begins trading at 9:00 p.m. and closes the next morning at 4:30 a.m., reducing this second time gap. In a strict time line, after daytime trading on the CBOT closes, the Tokyo exchange opens before Project A begins trading, and Tokyo also closes earlier than does trading of corn on Project A.

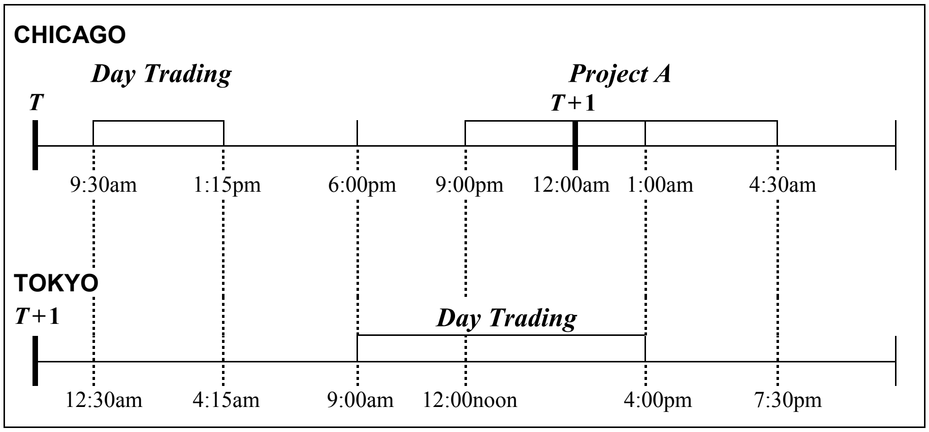

Figure 1. Chicago-Tokyo time line

In this analysis we seek to answer the following question: If a merchant in Chicago were to purchase cash corn in the afternoon in the U.S., could the merchant effectively hedge the price risk of this position in the Tokyo Grain Exchange, or on Project A, before the Chicago daytime market opens the next morning?[2]

Overnight Hedge

This study does not concern itself with basis risks. The goal is to analyze the general behavior and co-movement of prices between futures exchanges. Hence, for the overnight hedge, it is assumed that the merchant buys cash corn at the closing daytime price of the nearby contract on the CBOT on day t and sells this corn at the opening CBOT daytime price of the same contract the next morning, day $t+1$.[3] During this time of holding cash grain, the merchant hedges this position on the TGE by selling a corn futures contract at the opening TGE price on day $t+1$ and liquidating this position at the closing TGE price on the same day, day $t+1$. Both of these futures trades on the TGE are conducted between the times of the cash transactions. The following illustration shows this scenario.

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[2] These hedges are termed *operational hedges*, meaning they are held for only a short time to facilitate merchandising. The hedge is a temporary substitute for subsequent cash market transactions, assumed in this study to take place the next morning (Leuthold, Junkus, and Cordier, 1989, p. 145; Working, 1953). (Other common grain merchant hedges are defined in Leuthold, Junkus, and Cordier, 1989, pp. 145–148.)

[3] Technically, including actual cash prices and a basis would not change the relative results of this study, but only complicate the comparisons and analysis. The following hedging effectiveness results may be upward biased, but only slightly, since Norvell and Leuthold (1992) report hedging ratios of 0.94 for Illinois corn producers (meaning cash and futures prices are highly positively correlated). Also, this study is not concerned with optimal hedge ratios, presuming all hedges are on a bushel-for-bushel basis.

Overnight Hedge

Chicago-Cash	Tokyo-Futures
BUY at the close, day t	SELL at the open, day $t+1$
SELL at the open, day $t+1$	BUY at the close, day $t+1$

This identical scenario is followed when using the electronic Project A opening and closing price data instead of Tokyo Grain Exchange data. Notation remains the same because Project A data are recorded relative to its closing time, which occurs at 4:30 a.m. on day $t+1$.[4] As with the TGE trades, all futures trades conducted on Project A occur in between the two cash transactions.[5]

Data

The data used for this study are the daily opening and closing prices on the CBOT and TGE for the years 1994–99, and Project A for 1996–99. The nearby futures contract for Project A is selected for each hedge, except that prices during the delivery or maturity month of the contract are not used. Interestingly, in the Tokyo corn futures market, the nearby contract typically has the smallest open interest, and subsequent more distant contracts have progressively larger open interest—exactly opposite to the structure of open interest usually observed in Chicago. This is likely due to the fact that it is a to-arrive market for a foreign origin product, creating interest in deferred contracts. Consequently, we use a distant, liquid contract for Tokyo prices (cash transaction prices remain the same as described). The rule followed is to select that TGE corn contract with the largest open interest, which averages 10 months forward.[6]

Special care is taken in managing the data. Specifically, holidays and other market events are different in the two markets. Therefore, data management ensured that if a futures position began using one delivery month, this trade was liquidated using the same delivery month. Also, to avoid the effect of holidays, care was taken to ensure that if a transaction occurred in one country, the offsetting transaction could be completed in the above specified time period in both countries without interruption. If there was a holiday in one country within the trading period, that observation was deleted.

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[4] Technically, settlement for Project A trades occurs at the settlement price for the day-traded contracts on the CBOT, determined in the afternoon on the same day Project A closes. Of concern here, however, is the closing price on Project A, not its settlement price.

[5] Analysis was also conducted on longer holding periods, i.e., day-to-day and two-day hedges. Those results are not reported here, but can be seen in Leuthold and Kim (2000).

[6] Results from using deferred TGE contracts are not materially different from those using nearby TGE contracts (see Leuthold and Kim, 2000).

Methodology

The methodological procedures followed in this study are straightforward. We calculate the mean cash price changes in Chicago and the corresponding futures price changes along with their standard deviations for each market as described above, and summarize these statistics annually as well as for the total sample. We examine the co-movement of cash and futures prices through computation of the correlation coefficient between matched cash and futures price series (simulated hedges), and test for the significance of these coefficients.

The typical procedure in the literature for demonstrating the effectiveness of simple hedges is to utilize the R^2 coefficient taken from regressing the cash price change on the futures price change (Ederington, 1979; Leuthold, Junkus, and Cordier, 1989, pp. 90–101). This coefficient, coming from the standard hedge ratio regression, shows the reduction in variance as a proportion of total variance that results from maintaining a hedged position rather than an unhedged position. A "perfect" hedge would have an R^2 of nearly 1.0.

Finally, to observe the distribution of the hedging results in detail, we report the percentages of all the final hedge outcomes falling into 1-cent increments, both positive and negative. This distribution, which shows the range of profits and losses occurring from individual hedges, demonstrates the benefits and risks resulting from hedging in Project A versus TGE.

Results

Price Relationships

Table 3 shows the following for the hedges placed in both markets: (*a*) the number of observations, (*b*) mean cash and futures price change and standard deviation in cents/bushel for each market, (*c*) the correlation coefficient between the cash and futures price changes in the two markets, and (*d*) the regression coefficient and R^2 from regressing the Chicago cash price change on the appropriate futures price change. Each of these statistics is presented by individual market for each year (1994–99), and then totaled over the six years. Significance of parameters can be noted. The price of corn on the TGE in yen/1,000 kilograms was converted to dollars/bushel at the exchange rate on the day of the trade.

The means of the price changes are small, with no mean exceeding 1 cent/bushel in absolute value. No mean price change is significantly different from zero, each accompanied by a relatively large standard deviation. Hence, there is a wide range of short-term price changes in both cash and futures markets, but they average near zero. Most often the paired means are of the same sign, denoting that cash and futures prices, on average, change in the same direction daytime and then overnight. The overall multi-year means are also very close to zero. One must interpret these results with caution because they are averages of a large set of observations, and

Table 3. Summary Statistics for the Overnight Hedging Scenarios (1994–99)

Year	Description[a]	Chicago Cash – Distant Tokyo Futures		Chicago Cash – Nearby Project A Futures	
		Chicago	Tokyo	Chicago	Project A
1994	No. of Observations	219	219	N/A	
	Mean	−0.26	−0.08		
	Standard Deviation	1.92	3.02		
	Corr. Coeff. (t-Statistic)	0.24 (3.68)			
	Regress. Coeff. (S.D.)	0.15 (0.04)			
	R^2	0.06			
1995	No. of Observations	223	223	N/A	
	Mean	0.17	−0.03		
	Standard Deviation	1.72	3.50		
	Corr. Coeff. (t-Statistic)	−0.02* (0.24)			
	Regress. Coeff. (S.D.)	−0.01* (0.03)			
	R^2	0.0003			
1996	No. of Observations	194	194	165	165
	Mean	0.44	−0.65	0.43	0.25
	Standard Deviation	4.07	4.92	4.44	2.23
	Corr. Coeff. (t-Statistic)	0.22 (3.16)		0.60 (9.53)	
	Regress. Coeff. (S.D.)	0.18 (0.06)		1.19 (0.12)	
	R^2	0.05		0.36	
1997	No. of Observations	219	219	204	204
	Mean	0.20	0.12	0.24	0.31
	Standard Deviation	2.44	3.59	2.47	1.17
	Corr. Coeff. (t-Statistic)	0.35 (5.52)		0.51 (8.42)	
	Regress. Coeff. (S.D.)	0.24 (0.04)		1.08 (0.13)	
	R^2	0.12		0.26	
1998	No. of Observations	235	235	244	244
	Mean	0.01	0.20	−0.10	0.26
	Standard Deviation	2.43	3.49	2.23	1.07
	Corr. Coeff. (t-Statistic)	0.29 (4.55)		0.62 (12.27)	
	Regress. Coeff. (S.D.)	0.34 (0.08)		1.29 (0.10)	
	R^2	0.08		0.38	
1999	No. of Observations	235	235	245	245
	Mean	0.13	−0.20	0.14	0.19
	Standard Deviation	2.51	2.10	2.47	1.20
	Corr. Coeff. (t-Statistic)	0.22 (3.40)		0.60 (11.69)	
	Regress. Coeff. (S.D.)	0.26 (0.08)		1.24 (0.11)	
	R^2	0.05		0.36	
Total	No. of Observations	1,325	1,325	858	858
	Mean	0.11	0.10	0.15	0.25
	Standard Deviation	2.59	3.28	2.90	1.42
	Corr. Coeff. (t-Statistic)	0.21 (7.85)		0.59 (21.15)	
	Regress. Coeff. (S.D.)	0.17 (0.02)		1.20 (0.06)	
	R^2	0.04		0.34	

*Correlation and regression coefficients are not significant.

[a] Mean and Standard Deviation = mean and standard deviation for cash and futures price change (shown in cents/bushel); t-Statistic = Pearson's product-moment t-ratio.

most important for a hedger is how closely the cash and futures prices move together on each trade, not the movement on the average trade. This topic will be addressed shortly.

With the exception of 1995, Chicago cash–Tokyo futures, all of the correlation coefficients are positive and significantly different from zero.[7] Clearly, the correlation coefficients are considerably higher between Chicago cash and Project A futures than between Chicago cash and Tokyo futures.[8]

Similarly, the R^2s are much higher for Project A than for Tokyo. Those for Tokyo are very small, while the largest R^2 coefficient for Project A is only 0.38 (table 3). A substantial proportion of the cash price variation is not explained by, or covered by, the futures price in the TGE. That is, these hedges are not very effective for managing price risks. For Project A, over the whole data set, only 34% of the cash price variation is explained by futures price variations. However, recall that these regressions are performed on price changes, which typically have lower R^2 coefficients than do regressions in price levels. The regression coefficients, which show hedge ratios, are dramatically different between the two markets. Hedge ratios for Tokyo are very small, with a regression coefficient of 0.17 for the entire 1994–99 sample.[9] In contrast, all those for Project A exceed 1.0, with a value of 1.20 for the entire sample. If a merchant were to follow these ratios, clearly much larger hedges would be placed in Project A than in the Tokyo market.

Hedging Results

Since the hedges simulated in this study are "operational hedges" (i.e., those held for only a short time), a cash grain merchant would expect (and desire) a hedge where the net outcome from the combined cash and futures positions would approximate zero. Assuming opposite positions in the cash and futures markets, results in table 3 show no full-sample net mean from hedging exceeding one-tenth cent in absolute value. For individual years, only in the case of Tokyo-1996 do the combined cash and futures positions exceed 1 cent/bushel. Thus, for the merchant buying grain and hedging every day, both Project A and TGE futures markets can be utilized to offset, on average, all the cash price risks. In that sense, both markets are very effective, but involvement in these markets every day is unlikely for many merchants.[10]

Figures 2 and 3 show the distribution of net profits and losses from all simulated hedges in 1-cent (5 cents at the extreme) intervals. These distributions provide more detail about the nature of the results from combined cash and futures positions. For Tokyo, these results assume, as previously, that yen are converted to dollars each day.

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[7] The critical levels for the Pearson's product-moment *t*-ratios are 1.645 for 95%, and 1.282 for 90%.

[8] Correlation coefficients between Project A and Tokyo approximate those between Chicago daytime prices and Tokyo futures.

[9] All slope regression coefficients are significantly different from zero except for Tokyo, 1995.

[10] Commission costs have not been considered in this analysis.

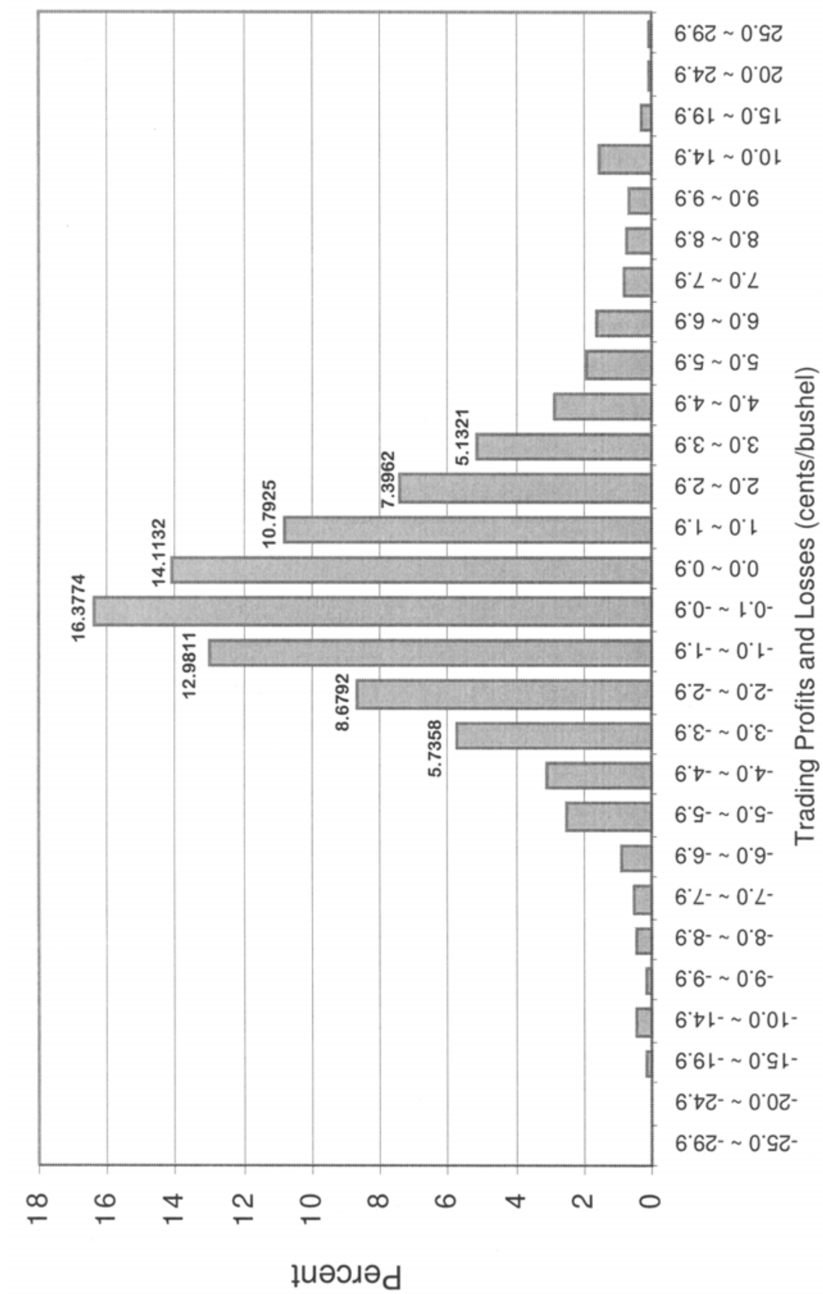

Figure 2. Distribution of trading profits and losses in one-cent intervals for Chicago cash and distant Tokyo overnight hedging

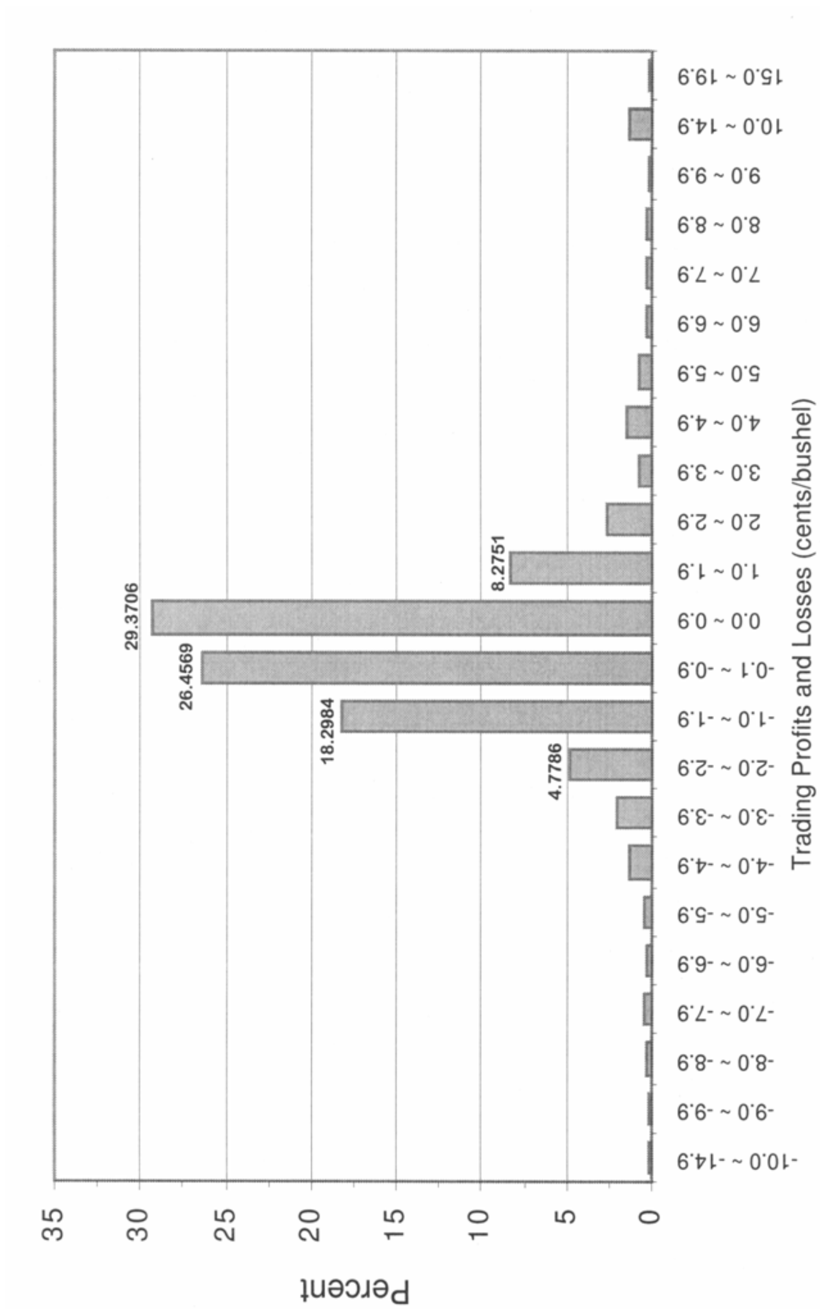

Figure 3. Distribution of trading profits and losses in one-cent intervals for Chicago daytime and Project A's overnight hedging

For Tokyo (figure 2), there is a fairly wide distribution to the individual hedge outcomes. For these overnight trades, 30% of them resulted in a profit or loss of less than 1 cent/bushel, while 70% (87%) resulted in a profit or loss of 2.9 (4.9) cents or less per bushel. Fewer than 3% of the trades show a profit or loss of 10.0 cents or greater. In contrast, the distribution of e*hedging profits and losses on Project A (figure 3) is much narrower and tighter than that demonstrated for Tokyo. Nearly 95% of all profits and losses are within 5 cents/bushel. Over one-half of the trades result in profits or losses of less than 1 cent. Both distributions show that roughly half of the trades result in a trading loss, while the other half result in a gain.[11] Thus, the "risk" of a large loss or gain on any one hedge is greater on the Tokyo market than on Project A (assuming no problem with liquidity), but on average over all trades, the net result equals zero. This latter outcome would be expected given the short duration of the hedges.[12]

These results suggest that Project A could provide a more attractive hedging alternative than does the corn contract in Tokyo because of a smaller chance of large losses. However, Project A is constrained by being a relatively thin market. Thin markets are characterized by additional market-depth costs due to illiquidity when the trades are executed. For large traders, these additional costs could be substantial.

Without specific data, it is difficult to directly compare these results to the practice of "taking protection" in the cash market. However (from table 3), over the full six-year period, two standard deviations from the mean for Chicago cash prices are approximately 5 cents/bushel. This infers a downside risk premium of about 5 cents at reasonable probabilities. Thus, if a grain merchant were interested in protecting against adverse price moves, "taking 5 cents protection" would, on average, be comparable to e*hedging on Project A, where 95% of profits and losses are within 5 cents/bushel. However, "taking protection" may be preferable to using the Tokyo market overnight where the 95% level of the hedging outcome distribution (figure 2) is nearer 10 cents/bushel profit or loss. Nevertheless, the merchant who is in the market and hedging every day would not need to "take protection" and could offer better cash bids than competitors, providing market-depth costs are minimal.

Implications and Conclusions

U.S. cash corn merchants have long faced the problem of managing short-term price risks for grain purchased after the Chicago Board of Trade daytime futures trading closes at 1:15 p.m. Two alternatives now exist: e*hedging on Project A, or hedging on the corn contract traded on the Tokyo Grain Exchange. This study examines overnight hedging of these price risks on both markets.

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[11] Hedge outcome distributions for both Tokyo and Project A show significant skewness and kurtosis, a property resulting from the long tails.

[12] Undoubtedly, one potential source for the extreme observations in the distributions is the release of information such as various government crop and production reports issued either in the afternoon or morning when none of the futures markets are open. Dramatic weather and export news are other likely events affecting the distribution. (The impact of individual news events is beyond the scope of this study.)

The price changes between Chicago cash and Tokyo futures, as well as Project A futures, are positively correlated with one another, but none of the mean price changes are significantly different from zero. There is a wide dispersion of price movements. News can enter the market at any time, whether futures trading is active or not, causing a reaction in one market but not another in the short time frame studied here. This phenomenon creates the need for hedging.

Hedging overnight price risks in Tokyo is not very effective when using the standard results from regressing cash prices on futures prices, which assesses individual outcomes and assumes that traders will not be in the market every day. Also, the distribution of individual hedge outcomes shows some risk, with 13% of the trades in Tokyo resulting in profits or losses greater than 5 cents/bushel. But, if the merchant hedged every day, then, on average, all risks would be offset regardless of whether the trader was using Tokyo or Project A as the hedging market. This merchant could become more competitive in the cash market and offer higher cash bids.

The overnight electronic trading on Project A overlaps with some of the hours that trading occurs in Tokyo. E*hedging on Project A clearly provides a more attractive short-term risk-management opportunity than does the Tokyo market. The Project A contract is the same contract as that traded daytime on the CBOT, giving Project A an inherent advantage over TGE. But the thinness of the market makes it problematic whether a large commercial merchant could use Project A effectively due to increased costs resulting from lack of market depth. The Tokyo market, which under some definitions provides a cross-hedge for U.S. corn merchants, does provide a potential price-risk management mechanism in a market with reasonable liquidity if the merchant is in the market every day. However, contract specification differences could create technical problems for some merchants. While it would be helpful to know if our findings suggest that Project A provides a better alternative because of its trading procedure versus the trading procedure in Tokyo, more data are needed for such an analysis.

Various mechanisms and procedures need to be examined by the Chicago Board of Trade for increasing the volume of trading on Project A. These could include lower commissions, expanded hours, easier trader access, and advertising and promotion. In particular, the CBOT should consider electronic trading of corn futures contracts during all the hours that daytime open outcry trading is closed, covering current time gaps where no contracts are trading. Expanded hours, however, are effective only if volume is also higher. E*hedging on Project A has considerable potential in terms of managing short-term price risks, but the market may currently be too thin and illiquid for active use by large cash corn merchants.

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