SPARKS
COMPANIES INC.

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MGEX Corn & Soybean Futures

A Pre-Trade Analysis of Hedge

Effectiveness

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Introduction

It has long been recognized that successful futures markets require participation from both hedgers and speculators. Each type of trader has a different objective, speculators are trying to extract monetary gain from the market while hedgers are seeking to alleviate some of the price risk associated with the commodity exposure inherent in their line of business. Speculators have an infinite number of ways they might invest, thus any particular commodity futures contract must compete with a host of other investment options for the speculator's capital. The hedger also has alternatives beyond futures markets for satisfying his/her objective of mitigating price risk. These include storage programs, forward contracts and over-the-counter financial instruments. Futures generally hold a cost advantage to the other methods, which makes them the preferred hedging vehicle unless there are problems with the traded contract.

Among the problems that will dampen a hedger's enthusiasm for a futures contract are low liquidity (which raises cost) and excessive basis risk. If there is little correlation between the cash price a hedger faces and the futures price, then the futures will not be a very ***effective*** vehicle for mitigating the firm's commodity price risk exposure—the very reason a hedger would be attracted to the market in the first place. Thus, it is very important to ascertain the ***hedge effectiveness*** of a futures contract. This can provide valuable information to hedgers for making choices between competing price risk management tools. Further, under accounting statement FASB 133, those firms wishing to use hedge accounting for their futures positions must regularly measure and report the hedge effectiveness of the contract(s) they are employing.

Hedge Effectiveness: Basic Theory

Correlation between price series lies at the heart of all measures of hedge effectiveness. In this context, correlation describes the tendency of two sets of prices to move together. This co-movement between futures prices and cash prices determines how likely it is that changes in the value of a futures position will offset changes in the value of a cash exposure. If the futures are perfectly correlated with the price originating from a cash market (correlation coefficient = +1), then it is possible for a hedger to eliminate all price risk by taking an opposite position in the futures contract. This is the same as saying there is no basis risk between the cash and futures. At the other end of the spectrum, zero correlation between the cash and futures implies no hedge effectiveness and huge basis risk.

A crude method of estimating hedge effectiveness can be obtained by simply calculating the correlation coefficient between past cash and futures prices. A better approach involves regression analysis, which yields additional information of use to the hedger. Regression is a statistical technique that uses one price series to 'explain' the value of another price series. For hedge effectiveness work, we want to use the nearby futures price to explain a particular cash price. In basic terms, the model is:

$$\text{Cash price} = a + b(\text{Futures Price}).$$

This regression model is estimated using historical cash and futures prices. The results produce an estimate of the parameters a and b as well as a statistic known as R^2, which ranges from zero to one and describes how well the futures price explains or predicts the cash price. Expressed as a

percentage, the R^2 represents the hedge effectiveness of the futures contract for this particular cash price series. If the futures price predicts (explains) the cash price very well, this means that there is little basis uncertainty. For example, if the cash price is always four cents under the futures price, then the model would be:

$$\text{Cash price} = -4 + 1.0(\text{Futures Price}) \quad \text{with } R^2 = 1.0 \quad (\text{hedge effectiveness} = 100\%)$$

Because there is no variability in the basis (it stays constant at –4 cents/bu.), the cash price can always be precisely predicted by the futures price and a perfect hedge can be obtained. For a different cash location, the average basis level might be –4, but actual observations on the basis could vary from +4 to –12. The model parameters would be the same (–4 and the 1.0), but the R^2 statistic would be much lower, perhaps only 0.5 (or 50% effective). This would be a signal that significant basis variability exists when this cash price is hedged with the futures contract in question.

Another important piece of information that falls out of this analysis is the parameter b, also called the slope coefficient. In this context, b represents what is known as the ***optimal hedge ratio***, and indicates the number of units of futures required in order to do the best job of offsetting price risk in the cash market. Often, the optimal hedge ratio is not exactly 1. The relative volatility of the cash and futures prices frequently suggests the futures position should not be exactly equal to the cash position, but rather smaller or larger. This grows in importance when the cash and futures items are not identical. For instance, if the cash price being hedged is for ribeye steaks ($4/lb.) and the futures contract is for live cattle ($0.65/lb.), optimal hedge ratios typically range between five and six. For grains hedged in grain futures, the match is much better and the OHR is usually close to one.

Hedge Effectiveness: Special Considerations

This analysis was designed to evaluate the hedge effectiveness for the new cash-settled corn and soybean contracts to begin trading at the Minneapolis Grain Exchange (MGEX) in February 2002. Further, it would be very useful to compare the hedge effectiveness of these new contracts with the existing corn and soybean futures that are widely traded at the Chicago Board of Trade (CBOT). Unfortunately, the analysis is complicated by the fact that there are no historical futures prices for the MGEX contracts.

In this situation, the best proxy for the futures is historical values of the National Corn Index (NCI) and the National Soybean Index (NSI). These are the indexes to which open positions are cash-settled upon contract expiration. Generally, cash-settled agricultural futures contracts track their underlying index very closely as expiration approaches. When expiration is not eminent, the futures will often differ from the index as trading activity causes the futures price to forecast the expiration value of the index. For the MGEX corn and soybean contracts, we believe that use of the an index in place of actual futures prices is not an insurmountable problem. Part of this stems from the fact that, because there will be a futures contract in every month of the year, an expiration event will always be on the horizon, thus had there been a nearby contract trading, it likely would have tracked the index closely.

Still, it is not completely fair to compare hedge effectiveness as estimated for MGEX (a cash on cash index regression) with the CBOT (a cash on futures regression). In order to make the results more comparable, a second set of hedge effectiveness measures was calculated between each cash location and the Chicago cash market. Here, we assume that Chicago cash closely approximates the instrument underlying CBOT futures. Thus, for each interior cash price series we obtain hedge effectiveness for the instrument that underlies both of the available futures contracts. This should put both futures contracts on equal footing for comparison purposes.

Data and Methods

For this analysis, daily cash price data from Jan 1, 1993 to Dec 31, 2000 was collected for the following locations:

Corn:
>   Central Illinois
>   North Central Iowa
>   Omaha, NE
>   Toledo, OH
>   Chicago, IL
>   Pacific Northwest
>   Gulf

Soybeans:
>   Central Illinois
>   North Central Iowa
>   Omaha, NE
>   Toledo, OH
>   Chicago, IL
>   Gulf

Daily settlement prices were collected for the nearby corn and soybean futures contracts traded at the CBOT. Daily values of the NCI and NSI were obtained from staff at the MGEX. The primary source for the NCI and NSI are quotes obtained daily from cash market participant by representatives of the Data Transmission Network (DTN). Cash prices collected in this fashion are then averaged to produce the NCI and NSI.

Phase 1 regression models. In the first step, regressions were performed according to the following specifications.

>   A.   Cash price = a + b (NCI or NSI index)
>   B.   Cash price = a + b (CBOT nearby futures)

For these regressions, the data were segregated by month so that a separate regression was performed for each month. This permits an evaluation of how hedge effectiveness may vary by season of the year.

Phase 2 regression models. In this step, the following regression were specified and performed:

> A.   Cash price = a + b (NCI or NSI index)
> B.   Cash price = a + b (Chicago cash)

This phase was undertaken in order to evaluate the effect of not having actual futures prices on the MGEX futures. These results should be more comparable that the results from Phase 1.

Phase 3 – Rolling regressions. This phase was undertaken to estimate the stability of the hedge effectiveness measures derived for the MGEX futures contracts in Phases 1 and 2. Since the regression results are dependent upon the historical data selected, it is useful to vary the historical data systematically and observe how the change influences the calculated effectiveness measure. These rolling regressions are performed in the following manner: 1. Model 1A is estimated using the first 52 weeks of data in the data set. 2) The R2 and slope parameters are saved.3) One new data point is added and the oldest data point is dropped. 4) The regression is performed again with the new data set. 5) The R2 and slope parameters are saved. This process is repeated until the end of the data set is reached. In effect, we are "rolling through" the data set and estimating the hedge effectiveness through time.

Results

Phase 1, Corn

Appendix pages 8-15 give the results for the Phase 1 hedge effectiveness tests. For each cash location, models 1A and 1B were estimated using various data frequencies. The results are presented in separate tables for daily, weekly and monthly data. The tables contain the details so only important observations are listed here.

- In general, hedge effectiveness was found to be high in all time periods for both the CBOT and MGEX corn regressions.
- The results were nearly invariant to the frequency of data used. Daily, weekly and monthly data all produced very similar results.
- Appreciable differences in hedge ratios exist between locations and between months, suggesting that a straight 1:1 hedge is not always optimal for corn hedged in MGEX futures.
- Effectiveness was generally lower for the CBOT corn, but that could be a result of the fact that no actual futures prices existed for the MGEX contract. Thus the results may represent an overstatement of the actual effectiveness that could be expected from that contract once it begins to trade.
- Effectiveness falls and optimal hedge ratios move away from 1 in the summer time periods in the CBOT models. This is a result of a disconnect between cash and futures prices during volatile summer months caused by market uncertainty surrounding crop conditions. The summer of 1996 was a big factor.
- The NCI models do not suffer from this issue since they are not based on actual MGEX futures trades. Had that market traded, an outcome similar to what was seen with the

CBOT models would have been likely but less pronounced, since the MGEX contracts have more frequent expirations.
- Distant locations, notably the Pacific Northwest and Gulf, have lower hedge effectiveness with the NCI index than interior locations. For PNW, the CBOT futures provide a more effective hedge.

Phase 1, Soybeans

Appendix pages 16-21 give the results for the Phase 1 soybeans hedge effectiveness tests. For each cash location, models 1A and 1B were estimated using various data frequencies. The results are presented in separate tables for daily, weekly and monthly data. The tables contain the details so only important observations are listed here.

- In general, hedge effectiveness was found to be high in all time periods for both the CBOT and MGEX corn regressions.
- As with corn, the results were nearly invariant to the frequency of data used
- Appreciable differences in hedge ratios exist between locations and between months, suggesting that a straight 1:1 hedge is not always optimal for soybeans hedged in MGEX futures.
- The NSI exhibited higher hedge effectiveness than CBOT soybean futures.
- Hedge effectiveness in the NSI did not deteriorate during the summer months to the degree that it did with CBOT futures.
- Hedge effectiveness at the Gulf location was comparable to the interior locations.

Phase 2 Regressions – Both Corn and Soybeans

Appendix pages 22-33 give the results for the Phase 2 corn and soybean hedge effectiveness tests. For each cash location, models 2A and 2B were estimated using various data frequencies. The results are presented in separate tables for daily, weekly and monthly data. The tables contain the details so only important observations are listed here.

- This set of regressions was designed to eliminate any bias against the CBOT futures because the NCI and NSI were used as a proxy for futures contracts that have yet to trade.
- Hedge effectiveness for the CBOT series improved for all of the cash locations when the Chicago cash price was substituted for futures. Effectiveness measures were very close between the CBOT and MGEX alternatives.
- Slight advantages were seen in effectiveness for the NCI and NSI models over the CBOT. Western corn belt locations were better served by the MGEX alternative.
- Optimal hedge ratios from these models were much better behaved, remaining closer to 1 than in the Phase 1 models for the CBOT.
- It was not possible complete this Phase for the Chicago location since the underlying for the CBOT futures was assumed to be the same Chicago cash series

Phase 3 – Rolling Regressions

Appendix pages 34-46 give the results for the Phase 3 corn and soybean hedge effectiveness stability tests. For each cash location, the rolling regressions described above were performed and the results are presented in a graphical format.

Corn
- For most of the corn locations the pattern is very similar, the hedge effectiveness measure was very stable until mid 1998, and became less stable from that point on.
- Optimal hedge ratios oscillate around 1.0 within a band of about 10% on either side of that number.
- A sharp drop in hedge effectiveness is indicated near the beginning of summer, 1998. At that time, a large change in price levels occurred which impacted basis levels and reduced effectiveness. As more observations at the new price level entered the rolling regression, the effectiveness improved.
- Hedge effectiveness and optimal hedge ratios showed more instability at the export locations than at the interior locations.

Soybeans
- For most of the soybean locations, hedge effectiveness was relatively stable outside of three periodic price shifts.
- Sharp price level increases in July 1995 and Feb 2000 temporarily hurt effectiveness. As with corn, effectiveness quickly recovered as more data at the 'new' price level entered the rolling data window. In Aug 1998, a price decline produced a similar result.
- As would be expected, abrupt changes in effectiveness are accompanied by abrupt changes in the optimal hedge ratio as the model adjusts.
- Soybean OHRs were mostly stable with a band ±10% around 1.0.
- As with corn, effectiveness and hedge ratios were less stable at the export location (Gulf) than at the interior points.

Conclusions

The objective of this research was to evaluate the usefulness of the proposed MGEX corn and soybean futures contracts for hedging those commodities. Because this work was undertaken in advance of actual trading in either of these contracts, some assumptions were required in order to proceed without historical MGEX futures prices. Nonetheless, we feel confident that the following conclusions are supported by this research and will hold true when the contracts actually begin to trade.

1. ***Cash-settled MGEX corn and soybean futures will be a highly effective hedging instrument for those with corn and soybean commodity price risk exposure.***

   All of the work conducted in this study indicates hedge effectiveness well above 95% is obtainable for both the corn and soybean contracts. Further, comparisons indicate that the MGEX contracts can be expected to be at least as good as the mature CBOT contracts with

regard to hedge effectiveness.   For Western Corn Belt locations, the MGEX contract should have a slight advantage over the CBOT instruments.

2. *Hedging effectiveness will be higher at interior pricing points than at export locations.*

Prices for cash-settled futures contracts tend to track the underlying settlement index, especially as expiration approaches. Since a large percentage of the quotes that go into the NCI and NSI are from interior locations, it is reasonable to expect the futures to be more responsive to changes in these prices, and thus a more effective hedge for these cash exposures than for more distant export locations. This is not to imply that hedge effectiveness will be poor at export locations. In fact, we expect hedge effectiveness at export locations for corn and soybeans to be considerably better than for many other agricultural commodities that have trading futures. Diminished hedge effectiveness at export locations is also a characteristic of the physically-delivered corn and soybean contracts traded at the CBOT. These contracts are also more closely tied to changes in the value of corn and soybeans at interior locations.

3. *Liquidity will be more of an issue than hedge effectiveness in determining the success of the new MGEX corn and soybean futures contracts.*

Hedge effectiveness is important to drawing hedgers into a new futures market, but cost is equally important. A serious lack of liquidity imposes costs upon hedgers trying to establish and lift positions. Also, if it is difficult to exit a position without large price concessions, this will have an indirect effect on hedge effectiveness. It makes sense therefore, that the MGEX should focus on strategies to boost liquidity quickly after the start of trading. This analysis indicates that both new futures contracts are well constructed from a hedging prospective. It is our belief that the real risk to success comes from the liquidity side of the equation.

Applications for the Proposed MGEX Corn and Soybean Futures

The analysis suggests that there is every reason to believe that cash-settled futures based on the NCI and NSI will be very effective for the purpose of hedging flat price risk. In addition, some additional opportunities exist. Spread positions taken between the MGEX and CBOT futures contracts for similar expiration have the potential to hedge general basis levels. The reason this is a general basis hedge is that it will lock the spread between the NCI or NSI and the CBOT futures. Very few entities will have exposure to the entire NCI or NSI, but to the extent that their local cash price tracks these indexes, it could provide some basis protection. This type of trade is more likely to work when the MGEX position is held to expiration and complete convergence with the NCI or NSI occurs. Because freight differentials comprise a large part of the basis, this type of spread trade may also be useful for mitigating the risk of changes in transportation rates.

The following example illustrates how a basis hedge could be executed through an inter-exchange spread. Suppose that on August 1 the following positions were taken:

Short 1 MGEX Nov Corn @ $2.05/bu.   Long 1 CBOT Dec Corn @ $2.25/bu.

Here the hedger's objective is to lock a basis of -$0.20/bu. At the end of November when the MGEX contract expires, the following prices are observed:

MGEX Nov Corn @ $2.15/bu.   CBOT Dec Corn @ $2.40/bu.

If the hedger's local cash market is exactly equal to the NCI index, then his/her basis to the CBOT futures is -$0.25/bu., but the spread has earned $0.05/bu. making the net basis exactly -$0.20/bu. as intended back in August. Note that the effectiveness of this hedge is dependent upon 1) a predictable relationship between the hedger's cash price and the index and 2) a predictable relationship between the MGEX futures and the NCI.

Another interesting application would involve sub-indexes of the NCI and NSI. This would permit listing and trading of state-level or regional-level corn futures. Hedge effectiveness should improve as the geographic area covered by the index is reduced.

Overall, it appears as though the MGEX contracts will serve all of the applications currently met by the CBOT futures and bring some additional benefits. The cash settlement feature will be attractive to speculators and arbitrageurs. Spread trades between the MGEX and CBOT contracts will open up opportunities that are currently unavailable. The biggest hurdle for these proposed contracts will be building the liquidity necessary to keep costs low and fuel future growth.

Phase I Appendix Tables

Corn, Central Illinois

Using Daily Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.7%	1.02	99.3%
February	1.00	99.8%	1.03	99.5%
March	1.01	99.9%	1.09	99.3%
April	0.99	99.9%	1.01	99.6%
May	1.00	99.9%	1.08	99.6%
June	1.00	99.9%	1.09	99.5%
July	1.01	99.8%	1.54	98.0%
August	0.99	99.2%	1.55	94.7%
September	0.95	99.2%	1.32	96.1%
October	1.01	98.8%	1.16	98.8%
November	0.99	99.1%	1.07	99.2%
December	0.97	99.5%	1.02	98.9%
All Months	0.99	99.6%	1.15	95.5%

Using Weekly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.8%	1.03	99.2%
February	1.00	99.8%	1.04	99.6%
March	1.01	99.9%	1.09	99.4%
April	0.99	99.9%	1.01	99.6%
May	1.00	99.9%	1.08	99.7%
June	1.00	100.0%	1.09	99.6%
July	1.01	99.9%	1.54	97.9%
August	0.99	99.4%	1.55	95.0%
September	0.95	99.4%	1.32	96.2%
October	1.01	98.8%	1.16	98.9%
November	0.99	99.1%	1.06	99.3%
December	0.97	99.6%	1.02	98.9%
All Months	0.99	99.6%	1.15	95.6%

Using Monthly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.8%	1.02	99.4%
February	1.00	99.9%	1.04	99.7%
March	1.01	99.9%	1.10	99.4%
April	0.99	99.9%	1.02	99.7%
May	1.00	99.9%	1.08	99.7%
June	1.00	100.0%	1.09	99.7%
July	1.01	99.9%	1.54	98.2%
August	0.99	99.8%	1.56	96.8%
September	0.95	99.4%	1.31	96.6%
October	1.01	98.9%	1.16	99.2%
November	0.99	99.1%	1.07	99.8%
December	0.97	99.6%	1.02	99.0%
All Months	0.99	99.7%	1.15	96.0%

Corn, North Central Iowa

Using Daily Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.94	99.4%	0.96	98.8%
February	0.96	99.7%	0.99	99.1%
March	0.96	99.8%	1.03	98.8%
April	0.96	99.9%	0.97	99.2%
May	0.96	99.9%	1.04	99.4%
June	0.96	99.9%	1.04	99.5%
July	0.99	99.8%	1.51	97.4%
August	1.06	99.5%	1.65	93.3%
September	1.07	98.3%	1.45	90.9%
October	0.95	99.3%	1.08	96.8%
November	0.94	99.4%	1.00	98.5%
December	0.93	99.4%	0.98	98.8%
All Months	0.98	99.4%	1.13	93.1%

Using Weekly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.93	99.5%	0.95	99.0%
February	0.96	99.8%	0.99	99.1%
March	0.95	99.8%	1.03	98.9%
April	0.95	99.9%	0.97	99.3%
May	0.96	99.9%	1.04	99.4%
June	0.96	99.9%	1.05	99.5%
July	0.99	99.8%	1.51	97.4%
August	1.05	99.5%	1.62	93.0%
September	1.06	98.4%	1.43	90.7%
October	0.95	99.4%	1.09	96.8%
November	0.93	99.5%	1.00	98.5%
December	0.93	99.4%	0.99	98.7%
All Months	0.98	99.4%	0.95	98.9%

Using Monthly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.93	99.5%	0.96	99.1%
February	0.96	99.8%	0.99	99.2%
March	0.95	99.8%	1.03	99.0%
April	0.96	100.0%	0.98	99.4%
May	0.96	100.0%	1.04	99.4%
June	0.96	100.0%	1.05	99.7%
July	0.99	99.9%	1.51	97.6%
August	1.06	99.6%	1.65	93.9%
September	1.07	98.5%	1.44	90.8%
October	0.95	99.6%	1.08	97.5%
November	0.94	99.5%	1.00	99.0%
December	0.93	99.4%	0.98	98.8%
All Months	0.93	99.5%	0.96	99.1%

Corn, Omaha

Using Daily Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.97	99.7%	0.99	98.8%
February	1.01	99.9%	1.05	99.2%
March	1.00	99.9%	1.09	99.1%
April	0.99	99.9%	1.00	99.2%
May	1.00	99.9%	1.09	99.4%
June	1.02	100.0%	1.10	99.5%
July	1.03	99.9%	1.58	97.7%
August	1.08	99.7%	1.68	94.0%
September	1.02	99.0%	1.40	93.6%
October	1.00	98.9%	1.13	95.2%
November	0.98	99.4%	1.05	98.2%
December	0.98	99.8%	1.03	98.4%
All Months	1.02	99.6%	1.17	93.6%

Using Weekly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.97	99.7%	1.00	98.8%
February	1.01	99.9%	1.05	99.2%
March	1.00	99.9%	1.09	99.2%
April	0.98	99.9%	1.00	99.3%
May	1.00	99.9%	1.08	99.4%
June	1.02	100.0%	1.10	99.5%
July	1.03	99.9%	1.58	97.7%
August	1.08	99.8%	1.67	94.4%
September	1.02	99.2%	1.39	93.6%
October	1.00	99.1%	1.13	95.5%
November	0.98	99.4%	1.04	98.3%
December	0.98	99.8%	1.03	98.4%
All Months	1.02	99.7%	1.17	93.7%

Using Monthly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.97	99.8%	0.99	99.1%
February	1.01	99.9%	1.05	99.3%
March	1.00	100.0%	1.09	99.2%
April	0.99	100.0%	1.01	99.4%
May	1.00	100.0%	1.09	99.4%
June	1.02	100.0%	1.10	99.7%
July	1.03	99.9%	1.58	97.9%
August	1.08	99.8%	1.69	95.0%
September	1.03	99.8%	1.40	94.4%
October	1.00	99.4%	1.13	96.0%
November	0.98	99.6%	1.05	99.0%
December	0.98	99.9%	1.03	98.5%
All Months	1.02	99.8%	1.17	94.0%

Corn, Toledo

Using Daily Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.1%	1.02	99.0%
February	0.99	99.1%	1.04	99.4%
March	1.02	99.0%	1.11	99.3%
April	1.03	99.5%	1.05	99.6%
May	1.03	99.7%	1.12	99.4%
June	1.02	99.8%	1.10	99.7%
July	1.05	99.5%	1.60	96.7%
August	0.99	99.5%	1.56	96.4%
September	0.94	98.6%	1.31	96.3%
October	0.99	98.8%	1.13	97.5%
November	0.99	98.8%	1.06	97.7%
December	1.00	99.4%	1.05	98.2%
All Months	1.01	99.3%	1.17	94.6%

Using Weekly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	1.02	99.0%
February	0.99	99.2%	1.03	99.4%
March	1.02	99.0%	1.11	99.4%
April	1.02	99.5%	1.05	99.6%
May	1.04	99.7%	1.12	99.5%
June	1.01	99.8%	1.10	99.6%
July	1.05	99.6%	1.59	96.6%
August	0.99	99.5%	1.56	96.7%
September	0.94	98.6%	1.31	96.6%
October	0.99	98.9%	1.13	97.7%
November	0.99	98.9%	1.06	97.9%
December	1.00	99.4%	1.05	98.3%
All Months	1.01	99.3%	1.17	94.7%

Using Monthly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	1.02	99.0%
February	0.99	99.1%	1.04	99.4%
March	1.02	99.0%	1.11	99.4%
April	1.03	99.6%	1.05	99.6%
May	1.03	99.7%	1.12	99.5%
June	1.01	99.8%	1.10	99.8%
July	1.05	99.6%	1.60	96.7%
August	0.99	99.6%	1.57	97.2%
September	0.94	98.8%	1.31	96.8%
October	0.99	99.3%	1.14	98.0%
November	0.99	99.0%	1.06	98.4%
December	1.00	99.5%	1.06	98.5%
All Months	1.01	99.4%	1.17	94.9%

Corn, Chicago

Using Daily Data

| | National Corn Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.5%	1.02	99.3%
February	0.99	99.6%	1.03	99.6%
March	1.01	99.3%	1.10	99.2%
April	1.01	99.7%	1.03	99.7%
May	1.01	99.7%	1.09	99.4%
June	1.02	99.8%	1.11	99.6%
July	1.01	99.4%	1.55	97.4%
August	0.97	99.2%	1.52	94.9%
September	0.94	98.3%	1.31	95.4%
October	1.00	99.6%	1.15	98.0%
November	1.02	99.5%	1.10	98.9%
December	0.99	99.2%	1.04	98.7%
All Months	1.00	99.4%	1.16	95.3%

Using Weekly Data

| | National Corn Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.5%	1.03	99.2%
February	0.99	99.6%	1.03	99.6%
March	1.01	99.4%	1.10	99.3%
April	1.01	99.7%	1.03	99.7%
May	1.01	99.8%	1.10	99.4%
June	1.02	99.8%	1.11	99.6%
July	1.01	99.4%	1.54	97.3%
August	0.97	99.3%	1.52	95.5%
September	0.94	98.6%	1.31	95.7%
October	1.00	99.7%	1.15	98.0%
November	1.02	99.5%	1.09	99.0%
December	0.99	99.3%	1.04	98.7%
All Months	1.00	99.4%	1.16	95.4%

Using Monthly Data

| | National Corn Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.6%	1.03	99.5%
February	0.99	99.6%	1.03	99.7%
March	1.01	99.4%	1.10	99.4%
April	1.01	99.7%	1.03	99.7%
May	1.01	99.8%	1.10	99.5%
June	1.02	99.9%	1.11	99.7%
July	1.00	99.8%	1.54	97.6%
August	0.97	99.8%	1.53	97.1%
September	0.95	99.1%	1.31	96.2%
October	1.00	99.8%	1.15	98.3%
November	1.02	99.5%	1.10	99.4%
December	0.99	99.4%	1.04	98.8%
All Months	1.00	99.6%	1.16	95.9%

Corn, Pacific Northwest

Using Daily Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.08	96.9%	1.09	95.3%
February	1.06	98.1%	1.09	96.5%
March	1.03	98.1%	1.11	96.2%
April	1.00	98.9%	1.01	98.0%
May	1.02	99.3%	1.10	98.8%
June	1.03	98.1%	1.15	97.2%
July	0.94	91.1%	1.29	95.5%
August	0.66	89.2%	1.11	96.5%
September	0.90	95.1%	1.29	98.1%
October	1.04	98.6%	1.19	97.5%
November	1.05	98.0%	1.13	96.9%
December	1.07	97.0%	1.12	95.1%
All Months	0.95	94.4%	1.11	96.7%

Using Weekly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.08	97.1%	1.09	95.4%
February	1.06	98.2%	1.10	96.8%
March	1.04	98.4%	1.12	96.6%
April	1.01	99.0%	1.03	98.3%
May	1.02	99.4%	1.11	99.0%
June	1.02	98.8%	1.13	98.0%
July	0.86	88.7%	1.25	95.6%
August	0.67	89.5%	1.10	96.8%
September	0.91	95.3%	1.31	98.4%
October	1.04	98.7%	1.20	97.7%
November	1.06	98.2%	1.13	97.1%
December	1.07	97.2%	1.12	95.4%
All Months	0.95	94.7%	1.11	97.1%

Using Monthly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.09	97.5%	1.10	96.1%
February	1.06	98.3%	1.10	96.7%
March	1.03	98.5%	1.11	96.8%
April	1.00	99.1%	1.02	98.4%
May	1.02	99.5%	1.11	99.0%
June	1.02	99.4%	1.13	99.1%
July	0.67	89.4%	1.11	96.1%
August	0.67	90.2%	1.11	97.1%
September	0.91	95.9%	1.30	98.8%
October	1.04	99.0%	1.19	97.9%
November	1.06	98.5%	1.13	97.3%
December	1.07	97.4%	1.12	95.5%
All Months	0.92	93.6%	1.11	97.4%

Corn, Gulf

Using Daily Data

| | National Corn Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.03	98.1%	1.05	97.5%
February	1.04	98.8%	1.08	98.5%
March	1.04	99.1%	1.13	98.4%
April	0.99	99.7%	1.01	99.4%
May	1.00	99.6%	1.08	99.5%
June	0.98	99.4%	1.07	99.2%
July	0.98	99.3%	1.51	98.4%
August	0.96	98.7%	1.51	96.0%
September	0.89	98.1%	1.26	97.9%
October	1.02	98.2%	1.17	97.8%
November	1.01	98.4%	1.08	98.5%
December	0.95	97.9%	1.00	97.2%
All Months	0.98	98.5%	1.14	95.6%

Using Weekly Data

| | National Corn Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.03	98.2%	1.05	97.6%
February	1.04	98.7%	1.08	98.4%
March	1.04	99.1%	1.13	98.5%
April	0.99	99.7%	1.01	99.5%
May	1.00	99.6%	1.08	99.5%
June	0.98	99.3%	1.07	99.2%
July	0.99	99.4%	1.52	98.4%
August	0.96	98.8%	1.51	96.3%
September	0.90	98.0%	1.27	98.0%
October	1.01	98.3%	1.17	98.0%
November	1.01	98.4%	1.08	98.6%
December	0.96	98.0%	1.01	97.3%
All Months	0.98	98.5%	1.14	95.7%

Using Monthly Data

| | National Corn Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.03	98.3%	1.05	97.8%
February	1.04	98.8%	1.08	98.5%
March	1.04	99.2%	1.13	98.6%
April	0.99	99.7%	1.02	99.6%
May	1.00	99.7%	1.08	99.5%
June	0.98	99.5%	1.07	99.5%
July	0.98	99.5%	1.52	98.8%
August	0.95	99.2%	1.52	97.8%
September	0.90	98.7%	1.26	98.4%
October	1.01	98.4%	1.17	98.1%
November	1.01	98.7%	1.08	98.9%
December	0.95	98.4%	1.00	97.8%
All Months	0.98	98.7%	1.14	96.1%

Soybeans, Central Illinois

Using Daily Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.9%	1.02	99.8%
February	1.00	99.9%	1.02	99.9%
March	1.00	100.0%	1.02	99.7%
April	1.00	100.0%	1.01	99.7%
May	1.00	100.0%	1.03	99.7%
June	1.01	99.7%	1.02	99.6%
July	1.01	99.8%	1.04	99.0%
August	1.02	99.8%	1.10	95.9%
September	1.02	99.7%	1.13	94.7%
October	1.02	99.8%	1.07	99.7%
November	1.01	99.8%	1.05	99.7%
December	1.00	99.9%	1.03	99.9%
All Months	1.01	99.8%	1.04	98.5%

Using Weekly Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.9%	1.02	99.8%
February	1.00	99.9%	1.02	99.9%
March	1.00	100.0%	1.02	99.7%
April	1.00	100.0%	1.01	99.7%
May	1.00	100.0%	1.03	99.7%
June	1.01	99.8%	1.02	99.7%
July	1.01	99.9%	1.04	99.0%
August	1.02	99.8%	1.11	96.1%
September	1.02	99.8%	1.12	95.0%
October	1.01	99.8%	1.07	99.7%
November	1.01	99.9%	1.05	99.7%
December	1.00	99.9%	1.03	100.0%
All Months	1.01	99.9%	1.04	98.6%

Using Monthly Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.9%	1.02	99.8%
February	1.00	100.0%	1.02	99.9%
March	1.00	100.0%	1.02	99.7%
April	1.00	100.0%	1.01	99.7%
May	1.00	100.0%	1.03	99.7%
June	1.01	99.9%	1.02	99.9%
July	1.01	99.9%	1.05	99.4%
August	1.02	99.9%	1.11	96.1%
September	1.02	99.9%	1.13	96.5%
October	1.02	99.8%	1.07	99.8%
November	1.01	99.9%	1.05	99.9%
December	1.00	99.9%	1.03	100.0%
All Months	1.01	99.9%	1.04	98.8%

Soybeans, North Central Iowa

Using Daily Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.01	99.4%
February	0.99	99.9%	1.01	99.7%
March	0.99	99.8%	1.01	99.5%
April	0.99	99.9%	1.00	99.7%
May	0.99	99.9%	1.02	99.6%
June	0.98	99.9%	0.99	99.8%
July	1.00	99.8%	1.03	99.0%
August	1.02	99.8%	1.11	96.3%
September	1.02	99.7%	1.13	94.7%
October	0.98	99.7%	1.03	99.3%
November	0.99	99.8%	1.04	99.6%
December	0.99	99.8%	1.01	99.6%
All Months	1.00	99.8%	1.03	98.4%

Using Weekly Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.01	99.3%
February	0.99	99.9%	1.01	99.6%
March	0.99	99.9%	1.01	99.5%
April	0.99	99.9%	1.00	99.7%
May	0.99	99.9%	1.02	99.6%
June	0.98	99.9%	0.99	99.8%
July	0.99	99.8%	1.02	99.1%
August	1.02	99.8%	1.11	96.4%
September	1.01	99.7%	1.12	94.8%
October	0.98	99.7%	1.03	99.3%
November	0.99	99.8%	1.04	99.6%
December	0.99	99.8%	1.02	99.6%
All Months	0.99	99.7%	1.01	99.3%

Using Monthly Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.01	99.4%
February	0.99	99.9%	1.01	99.7%
March	0.99	99.9%	1.01	99.6%
April	0.99	99.9%	1.00	99.7%
May	1.00	99.9%	1.02	99.7%
June	0.98	100.0%	0.99	99.9%
July	1.00	99.9%	1.03	99.5%
August	1.02	99.9%	1.11	96.4%
September	1.02	99.8%	1.13	95.9%
October	0.98	99.8%	1.04	99.5%
November	1.00	99.8%	1.04	99.7%
December	0.99	99.8%	1.01	99.7%
All Months	0.99	99.8%	1.01	99.4%

Soybeans, Omaha

Using Daily Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.9%	1.01	99.4%
February	1.00	100.0%	1.02	99.7%
March	1.00	99.9%	1.02	99.7%
April	0.99	99.9%	1.00	99.7%
May	0.99	99.9%	1.02	99.6%
June	0.99	99.9%	0.99	99.8%
July	0.99	99.9%	1.01	99.0%
August	0.98	99.5%	1.07	97.9%
September	0.96	99.4%	1.09	97.1%
October	0.96	99.6%	1.00	99.1%
November	0.99	99.7%	1.03	99.3%
December	1.00	99.9%	1.02	99.7%
All Months	0.99	99.7%	1.02	99.0%

Using Weekly Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.9%	1.01	99.3%
February	1.00	100.0%	1.02	99.7%
March	1.00	100.0%	1.02	99.7%
April	0.99	99.9%	1.00	99.7%
May	0.99	99.9%	1.02	99.6%
June	0.99	99.9%	1.00	99.8%
July	0.98	99.9%	1.01	99.0%
August	0.98	99.6%	1.08	97.9%
September	0.96	99.5%	1.08	97.2%
October	0.96	99.8%	1.01	99.2%
November	0.99	99.8%	1.03	99.4%
December	1.00	99.9%	1.02	99.7%
All Months	0.99	99.8%	1.02	99.0%

Using Monthly Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.9%	1.01	99.5%
February	1.00	100.0%	1.02	99.8%
March	1.00	100.0%	1.02	99.7%
April	0.99	99.9%	1.00	99.7%
May	0.99	99.9%	1.02	99.6%
June	0.99	100.0%	0.99	99.8%
July	0.98	99.9%	1.01	99.4%
August	0.98	99.6%	1.08	98.1%
September	0.96	99.7%	1.08	98.1%
October	0.96	99.8%	1.01	99.4%
November	0.99	99.9%	1.03	99.7%
December	1.00	99.9%	1.02	99.7%
All Months	0.99	99.8%	1.02	99.2%

Soybeans, Toledo

Using Daily Data

| | National Soybean Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.7%	1.02	99.7%
February	1.01	99.9%	1.03	99.9%
March	1.01	99.9%	1.03	99.9%
April	1.01	99.9%	1.02	99.9%
May	1.01	99.9%	1.04	99.8%
June	1.02	99.8%	1.03	99.9%
July	1.02	99.8%	1.05	98.9%
August	1.02	99.4%	1.10	95.0%
September	1.02	99.3%	1.13	93.2%
October	1.02	99.8%	1.07	99.6%
November	1.00	99.7%	1.05	99.3%
December	1.00	99.7%	1.03	99.8%
All Months	1.01	99.7%	1.04	98.2%

Using Weekly Data

| | National Soybean Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.7%	1.01	99.7%
February	1.00	99.9%	1.02	99.9%
March	1.01	99.9%	1.03	99.9%
April	1.01	99.9%	1.02	99.9%
May	1.01	99.9%	1.03	99.8%
June	1.02	99.9%	1.03	99.9%
July	1.02	99.8%	1.05	98.9%
August	1.02	99.6%	1.11	95.4%
September	1.01	99.4%	1.12	93.9%
October	1.02	99.8%	1.07	99.6%
November	1.01	99.7%	1.05	99.3%
December	1.00	99.7%	1.03	99.9%
All Months	1.01	99.7%	1.04	98.3%

Using Monthly Data

| | National Soybean Index | | CBOT Nearby | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.01	99.8%
February	1.01	99.9%	1.03	99.9%
March	1.01	99.9%	1.03	99.9%
April	1.01	99.9%	1.02	99.9%
May	1.01	99.9%	1.04	99.8%
June	1.02	99.9%	1.03	99.9%
July	1.02	99.9%	1.05	99.2%
August	1.02	99.7%	1.11	95.3%
September	1.01	99.6%	1.12	95.1%
October	1.02	99.9%	1.07	99.9%
November	1.00	99.7%	1.05	99.4%
December	1.00	99.7%	1.03	99.9%
All Months	1.01	99.8%	1.04	98.4%

Soybeans, Chicago

Using Daily Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.01	99.7%
February	1.00	99.8%	1.02	99.9%
March	1.01	99.9%	1.04	99.8%
April	1.03	99.9%	1.04	99.8%
May	1.01	99.9%	1.04	99.8%
June	1.03	99.9%	1.03	99.9%
July	1.02	99.8%	1.05	99.0%
August	1.05	99.0%	1.12	94.1%
September	1.05	98.5%	1.16	91.8%
October	1.03	99.9%	1.08	99.6%
November	1.03	99.8%	1.07	99.4%
December	0.99	99.7%	1.02	99.9%
All Months	1.02	99.6%	1.05	98.0%

Using Weekly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.01	99.7%
February	1.00	99.8%	1.02	99.9%
March	1.01	99.9%	1.04	99.8%
April	1.03	99.9%	1.04	99.8%
May	1.01	99.9%	1.04	99.8%
June	1.03	99.9%	1.03	99.9%
July	1.02	99.9%	1.05	99.0%
August	1.05	99.3%	1.13	94.6%
September	1.05	98.8%	1.15	92.4%
October	1.03	99.9%	1.08	99.5%
November	1.03	99.8%	1.07	99.5%
December	1.00	99.8%	1.02	99.9%
All Months	1.02	99.7%	1.05	98.1%

Using Monthly Data

	National Corn Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.01	99.8%
February	1.00	99.8%	1.02	99.9%
March	1.01	99.9%	1.04	99.8%
April	1.03	99.9%	1.04	99.9%
May	1.01	99.9%	1.04	99.8%
June	1.03	100.0%	1.03	99.9%
July	1.02	100.0%	1.05	99.4%
August	1.05	99.4%	1.13	94.6%
September	1.05	99.3%	1.16	94.2%
October	1.03	99.9%	1.08	99.7%
November	1.03	99.9%	1.07	99.6%
December	1.00	99.8%	1.02	99.9%
All Months	1.02	99.8%	1.05	98.4%

Soybeans, Gulf

Using Daily Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	1.02	99.4%
February	1.00	99.6%	1.02	99.7%
March	1.00	99.6%	1.03	99.7%
April	1.00	99.8%	1.01	99.8%
May	1.00	99.9%	1.02	99.8%
June	0.98	99.8%	0.98	99.8%
July	0.96	99.8%	0.99	99.3%
August	0.98	99.1%	1.05	95.0%
September	1.01	98.8%	1.12	92.9%
October	1.02	99.6%	1.07	99.7%
November	1.00	99.6%	1.05	99.6%
December	0.98	99.6%	1.01	99.6%
All Months	0.98	99.3%	1.02	98.1%

Using Weekly Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	1.01	99.4%
February	1.00	99.5%	1.02	99.7%
March	1.00	99.6%	1.02	99.7%
April	1.00	99.8%	1.01	99.8%
May	1.00	99.9%	1.02	99.9%
June	0.98	99.8%	0.99	99.8%
July	0.96	99.7%	0.99	99.3%
August	0.97	99.2%	1.06	95.2%
September	1.02	99.1%	1.12	93.7%
October	1.02	99.6%	1.07	99.7%
November	1.00	99.5%	1.05	99.5%
December	0.98	99.6%	1.01	99.6%
All Months	0.98	99.3%	1.02	98.2%

Using Monthly Data

	National Soybean Index		CBOT Nearby	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	1.02	99.5%
February	1.00	99.6%	1.02	99.7%
March	1.00	99.7%	1.03	99.8%
April	1.00	99.9%	1.01	99.8%
May	0.99	99.9%	1.02	99.9%
June	0.98	99.8%	0.99	99.9%
July	0.96	99.8%	0.99	99.5%
August	0.98	99.3%	1.06	95.1%
September	1.01	99.4%	1.12	95.2%
October	1.02	99.7%	1.07	99.9%
November	1.00	99.6%	1.05	99.6%
December	0.98	99.6%	1.01	99.7%
All Months	0.98	99.4%	1.02	98.4%

Phase II Appendix Tables

Corn, Central Illinois

Using Daily Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.7%	1.00	99.6%
February	1.00	99.8%	1.00	99.7%
March	1.01	99.9%	0.99	99.4%
April	0.99	99.9%	0.98	99.8%
May	1.00	99.9%	0.99	99.8%
June	1.00	99.9%	0.98	99.8%
July	1.01	99.8%	0.99	99.5%
August	0.99	99.2%	1.01	99.5%
September	0.95	99.2%	1.00	98.7%
October	1.01	98.8%	1.00	98.9%
November	0.99	99.1%	0.97	99.3%
December	0.97	99.5%	0.98	99.4%
All Months	0.99	99.6%	0.99	99.4%

Using Weekly Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.8%	1.00	99.7%
February	1.00	99.8%	1.04	100.0%
March	1.01	99.9%	1.01	99.9%
April	0.99	99.9%	0.93	99.5%
May	1.00	99.9%	0.93	100.0%
June	1.00	100.0%	0.99	99.6%
July	1.01	99.9%	0.82	90.8%
August	0.99	99.4%	1.10	99.7%
September	0.95	99.4%	0.95	99.2%
October	1.01	98.8%	0.92	97.7%
November	0.99	99.1%	1.03	99.3%
December	0.97	99.6%	0.96	99.6%
All Months	0.99	99.6%	0.99	99.5%

Using Monthly Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.8%	1.00	99.8%
February	1.00	99.9%	1.00	99.8%
March	1.01	99.9%	0.99	99.5%
April	0.99	99.9%	0.99	99.9%
May	1.00	99.9%	0.99	99.9%
June	1.00	100.0%	0.98	99.9%
July	1.01	99.9%	1.00	99.9%
August	0.99	99.8%	1.02	99.9%
September	0.95	99.4%	1.00	99.5%
October	1.01	98.9%	1.01	99.0%
November	0.99	99.1%	0.97	99.4%
December	0.97	99.6%	0.98	99.6%
All Months	0.99	99.7%	0.99	99.7%

Corn, North Central Iowa

Using Daily Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.94	99.4%	0.93	99.6%
February	0.96	99.7%	0.96	99.5%
March	0.96	99.8%	0.93	99.1%
April	0.96	99.9%	0.94	99.6%
May	0.96	99.9%	0.95	99.7%
June	0.96	99.9%	0.94	99.8%
July	0.99	99.8%	0.97	99.3%
August	1.06	99.5%	1.08	98.7%
September	1.07	98.3%	1.11	95.6%
October	0.95	99.3%	0.94	99.0%
November	0.94	99.4%	0.91	99.3%
December	0.93	99.4%	0.94	99.3%
All Months	0.98	99.4%	0.97	98.6%

Using Weekly Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.93	99.5%	0.93	99.7%
February	0.96	99.8%	0.95	100.0%
March	0.95	99.8%	0.95	99.2%
April	0.95	99.9%	0.90	99.6%
May	0.96	99.9%	0.88	99.9%
June	0.96	99.9%	0.94	97.0%
July	0.99	99.8%	0.78	94.4%
August	1.05	99.5%	1.09	99.4%
September	1.06	98.4%	0.89	98.4%
October	0.95	99.4%	1.07	95.7%
November	0.93	99.5%	0.90	98.5%
December	0.93	99.4%	0.92	99.6%
All Months	0.98	99.4%	0.97	98.7%

Using Monthly Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.93	99.5%	0.93	99.8%
February	0.96	99.8%	0.96	99.6%
March	0.95	99.8%	0.94	99.3%
April	0.96	100.0%	0.95	99.7%
May	0.96	100.0%	0.95	99.8%
June	0.96	100.0%	0.94	99.9%
July	0.99	99.9%	0.99	99.8%
August	1.06	99.6%	1.09	99.2%
September	1.07	98.5%	1.11	96.2%
October	0.95	99.6%	0.94	99.6%
November	0.94	99.5%	0.91	99.4%
December	0.93	99.4%	0.94	99.4%
All Months	0.98	99.4%	0.97	98.9%

Corn, Omaha

Using Daily Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.97	99.7%	0.97	99.5%
February	1.01	99.9%	1.01	99.6%
March	1.00	99.9%	0.98	99.1%
April	0.99	99.9%	0.97	99.6%
May	1.00	99.9%	0.99	99.6%
June	1.02	100.0%	0.99	99.7%
July	1.03	99.9%	1.01	99.0%
August	1.08	99.7%	1.10	98.6%
September	1.02	99.0%	1.06	97.4%
October	1.00	98.9%	0.99	98.2%
November	0.98	99.4%	0.95	99.3%
December	0.98	99.8%	0.98	98.9%
All Months	1.02	99.6%	1.01	98.8%

Using Weekly Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.97	99.7%	0.97	99.5%
February	1.01	99.9%	1.02	99.7%
March	1.00	99.9%	1.01	99.6%
April	0.98	99.9%	0.94	99.8%
May	1.00	99.9%	0.92	100.0%
June	1.02	100.0%	1.09	99.3%
July	1.03	99.9%	0.83	87.5%
August	1.08	99.8%	1.11	99.5%
September	1.02	99.2%	1.03	97.0%
October	1.00	99.1%	1.02	98.9%
November	0.98	99.4%	0.93	99.4%
December	0.98	99.8%	0.97	99.7%
All Months	1.02	99.7%	1.01	98.9%

Using Monthly Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.97	99.8%	0.97	99.7%
February	1.01	99.9%	1.02	99.6%
March	1.00	100.0%	0.98	99.2%
April	0.99	100.0%	0.98	99.7%
May	1.00	100.0%	0.99	99.7%
June	1.02	100.0%	0.99	99.8%
July	1.03	99.9%	1.03	99.6%
August	1.08	99.8%	1.11	99.4%
September	1.03	99.8%	1.08	98.6%
October	1.00	99.4%	0.99	98.9%
November	0.98	99.6%	0.95	99.6%
December	0.98	99.9%	0.98	99.1%
All Months	1.02	99.8%	1.01	99.2%

Corn, Toledo

Using Daily Data

| | National Corn Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.1%	0.99	99.0%
February	0.99	99.1%	1.00	99.4%
March	1.02	99.0%	1.01	99.5%
April	1.03	99.5%	1.02	99.7%
May	1.03	99.7%	1.02	99.8%
June	1.02	99.8%	0.99	99.8%
July	1.05	99.5%	1.03	99.2%
August	0.99	99.5%	1.01	98.8%
September	0.94	98.6%	0.99	98.6%
October	0.99	98.8%	0.98	99.1%
November	0.99	98.8%	0.96	98.9%
December	1.00	99.4%	1.01	99.5%
All Months	1.01	99.3%	1.01	99.2%

Using Weekly Data

| | National Corn Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	0.99	99.1%
February	0.99	99.2%	0.98	99.9%
March	1.02	99.0%	1.01	99.9%
April	1.02	99.5%	1.05	96.5%
May	1.04	99.7%	0.98	99.8%
June	1.01	99.8%	1.03	99.8%
July	1.05	99.6%	0.80	81.1%
August	0.99	99.5%	1.07	99.6%
September	0.94	98.6%	0.98	99.0%
October	0.99	98.9%	0.91	98.6%
November	0.99	98.9%	1.00	96.6%
December	1.00	99.4%	0.97	99.9%
All Months	1.01	99.3%	1.01	99.2%

Using Monthly Data

| | National Corn Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	0.99	99.2%
February	0.99	99.1%	1.00	99.5%
March	1.02	99.0%	1.01	99.6%
April	1.03	99.6%	1.02	99.7%
May	1.03	99.7%	1.02	99.8%
June	1.01	99.8%	0.99	99.9%
July	1.05	99.6%	1.04	99.7%
August	0.99	99.6%	1.02	99.7%
September	0.94	98.8%	0.99	99.2%
October	0.99	99.3%	0.99	99.7%
November	0.99	99.0%	0.96	99.2%
December	1.00	99.5%	1.01	99.7%
All Months	1.01	99.4%	1.01	99.4%

Corn, Pacific Northwest

Using Daily Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.08	96.9%	1.06	94.8%
February	1.06	98.1%	1.06	96.8%
March	1.03	98.1%	1.01	96.6%
April	1.00	98.9%	0.98	98.1%
May	1.02	99.3%	1.01	98.8%
June	1.03	98.1%	1.00	97.2%
July	0.94	91.1%	0.95	90.1%
August	0.66	89.2%	0.68	88.9%
September	0.90	95.1%	0.95	95.9%
October	1.04	98.6%	1.03	98.2%
November	1.05	98.0%	1.02	96.2%
December	1.07	97.0%	1.06	93.8%
All Months	0.95	94.4%	0.95	93.9%

Using Weekly Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.08	97.1%	1.06	94.9%
February	1.06	98.2%	0.95	94.7%
March	1.04	98.4%	1.04	98.9%
April	1.01	99.0%	0.87	99.2%
May	1.02	99.4%	1.09	99.6%
June	1.02	98.8%	1.02	90.8%
July	0.86	88.7%	0.76	92.4%
August	0.67	89.5%	0.70	84.5%
September	0.91	95.3%	1.16	99.3%
October	1.04	98.7%	0.99	97.8%
November	1.06	98.2%	1.06	97.4%
December	1.07	97.2%	1.04	97.0%
All Months	0.95	94.7%	0.95	94.3%

Using Monthly Data

	National Corn Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.09	97.5%	1.07	95.5%
February	1.06	98.3%	1.06	97.0%
March	1.03	98.5%	1.01	97.2%
April	1.00	99.1%	0.99	98.5%
May	1.02	99.5%	1.01	99.1%
June	1.02	99.4%	1.00	99.0%
July	0.67	89.4%	0.72	90.4%
August	0.67	90.2%	0.69	91.3%
September	0.91	95.9%	0.96	96.9%
October	1.04	99.0%	1.04	98.7%
November	1.06	98.5%	1.02	96.8%
December	1.07	97.4%	1.07	94.4%
All Months	0.92	93.6%	0.93	94.1%

Corn, Gulf

Using Daily Data

| | National Corn Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.03	98.1%	1.02	97.0%
February	1.04	98.8%	1.05	98.3%
March	1.04	99.1%	1.02	98.5%
April	0.99	99.7%	0.98	99.4%
May	1.00	99.6%	0.99	99.7%
June	0.98	99.4%	0.96	99.4%
July	0.98	99.3%	0.97	98.8%
August	0.96	98.7%	0.98	99.0%
September	0.89	98.1%	0.94	97.5%
October	1.02	98.2%	1.01	97.6%
November	1.01	98.4%	0.97	97.5%
December	0.95	97.9%	0.95	96.4%
All Months	0.98	98.5%	0.97	98.1%

Using Weekly Data

| | National Corn Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.03	98.2%	1.02	97.1%
February	1.04	98.7%	1.07	99.2%
March	1.04	99.1%	1.04	99.6%
April	0.99	99.7%	0.85	98.4%
May	1.00	99.6%	0.98	99.9%
June	0.98	99.3%	0.93	99.7%
July	0.99	99.4%	0.63	78.8%
August	0.96	98.8%	1.07	98.5%
September	0.90	98.0%	1.02	98.9%
October	1.01	98.3%	0.94	94.8%
November	1.01	98.4%	1.06	97.0%
December	0.96	98.0%	0.99	98.3%
All Months	0.98	98.5%	0.97	98.2%

Using Monthly Data

| | National Corn Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.03	98.3%	1.02	97.3%
February	1.04	98.8%	1.05	98.4%
March	1.04	99.2%	1.02	98.6%
April	0.99	99.7%	0.98	99.6%
May	1.00	99.7%	0.99	99.7%
June	0.98	99.5%	0.96	99.6%
July	0.98	99.5%	0.98	99.2%
August	0.95	99.2%	0.98	99.3%
September	0.90	98.7%	0.95	98.4%
October	1.01	98.4%	1.01	98.0%
November	1.01	98.7%	0.98	98.1%
December	0.95	98.4%	0.95	96.9%
All Months	0.98	98.7%	0.97	98.4%

Soybeans, Central Illinois

Using Daily Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.9%	1.01	99.9%
February	1.00	99.9%	1.00	99.9%
March	1.00	100.0%	0.99	99.9%
April	1.00	100.0%	0.97	100.0%
May	1.00	100.0%	0.99	100.0%
June	1.01	99.7%	0.99	99.7%
July	1.01	99.8%	0.99	99.7%
August	1.02	99.8%	0.97	99.2%
September	1.02	99.7%	0.95	98.4%
October	1.02	99.8%	0.99	99.7%
November	1.01	99.8%	0.98	99.8%
December	1.00	99.9%	1.00	99.9%
All Months	1.01	99.8%	0.98	99.6%

Using Weekly Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.9%	1.01	99.9%
February	1.00	99.9%	0.99	99.7%
March	1.00	100.0%	1.05	100.0%
April	1.00	100.0%	0.92	99.8%
May	1.00	100.0%	0.92	98.8%
June	1.01	99.8%	1.13	99.9%
July	1.01	99.9%	1.02	94.4%
August	1.02	99.8%	0.95	100.0%
September	1.02	99.8%	1.05	98.1%
October	1.01	99.8%	0.97	99.1%
November	1.01	99.9%	1.09	98.9%
December	1.00	99.9%	0.99	98.7%
All Months	1.01	99.9%	0.98	99.7%

Using Monthly Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.9%	1.01	99.9%
February	1.00	100.0%	1.00	100.0%
March	1.00	100.0%	0.98	99.9%
April	1.00	100.0%	0.97	100.0%
May	1.00	100.0%	0.99	100.0%
June	1.01	99.9%	0.98	99.9%
July	1.01	99.9%	0.99	99.9%
August	1.02	99.9%	0.97	99.6%
September	1.02	99.9%	0.96	99.4%
October	1.02	99.8%	0.99	99.7%
November	1.01	99.9%	0.98	99.8%
December	1.00	99.9%	1.00	99.9%
All Months	1.01	99.9%	0.98	99.8%

Soybeans, North Central Iowa

Using Daily Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.00	99.7%
February	0.99	99.9%	0.99	99.8%
March	0.99	99.8%	0.97	99.8%
April	0.99	99.9%	0.96	99.9%
May	0.99	99.9%	0.98	99.9%
June	0.98	99.9%	0.96	99.9%
July	1.00	99.8%	0.97	99.6%
August	1.02	99.8%	0.96	98.7%
September	1.02	99.7%	0.96	98.4%
October	0.98	99.7%	0.95	99.4%
November	0.99	99.8%	0.97	99.6%
December	0.99	99.8%	0.99	99.7%
All Months	1.00	99.8%	0.97	99.5%

Using Weekly Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	0.99	99.7%
February	0.99	99.9%	0.92	99.8%
March	0.99	99.9%	1.02	99.5%
April	0.99	99.9%	0.92	99.8%
May	0.99	99.9%	0.93	98.9%
June	0.98	99.9%	1.09	99.2%
July	0.99	99.8%	0.98	94.7%
August	1.02	99.8%	0.93	100.0%
September	1.01	99.7%	1.05	97.0%
October	0.98	99.7%	0.96	98.9%
November	0.99	99.8%	1.03	98.0%
December	0.99	99.8%	0.98	98.6%
All Months	0.99	99.7%	0.99	99.7%

Using Monthly Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	0.99	99.7%
February	0.99	99.9%	0.99	99.8%
March	0.99	99.9%	0.97	99.8%
April	0.99	99.9%	0.96	99.9%
May	1.00	99.9%	0.98	99.9%
June	0.98	100.0%	0.96	100.0%
July	1.00	99.9%	0.98	99.9%
August	1.02	99.9%	0.97	99.2%
September	1.02	99.8%	0.96	99.2%
October	0.98	99.8%	0.95	99.6%
November	1.00	99.8%	0.97	99.7%
December	0.99	99.8%	0.99	99.7%
All Months	0.99	99.8%	0.99	99.7%

Soybeans, Omaha

Using Daily Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.9%	0.99	99.6%
February	1.00	100.0%	1.00	99.7%
March	1.00	99.9%	0.98	99.8%
April	0.99	99.9%	0.96	99.8%
May	0.99	99.9%	0.98	99.8%
June	0.99	99.9%	0.96	99.8%
July	0.99	99.9%	0.96	99.6%
August	0.98	99.5%	0.93	98.2%
September	0.96	99.4%	0.90	97.0%
October	0.96	99.6%	0.93	99.5%
November	0.99	99.7%	0.96	99.6%
December	1.00	99.9%	1.00	99.6%
All Months	0.99	99.7%	0.96	99.2%

Using Weekly Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.9%	1.00	99.6%
February	1.00	100.0%	0.98	98.9%
March	1.00	100.0%	1.05	99.8%
April	0.99	99.9%	0.92	99.8%
May	0.99	99.9%	0.94	98.1%
June	0.99	99.9%	1.16	99.8%
July	0.98	99.9%	0.99	93.0%
August	0.98	99.6%	0.93	99.7%
September	0.96	99.5%	1.09	98.6%
October	0.96	99.8%	0.97	99.3%
November	0.99	99.8%	1.02	97.9%
December	1.00	99.9%	0.98	98.8%
All Months	0.99	99.8%	0.96	99.3%

Using Monthly Data

	National Soybean Index		Chicago Cash	
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.9%	1.00	99.7%
February	1.00	100.0%	1.00	99.8%
March	1.00	100.0%	0.98	99.8%
April	0.99	99.9%	0.96	99.8%
May	0.99	99.9%	0.98	99.9%
June	0.99	100.0%	0.96	99.9%
July	0.98	99.9%	0.96	99.9%
August	0.98	99.6%	0.93	98.7%
September	0.96	99.7%	0.91	98.7%
October	0.96	99.8%	0.93	99.8%
November	0.99	99.9%	0.96	99.8%
December	1.00	99.9%	1.00	99.6%
All Months	0.99	99.8%	0.97	99.5%

Soybeans, Toledo

Using Daily Data

| | National Soybean Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	1.00	99.7%	1.00	99.7%
February	1.01	99.9%	1.01	99.9%
March	1.01	99.9%	1.00	99.9%
April	1.01	99.9%	0.98	99.9%
May	1.01	99.9%	1.00	100.0%
June	1.02	99.8%	0.99	99.9%
July	1.02	99.8%	1.00	99.6%
August	1.02	99.4%	0.97	99.3%
September	1.02	99.3%	0.96	99.1%
October	1.02	99.8%	0.99	99.8%
November	1.00	99.7%	0.98	99.7%
December	1.00	99.7%	1.01	99.8%
All Months	1.01	99.7%	0.99	99.7%

Using Weekly Data

| | National Soybean Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.7%	1.00	99.7%
February	1.00	99.9%	0.97	99.8%
March	1.01	99.9%	1.05	100.0%
April	1.01	99.9%	0.94	99.7%
May	1.01	99.9%	0.96	99.5%
June	1.02	99.9%	1.09	99.9%
July	1.02	99.8%	1.02	94.9%
August	1.02	99.6%	0.97	99.9%
September	1.01	99.4%	1.02	97.7%
October	1.02	99.8%	0.99	99.5%
November	1.01	99.7%	1.10	98.3%
December	1.00	99.7%	1.00	99.4%
All Months	1.01	99.7%	0.99	99.7%

Using Monthly Data

| | National Soybean Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.8%	1.00	99.7%
February	1.01	99.9%	1.01	99.9%
March	1.01	99.9%	1.00	99.9%
April	1.01	99.9%	0.98	99.9%
May	1.01	99.9%	1.00	100.0%
June	1.02	99.9%	0.99	99.9%
July	1.02	99.9%	1.00	99.8%
August	1.02	99.7%	0.97	99.6%
September	1.01	99.6%	0.97	99.8%
October	1.02	99.9%	0.99	99.9%
November	1.00	99.7%	0.97	99.7%
December	1.00	99.7%	1.01	99.9%
All Months	1.01	99.8%	0.99	99.8%

Soybeans, Gulf

Using Daily Data

| | National Soybean Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	1.00	99.0%
February	1.00	99.6%	1.00	99.5%
March	1.00	99.6%	0.99	99.6%
April	1.00	99.8%	0.97	99.8%
May	1.00	99.9%	0.98	99.9%
June	0.98	99.8%	0.95	99.9%
July	0.96	99.8%	0.94	99.6%
August	0.98	99.1%	0.93	98.8%
September	1.01	98.8%	0.95	98.3%
October	1.02	99.6%	0.99	99.5%
November	1.00	99.6%	0.97	99.4%
December	0.98	99.6%	0.98	99.4%
All Months	0.98	99.3%	0.96	99.2%

Using Weekly Data

| | National Soybean Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	1.00	99.0%
February	1.00	99.5%	0.99	99.8%
March	1.00	99.6%	1.02	99.8%
April	1.00	99.8%	0.93	99.8%
May	1.00	99.9%	0.96	99.4%
June	0.98	99.8%	1.06	100.0%
July	0.96	99.7%	0.99	94.5%
August	0.97	99.2%	0.93	99.5%
September	1.02	99.1%	0.99	97.6%
October	1.02	99.6%	0.99	99.1%
November	1.00	99.5%	1.12	99.3%
December	0.98	99.6%	0.99	98.6%
All Months	0.98	99.3%	0.96	99.3%

Using Monthly Data

| | National Soybean Index | | Chicago Cash | |
	Optimal Hedge Ratio	Hedge Effectiveness	Optimal Hedge Ratio	Hedge Effectiveness
January	0.99	99.2%	1.00	99.0%
February	1.00	99.6%	1.00	99.5%
March	1.00	99.7%	0.99	99.7%
April	1.00	99.9%	0.97	99.9%
May	0.99	99.9%	0.98	100.0%
June	0.98	99.8%	0.95	99.9%
July	0.96	99.8%	0.94	99.8%
August	0.98	99.3%	0.93	99.3%
September	1.01	99.4%	0.96	99.4%
October	1.02	99.7%	0.99	99.6%
November	1.00	99.6%	0.97	99.6%
December	0.98	99.6%	0.98	99.5%
All Months	0.98	99.4%	0.96	99.4%

Phase III Appendix Tables

NCI (MGEX) Hedge Effectiveness, Illinois Corn
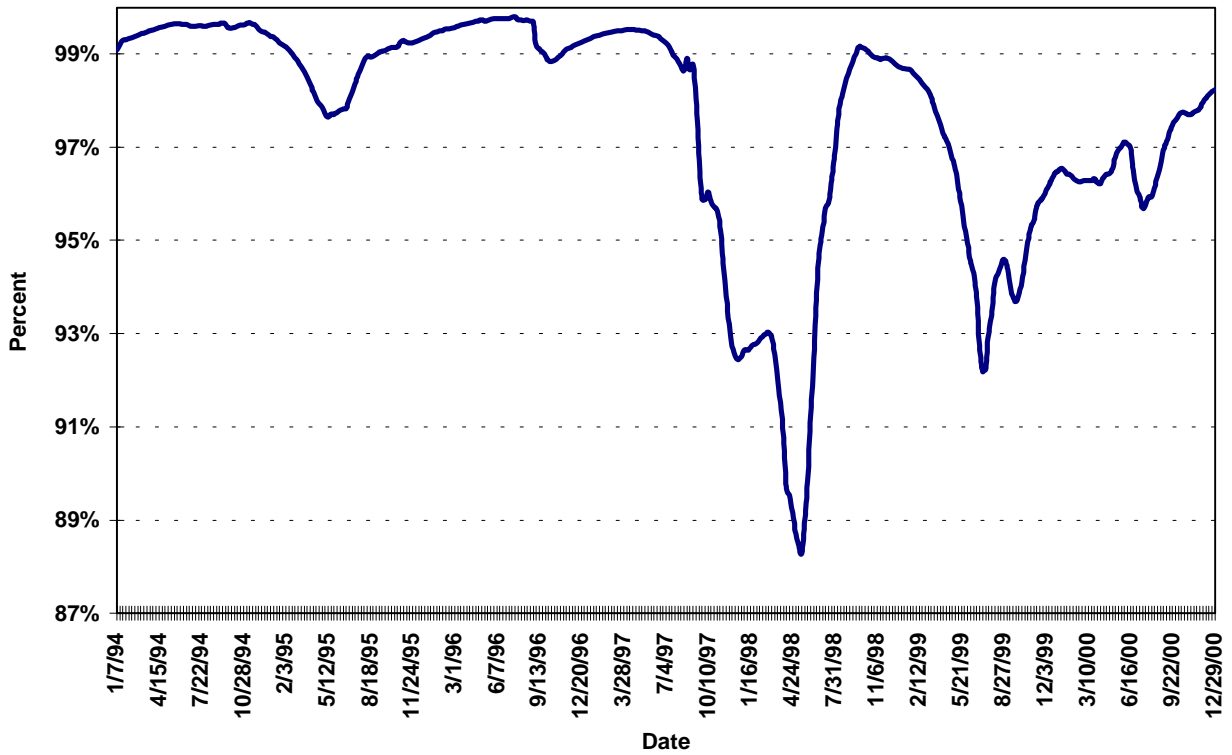
NCI (MGEX) Optimal Hedge Ratio, Illinois Corn
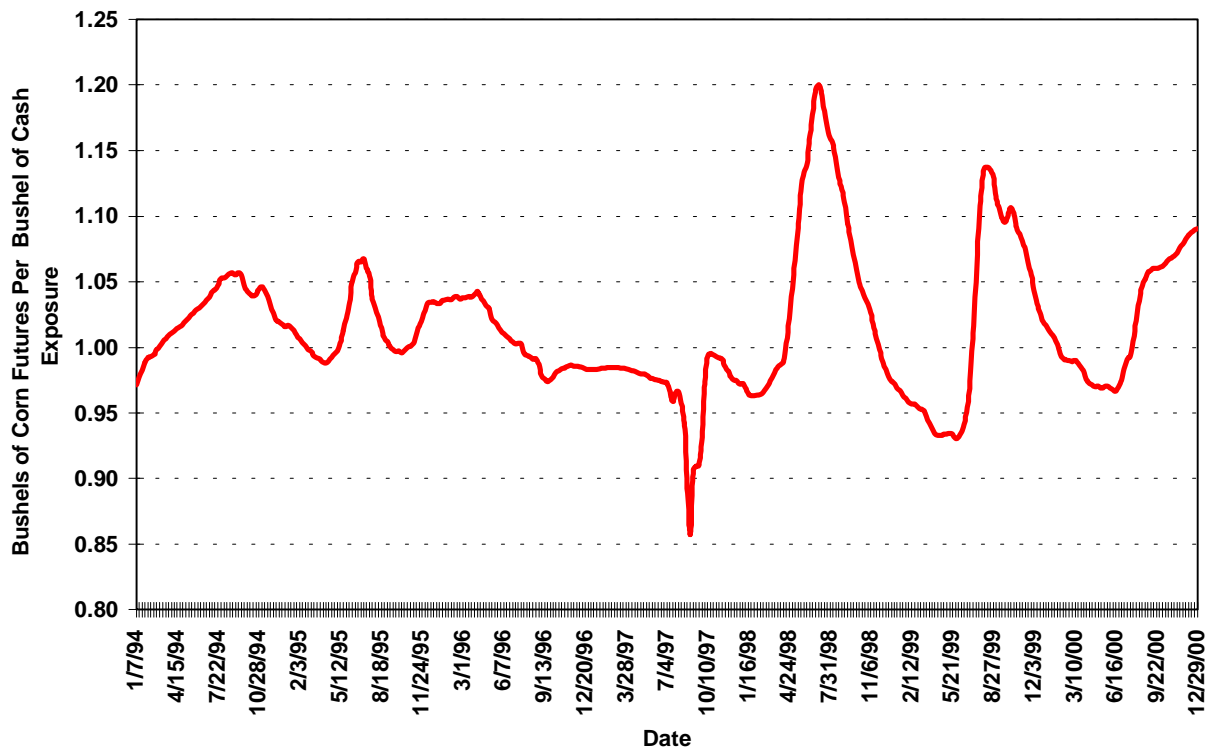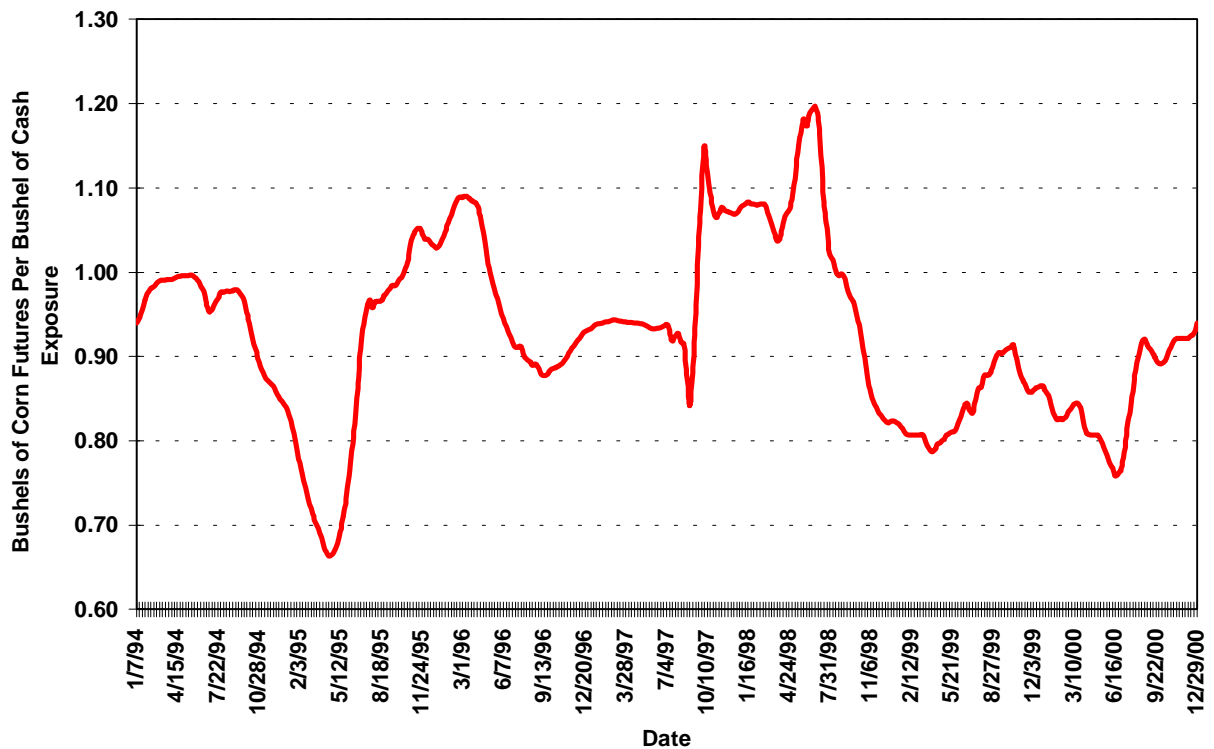
NCI (MGEX) Hedge Effectiveness, NC Iowa Corn
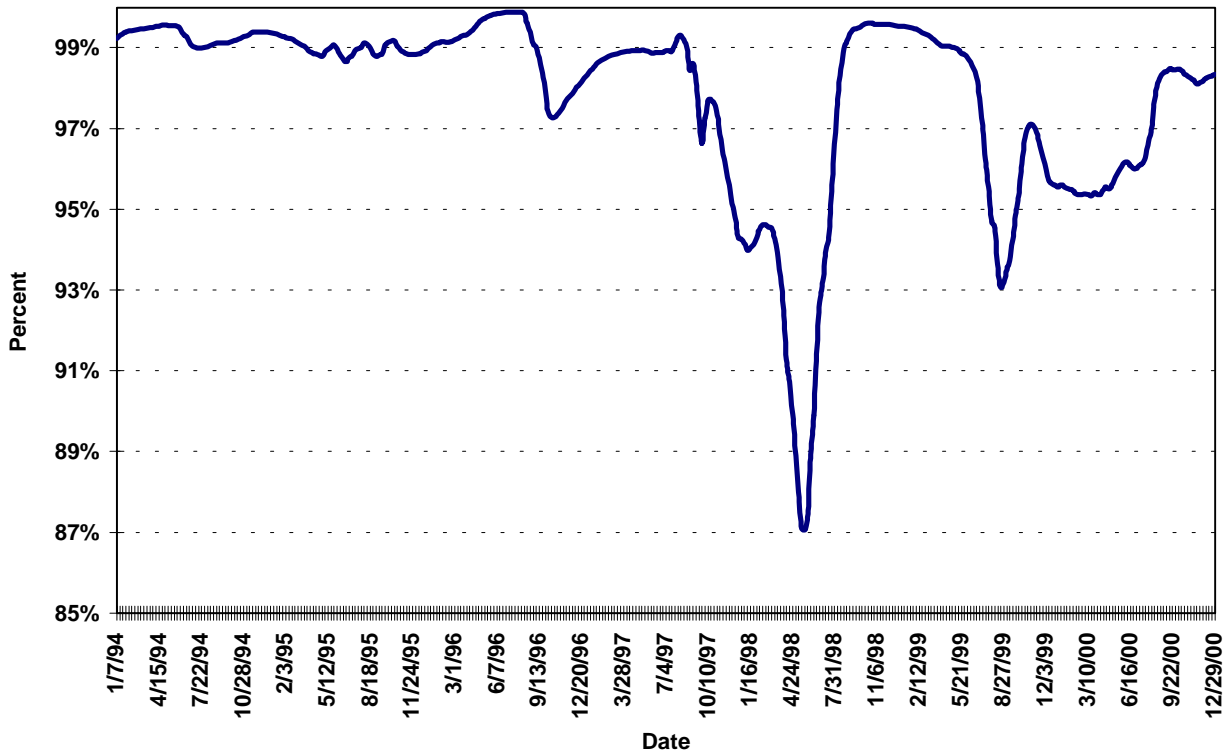
NCI (MGEX) Optimal Hedge Ratio, NC Iowa Corn
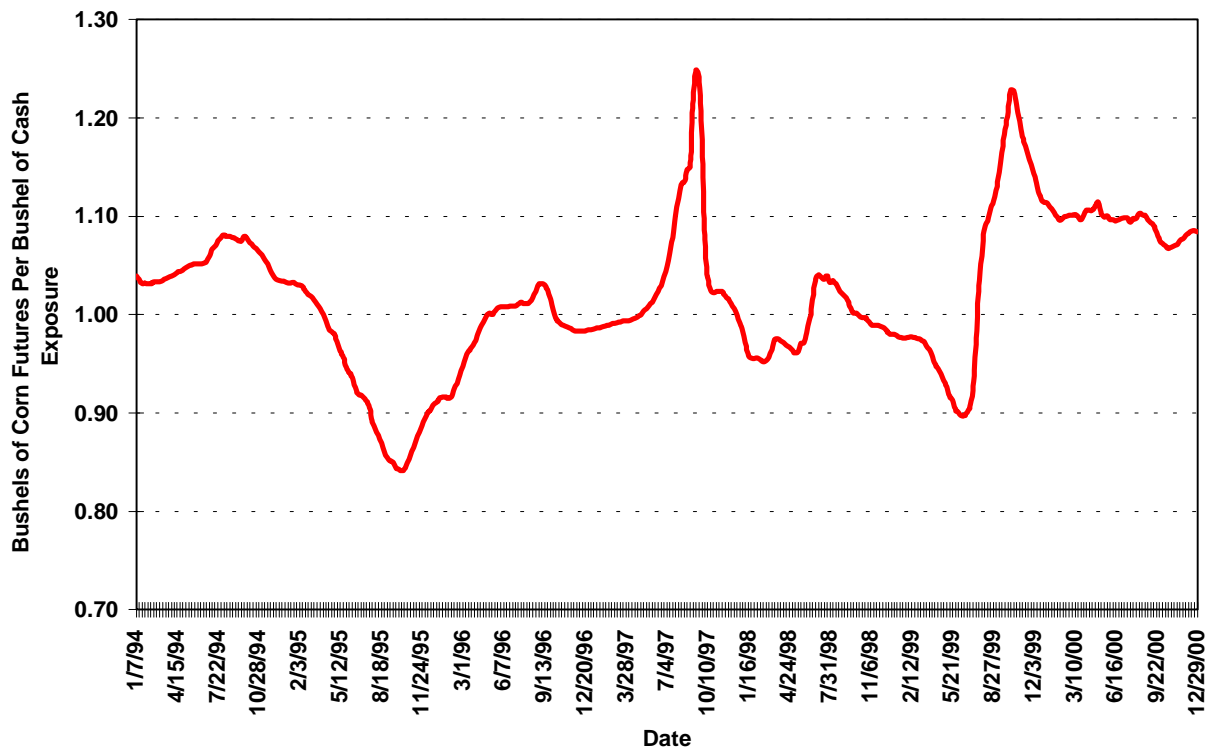
NCI (MGEX) Hedge Effectiveness, Omaha Corn
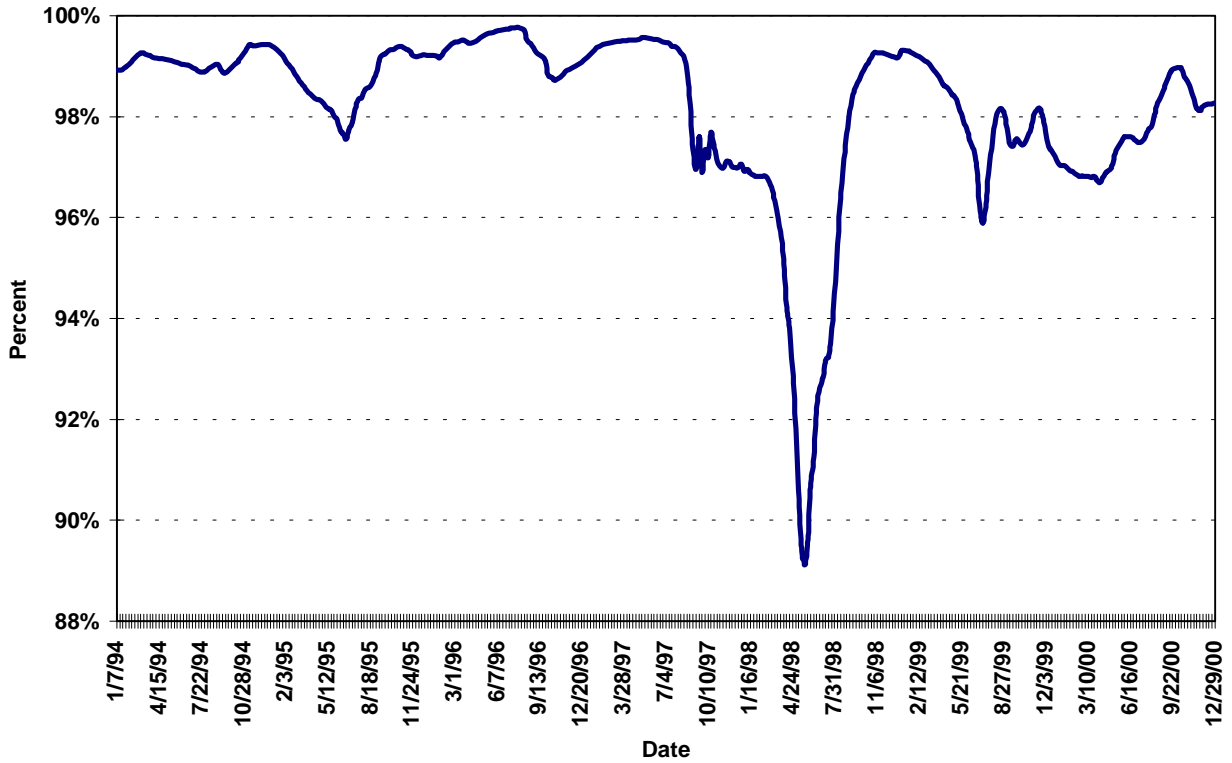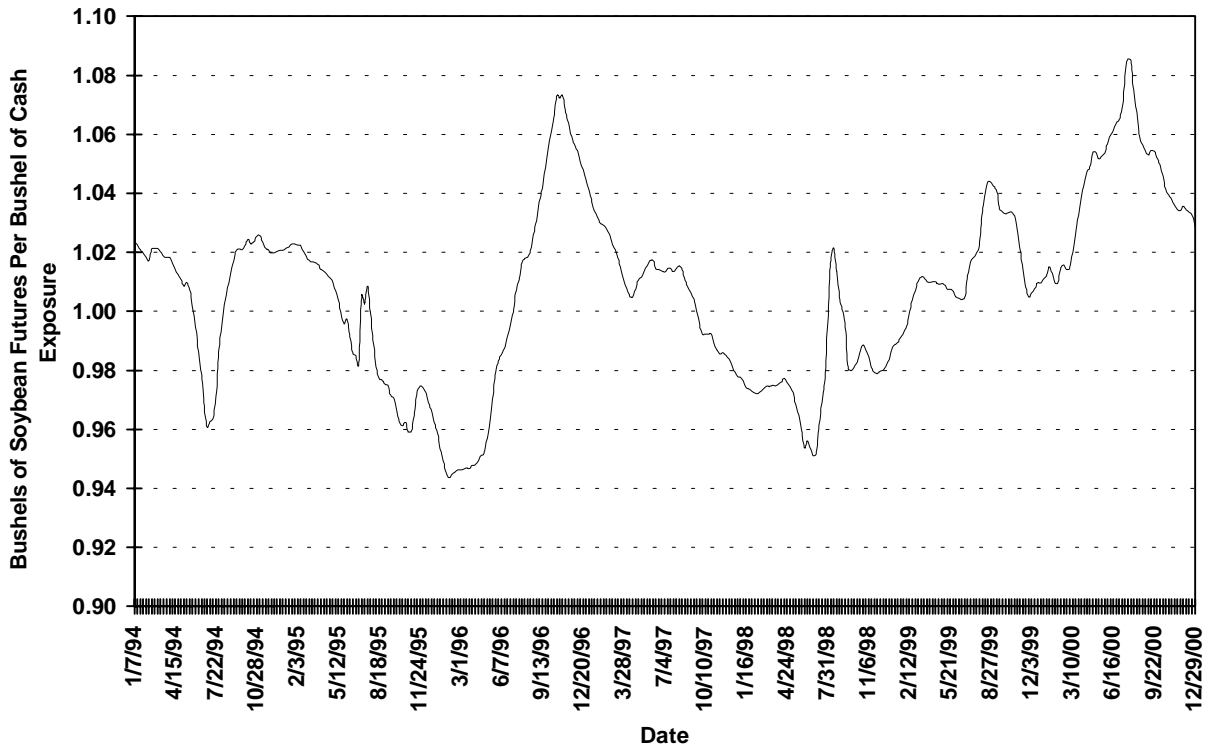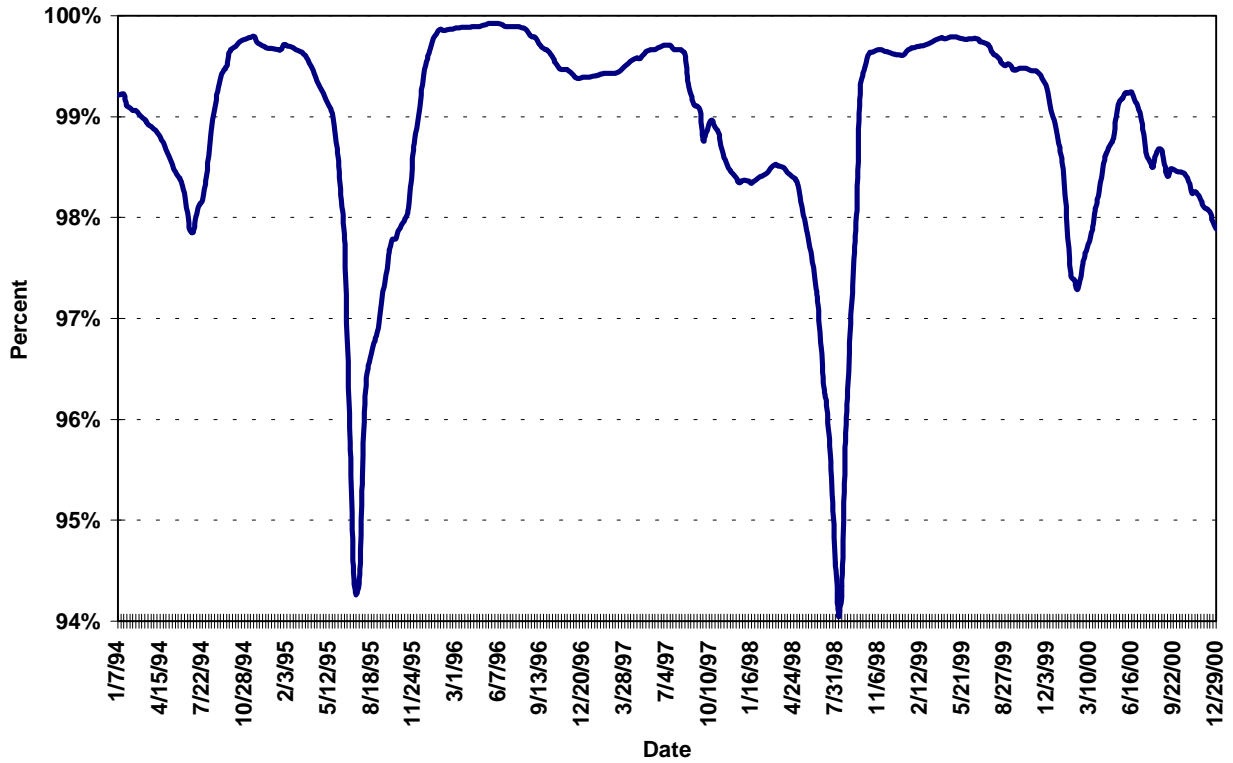

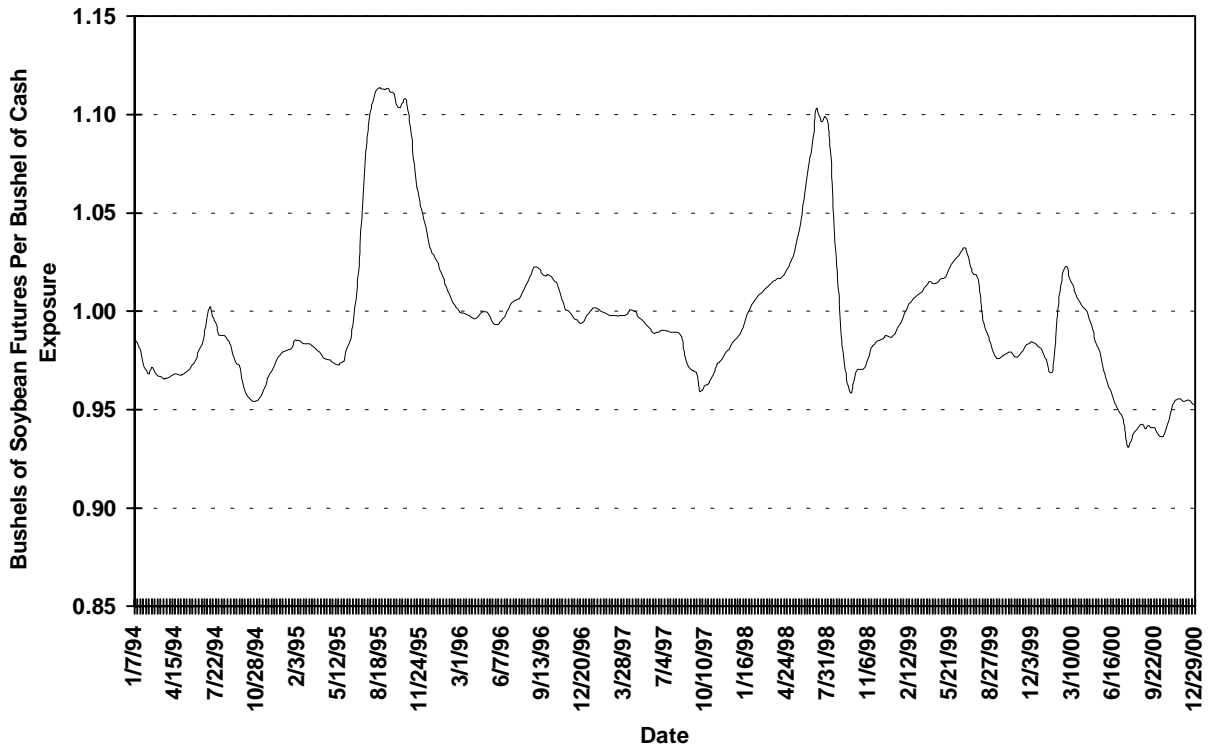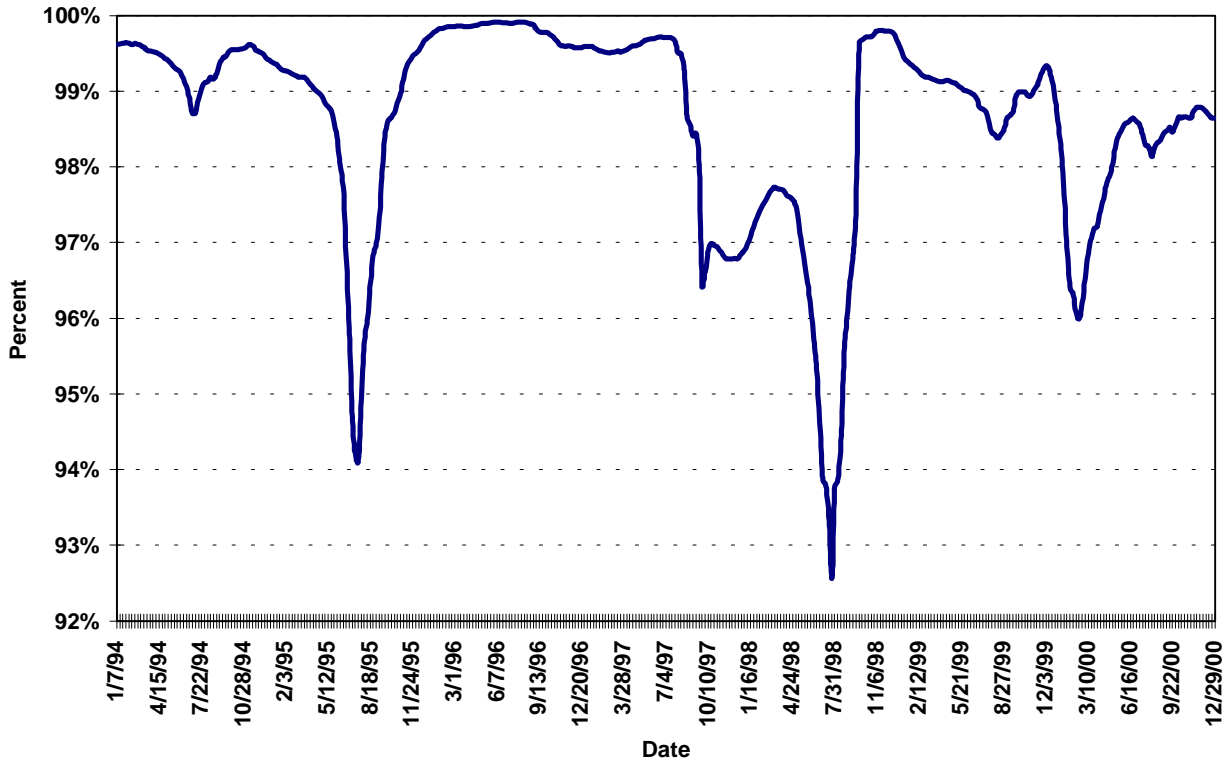## NCI (MGEX) Optimal Hedge Ratio, Omaha Corn
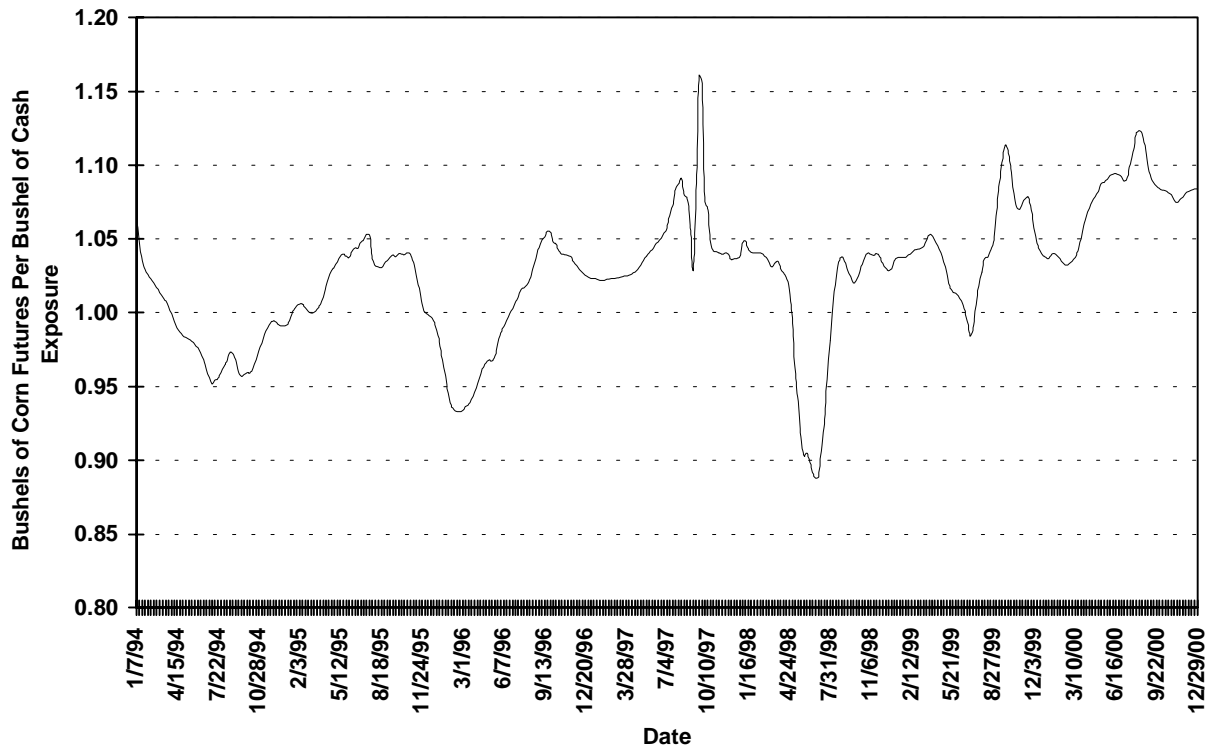
NCI (MGEX) Hedge Effectiveness, Toledo Corn
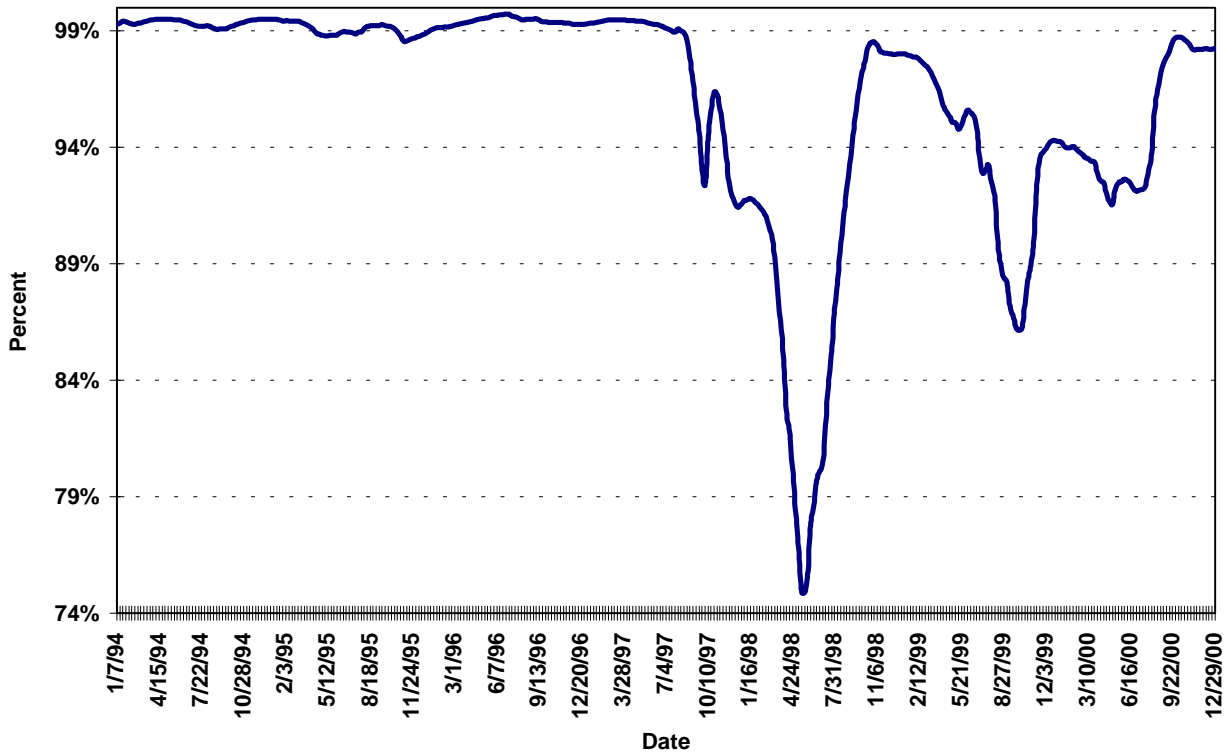
NCI (MGEX) Optimal Hedge Ratio, Toledo Corn
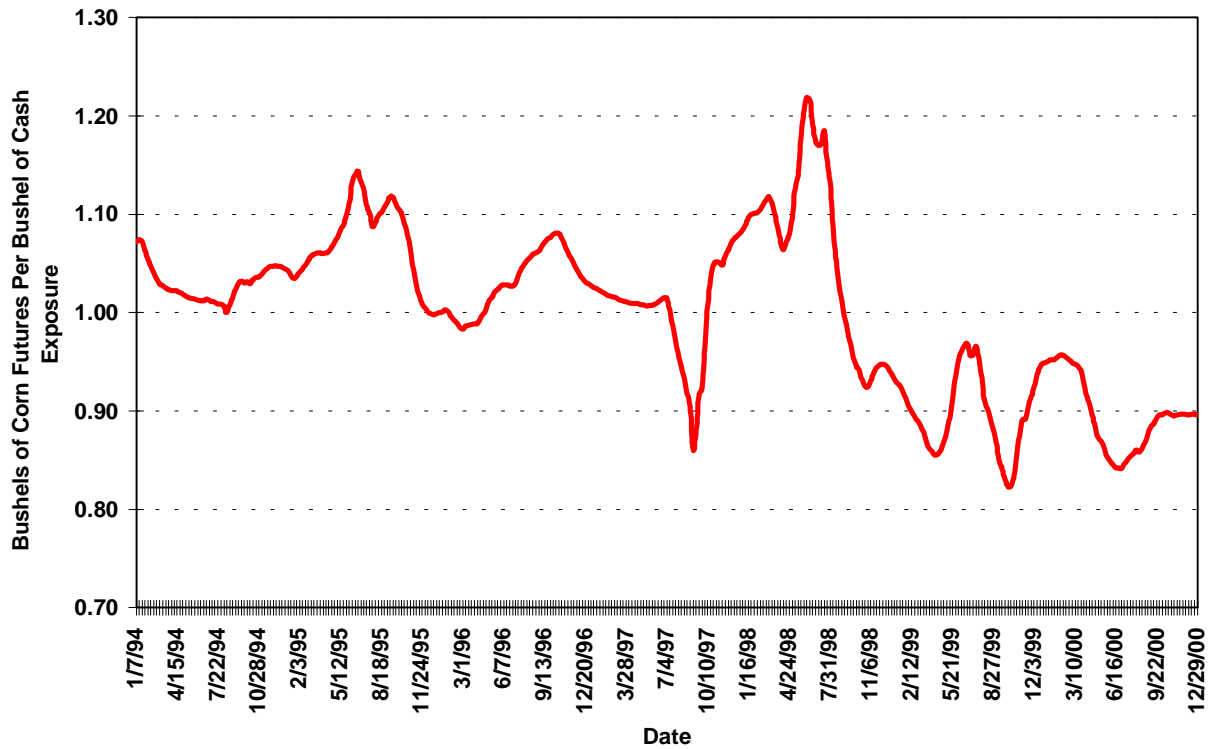
NCI (MGEX) Hedge Effectiveness, Chicago Corn
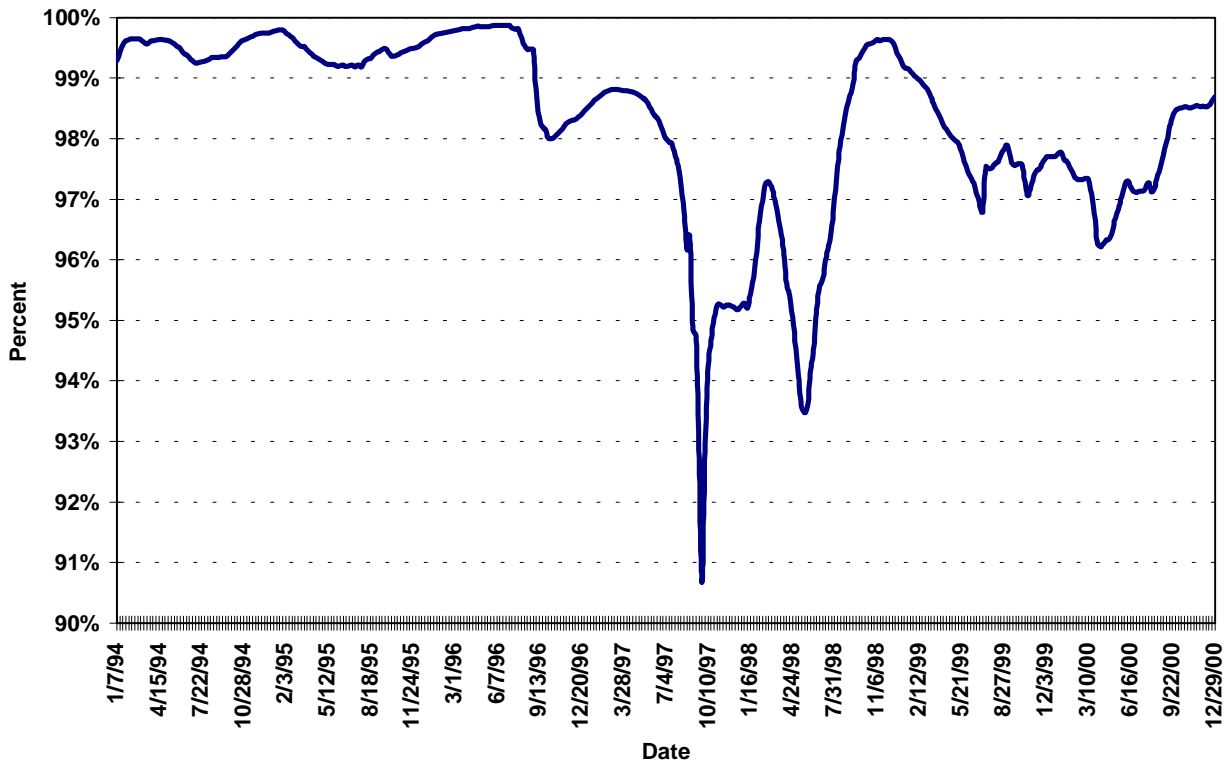
NCI (MGEX) Optimal Hedge Ratio, Chicago Corn
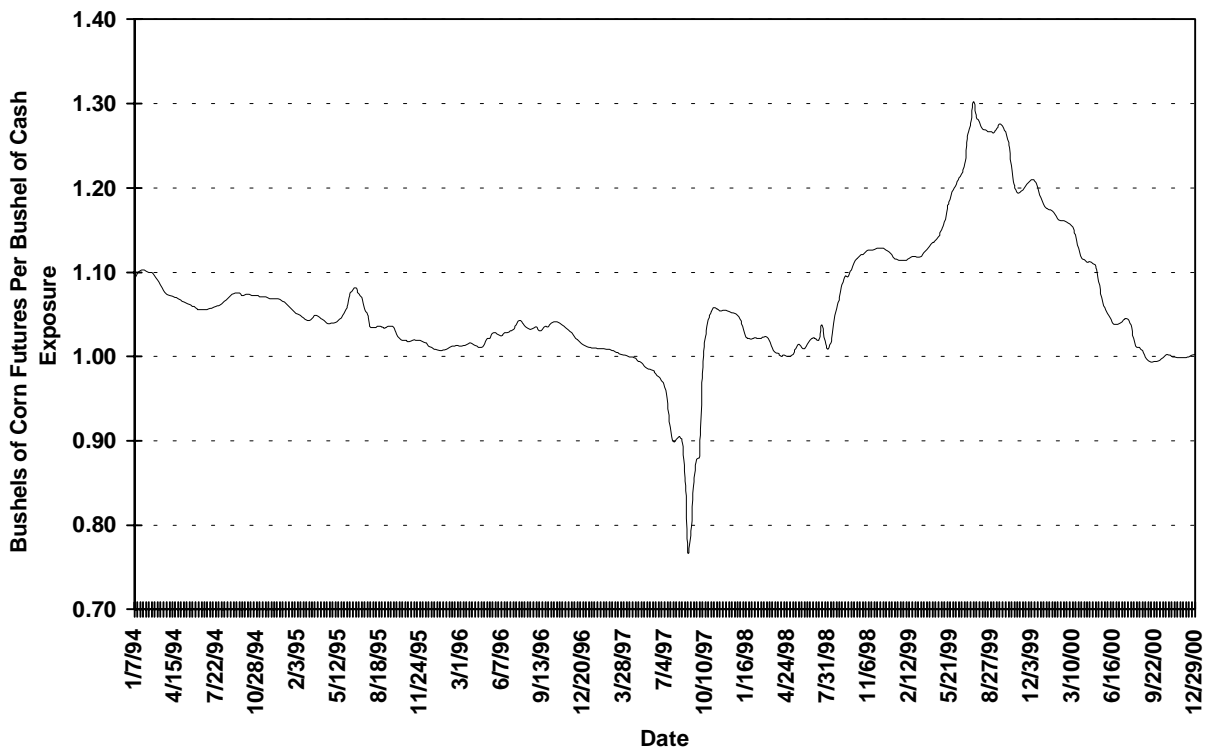
NCI (MGEX) Hedge Effectiveness, Gulf Corn
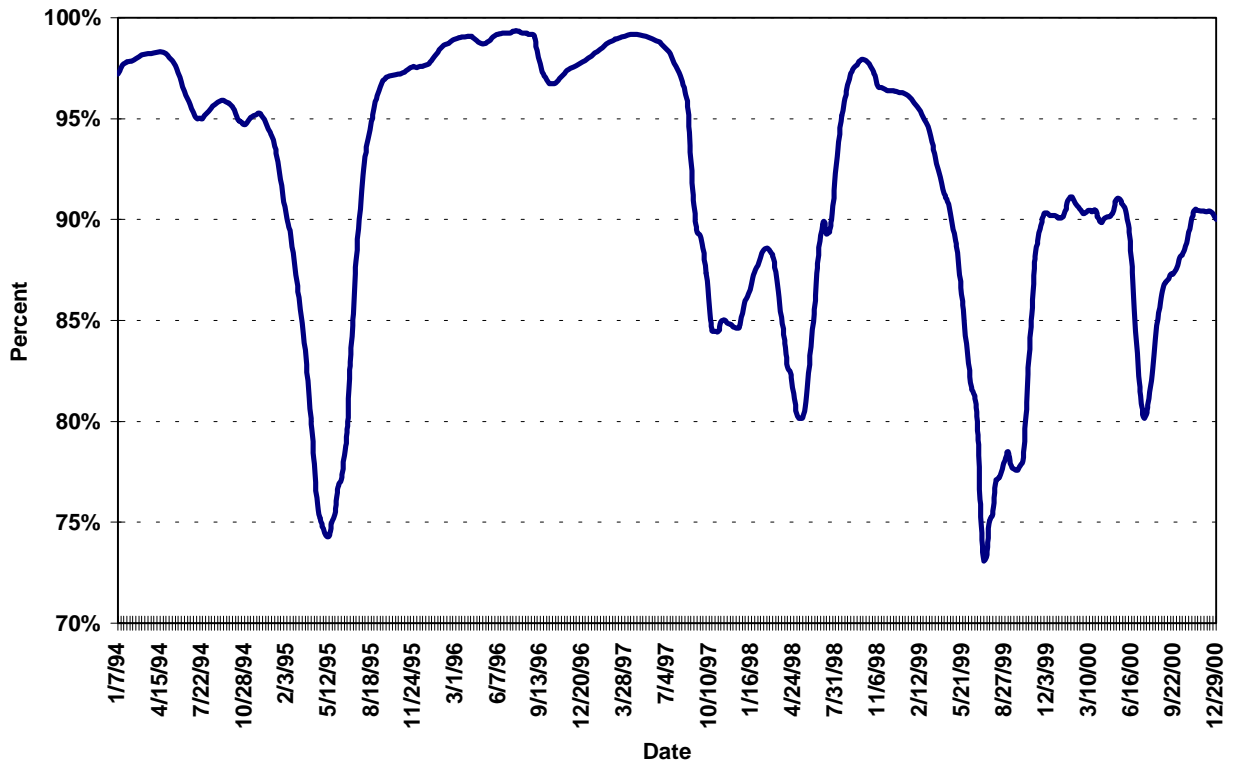
NCI (MGEX) Optimal Hedge Ratio, Gulf Corn

NSI (MGEX) Hedge Effectiveness, Central Illinois Soybeans
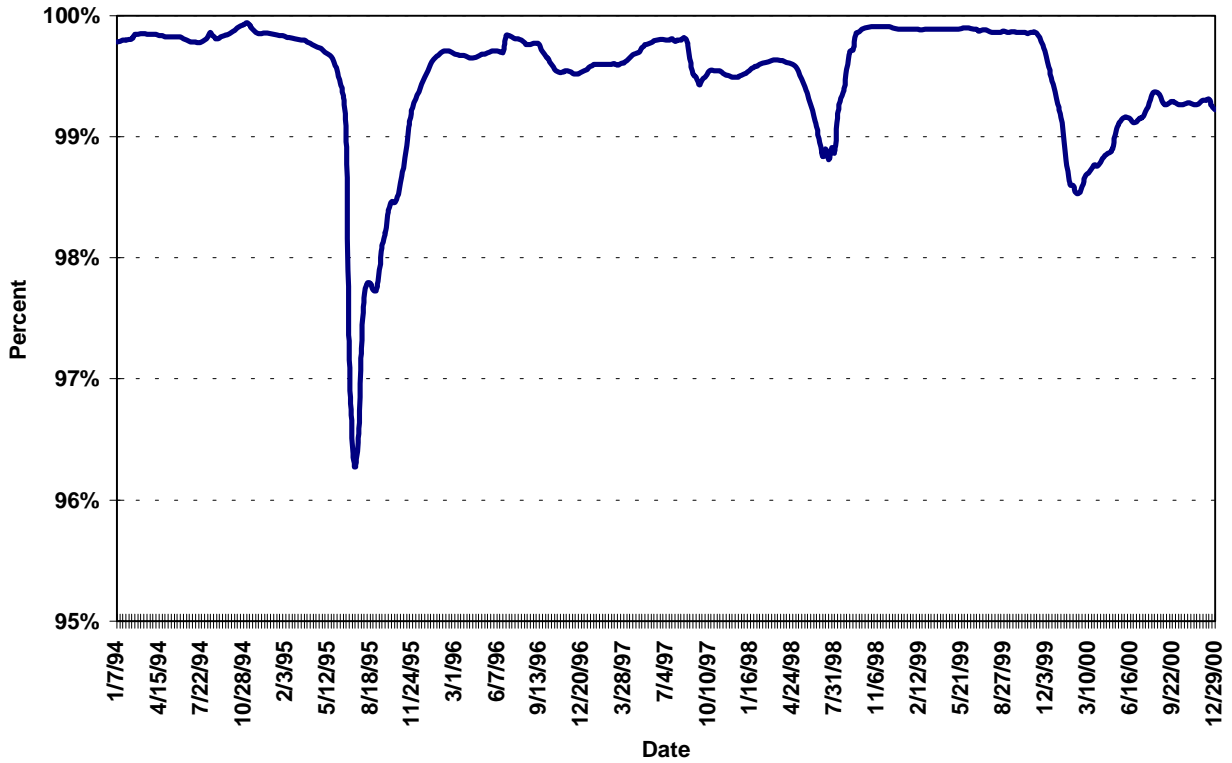
NSI (MGEX) Optimal Hedge Ratio, Central Illinois Soybeans
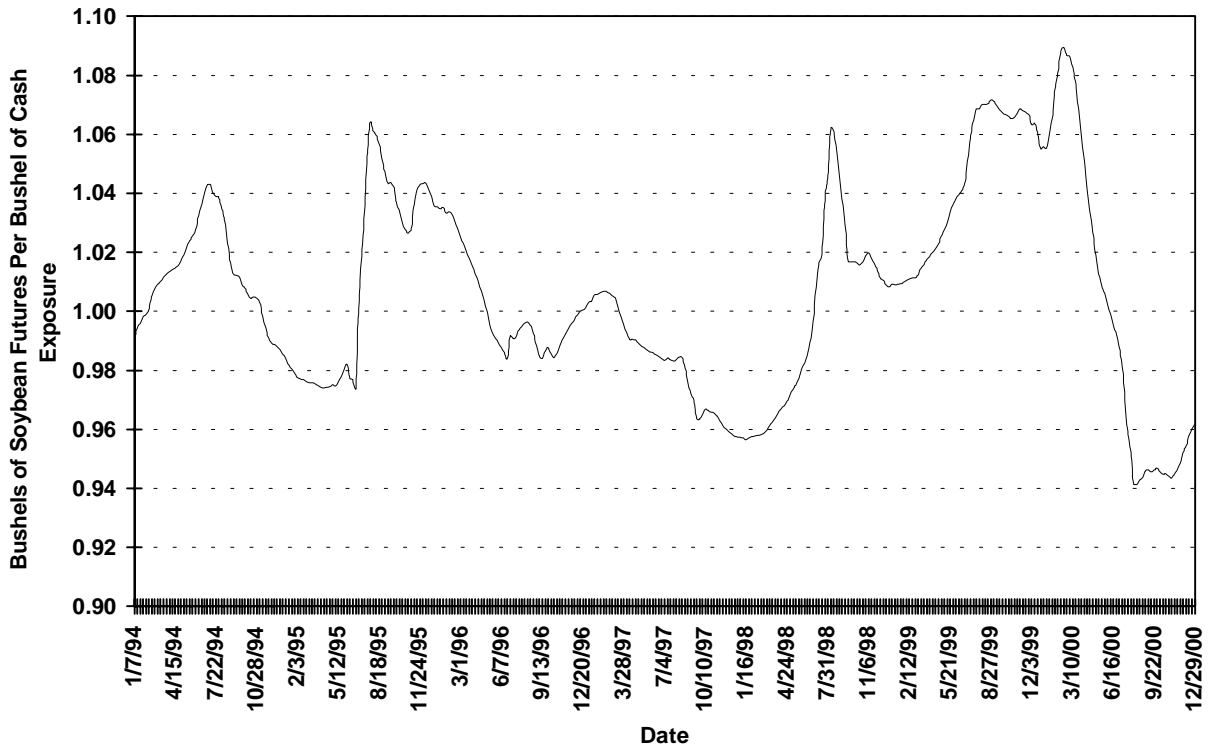
NSI (MGEX) Hedge Effectiveness, NW Iowa Soybeans
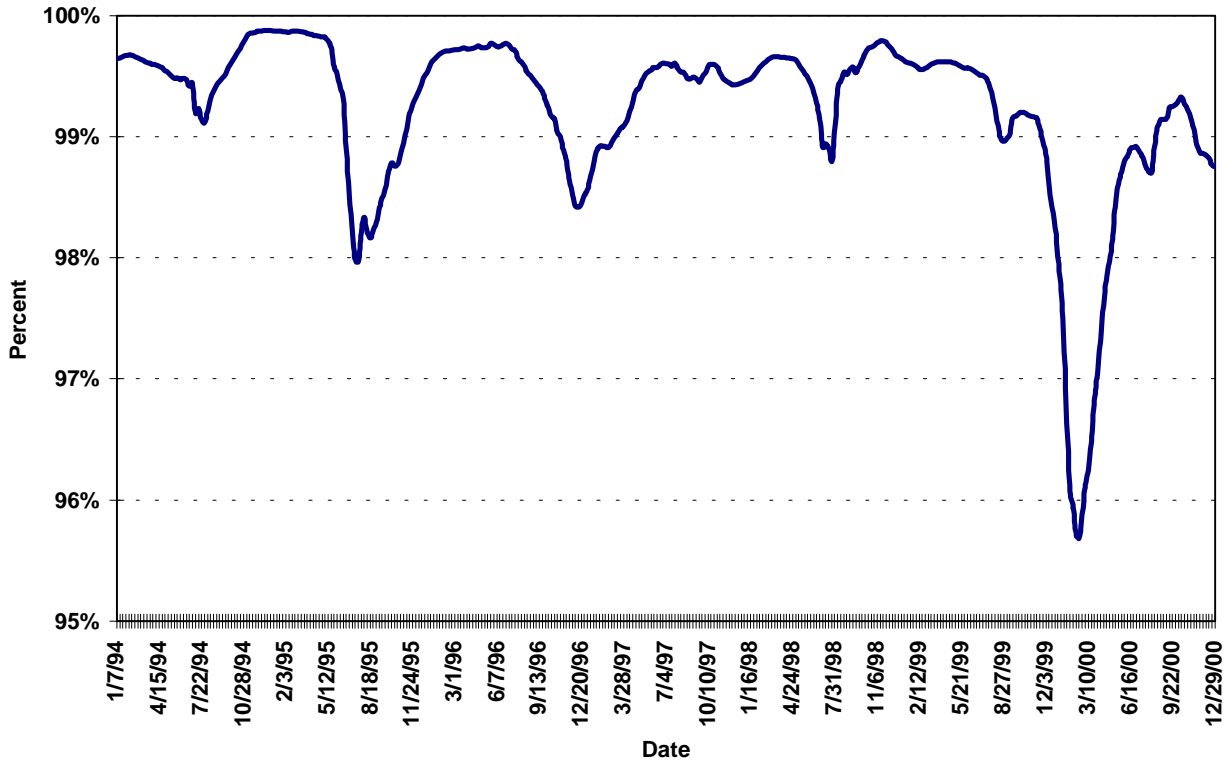
NSI (MGEX) Optimal Hedge Ratio, NW Iowa Soybeans

NSI (MGEX) Hedge Effectiveness, Omaha Soybeans
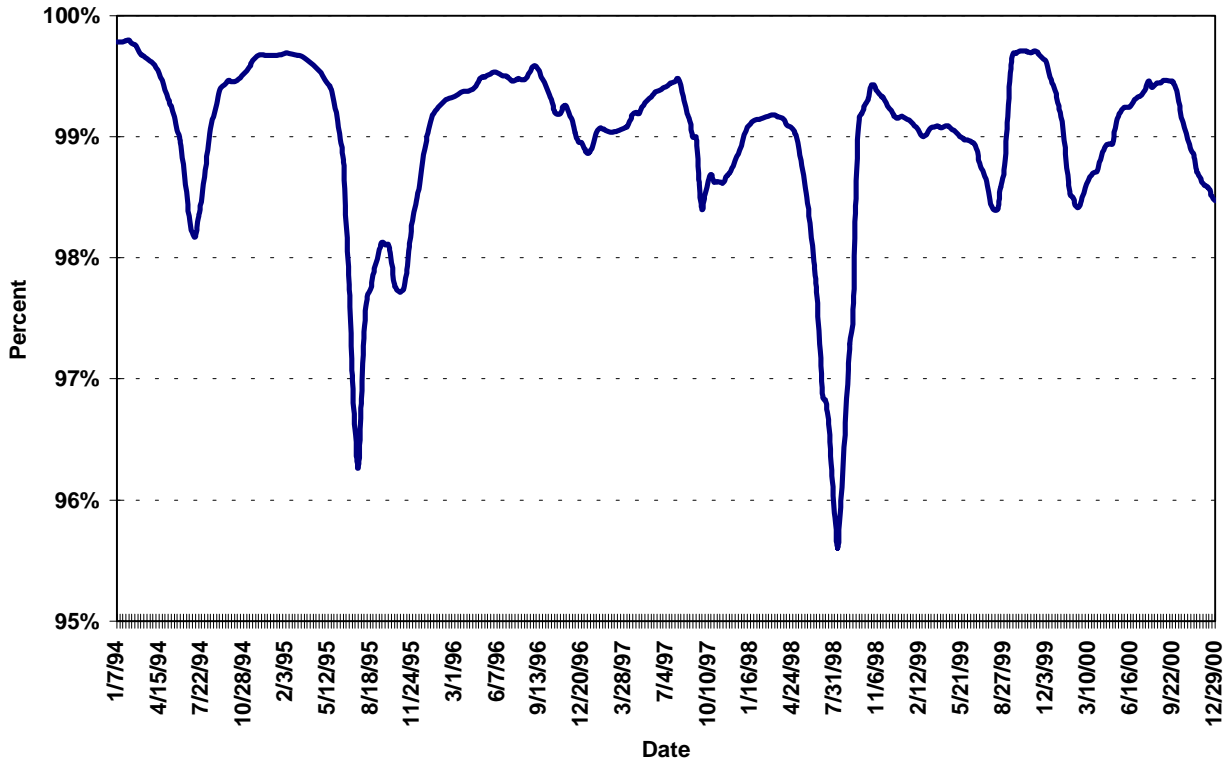
NSI (MGEX) Optimal Hedge Ratio, Omaha Soybeans
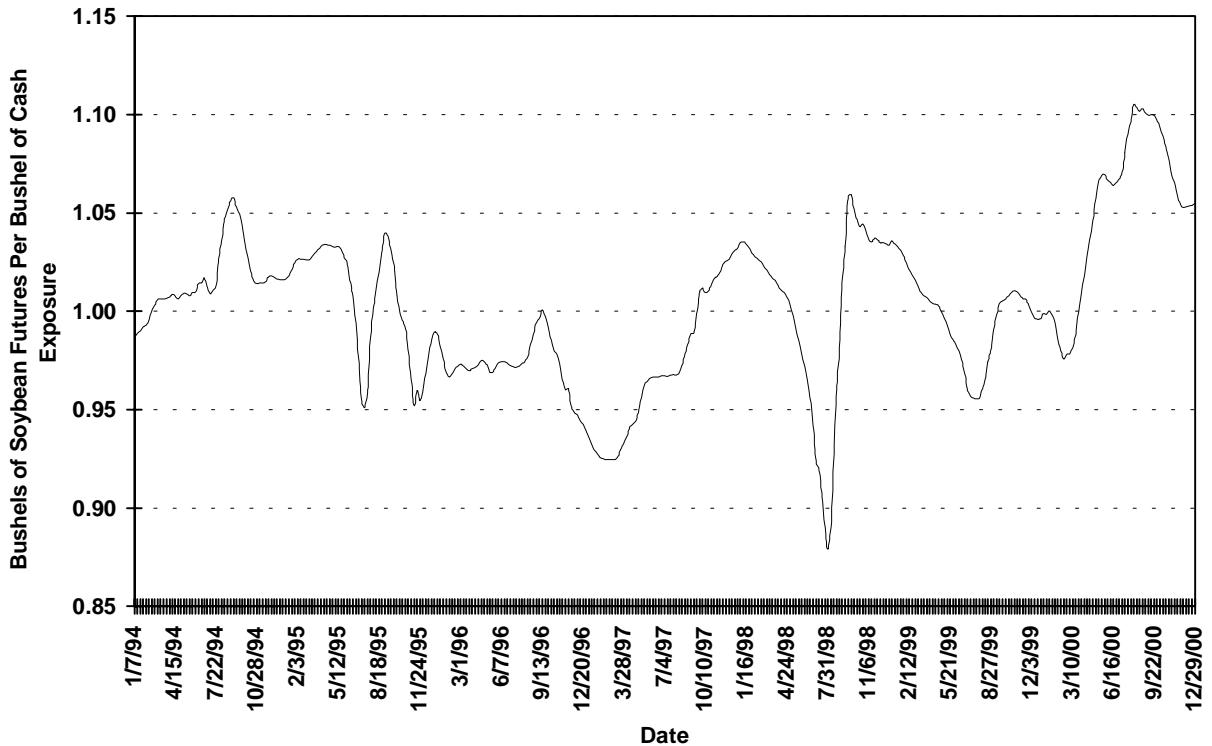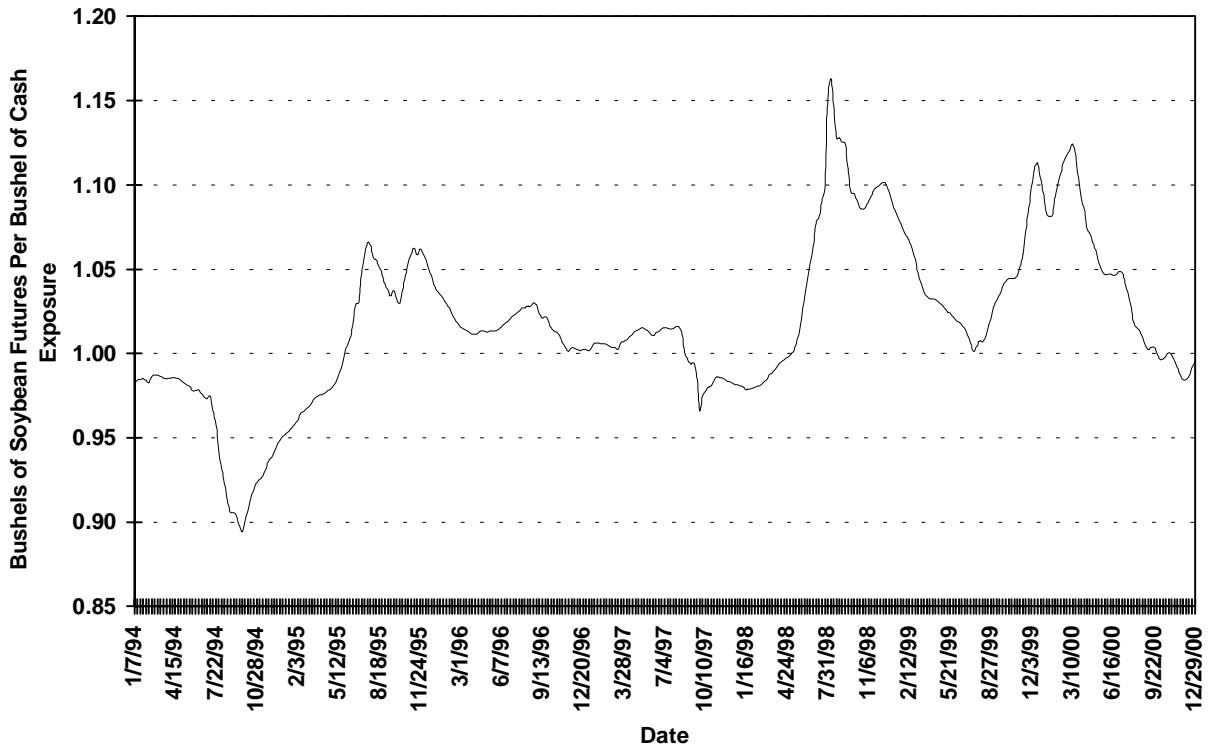
NSI (MGEX) Hedge Effectiveness, Toledo Soybeans
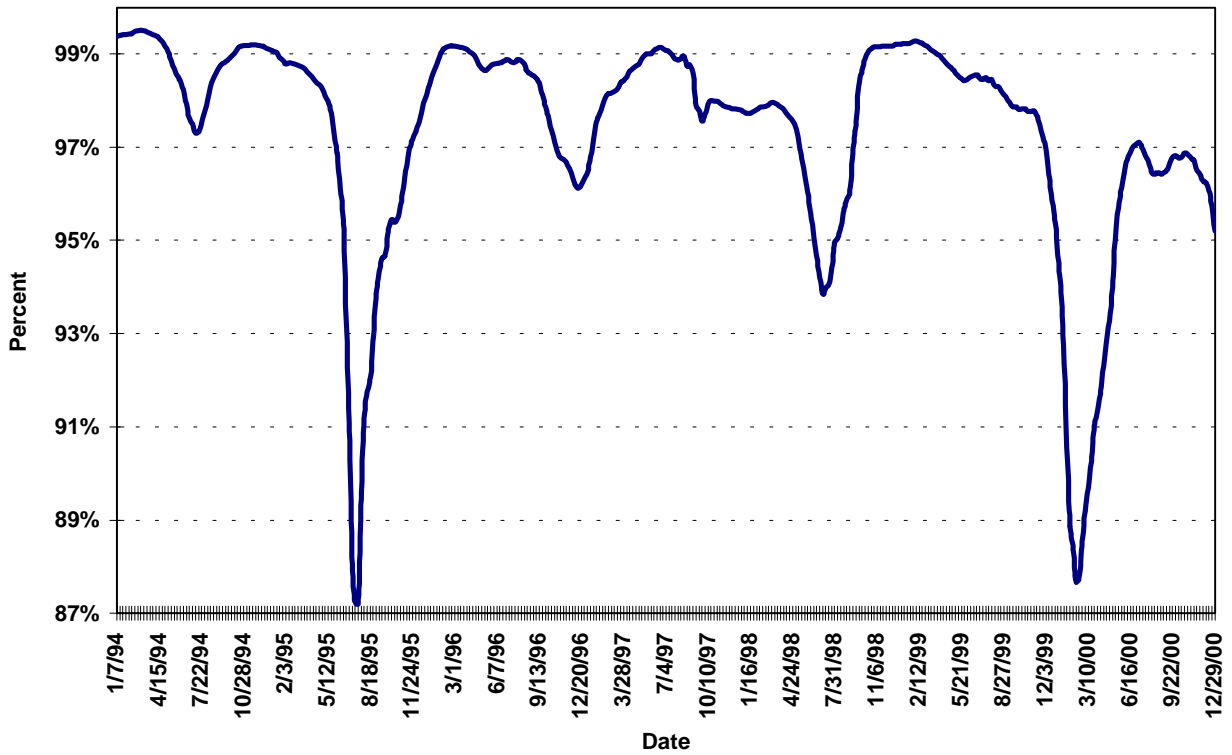

NSI (MGEX) Optimal Hedge Ratio, Toledo Soybeans

NSI (MGEX) Hedge Effectiveness, Chicago Soybeans

NSI (MGEX) Optimal Hedge Ratio, Chicago Soybeans

NSI (MGEX) Hedge Effectiveness, Gulf Soybeans

NSI (MGEX) Optimal Hedge Ratio, Gulf Soybeans