



## Hedging Potential for MGEX Soft Red Winter Wheat Index (SRWI) Futures

### Introduction

In December 2003, MGEX launched futures and options that will settle financially to the Soft Red Winter Wheat Index (SRWI), calculated daily by DTN. At the end of each calendar month, SRWI futures will be settled to the three-day average of spot SRWI for the last three trading days of the month. Because the spot SRWI is comprised of bids collected from country elevators, it reflects country-level pricing for soft red winter wheat. Historical SRWI values are used in this analysis to evaluate potential basis levels and basis variability for hedges with SRWI futures at alternative market locations.

### Index Construction

The spot SRWI is calculated daily and is the simple average of posted elevator bids for U.S. No. 2 Soft Red Winter Wheat (SRWW). Elevator bids are collected through a DTN survey procedure. Table 1 shows the average number of elevators surveyed by DTN each day.

**Table 1. Average Number of Elevators in Daily SRWI**

	1999	2000	2001	2002	2003
<b>Jan</b>		388	247	351	329
<b>Feb</b>		376	352	347	336
<b>Mar</b>	364	373	354	345	320
<b>Apr</b>	363	374	350	358	313
<b>May</b>	355	380	343	351	319
<b>Jun</b>	416	423	410	398	338
<b>Jul</b>	474	448	439	440	424
<b>Aug</b>	406	414	407	412	383
<b>Sep</b>	373	359	358	370	342
<b>Oct</b>	372	346	350	350	337
<b>Nov</b>	365	336	332	330	334
<b>Dec</b>	367	327	339	325	
<b>Average</b>	385	378	367	366	344

Year-to-date in 2003, the average number of daily bids comprising the SRWI is 344. The lowest monthly average during 2003 occurred in the months near the end of the crop year, April and May, at 313 and 319, respectively. The greatest number was early in the crop year, July, with 424 bids. At the lowest reporting

level of 313, the three-day average of the SRWI – to which the SRWI futures settle – have 939 data points. This is a relatively large sample that is difficult to manipulate.

### Markets and Data

Data from three terminal markets are used in this analysis: St. Louis, New Orleans and Toledo; and two country locations: West-Southwest Illinois and Northwest Ohio. The U.S. Department of Agriculture (USDA) provides cash market quotes. A monthly hedging program is assumed and basis behavior is examined at the end of each month from March 1999 through October 2003, resulting in 56 time series observations.

### Basis Variability

A stable and predictable basis is necessary for effective hedging. Because the SRWI represents elevator-level pricing, it is expected to closely track elevator prices and demonstrate stable basis. Figure 1 illustrates how the SRWI tracks the Illinois country-level price.

**Figure 1.**  
**W. Southwest Illinois SRW Cash Price versus Spot SRWI 1999-2003**

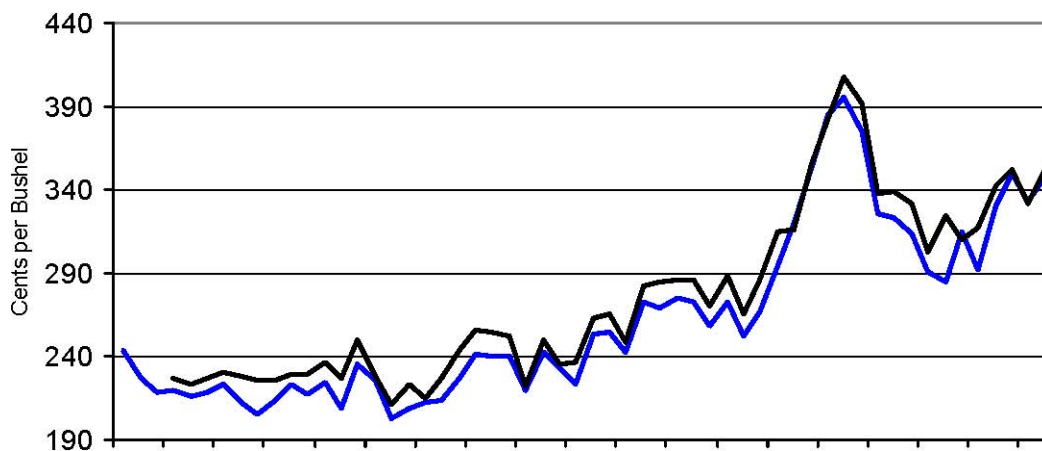


Table 2 presents the average, standard deviation (variability), and historical range for both the SRWI and CBOT basis levels for various SRW Wheat markets.

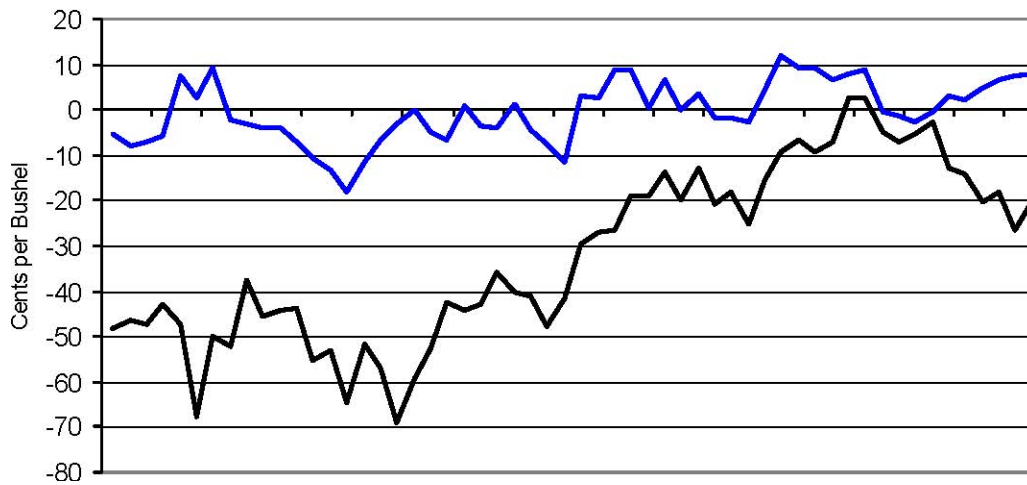
**Table 2. Basis Statistics for SRWI and CBOT Wheat, 1999-2003,(cents per bushel)**

	St. Louis		New Orleans		Toledo		W. SW Illinois		NW Ohio	
	SRWI	CBOT	SRWI	CBOT	SRWI	CBOT	SRWI	CBOT	SRWI	CBOT
<b>Average</b>	20.9	-10.6	52.4	21.0	7.9	-23.6	11.0	-20.0	-2.9	-34.3
<b>Std. Dev.</b>	8.8	20.3	10.7	19.6	6.0	18.7	7.7	19.9	6.8	19.4
<b>Range</b>	45.1	89.5	52.9	95.3	32.5	67.5	45.6	101.3	30.4	71.8

As shown in Table 2, basis variability versus the SRWI is reduced from 45 to 68 percent compared to CBOT basis variability, depending on location. For example, at country locations in Northwest Ohio, the CBOT basis has a standard deviation of 19.4 cents per bushel versus the SRWI basis standard deviation of 6.8 cents per bushel – a 64 percent reduction in basis variability as measured by the standard deviation. Moreover, the historical basis range in Northwest Ohio is only 30.4 cents per bushel versus the SRWI compared to 71.8 cents versus CBOT futures. The relative stability of the SRWI basis in Northwest Ohio is clearly illustrated in Figure 2.

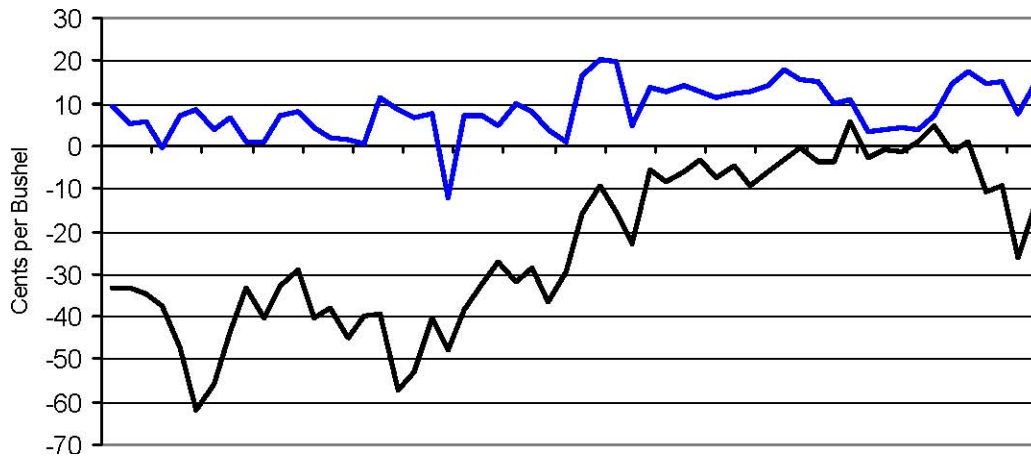
**Figure 2.**

**Northwest Ohio SRWW Basis Levels, 1999-2003**



Terminal level basis risk is also reduced using the SRWI. For example, SRWW at Toledo (not on river) has a historical basis range of 67.5 cents per bushel versus the CBOT futures, but only a 32.5 cents range versus the SRWI. Again, the stability of the SRWI basis is apparent in Figure 3.

**Figure 3.  
Toledo, SRW Basis Levels, 1999-2003**



**Correlation**

An effective hedge also requires a high correlation between price changes in a cash price series and the futures price series. A high correlation in price changes results in a better dollar offset between cash and futures positions. The simple correlation coefficient, which has a range from minus one (perfectly negatively correlated) to zero (no correlation) to one (perfectly positively correlated), is used to gauge the degree of co-movement between cash and futures prices. The correlations are presented in Table 3.

**Table 3. Cash-Futures Correlations for SRWI and CBOT, 1999-2003**

	St. Louis	New Orleans	Toledo	W. SW Illinois	Northwest Ohio
<b>SRWI</b>	<b>0.90</b>	<b>0.92</b>	<b>0.95</b>	<b>0.82</b>	<b>0.96</b>
<b>CBOT</b>	<b>0.83</b>	<b>0.89</b>	<b>0.92</b>	<b>0.75</b>	<b>0.93</b>

The cash-futures correlations are higher for the SRWI than the CBOT futures across all of the markets. In four of the five markets, the SRWI correlations exceed 0.90 while the CBOT correlation exceeds 0.90 only for the Toledo and Northwest Ohio markets. The correlations suggest that the SRWI may provide better hedging effectiveness, in terms of dollars offset, than the existing CBOT futures.

**Conclusions**

The SRWI futures have the potential to reduce basis variability and increase hedging effectiveness with greater cash-futures correlations than exists with the CBOT wheat futures. In all the markets examined, the SRWI provided less basis variability and greater cash-futures correlation than the CBOT futures. This suggests that the SRWI futures may provide an excellent hedging tool for

producers, merchants and end-users that are looking to reduce the basis risk in their hedging program.



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