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## CAN GRAIN ELEVATORS SURVIVE RECORD CROP PRICES?

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Record grain prices have brought a new round of prosperity to many corners of rural America. Rising crop prices generally bring profit opportunities to grain elevators. However, the sharp surge in grain prices in 2008, coupled with rising farm input costs, has strained the financial capacity of many grain elevators.

Grain warehouses are called elevators because upon collection, grain is elevated into storage bins before being loaded for shipping. Grain elevators are vital to the grain marketing system. Through their storage and merchandising functions, grain elevators enhance the efficiency in price discovery and transportation of grain. Moreover, they provide risk-management options for farmers.

This article describes the challenges grain elevators face in today's volatile agricultural environment. The financial challenges for grain elevators have risen sharply over the past six months and have even led to a few grain elevator bankruptcies. In the past, bankruptcies also led to economic losses for business partners, particularly farmers who used grain elevator services and local banks that extended credit to them.

### GRAIN ELEVATORS 101

Grain elevators play a crucial role in agricultural commodity markets through the marketing, storage, and

transportation of grain. Moreover, grain elevators serve as local grain merchandisers, linking local farmers to national commodity markets, thereby helping farmers manage commodity price risk. Many grain elevators also sell farm inputs to local producers.

Grain elevators are a large business activity in rural communities, especially in the Midwest and other grain-producing regions. According to the 2002 Economic Census, grain elevators operated in almost 6,000 locations and employed over 61,000 workers.<sup>1</sup> Grain elevators generated almost \$90 billion in sales and revenue. Illinois had the largest number of merchant wholesaling firms (660), followed by Iowa (579), Kansas (493), Nebraska (348), and Minnesota (297).

Since their emergence in the mid-1800s, grain elevators have earned income by collecting, storing, and readying grain for transportation. Smaller, country grain elevators collect grain from farmers, hold it in storage, and coordinate transportation to final end users or larger terminal elevators, which coordinate larger shipments to other domestic or international users. The grain held in storage is either owned by the elevator or by the farmers, who pay storage fees.<sup>2</sup>

Grain merchandising—the buying and selling of grain—is the traditional business activity of grain elevators. An elevator earns income from the spread, or difference,

between the price it pays locally to farmers for the grain and the price it sells the grain to the next step in the marketing channel. Because grain merchandising is a spread business, and the spread between the purchase price and sale price can be a few cents per bushel, elevators need to move large volumes to profit from grain merchandising.

Elevators typically purchase grain from farmers with cash or on a forward-cash contract basis. In a forward contract, an elevator agrees to purchase a quantity of grain from a farmer at a specified quality or grade to be delivered on a future date at an agreed-on price. Forward contracts are typically consummated pre-harvest, allowing farmers to guarantee a crop price and eliminate the risk of falling crop prices as harvest approaches.

Forward contracts, however, expose the grain elevator to the risk of falling prices. To offset or hedge this price risk, the elevator in turn sells a contract on the futures market. If futures prices fall, grain elevators earn a profit because they previously sold a futures contract at a higher price. Conversely, if futures prices rise, grain elevators lose money because they previously sold a futures contract at a lower price. Profits and losses in the futures market can offset profits and losses in the local cash market (see box).

Finally, many grain elevators, primarily local farm cooperatives, also earn income by selling farm inputs to local producers. Many cooperative grain elevators, owned by farmers, purchase farm inputs in bulk at lower prices to sell to their farmer-members.

## GRAIN ELEVATOR FINANCING

Grain elevators have large financing needs as they are subject to collateral requirements when participating in futures contracts. These needs fluctuate seasonally, depending on the stage of crop production.

Unlike forward contracts with farmers, futures contracts are subject to collateral requirements, or margins.<sup>3</sup> The margin is the collateral required of grain elevators to cover the risk exposure of the party purchasing the futures contract from the elevator. In grain marketing, this counterparty risk is the risk that grain elevators may not deliver grain in the physical markets, as specified by the futures contract, or they may not cover their losses on an exchange-traded futures or options position. Margin requirements vary by agricultural commodity.<sup>4</sup>

Margin accounts are used to settle losses and gains associated with changes in the futures prices. At the end of each trading day, the exchange's clearing corporation settles futures contracts through the margin accounts. For example, if futures prices rise to \$6.50 per bushel, grain elevators that sold a futures contract, i.e., hold a short position, at \$6.00 per bushel will experience a loss of \$0.50 per bushel. This loss is removed from the elevators' margin account and transferred to market participants who bought the contract, i.e., hold a long position. The opposite occurs if prices fall. If the amount of money in the margin account falls below minimum requirements due to losses, grain elevators receive a maintenance margin call requiring them

### Box 1

#### GRAIN ELEVATOR RISK MANAGEMENT WITH A FORWARD CONTRACT

##### Net Profits with Rising Crop Prices

Per bushel costs		Grain	Futures	Basis
May:	Purchased grain with a forward contract for December delivery and sell a December futures contract	\$5.50	\$6.00	\$0.50
Dec:	Sells grain on cash market and buys a December futures contract	\$6.25	\$6.50	\$0.25
Profit/loss		\$0.75 profit	\$0.50 loss	
Net profit		\$0.25		

##### Net Profits with Declining Crop Prices

Per bushel costs		Grain	Futures	Basis
May:	Purchased grain with a forward contract for December delivery and sell a December futures contract	\$5.50	\$6.00	\$0.50
Dec:	Sells grain on cash market and buys a December futures contract	\$5.25	\$5.50	\$0.25
Profit/loss		\$0.25 loss	\$0.50 profit	
Net profit		\$0.25		

Note: The basis is the difference between the futures price and the cash price for grain.

to replenish their margin accounts. The higher the increase in the price of the futures contract, the higher the margin calls. Failure to meet margin calls results in the immediate liquidation of the margin account and the futures position by the exchange. Once the elevator enters into an offsetting contract or delivers grain to fulfill the futures contract, the margin requirements and the financial demands on grain elevators cease.

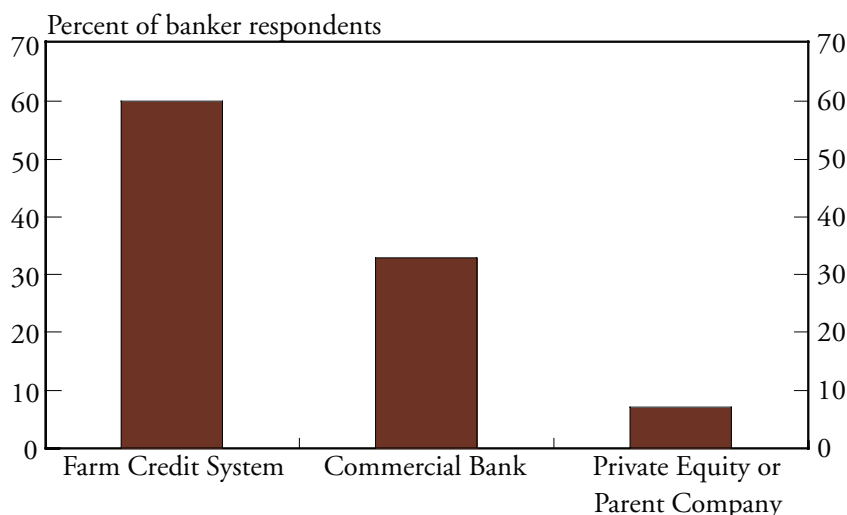
The ownership structure of a grain elevator appears to influence the source of grain elevator financing. Cooperative grain elevators tend to tap the Farm Credit System (FCS) for additional lines of credit as these funds tend to be cheaper with patronage.<sup>5</sup> Privately owned grain elevators more often raise private equity capital, tap parent companies for a cash infusion, or turn to commercial banks for extended lines of credit. Respondents to the Federal Reserve Bank of Kansas City's agricultural credit survey, which surveys over 300 bankers in the Kansas City District each quarter, indicated that the FCS has more direct exposure to grain elevator financing than do commercial banks. In March, roughly 60 percent of the respondents reported that local elevators were receiving funding from the FCS (Chart 1). A third of the respondents noted that commercial banks were funding local elevators.

### FINANCIAL STRAINS RISE IN 2008

In a period of rising farm input costs and surging crop prices, the financial needs of grain elevators rise. The

#### CHART 1

#### SOURCE OF LOCAL ELEVATOR FUNDING



Source: Federal Reserve Bank of Kansas City

seasonal increase in the inventories of farm inputs strained the cash position of cooperative grain elevators. In addition, cash needs surged with record crop prices and margin requirements in the futures market.

The first signs of financially strapped grain elevators began to emerge in January. Traditionally, as planting season approaches, farm cooperatives, which often operate elevator facilities, purchase farm inputs to resell to farmers. In anticipation of higher farm input prices, many farm input dealers had prepurchased crop inputs in the fall of 2007 for spring planting. The higher-cost inventories reduced cash balances, financially constraining these elevators. In January, bankers started to note that grain elevators, which also sold crop inputs, began to require prepayment for farm inputs, primarily fertilizers and chemicals.

In mid-February, the surge in agricultural commodity prices further strained the cash positions of grain elevators. With record crop prices, grain elevators faced increasingly large margin calls on their futures positions. Banking contacts in our district began to report that grain elevators, large and small, were requesting increases in existing lines of credit, which often had to be met by increasing bank participations. Bank participations involve two or more banks participating in extensions of credit to reduce their risk. For example, one respondent to our district's agricultural credit survey noted that the line of credit for a single elevator had risen from \$7 million to \$57 million and required participation by three banks.

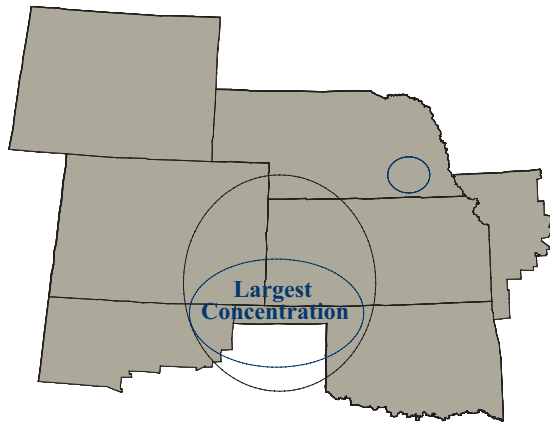
In the wheat market, margin calls rose sharply for grain elevators holding short positions. This spring, the wheat market experienced the biggest surge in futures market

prices among the major commodity crops. As a result, reports of financially struggling grain elevators were more prevalent in wheat-growing regions of our district (Map 1).

Bankers in the Kansas City District indicate that most grain elevators had enough cash to cover margin calls. In response to a series of special questions in the first quarter agricultural credit survey, one-third of the respondent banks with

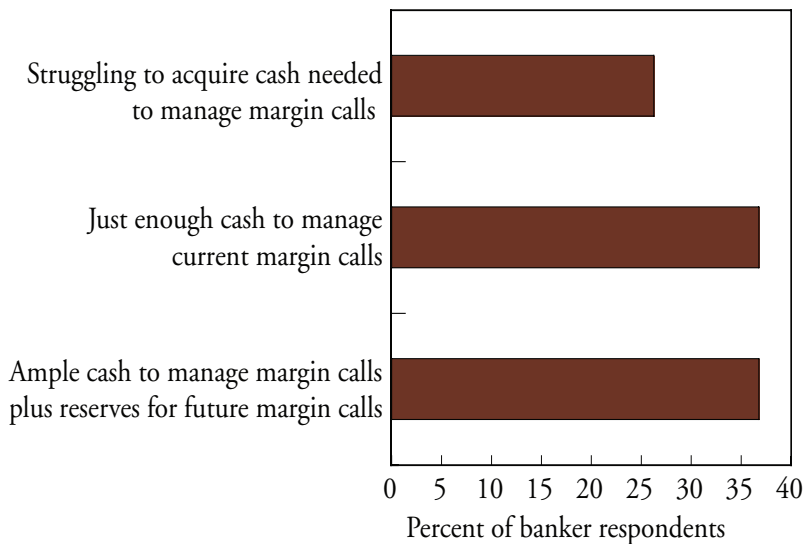
## MAP

### REGIONS WITH BANKS REPORTING THAT LOCAL ELEVATORS WERE STRUGGLING TO ACQUIRE CASH, MARCH 2008



## CHART 2

### FINANCIAL POSITION OF GRAIN ELEVATORS



Source: Federal Reserve Bank of Kansas City

knowledge of the financial conditions of grain elevators reported that grain elevators had enough cash to cover current margin calls (Chart 2). Another one-third reported that local grain elevators had ample cash to cover current and future margin calls. Roughly a quarter of the banks reported that local grain elevators were struggling to meet margin calls.

At an April Commodities Futures Trading Commission (CFTC) forum, bank regulators from the FCS and Federal Reserve Bank of Kansas City indicated that commercial and

Farm Credit Banks were working to meet the financial needs of grain elevators.<sup>6</sup> For example, in the first quarter of 2008, the FCS raised \$10 billion in funds through the sale of debt securities to meet increasing demand from elevators and other processing and marketing entities.<sup>7</sup> Federal Reserve agricultural credit surveys continue to report that loan funds available from commercial banks expanded over the past year, and the number of loans refused due to shortages of funds continued to fall after spiking in 2006. In fact, in the first quarter the loan fund availability index for the Kansas City District reached its highest level in four years.

Although banks continue to lend to grain elevators, commodity market disruptions have hindered the activity of some elevators and their customers. To preserve existing cash balances, some grain elevators have limited their offerings of futures contracts, basis contracts, and other forward-pricing contracts to farmers. An April Web poll by an agricultural advisory service indicated that roughly half of their

respondents could still access normal forward-pricing options from their regular buyer. One-third of the respondents indicated that their regular buyer has suspended all new crop pricing alternatives. The remaining respondents reported that they could still do hedge-to-arrive contracts but no longer had access to forward or basis contracts.<sup>8</sup>

### FUTURE RISKS FOR AGRICULTURAL COMMODITY MARKETS

Volatility in the agricultural commodity markets and the prospects of further price gains pose a challenge for the financial situation of grain elevators. With the reduced availability of forward-contracting arrangements, farmers

will need to manage price risk differently as the link between cash and futures markets has changed.

The primary risk to the financial position of grain elevators is additional spikes in agricultural commodity prices. Heading into summer, agricultural commodity markets, especially for corn and soybeans, are entering a period when prices fluctuate with changing weather conditions. For example, spring rains have delayed crop planting, which can reduce crop yields. In contrast, a summer dry spell could boost prices as corn prices usually

experience a two-week rally at the start of August, when temperatures in the Corn Belt intensify and rains ease.

Crop prices could also rise with sharp growth in demand. Strong ethanol and export demand have contributed to record crop prices in 2008. In the latter half of 2007 and early 2008, export demand jumped sharply, straining existing crop supplies and fueling sharp price gains. Prices could rise further with additional expansions in U.S. ethanol production or stronger-than-expected export demand. Moreover, rising crude oil and gasoline prices can strengthen corn prices through ethanol production. Higher crude oil and gasoline prices boost ethanol prices and profits, which in turn strengthen corn demand and crop prices.

Many industry observers also attribute at least part of the recent surge in commodity futures prices to investment funds that make large speculative purchases. Unlike the buying and selling activity of traditional speculators, who provide additional market liquidity, investment funds generally buy and hold futures contracts based on portfolio allocation formulas, rather than demand and supply fundamentals of the underlying commodities.<sup>9</sup> The result can be a shift in the historical relationship between local commodity prices and futures market prices and a new challenge to hedging activity by grain elevators and others.<sup>10</sup>

Given the potential for rising crop prices and larger margin calls, grain elevators could face additional financial constraints this summer. However, unlike the financial constraints this spring, which were concentrated in the wheat-growing areas of the Great Plains, a summer rally would probably be concentrated in corn and soybean markets. The financial demands could be greater as the corn and soybean futures markets are much larger than the wheat

market. For example, in May, the total number of open interest positions in the wheat markets at the Chicago and Kansas City boards of trade was more than 600,000, while the number of positions in the Chicago corn and soybean markets was more than 2 million and roughly 650,000, respectively. As a result, more grain elevators covering a broader geographic area could face greater financial stress.

A worst-case scenario is that more grain elevators file for bankruptcy. The spring rise in crop prices pushed one grain elevator in southeastern Nebraska into bankruptcy.<sup>11</sup> Grain elevator bankruptcies pose risks to the farmers who do business with them and the lenders that finance them. In the past, grain elevator bankruptcies have led to significant losses for local farmers who had stored grain at the elevator without a warehouse receipt. Moreover, the bankruptcy process can bring delays in the sale, distribution, and payment on existing grain held in storage and grain scheduled for delivery under forward contracts. Lenders also face substantial losses arising from their lines of credit. Finally, farmers also lose their local market delivery point and then face higher transportation costs by having to deliver grain to a more distant location.

In 2008, record crop prices and rising input costs have strained the short-term financial position of grain elevators. To date, creditors at both commercial and Farm Credit Banks appear to be working effectively with the elevators to ensure that financing needs are met. Banks are likely to pay careful attention to the strength of the risk-management practices at grain elevators when deciding to increase cash advances. While the sharp rise in agricultural commodity prices has eased heading into the summer, unexpected dry conditions or strong demand could further boost crop prices and rekindle the financial stress at grain elevators.

## ENDNOTES

- <sup>1</sup> Country and terminal elevators are classified in the North American Industry Classification System (NAICS) as Grain and Field Bean Merchant Wholesalers (NAICS 424510) and Farm Product Warehousing and Storage (NAICS 493120).
- <sup>2</sup> Upon deposit of grain in an elevator, the farmer receives a scale/weight ticket after the grain is weighed, but this is not a document of title. If the grain is delivered to an elevator for storage and ownership is retained by the farmer, the farmer should receive a warehouse receipt as a certificate of ownership. A depositor can deposit grain under so-called open storage, but the delivery of the grain is not backed by a warehouse receipt. Warehouse receipts are crucial in identifying grain ownership in the event of the liquidation of a grain elevator. See Roger A. McEowen and Neil E. Harl, "Rights of Farmers in Failed Grain Elevators," *Agricultural Law Digest*, Vol. 11 No. 21, October 27, 2000.
- <sup>3</sup> Futures and options contracts are traded on organized exchanges, like the Chicago Board of Trade (CBOT) and the Kansas City Board of Trade (KCBOT). Exchanges have clearing corporations that minimize counterparty risk to the exchange and to all parties that trade on it by requiring an initial margin deposit, which acts like a performance bond.
- <sup>4</sup> For example, on the CBOT the initial margin requirement is \$1,000 per corn contract and \$3,500 per soybean contract.
- <sup>5</sup> The FCS, a so-called government sponsored enterprise (GSE), is the largest agricultural lender in the United States. It is a nationwide network of lending institutions that are owned by their borrowers.
- <sup>6</sup> The CFTC is an independent agency with the mandate to regulate commodity futures and option markets in the United States. On April 22, 2008, the CFTC hosted an Agricultural Forum to discuss agricultural commodity market issues. Public comments and presentations were obtained on May 22, 2008, at [www.cftc.gov](http://www.cftc.gov).
- <sup>7</sup> As a GSE, the FCS is able to issue debt in the agency debt market.
- <sup>8</sup> Forward cash contracts for deferred delivery allow the grain producer to set or lock in the price of the commodity. A hedge-to-arrive contract allows the producer to lock in the future price, but allows the basis or difference between the futures price and the local cash price to vary. In contrast, a basis contract allows a producer to lock in the basis, but does not lock in the final price. The USDA's Risk Management Agency has more information about these types of contracts. [http://www.rma.usda.gov/pubs/1997/irm\\_c.html](http://www.rma.usda.gov/pubs/1997/irm_c.html).
- <sup>9</sup> See "Testimony of Michael W. Masters before the Committee on Homeland Security and Government Affairs", United States Senate, May 20, 2008 and Statement of the National Grain and Feed Association to the Commodity Futures Trading Commission, April 22, 2008.
- <sup>10</sup> The role of investment funds in commodity futures markets is open to additional study. For example, in recent congressional testimony, CFTC economists, who monitor futures markets, indicated that speculative activity played little if any role in surging commodity prices in agricultural futures markets. See "Written Testimony of Jeffrey Harris, Chief Economist before the Senate Committee on Homeland Security and Government Affairs," United States Senate, May 20, 2008, obtained May 22, 2008 at [www.cftc.gov](http://www.cftc.gov).
- <sup>11</sup> Todd Neeley, "Grain Elevator Closures" DTN, obtained on May 14, 2008, at [www.agobservatory.org/](http://www.agobservatory.org/).