

Commodity Markets on Risk-Off Days

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Diversification helps on ordinary days, but the largest losses often arrive together. This fact sheet summarizes recent evidence of commodity markets falling together across corn, soybeans, cotton, live cattle, and WTI crude oil futures.

When volatility is elevated, commodity risk should be planned as a joint margin and liquidity issue, not as a set of isolated futures positions.

At a Glance

- **Why it matters:** Hedgers, merchandisers, and lenders care about losses during market stress because they drive margin calls, liquidity needs, and producer pricing decisions.
- **Main finding:** One shared market-stress pattern accounts for about 58% of measured tail dependence in low-volatility index (VIX) periods and about 69% in high-VIX periods. These shares are not commodity price changes.

- **Energy link:** WTI-linked pairs show the largest increase in downside-dependence scores, especially WTI-Corn (+0.40 score difference) and WTI-Live Cattle (+0.31 score difference).
- **Rule of thumb:** When volatility is high, risk plans should assume that several commodity exposures can move unfavorably at the same time.

What Is a Risk-Off Day?

A risk-off day is a day when market participants reduce exposure to risky assets at the same time. In commodities, that can mean simultaneous selling pressure across markets that normally look different: grains, livestock, cotton, and energy.

These markets can fall together when cash is tight, margin calls rise, trading liquidity dries up, or traders worry about weaker global demand. These channels matter most during severe-loss periods. The key question is not whether two markets usually move together, but whether they are hit together when losses are large.

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¹Tail dependence measures the tendency of commodities to experience extreme values together rather than independently.

What the Data Say

The analysis uses daily nearby futures price data for corn, soybeans, cotton, live cattle, and WTI crude oil from Jan. 5, 2000, through Aug. 8, 2025. The study compares the lowest 20% of VIX days with the highest 20% of VIX days in the sample.

In plain terms, the study asks which commodity markets are hit together on severe downside days, after putting each market on the same downside-risk scale.

A single market-stress pattern is already important in calm markets, and it becomes even more important when VIX is high. In other words, downside links across commodities are not just normal correlations getting larger. Standard correlation can miss part of the risk that appears during severe-loss periods.

How to Read the Energy Link

Energy is a natural hub because fuel, transportation, fertilizer production, global demand expectations, and investor portfolio flows all connect energy markets to agricultural markets. The study does not claim that crude oil causes every commodity loss. Instead, it shows that energy-linked pairs are more likely to be hit together when market volatility is high.

For Arkansas producers and agribusinesses, the practical lesson is to watch energy and financial-volatility signals when making hedges, basis (local cash price minus futures price), and liquidity decisions. A fuel-market shock can become a broader risk-management problem if it arrives during a high VIX period.

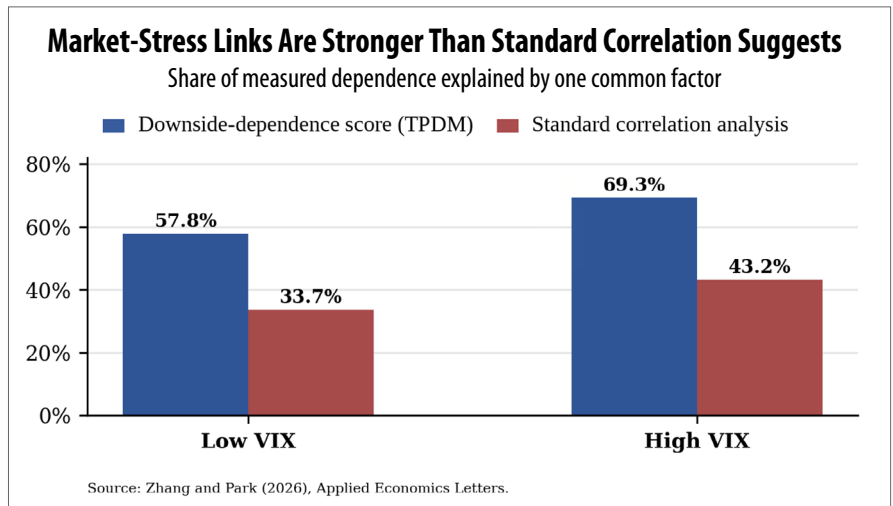


Figure 1. Co-movement during market stress is stronger than standard correlation suggests. Percent values show shares of measured dependence, not commodity price changes.

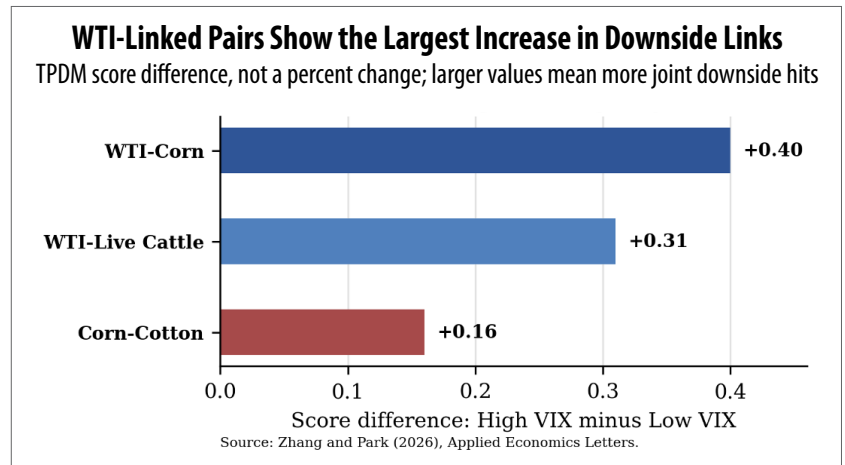


Figure 2. WTI-linked pairs show the largest increase in downside links when VIX is high. The + values are TPDM score differences, not percentage-point changes.

What Commodity Users Can Do

- **Plan margin jointly:** Test what happens if several contracts lose money on the same day, not just one contract at a time.
- **Build liquidity buffers:** Cash needs can arrive across hedges at the same time, especially when one shared market-stress pattern is strong.
- **Monitor volatility states:** VIX is a useful broad signal; commodity volatility indexes such as OVX and GVZ point in the same direction in additional checks.
- **Communicate before stress hits:** Farms, elevators, lenders, and merchandisers should agree in advance how spread quotes, hedge changes, and collateral calls will be handled during sharp market moves.

Limits and Bottom Line

This evidence is descriptive, not causal, and it is based on daily data. It is best used as a monitoring and planning tool.

On the days that matter most for financial survival, several commodity markets can fall together. Risk plans should reflect that joint reality, especially when volatility is elevated and energy is moving sharply.

References

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Table 1. Practical risk-off checklist for commodity users.

Risk role	Watch first	Why it matters	Practical move
Producers and hedgers	VIX/OVX/GVZ, fuel prices, basis (cash minus futures)	Stress can hit futures, cash bids, and hedge liquidity together.	Price in smaller pieces and keep room for margin calls.
Elevators and merchandisers	Energy-agriculture links, customer orders	WTI-linked downside links strengthen most when volatility is high.	Update spread quotes and communicate quote policy during stress.
Livestock operations	Feed, fuel, and live cattle futures	Energy and protein markets can move together during market stress.	Stress-test feed and hedge books as one exposure set.
Lenders and risk managers	Cash and collateral needs across all positions	Diversification may be weakest exactly when liquidity is needed.	Use scenarios where several markets lose money together, not one-contract-at-a-time shocks.

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