November 4, 2015

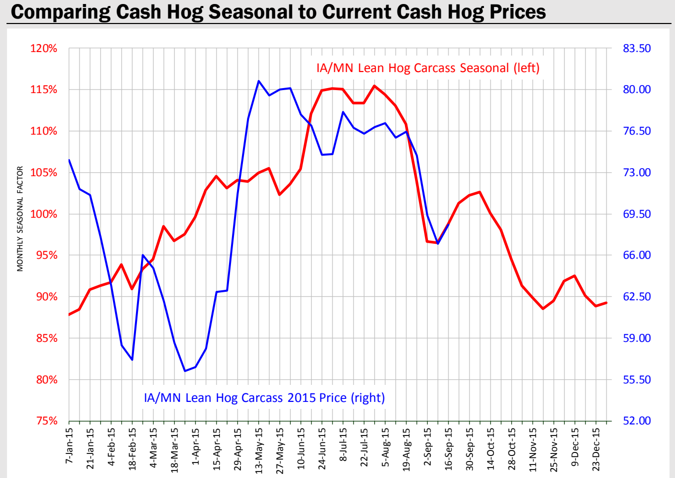
Seasonality in Livestock Markets

Implications for Futures Trading and Commodity Risk Management

Today's Opportunity:

- The seasonal tendency is for cash hog values to peak in the summer, when supplies are relatively tight and grilling demand is strong, and then drift lower into the fall. However, the decline into the fall is not linear and, as you can see in the attached chart, cash hog values actually move up in late September before resuming their downward slide. Since June, cash hog prices have closely followed the seasonal. For some, the recent increase in hog prices may seem strange but not for those familiar with seasonal tendencies of cash prices throughout the year.

Comparing Cash Hog Seasonal to Current Cash Hog Prices



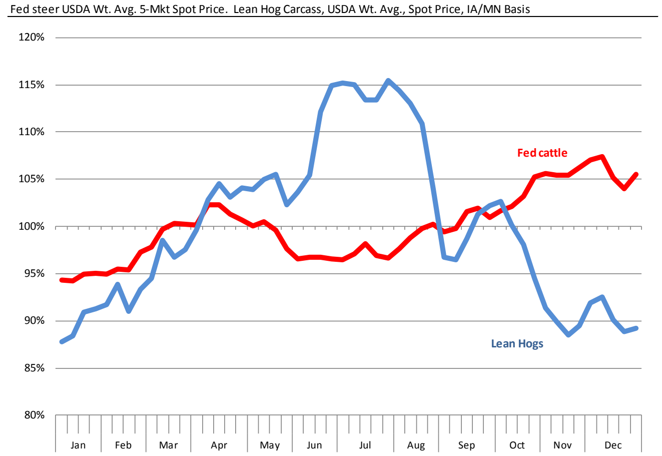
Key Takeaways from this paper:

- Livestock futures exhibit strong seasonal tendencies relating to **biological factors** and the impact that **weather** has on both supply availability and consumer demand
- Participants in livestock futures markets need to have a good understanding of seasonal tendencies. This will help them recognize the effect on spreads and capitalize on seasonal tendencies during specific times of the year

Cycles are nothing new in livestock markets. We are dealing with live organisms that are affected by weather and the environment. **Some cycles reflect periodic changes during the calendar year and that's when we talk about seasonal cycles, or in short seasonality**. Fed cattle prices are high in early spring; hog prices are low in the fall. In some years seasonality is more pronounced than others but it is something markets expect; something in the back of the mind of each trader. There are a number of reasons that explain why livestock markets are distinctly seasonal. On the supply side, biology and weather tend to significantly impact the flow of livestock to market and availability at certain times of the year. On the demand side, consumer eating

Price Seasonal Factor for Fed Steers and Lean Hogs. Annual Average = 100%

Fed steer USDA Wt. Avg. 5-Mkt Spot Price. Lean Hog Carcass, USDA Wt. Avg., Spot Price, IA/MN Basis



patterns change with the seasons. Weather, holidays and cultural traditions all contribute to regular changes in eating patterns and thus affect overall demand for meat products over the course of the year.

Below we outline some of the factors that impact the seasonality of cattle and hog prices over the course of the year.

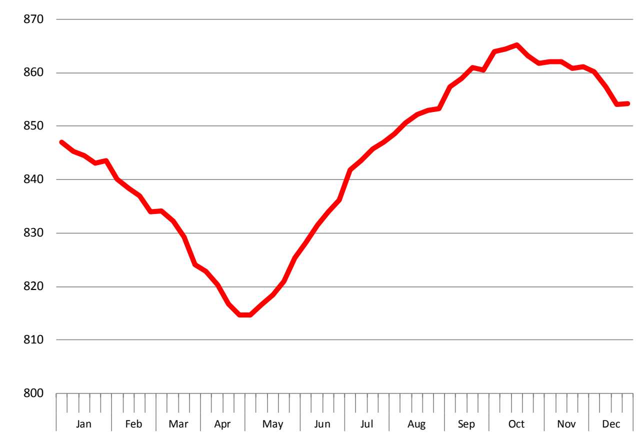
Supply Drivers

Feed availability and production economics

The majority of calves in the US are born during February, March and April and there are a number of factors that account for this. As weather improves in the spring, the new born calves have a better chance of surviving and fresh grass in pastures helps both mother and calf recover quickly. While developments in modern animal husbandry have made it possible to improve the survival rate of calves born in the fall, cow-calf operators by far prefer spring calving. Once calves are born, cow-calf pairs roam freely on spring pastures, providing the mother cow the quality feed to produce nutritious and plentiful milk for her calf. Some studies have shown that the weight of calves born in the spring and weaned in the fall is higher than at other time periods. Some producers, however, have sought to work against the seasonal in order to take advantage of some marketing opportunities. Because the majority of calves are born in the spring and weaned from their mothers in the fall, this tends to increase the supply of weaned calves during the Sep-Nov period. In some areas where there is a broader forage base, producers have opted for fall births, which would mean calves are weaned in the spring and allowing them to take advantage of higher prices. Still, about 70% of calves in the US are born during a three month window in the spring. Primarily the main reason why cow-calf producers prefer that calves are born in the spring is because of the improvement in feed availability and biological needs of both cows and calves for highly nutritious feeds during the first few months after a calf is born.

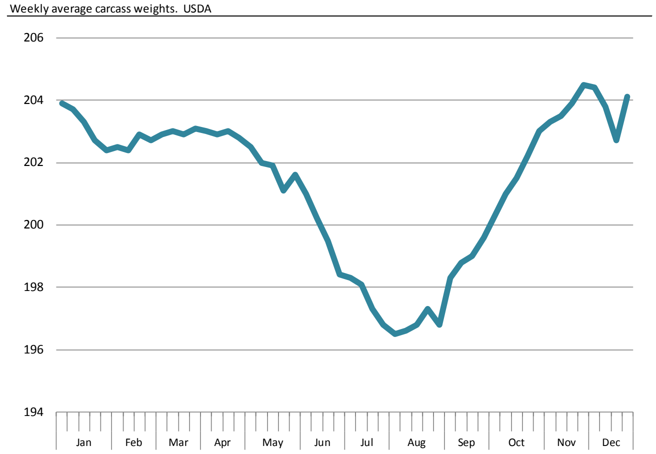
Seasonality of Fed Steer Dressed Carcass Weights. 10-Year Average

Weekly average carcass weights. USDA



Seasonality of Barrow and Gilt Dressed Carcass Weights. 10-Year Average

Weekly average carcass weights. USDA



Hog births (farrowings) are not as skewed during the year as cattle in North America, but they do vary and consequently the number of hogs coming to market also varies by month and week. Some studies have looked at the reduced fertility in late summer and fall and they have attributed this to the effects of summer heat and changes in feed supply. On the other hand, sow fertility and conception appears to be best in winter and early spring, which then translates into a larger calf crop coming to market during May – Aug and larger slaughter in the final quarter of the year.

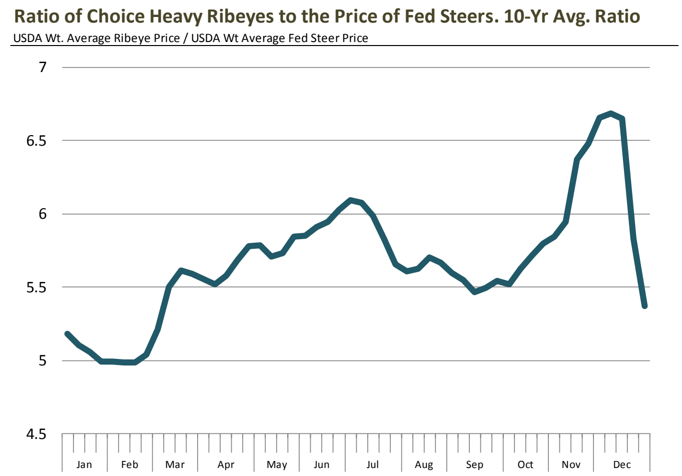
Weather

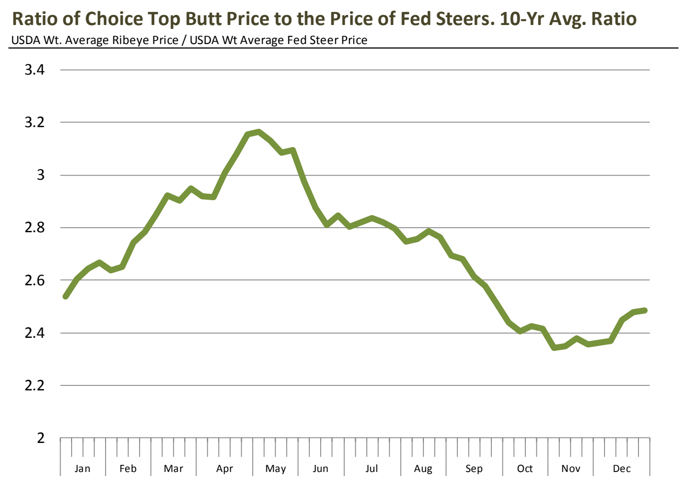
Weather effects extend much further than just the timing of births. Beef cattle spend their whole life outdoors and the last six months in feedlots. Extreme cold weather can take its toll on cattle weights and affects the supply of beef coming to market. The average steer carcass weight in the last 10 years has declined from around 865 pounds per carcass in mid-October to around 815 pounds by the end of April. This is a 6% reduction in the average carcass weight that reflects in part the impact that cold weather and muddy feedlots have on fed cattle weights. It also reflects the deterioration in feed conversion rates during the winter months as livestock use more energy to stay warm rather than convert it into muscle and fat. Cattle are tough animals and can easily deal with moderate cold. But tough winter conditions coupled with wet weather and strong winds can dramatically impact cattle performance and this accounts for a significant variation in the supply of meat and carcass performance over the course of the year.

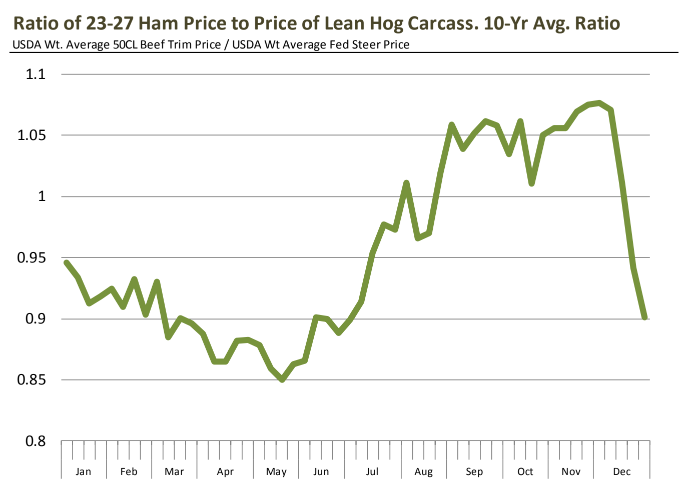
Most hogs, on the other hand, spend their time indoors. Hot summer weather can be just as miserable for hogs as for people, it affects their ability to eat and feed conversion rates decline sharply. The hotter it is in June, July and August in the Midwest, the more dramatic the decline in average lean hog carcass weights. In the past 10 years, carcass weights on average have declined from around 203 pounds per carcass in April to 196 pounds per carcass at the end of July. As with cattle, the 3.5% average decline in carcass weights is a result of weather factors and it contributes to the reduction in pork supplies and higher prices that we see over the summer months

Demand Drivers

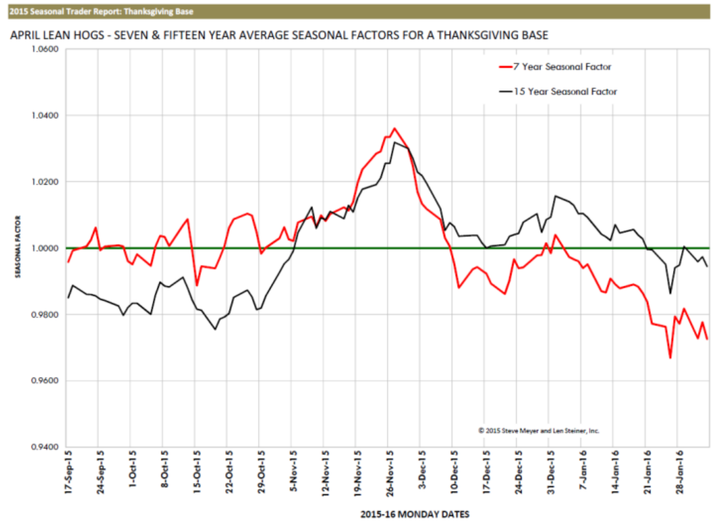
Weather and Holidays

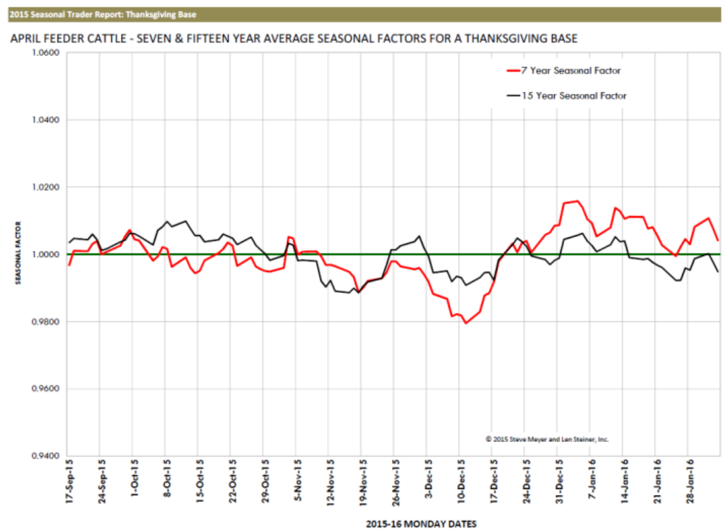






<u>Consumer demand for meat products also reflects the changes in weather, holidays and school days</u>. Generally fast food sales are better in spring and early summer and they are worse over the winter. Also retail meat sales improve considerably during the spring with the start of the grilling season but they struggle in late summer when hot summer temperatures make grilling more of a chore than a pleasure. The price of cattle and hogs reflects the total value of the various meat cuts and by products less processing costs and margin. As the price of those cuts varies due to some of their seasonal variations, this is then reflected in what packers are willing to pay for livestock in the spot market. The seasonality of meat demand is particularly apparent in wholesale meat prices. Retail prices are less





volatile as retailers absorb some of seasonal shifts. It is not unusual, for instance, for retailers to run promotions and keep prices steady for some steak items or ground beef during peak demand times because they rely on those items to generate foot traffic.

Demand for meat products changes significantly during holiday periods. This is a function of both cultural traditions but also because consumers are willing to spend more on products that they view as superior during family gatherings or when celerbrating with friends. Ham demand is very strong for Thanksgiving, Christmas and Easter, for instance. Also, retailers have found that promoting steaks going into Memorial Day generates strong foot traffic and we see a significant improvement in the price of items such as top butts in April and early May.

Exploring Seasonality in Futures Trading

There are a number of sources that look at the seasonality of trading specific livestock contracts. While these studies may not provide a comprehensive trading system, they are part of the tools that traders utilize over the course of the year. In the next page we have included three charts from the Seasonal Trader Report that is published four times a year by the DailyLivestockReport.com. The charts look at futures prices for a specific contract during a specific time period and then examine if there is a consistent seasonal pattern in the trading of that contract. Moore Reports, which are sponsored by the CME as an educational tool, have a similar approach but they also look at the potential return of specific trades.

Conclusion

It is particularly unique for live cattle, feeder cattle and lean hog carcasses that they are basically non storable commodities (compared to things like corn, gold, oil, etc.). Most beef and pork in the USA is sold fresh (chilled) and not frozen. So you cannot carry product easily from one time period to the next. This inability to easily move product from one time period into another tends to accentuate the seasonal tendencies for prices to change in the cash markets.

In the futures markets, prices reflect the seasonal effects. April 2016 live cattle futures are trading higher than the June 2016 contract because in the vast majority of years April cattle have a higher value than June.

However, even though the futures market tends to remove part of the seasonality in prices for the three contracts it often does not fully discount the full seasonal effects.

…And that is where opportunity can lift its head for both hedgers and speculators.