Risk and the Farm Bill Participation Decisions for ARC and PLC

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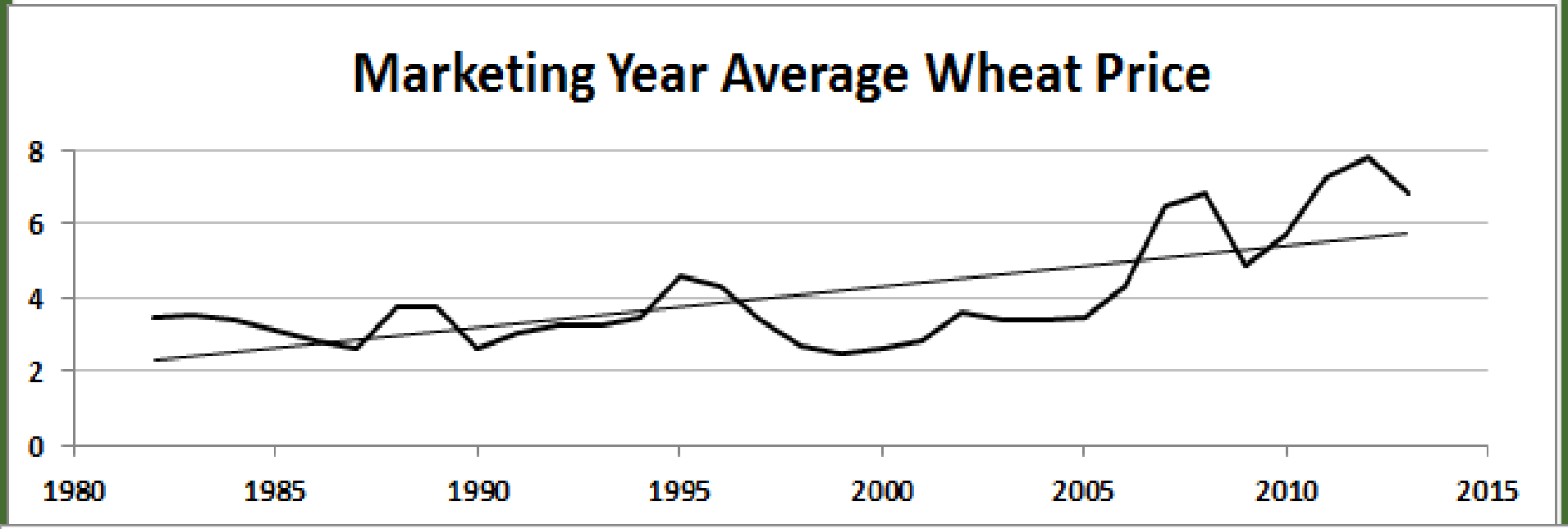
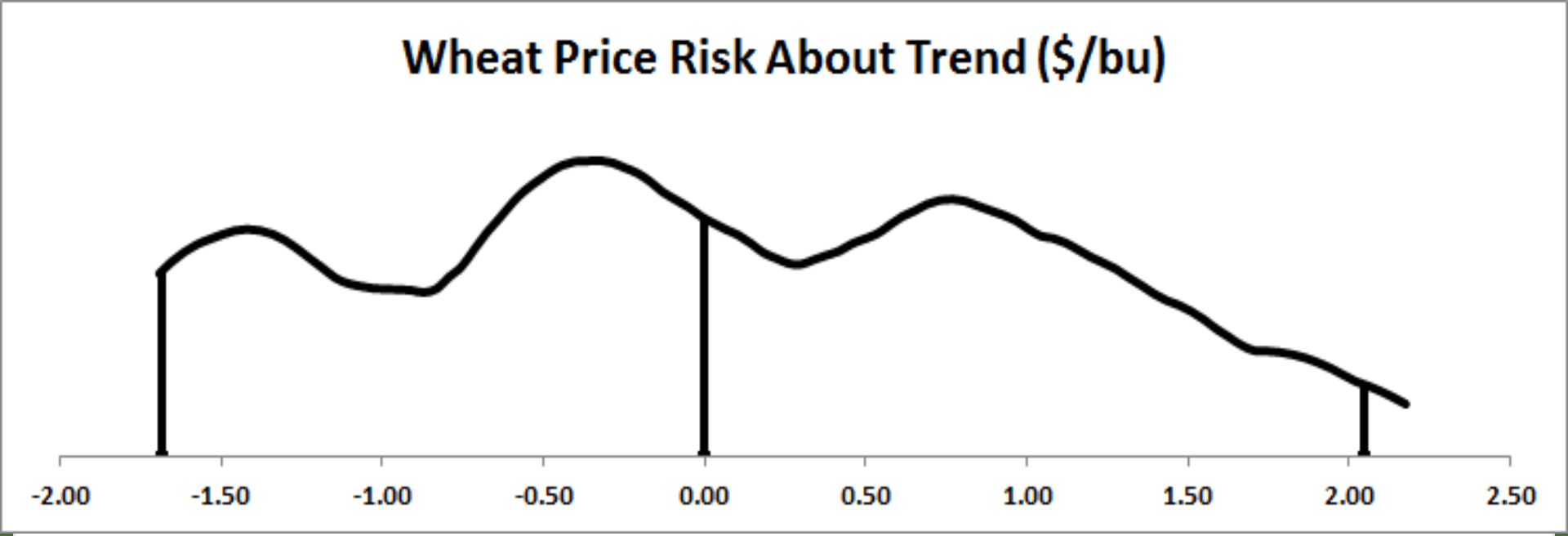
What is Price Risk?

- We all have expectations of what price will be in 2014 for wheat
- We will all be wrong! Because we do not know what will happen to US demand, Exports, or Exchange Rates over the rest of the year
  - These are only a few of the forces of risk beyond our ability to forecast with accuracy
- If we are not certain about 2014 price, how can we forecast 2015, 2016, 2017, 2018 for ARC and PLC decisions?

Historical Price Risk for Wheat?



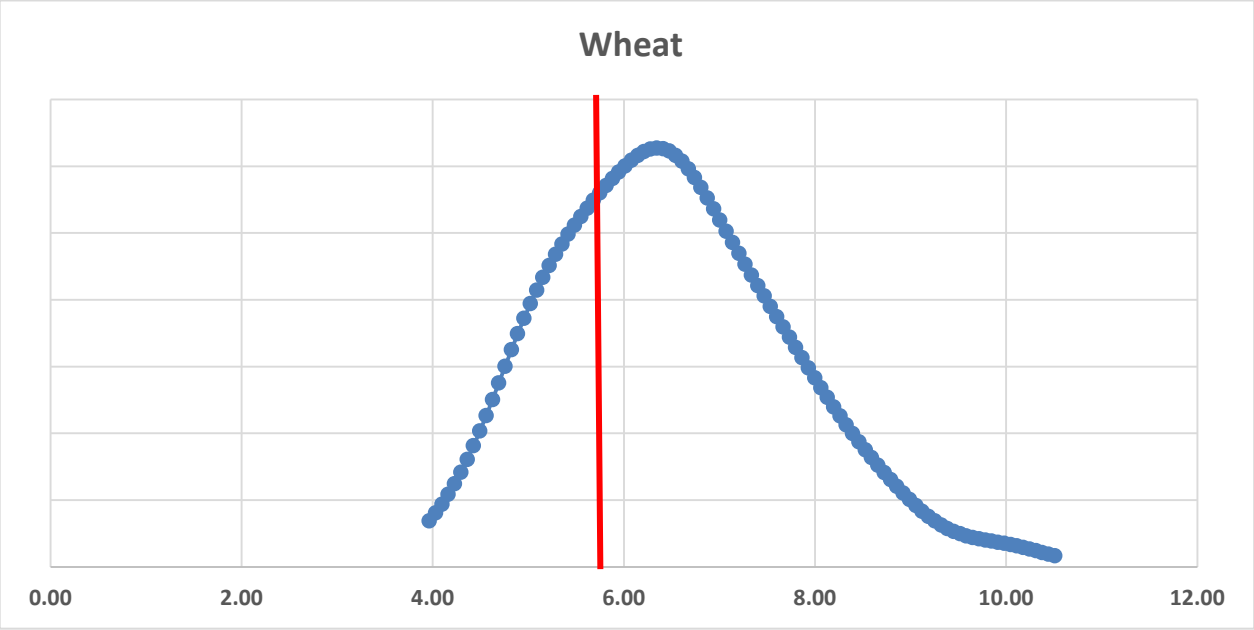


Simulating Price and Yield Risk?

- Best alternative to a point forecast of price is a probabilistic forecast using historical price risk
- In the case of ARC yields are also risky
- Decision aids use simulation to test the PLC and ARC payments under risky prices
  - NAAFP decision tool incorporates national price risk and county yield risk
  - Historical period to incorporate risk is 1982-2013

So What Does This Mean to Users?

- NAAFP Decision Aid asks for “your annual average price expectations for 2014-2018”
- Decision Aid uses your Average Prices as the center of price distributions based on historical price risk
- Assume an average wheat price of $6.50 & $5.50 Ref Price



How Does Price Risk Affect PLC?

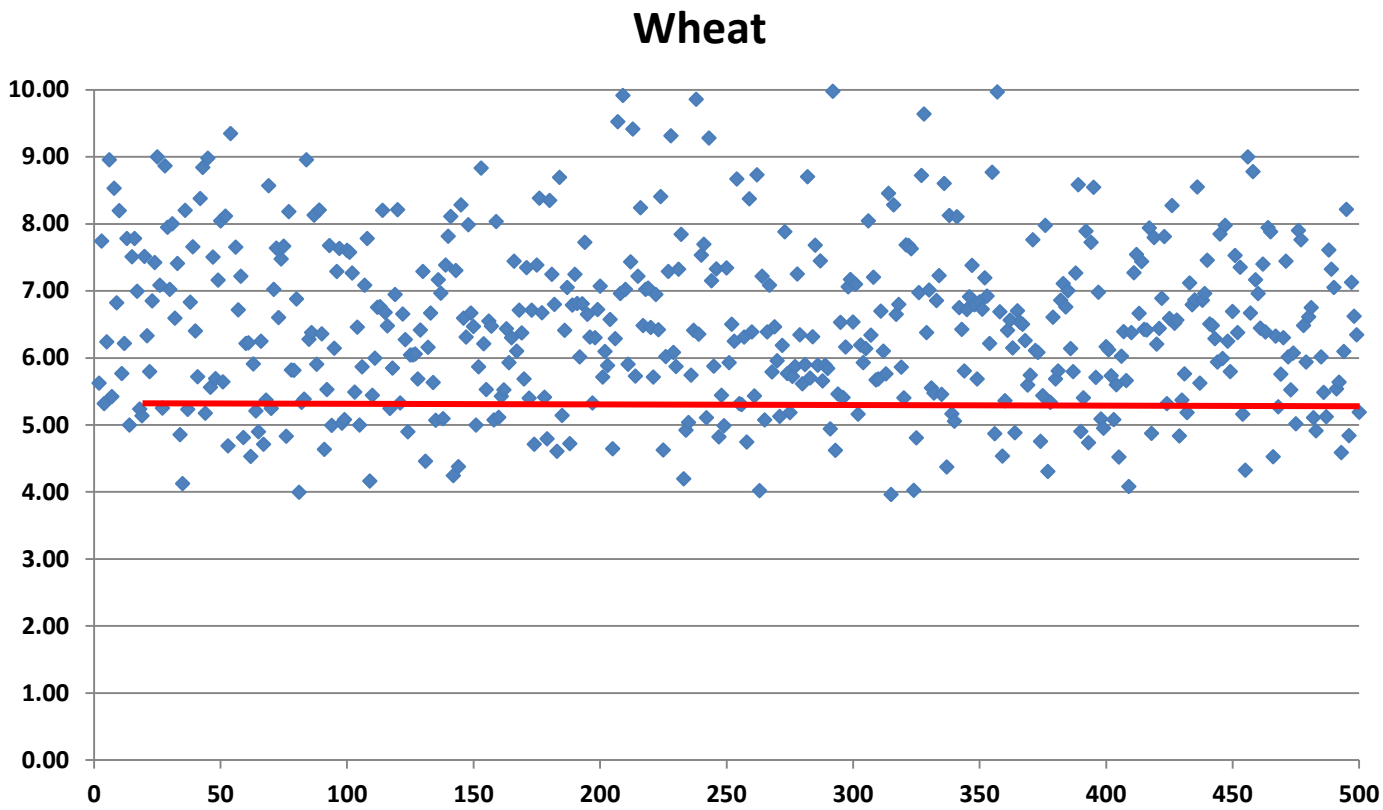
PLC Payment$_t$ = max[(Ref Price – **Mkt Yr Avg Price**) or Zero] * 0.85 * Base Acres * PLC Payment Yield

Mkt Yr Avg Price is random about an expected price

SO RISK MATTERS IN THE CALCUALTION OF PLC PAYMENTS

Wheat Price Risk Continued

- Given the mean wheat price of $6.50
- 23% chance of Marketing Year Average Price < Ref Price



How Does Risk Affect ARC-CO?

Actual County Revenue = Actual County Yield * Max(Natl MYAPrice or Loan Rate)

ARC Rev Benchmark = (US Oly Avg MYAPrice$_{5\ years}$ * County Oly Avg Yield$_{5\ years}$)

- If any of the 5 years of prices are lower than Reference Price then replace with the Reference Price.
- If the actual county yield is < 70% of T-yield replace with the T-yield.

ARC Guarantee = 0.86 * ARC Rev Benchmark

ARC-CO Payment$_t$ = Min[(ARC Guarantee - Actual County Revenue) or 10% * Benchmark] * Base Acres * 0.85

RISK REALLY MATTERS FOR ARC CALCUALTIONS

Demonstration of Risk?

- Two Excel simulation models
- Demonstrate how expected prices and the historical risk affect stochastic prices in Decision Aid
- Demonstrate how stochastic prices affect PLC and ARC Payments for a 100 base acre corn farm in California