

An Economic Perspective on Farmland Value Trends

November 15, 2011

Rising Farmland Values: Causes and Concerns

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Agenda

- The current situation
- What drives farmland values?
- How high will they go?
- How long will this last?

Current U.S. Land Market

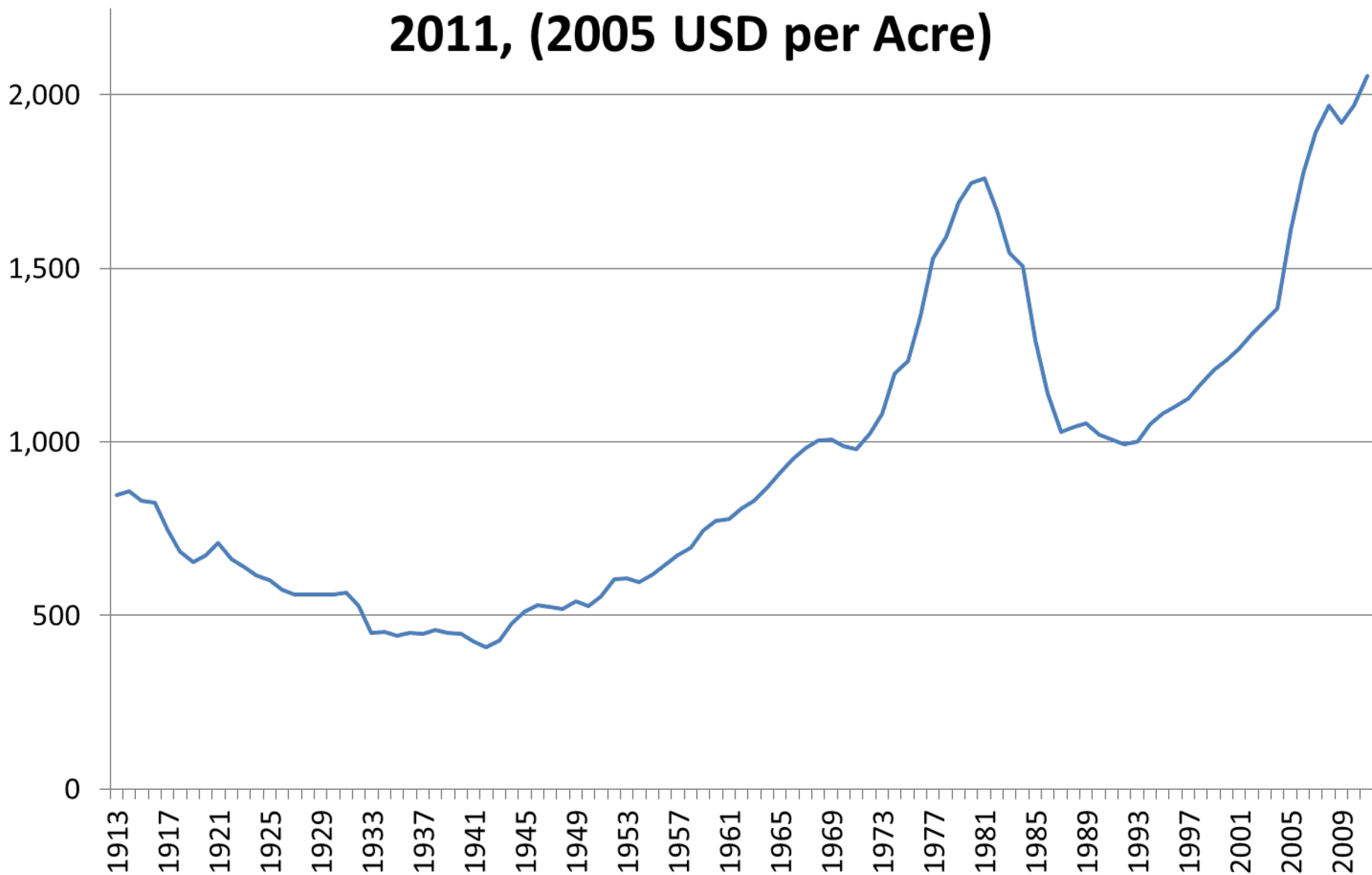
Characterized by:

- Rapidly rising values
- Generally thin market
- Headline sales that may or may not be representative
- Very strong farmer demand (70%+ of sales)
- Investor interest
- General sense of optimism

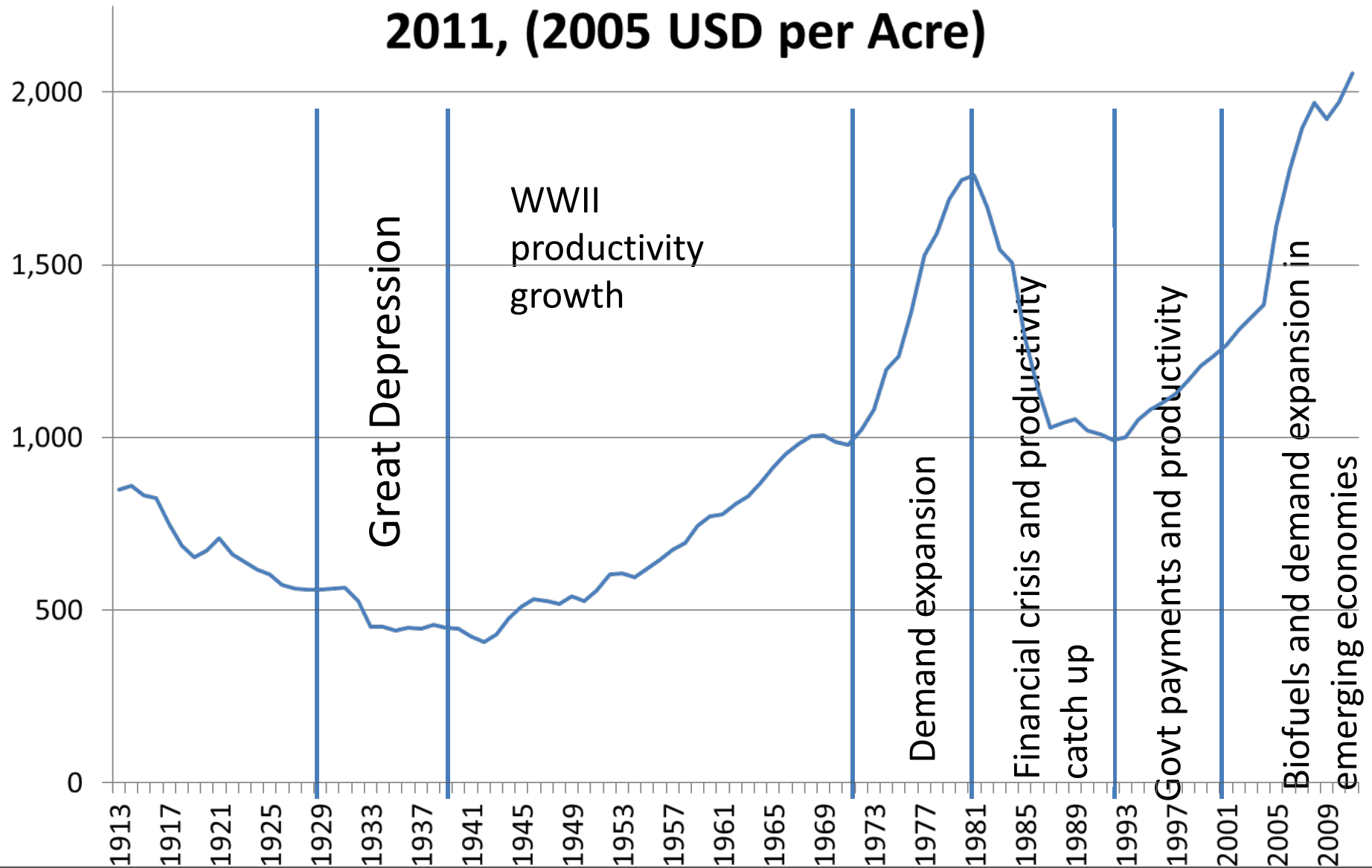
How High?

- Prices likely headed higher, but.....
 - Yes prices will go down someday but probably not anytime soon
 - Prices will likely go down substantially at some time in the future – commodity markets are volatile
 - Let's take a short-stroll through history

All U.S. Agricultural Real Estate Values, 1913-2011, (2005 USD per Acre)



All U.S. Agricultural Real Estate Values, 1913-2011, (2005 USD per Acre)





What Drives Value?

- General idea of purchasing capital assets
 - Obtain the rights to future earnings for a price less than the real earnings that it will produce
- Capital asset values are determined by *EXPECTATIONS* of the level of future earnings and their present value
 - Earnings are difficult to forecast
 - Interest rates and inflation drive present values and are equally difficult to forecast
- It is very difficult to understand when expectations are misinformed
 - Compounded by the fact that farmland is an infinite life asset with relatively low rates of turnover

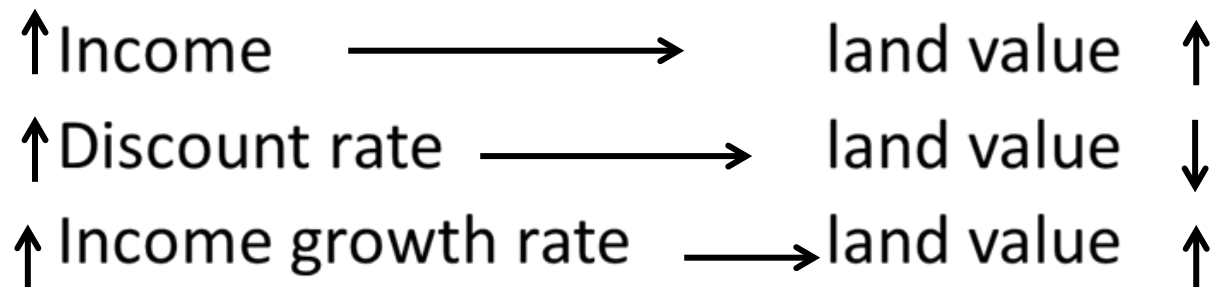


A Simple Model of Farmland Values

The income capitalization model:

$$\text{Farmland Value} = \frac{\text{Income}}{\text{discount rate (\%)} - \text{growth rate (\%)}}$$

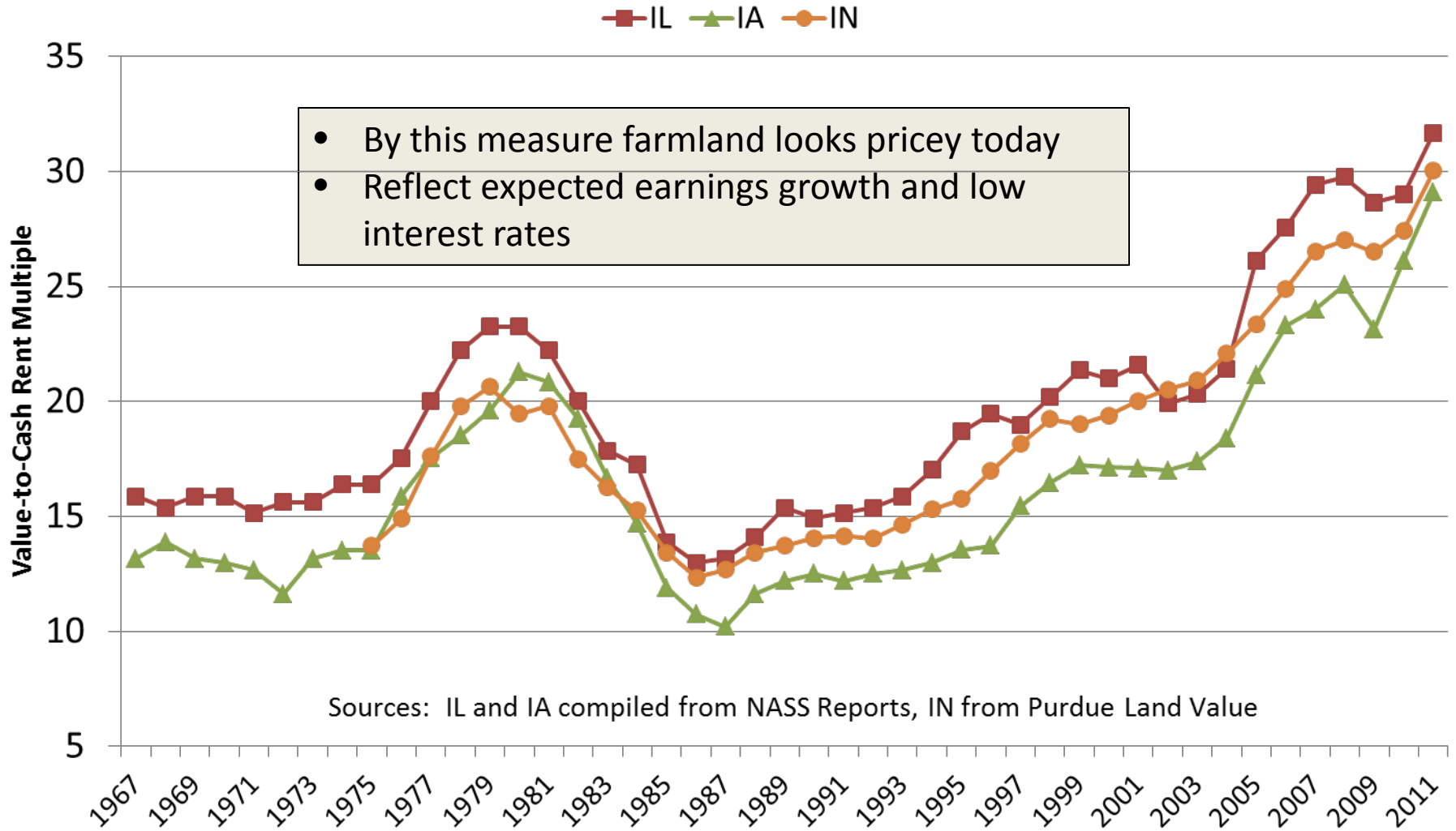
Important points:



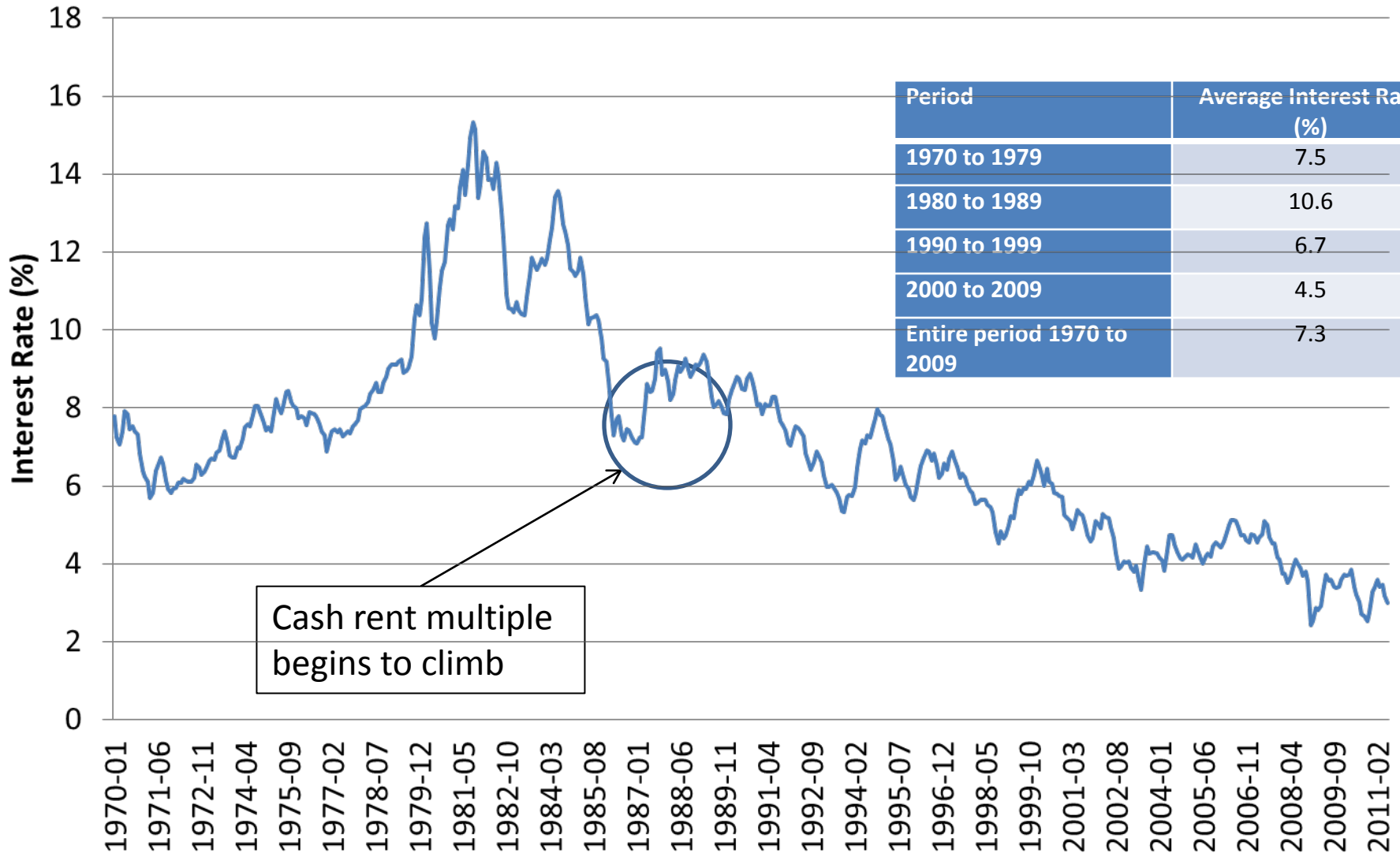
6% discount rate less 1% growth = 5% “cap rate”

Cash rent multiple is the inverse of the cap rate

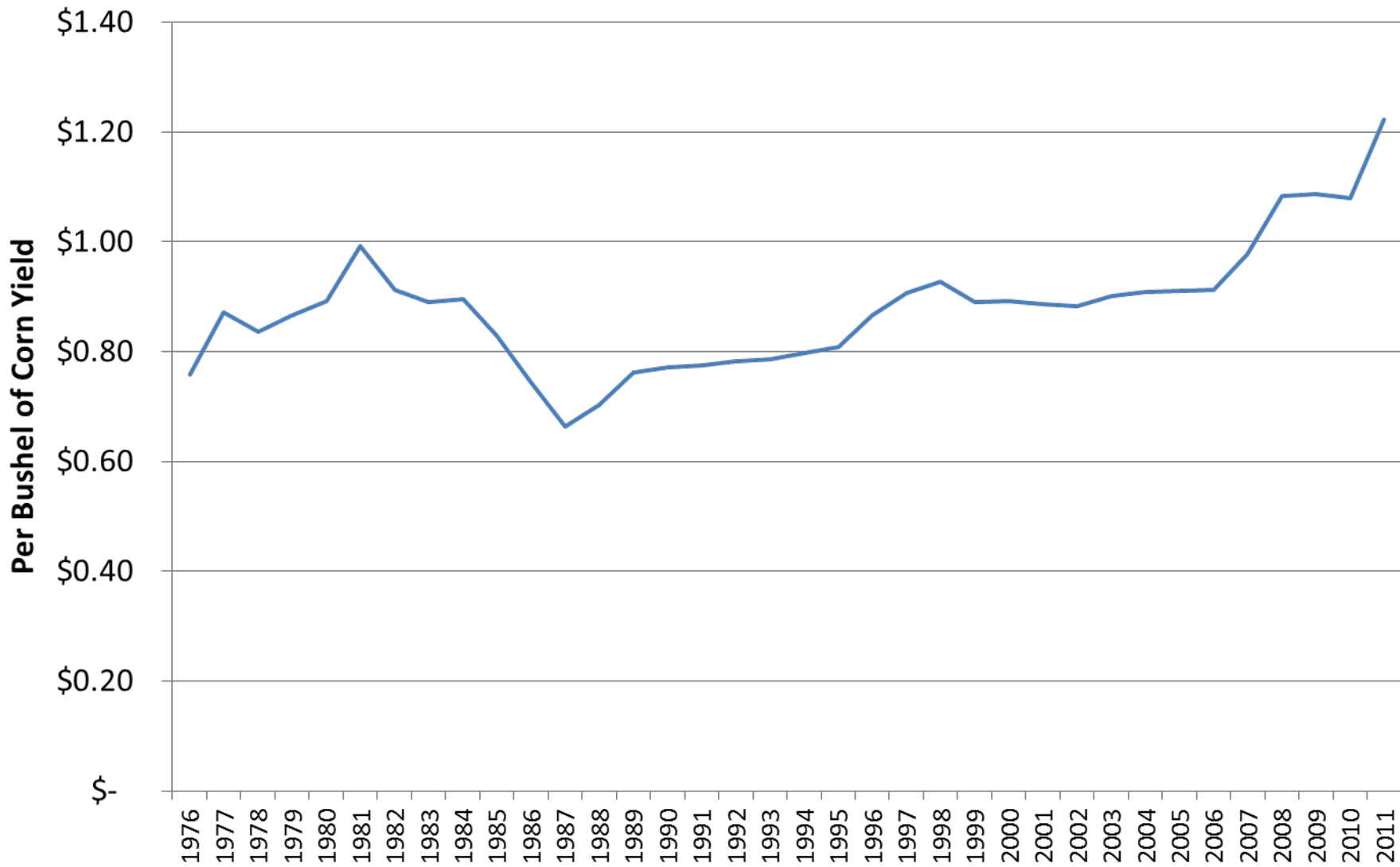
Value-to-Cash Rent Multiple for IA, IL, IN Cropland, 1967-2011



Interest Rate on 10-Year Treasury Bonds, 1970-2011

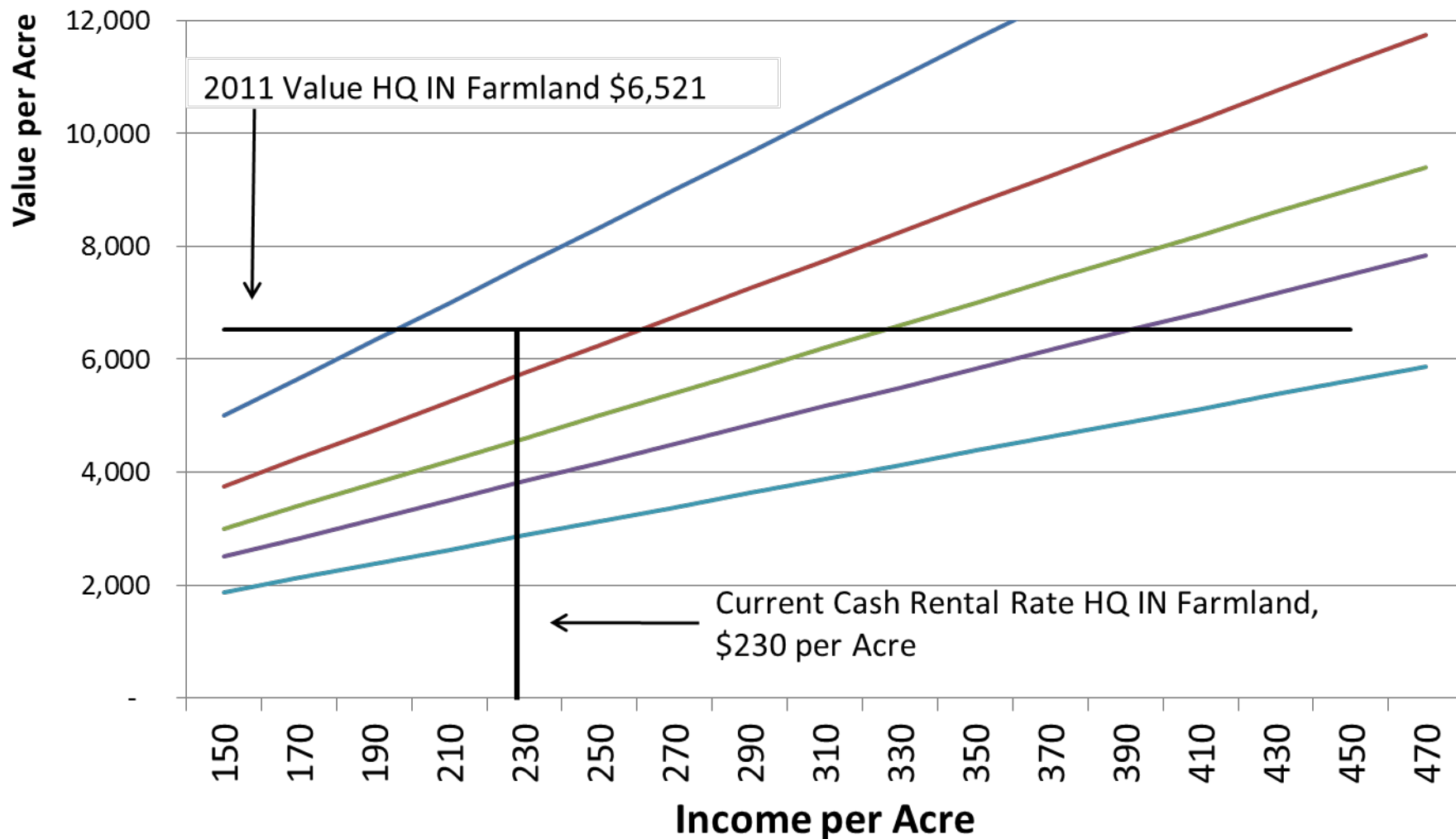


Cash Rent per Bushel of Corn Yield, High Quality IN Farmland, 1976-2011



Land Values Under Alternative Capitalization Rates (Multiples) and Income Levels

— 3% (33) — 4% (25) — 5% (20) — 6% (17) — 8% (13)

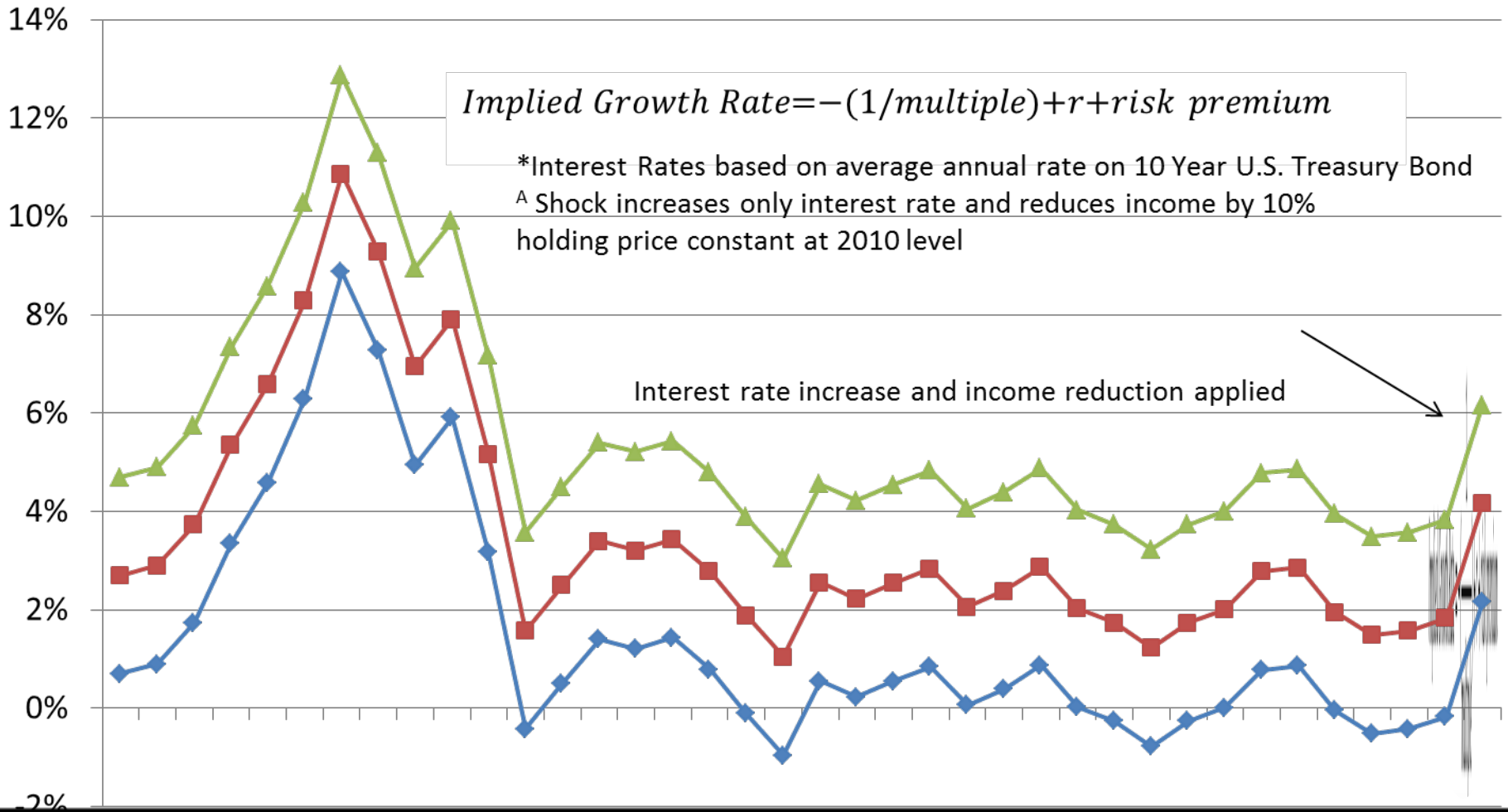


Cap Rate Risk

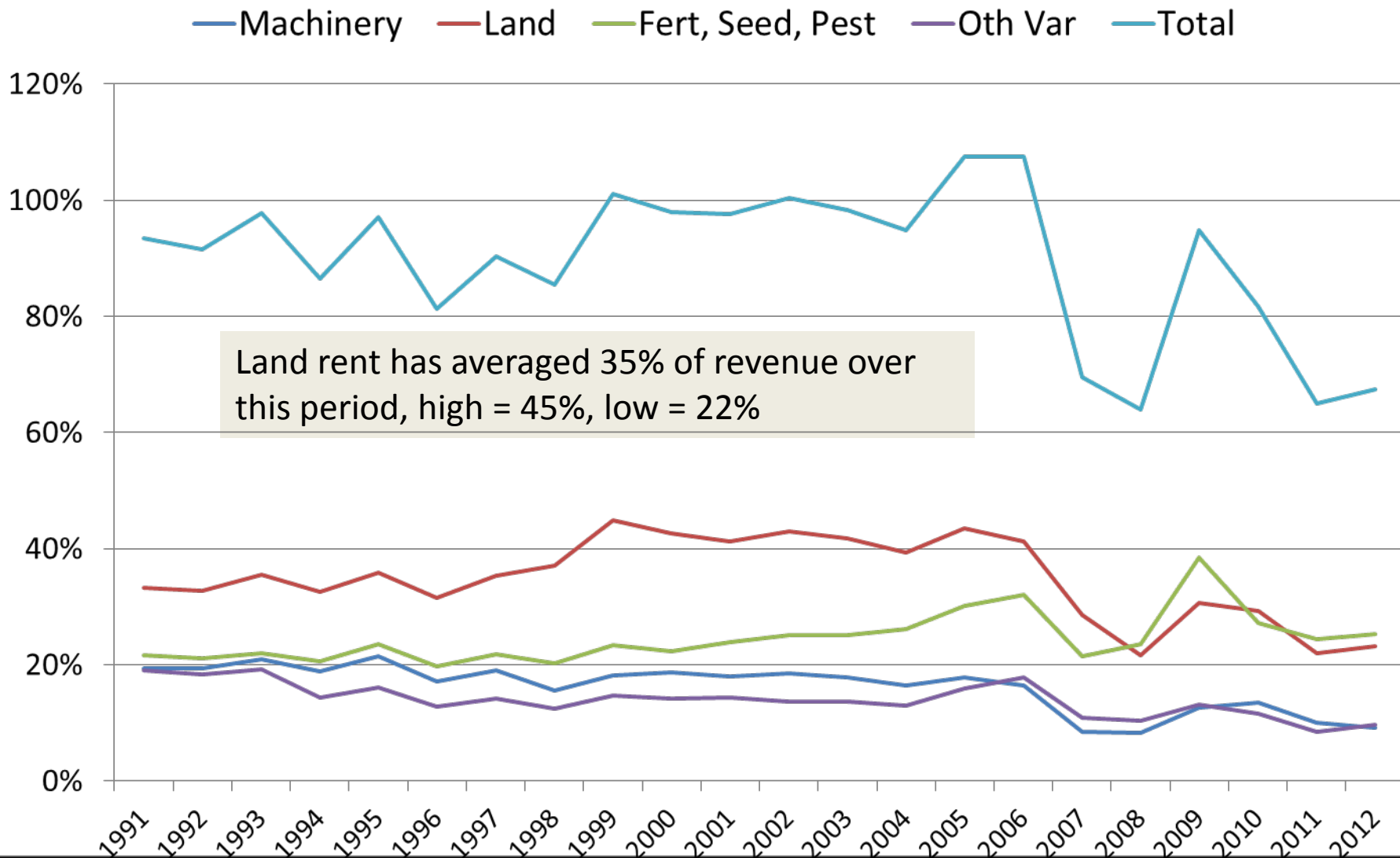
- Monetary policy change = cap rate ↑
- Economic recovery = cap rate ↑
- Inflation = cap rate ↑
- Increased volatility/risk = cap rate ↑
- Slowing income growth in ag = cap rate ↑

Growth Needed in Future for 200 BP Interest Rate Increase and 10% Income Level Reduction *

◆ Risk Premium = 0% ■ Risk Premium = 2% ▲ Risk Premium = 4%



Percent of Revenue to Various Inputs, HQ IN Farmland, 1991-2011



So What About Corn Prices?

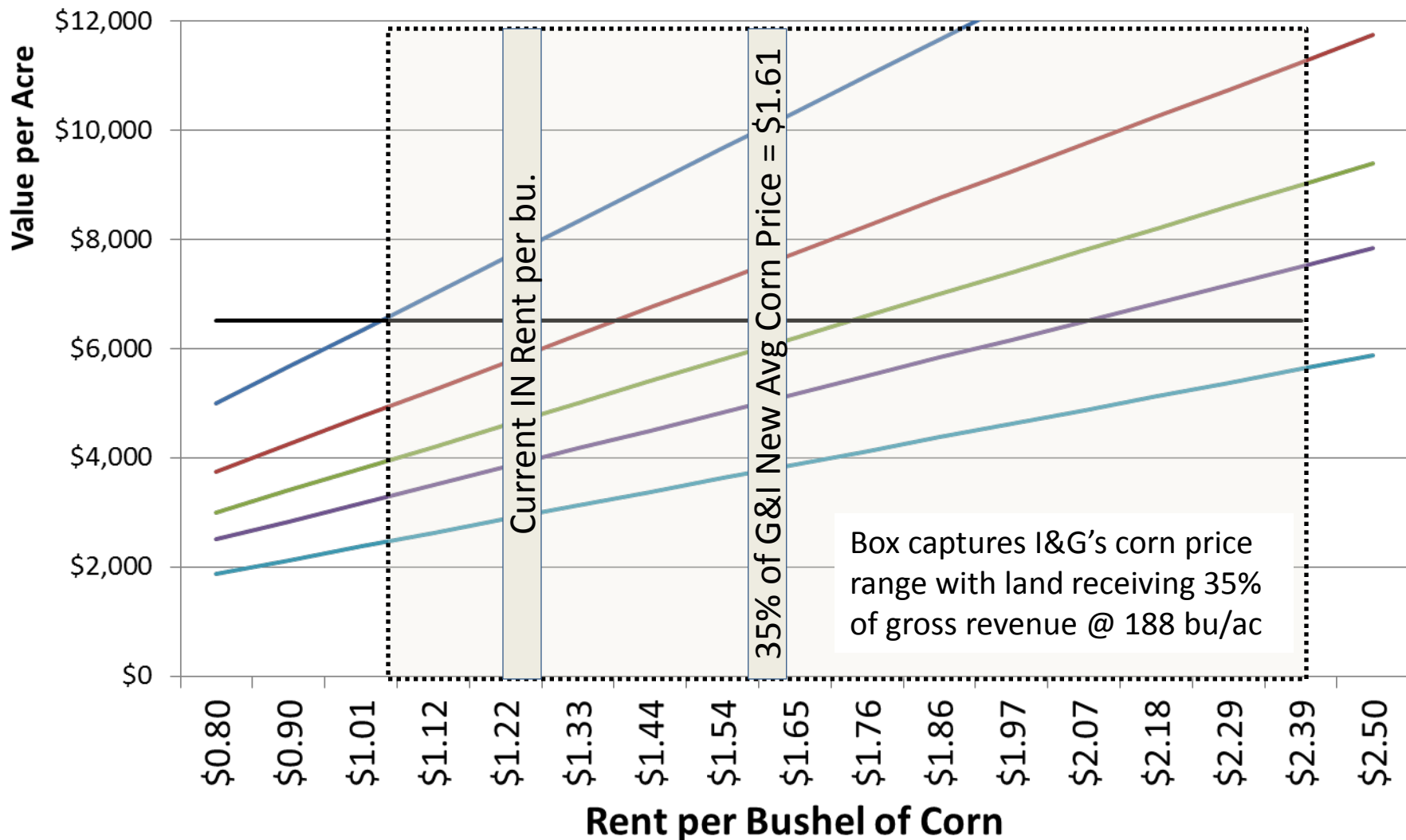
- Darrel Good and Scott Irwin forecast the new plateau prices as follows:

	Corn	Soybeans	Wheat
Post Dec 2006 Monthly Price	-----\$'s per Bushel-----		
Average	4.60	11.50	5.80
High	6.70	19.10	10.15
Low	3.00	8.20	3.30

SOURCE: Good, D. and S. Irwin. "The New Era of Corn, Soybean, and Wheat Prices." Marketing and Outlook Briefs, MOBR 08-04, September 2, 2008 Dept. of Agr. Cons. Econ, University of Illinois.

Land Values Under Alternative Capitalization Rates (Multiples) and Rent per Bushel of Corn, HQ IN Farmland

— 3% (33) — 4% (25) — 5% (20) — 6% (17) — 8% (13)



Fundamentals Today Make Prices Look Attractive

- Today's fundamentals – earnings and interest rates make prices look attractive
 - Today's fundamentals were not necessarily yesterday's
 - Tomorrow's fundamentals are not necessarily today's

Two Key Takeaways

- Policy plays a key role in current situation
 - Biofuels
 - Crop insurance
 - Environmental policy
- Macro-economics plays a key role in the situation
 - Interest rates
 - Exchange rates
 - Demand (income growth)

Thoughts on Bubbles

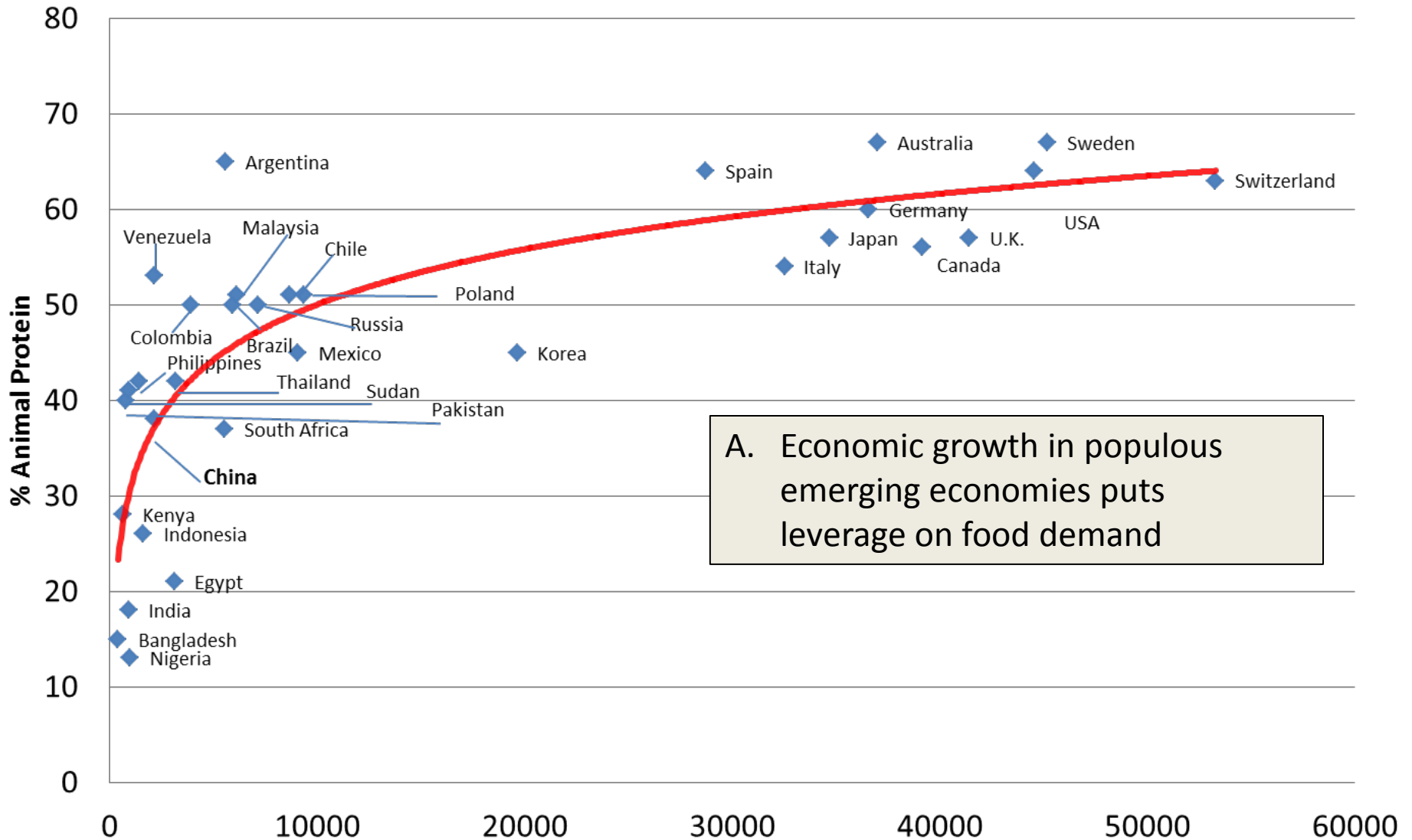
.... you get a bubble when a very high percentage of the population buys into some originally sound premise.... that (the premise) becomes distorted as time passes and people forget the original sound premise and start focusing solely on the price action....

Excerpt from Warren Buffett's interview with the Financial Crisis Inquiry Commission

So What are Some of the Elements of the Premise and are They Sound?

- A. Population and economic growth in emerging economies puts great leverage on food demand
- B. Biofuels create large, new sustained demand
- C. Ability to expand supply is limited – land and productivity
- D. Ag will work when inflation comes

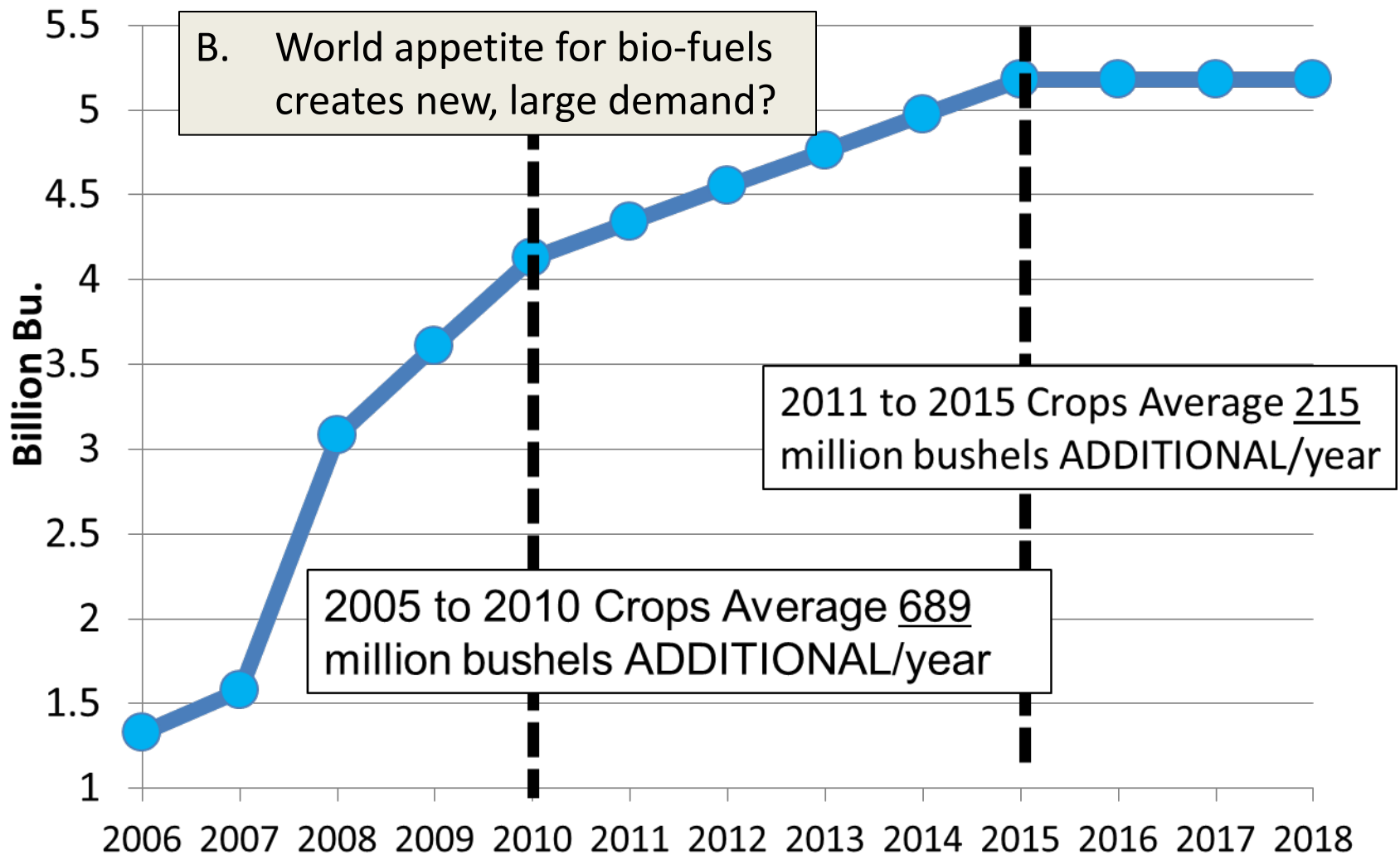
Animal Protein as a Percent of Total Protein by GDP, Selected Countries 2005-2007



A. Economic growth in populous emerging economies puts leverage on food demand

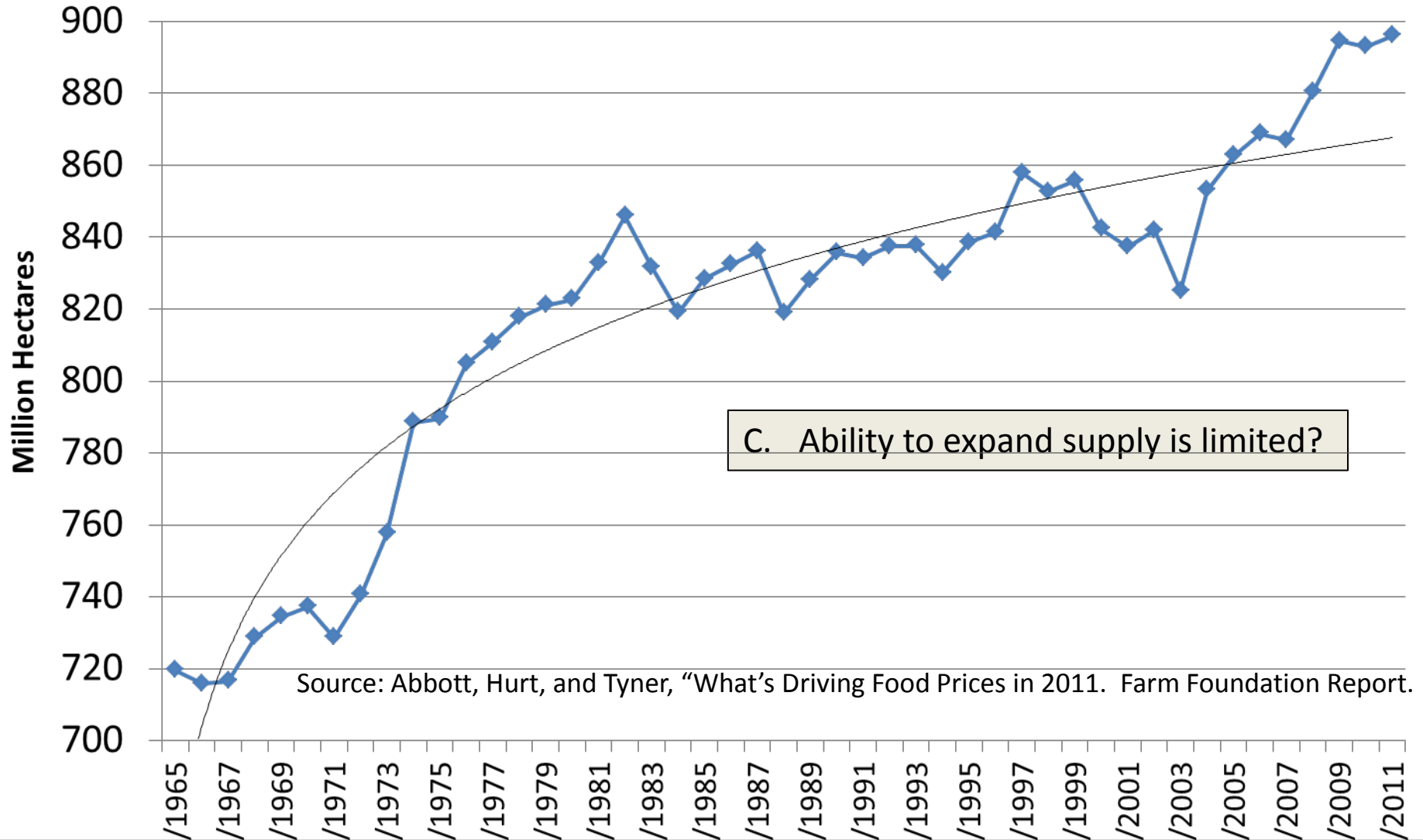
Big Demand Increases From Ethanol are Likely Over

Corn to Meet RFS2



Source: Abbott, Hurt, and Tyner. "What's Driving Food Prices in 2011." Farm Foundation Report.

Harvested Hectares of Coarse Grains, Cotton, Oilseeds, Wheat, and Rice, World Totals 1964-2011



Source: Abbott, Hurt, and Tyner, "What's Driving Food Prices in 2011. Farm Foundation Report.

Price Risk is Substantial

Weekly Nearby Corn Futures Contract Prices, 2006-2011

ZC - Corn (CBOT) - Weekly Nearest OHLC Chart



Final Thoughts

- There is plenty of room for land prices to go higher
- There are substantial risks associated with higher moves
 - Interest rates (cap rates)
 - These prices and rates will encourage use of leverage
 - Demand growth will face challenges
 - Supply response is coming
 - Will we really end up at \$4.60 on corn?