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# Risks Facing Farmland Markets

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## *Rising Farmland Values: Causes and Cautions*

*November 15, 2011*

*Federal Reserve Bank of Chicago*

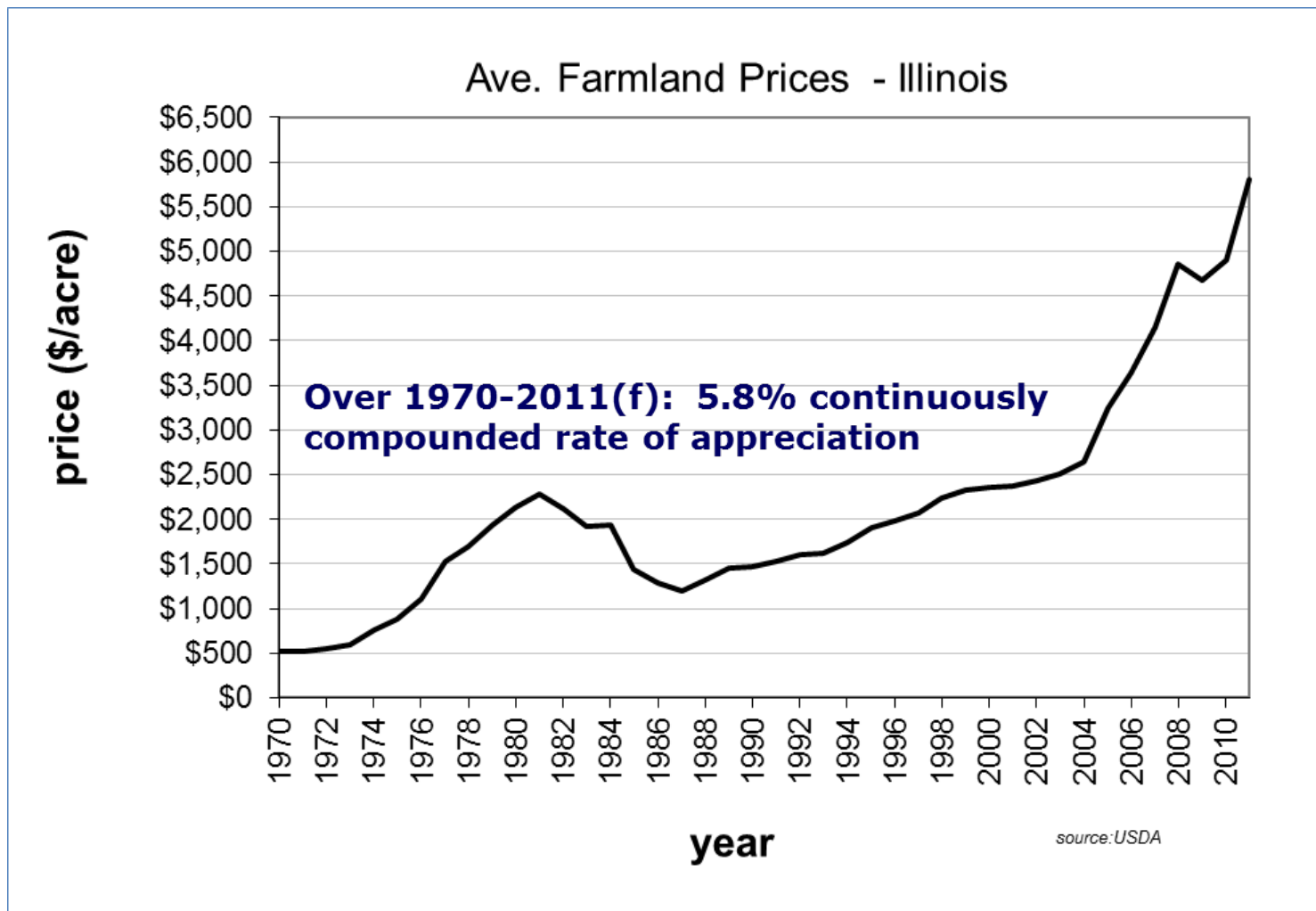
*Bruce J. Sherrick  
University of Illinois*

# Farmland Markets

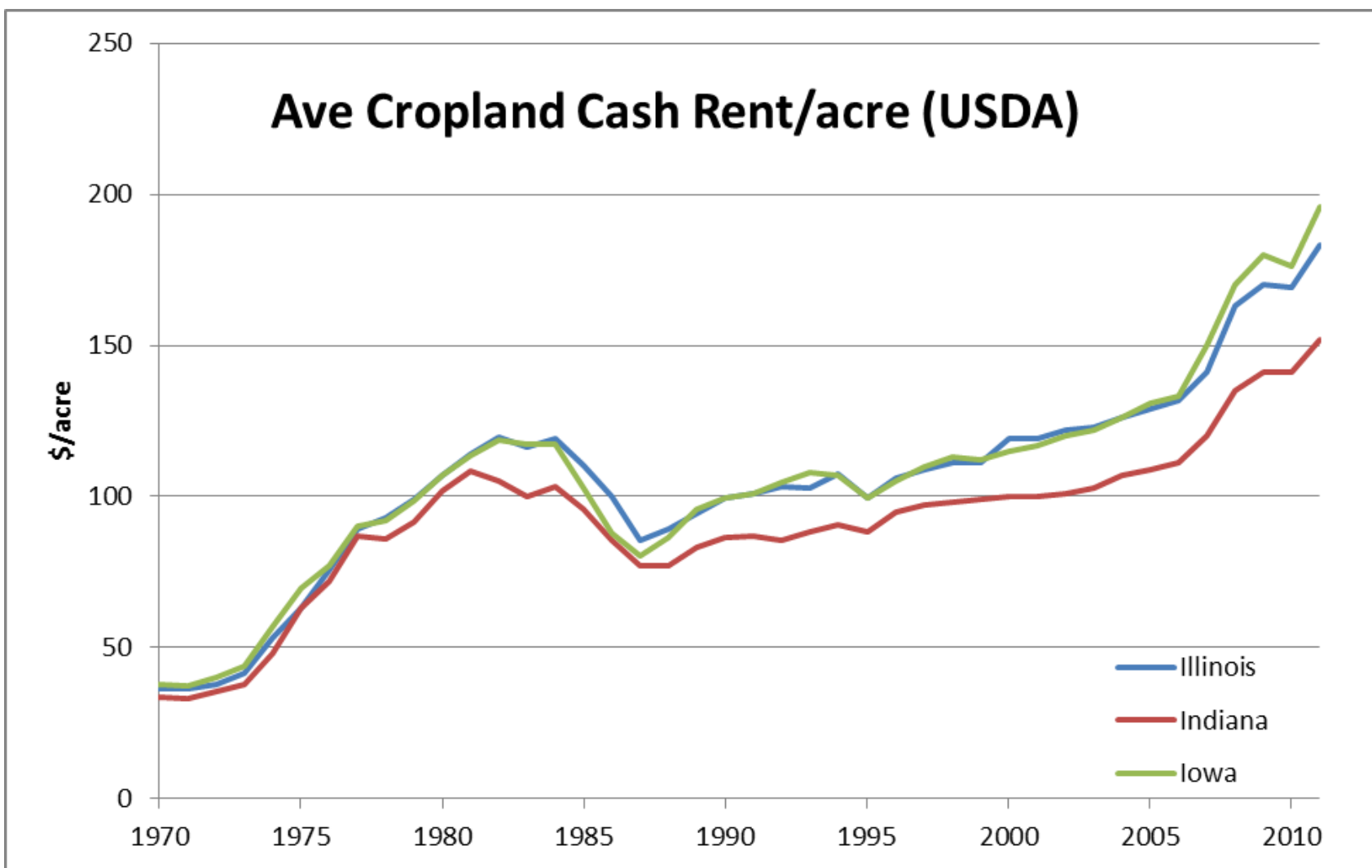
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- Returns composition and patterns
- Changing control/return characteristics
- Rental values as proxies
  - Changing rental characteristics
  - Relative to alternatives – farmland as an investment
- Market issues: prices, government programs, supply and demand issues, cap rate influences
- Risks to Lenders, investors, owners, operators
- Concluding observations

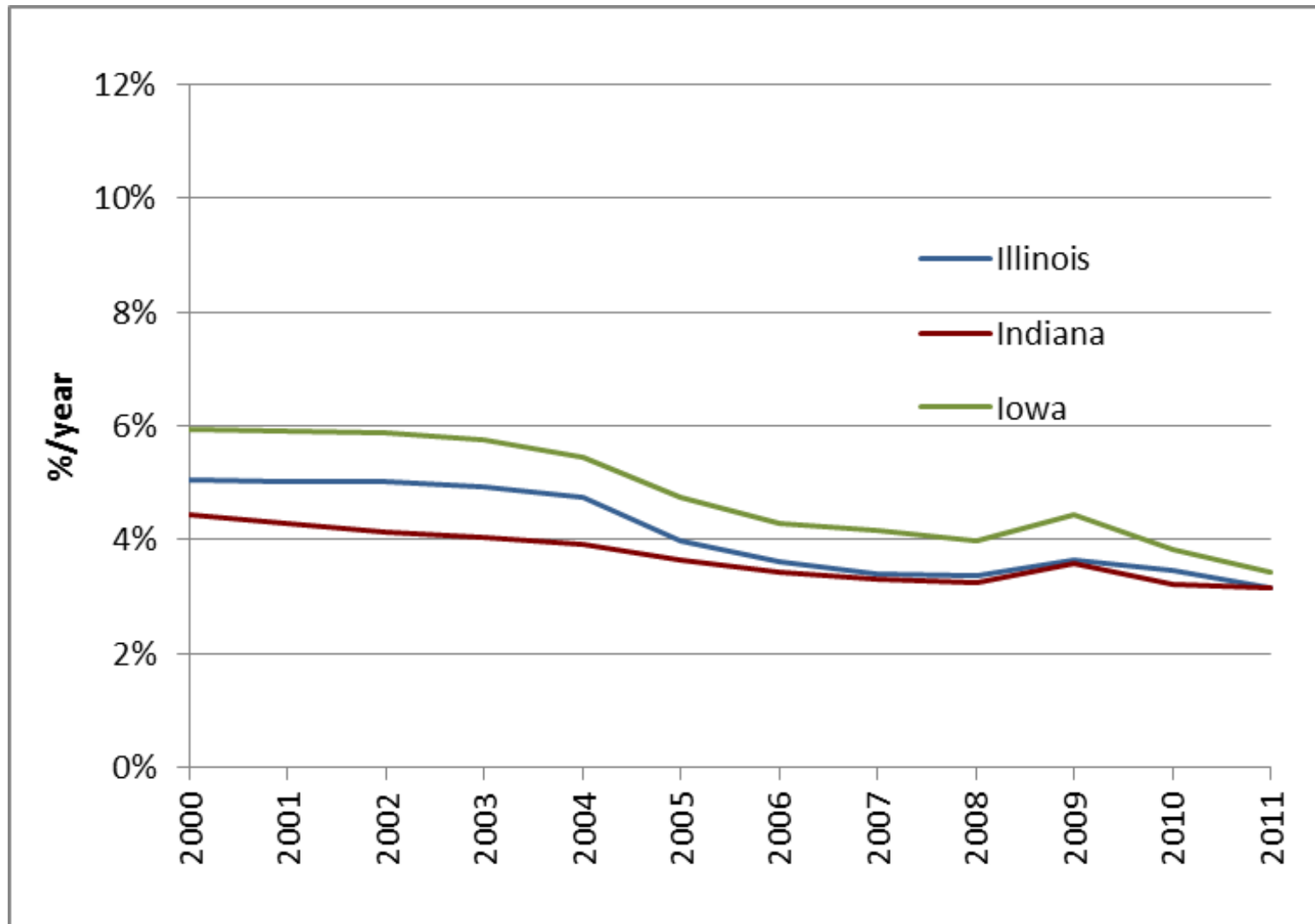
# Farmland values



# Farmland Income – rental values



# Current Income rates (rent/value)



# Historic Views on Farmland..

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“We have two great sources of profit in farming: first, rise in the value of the land; and second, profit on the production of farm crops. The first has been the chief source.”

“Already it is difficult or impossible, over much of the country for young (farmers) to become landowners. The area of desirable farmland attainable ... is comparatively small.

The number and percentage of tenant farmers must certainly increase.”

- *George Morrow, 1886*

# Comparison to Major Asset Classes

Table 1. Asset Return Characteristics

Asset/Index	Annual Ave.	Standard	Coefficient	Annual Ave.	Standard	Coefficient
	Return	Deviation	of Variation	Return	Deviation	of Variation
	----- 1970-2010 -----			----- 1990-2010 -----		
Illinois	10.77%	9.96%	0.924	10.80%	4.97%	0.461
DowJones	6.52%	16.11%	2.473	6.84%	16.05%	2.347
EUROPE	6.56%	20.89%	3.185	4.98%	22.00%	4.417
EAFE	6.88%	21.35%	3.102	2.19%	21.78%	9.966
Gold	8.97%	22.24%	2.480	5.82%	13.45%	2.309
AIIREITS	9.09%	21.56%	2.373	9.49%	20.74%	2.187
TBSM3M	5.53%	2.98%	0.540	3.60%	1.96%	0.545
TCM10Y	7.20%	2.59%	0.360	5.45%	1.45%	0.265
BBALibor	4.85%	2.32%	0.478	4.30%	2.08%	0.482
AAA	8.24%	2.27%	0.275	6.76%	1.21%	0.179
BAA	9.35%	2.50%	0.268	7.71%	1.12%	0.145
CP3M	3.30%	2.04%	0.618	3.30%	2.04%	0.62
CPI	4.29%	2.88%	0.671	2.63%	1.12%	0.425
PPI	4.03%	4.96%	1.229	2.47%	4.01%	1.624

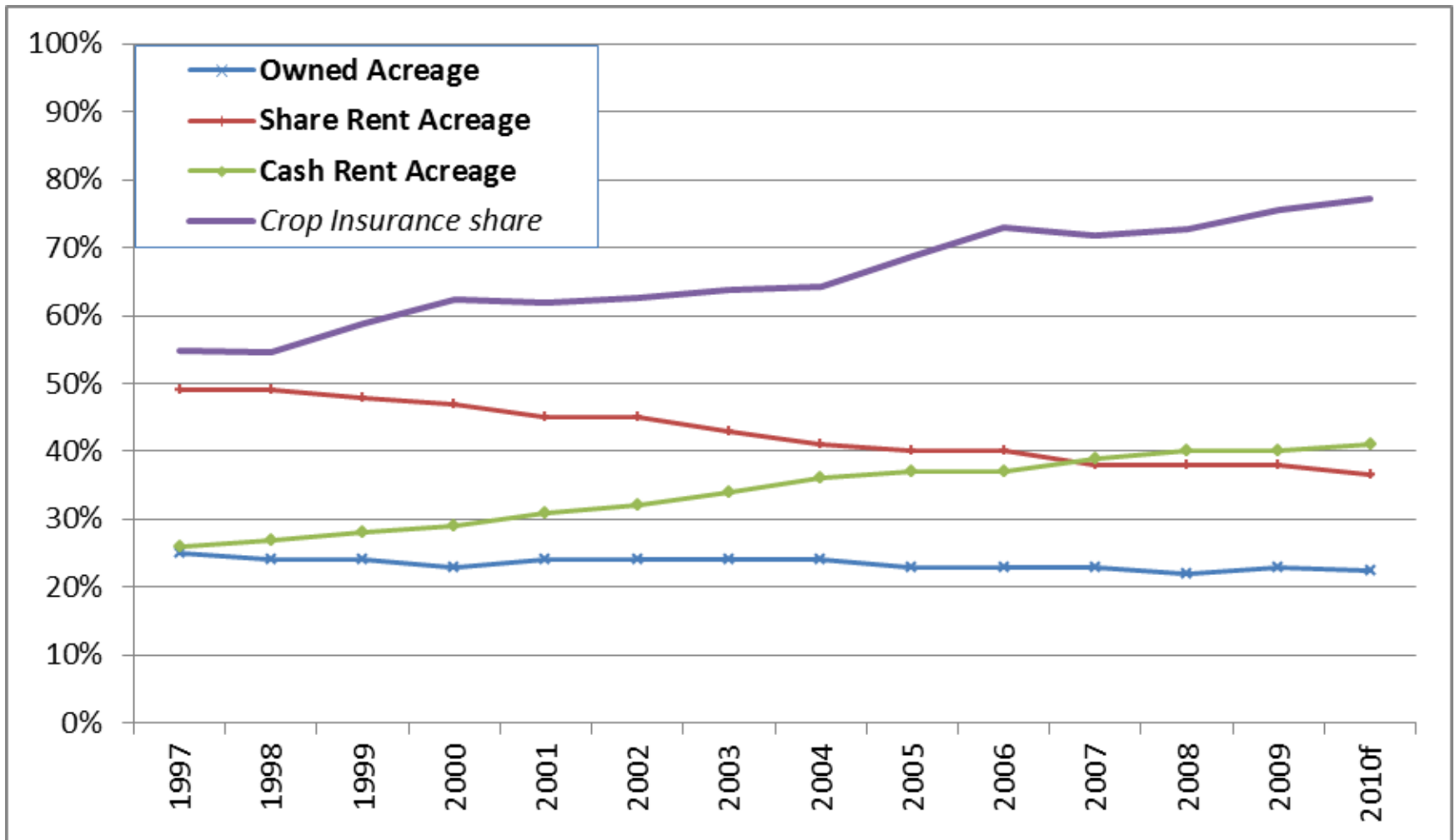






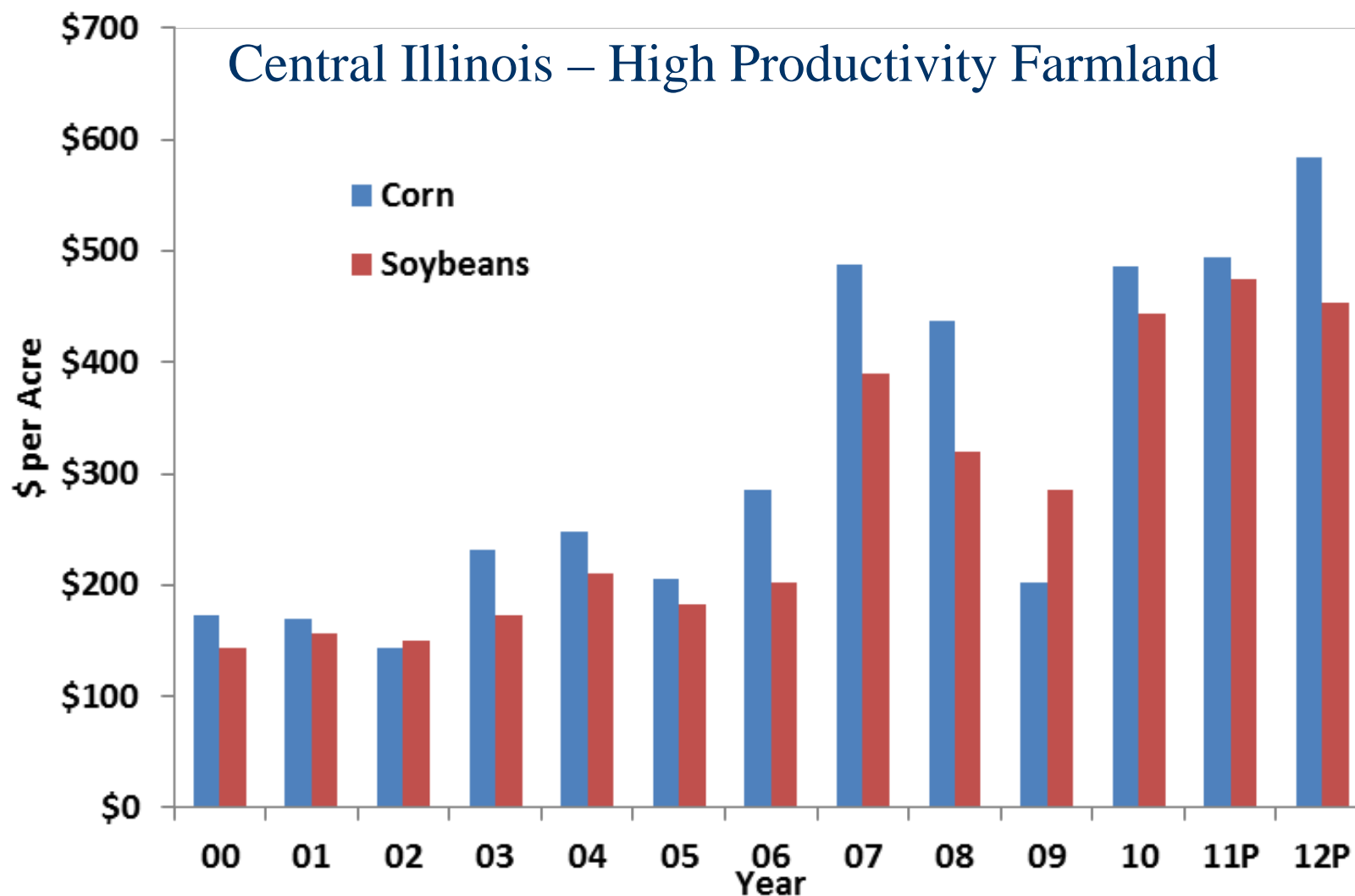


# Control composition changing



Source: FBFM and USDA

# Operator and Farmland Returns



Source: Prof. G. Schnitkey calculations

# Cash Rents Relative to Crop Revenue, N. Illinois

Year	Crop Revenue		Cash Rent	Rent as a Percent of Crop Revenue	
	Corn	Soybeans			
2000	307	215	123	40%	57%
2001	331	217	126	38%	58%
2002	362	266	129	36%	49%
2003	426	262	130	31%	50%
2004	403	304	135	33%	44%
2006	306	282	137	45%	49%
2006	558	345	139	25%	40%
2007	774	556	149	19%	27%
2008	812	523	170	21%	33%
2009	657	490	177	27%	36%
2010	929	672	188	20%	28%

Source: Prof. G. Schnitkey calculations

# Operator and Farmland Returns (C.Illinois)

	2009	2010	2011P	2012P
<b>Corn Yield</b>	<b>192</b>	<b>168</b>	<b>155</b>	<b>195</b>
<b>Corn Price</b>	<b>3.65</b>	<b>5.30</b>	<b>6.75</b>	<b>5.75</b>
<b>Bean Yield</b>	<b>55</b>	<b>57</b>	<b>50</b>	<b>56</b>
<b>Bean Price</b>	<b>10.02</b>	<b>12.03</b>	<b>13.75</b>	<b>13.00</b>
<b>Operator and Farmland Return</b>				
<b>Corn</b>	<b>203</b>	<b>486</b>	<b>572</b>	<b>632</b>
<b>Soybeans</b>	<b>285</b>	<b>444</b>	<b>422</b>	<b>451</b>
<b>Corn 66% Beans 33%</b>	<b>231</b>	<b>472</b>	<b>521</b>	<b>570</b>

*Source: Prof. G. Schnitkey calculations*

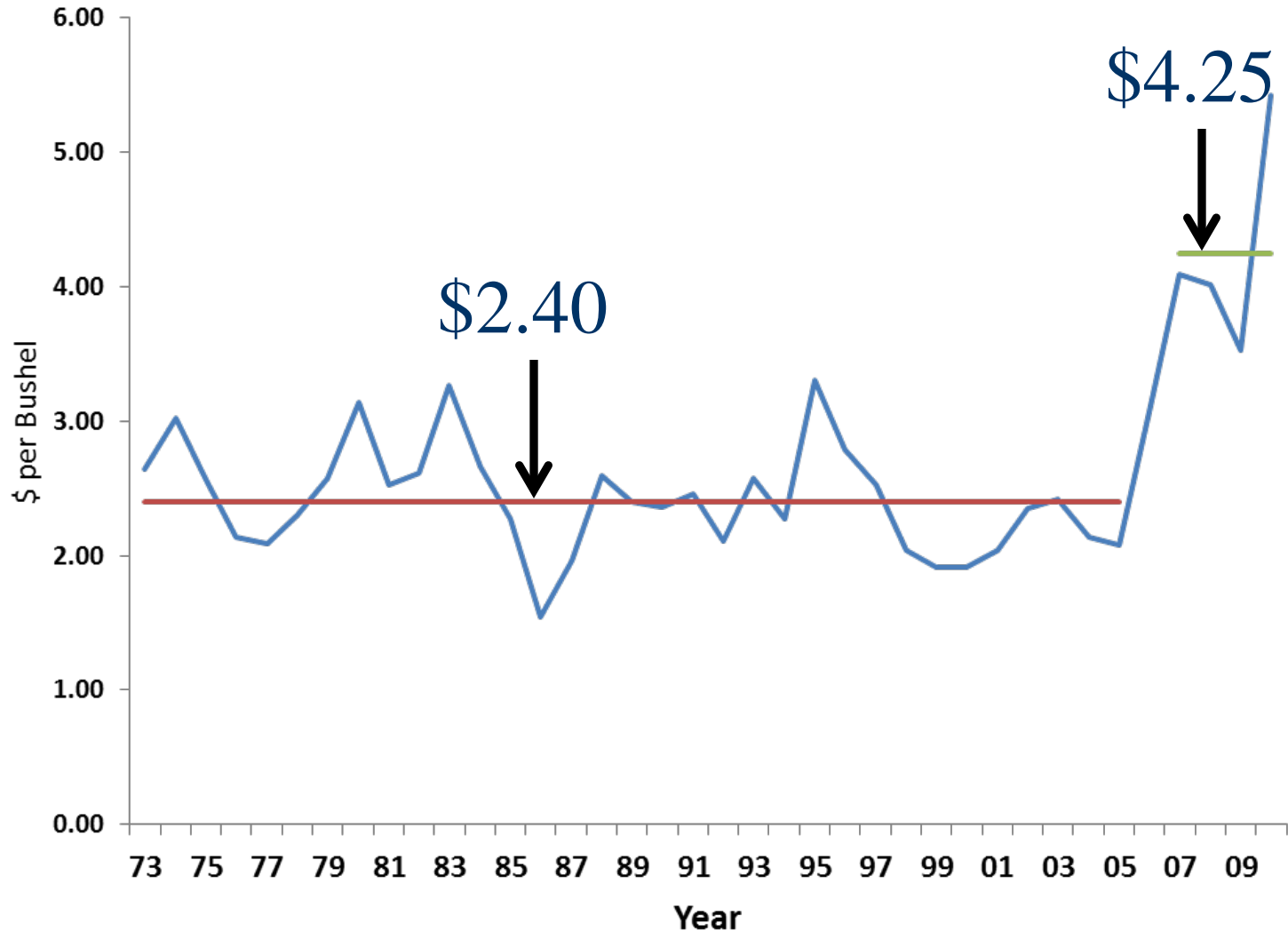
# Mid-Year Leasing Survey

Illinois Society of Professional Farm Managers and Rural Appraisers

Land Quality	Expected Corn Yields	2011 Rent	2012 Proj. Rent	Change
	Bu./acre	\$/acre	\$/acre	\$/acre
Excellent	Over 190	\$329	\$367	\$38
Good	170 – 190	\$285	\$321	\$36
Average	150 – 170	\$241	\$269	\$28
Poor	150 or less	\$190	\$214	\$24

- **Survey of ISPFMRA members**
- **Managed land – higher than USDA aves**
- *See: [www.ispfmra.org/land-values.html](http://www.ispfmra.org/land-values.html)*

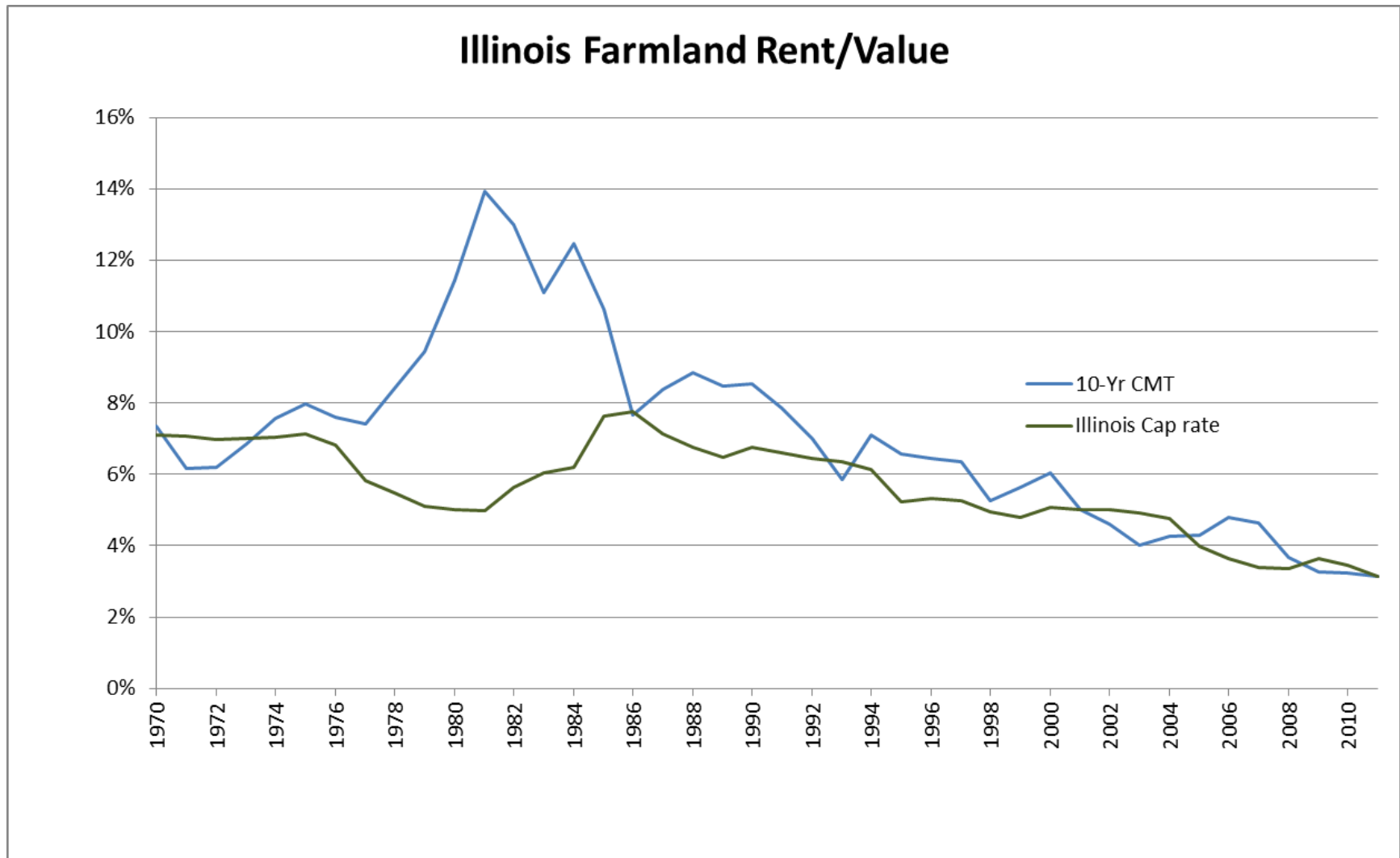
# Illinois Corn Price, 1973 – 2010



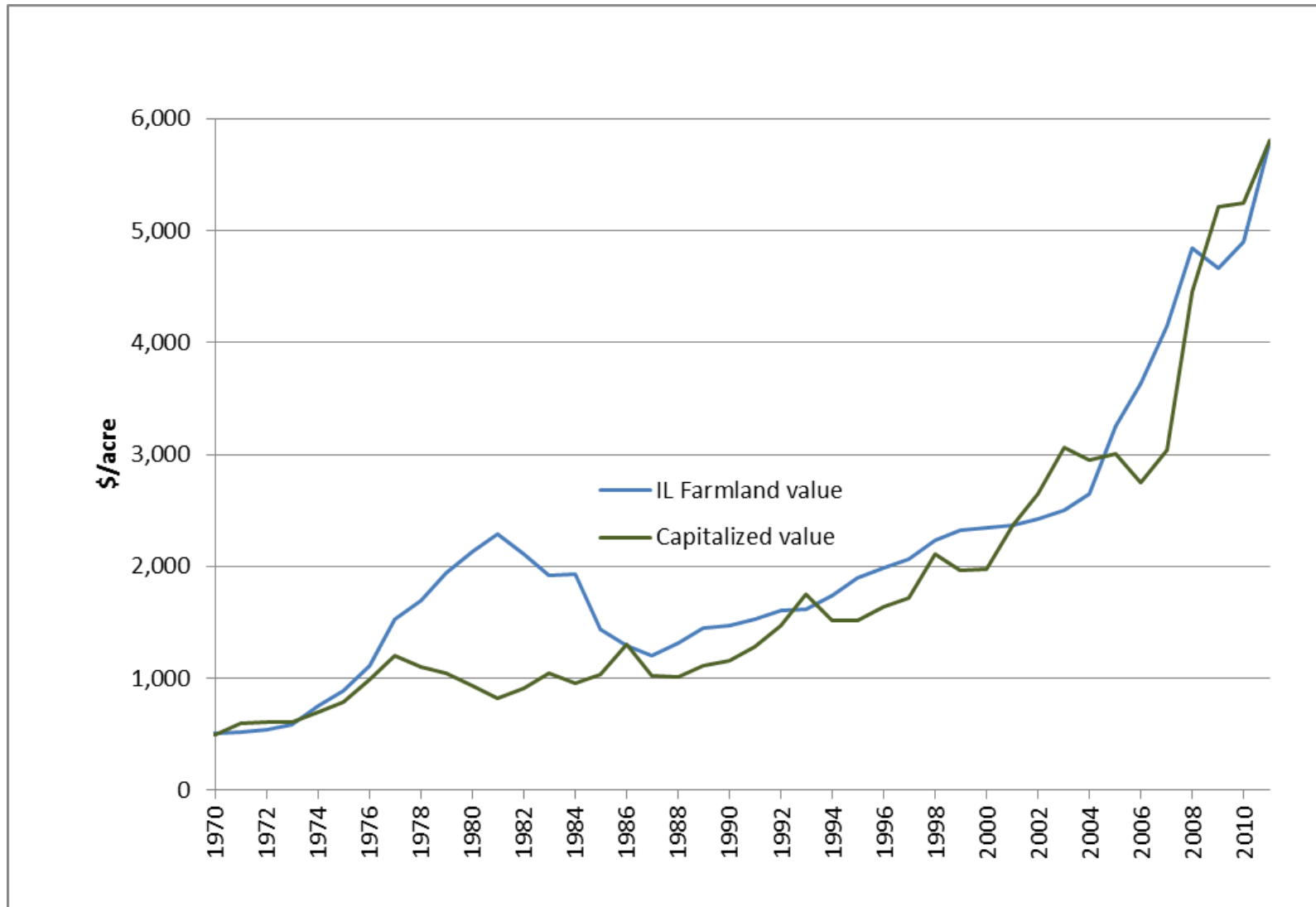
Source: Prof. Scott Irwin and Darrel Good, UI



# Does the Market “make sense”



# Converted to Values...



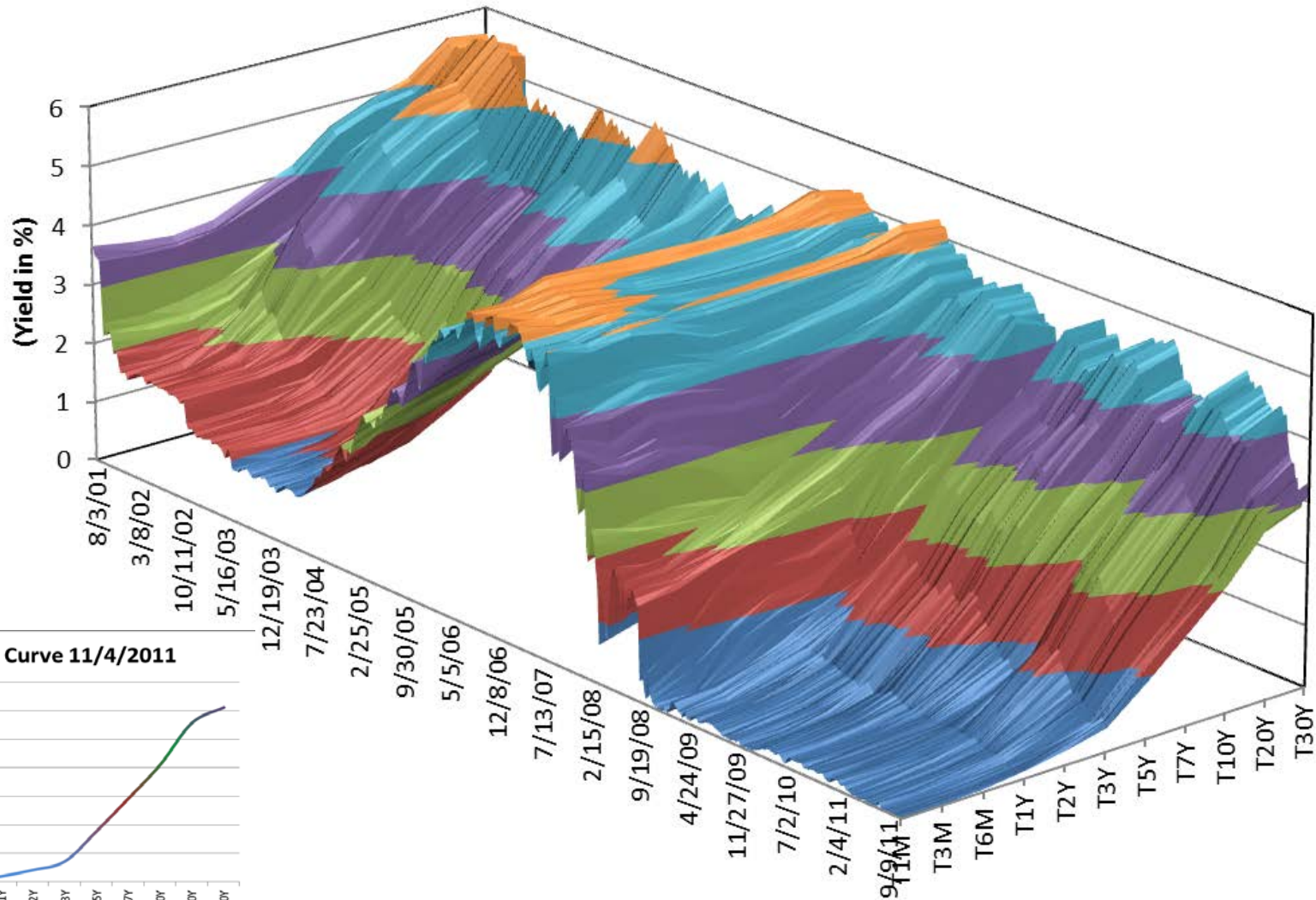
# Price-to-Cap Value Ratio (1= rational)

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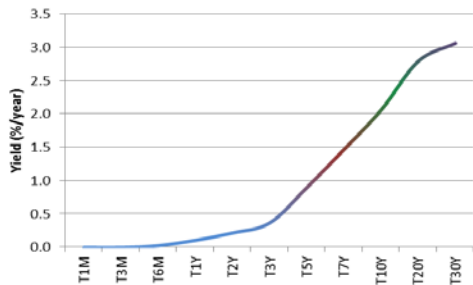


Source: Prof. G. Schnitkey calculations

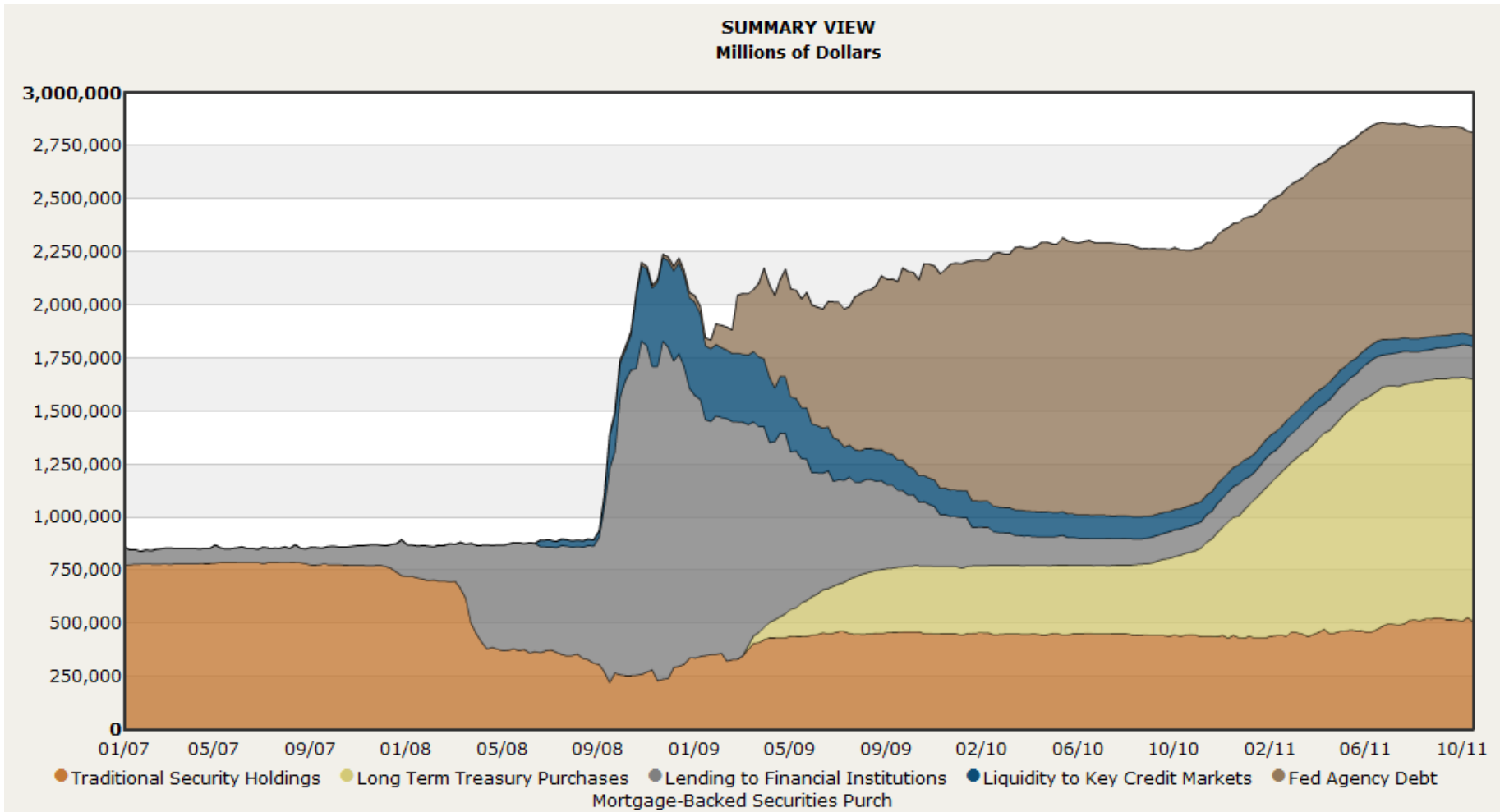
# Yield Curve and Cap rate issues



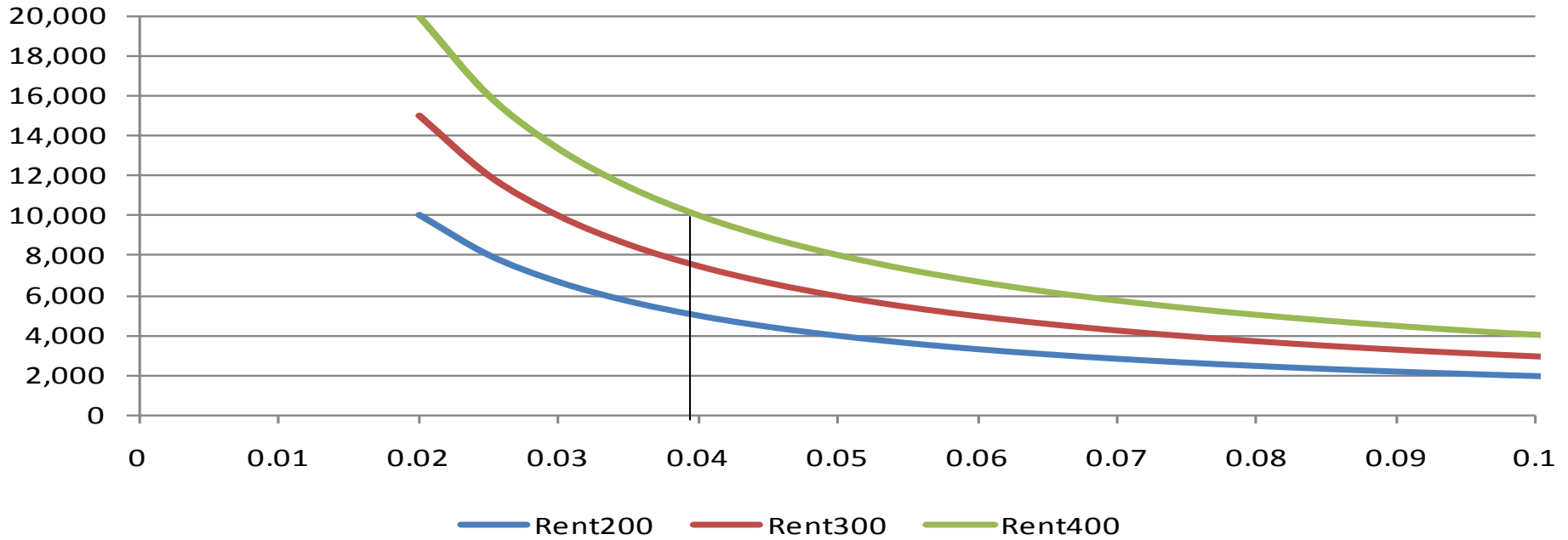
T Yield Curve 11/4/2011



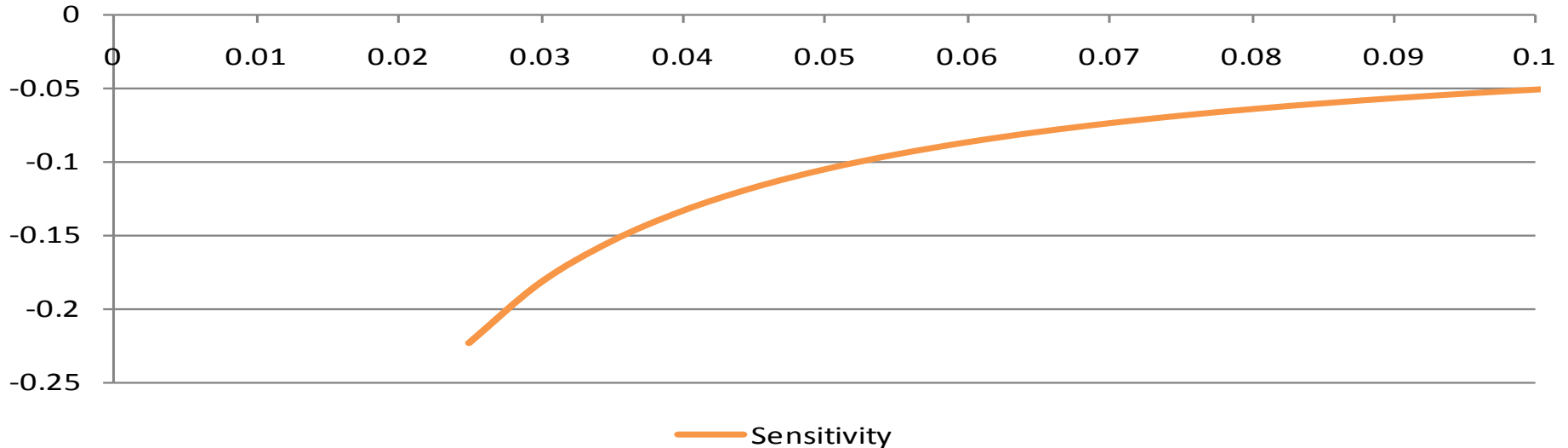
# The Balance Sheet of the Fed



# Land Value by Rent and Net Cap Rate



# % Value Change by Cap change



# Balance Sheet of Ag Sector

	1970	1980	1990	2000	2010
	<i>(\$millions, except ratios - source ERS-USDA)</i>				
<b>Farm Assets</b>	<b>278,864</b>	<b>983,305</b>	<b>840,609</b>	<b>1,203,215</b>	<b>2,179,669</b>
Real Estate	202,417	782,819	619,149	946,428	1,841,672
Non Real Estate	76,447	200,486	221,459	256,787	337,997
<b>Farm Debt</b>	<b>48,753</b>	<b>166,824</b>	<b>137,962</b>	<b>177,637</b>	<b>246,859</b>
Real Estate	27,506	89,692	74,732	91,109	136,262
Non Real Estate	21,247	77,131	63,230	86,529	110,596
<b>Equity</b>	<b>230,112</b>	<b>816,481</b>	<b>702,647</b>	<b>1,025,578</b>	<b>1,932,811</b>
<b>Selected Indicators</b>					
Debt/Equity	21.2%	20.4%	19.6%	17.3%	12.8%
Debt/Assets	17.5%	17.0%	16.4%	14.8%	11.3%
Real Estate/Assets	72.6%	79.6%	73.7%	78.7%	84.5%
Real Estate/Equity	88.0%	95.9%	88.1%	92.3%	95.3%
Real Estate D to Total D	56.4%	53.8%	54.2%	51.3%	55.2%

# Risks facing Farmland markets

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- Commodity prices, income margins
  - Somewhat muted and lagged effect from income, but still reflect fundamentals
  - World demand, bio demands, quality of calories consumed, seem likely to grow
- Government programs
  - Farm bill favoring crop insurance as major safety net
  - ACRE-like (ADAP) programs possible
- Crop Insurance provisions – key for controlling income and margin risk
  - Higher coverage available
  - Better integration into rental markets
  - Margin insurance also possible to develop



# Risks facing Farmland markets

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- Lenders, owners, investors – varying effects
  - Borrower collateral positions very good
  - Lender penetration better than '80s, more sensible risk monitoring and stress testing with cause
  - Capital quality better by debt providers
  - Investors and the liquidity puzzle (may be solved)
  - Rental markets becoming more cash-based (or flex), still very sticky (i.e., currently lag, lower share of revenue)
- Capitalization effects
  - Difficult to forecast “exit strategy” by Fed that does not involve increased rates, or decreased productivity.
  - Not a farm-specific issue (unlike '80s)
  - Viewed as greatest risk to valuation, not to income

# Discussion/Questions

*Thanks...*