



# The Performance of Farmland Investments

*Bruce J. Sherrick*  
*University of Illinois*  
*Dept. of Ag and Consumer Econ.*



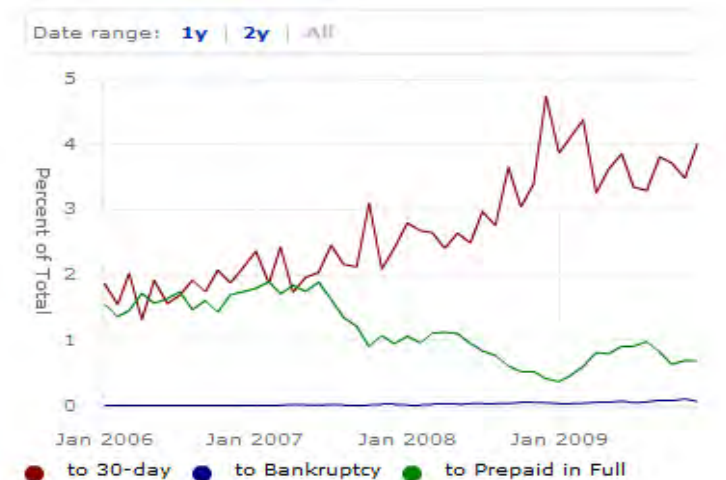
# Farmland Investments:

---

- Historical Context and Modern Times
- Unique features as asset class
- Land Values/returns info in the large
- Investment performance of Farmland
- *Summary/Comments/Questions*

# Historical Context & Modern Times

- “*The Crisis*” - has the context for investment evaluation changed?
- Differences and similarities to 1980s & associated farmland market *revisions*?
- New views of investment management have led to specific interest in farmland by institutional investors -- again.



# Balance Sheet of Ag Sector

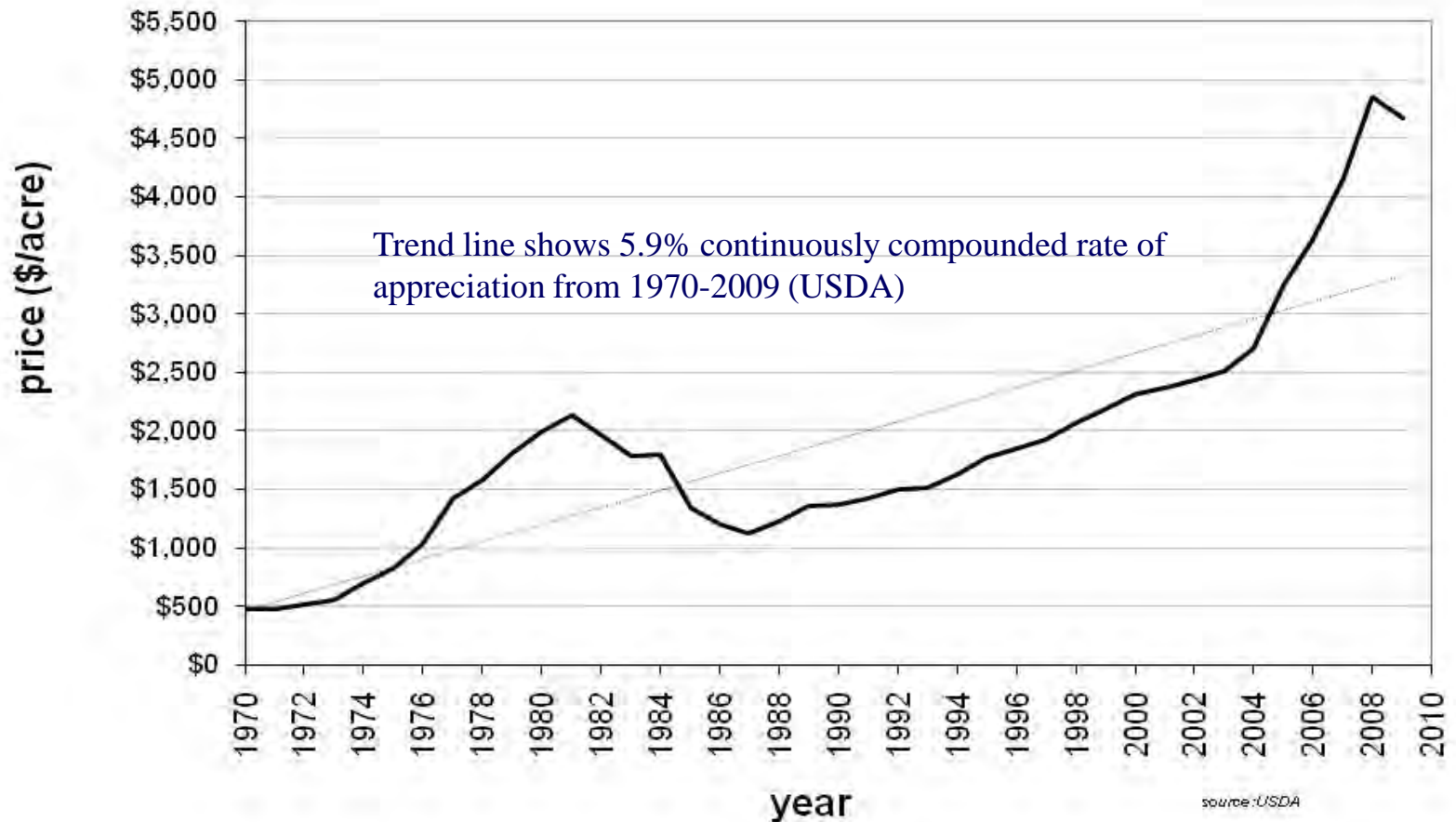
	1970	1980	1990	2000	2009f
	<i>(\$millions except ratios - source ERS-USDA various)</i>				
<b>Farm Assets</b>	278,864	983,305	840,609	1,203,215	1,935,594
Real estate	202,417	782,819	619,149	946,428	1,626,711
Non real estate	76,447	200,486	221,459	256,787	308,883
<b>Farm Debt</b>	48,753	166,824	137,962	177,637	234,074
Real estate	27,506	89,692	74,732	91,109	130,659
Non real estate	21,247				
<b>Equity</b>	230,112	816,481	702,647	1,025,578	1,701,520
<b>Selected Ratios</b>					
Debt/Equity	21.2%	20.4%	19.6%	17.3%	13.8%
Debt/Asset	17.5%	17.0%	16.4%	14.8%	12.1%
Real Estate/Equity	88.0%	95.9%	88.1%	92.3%	95.6%
Real Estate/Assets	72.6%	79.6%	73.7%	78.7%	84.0%
RED to Total D	56.4%	53.8%	54.2%	51.3%	55.8%

# Ag Sector Balance Sheet

---

- Farmland represents **84%** of farm assets and about 56% of farm debt (*12/09f*)
- Low aggregate leverage relative to other sectors (currently approx. 14% ag. D/E)
- Some shifting among debt providers, slow shift between debt and equity
- Active equity market absence...
- *Think about this balance sheet compared to corporate America.....*

# Illinois Farmland Values *(ave – USDA)*



# Historic Views on Farmland..

---

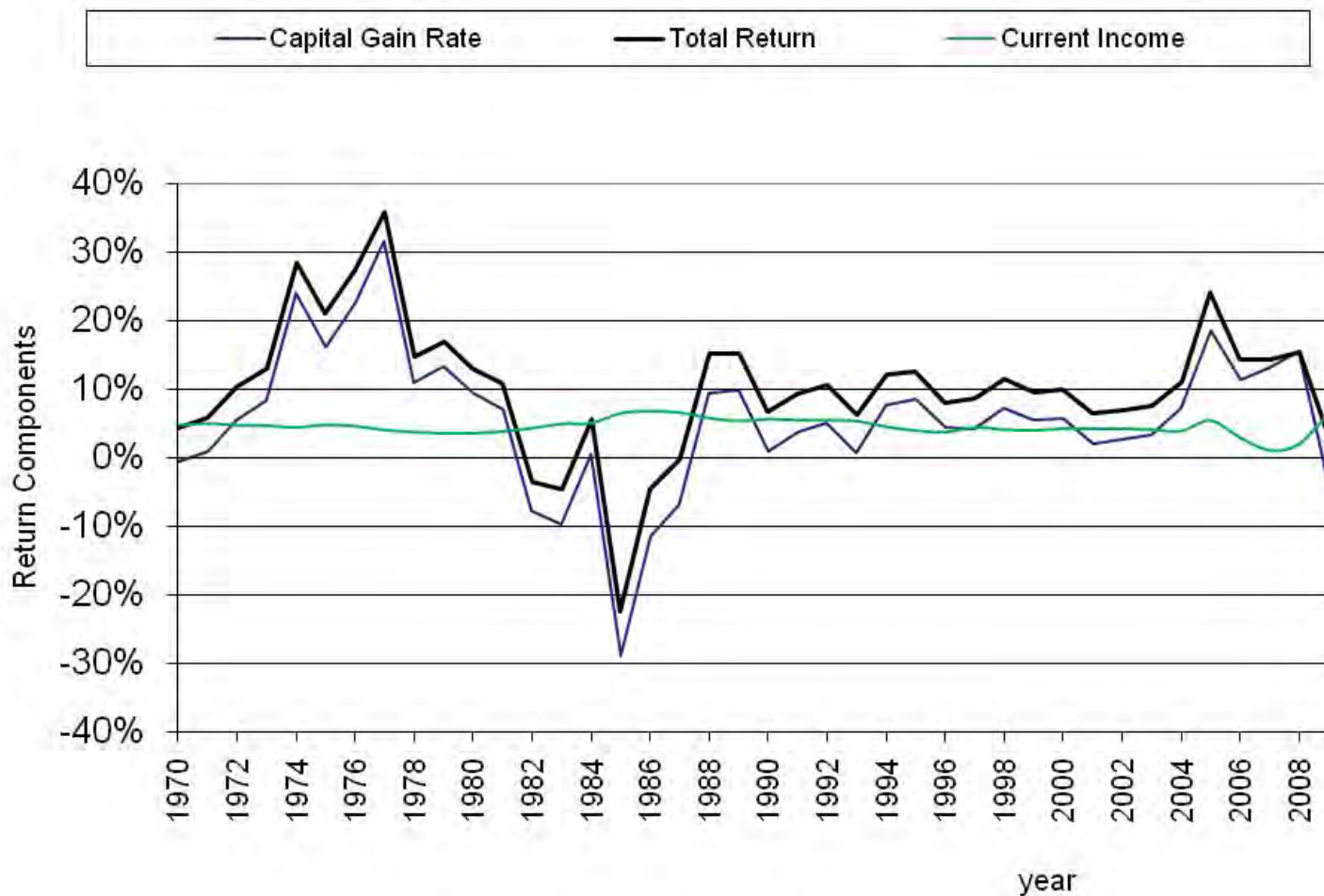
“We have two great sources of profit in farming: first, rise in the value of the land; and second, profit on the production of farm crops. The first has been the chief source.”

“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*

# Return Components



# Farmland as an *investment*

---

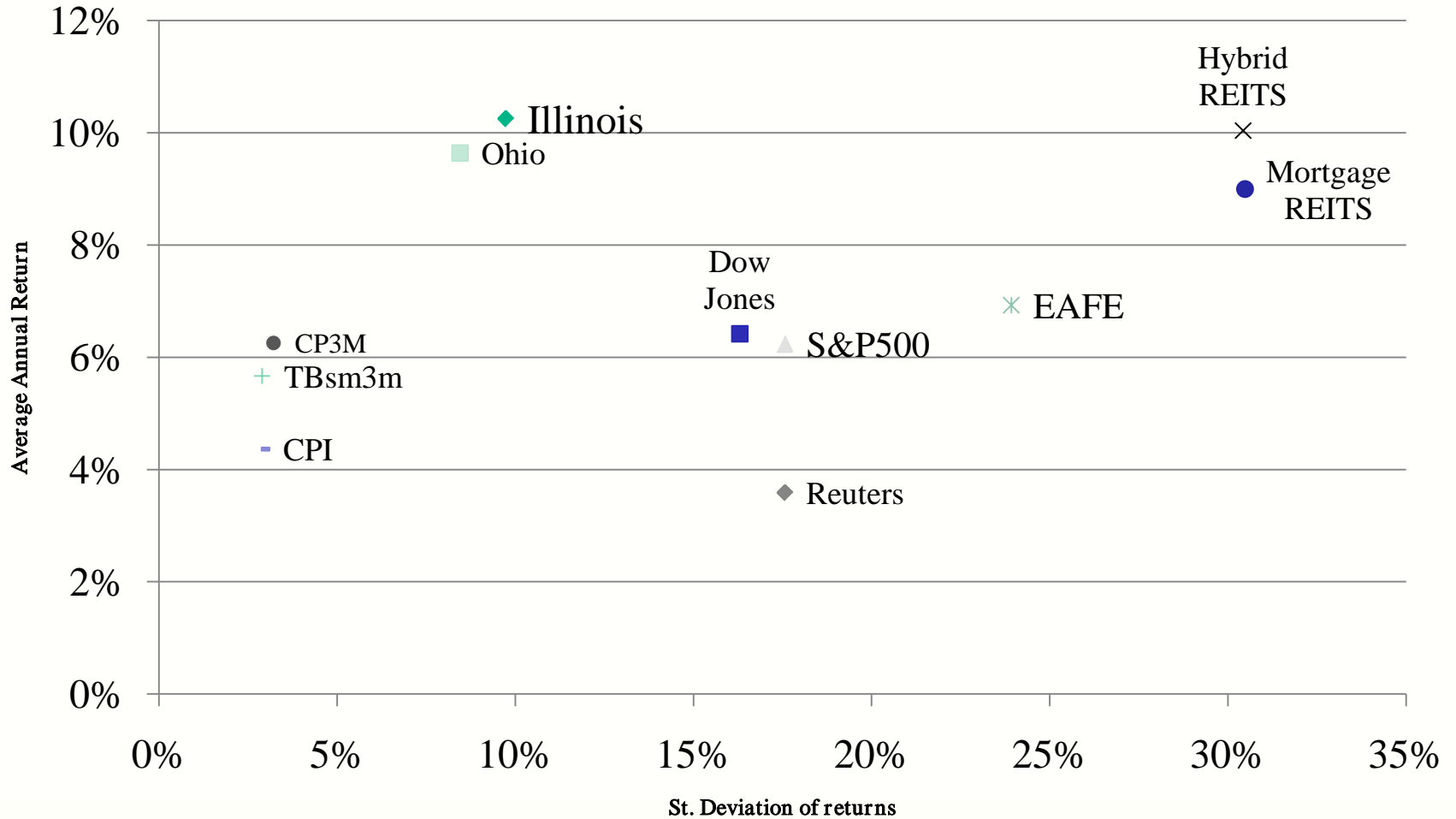
- Past Academic research shows:
  - Low systematic risk – behaves much like a fixed income financial asset
  - High or adequate returns given risk
    - counter to premise of many debates on “low returns” and farm bill preamble language in many cases.*
  - Role as inflation hedge (positive correlation)
  - Market friction caveats, explanations (liquidity, etc.)
- Portfolio models favor inclusion of farmland in investment portfolios – to greater degree than observed in reality – so what to make of all this?

# Comparison to Major Asset Classes

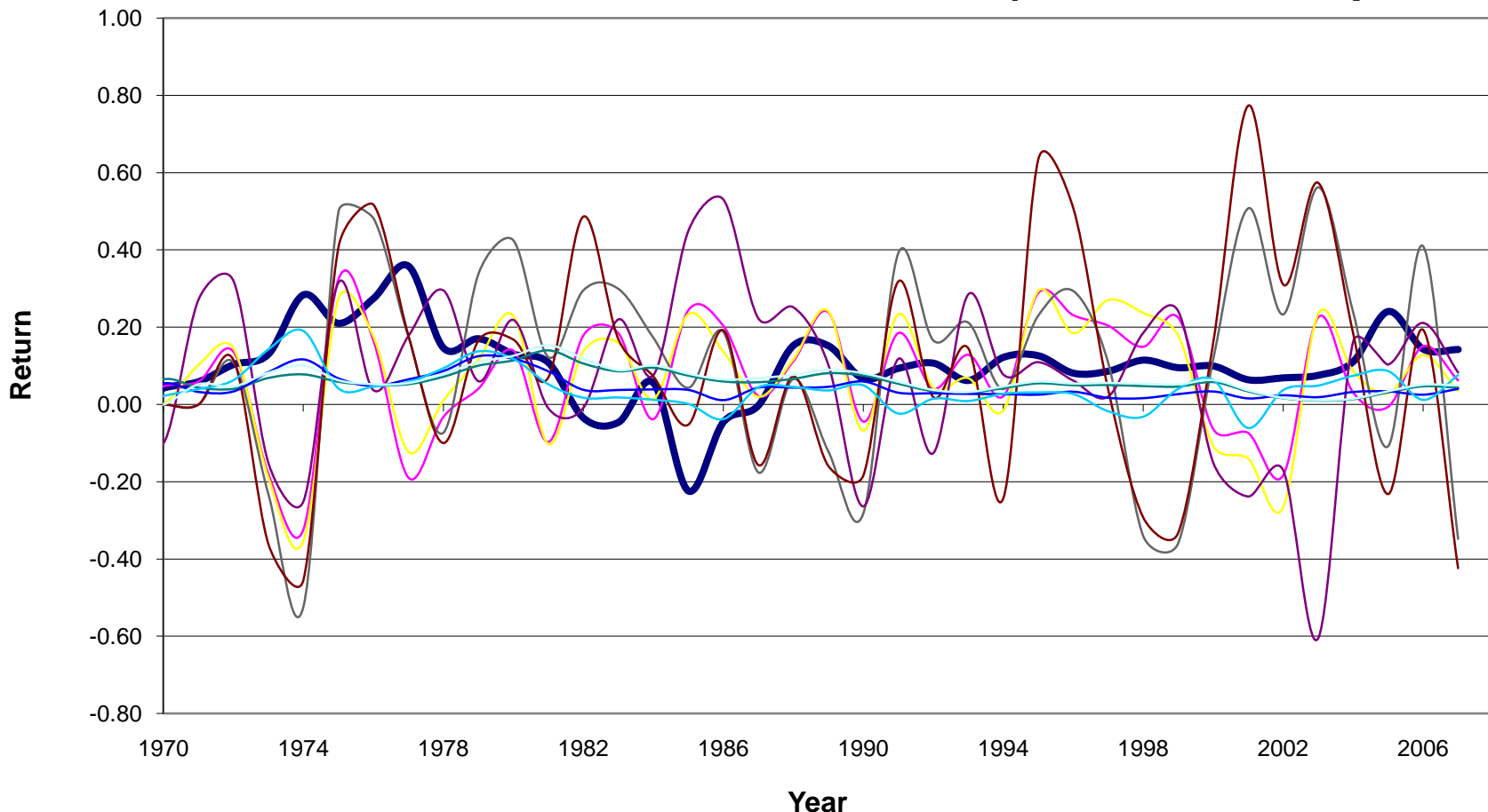
Asset/Index	Ave. Return	Standard Deviation	Coefficient of Variation	Ave. Return	Standard Deviation	Coefficient of Variation
	----- 1970-2009 -----			----- 1990-2009 -----		
<b>Illinois</b>	<b>10.25%</b>	<b>9.73%</b>	<b>0.949</b>	<b>10.40%</b>	<b>4.40%</b>	<b>0.423</b>
S&P500	6.24%	17.56%	2.817	5.75%	19.28%	3.356
DowJones	6.42%	16.30%	2.540	6.66%	16.42%	2.467
CP3M	6.25%	3.22%	0.514	4.15%	1.97%	0.474
Baa	9.43%	2.48%	0.263	7.80%	1.08%	0.139
Aaa	8.32%	2.24%	0.269	6.85%	1.17%	0.171
M-REITS	9.00%	30.48%	3.388	10.43%	34.42%	3.300
T-10y	7.30%	2.54%	0.348	5.56%	1.39%	0.250
TBCM1y	6.28%	3.06%	0.488	4.18%	1.87%	0.448
TBsm3m	5.67%	2.89%	0.510	3.77%	1.85%	0.490
CD3M	6.42%	3.26%	0.508	4.26%	1.92%	0.451
EAFE	6.93%	23.92%	3.452	-1.26%	25.24%	-20.01
CRBspot	3.25%	13.16%	4.052	2.40%	12.26%	5.109
CPI	4.36%	2.88%	0.661	2.69%	1.12%	0.415
PPI	3.98%	5.01%	1.259	2.27%	4.01%	1.763

# Risk vs. Reward

Individual Asset  $E(r)$  vs. St. dev. (1970-2009)

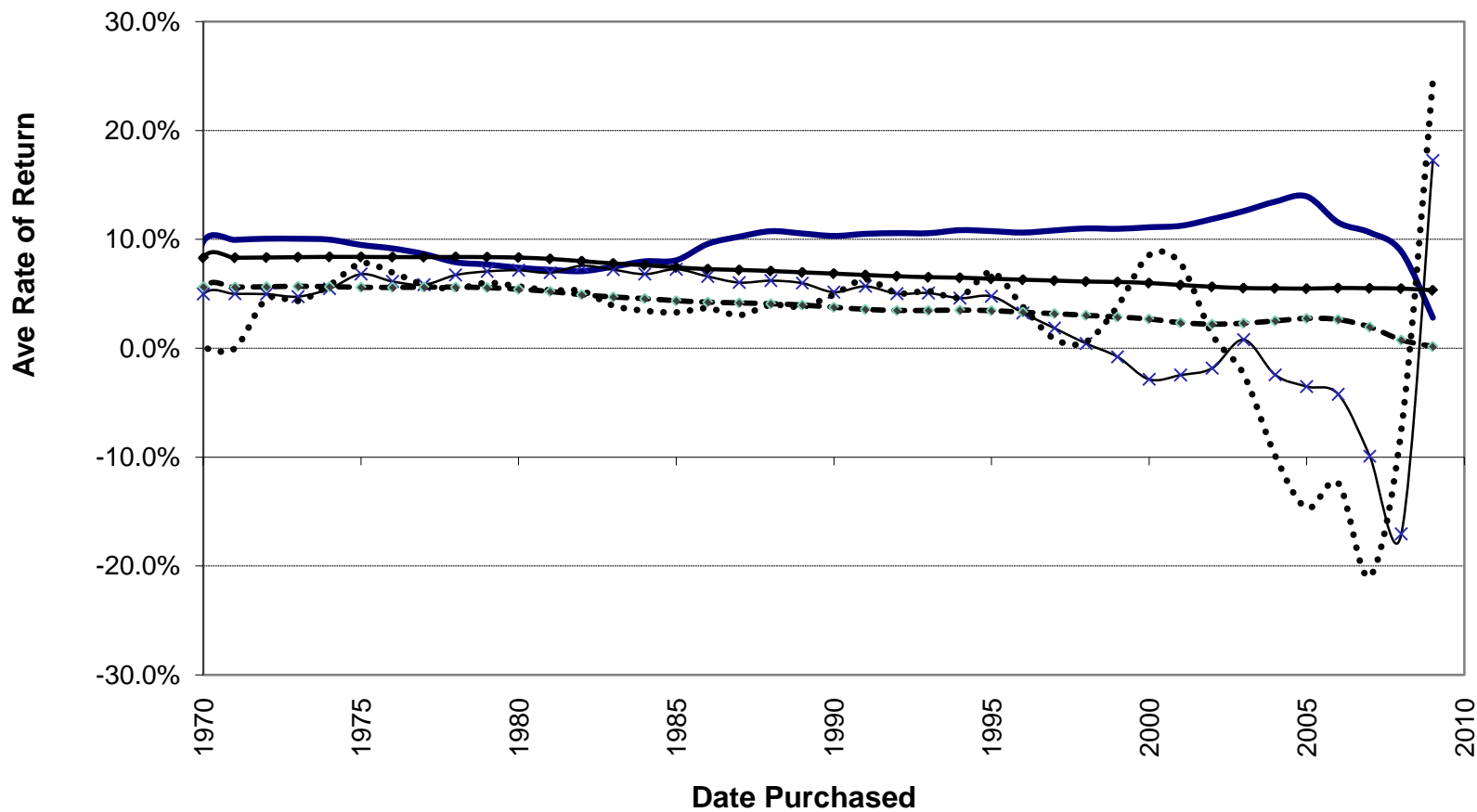


# Annual Return (smoothed ave/period)



-  Illinois
-  Dow Jones
-  S&P500
-  Hybrid REITS
-  EAFE
-  Mortgage REITS
-  TBsm3m
-  CPI
-  PPI
-  CP3M

# Average Holding Period Return – held to present basis



— Illinois

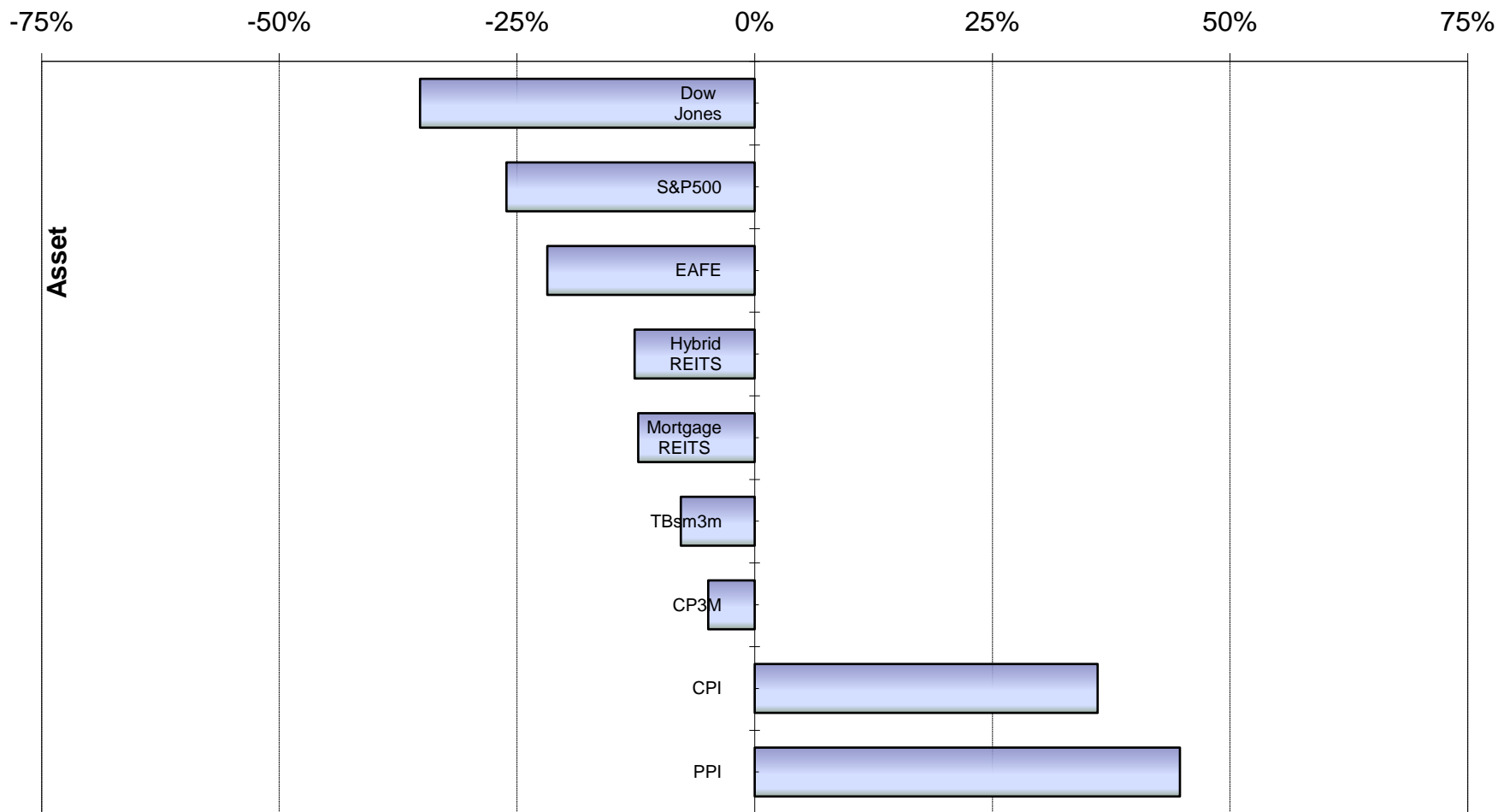
— x — Dow Jones

— ◆ — Aaa

..... Mortgage REITS

- - - ◆ - - - TBsm3m

## Correlation with Illinois Farmland Returns



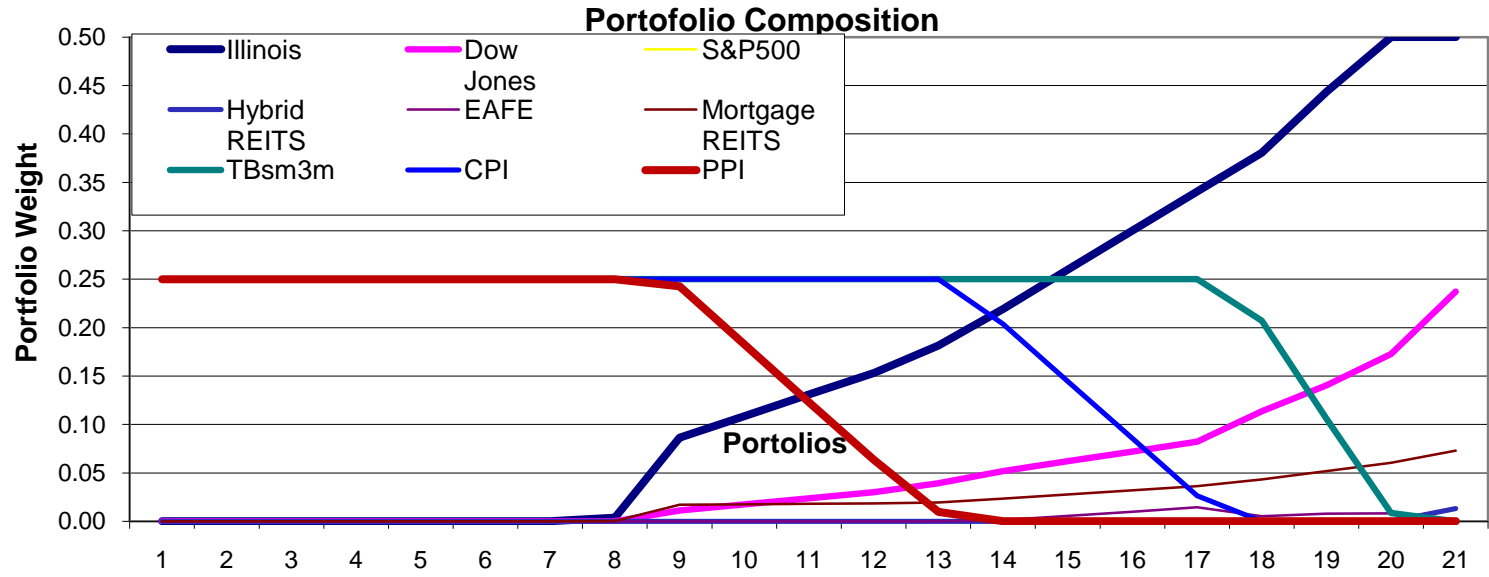
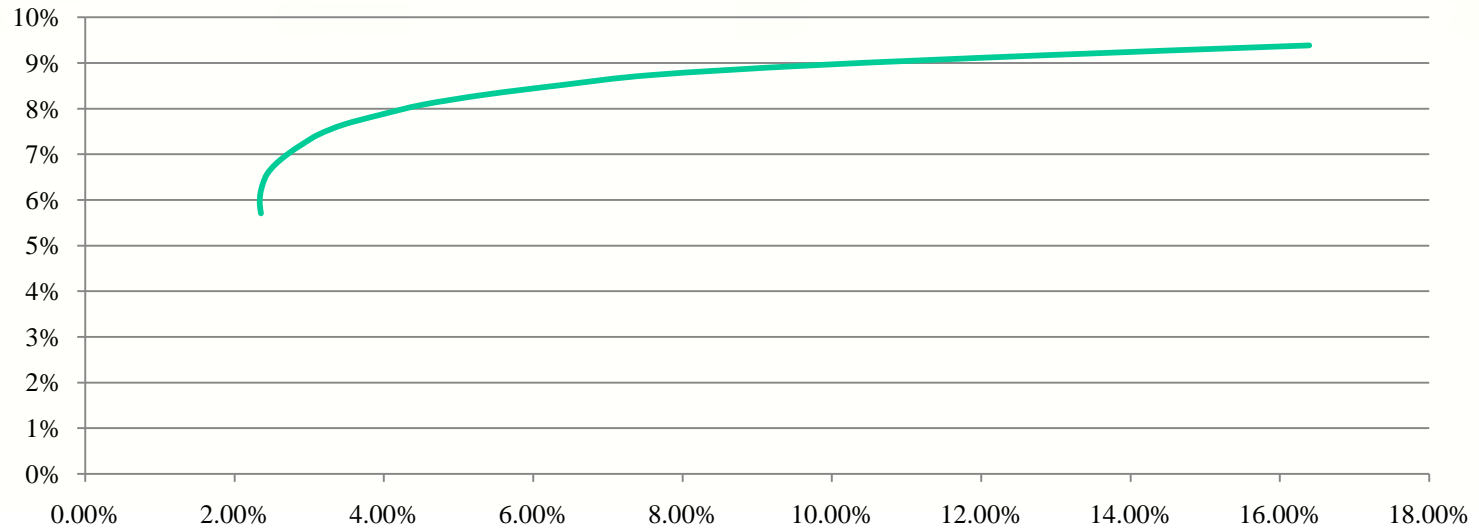
# Portfolio Models w/Farmland..

---

Consider all assets simultaneously and ask:

- How should shares be allocated to (i) maximize return for any given level of risk or (ii) minimize risk for any given level of return?
  - Result is known as an E-V frontier – the asset allocations represented along the frontier are considered risk efficient
  - Impose some restrictions (e.g., short sales and max shares) and test sensitivity to returns definitions
  - Other measures of relative performance common relative to “well-diversified” portfolio.

# E-V Frontier



# Portfolio Models w/Farmland..

---

- Results: exceptional performance of farmland in context of other assets. Share in “risk efficient” portfolios is much higher than observed in investors’ actual portfolios.... *Why?*
  - High Transactions costs
  - Thin Markets
  - Specialized management, increased tenancy concerns
  - No convenient **Equity** vehicles
  - Or – just a really good period of time/asset.
- Future Market Concerns
  - Gov’t food programs replace farm programs
  - Conservation compliance vs. regulation
  - Bio-bumps (fuel, tech gains, etc.)



# Other Tools at:

---

## Farm.Analysis.Solution.Tools

- Real Estate Purchase Analysis
- Soil Productivity Utilities
- Farm Rent Evaluator
- Other *farmdoc* resources
  - url: [www.farmdoc.illinois.edu](http://www.farmdoc.illinois.edu)

*Thanks!*

*sherrick@illinois.edu*