

2020 Illinois Farm Economics Summit

Tuesday
December 1st

**2021 Market
Outlook for Corn
and Soybeans**

Friday
December 4th

**2020 and 2021
Grain Farm Income
Outlook with Risk
and Rental
Implications**

Tuesday
December 8th

**Farm Program and
Crop Insurance
Decisions for 2021**

Friday
December 11th

**Straining the
alphabet soup:
Post-election farm
policy outlook after
three years of ad
hoc farm payments**

**Tuesday
December 15th**

**Farmland Markets
and Macro Markets**

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Farmland Markets and Macroeconomic Conditions

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Poll Question

Do you expect farmland values in one year to:

- Decrease by more than 3%**
- Decrease 0-3%**
- Remain unchanged**
- Increase 0-3%**
- Increase by more than 3%**

Today: Farmland and Macro market linkages

Setup: Ag sector has had massive trade disruptions, exchange rate fluctuations, interest rate market intervention, and changing consumer preferences/demands resulting from coronavirus and control measures (*e.g., food at home, ethanol demand*); while buoyed by a variety of federal payments including MFP, PPP, CFAP, and related programs.

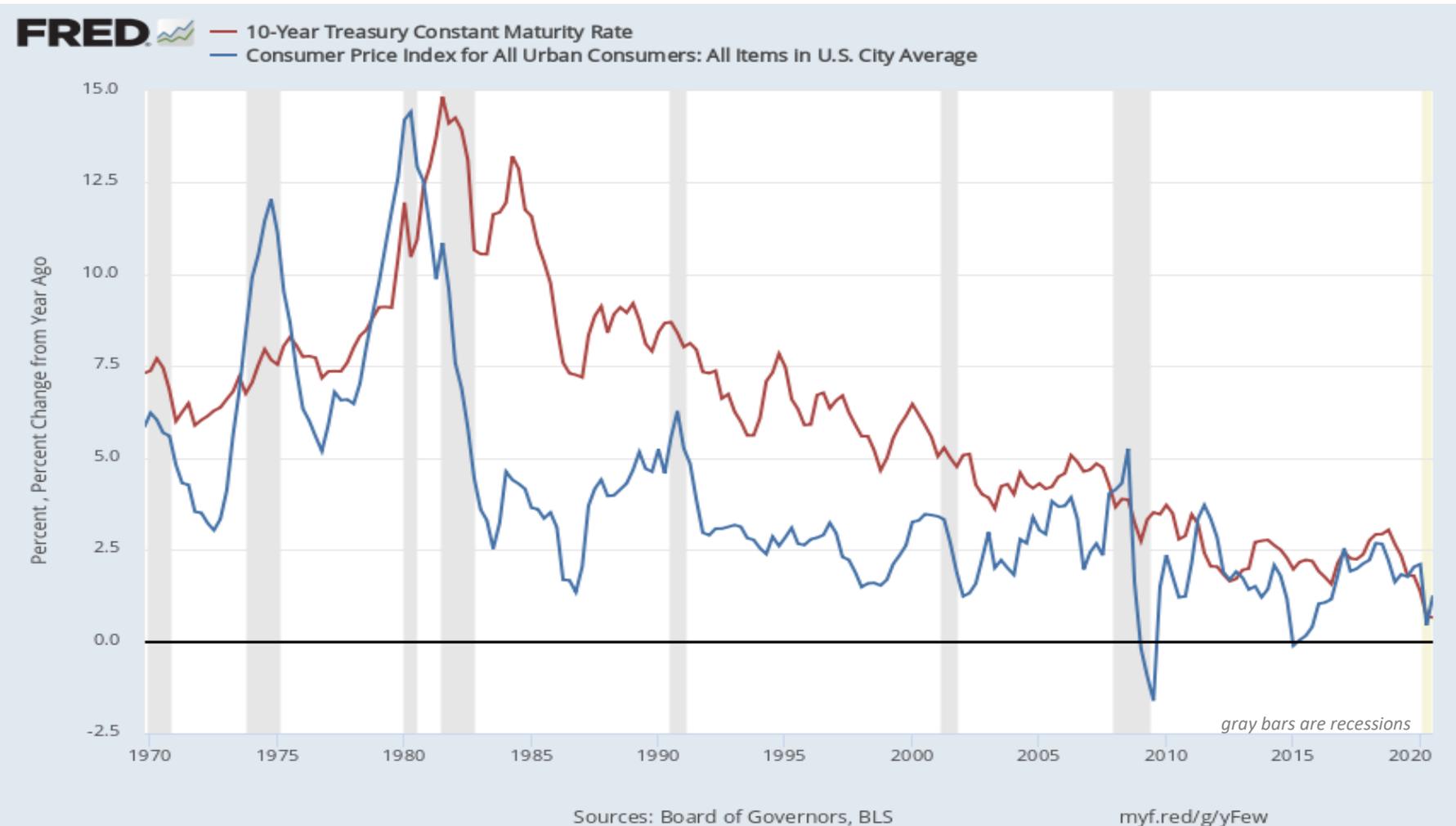
- Macro Epochs of past, present, and future (and changing administration priorities?)
 - *Impacts of inflation, trade, cost of capital?*
 - *Possible modification of farm programs (e.g., sustainability and eco-services payments)?*
 - *FOMC monetary (inflation) targets and policy levers?*
 - *Tax policy?*

What will be the impact on farm asset values and farm incomes?

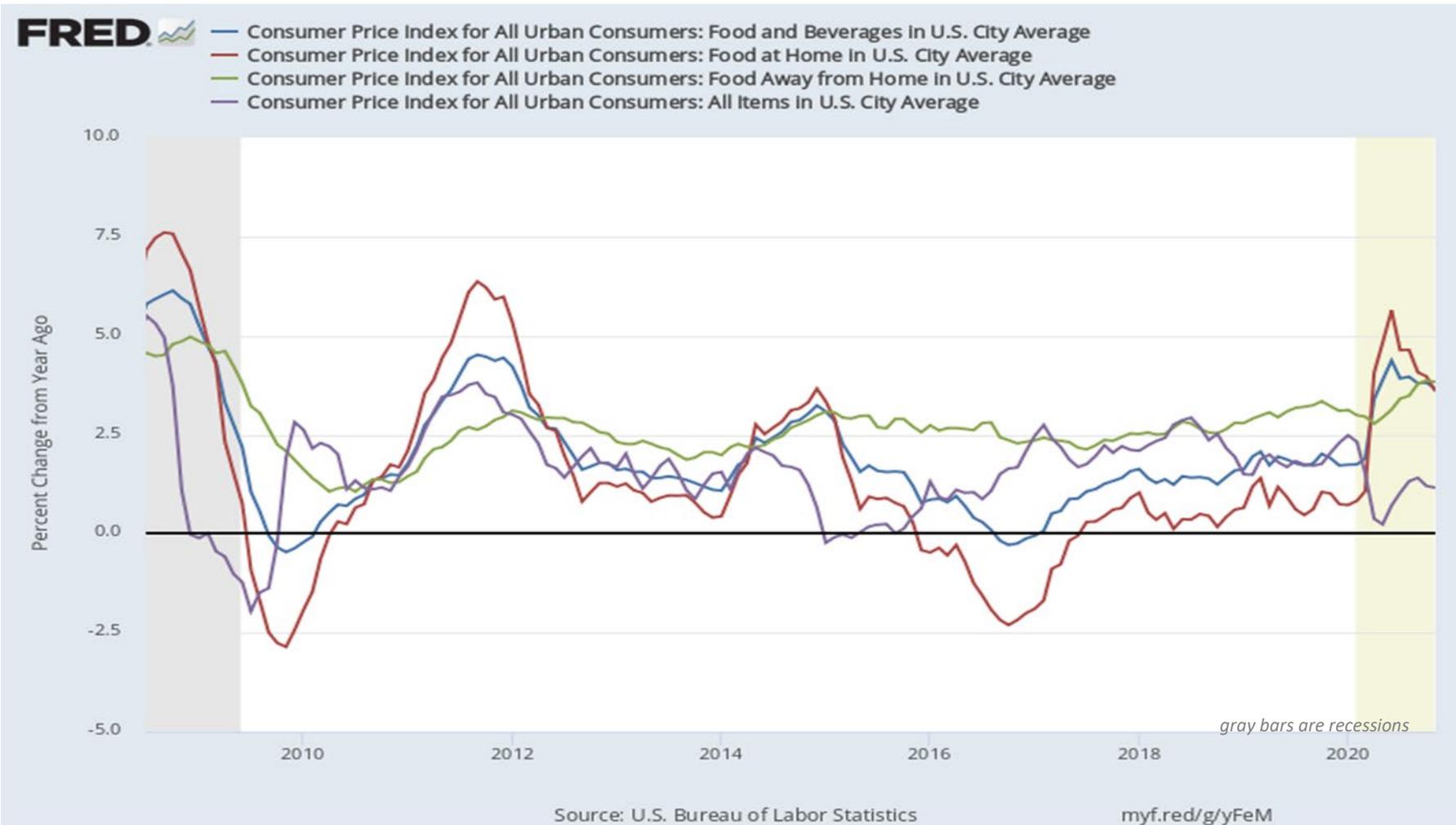
Historic Inflation and Interest Rate Relationships

Major Events and epochs:

- **1970s** – Gold standard ends and inflation increases
- **1980s** – Volcker targets inflation, active rate management
- **1990s** – Greenspan era ('87-'06) transparency/economy-driven
- **2000s** - post dot.com “normal”
- **2008** – housing crisis and active FOMC/Treasury partnership
- **2015** – “All Clear” in banking signaled, normalization begins
- **2020** –World Takes Flight - coronavirus pandemic changes farm programs, interest rate management, trade, exchange rates, food demand channels, education, and, well...
- *The Fed Survey says...*



Food components of inflation – return to never?



Food and Beverage and related components of inflation:

- Share of food at Home - up
- Cost of Food at Home - up
- Share of food away from Home - down
- Cost of food away from Home - up
- Energy costs – way down
- Housing – up
- Automobiles – up
- Offices and retail inflation?
- Education costs?

Poll Question

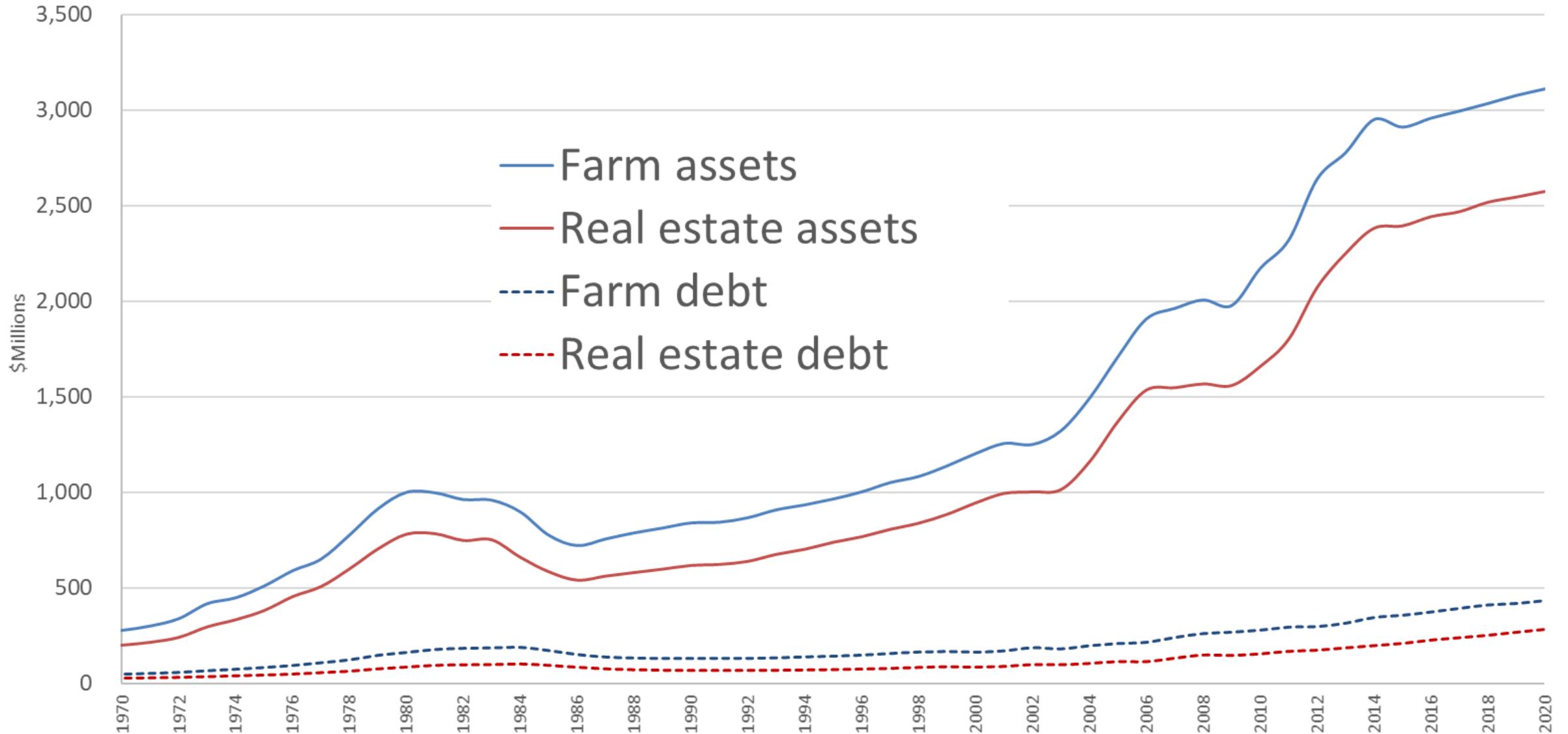
Do you expect inflation in the next 3-4 years to:

- Be negative (experience deflation)**
- Average 0-1% inflation/year**
- Average 1-2% inflation/year**
- Average 2-3% inflation/year**
- Exceed 3% inflation/year**

Balance Sheet of Ag Sector -- US

	1970	1980	1990	2000	2010	2016	2018	2020(p)
	<i>(\$ millions, except ratios - source ERS-USDA)</i>							
Farm Assets	278,823	1,000,422	840,609	1,203,215	2,170,832	2,956,538	3,032,753	3,108,827
Real Estate	202,418	782,820	619,149	946,428	1,660,114	2,443,444	2,519,026	2,575,178
Non Real Estate	76,405	217,602	221,459	256,787	510,718	513,093	513,726	533,649
Farm Debt	48,501	162,432	131,116	163,930	278,931	374,164	410,843	433,751
Real Estate	27,238	85,272	67,633	84,724	154,065	225,980	250,867	281,559
Non Real Estate	21,263	77,160	63,483	79,206	124,865	148,184	159,976	152,192
Equity	230,322	837,990	709,493	1,039,285	1,891,902	2,582,374	2,621,910	2,675,076
Selected Indicators								
Debt/Equity	21.1%	19.4%	18.5%	15.8%	14.7%	14.5%	15.7%	16.2%
Debt/Assets	17.4%	16.2%	15.6%	13.6%	12.8%	12.7%	13.5%	14.0%
Real Estate/Equity	87.9%	93.4%	87.3%	91.1%	87.7%	94.6%	96.1%	96.3%
Real Estate/Assets	72.6%	78.2%	73.7%	78.7%	76.5%	82.6%	83.1%	82.8%
Real Estate D/Total D	56.2%	52.5%	51.6%	51.7%	55.2%	60.4%	61.1%	64.9%

Balance Sheet of US Ag Sector



All Farmland



2.34%	-0.10%	0.61%	0.96%	3.84%
4Q2019	1Q2020	2Q2020	3Q2020	

Permanent Crops



3.86%	-1.35%	0.26%	0.80%	3.55%
4Q2019	1Q2020	2Q2020	3Q2020	

Annual Crops



1.44%	0.66%	0.82%	1.07%	4.05%
4Q2019	1Q2020	2Q2020	3Q2020	

Pacific NW



2.57%	-0.60%	1.07%	-0.37%	2.67%
4Q2019	1Q2020	2Q2020	3Q2020	

Pacific West



3.53%	-1.24%	-0.04%	1.38%	3.61%
4Q2019	1Q2020	2Q2020	3Q2020	

Southeast



1.17%	0.91%	1.23%	1.05%	4.43%
4Q2019	1Q2020	2Q2020	3Q2020	

Delta



0.99%	1.47%	1.00%	0.34%	3.85%
4Q2019	1Q2020	2Q2020	3Q2020	

Lake States



3.21%	-0.57%	0.92%	1.13%	4.74%
4Q2019	1Q2020	2Q2020	3Q2020	

Corn Belt



1.89%	0.14%	0.97%	1.39%	4.45%
4Q2019	1Q2020	2Q2020	3Q2020	

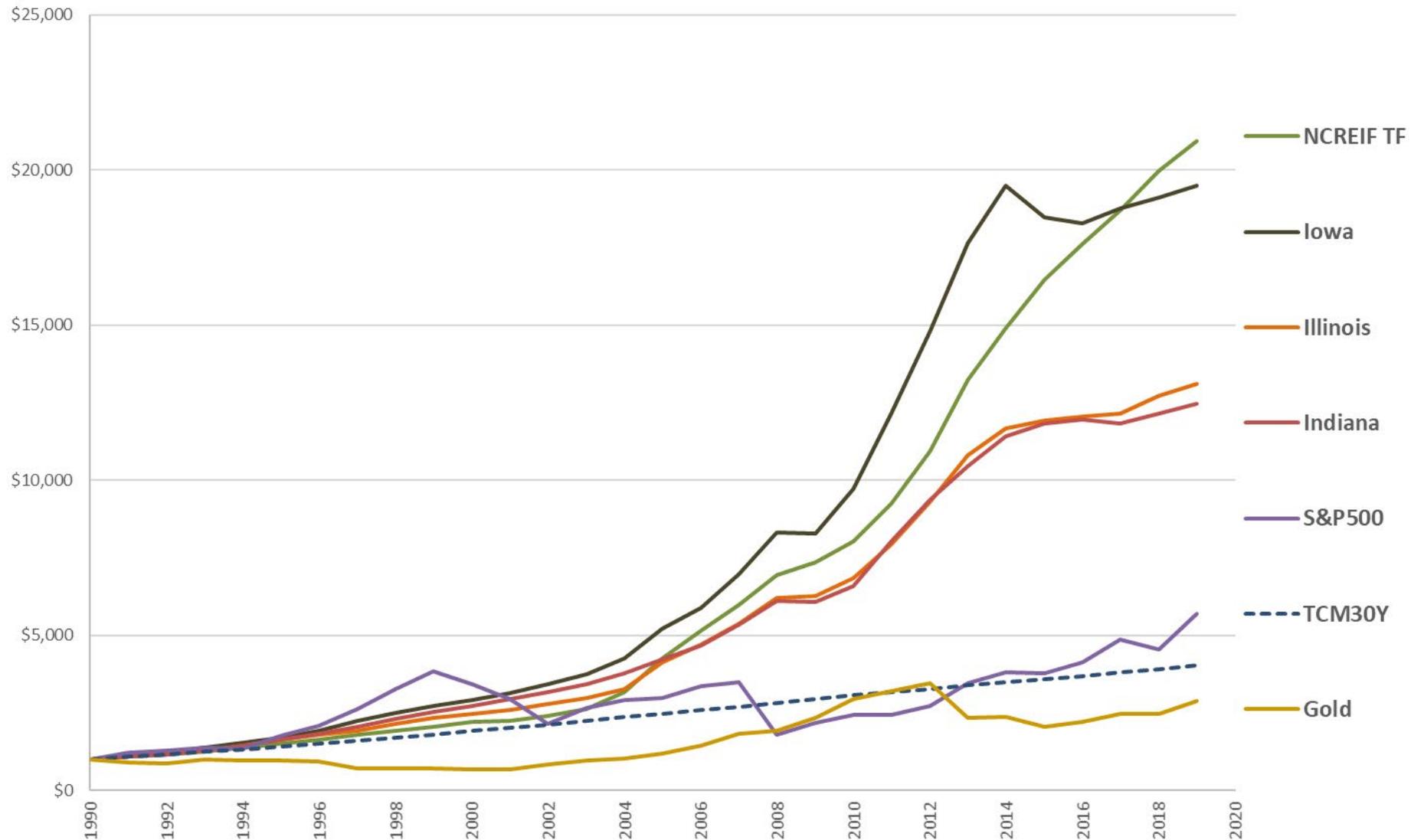
Farmland Returns in context – 1990 - 2019 (Q4)

Table 1. Asset Return Characteristics

Asset/Index	Annual Ave. Return	Standard Deviation	Coefficient of Variation	US Ag 32 States Correlation	Minimum Return	Maximum Return
	----- 1990 - 2019 -----					
US Ag 32 States	8.8%	3.65%	0.415	1	-1.2%	19.3%
Illinois	9.3%	5.57%	0.597	0.791	0.9%	26.0%
Iowa	10.9%	7.17%	0.657	0.641	-5.2%	24.9%
Indiana	9.1%	4.97%	0.545	0.647	-1.0%	22.0%
EAFE	2.2%	19.76%	8.917	0.031	-59.9%	30.2%
S&P500	7.4%	16.97%	2.301	-0.104	-48.6%	29.3%
NASDAQ	9.9%	26.09%	2.625	-0.149	-52.0%	61.8%
TCM10Y	4.5%	1.89%	0.419	0.319	1.8%	8.6%
AAA	5.9%	1.66%	0.281	0.252	3.4%	9.3%
BAA	6.9%	1.62%	0.235	0.178	4.4%	10.4%
Mort30F	5.8%	2.54%	0.442	0.401	0.0%	10.1%
Muni20	4.53%	1.77%	0.390	0.339	0.0%	7.3%
Gold	4.45%	13.86%	3.114	0.038	-31.9%	27.7%
PPI	1.89%	3.96%	2.094	0.142	-7.4%	8.2%
CPI	2.37%	1.08%	0.455	0.240	0.1%	5.9%

Source: USDA, TIAA Center for Farmland Research MSCI, FRED, NAREIT, London Bullion Market Association/GoldHub, U.S. Bureau of Labor Statistics (BLS).

\$1,000 invested in 1990 would be.....

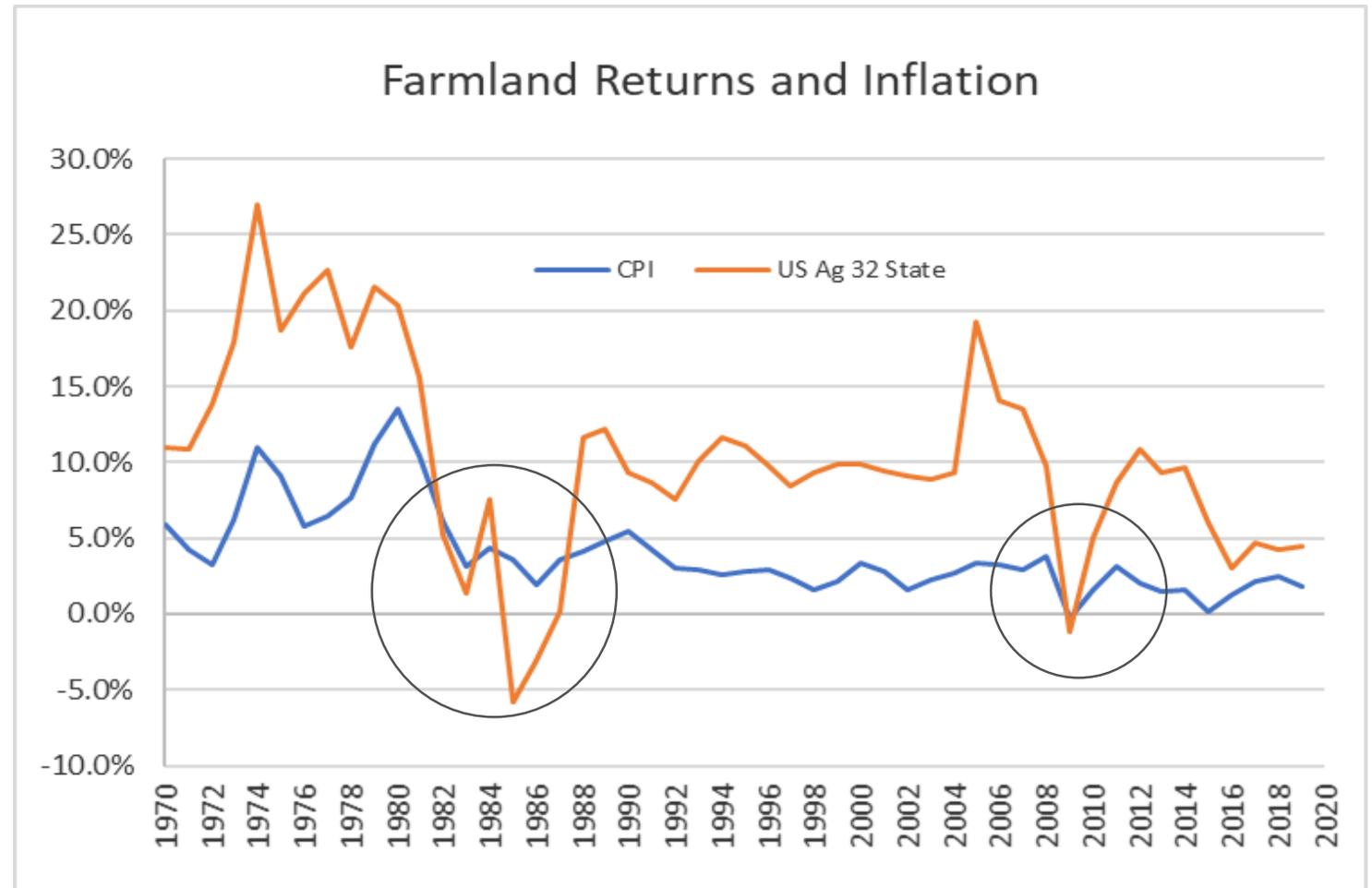


U.S. Ag Returns - correlation by rolling period intervals

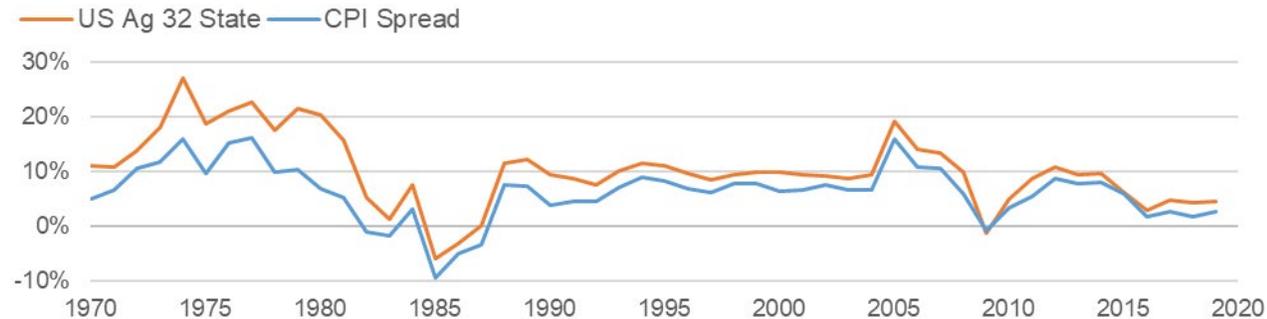
Roll length	PPI	CPI	Gold	U.S. 10-year bonds	U.S. corporate bonds	U.S. listed real estate	European equities	U.S. equities
1	65.3%	59.6%	29.9%	15.1%	9.2%	-12.7%	-22.7%	-24.7%
2	70.3%	70.0%	31.6%	16.2%	10.5%	-11.8%	-19.7%	-23.9%
3	75.7%	71.4%	38.8%	17.1%	12.1%	-11.8%	-18.6%	-27.8%
4	80.4%	72.3%	45.6%	18.6%	14.3%	-14.5%	-20.6%	-35.5%
5	84.0%	72.9%	52.3%	20.9%	17.1%	-15.4%	-21.9%	-41.1%
6	86.2%	72.6%	57.5%	23.5%	20.2%	-13.8%	-21.1%	-46.9%
7	87.4%	72.1%	60.3%	26.3%	23.6%	-15.5%	-20.3%	-52.2%
8	86.9%	71.6%	60.1%	29.5%	27.4%	-17.4%	-18.7%	-55.2%
9	86.7%	71.1%	57.7%	33.0%	32.1%	-13.1%	-21.3%	-54.3%
10	86.3%	70.6%	54.9%	37.1%	36.6%	-8.8%	-21.7%	-52.5%

Farmland and Inflation through the ages – And into the future?

- Farmland relative to inflation has been fairly constant
- 1980s “ag crisis”
- 2009 not an “ag crisis”
- Margin depends on level
- Insurance epochs differ
- Little reason to expect changing relationships
- Strength of dollar and forms of inflation by trading partner (more later)



Farmland Returns and farmland returns minus inflation (spread)



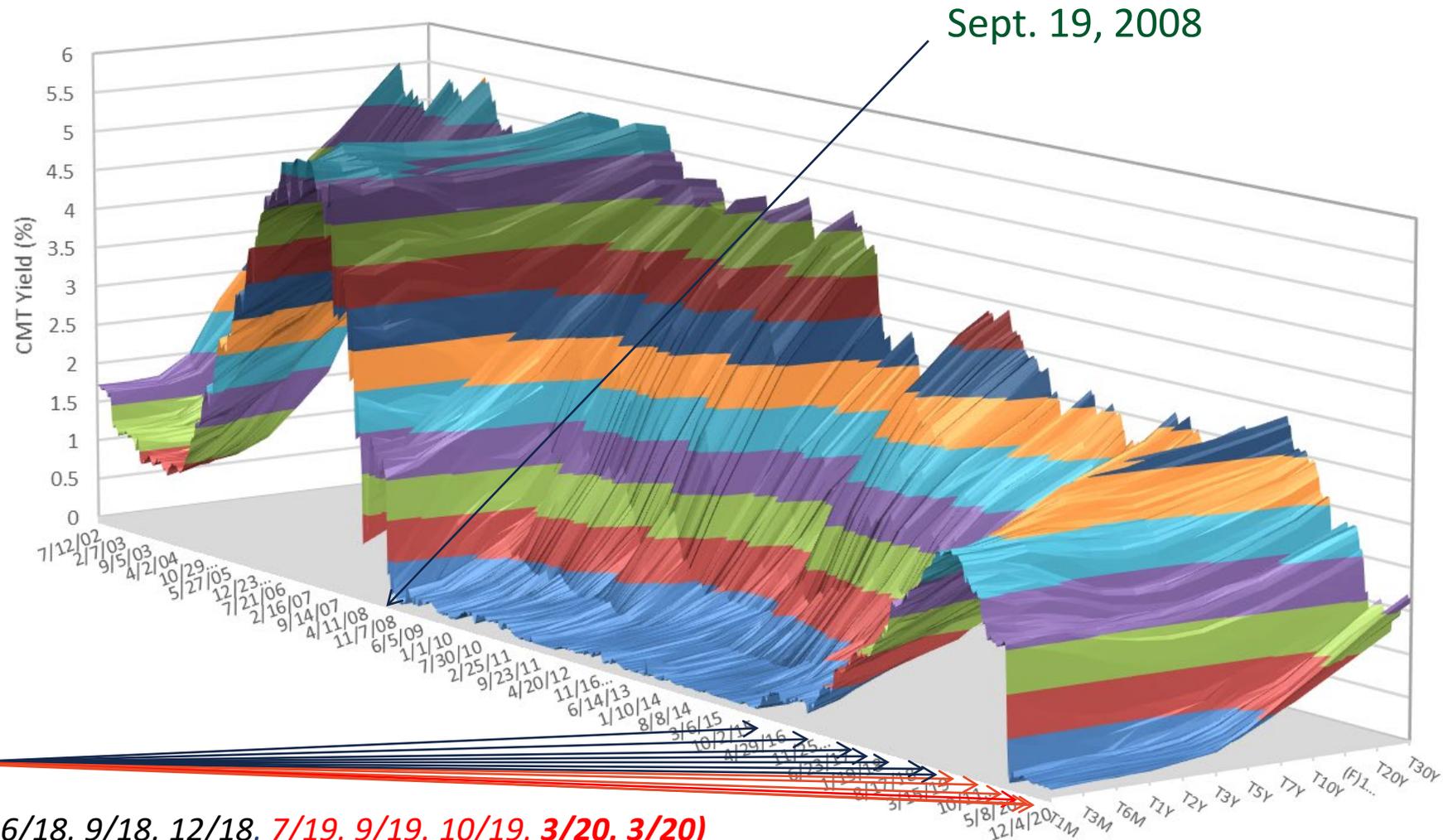
Decade	Average farmland to CPI Spread
1970 to 1979	11.1%
1980 to 1989	1.0%
1990 to 1999	6.6%
2000 to 2009	7.6%
2010 to 2019	4.8%

- Farmland returns have been remarkably stable with positive alpha
- Perfect Storm in 1980s – still relatively good performance
- Low volatility annual returns, appreciation positive except 1980s
- Different Monetary Regimes
- Different Insurance Regimes
- Different Demand Regimes?
- Different Production Regimes?

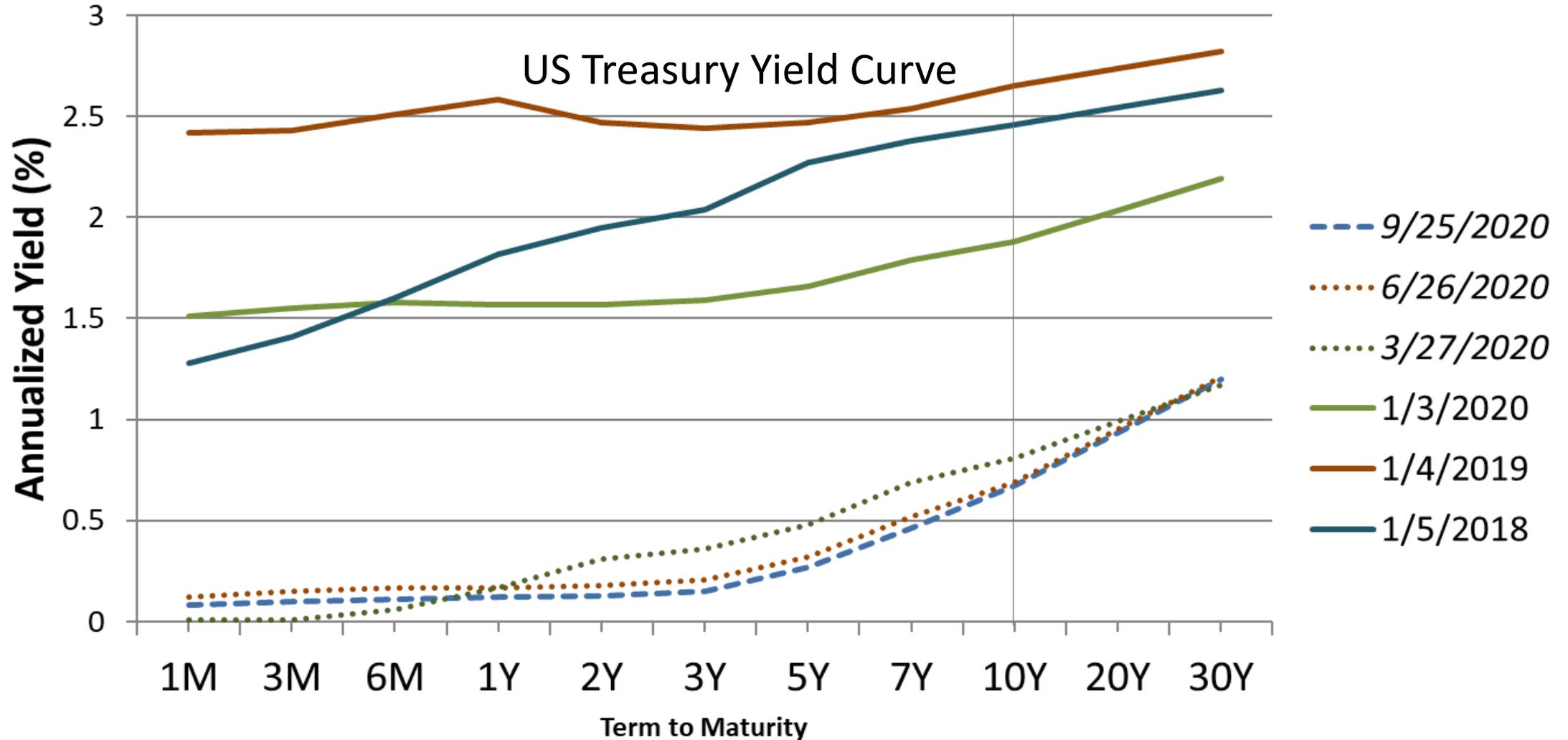
Yield Curve June 2002- Dec. 04, 2020 (weekly)

- Credit easing events (TARP, TALF, QE1-3, Twist, Buyback, and DFA+Basel-III) *since 2008+, and since 3/20*
- Flattened Yield Curve
- Low Term Premium
- Multiple expansion
- Massive stimulus 2021?
- Empirical drivers adopted?

IMPACT ON REAL ESTATE?

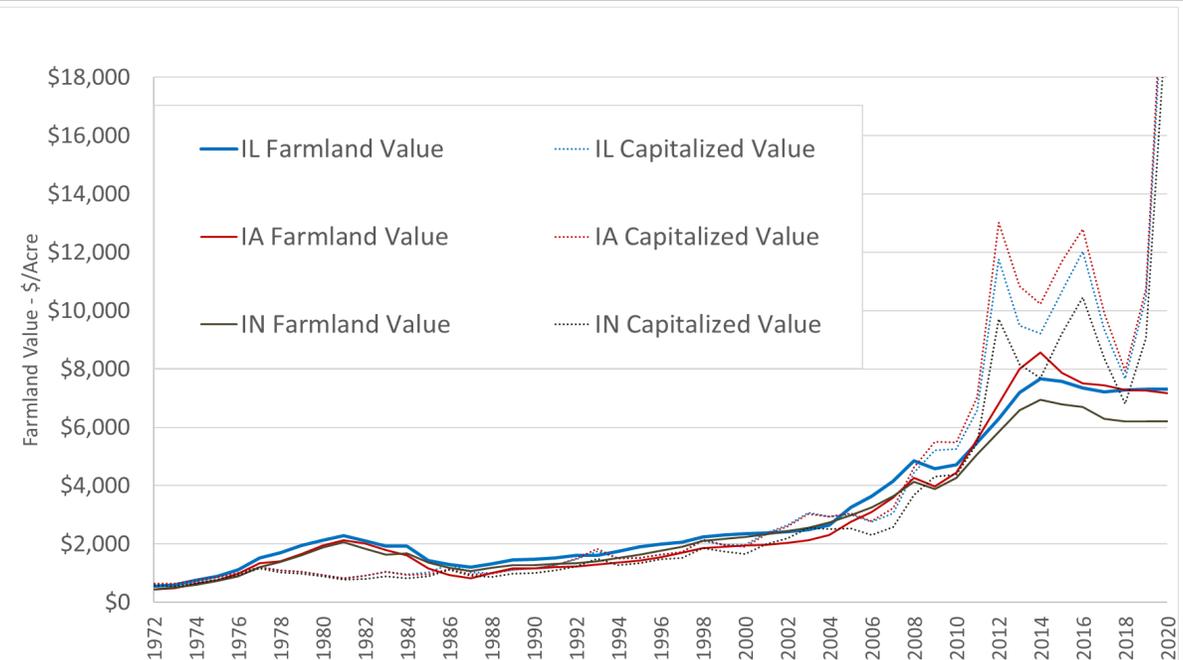
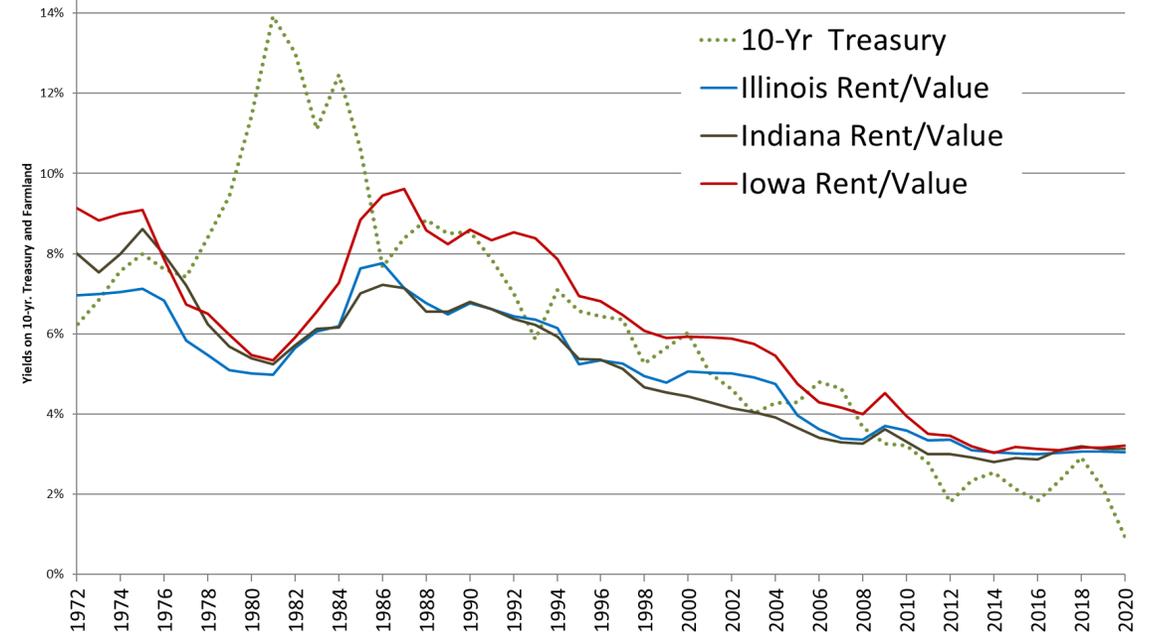


Term Premium vs. level of rates, and the appropriate discount rate for Ag

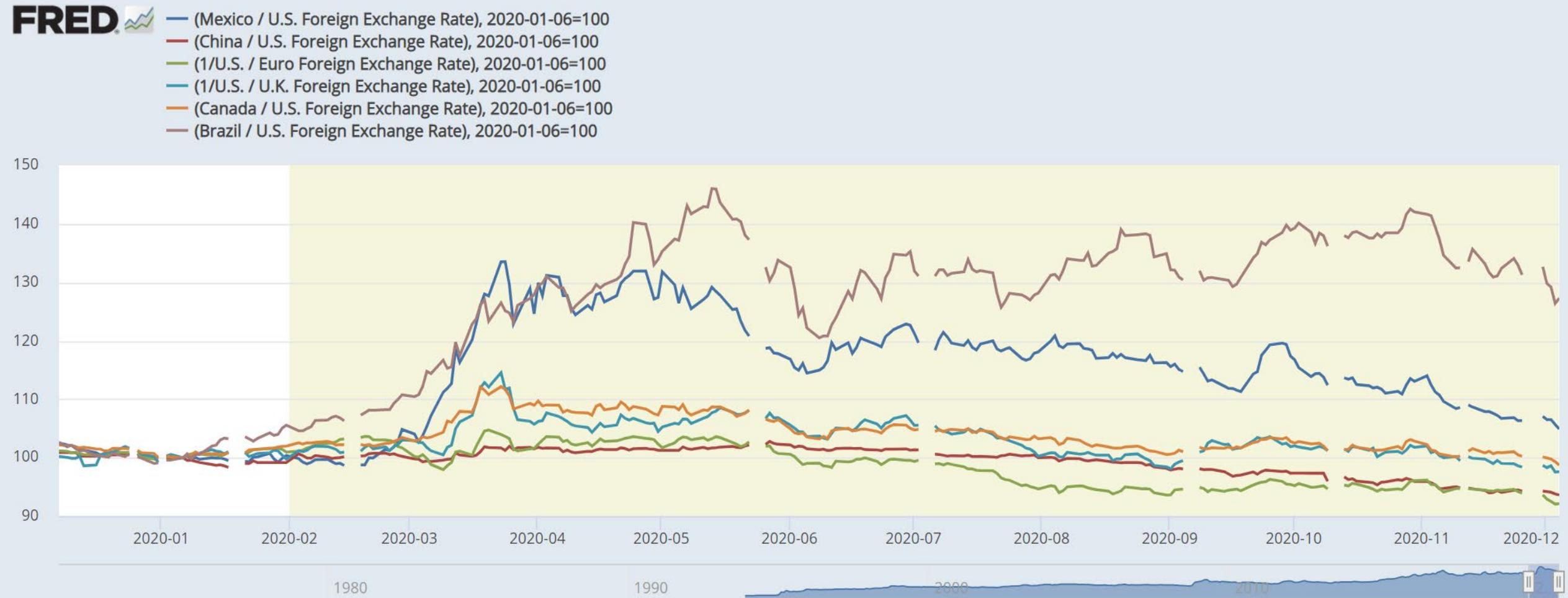


Do Farm Assets behave like Financial Assets yet? Why/Not

- Farmland returns are positively correlated with inflation in long run, but low recent inflation...income expectations and growth drivers uncertain, but “room to run”
- Very different than 1980s – only negative divergence
- Low cap rates supportive of values
- Relative yield now attractive
- Income prospects reasonable over long period forward



What About the Strength of the Dollar?... *“well, it’s complicated...”*



U.S. recessions are shaded; the most recent end date is undecided. Source: Board of Governors of the Federal Reserve System (US)

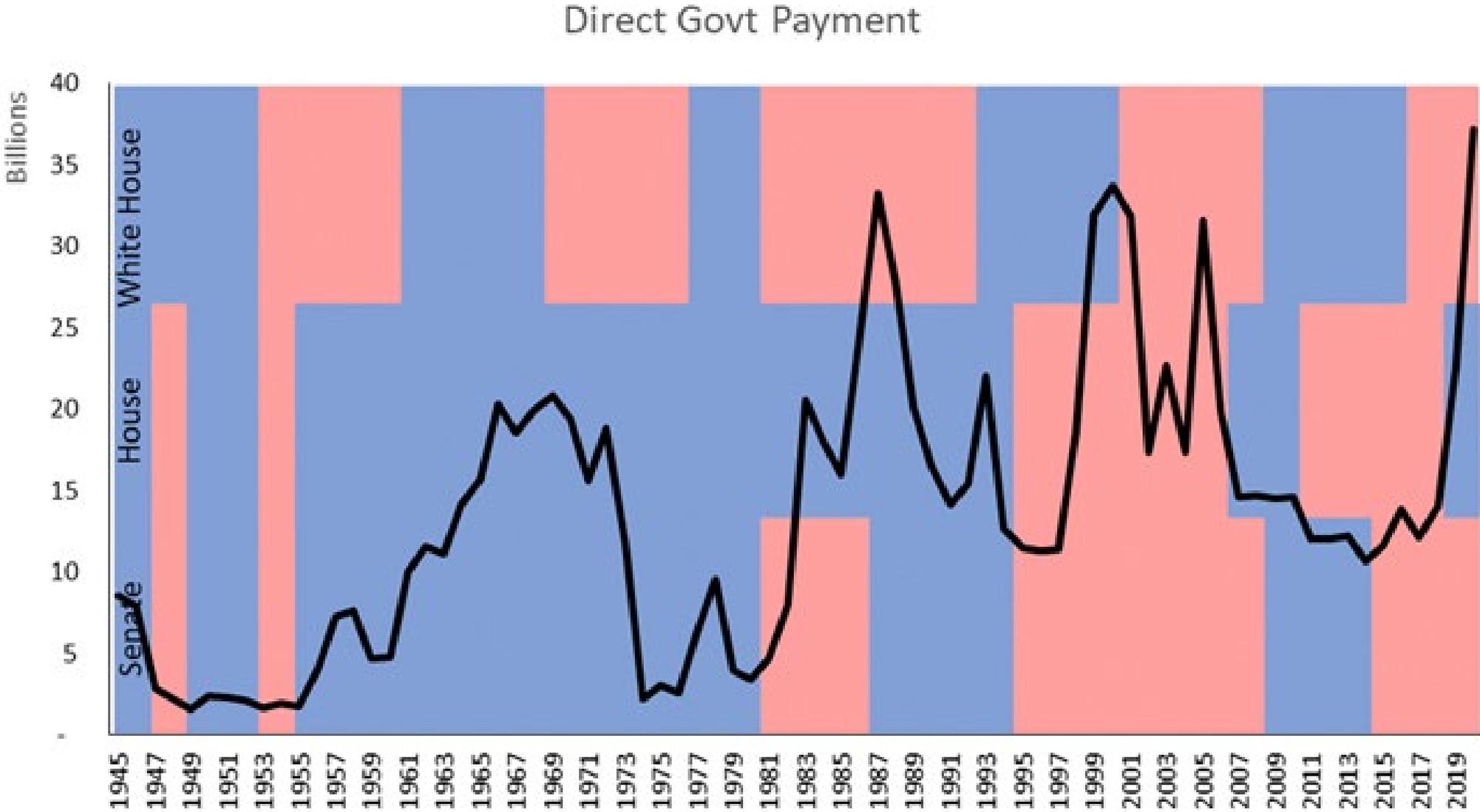
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Big Questions Remain: Hindsight of 2020

- The 2020 election *finally* happened – what will change materially in farm policy?
- Reliance on government payments – transition back to *ad hoc*?
 - Does source of income matter in asset valuation?
- Farm Bill Titles and use of federal programs for new agendas?
 - *Ag increasingly part of climate and carbon conversations.*
- Return of inflation? If so, relative term structure and productivity growth?
 - *FOMC stance seems clear, but world markets are coordinated.*
- Return of demand growth for commodities? Post pandemic time path?
- Transactions and market strength – new sources for new demands?

Impact of party in control of Senate, House, and White House through time



Other key issues to monitor in agriculture

- **Trade** and ability to exercise comparative advantages- critical for US, changed world flows
- Consumer **preferences**, policy responses, attribute-proxies (Covid-19, organic, sustainable, frack-free, social characteristics, downstream externalities, ESG and Blackrock, greenbond, carbon, regenerative, biodynamic, SI, etc.)
 - Punchline: increasing share of \$ to ag and food in many cases
- Role of ag in **climate** debate pivotal – counterfactuals matter
- **Litmus** Issues emerge from stress and from recovery
- Massive opportunities in next \approx 3-5 years in reorganizing ownership and professionalizing management of investments in asset class, rationalizing **capital stack under today's rates**

Poll Question

Do you expect farmland values in next 4 years to:

- Decrease by more than 5% in total**
- Decrease 0-5% in total**
- Remain unchanged**
- Increase 0-5% in total**
- Increase by more than 5% in total**

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