

Assessing the Ag Sector's Farmland and Credit Risks

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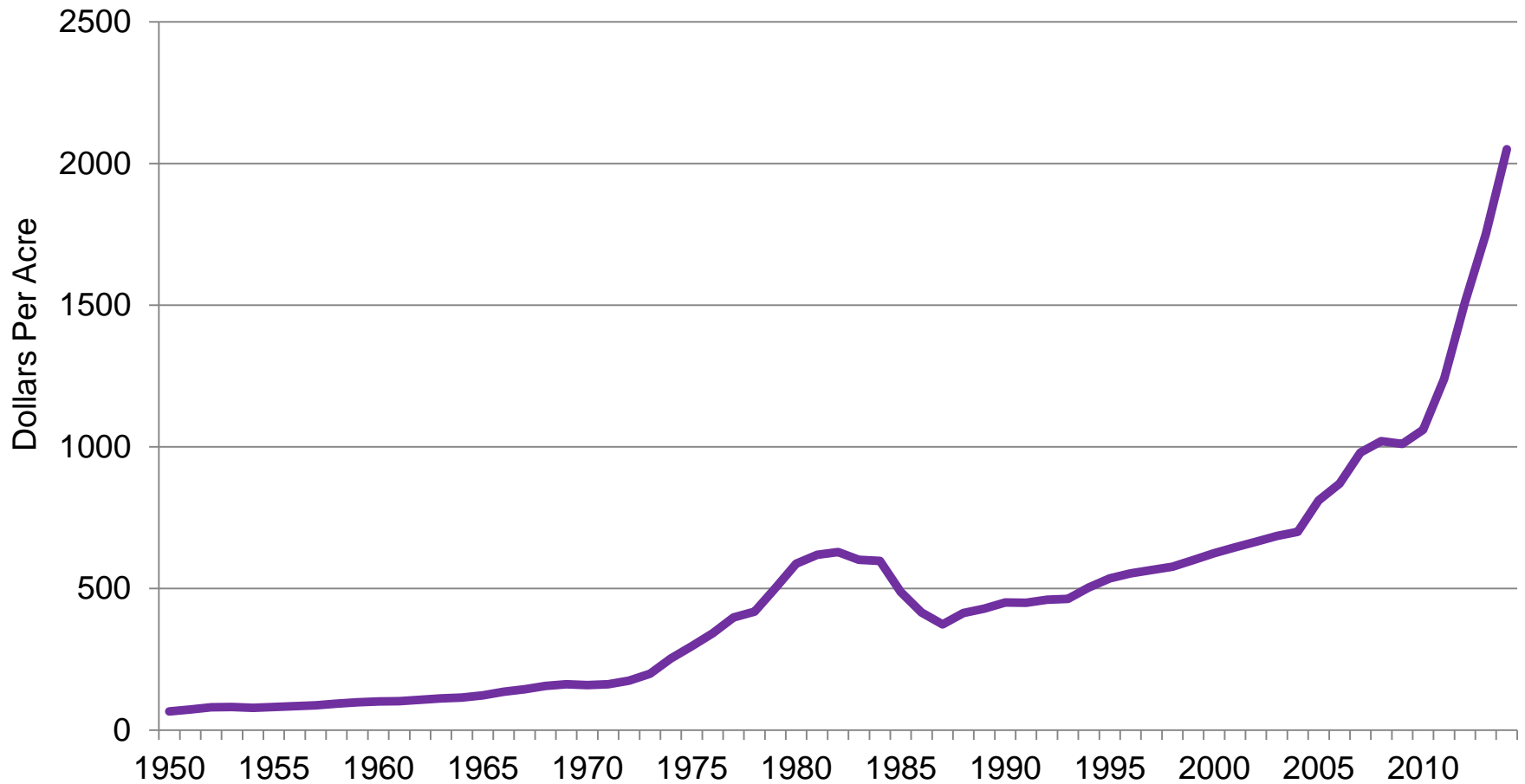


Introduction

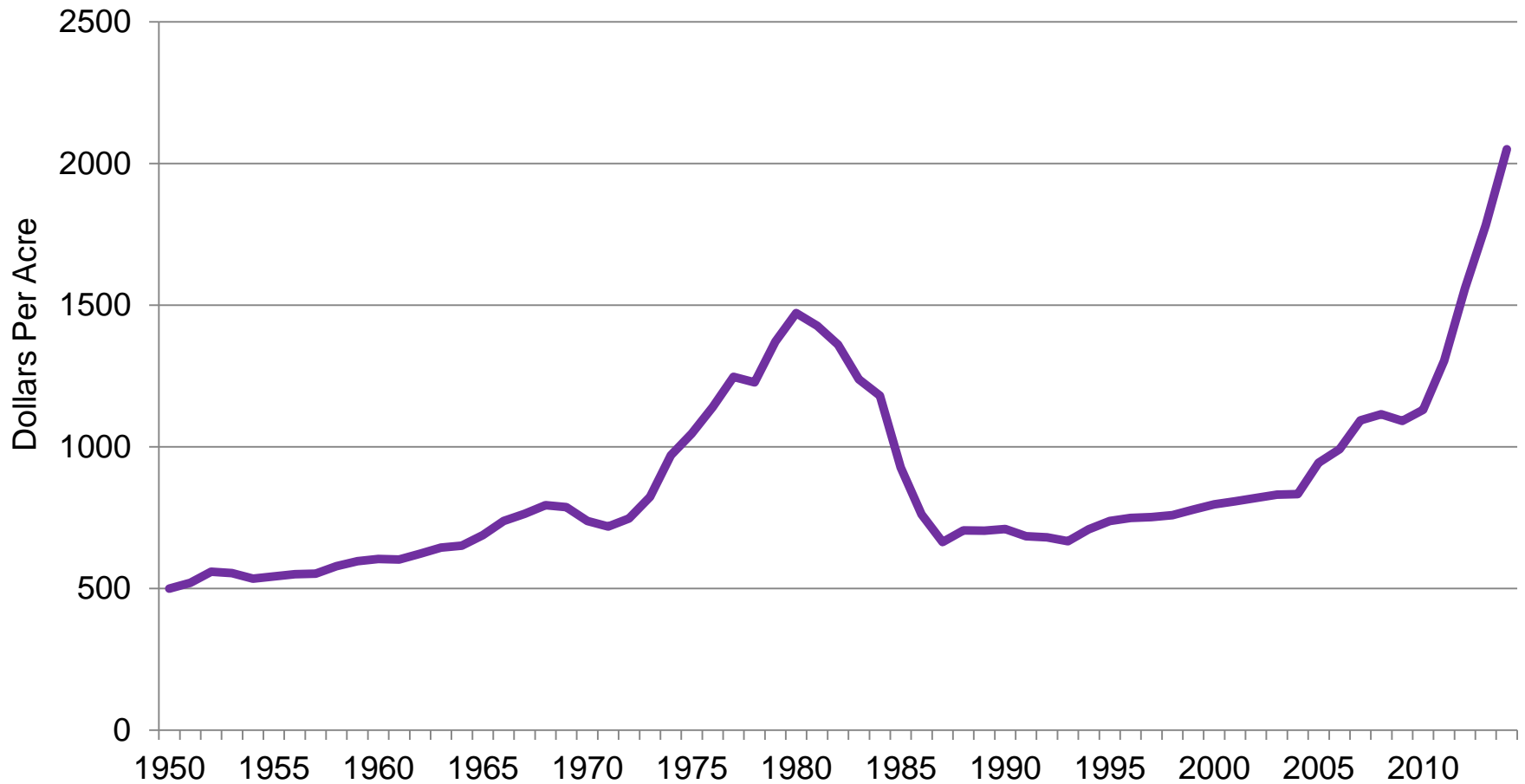
- Farmland was susceptible to two boom-bust cycles in the last century
 - 1920s and 1930s
 - 1973 through 1986
- Drivers of Boom-Bust Cycles
 - Economic shock justifying higher prices
 - Outside of most investors experience
 - Increased use of leverage
 - A herding effect



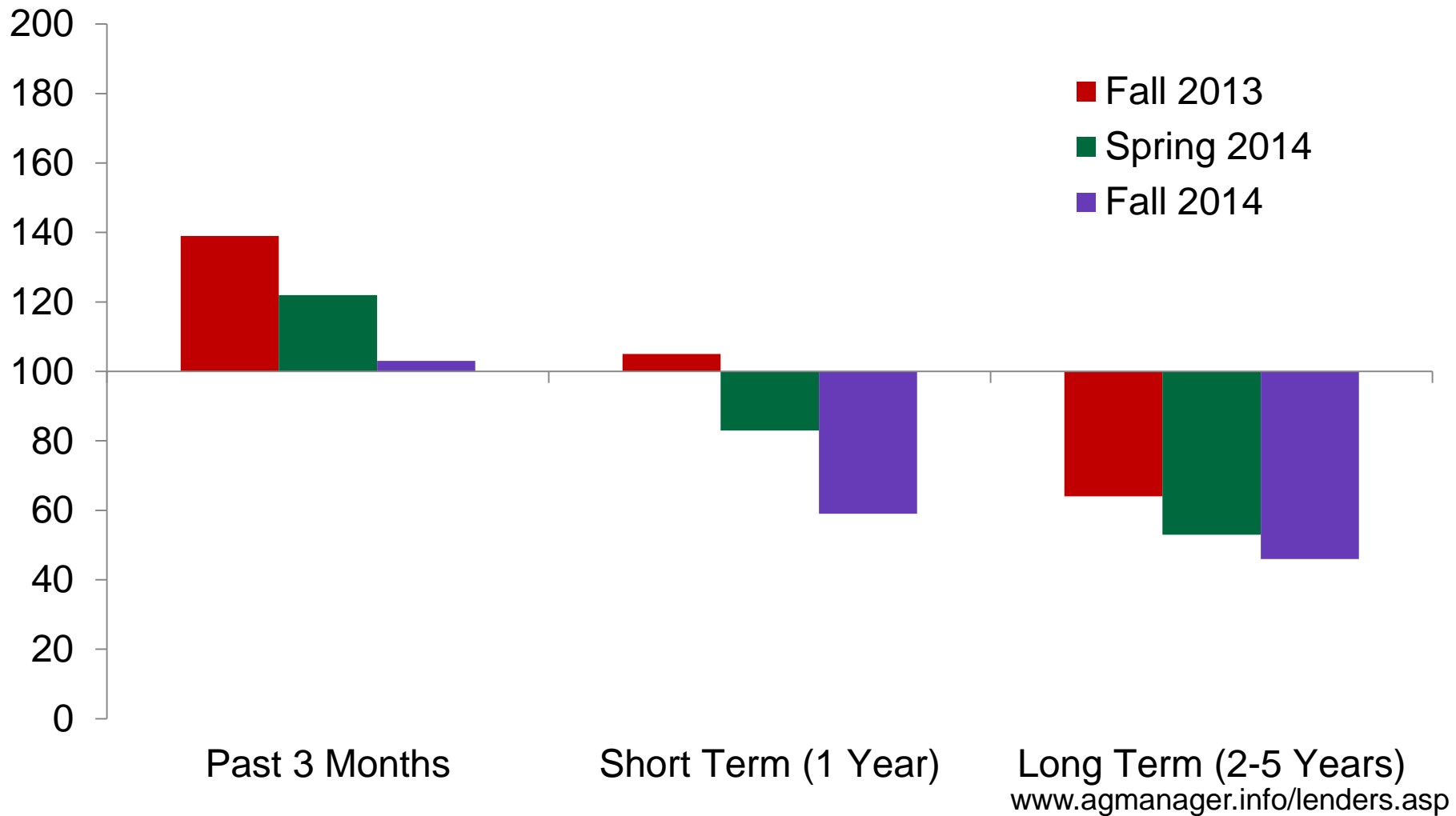
Kansas Land Values



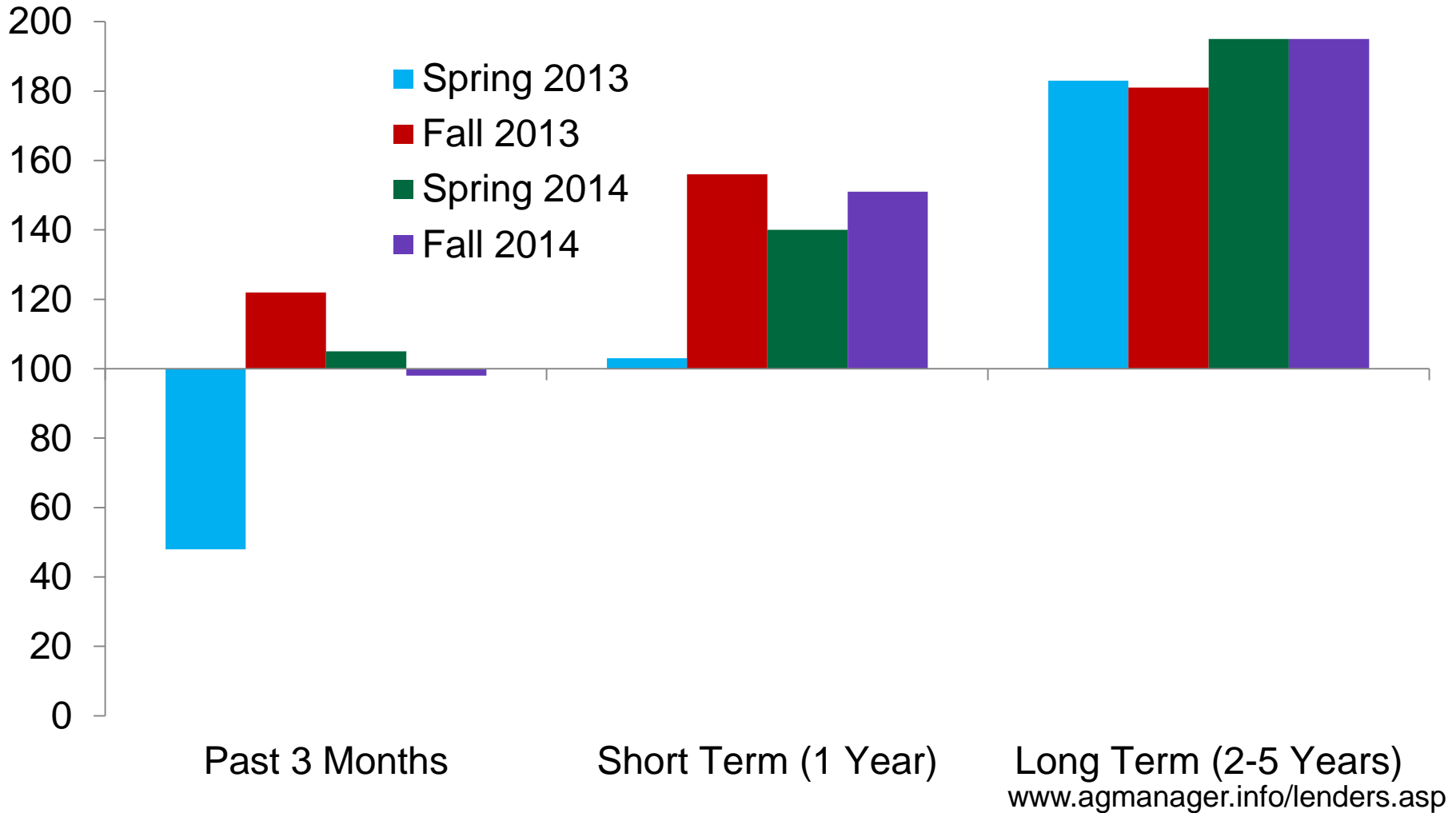
Kansas Inflation-Adjusted Land Values



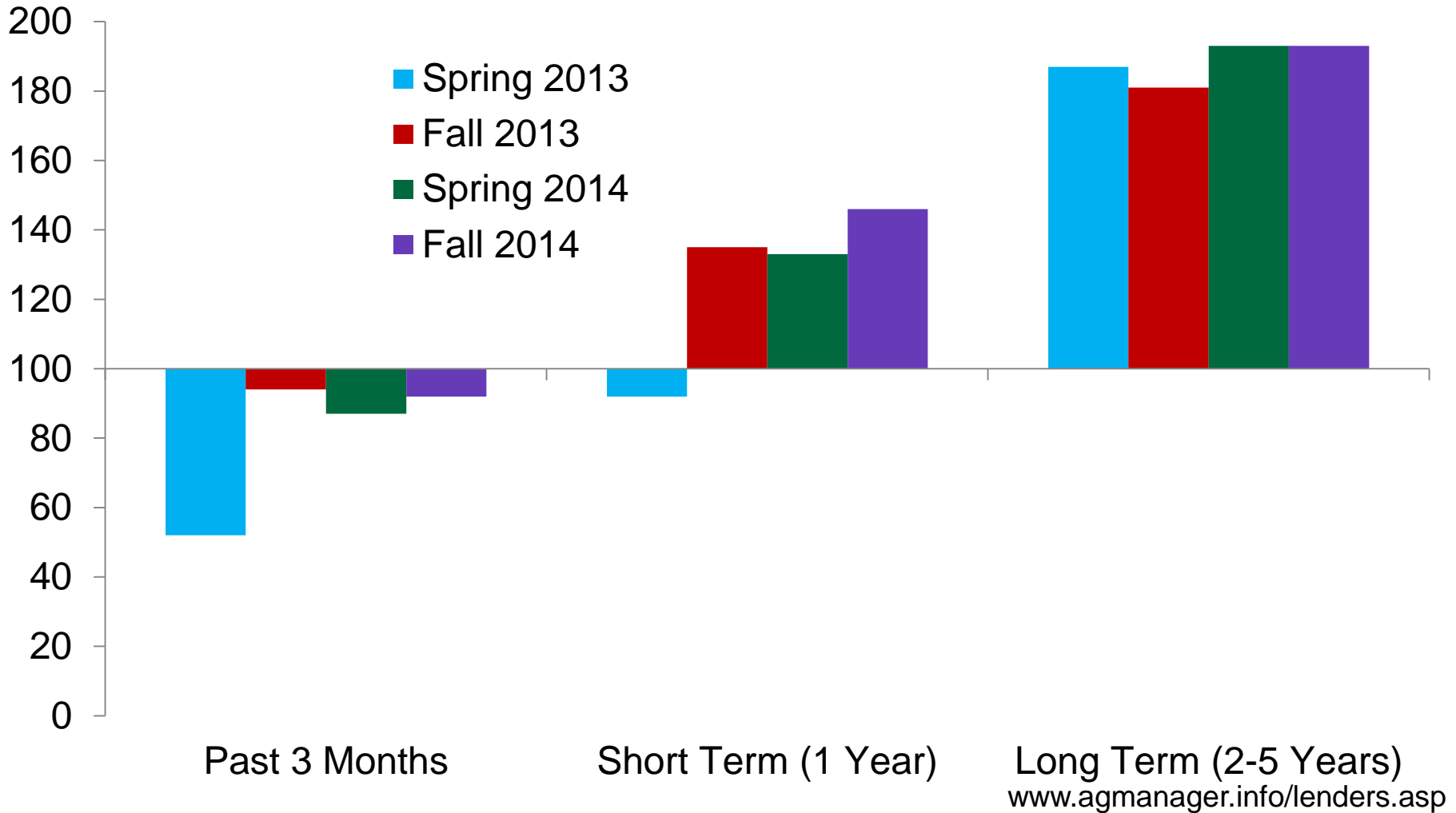
Future Land Values?



Future Real Estate Interest Rates?



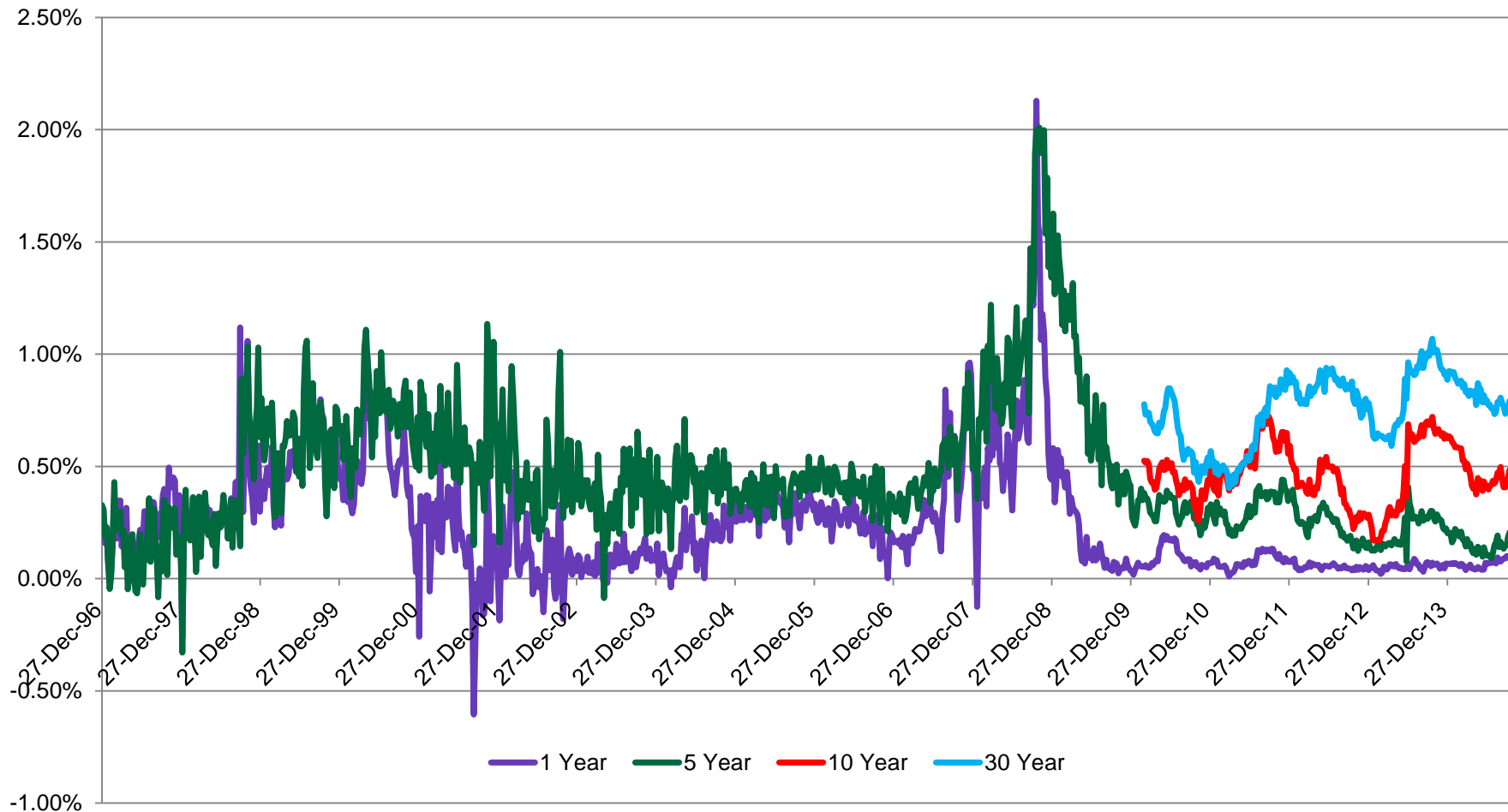
Future Operating Interest Rates?



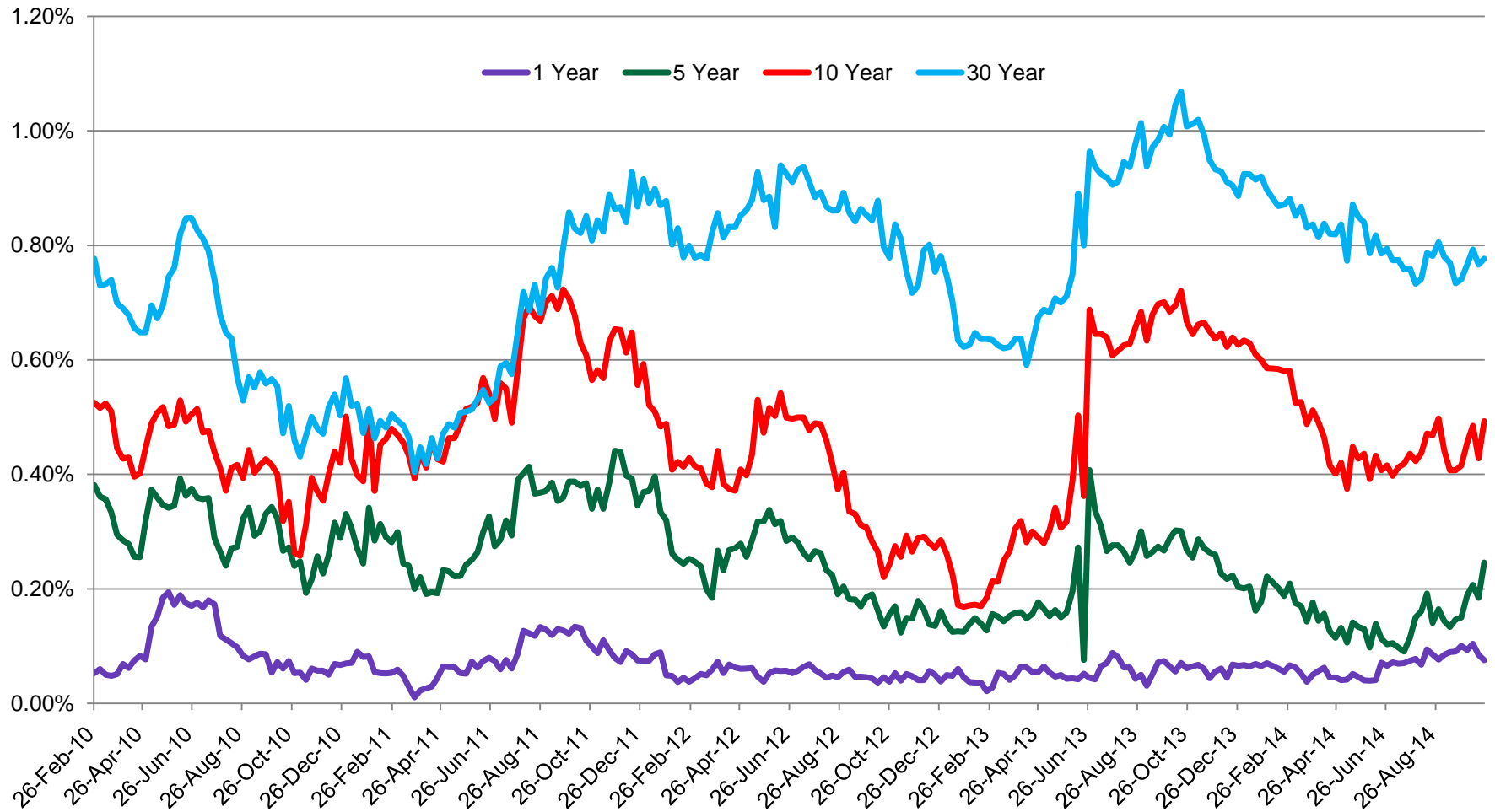
www.agmanager.info/lenders.asp



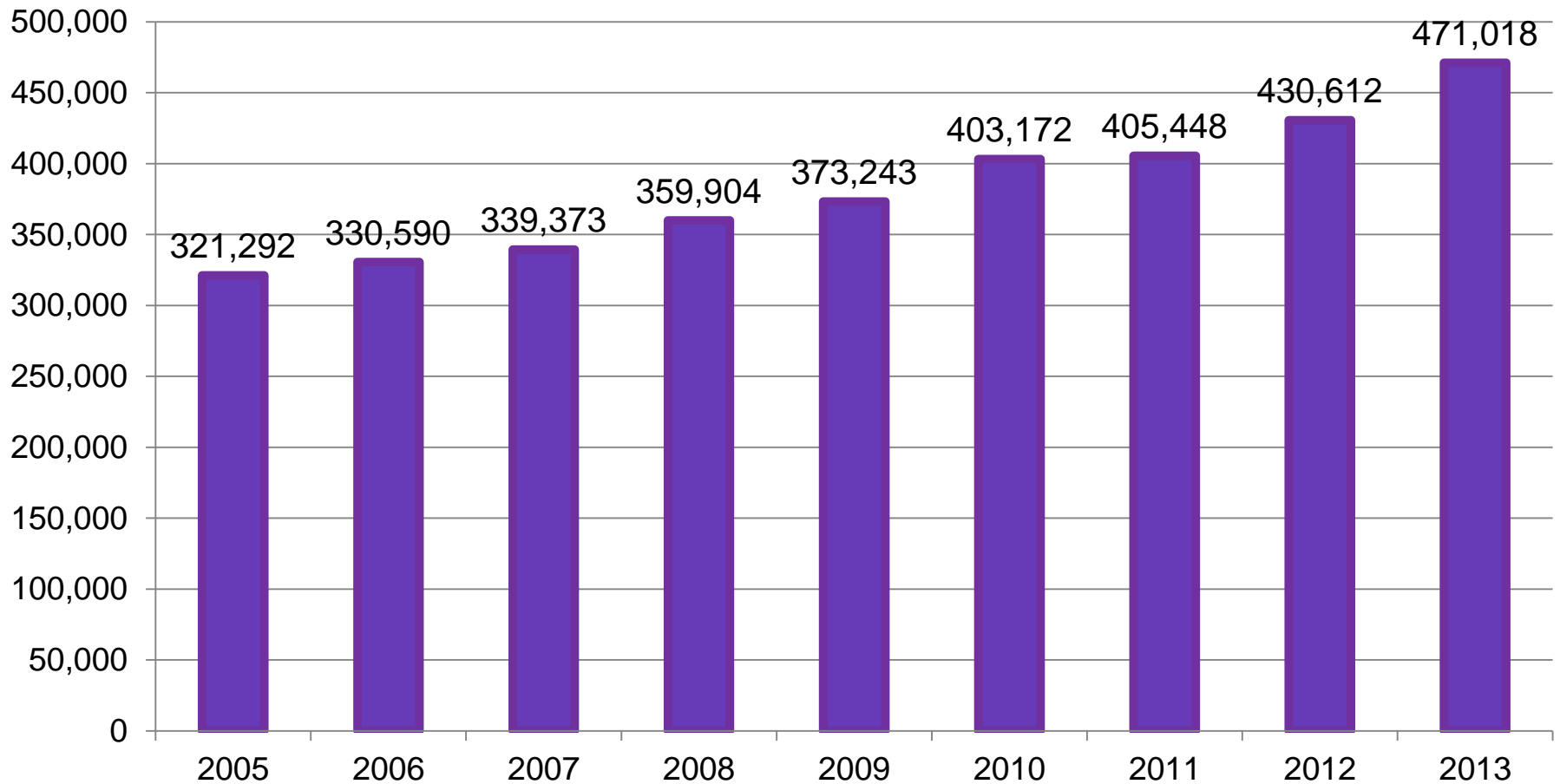
Farm Credit T-Bill Spreads



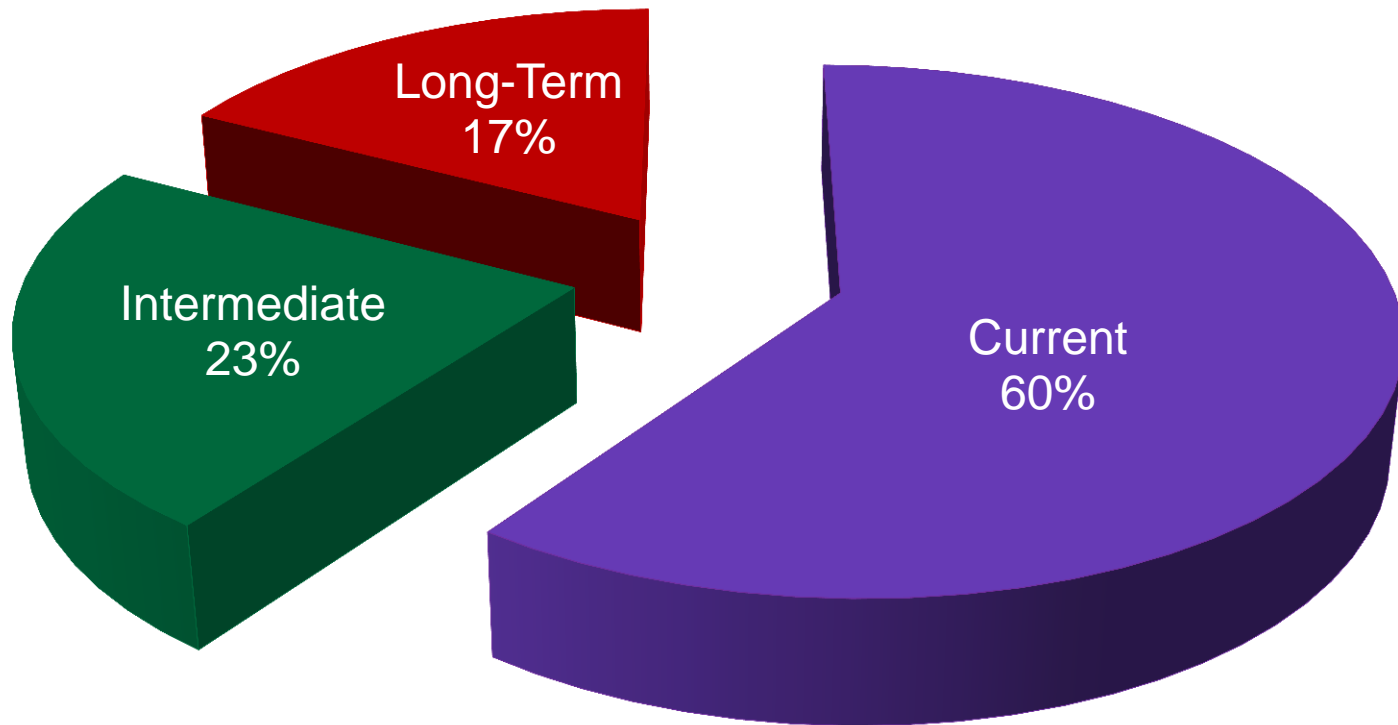
Farm Credit T-Bill Spreads



Kansas Farm Management Association Debt Levels



Change in Kansas Farm Debt 2013



Eight Important Takeaways

- #1 - Cost of Borrowing
- #2 - Its in the Tails
- #3 - Default risk is low, but it was in 1979
- #4 - Debt to Asset is Lower in 2013 than 1979
- #5 - Déjà vu All Over Again?
- #6 - What Safety Net?
- #7 - Revenue is Key
- #8 - Land value Effects



#1 - Cost of Borrowing

- Nominal Cost of Borrowing
 - Last bust average rate on defaulted loans was 11.04%
 - Average 5.04% for 2012 and 2013
- Inflation-adjusted Cost of Borrowing
 - Last bust average rate on defaulted loans was 2.41%
 - Average 3.47% for loans made in 2012 and 2013
- Nominal cost is lower, but the real cost is higher
- Amortized loans at lower interest rates pay more principal early in the loan reducing the possibility of loans going underwater (**11.0% more in 6 years for 15 year loan**)

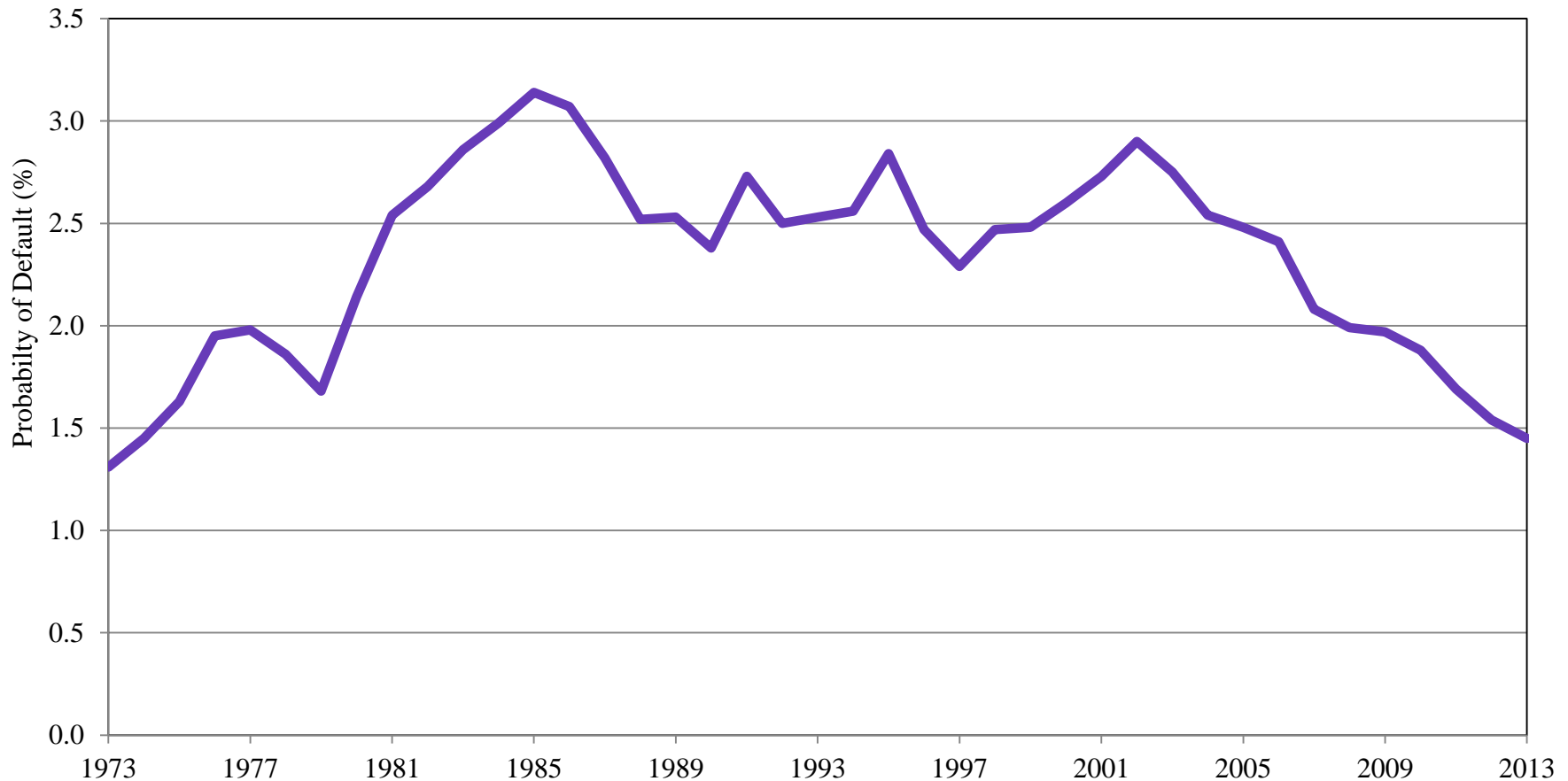


#2 - *Its in the Tails*

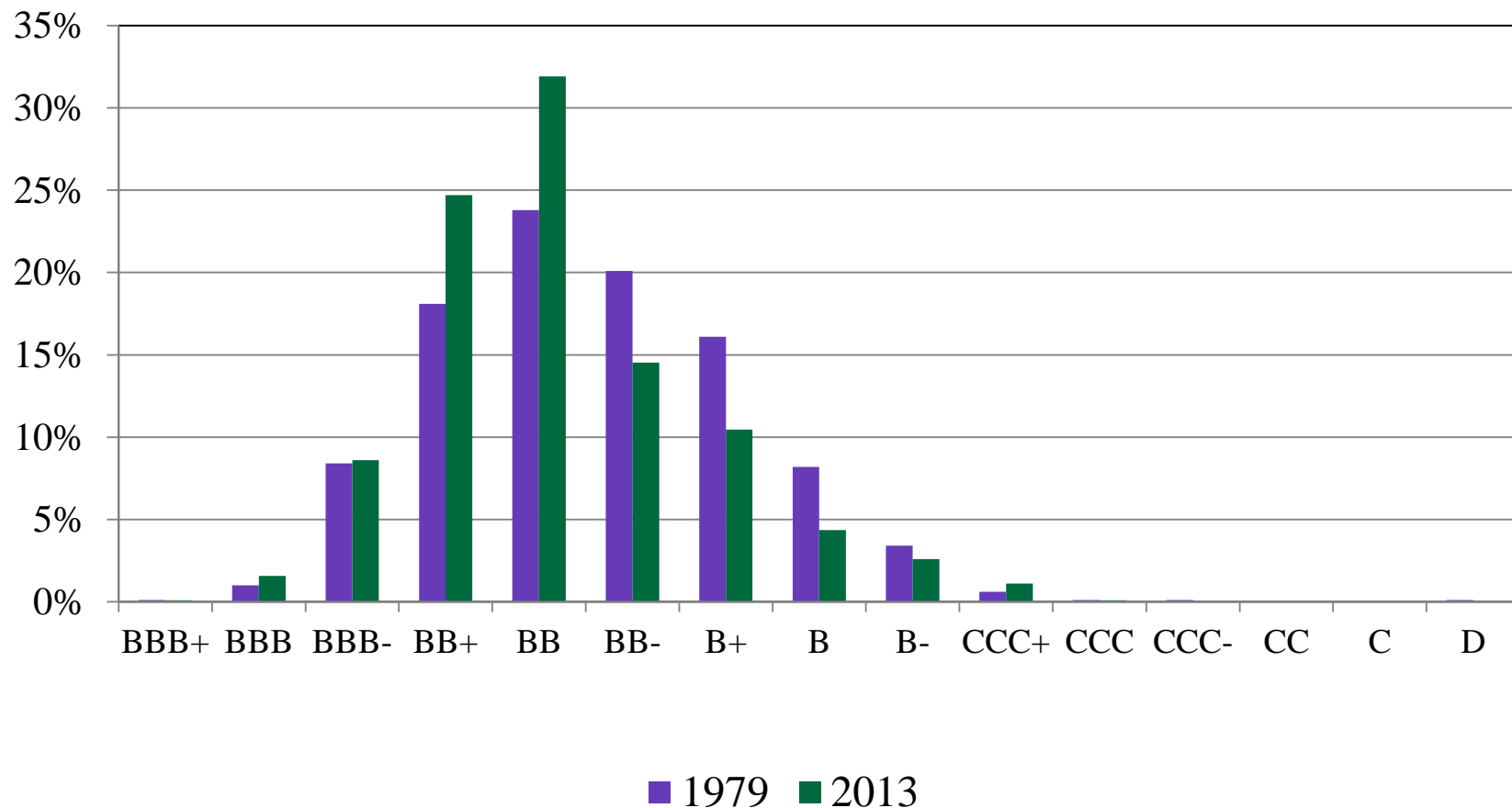
- During the last default, only 10.9% of loans originated during the critical period by a national lender defaulted
- Most buyers of farmland are other farmers
 - Between 72% and 81% of Iowa farmland buyers are other farmers between 2008 and 2013
 - Last two years were 80% and 81%, respectively
- The average will not drive a bust but the tails (margin)
- The tails (margin) will drive the average



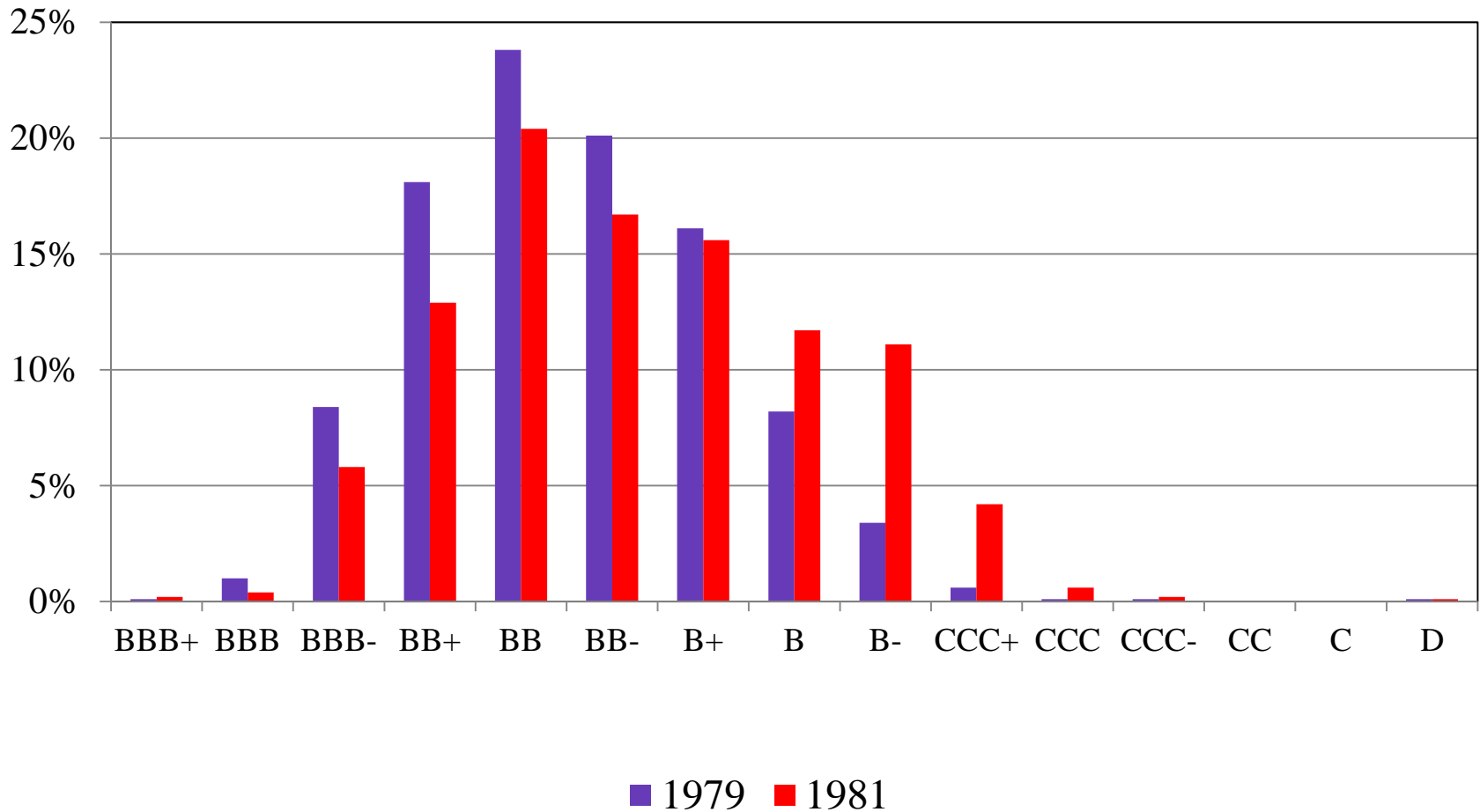
#3 - Default risk is low, but it was in 1979



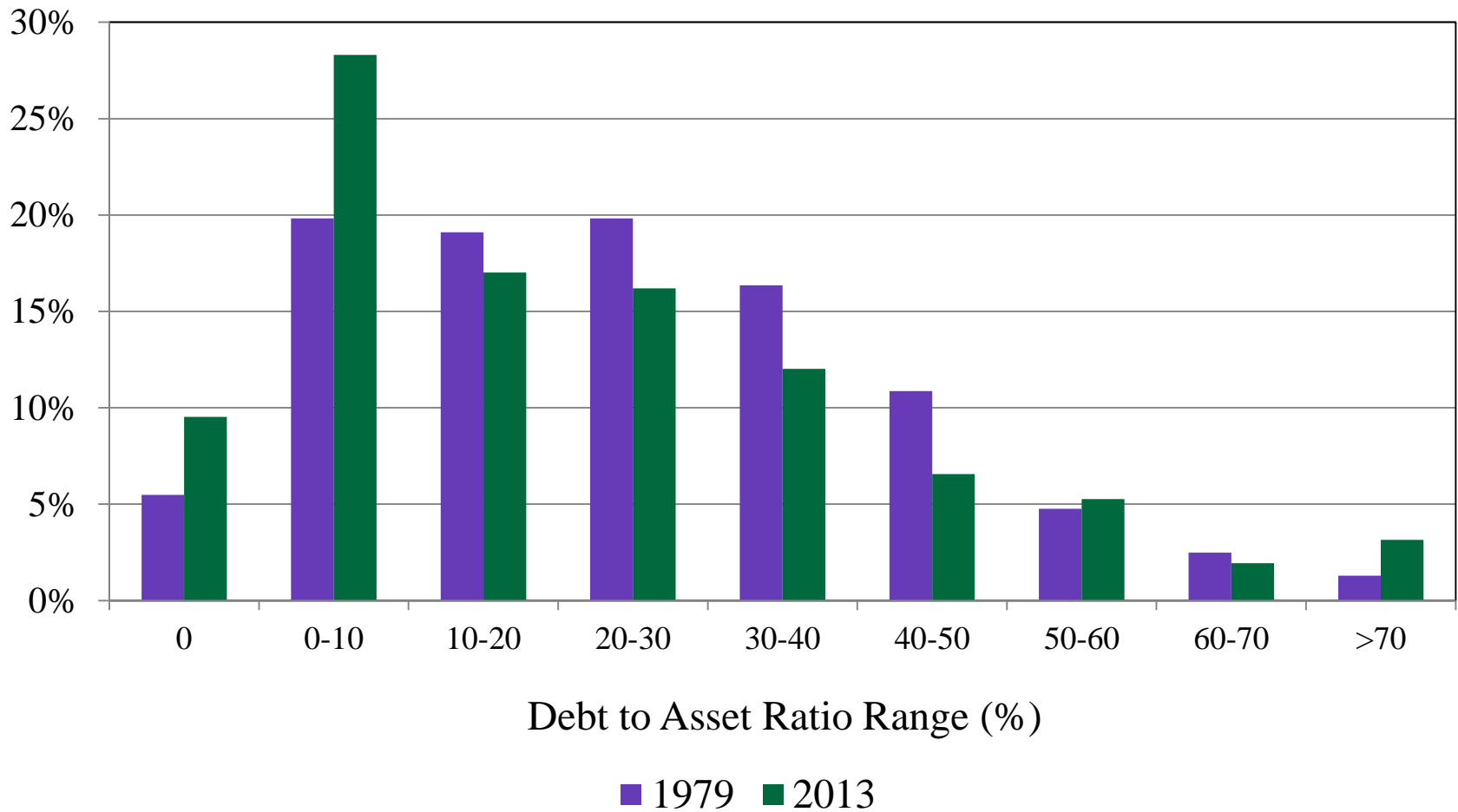
#3 - Default risk is low, but it was in 1979



#3 - Default risk is low, but it was in 1979 and it can change quickly



#4 - Debt to Asset is Lower in 2013 than 1979



#4 - Debt to Asset is Lower in 2013 than 1979

- Average debt to asset ratio for Kansas Farm Management Farms:
 - 1979 – 24.6%
 - 2013 – 19.6%
- Farms Greater than 40% debt to assets
 - 1979 – 19.4%
 - 2013 – 16.9%
- Farms Greater than 70% debt to assets
 - 1979 – 1.3%
 - 2013 – 3.2%



#5 - Déjà Vu All Over Again?

- Repayment capacity was key
 - Fell from 152.8% to 16.3% from 1979 to 1981
- Two key factors
 - Increase in interest payments by 65.3%
 - Decline in value of farm production by 15.7%
- Land Values could no longer be supported
- Would those decreases cause the situation again?



#5 - Déjà Vu All Over Again?

	2013	65.3% Interest Increase	15.7% Farm Production Decrease	Both	Both w/o Government Payments
Value of Farm Production	614,948	614,948	518,484	518,484	483,395
Government Payments	35,089	35,089	35,089	35,089	0
Livestock Income	145,291	145,291	145,291	145,291	145,291
Crop Income	434,567	434,567	338,103	338,103	338,103
Expenses w/o Interest	459,568	459,568	459,568	459,568	459,568
Interest	17,829	29,472	17,829	29,472	29,472
Total Expenses	477,397	489,040	477,397	489,040	489,040
Net Farm Income	137,550	125,908	41,086	29,444	(5,645)
Capital Debt Repayment Capacity	111.25%	100.58%	22.81%	12.13%	-20.04%



#5 - Déjà Vu All Over Again?

Non-Irrigated Corn and Soybean Cost of Production Cost per Acre

Year	Corn		Soybean	
	Variable Cost	Total Cost	Variable Cost	Total Cost
2013	\$308	\$420	\$224	\$342
2012	\$325	\$435	\$202	\$299
2011	\$281	\$391	\$192	\$286
2010	\$268	\$382	\$176	\$268
2009	\$267	\$371	\$173	\$261
2008	\$265	\$374	\$167	\$250
2007	\$231	\$331	\$145	\$229
2006	\$191	\$269	\$125	\$183
2005	\$188	\$263	\$118	\$177



#6 - What Safety Net?

- Crop revenue would need to fall by 21.2% to decrease the value of farm production by 15.7%
- Using prices from 2013 received on farm:
 - Corn price would need to fall from \$4.39 to \$3.28
 - Wheat price would need to fall from \$6.87 to \$5.15
 - Soybean price would need to fall from \$12.59 to \$10.09



#6 - What Safety Net?

- Crop Revenue Insurance?
 - Prices are set in February for corn based on the December futures contract
 - Prices are set from August 15 to September 14th for wheat in Kansas based on the July futures KCBT contract
 - Prices and thus revenue are only protected within the season, not across seasons



#6 - What Safety Net?

Crop Insurance Minimum Revenue Guarantee Corn Example

	2013	2014	2015
APH (bushel)	150	150	150
Coverage Election	80%	80%	80%
Guaranteed Bushel	120	120	120
Base Price (per bushel)	\$5.65	\$4.62	\$4.20
Coverage (per acre)	\$678	\$554	\$504

Decline of 26% since 2013



#6 - What Safety Net?

Crop Insurance Minimum Revenue Guarantee Soybean Example

	2013	2014	2015
APH (bushel)	40	40	40
Coverage Election	80%	80%	80%
Guaranteed Bushel	32	32	32
Base Price (per bushel)	\$12.87	\$11.36	\$10.13
Coverage (per acre)	\$412	\$364	\$324

Decline of 21% since 2013



#6 - What Safety Net?

Crop Insurance Minimum Revenue Guarantee Wheat Example (Kansas)

	2013	2014	2015
APH (bushel)	40	40	40
Coverage Election	80%	80%	80%
Guaranteed Bushel	32	32	32
Base Price (per bushel)	\$8.78	\$7.02	\$6.30
Coverage (per acre)	\$281	\$225	\$202

Decline of 28% since 2013



#6 - What Safety Net?

- Farm Program Payments
 - Decision between Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC)
 - Much different effect depending on the choice
 - PLC Price Support Levels (Default Program)
 - Corn - \$3.70
 - Wheat - \$5.50
 - Soybean - \$8.40
 - Only Soybean prices are below the 21.4% fall in revenue



#7 - How Fixed are Rates?

Fixed Rate Farm Credit System Debt Securities Outstanding, 12/31/06 through 12/31/13

	Fixed Rate Non- Callable Bonds	Fixed Rate Callable Bonds	Total Outstanding	Percent Fixed
	----- \$ billion -----			
12/31/2006	32.4	37.7	134.1	52.3%
12/31/2007	36.6	42.8	154.1	51.5%
12/31/2008	43.0	43.8	176.3	49.2%
12/31/2009	41.7	39.9	176.1	46.3%
12/31/2010	40.9	45.8	187.5	46.2%
12/31/2011	44.0	46.4	184.2	49.1%
12/31/2012	50.1	52.0	196.5	52.0%
12/31/2013	57.2	56.5	206.6	55.0%

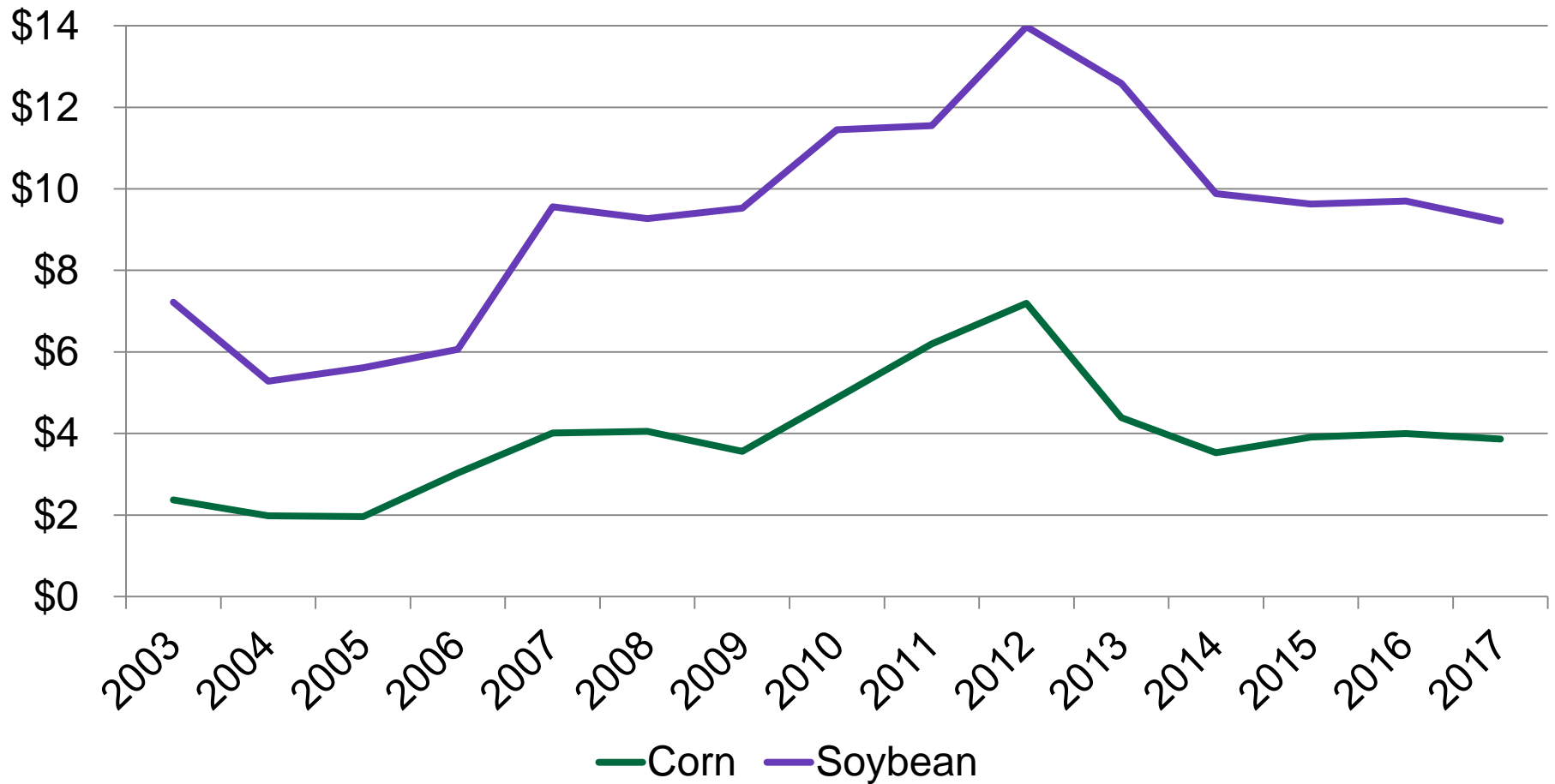


#7 - How Fixed are Rates?

- Amount of Farm Credit Bonds that are fixed has been slightly above 50% for the last 8 years
- The amount of real estate loans at fixed rate have been about 83% for Farm Credit Services of America
- For banks, about 74% of non-real estate loans have floating rates.
- Estimates indicate that 48.6% of Kansas Farm Management Association Debt is at a fixed rate
- Thus, only about 50% of the debt would be affected by an interest rate change



#8 - Land Value Effects



#8 - Land Value Effects

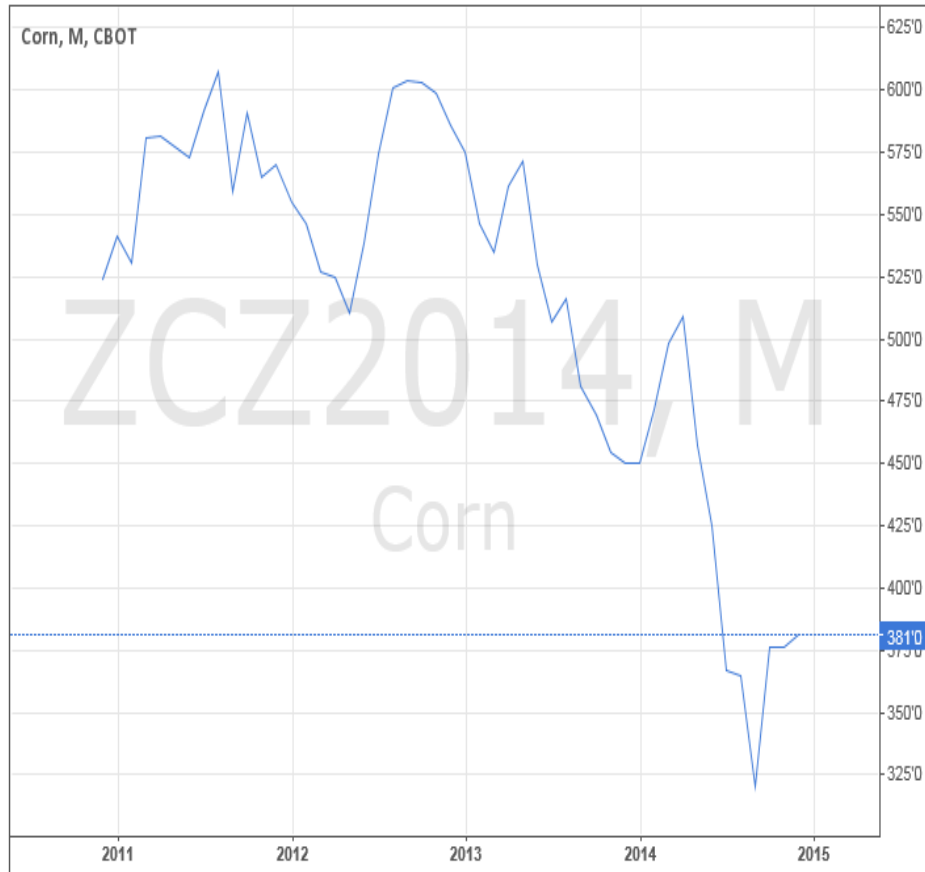
- Using the futures prices at harvest through 2017, prices are more like the 2007 to 2009 period
- Based on an estimated model for Kansas and Illinois land values, the elasticity for a change in cash rents was 1.31 and 1.15 respectively
- However, it is important to consider the use of futures prices for long term price expectations



#8 - Land Value Effects

December 07, 2014

CBOT:ZCZ2014 381'0 ▼ -1'4 (-0.39%) O:374'0 H:382'4 L:364'2 C:381'0

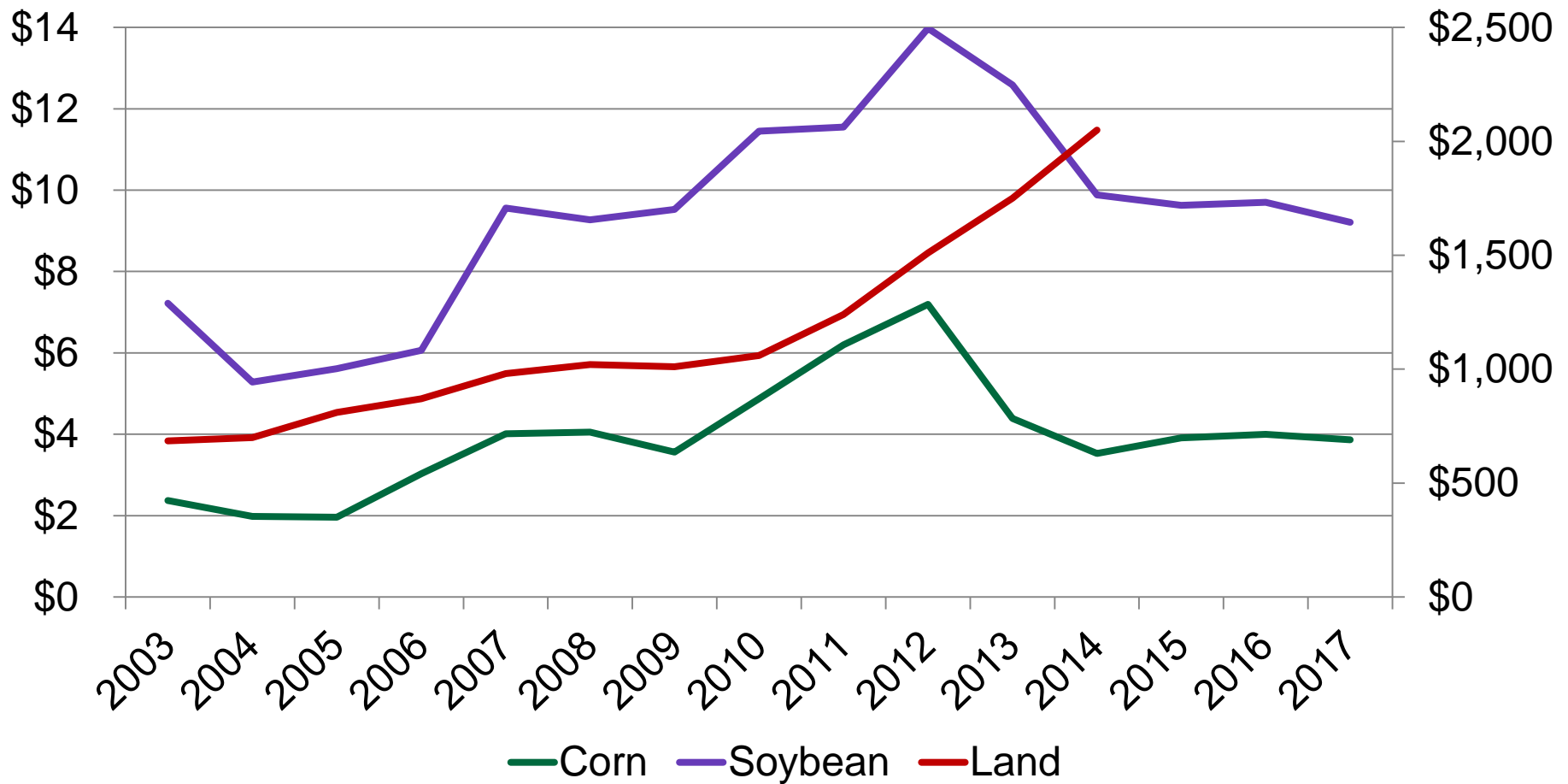


December 07, 2014

CBOT:ZCZ2015 423'6 ▲ +6'2 (+1.5%) O:414'6 H:423'6 L:406'2 C:423'6



#8 - Land Value Effects



Conclusions

- Financial situation of the farm sector is currently in excellent shape partially due to crop insurance
 - However, it is not much different than it was in 1979, two years before the previous bust
- Will leverage drive another bubble?
 - Probably not
- Can leverage exacerbate another bubble?
 - Very likely
- Will agricultural land values fall?
 - If so, how much?



Questions?

