

17. Déjà vu All Over Again: Comparing the 1970s and Now

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Abstract/Summary

The agricultural sector, especially the crop sector, is coming off several years of excellent income. However, farmland, which makes up a substantial portion of a farmer's balance sheet, is susceptible to boom-bust cycles. With the rapid decrease in grain prices, is the agricultural sector setting itself up for another bust? Is this boom different? This session will examine the leverage condition that Kansas farmers find themselves in at the end of 2013. Will leverage drive another bust cycle? Leverage will likely not be the cause of a bust cycle but it certainly can exacerbate the falling of land values if farmland values begin to fall.

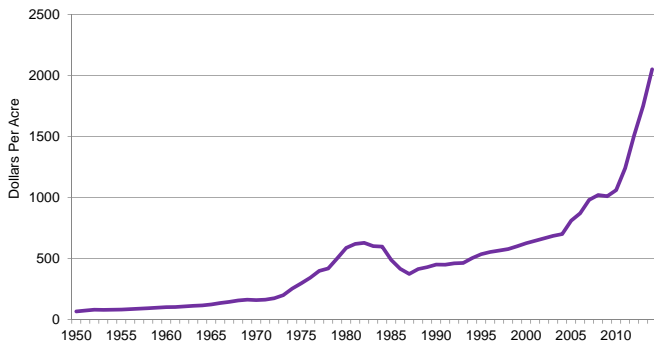
Introduction

- 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

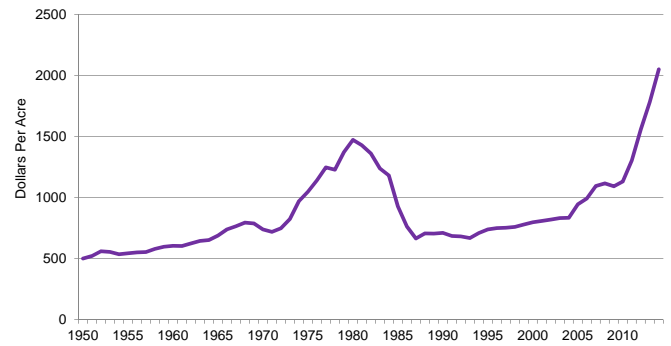
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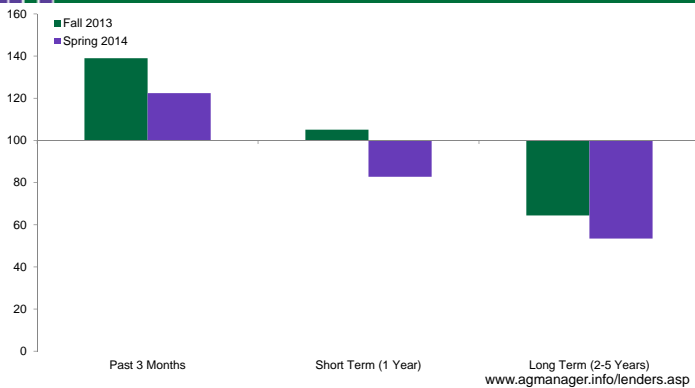
Kansas Land Values



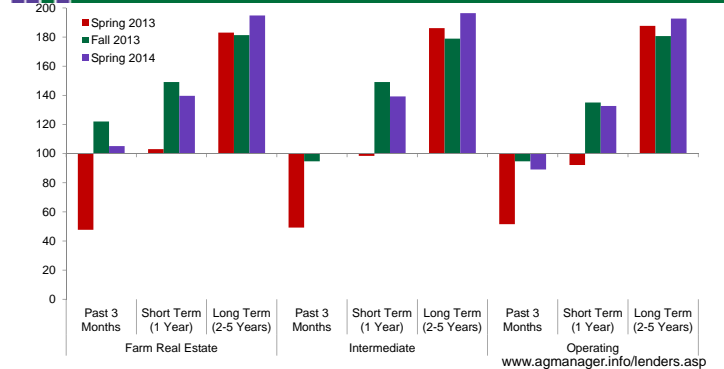
Kansas Inflation-Adjusted Land Values



Future Land Values?



K-State Ag Lender Survey - Interest Rates



www.agmanager.info/lenders.asp

www.agmanager.info/lenders.asp

Organization

- Lessons from the 1980s
- Comparing the 1970s with the Current Situation in Kansas
- Precursors to a Debt Crisis and Boom-Bust Cycle
- Conclusions

Ten Thoughts

- #1 - Loan to Appraised Value Ratio
- #2 - Loans Perform for Awhile
- #3 - Cost of Borrowing
- #4 - Its in the Tails
- #5 - Default risk is low, but it was in 1979
- #6 - Debt to Asset is Lower in 2013 than 1979
- #7 - Déjà vu All Over Again?
- #8 - What Safety Net?
- #9 - How Fixed are Rates?
- #10 - Revenue is Key

#1 - Loan to Appraised Value Ratio

- Average loan to appraised value ratio for a national portfolio of defaulted loans from the last boom bust cycle was 60%
 - Two thirds were between 50% and 70%
- Average loan to appraised value for some lenders at 65%

#2 - Loans Perform for Awhile

Table 1. Comparison for Origination and Default Year for 457 Defaulted Equitable Agribusiness Loans

Origination Year	Default Year														Total
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1991		
1967	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
1972	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2
1973	-	1	-	-	-	-	-	-	1	-	-	-	-	-	4
1974	-	-	1	-	-	-	-	-	2	1	-	-	-	-	6
1975	-	-	-	1	1	3	5	6	4	-	-	-	-	-	20
1976	1	-	3	1	6	7	12	25	14	4	-	2	-	-	75
1978	-	-	2	2	5	10	11	27	27	5	1	-	-	-	90
1979	-	-	1	1	4	9	19	23	27	3	2	-	-	-	89
1980	-	-	1	-	10	9	13	28	22	8	1	-	-	-	92
1981	-	-	-	1	4	3	3	14	4	1	-	-	-	-	30
1982	-	-	-	-	-	-	-	2	1	-	-	-	-	-	3
1983	-	-	-	-	-	-	5	10	7	2	-	-	1	-	25
1984	-	-	-	-	-	-	1	4	6	2	-	1	-	-	14
1985	-	-	-	-	-	-	-	1	2	2	-	-	-	-	5
Total	1	1	9	6	30	43	71	140	119	29	4	3	1	-	457

Source: Featherstone and Boesen (page 255).

#2 - Loans Perform for Awhile

- Average for the last default was 5.6 years
- Historical not current underwriting standards are key
- Farmers will default on a parcel that is underwater

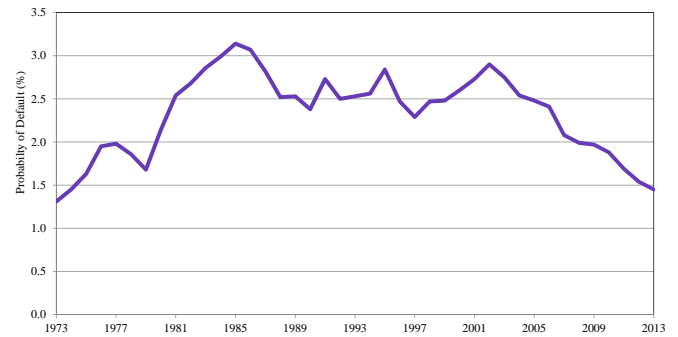
#3 - Cost of Borrowing

- 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)

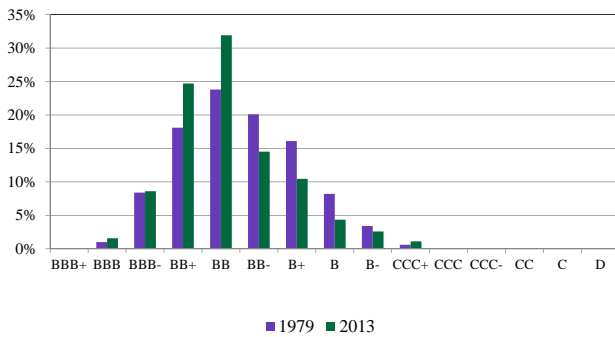
#4 - Its in the Tails

- 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

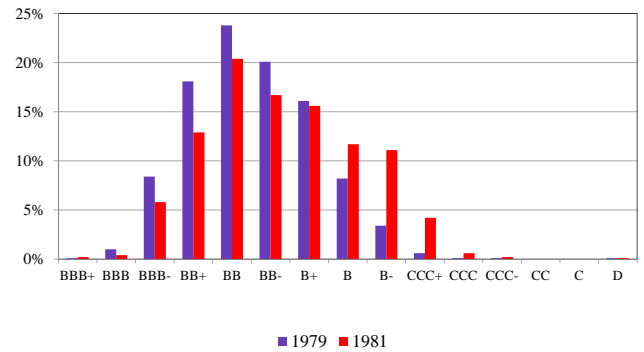
#5 - Default risk is low, but it was in 1979



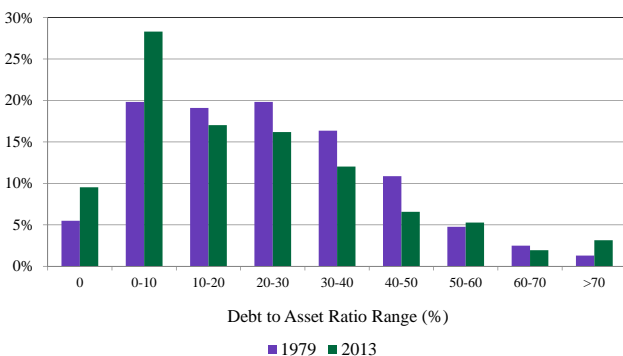
#5 - Default risk is low, but it was in 1979



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



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



#6 - 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%

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

Debt to Asset Ratio by Sales Class for USDA ARMS Farms for Kansas and KFMA Farms

	All	<100 K	100 K - 250 K	250 K - 500 K	500 K - 1,000 K	>1,000 K
USDA ARMS Farms for Kansas						
2003	15.6	15.5	14.3	10.6	25.0	22.1
2004	17.8	9.8	18.4	32.1	9.7	24.4
2005	15.2	7.8	12.0	15.5	19.6	29.8
2006	15.4	5.4	14.7	15.8	18.4	31.5
2007	13.2	4.6	11.3	12.7	17.2	21.3
2008	11.2	5.0	10.5	10.9	15.5	13.6
2009	15.2	5.8	10.3	12.6	20.2	26.8
2010	12.4	7.4	9.7	11.9	13.5	19.0
2011	13.7	4.8	22.4	12.9	12.0	16.2
2012	7.1	2.4	4.7	9.2	9.6	11.2
Kansas Farm Management Farms						
2003	36.5	27.1	36.6	40.5	44.4	43.2
2004	35.2	25.0	35.8	38.7	39.8	44.4
2005	33.3	21.6	33.0	38.2	37.3	40.6
2006	29.1	20.8	25.3	32.4	31.7	35.5
2007	30.0	22.9	25.6	33.3	32.3	35.6
2008	29.6	22.7	25.6	32.5	31.1	33.1
2009	28.7	22.7	26.1	30.9	29.3	31.9
2010	27.4	20.3	24.4	30.2	27.3	30.2
2011	25.5	15.1	22.1	26.6	28.3	28.2
2012	21.5	16.0	16.2	23.4	22.3	24.7

#7 - 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?

#7 - 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%

#7 - 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

#8 - 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

#8 - 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

#8 - 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	\$4.10
Coverage (per acre)	\$678	\$554	\$492

#8 - 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	\$10.46
Coverage (per acre)	\$412	\$364	\$335

#8 - 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	\$6.34
Coverage (per acre)	\$281	\$225	\$203

#8 - 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

#8 - What Safety Net?

• Farm Program Payments

- ARC is based on country or individual revenue
 - If revenue falls below the guarantee a payment is made
 - Price for the payment is the higher of the marketing year average or the commodity loan rate
- Revenue guarantee
 - Yield is a 5 year Olympic average
 - If any of the yields is below 70%, 70% of the average is used
 - Price is a 5 year Olympic average
 - If any of the prices is below the PLC, that will be used.
 - Multiply price and yield
- If revenue is less than 86 percent, then the payment begins and is capped at 10 percent

#9 - 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%

Source: Federal Farm Credit Funding Corporation

#9 - 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

#10 - Revenue is Key

- In the last two land busts, one was more caused by interest rate increases, the other was caused by a drop in revenue
- 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
- The elasticity for a change in real interest rates was -0.04 and -0.06 for Kansas and Illinois, respectively
- It appears that a bust would more likely be caused by a drop in revenue than an increase in interest rates

#10 - Revenue is Key

- Land values are based on expectations not historical rates
- Because historical interest rates are fixed at low levels, cash flow will not be affected by changes in rates immediately
- Land values are not be immune from changes in the capitalization rate for market participants as they look at alternative investments
- Both interest rate increases and revenue decreases would exert negative pressure on land values
- Increases in interest rates often negatively correlated with agricultural revenue

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?

Questions?