

Agricultural Financial Outlook, Lending, and Land Values



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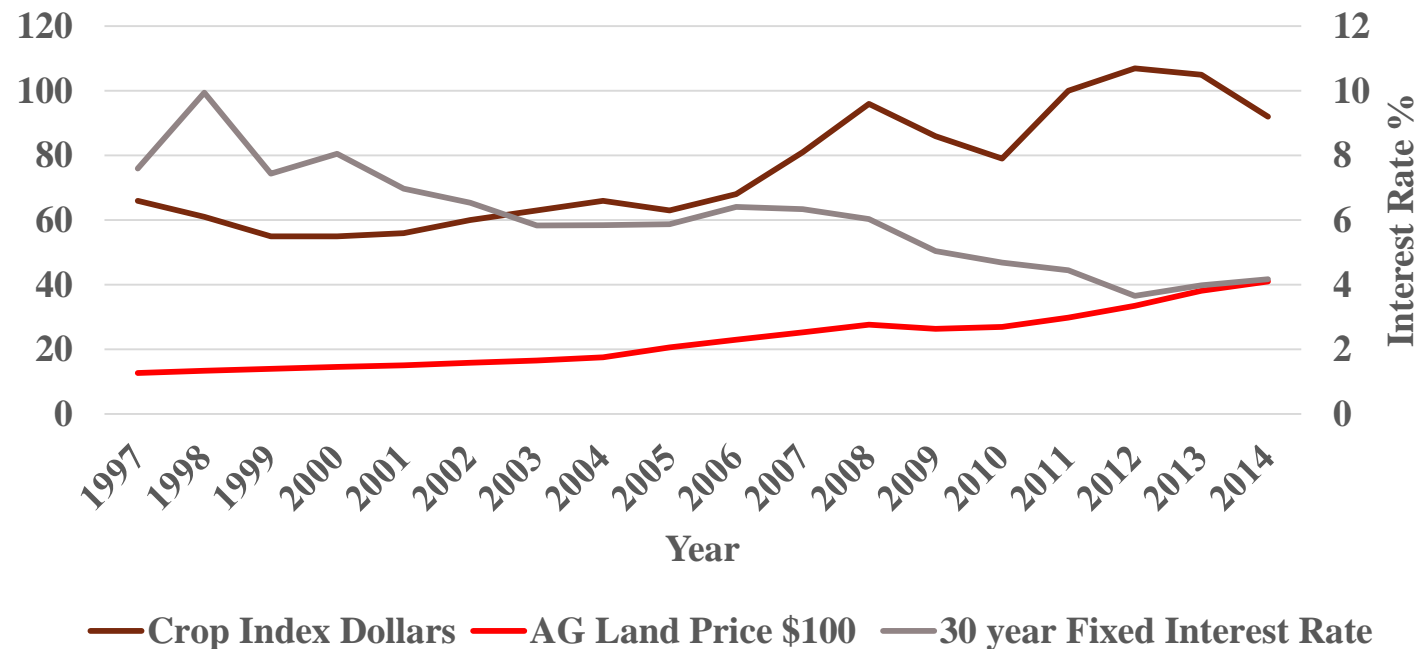
MISSISSIPPI STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS

MISSISSIPPI STATE EXTENSION SERVICE

Ag. Lending and Land Values Outlook

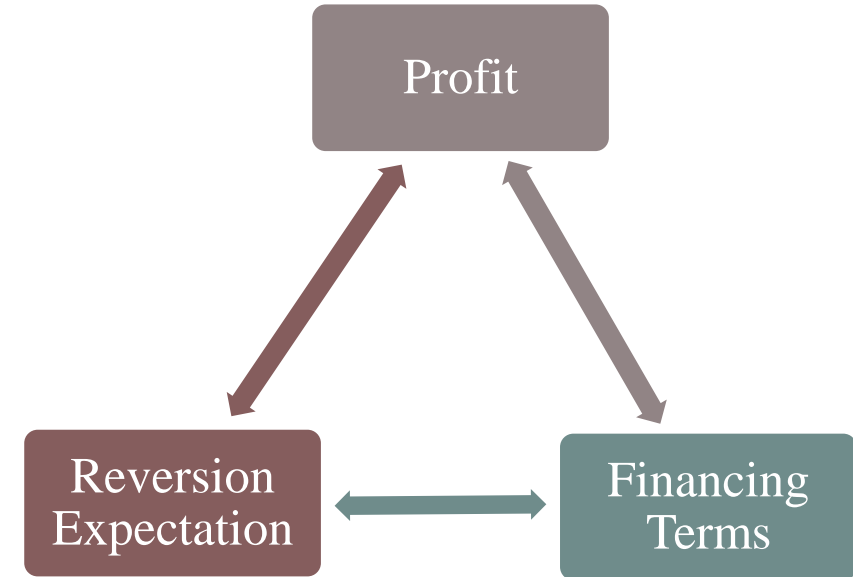
- Agricultural land values have trended upward since the late 1980's
- In 2005 the rate of growth in land values increased sharply
- Interest rates on long term debt have fallen



Fundamentals of Agricultural Land Valuation

Returns

- Expected Returns Includes:
 - Annual Expected Profits
 - Reversion (Resale Value)
 - **Financing/Lending Conditions (Interest Rates, Term, Required Initial Equity, and other Market Options)**



In the News

- “.....by some estimates, up to 4 percent of farmers are currently facing serious liquidity challenges. Bankruptcy filings by farm operators are expected to dramatically increase over the next couple of years”
- “Some grain farmers already see the burden as too big. They are taking an extreme step, one not widely seen since the 1980s: breaching lease contracts, reducing how much land they will sow this spring and risking years-long legal battles with landlords.”
- “Two-thirds (66.7 percent) of bankers told the St. Louis Fed that they expect fewer than 1 percent of farmers to walk away from committed leases this year. ”
- The Federal Reserve on Wednesday Sept. 17th announced that the Federal Funds Rate would remain at its current level.

2014 Average Land Sales Values in the Corn Belt and The Delta

Comparing Mississippi Cropland Values to Other States 2014 (\$/acre)

	Mississippi (Delta Region)	Iowa	Illinois	Indiana	Minnesota	Nebraska
Quality Cropland	\$3,750	\$8,800	\$7,800	\$7,000	\$4,800	\$5,100

Note: Averages for quality cropland with no distinction made between irrigated and non-irrigated

The USDA estimates that between 80 and 85% of all agricultural assets are land

Mississippi Agricultural Lenders, Appraisers, and Farm Managers Surveys

	Average	Minimum	Maximum
Delta Dry Cropland	\$ 124	\$ 75	\$ 150
Delta Irrigated Cropland	\$ 191	\$ 150	\$ 250
Non-Delta Dry Cropland	\$ 105	\$ 50	\$ 150
Non-Delta Irrigated Cropland	\$ 145	\$ 120	\$ 175
Pastureland	\$ 34	\$ 15	\$ 100
Pastureland In \$/AU	\$ 53	\$ 24	\$ 156

- Cash Rental Rates for Mississippi Agricultural Land in Dollars per Acre
- Pastureland in \$/AU assumes 1.2 AU/2 Acres
 - 1 AU = 1000 lb. Animal (1.2 AU = 1 cow/calf Pair)

Profit/Loss For Selected Mississippi Delta Row Crops

Profit Loss Matrix for Irrigated Corn In Mississippi Delta Region Using Survey Rental Rates and Mississippi State University Cropping Budgets

Irrigated Corn

- 8-row 38” equipment irrigated and managed for a 185 bu/acre target yield. Total Specified Expense **\$677/Acre**
- \$191 cash rental rate and \$14/acre crop insurance premium
- Corn Currently around \$3.60/BU

	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5	Market Price in \$/BU
80	(\$642.43)	(\$626.43)	(\$610.43)	(\$594.43)	(\$578.43)	(\$562.43)	(\$546.43)	(\$530.43)	(\$514.43)	(\$498.43)	(\$482.43)	
100	(\$582.43)	(\$562.43)	(\$542.43)	(\$522.43)	(\$502.43)	(\$482.43)	(\$462.43)	(\$442.43)	(\$422.43)	(\$402.43)	(\$382.43)	
120	(\$522.43)	(\$498.43)	(\$474.43)	(\$450.43)	(\$426.43)	(\$402.43)	(\$378.43)	(\$354.43)	(\$330.43)	(\$306.43)	(\$282.43)	
140	(\$462.43)	(\$434.43)	(\$406.43)	(\$378.43)	(\$350.43)	(\$322.43)	(\$294.43)	(\$266.43)	(\$238.43)	(\$210.43)	(\$182.43)	
160	(\$402.43)	(\$370.43)	(\$338.43)	(\$306.43)	(\$274.43)	(\$242.43)	(\$210.43)	(\$178.43)	(\$146.43)	(\$114.43)	(\$82.43)	
180	(\$342.43)	(\$306.43)	(\$270.43)	(\$234.43)	(\$198.43)	(\$162.43)	(\$126.43)	(\$90.43)	(\$54.43)	(\$18.43)	\$17.57	
200	(\$282.43)	(\$242.43)	(\$202.43)	(\$162.43)	(\$122.43)	(\$82.43)	(\$42.43)	(\$2.43)	\$37.57	\$77.57	\$117.57	
220	(\$222.43)	(\$178.43)	(\$134.43)	(\$90.43)	(\$46.43)	(\$2.43)	\$41.57	\$85.57	\$129.57	\$173.57	\$217.57	
240	(\$162.43)	(\$114.43)	(\$66.43)	(\$18.43)	\$29.57	\$77.57	\$125.57	\$173.57	\$221.57	\$269.57	\$317.57	

Yield in Bu/acre

Profit/Loss For Selected Mississippi Delta Row Crops

Profit Loss Matrix for Irrigated Corn In Mississippi Delta Region Using Survey Rental Rates and Mississippi State University Cropping Budgets

Irrigated Soybeans

- 12-row 30” equipment irrigated and managed for a 65 bu/acre target yield. Total Specified Expenses **\$428/Acre**
- \$191 cash rental rate and \$14/acre crop insurance premium
- Soybeans Currently around \$8.70/BU

Yield in Bu/acre

	8	8.25	8.5	8.75	9	9.25	9.5	9.75	10	10.25	10.5
40	(\$307.82)	(\$297.82)	(\$287.82)	(\$277.82)	(\$267.82)	(\$257.82)	(\$247.82)	(\$237.82)	(\$227.82)	(\$217.82)	(\$207.82)
45	(\$267.82)	(\$256.57)	(\$245.32)	(\$234.07)	(\$222.82)	(\$211.57)	(\$200.32)	(\$189.07)	(\$177.82)	(\$166.57)	(\$155.32)
50	(\$227.82)	(\$215.32)	(\$202.82)	(\$190.32)	(\$177.82)	(\$165.32)	(\$152.82)	(\$140.32)	(\$127.82)	(\$115.32)	(\$102.82)
55	(\$187.82)	(\$174.07)	(\$160.32)	(\$146.57)	(\$132.82)	(\$119.07)	(\$105.32)	(\$91.57)	(\$77.82)	(\$64.07)	(\$50.32)
60	(\$147.82)	(\$132.82)	(\$117.82)	(\$102.82)	(\$87.82)	(\$72.82)	(\$57.82)	(\$42.82)	(\$27.82)	(\$12.82)	\$2.18
65	(\$107.82)	(\$91.57)	(\$75.32)	(\$59.07)	(\$42.82)	(\$26.57)	(\$10.32)	\$5.93	\$22.18	\$38.43	\$54.68
70	(\$67.82)	(\$50.32)	(\$32.82)	(\$15.32)	\$2.18	\$19.68	\$37.18	\$54.68	\$72.18	\$89.68	\$107.18
75	(\$27.82)	(\$9.07)	\$9.68	\$28.43	\$47.18	\$65.93	\$84.68	\$103.43	\$122.18	\$140.93	\$159.68
80	\$12.18	\$32.18	\$52.18	\$72.18	\$92.18	\$112.18	\$132.18	\$152.18	\$172.18	\$192.18	\$212.18

Market Price in \$/BU

Profit/Loss For Selected Mississippi Delta Row Crops

Profit Loss Matrix for Irrigated Corn In Mississippi Delta Region Using Survey Rental Rates and Mississippi State University Cropping Budgets

Irrigated Cotton

- 12-row 38” equipment irrigated and managed for a 1,100 lbs/acre target yield. Total Specified Expense \$929/Acre
- \$191 cash rental rate and \$12/acre crop insurance premium
- Cotton Currently around \$0.64/LB

**NOTE: Profit/loss
For lint only**

Market Price in \$/LB

	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95
800	(\$812.00)	(\$772.00)	(\$732.00)	(\$692.00)	(\$652.00)	(\$612.00)	(\$572.00)	(\$532.00)	(\$492.00)	(\$452.00)	(\$412.00)	(\$372.00)
850	(\$792.00)	(\$749.50)	(\$707.00)	(\$664.50)	(\$622.00)	(\$579.50)	(\$537.00)	(\$494.50)	(\$452.00)	(\$409.50)	(\$367.00)	(\$324.50)
900	(\$772.00)	(\$727.00)	(\$682.00)	(\$637.00)	(\$592.00)	(\$547.00)	(\$502.00)	(\$457.00)	(\$412.00)	(\$367.00)	(\$322.00)	(\$277.00)
950	(\$752.00)	(\$704.50)	(\$657.00)	(\$609.50)	(\$562.00)	(\$514.50)	(\$467.00)	(\$419.50)	(\$372.00)	(\$324.50)	(\$277.00)	(\$229.50)
1000	(\$732.00)	(\$682.00)	(\$632.00)	(\$582.00)	(\$532.00)	(\$482.00)	(\$432.00)	(\$382.00)	(\$332.00)	(\$282.00)	(\$232.00)	(\$182.00)
1050	(\$712.00)	(\$659.50)	(\$607.00)	(\$554.50)	(\$502.00)	(\$449.50)	(\$397.00)	(\$344.50)	(\$292.00)	(\$239.50)	(\$187.00)	(\$134.50)
1100	(\$692.00)	(\$637.00)	(\$582.00)	(\$527.00)	(\$472.00)	(\$417.00)	(\$362.00)	(\$307.00)	(\$252.00)	(\$197.00)	(\$142.00)	(\$87.00)
1150	(\$672.00)	(\$614.50)	(\$557.00)	(\$499.50)	(\$442.00)	(\$384.50)	(\$327.00)	(\$269.50)	(\$212.00)	(\$154.50)	(\$97.00)	(\$39.50)
1200	(\$652.00)	(\$592.00)	(\$532.00)	(\$472.00)	(\$412.00)	(\$352.00)	(\$292.00)	(\$232.00)	(\$172.00)	(\$112.00)	(\$52.00)	\$8.00

Yield in lbs./acre

Profit/Loss Matrix for Southeastern Cow/Calf Producers

Pastureland values and rents have increased slightly. The following table shows the profit margins on a per-calf basis assuming \$30/acre cash rents and operating cost estimates from last year. (2014)

Assuming a stocking rate of 2 acres per pair, and about a 10% death loss/open rate: returns per acre for cow/calf operators may be approaching around \$150/acre in Mississippi for 2014-2015.

%TARGET WEIGHT	Weight	\$1	\$1.25	\$1.50	\$1.75	\$2.00	\$2.25	\$2.50	\$2.75	\$3.00	\$3.25
85.0%	510	(573.98)	(446.48)	(318.98)	(191.48)	(63.98)	63.52	191.02	318.52	446.02	573.52
87.5%	525	(558.98)	(427.73)	(296.48)	(165.23)	(33.98)	97.27	228.52	359.77	491.02	622.27
90.0%	540	(543.98)	(408.98)	(273.98)	(138.98)	(3.98)	131.02	266.02	401.02	536.02	671.02
92.5%	555	(528.98)	(390.23)	(251.48)	(112.73)	26.02	164.77	303.52	442.27	581.02	719.77
95.0%	570	(513.98)	(371.48)	(228.98)	(86.48)	56.02	198.52	341.02	483.52	626.02	768.52
97.5%	585	(498.98)	(352.73)	(206.48)	(60.23)	86.02	232.27	378.52	524.77	671.02	817.27
100.0%	600	(483.98)	(333.98)	(183.98)	(33.98)	116.02	266.02	416.02	566.02	716.02	866.02
102.5%	615	(468.98)	(315.23)	(161.48)	(7.73)	146.02	299.77	453.52	607.27	761.02	914.77
105.0%	630	(453.98)	(296.48)	(138.98)	18.52	176.02	333.52	491.02	648.52	806.02	963.52
107.5%	645	(438.98)	(277.73)	(116.48)	44.77	206.02	367.27	528.52	689.77	851.02	1012.27



Mississippi Agricultural Lenders, Appraisers, and Farm Managers Surveys

	Mississippi	Iowa	Illinois	Indiana
Corn (\$3.60)	(\$162)	(\$114)	(\$237)	(\$50)
Soybeans (\$8.60)	(\$59)	(\$81)	(\$228)	(\$50)
Cotton (\$0.70)	(\$362)			

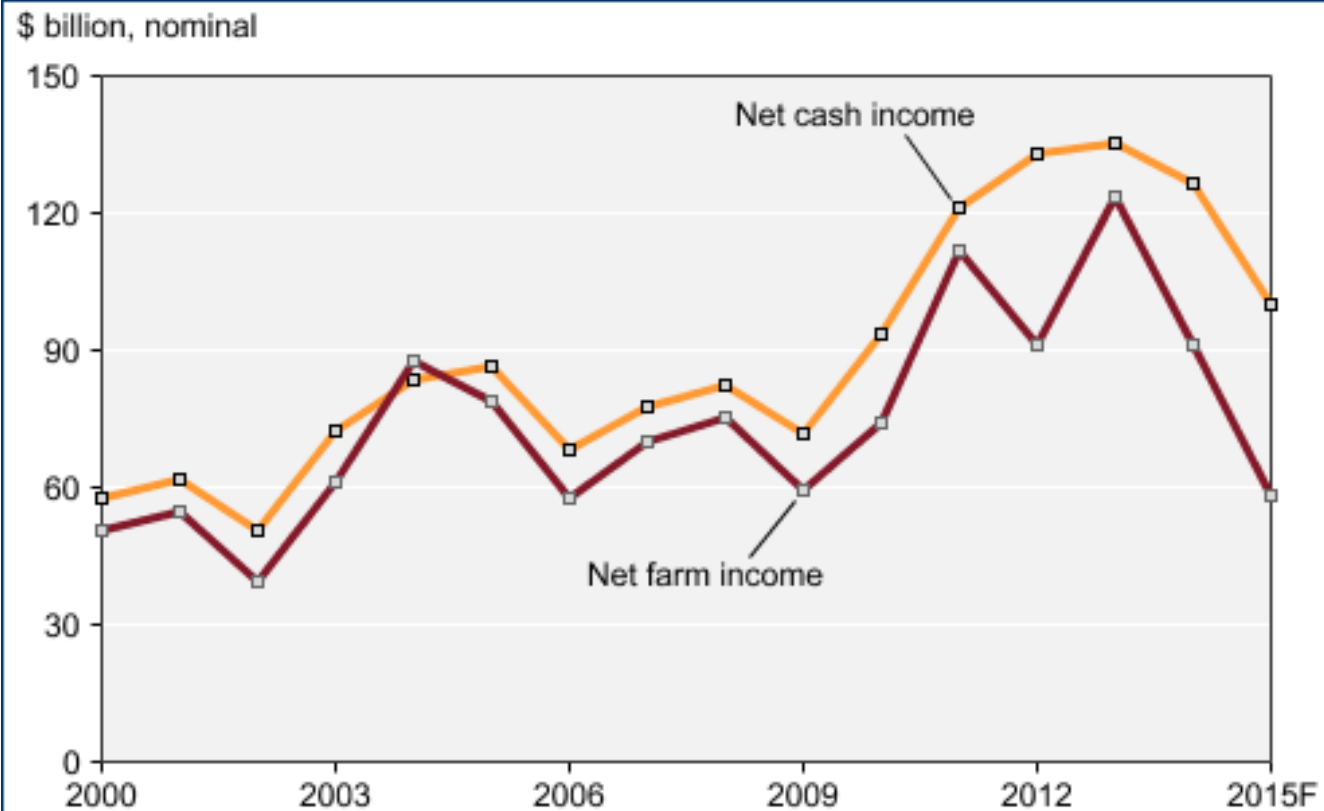
Expected Profit/Loss including cash rental rates for Mississippi and selected Corn Belt States

Expectations are that commodity prices for the selected commodities above will remain near the Prices shown in the table for 2015

Summary of Net Revenues Not Including Land/Rental Payments

- At current Rental Rates, Land Payment Levels, Commodity Prices, and Operating Costs:
 - Returns are well below 0 where losses for many crops may exceed \$300/acre.

Net farm income and net cash income, 2000-2015F



Note: F = Forecast.

Source: USDA, Economic Research Service, Farm Income and Wealth Statistics.
Data as of August 25, 2015.

Ag. Lending and Land Values Outlook

Outlook on Land and Property Values

Cropland:

Low crop commodity prices have slowed or halted the decades long increase in land values and cash rents.

Expectations are that another year of low commodity prices relative to the overall sales value will put further downward pressure on agricultural land.

Pastureland:

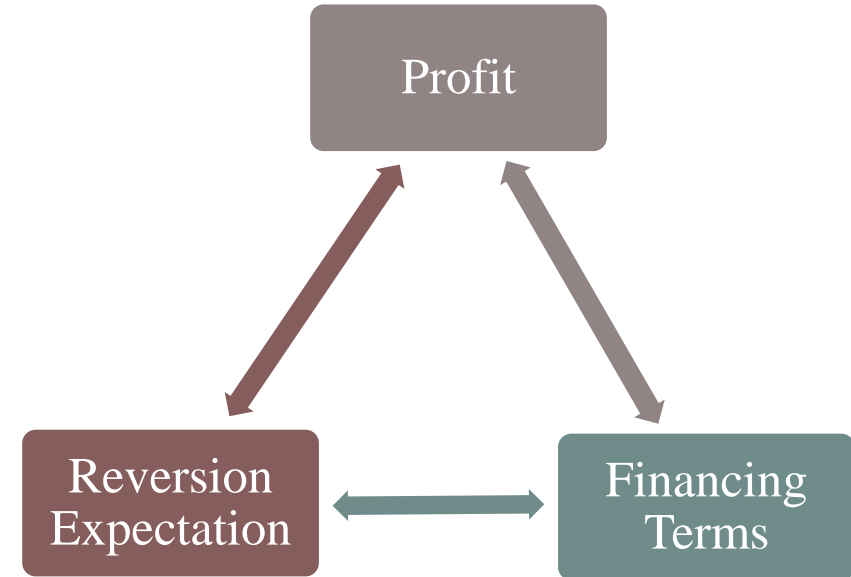
High cattle prices and low commodity prices mean good margins for beef producers. This putting upward pressure on pastureland values and rents.

A jump in interest rates in 2015 may slow the growth in pastureland values

Effect of Interest on Land

Returns

- Expected Returns Includes:
 - Annual Expected Profits
 - Reversion (Resale Value)
 - **Financing/Lending Conditions (Interest Rates, Term, Required Initial Equity, and other Market Options)**



Effect of Interest on Land

- Interest rates/availability of funds is an often overlook but very important component of valuation/appraisal
 - Interest Rates Directly Affects Owner Debt/Equity
 - As interest rates increase, the overall size of the loan increases.
 - As the overall size of the loan increases, the payment must increase holding the term the same
 - Holding average income across farms constant: As the payment increases, the amount of potential buyers decreases putting downward pressure on resale value

Fundamentals of Ag. Land/Property Valuation and Lending

Example:

Iowa corn ground selling for \$12,000 per acre

- At 4.5% interest that is an annual payment of \$432/acre (20% down payment)
- At 6% interest that is \$576/acre (20% down payment)
- A payment difference of \$144 per acre

To maintain payments of \$432/acre, with a 20% down payment: The sales value of the land must fall from \$12,000/acre to \$9,000/acre with an increase in the interest rate of 1.5%. (20 year note)

Interest Rates

- Interest rates have hit historically low levels making borrowing money cheap.
- Availability of historically easy money, coupled with historically high commodity prices made the purchasing of land over the last 10 years much easier increasing the number of market participants.



Mississippi Agricultural Lenders, Appraisers, and Farm Managers Surveys

	Average	Minimum	Maximum
	Variable Interest Rates		
Operating Loans	4.1%	3.0%	5.0%
Intermediate Loans	4.1%	3.5%	5.0%
Long Term and Real Estate	4.1%	3.3%	5.3%
	Fixed Interest Rates		
Operating Loans	4.6%	3.5%	5.0%
Intermediate Loans	4.7%	4.0%	7.0%
Long Term and Real Estate	5.1%	4.0%	6.0%

Current Interest rates being Offered by Lenders in Mississippi

	Increase	Decrease	No Change
Operating Loans	80%	0%	20%
Intermediate Loans	83%	0%	17%
Long Term and Real Estate	88%	0%	12%
Farm Incomes	0%	81%	19%

Expectation of Interest Rate Movement In the next 12 months

St. Louis Federal Reserve Agricultural Lenders Surveys

Interest rates for the Federal Reserve District St. Louis

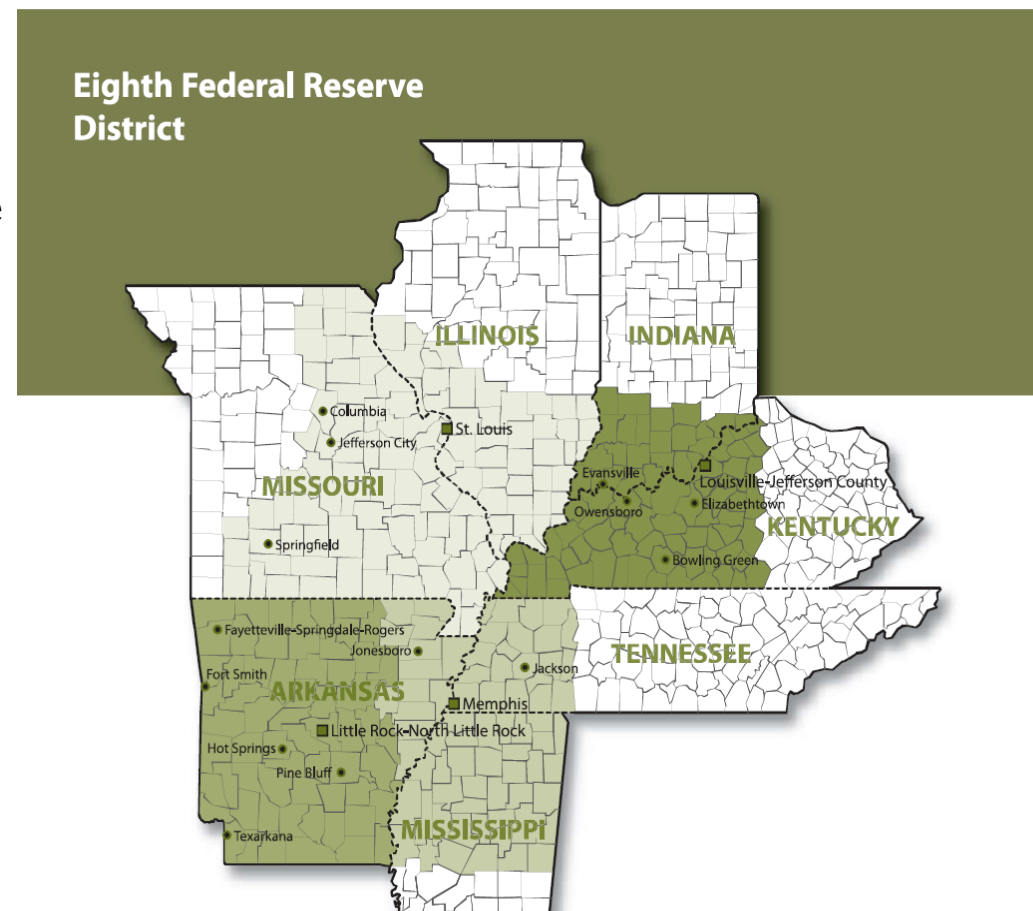
Operating Loans	Q2:2015	Q2:2014	Percent Change
Fixed	5.37%	5.37%	0%
Variable	4.96%	4.94%	0.02%

Machinery/intermediate Term Loans

Fixed	5.56%	5.58%	-0.02%
Variable	5.14%	5.15%	-0.01%

Farm real estate

Fixed	5.22%	5.18%	0.04%
Variable	4.79%	4.82%	0.03%



Mississippi Agricultural Lenders, Appraisers, and Farm Managers Surveys

	Increase	Decrease	No Change
Delta Dry Cropland	8%	54%	38%
Delta Irrigated Cropland	8%	42%	50%
Non-Delta Dry Cropland	15%	35%	50%
Non-Delta Irrigated Cropland	11%	31%	58%
Pastureland	29%	8%	63%
	Increase	Decrease	No Change
Delta Dry Cropland	0%	73%	27%
Delta Irrigated Cropland	5%	50%	45%
Non-Delta Dry Cropland	0%	67%	33%
Non-Delta Irrigated Cropland	0%	59%	41%
Pastureland	10%	15%	75%

**Expectations for Land Value Movement
over the Next 12 Months**

**Expectations for Cash Rents
over the Next 12 Months**

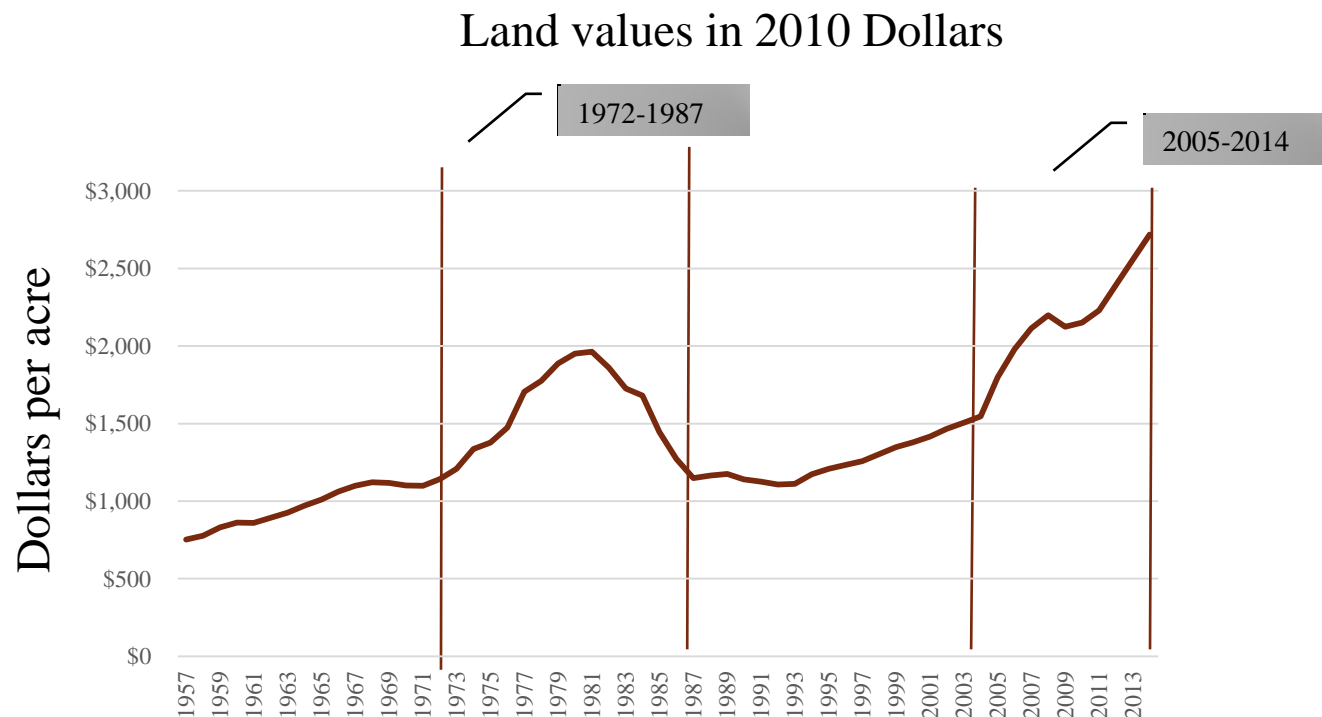
Mississippi Agricultural Lenders, Appraisers, and Farm Managers Surveys

Loan to Value ratio's reflect the amount of the purchase that the lender is willing to finance. For example if the borrower makes a 20% down payment, the loan to value ratio would be 0.80. Higher loan to value amounts reflect the lenders expectation that the asset is likely to appreciate.

	Average	Minimum	Maximum
Land Or Real Estate	0.78	0.60	0.85
Machinery or Equip	0.756	0.50	1.0
Cattle Purchases	0.668	0.50	0.75

Loan to value ratios have fallen in the last year where anecdotal data showed loan to values Approaching 0.85-0.90 for land purchases on average.

Comparing the situation in the 1980's to Now



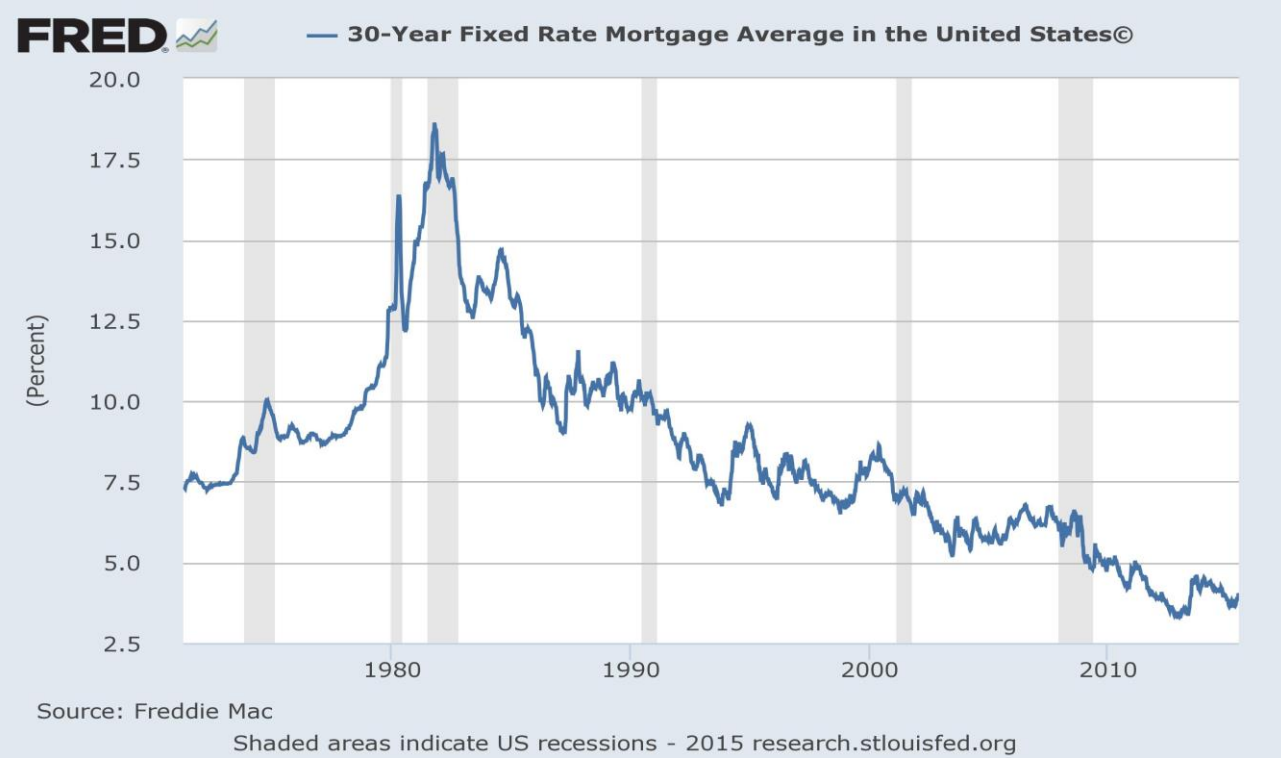
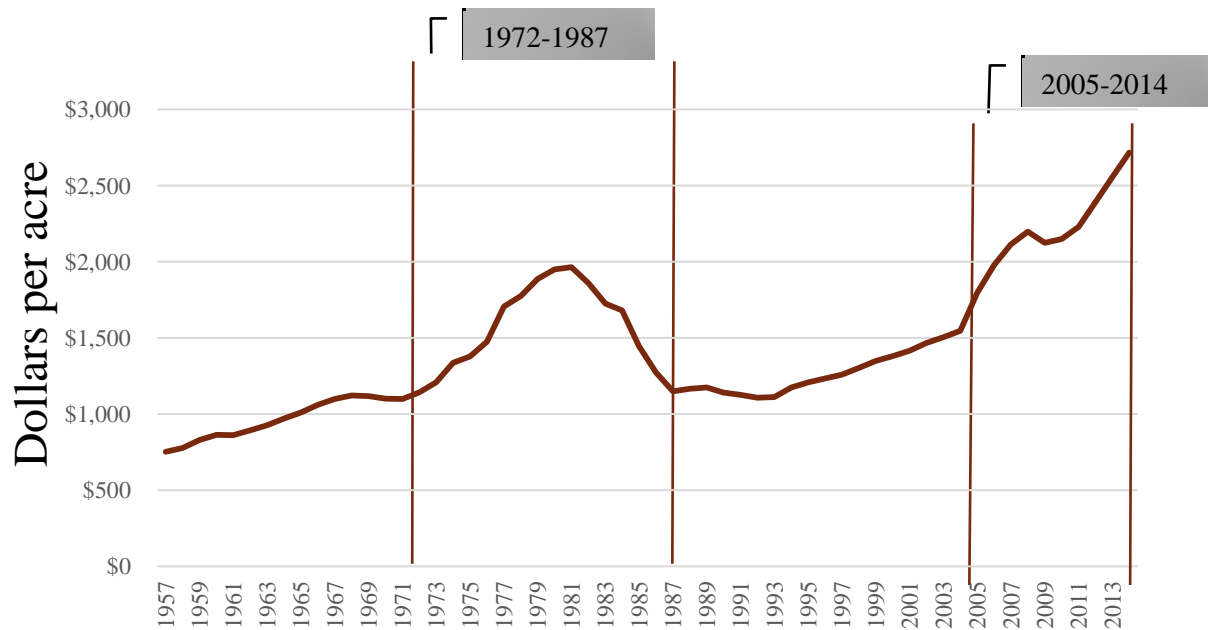
Comparing land Spike in Agricultural Land Values 1970's and 1980's, to the recent spike 2005 to present.

1972-1987: Land values increase from \$1,142/acre to \$1,950/acre then back down to \$1,150/acre. A 70% increase

2004 Land Values at \$1,547/acre.
2014 Land Values at \$2,717/acre. A 75% increase.

Comparing the situation in the 1980's to Now

Land values in 2010 Dollars



Agricultural Food Price Index

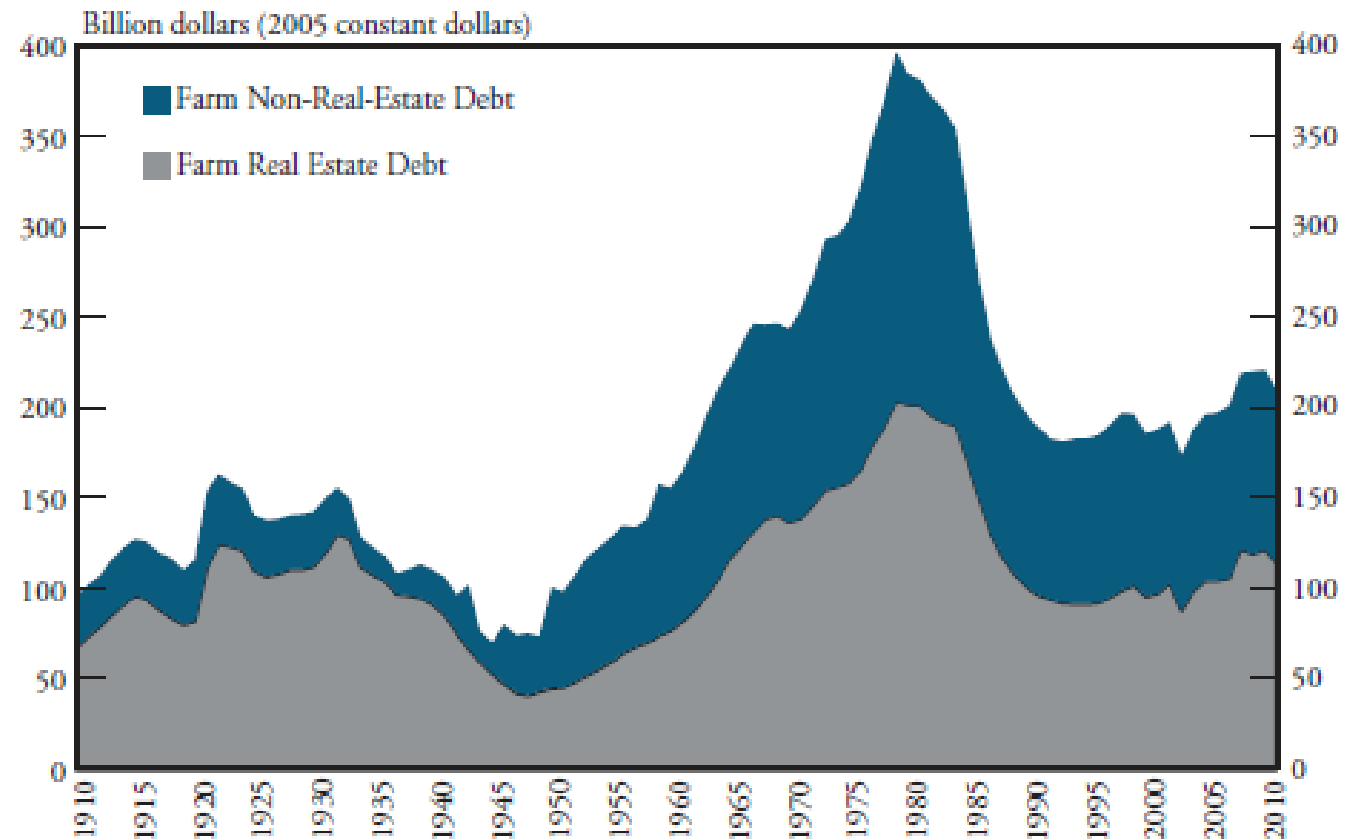


Comparing the situation in the 1980's to Now

Farm debt is expected to increase at least 6% by the end of 2015

The default rate in 2015 through 2016 is expected to increase modestly

U.S. FARM DEBT



Note: Calculations based on U.S. Census Bureau and USDA data deflated with CPI from the Federal Reserve Bank of Minneapolis.

Comparing the situation in the 1980's to Now

- The average loan to value in the 80's was 60% on Land (As shown earlier it was, and is, much higher now)
- The average real cost of borrowing in the 80's was 2.41%.....Currently the average is 5%
- The debt to asset ratio is **higher** today than it was in 1979

- **Most buyers of farmland are other farmers and the average is not what will drive any bust, but the tails (margin). The average is affected to what happens in the tails (margin).**

Comparing the situation in the 1980's to Now

Conditions for a potential “1980's” drop in values

- Some farmers have not let assets appreciate to market levels
 - This creates a situation where asset values may drop but not to the extent that attaining credit is a problem
- Low commodity prices and high input costs cannot be sustained indefinitely
 - Losses from previous years are collateralized and rolled into longer term debt
- Sustained losses accelerates downward pressure
 - Losses or negative returns to land reduces the value of land,
 - A reduction in value lowers the amount of assets relative to debt and makes getting credit more difficult, which in turn lowers asset values.

Comparing the situation in the 1980's to Now

Conditions for a potential “1980's” drop in values (Continued)

- Credit gets tightened reducing the ability for farmers to buy land or at least lowers potential bid prices
- Often an indicator of a market price drop in land is a period of no sales

The South however is not as susceptible to a large drop as the nominal increase in tillable land values did not rise to the levels of the corn belt.

Alternatives Going Forward

Alternative to purely cash or share lease

- Retired landlords want a reliable source of income
 - **Makes Share Agreements less attractive**
- Fluctuating commodity prices generates risk for both the landlord and tenant
 - **Makes Cash and Share Rents Risky**
- Flexible Cash Leases have been offered as an alternative giving a guaranteed income to landlords while mitigating the risk to the tenant

Thank You



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