Thomas M Hoenig: Recent developments in US agriculture and its role in the US economy

Statement by Mr Thomas M Hoenig, President of the Federal Reserve Bank of Kansas City, before the Senate Committee on Agriculture, Nutrition and Forestry, Washington DC, 17 February 2011.

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Thank you, Madam Chair. I appreciate the opportunity to discuss recent developments in U.S. agriculture and its role in the U.S. economy. Agriculture remains a vital industry in the expansive region that the Federal Reserve Bank of Kansas City serves and, accordingly, our Bank has a long tradition of focusing significant attention on industry developments. Our observations on agriculture, in turn, have given us useful insight into the U.S. and global economies more broadly. In my remarks this morning, I'll describe recent developments in the nation's farm economy and discuss some risks that have my attention.

Recent developments in U.S. agriculture

Agriculture – broadly defined as farm production and output from related industries – accounts for almost one-sixth of U.S. jobs and economic activity. While the farm share of economic output has declined as other parts of our economy have grown, increased activity in broader agricultural industries – manufacturing, transportation, distribution and food retailing – has opened new job opportunities in both rural and metro communities.

A robust agricultural sector cushioned the rural economy in our and other regions across the nation during the recent recession, and the industry's strength is supporting further improvement in the rural economy today. In 2010, strong demand and tight supplies for most farm commodities contributed to a sharp rebound in farm profits, which then supported sales in farm equipment and other farm-based industries. Strong profits from agriculture also girded important elements of our rural financial system. Commercial banks with large agricultural loan portfolios posted stronger returns than their peers over the past three years. While more than 300 commercial banks failed during this time, only 22 were agricultural banks.

Agriculture is also benefitting directly from the rebounding economic strength of China and other emerging market economies, where rapid income growth is driving up food demand. The United States remains a net exporter of agricultural products, shipping more than 40 percent of its wheat, cotton, soybeans and rice crops to foreign countries in 2010. United States crop and meat exports are expected to rise to record highs in 2011. Looking out a little further, economists expect global growth to exceed 4 percent well into 2012, with the developing and emerging market economies remaining in the lead. Rapid income gains in the developing world promise further increases in demand for higher-protein diets.

Developing risks in agriculture

Despite prospects of sustained farm income growth, U.S. producers must remain alert as they face challenges related to their very success and tied to recent developments in financial markets. Surging commodity prices and low interest rates have translated into increasing farmland values, which have eclipsed their 1980s peaks. In our Bank's fourth quarter 2010 Survey of Agricultural Credit Conditions, for example, cropland values in Nebraska and Kansas were nearly 20 percent above year-ago levels and more than 75 percent higher than five years ago.

This run-up in farmland values has occurred, however, amid financial markets characterized by high levels of liquidity and unusually low interest rates. History has taught us that it is nearly impossible to determine how much of the farmland boom may be an unsustainable bubble driven by financial markets and how much results from fundamental changes in demand and supply conditions. Therefore, it will surprise no one when I say we are watching the market closely, just as we are watching for imbalances emerging elsewhere in the economy.

Of particular interest to me is how agriculture might adjust when financial markets return to more-normal interest rate conditions. Rising interest rates often coincide with falling farm revenues and higher capitalization rates, a depressing combination for farmland values. Moreover, even if crop prices remain high but capitalization rates return to their historic average, farmland values could fall by as much as a third, which most certainly would erode the financial health of the farm sector.

Fortunately, the industry entered this period with a relatively strong balance sheet. Farm leverage ratios are at historic lows, and agricultural banks are well capitalized. In addition, farm operators and banks have strengthened their risk-management practices, using basic hedging strategies and derivative markets to manage price and balance sheet risk, which contributed to smaller increases in problem assets at agricultural banks than at their peers. Nevertheless, I follow the basic lesson that bad loans are made in good times, and I remain watchful.

In closing, I'll briefly highlight a symposium the Federal Reserve Bank of Kansas City hosted last summer to consider agriculture's response to the extraordinary shifts occurring in market conditions. There was a marked and, in my view, a very healthy consensus that the industry's success will lie not in its ability to follow a single path, but in its ability to adapt quickly to shifting economic landscapes and conditions. Still, my nagging concern remains that current distortions in financial markets are increasing the risk that imbalances in asset markets will catch agriculture – and the U.S. economy more generally – by surprise once again.

Thank you Madam Chair.

Memorandum

January 14, 2011

To: Thomas Hoenig, Esther George, Diane Raley, Alan Barkema, Kevin Moore
From: Jason Henderson and Brian Briggeman
Subject: Farmland Values and Interest Rate Risk

Higher crop prices and lower interest rates have fueled a surge in farmland values, raising concerns about a bubble in the agricultural real estate market. Since June, grain prices have doubled, and futures markets suggest that prices could remain elevated through 2014. Still, historically low interest rates and capitalization rates are needed to justify current farmland values.

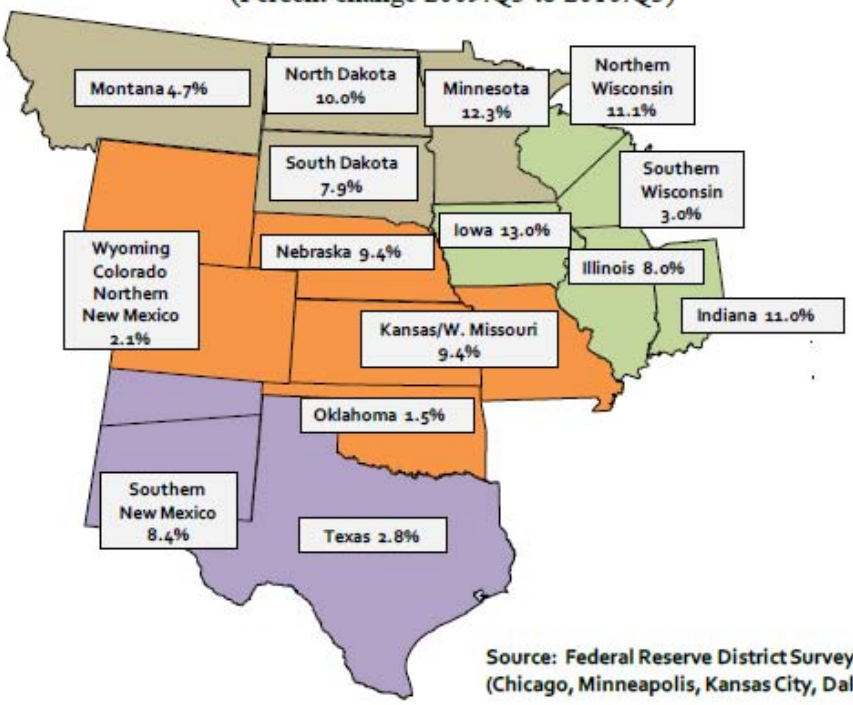
Over the past year, farmland values have posted double-digit gains, with additional gains expected in 2011 (Map 1). By the beginning of 2010, U.S. farmland values had risen more than 15 percent above 2005 levels, lifting the total value of U.S. farmland to almost $2 trillion (Chart 1). While farmers own the majority of U.S. farmland, non-farm investors are buying more land. According to a 2010 Iowa State University report, investors accounted for a quarter of Iowa farmland sales.

Low interest rates, which have depressed capitalization rates, contributed to the recent spike in farmland values. Capitalization rates on U.S. farmland have fluctuated over time, falling in periods of negative real interest rates – 1970s and 2000s – and rising during periods of higher real interest rates – 1980s. According to USDA data, Nebraska's capitalization rate on cropland was 5.1 percent at the beginning of 2010, well below its historical average of 7.5 percent (Chart 2). Despite regional variation, capitalization rates on farmland values have fallen to record lows across the nation, with rates below 5 percent in most states (Map 2). Oklahoma and Texas have lower capitalization rates due to mineral rights inflating farmland values.

Given low capitalization rates, farmland values face significant interest rate risk. For example, irrigated cropland in eastern Nebraska is valued at $5,000 per acre. A historically low capitalization rate of 5 percent is needed to rationalize this land value at current corn prices and yields (Table 1). If interest rates would rise and lift capitalization rates to their historical average of 7.5 percent, the capitalized value of irrigated farmland in eastern Nebraska could fall by a third to $3,300 per acre (Chart 3). If capitalization rates would rise to 10 percent as they did during the 1980s farm crisis, land values could drop by half. Additional analysis suggests that other regions face similar interest rate risks.

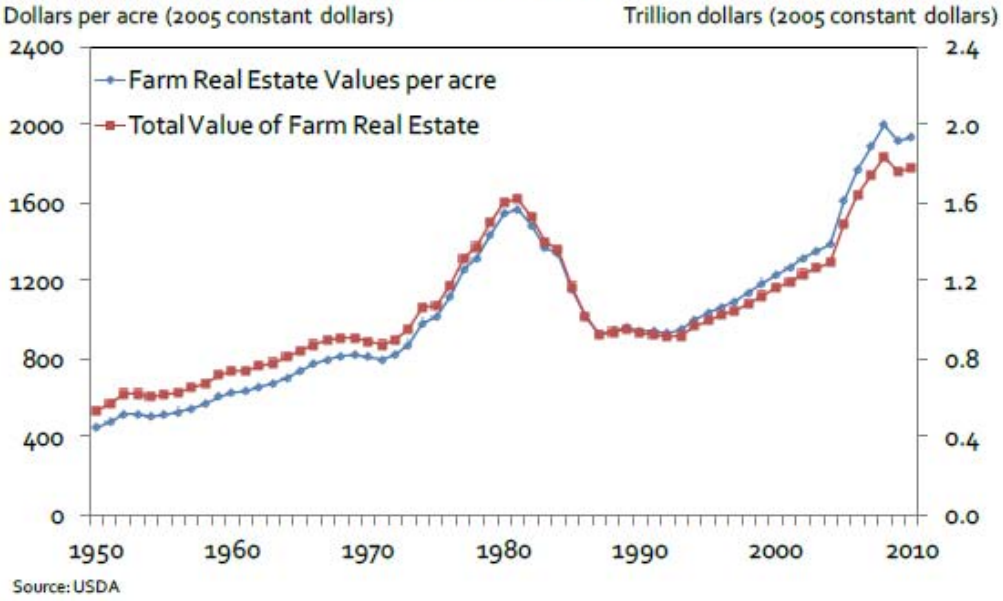
Rising interest rates could also cut farmland values by reducing farm revenues. Higher interest rates tend to raise exchange rates, which limits agricultural exports, in turn depressing commodity prices and farm revenues. In 1981, the spike in real interest rates led to higher exchange rates and contributed to lower agricultural exports. With falling exports, commodity prices and farm revenues dropped, which pushed farmland values to their 1985 lows. If a similar event occurred today, farmland values could fall. For example, if capitalization rates return to their historical average and corn prices drop to $4 per bushel, their 2009 average, irrigated land values in eastern Nebraska could fall almost 50 percent to $2,700 per acre (Chart 4). Other regions face similar risks. In sum, rising interest rates could trigger a sharp decline in farmland values.

Map 1:
Non-irrigated Cropland Values
(Percent change 2009:Q3 to 2010:Q3)



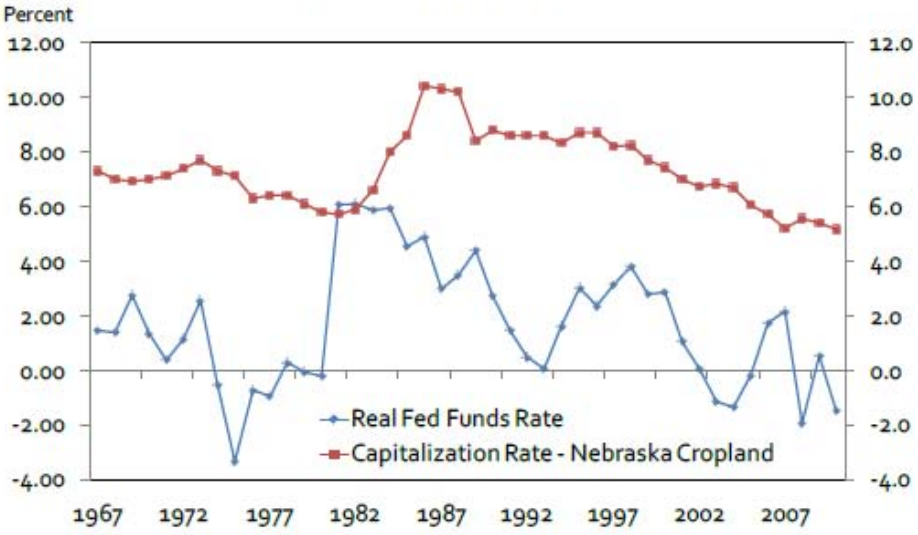
Source: Federal Reserve District Surveys
(Chicago, Minneapolis, Kansas City, Dallas)

Chart 1:
Real U.S. Farmland Values



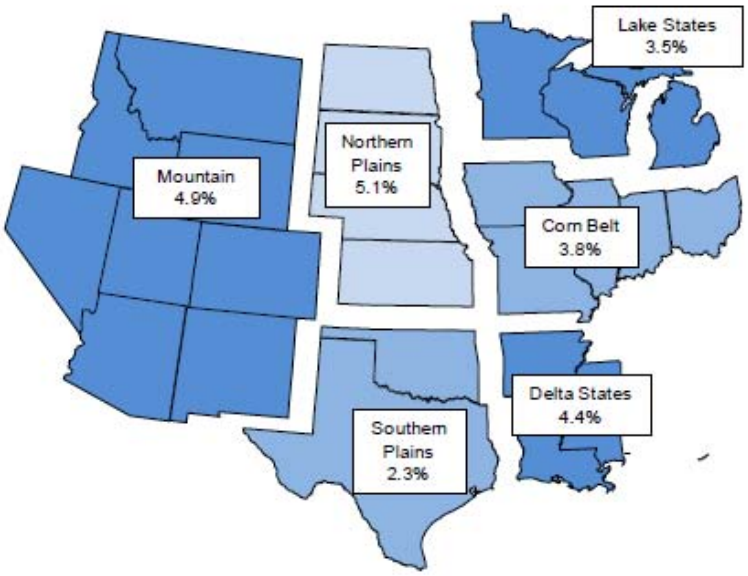
Source: USDA

Chart 2:
Capitalization Rate on Nebraska Farmland (Cash Rent/Land Value) and Real Fed Funds Rate



Source: USDA and Federal Reserve

Map 2:
Capitalization Rates on Cropland across USDA Regions



Calculations based on USDA Land Values and Cash Rents, January 1, 2010 data

Table 1: Implied Capitalization Rate on Eastern Nebraska Irrigated Cropland

Land values should equal capitalized revenues

$$\text{Land Values} = \frac{\text{Expected Revenues}}{\text{Capitalization Rate}}$$

Assumptions:

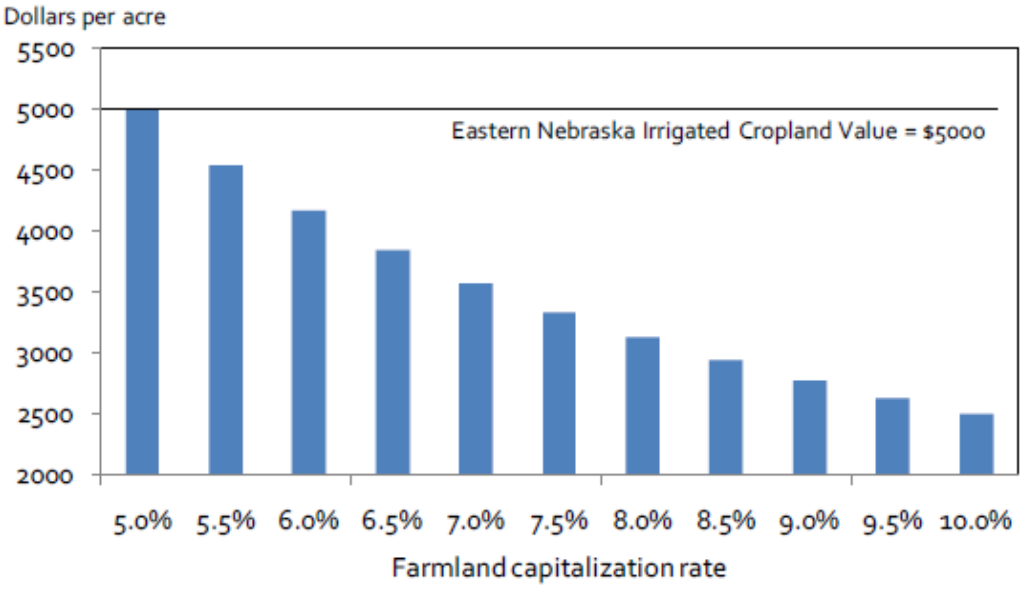
Corn Price: $5.00 per bushel

25% of gross revenues go to land

	Yield (bushel per acre)	
	150 bushels	200 bushels
Capitalization rate		
5%	3750	5000

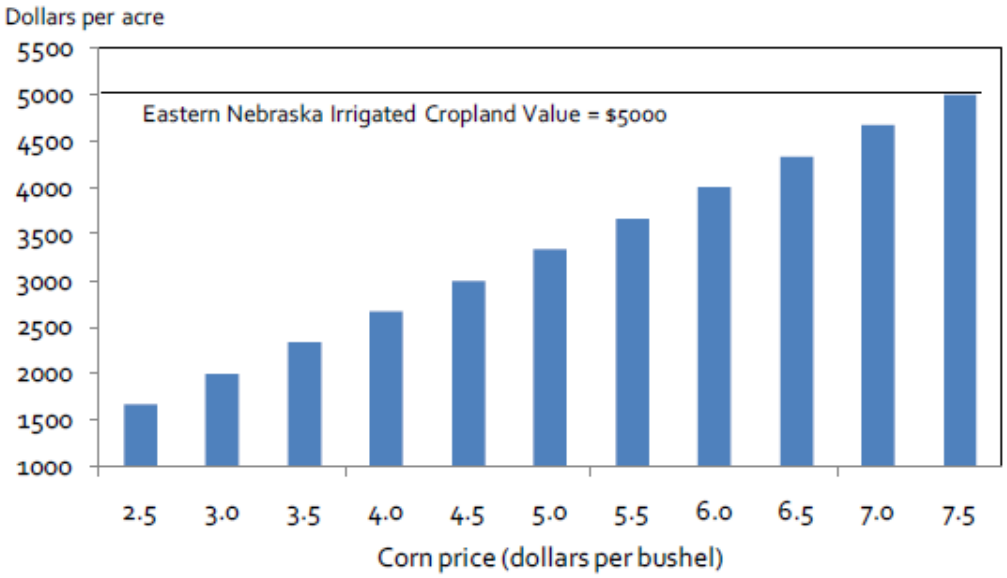
Note: Nebraska irrigated corn yield 198 bushels per acre (2009 average)
U.S. average annual price $5.20 per bushel (2010 average)

Chart 3:
Capitalized Revenues (Land Values) on Nebraska Irrigated Cropland Assuming Corn Prices at $5 per Bushel



Authors' calculations assuming 200 bushels per acre and 25% of gross revenues capitalized into land.

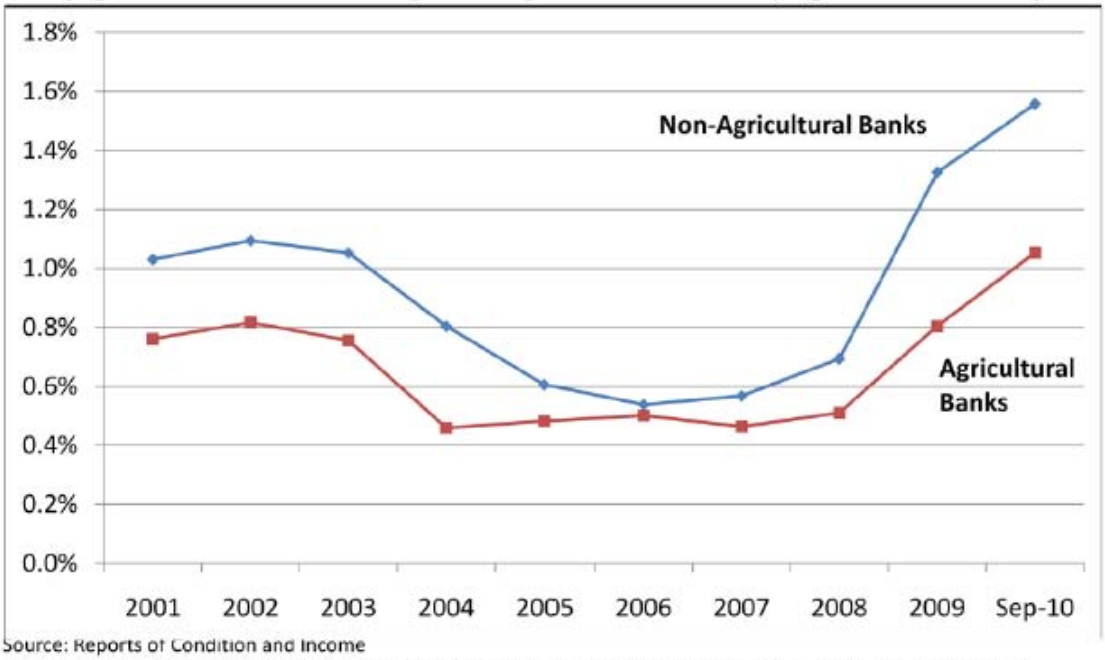
Chart 4:
Capitalized Revenues (Land Values) on Nebraska Irrigated Cropland Assuming a Capitalization Rate of 7.5%



Authors' calculations assuming 200 bushels per acre and 25% of gross revenues capitalized into land.

Agricultural Loan Noncurrent Rates

(Agricultural loans 90+ days delinquent + nonaccrual/Agricultural Loans)

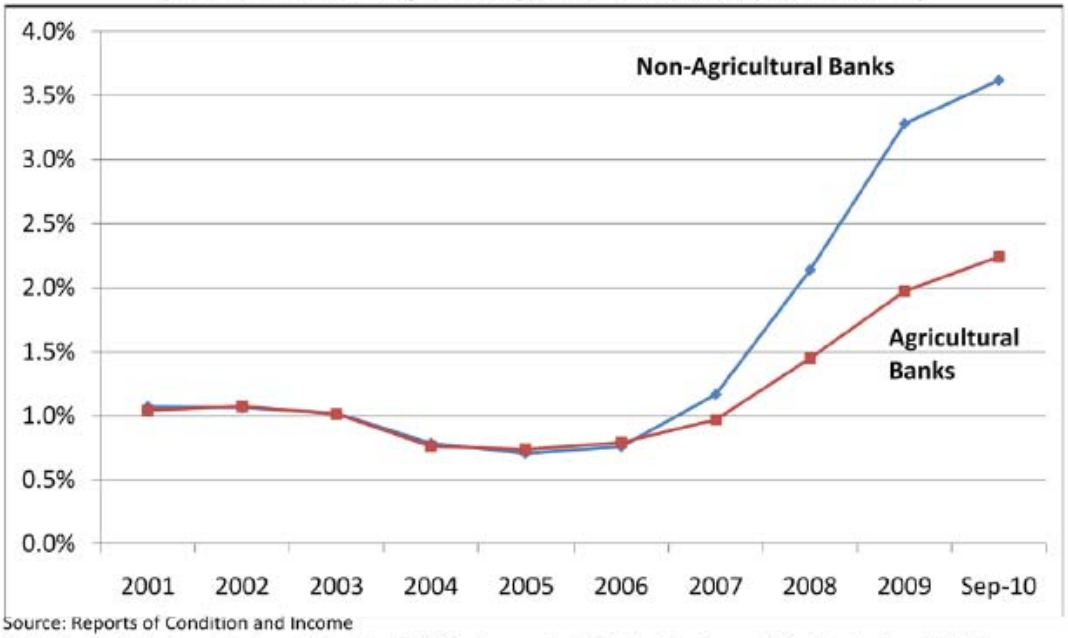


Source: Reports of Condition and Income

Note: Sample includes all banks with less than $1 billion in assets. Agricultural banks are defined as banks with total agricultural loans > 300% of Tier 1 Capital

Total Loan Noncurrent Rates

(Total loans 90+ days delinquent + nonaccrual/Total Loans)

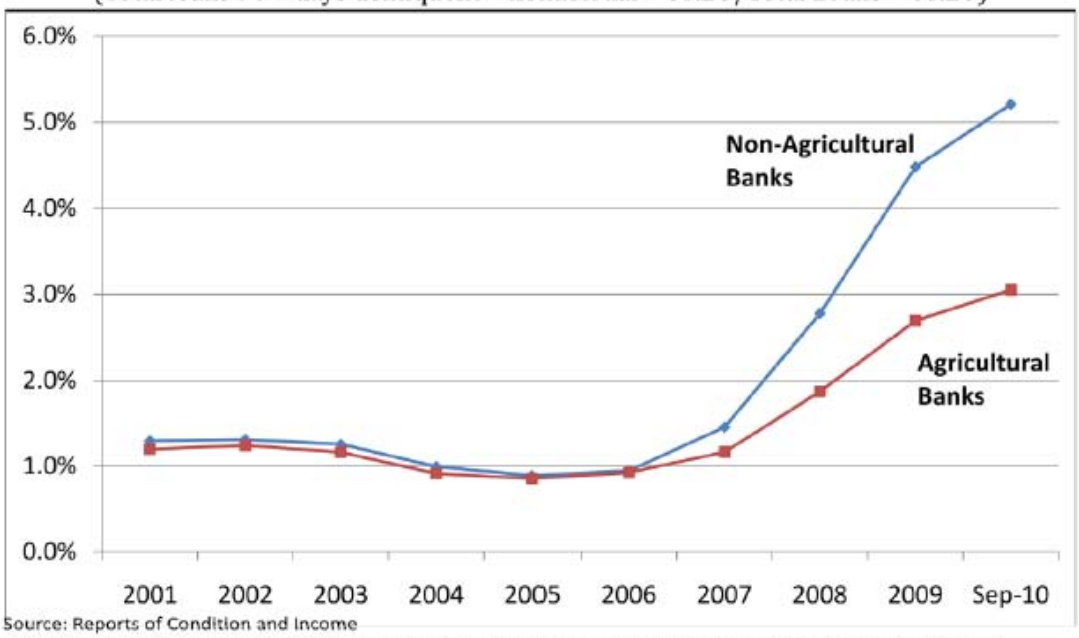


Source: Reports of Condition and Income

Note: Sample includes all banks with less than $1 billion in assets. Agricultural banks are defined as banks with total agricultural loans > 300% of Tier 1 Capital

Nonperforming Assets

(Total loans 90+ days delinquent + nonaccrual + OREO/Total Loans + OREO)



Source: Reports of Condition and Income

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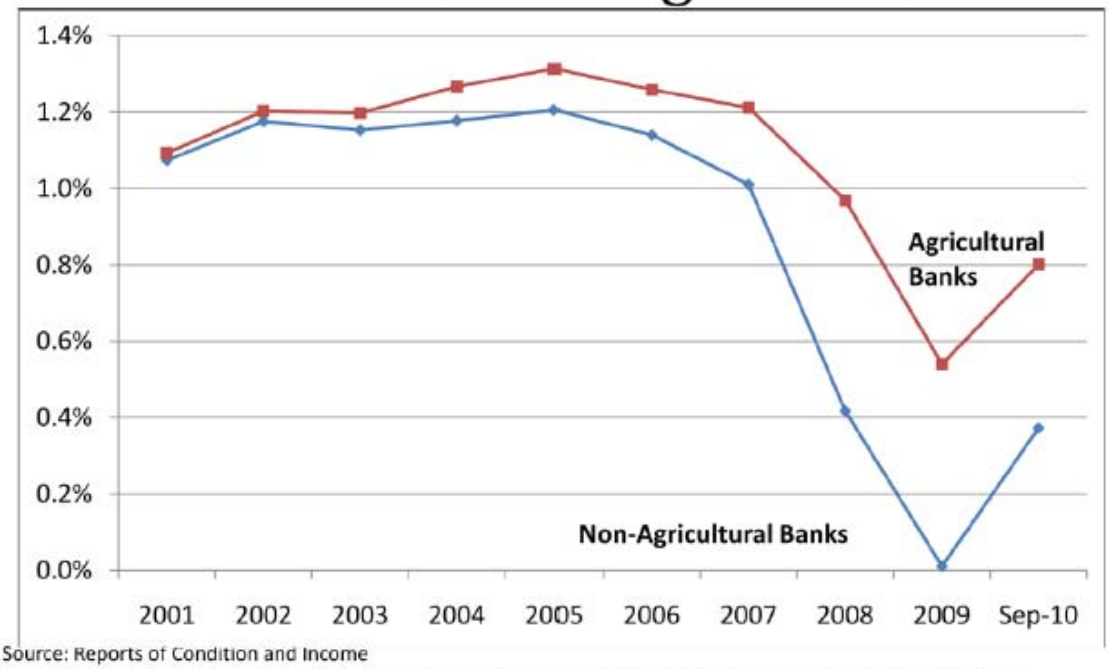
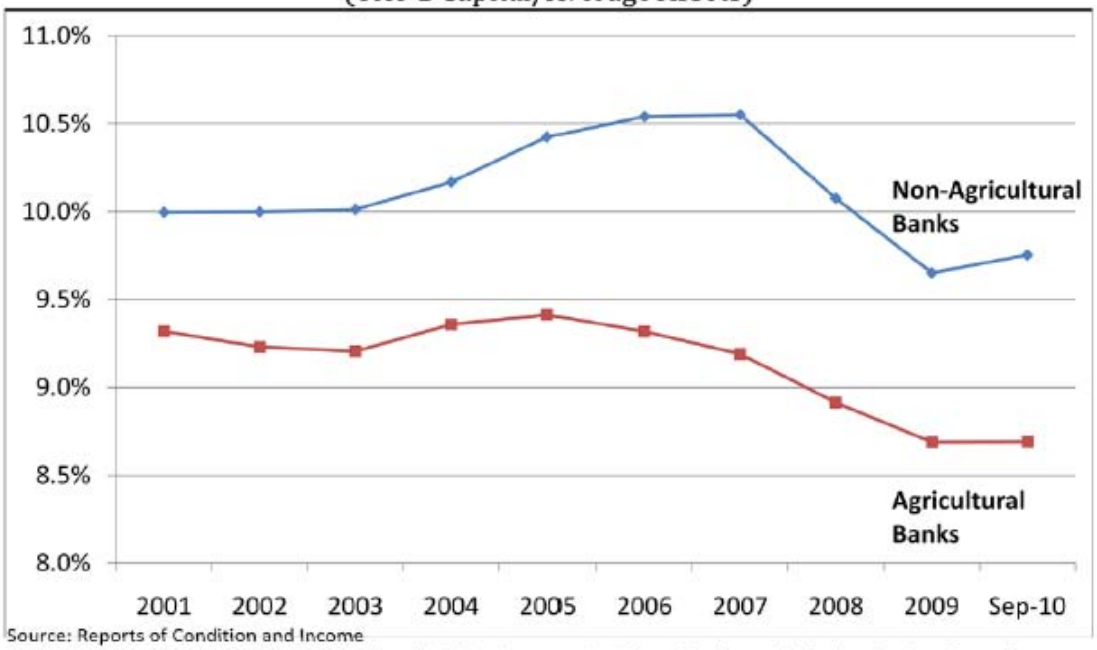
Return on Average Assets



Source: Reports of Condition and Income
Note: Sample includes all banks with less than $1 billion in assets. Agricultural banks are defined as banks with total agricultural loans > 300% of Tier 1 Capital

Capital Ratios

(Tier 1 Capital/Average Assets)



Source: Reports of Condition and Income
Note: Sample includes all banks with less than $1 billion in assets. Agricultural banks are defined as banks with total agricultural loans > 300% of Tier 1 Capital

	Ag Loan Noncurrent Rates		Total Loan Noncurrent Rate		Nonperforming Assets		ROAA		Capital Ratios	
	Non-Ag Banks	Ag Banks	Non-Ag Banks	Ag Banks	Non-Ag Banks	Ag Banks	Non-Ag Banks	Ag Banks	Non-Ag Banks	Ag Banks
2001	1.03%	0.76%	1.07%	1.04%	1.30%	1.20%	1.07%	1.09%	10.00%	9.32%
2002	1.09%	0.82%	1.06%	1.07%	1.31%	1.24%	1.18%	1.20%	10.00%	9.23%
2003	1.05%	0.76%	1.02%	1.02%	1.26%	1.16%	1.15%	1.20%	10.01%	9.21%
2004	0.80%	0.46%	0.79%	0.76%	0.99%	0.91%	1.18%	1.27%	10.17%	9.36%
2005	0.61%	0.48%	0.71%	0.74%	0.89%	0.85%	1.21%	1.31%	10.43%	9.41%
2006	0.54%	0.50%	0.76%	0.79%	0.94%	0.92%	1.14%	1.26%	10.54%	9.32%
2007	0.57%	0.46%	1.17%	0.97%	1.46%	1.17%	1.01%	1.21%	10.55%	9.19%
2008	0.69%	0.51%	2.14%	1.45%	2.78%	1.87%	0.42%	0.97%	10.08%	8.91%
2009	1.33%	0.80%	3.28%	1.97%	4.48%	2.69%	0.01%	0.54%	9.65%	8.69%
Sep-10	1.56%	1.05%	3.62%	2.24%	5.21%	3.05%	0.37%	0.80%	9.75%	8.69%

Note: Sample includes all banks with less than $1 billion in assets. Ag banks are defined as banks with total ag loans > 300% of Tier 1 Capital