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Financial Stress in Iowa Farms: 2014-2016

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NC-1177 Annual Meeting
Federal Reserve Bank of Minneapolis
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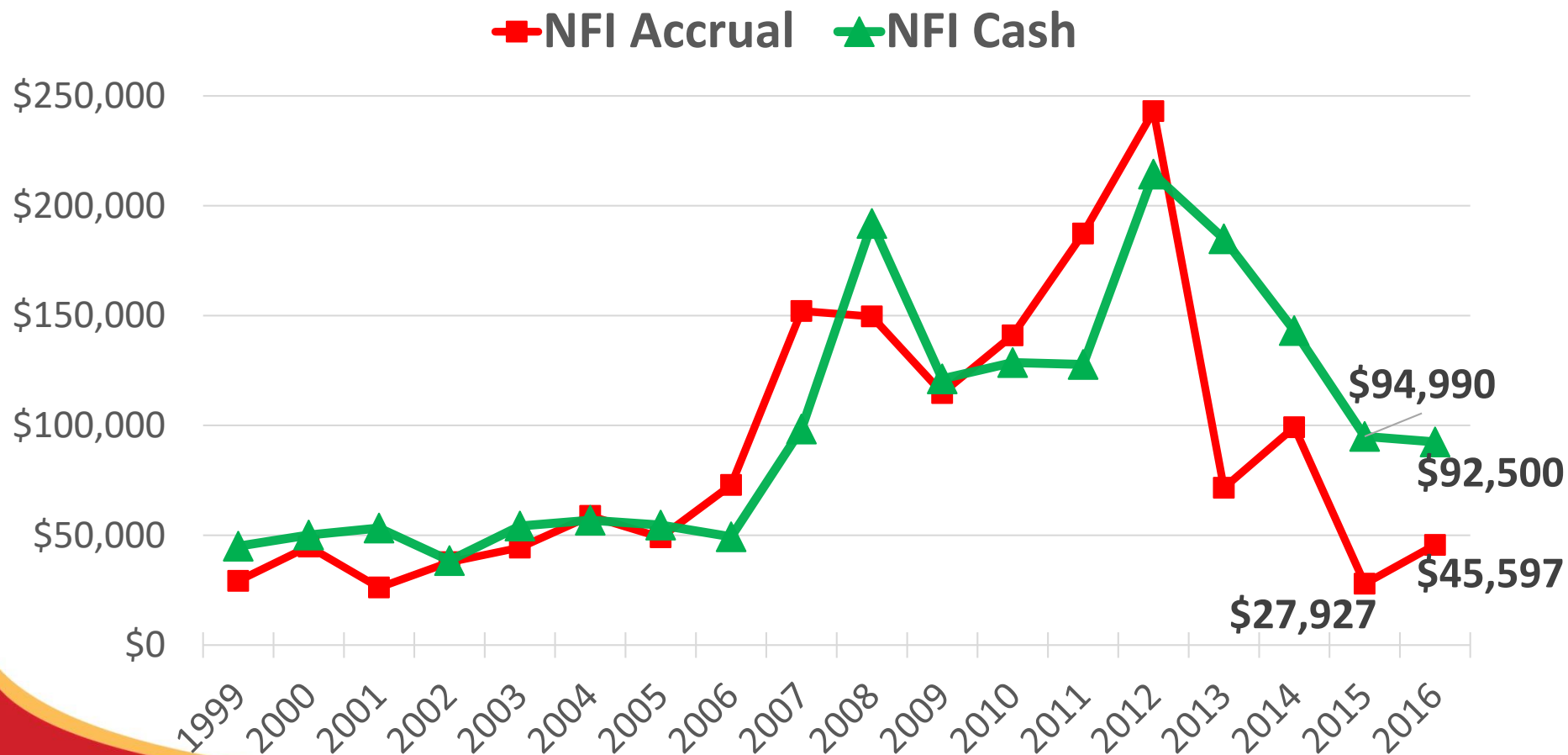
Data

- Source: Iowa Farm Business Association

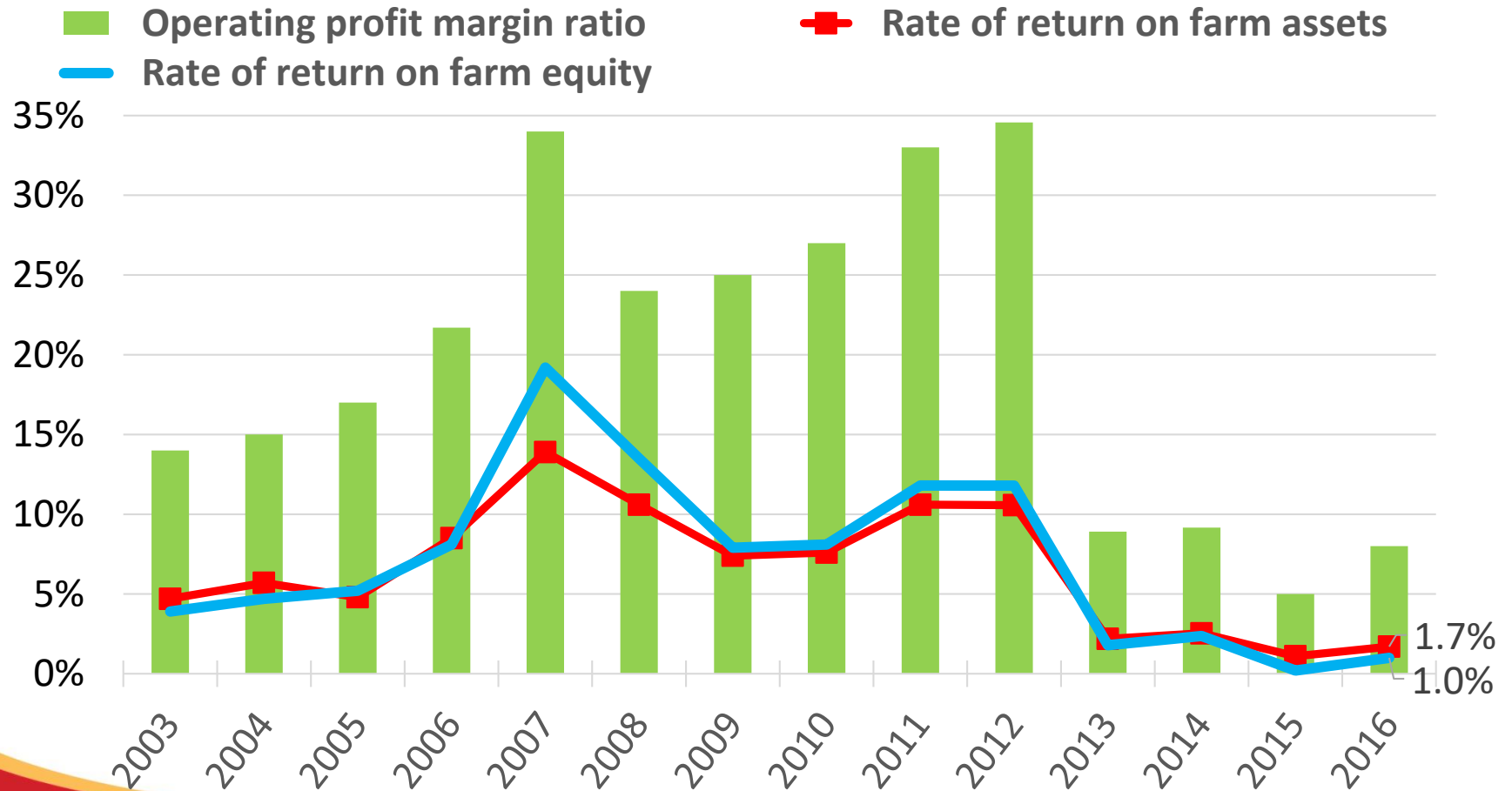


- Actively Managed Mid-size Commercial Farms
- Focus on Farm Management Decisions
- Machinery and Land recorded at COST value

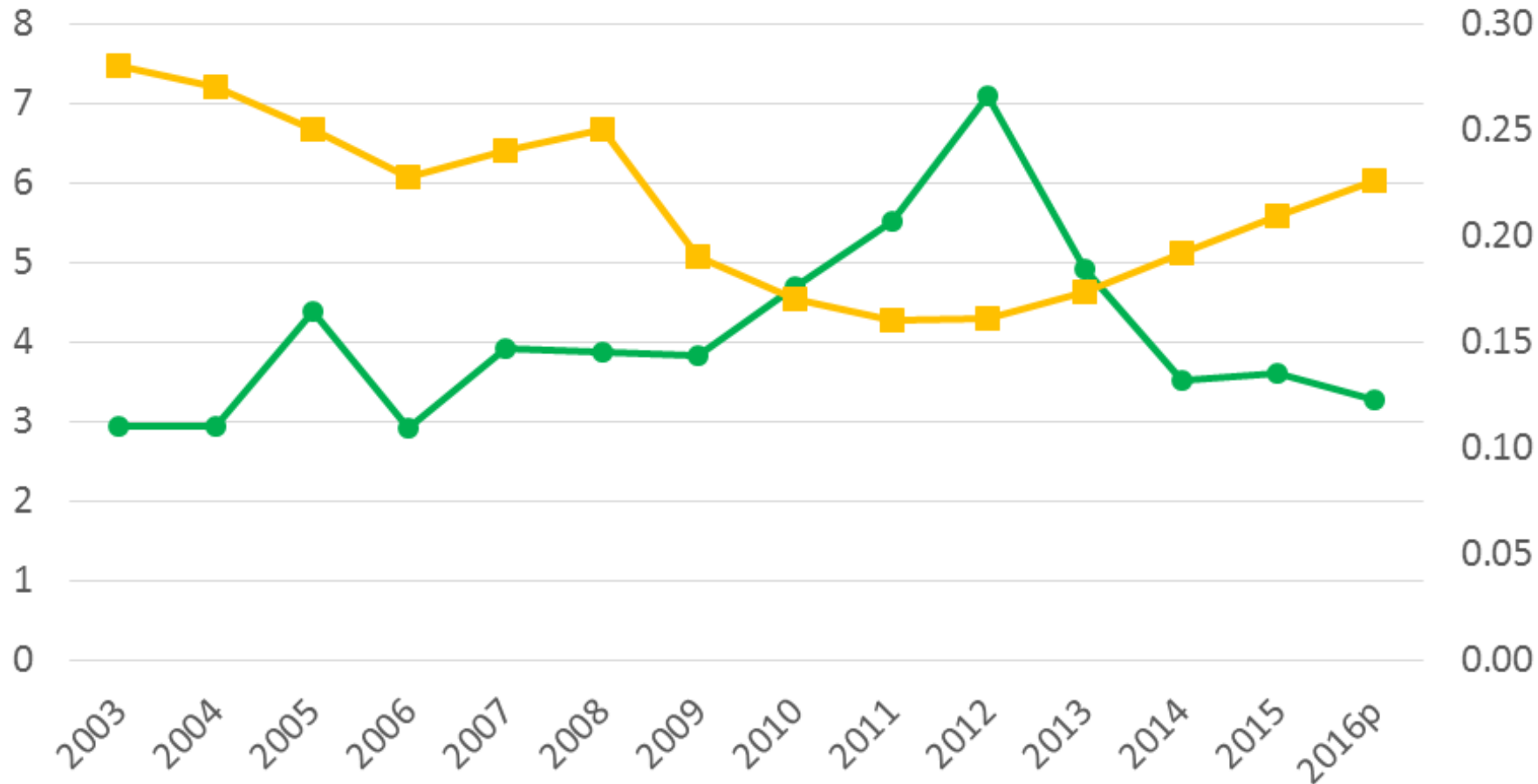
Average Net Farm Income in Iowa: CASH versus ACCRUAL (all nominal)



Average Farm Profitability in Iowa: ROA, ROE, Operating profit margin ratio



Average Farm Liquidity & Solvency



● Current ratio (left axis)
Higher: stronger liquidity

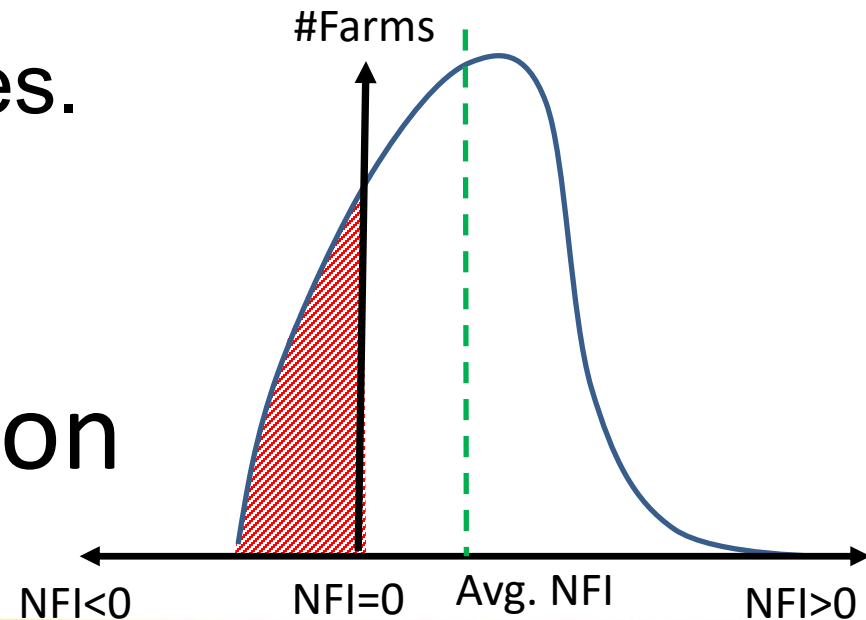
■ Total debt to asset ratio (right axis)
Lower: Stronger solvency

Conclusions from Averages

- Thin profit margins
- Deterioration in liquidity and solvency...
- ... from record high levels...
- ... to historical averages.

Problem:

Tails of the distribution



Track evolution of same set of farms through time

- December 31, 2014
- December 31, 2015
- December 31, 2016

- N=273

Classification Matrix

		Solvency: Total Debt-to-Asset Ratio		
		Strong: Under 30%	Normal: Between 30% and 60%	Vulnerable: Above 60%
Liquidity: Current Ratio	Strong: Over 2.0			
	Normal: Between 1.3 and 2.0			
	Vulnerable: Below 1.3			

Dec 31, 2014 (273 farms)

Percent of Farms in Each Category

		Solvency: Total Debt-to-Asset Ratio		
		Strong: Under 30%	Normal: Between 30% and 60%	Vulnerable: Above 60%
Liquidity: Current Ratio	Strong: Over 2.0	33.0%	12.1%	2.2%
	Normal: Between 1.3 and 2.0	7.0%	10.6%	3.7%
	Vulnerable: Below 1.3	2.6%	14.3%	14.7%



Dec 31, 2014 (273 farms)

Percent of Farms in Each Category

		Solvency: Total Debt-to-Asset Ratio		
		Strong: Under 30%	Normal: Between 30% and 60%	Vulnerable: Above 60%
Liquidity: Current Ratio	Strong: Over 2.0	Total Vulnerable: 37.4%		
	Normal: Between 1.3 and 2.0			
	Vulnerable: Below 1.3			



Dec 31, 2015 (273 farms)

Percent of Farms in Each Category
(Change from last year)

		Solvency: Total Debt-to-Asset Ratio		
		Strong: Under 30%	Normal: Between 30% and 60%	Vulnerable: Above 60%
Liquidity: Current Ratio	Strong: Over 2.0	29.3% (-3.7%)	10.6% (-1.5%)	1.5% (-0.7%)
	Normal: Between 1.3 and 2.0	6.2% (-0.7%)	9.2% (-1.5%)	2.6% (-1.1%)
	Vulnerable: Below 1.3	2.9% (+0.4%)	17.2% (+2.9%)	20.5% (+5.9%)



Dec 31, 2015 (273 farms)

Percent of Farms in Each Category

Solvency: Total Debt-to-Asset Ratio

Strong: Under 30%	Normal: Between 30% and 60%	Vulnerable: Above 60%
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**Liquidity:
Current
Ratio**

Strong: Over 2.0
Normal: Between 1.3 and 2.0
Vulnerable: Below 1.3

Total Vulnerable: 44.7% (+7%)



Dec 31, 2016 (273 farms)

Percent of Farms in Each Category
(Change from last year)

		Solvency: Total Debt-to-Asset Ratio		
		Strong: Under 30%	Normal: Between 30% and 60%	Vulnerable: Above 60%
Liquidity: Current Ratio	Strong: Over 2.0	30.8% (+1.5%)	10.3% (-0.4%)	0.7% (-0.7%)
	Normal: Between 1.3 and 2.0	6.2% (0%)	6.2% (-2.9%)	2.9% (+0.4%)
	Vulnerable: Below 1.3	2.9% (0%)	18.3% (+1.1%)	21.6% (+1.1%)



Dec 31, 2016 (273 farms)

Percent of Farms in Each Category

Solvency: Total Debt-to-Asset Ratio

Strong: Under 30%	Normal: Between 30% and 60%	Vulnerable: Above 60%
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**Liquidity:
Current
Ratio**

**Strong:
Over 2.0**

**Normal:
Between 1.3
and 2.0**

**Vulnerable:
Below 1.3**

Total	Vulnerable: 46.4% (+1.7%)
Total	
Total	

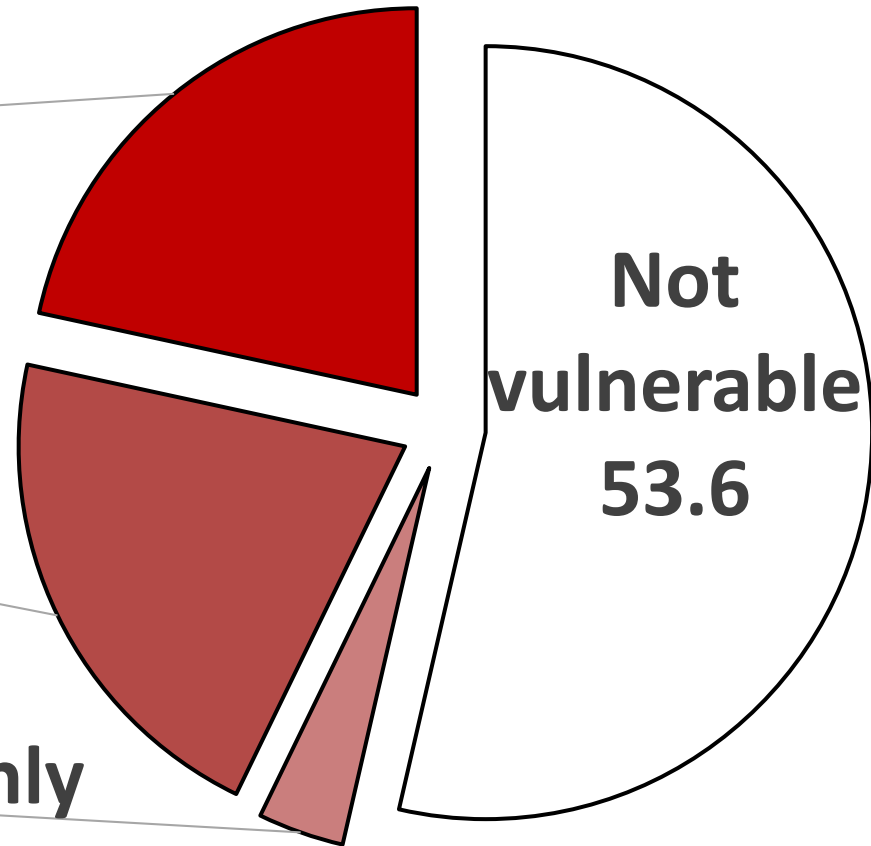


Percent of Vulnerable Farms Dec'16

**Liquidity and
Solvency**
21.6

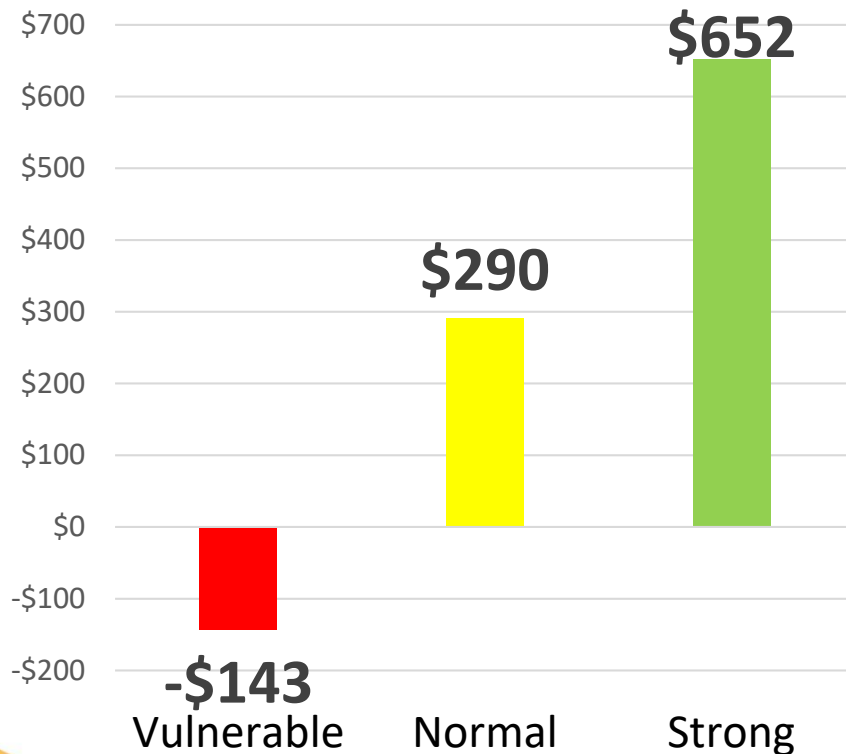
Liquidity only
21.2

Solvency only
3.6

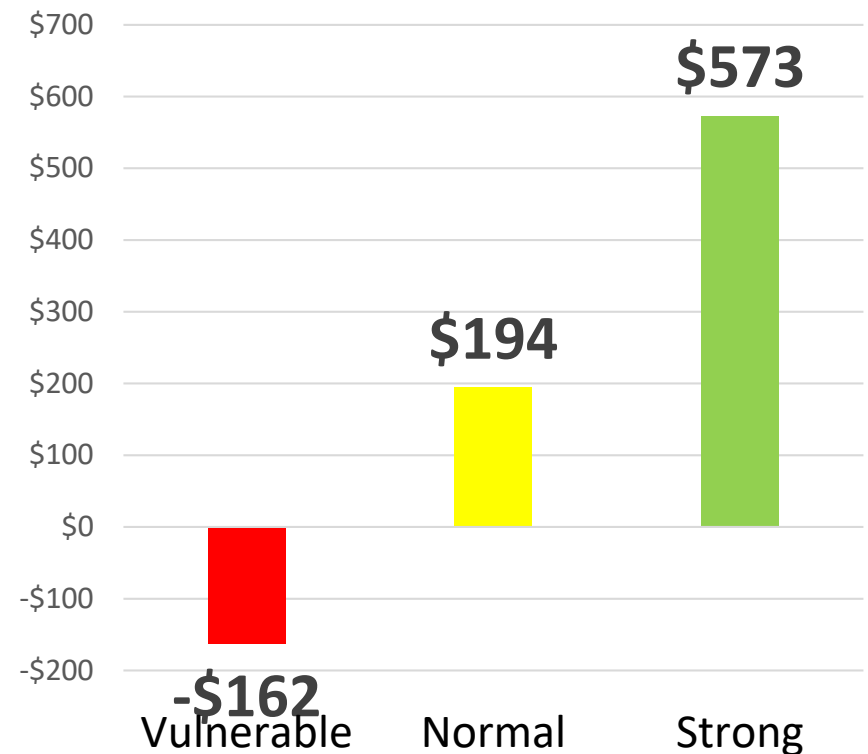


Average Working Capital per Acre in Dec 2016

By Liquidity Rating

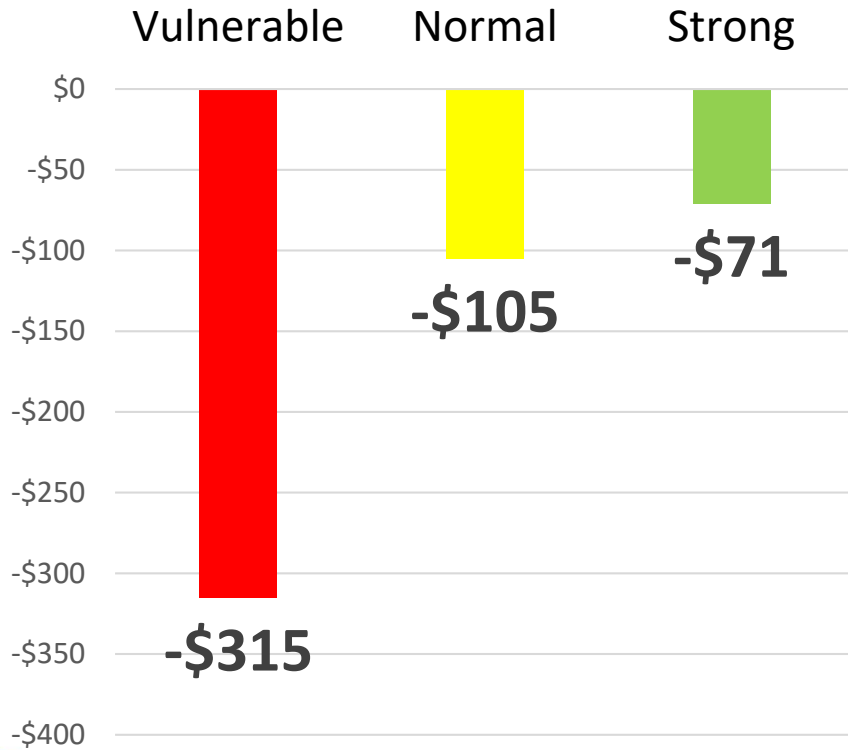


By Solvency Rating

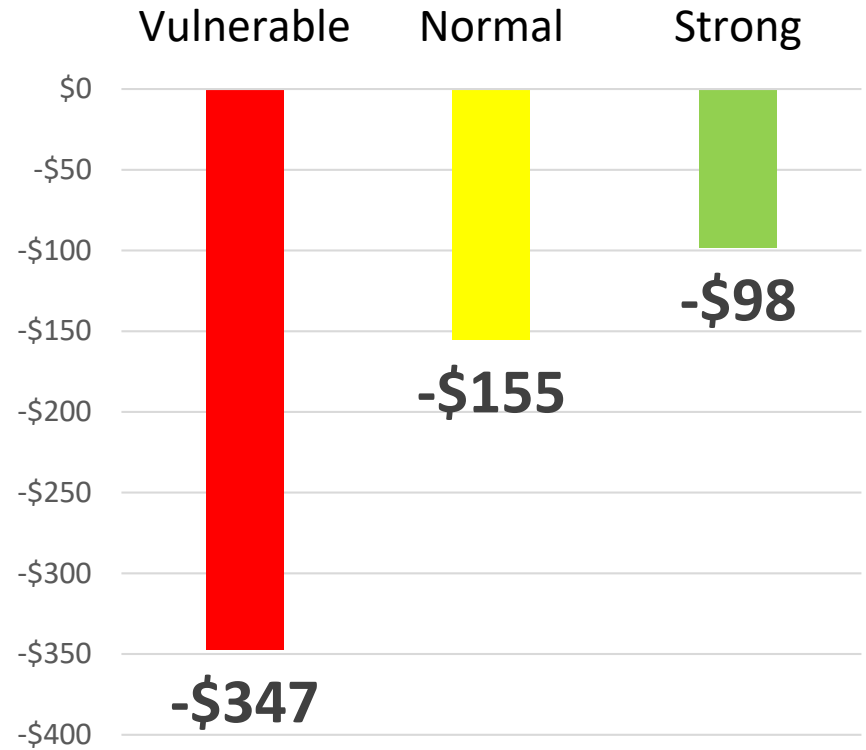


Average Cumulative (14-16) Loss in Working Capital/Acre

By Liquidity Rating Dec'16



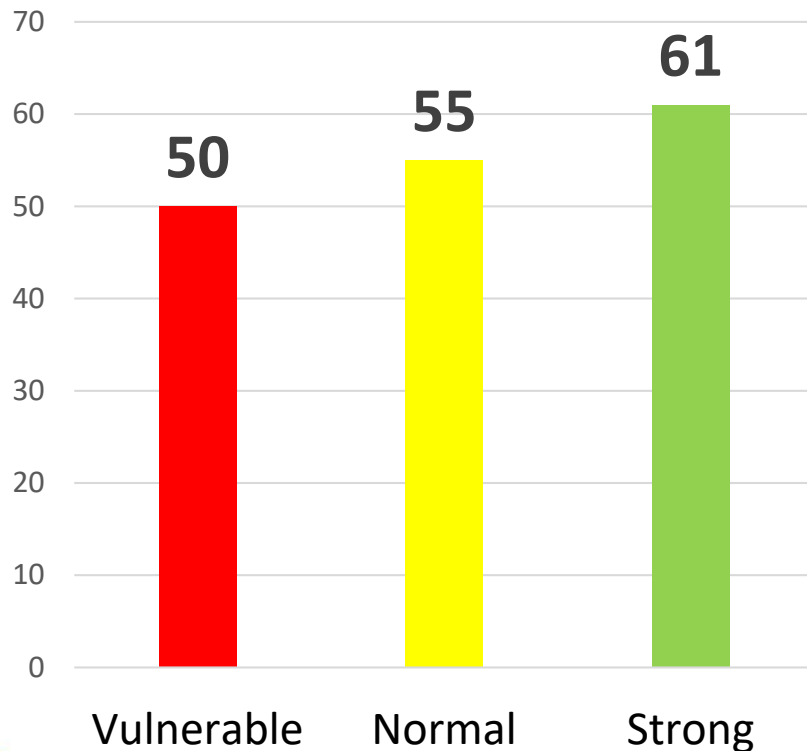
By Solvency Rating Dec'16



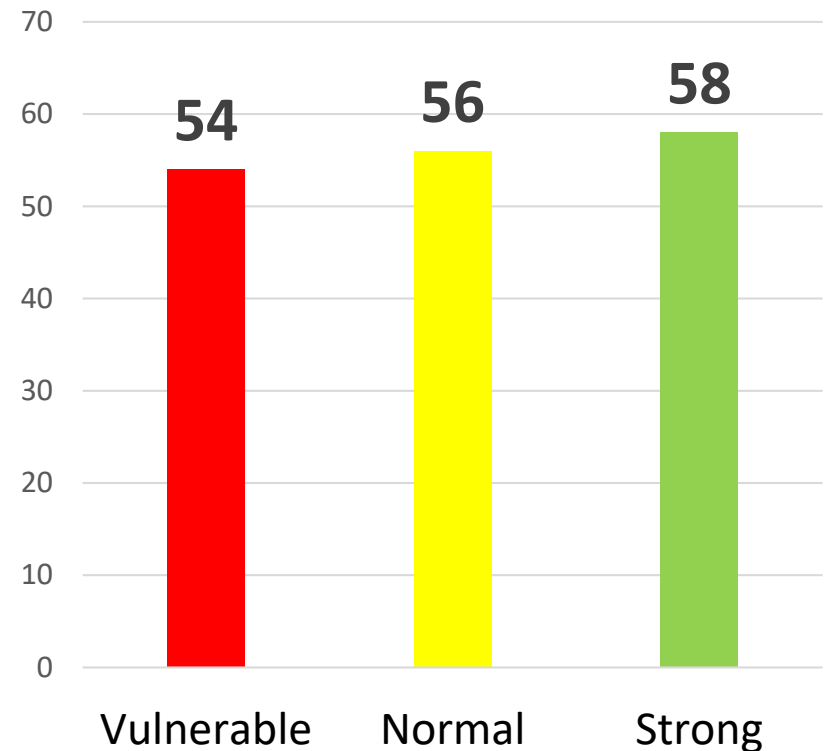
Average -\$180

Average Age of Principal Operator (2016)

By Liquidity Rating



By Solvency Rating

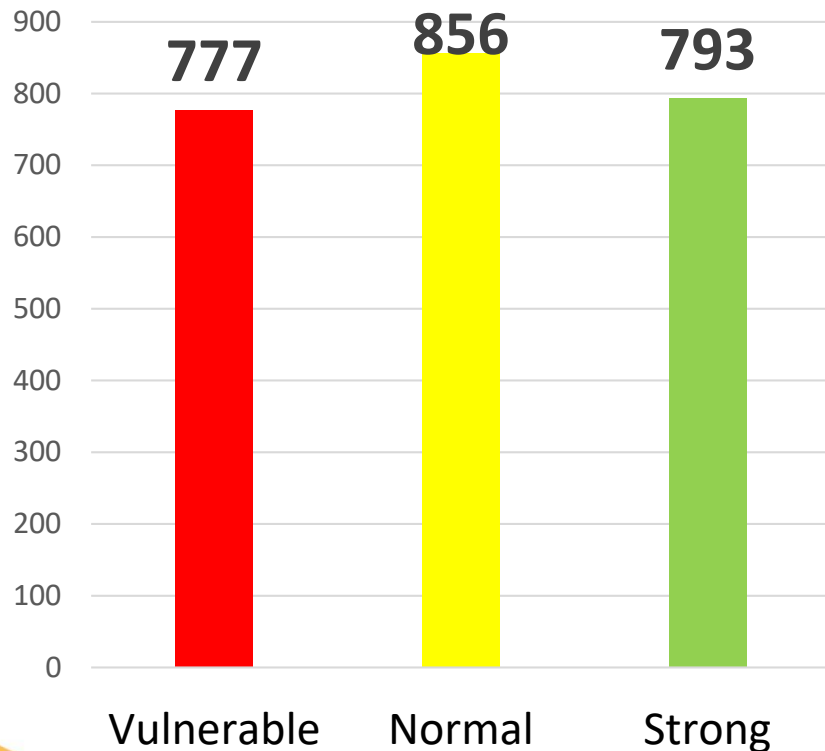


LIQ.: All significantly different at 1% confidence level

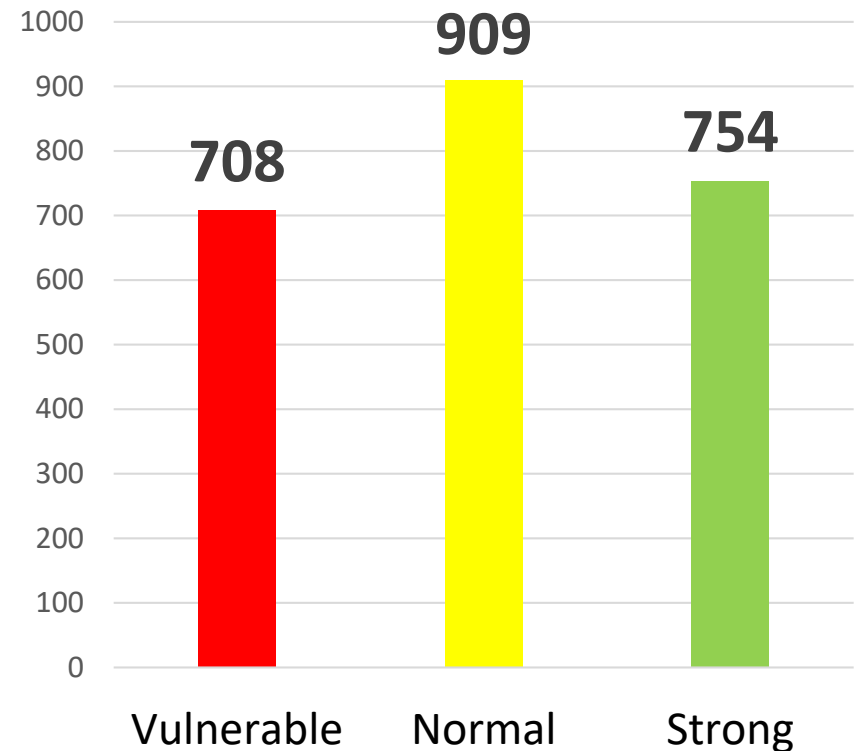
SOLV.: Age of Vulnerable sig. smaller than Age of Strong

Average Farm Size in Acres (2016)

By Liquidity Rating



By Solvency Rating

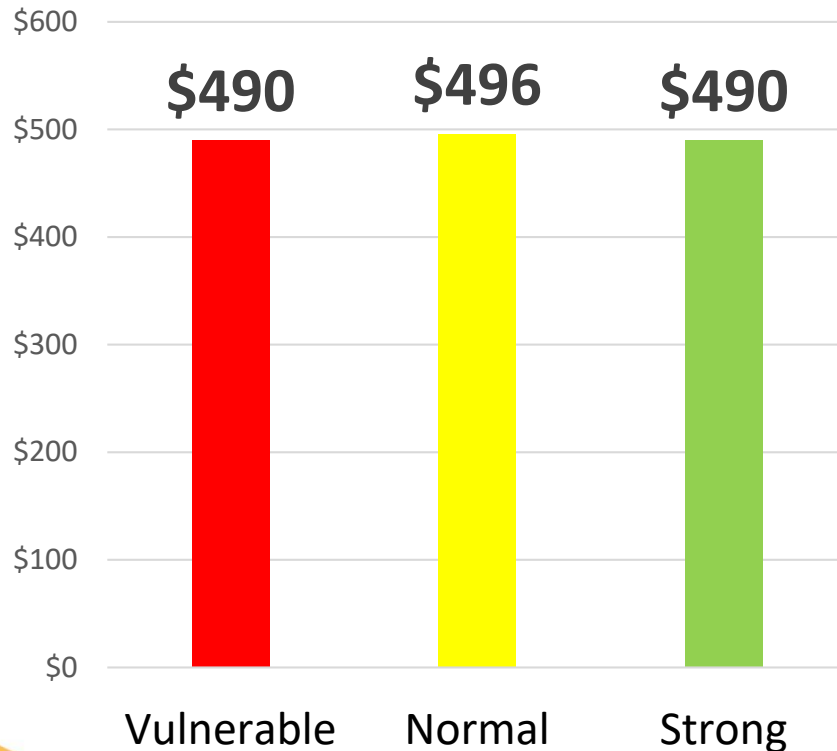


LIQ.: Differences in farm size are not statistically significant

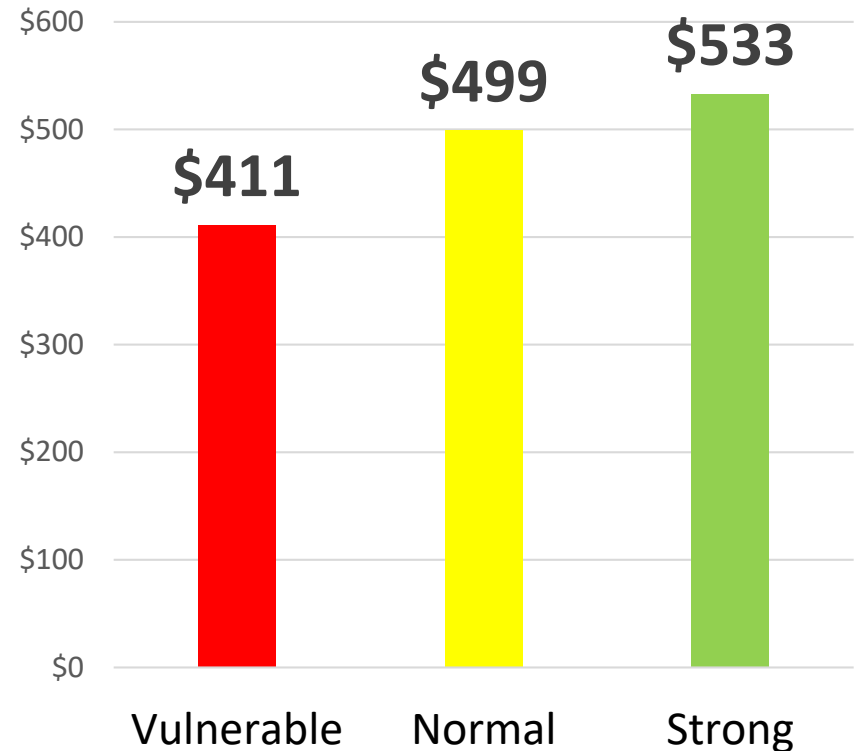
SOLV.: Normal larger than others. But no difference b/ Vulnerable and Strong.

Average Machinery Investment per Acre (2016)

By Liquidity Rating



By Solvency Rating



LIQ.: Differences in machinery investment/acre not significant

SOLV.: machinery inv./acre in farms with vulnerable solvency lower than for other farms.

Concluding remarks

- Increasing number of financially stressed farms
- Liquidity problems more widespread than solvency problems
- Liquidity stronger among farms with stronger solvency.

Concluding remarks (cont.)

- Financially stressed farms tend to be managed by younger farmers
- No evidence that :
 - Smaller farms are more likely to be financially stressed than larger farms
 - Stressed farms overinvested in machinery

Lower incomes might affect...

 Family living expenses /
Repayment of loans

 Local jobs

 Local communities

 Family relations / stress

 Litigation

More Information

1. Financial stress in Iowa farms: 2014-2016.
<https://store.extension.iastate.edu/Product/15261>
2. 2016 Iowa Farm Costs and Returns:
<https://www.extension.iastate.edu/agdm/wholefarm/pdf/c1-10.pdf>
3. Financial Performance Measures for Iowa Farms:
<https://www.extension.iastate.edu/agdm/wholefarm/html/c3-55.html>
4. ARC/PLC Payments by County in Iowa:
<http://card.iastate.edu/tools/farm-bill/arc-plc/>

Thank you for your attention!

Questions?

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