Iowa Farm Financial Conditions in 2015

Ag Decision Maker

File C1-11

Introduction

This article examines the financial performance of a group of farm businesses in 2015. The analysis focuses on:

- Farm income
- Wealth
- Financial liquidity
- Farm size
- Enterprise mix
- Financial structure
- Financial performance and efficiency
- Farm program payments

The data used in the analysis are obtained from the Iowa Farm Business Association (IFBA). The IFBA is an independent farm accounting association managed and controlled by its members.

Because the IFBA data came from actual accounting records, they are generally more accurate and consistent than data obtained from cross-sectional surveys (Hoppe et. al). However, because the data are not obtained using survey sampling methods, they may not be fully representative of the Iowa farm population.

Tables 1 and 2 compare the farms used in this study against the most recent agricultural census. Farm size and operator age are used as benchmarks. The IFBA data consists of larger farms, particularly those operating more than 500 acres. On average, farmers in the IFBA are the same age as in the census, but a higher proportion of them are between 55 and 64 years old. Keep in mind that a farm, using the census definition, is any place that sells more than $1,000 of agricultural product a year. Consequently, the bulk of the farms in the census are small, part-time operations. The IFBA data, in contrast, does not represent the entire farm population, as defined by the census, but does represent the commercial farm population in Iowa. According to the most recent census, farms larger than 180 acres –those more typified by the IFBA data- made up approximately 43 percent of all farms in Iowa and produced 84 percent of the total value of farm output.

Classification Model

A measure of farm cash income is used in the present analysis to classify farms into five performance groups. The adjusted farm cash income measure, AFCI, is defined as follows:

AFCI = NFI + DEP

Where:

AFCI = adjusted farm cash income

NFI = before-tax accrual net farm income

DEP = depreciation[1]

Note that AFCI measures the capacity of the farm to generate free cash flows.[2] In the author's view, a liquidity measure gives a better indication of the contribution of a farm operation to the financial strength and wellbeing of the farm household than net farm income alone.

Because AFCI is estimated from accrual net farm income, changes in inventory are taken into account and consequently gives a better indicator of financial capacity than would annual

1 The IFBA reports an estimated value for economic depreciation by farm (as opposed to the depreciation amount reported in Schedule F, which might be influenced by accelerated depreciation schedules or bonus depreciation in any particular year).

2 Note that AFCI is different from the adjusted cash household income measure used by Jolly and Smith (2008) in that off-farm income from wages or investments and family living expenses are excluded from the present analysis.

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cash income. Scheduled principal payments are not included in the AFCI calculation. A principal payment is a cash outflow, an obligation to repay debt to a creditor, but not an expense: when a borrower pays principal they simply convert cash income to equity. By excluding principal payments from the AFCI calculation, it is implicitly assumed that the rate of repayment is an option not a requirement. Finally, the AFCI calculation is before tax. Income tax payments are not available from the IFBA data and this is a shortcoming of the present analysis. Since tax management for farmers is so flexible, the analysis does not attempt to estimate individual tax obligations. The basic relationships are:

- If AFCI is positive, cash from the operation can be used to pay taxes, reduce principal, purchase capital assets or be invested in the farm operation, or pay family living expenses.
- If AFCI is negative, the shortfall must be covered by off-farm income from wages or investments, or reductions in family living expenses.

Individual farm businesses are ranked based on their AFCI and then divided into five groups of equal size or quintiles. Furthermore, farms are classified according to their sales composition into five farm types. The farm types are defined as follows:[3]

- Cash grain farms if crops are greater than 90 percent of gross farm income.
- Grain-livestock farms if crops are greater than 50 percent but less than 90 percent of gross farm income.
- Hog farms if pork is greater than 50 percent of gross farm income.
- Beef farms if beef is greater than 50 percent of gross farm income.
- Mixed farms are all other farms.

Ending balance sheet, income statement, financial performance, and demographic information by AFCI quintile is presented in Tables 3-6.

Descriptive Information

Table 3 shows that the top 20 percent of farms, based on their average AFCI, are significantly larger than the total group average – both in terms of land, machinery, and equipment. Clearly size matters in determining the ability of the farm to generate free cash flows. This group is also more involved in crop production than in livestock production, but it has fewer members than other groups specializing in cash grains only.

The second group, in the top 20-40 percent, has a higher percentage of farms specialized in cash grains than the top group (23 percent vs. 7 percent), and while their average farm size is 27 percent smaller (797 vs. 1,094 acres), corn and soybean yields are very close to those of the top group. As it can be inferred from Table 5, cash rents in the second group represent a larger share of all farm expenses than in all other groups (21 percent vs. 14 percent).

The third group, in the middle 20 percent, is slightly more diversified (higher percentage of mixed farm types) than the second group, but less diversified than the first group. The third group produces more livestock per $100 feed fed than any other group ($165 vs. an average of $128). As shown in table 5, the third group is the only one that experienced simultaneous declines in crop, livestock, and other inventories in 2015; and their operating expenses accounted

3 Note that the threshold used when defining cash grain farms and grain-livestock farms is different from the one used by Jolly and Smith (2008): 90 percent vs. 95 percent. Due to the unavailability of dairy enterprise data, mixed farms in this study also include farms where dairy generates more than 50 percent of gross farm income.

for the highest proportion of total expenses among all groups (53 percent vs. an average of 44 percent).

The fourth group, in the lower 20 to 40 percent, is characterized by the smallest average farm size (481 acres), lowest labor use (12.8 months vs. an average of 18.9 months), and highest specialization in cash grain production (27 percent vs. an average of 19 percent).

The fifth group, in the lowest 20 percent, derives most of its income from livestock production (Table 6) and was the hardest hit by the decline in beef cattle and hog prices in 2015. As show in table 3, their farm size measured by operator crop acres is close to the average (715 vs. 741 acres), but due to the relevance of livestock in their enterprise mix, the fifth group uses the most labor among all groups (26.1 vs. an average of 18.9 labor months).

Income

Figure 1 summarizes the AFCI and the average return on assets (ROA) for each group and for the overall average farm business. The ROA, by construction, measures farm earnings per dollar of capital managed and is independent of the financial structure (or debt load) of the business. For this reason ROA provides a simple way to compare farm profitability across the five performance groups.

One of the most striking results is how different the top group is from the other four. The AFCI level is significantly higher than the other groups, a reflection of the first group's greater size. However, the ROA level for the top group is also greater than for the other groups, indicating that not only farms in the top 20 percent group produced higher cash flows in absolute terms but also the underlying farm business also produced a higher return to its capital investment.

The second and third groups have similar ROAs but different AFCIs, a reflection of the third group being less leveraged than the second group. The average performance of the fourth and fifth groups is much worse than the other groups, both in terms of AFCI and ROA, but the bottom 20 percent group generated negative cash flows that required investments from other sources to cover the cash needs of the underlying farm business in 2015.

Figures 2 and 3 show the importance of good marketing in generating free cash flow: average corn and soybean prices received by farms in the top 20 percent are, respectively, 33 cents and 53 cents higher than those received by farms in the lowest 20 percent. Higher prices are associated with higher yields, but the main difference in crop revenue between the top 20 percent farms and the upper 20 percent to 40 percent farms resides in the prices received (the differences in average corn and soybean yields are only 0.2 and 0.4 bushels). The average soybean yield for the lowest 20 percent farms is similar to the average yield for the second group, but the average price received was 34 cents lower.

Figure 4 shows total expenses both in levels and as percent of gross farm revenue. The lowest 20 percent farms have much higher expenses both in dollar terms and as a percentage of gross farm revenue than the other groups. Interestingly, the top 20 percent group has the second largest level of expenses, but the ratio of total expenses to gross farm revenue is the smallest among all groups.

Figure 5 shows the relative importance of government payments and crop insurance in total farm income. While crop insurance and government payments are substantially higher for the first group due to its average farm size, they jointly account for about the same proportion of total farm income as in the second, third, and fourth groups. The lowest 20 percent

group received crop insurance and government payments similar to the middle 20 percent group and higher than the lower 20 to 40 percent group, but since the total farm income of the lowest 20 percent group was more than twice the size of the total farm income of the other two groups, the relative importance of those payments is much smaller (Table 6). Without government payments, the AFCI of all groups but the lowest 20 percent group would still be positive. However, the average AFCI across all groups would be 34 percent lower without government payments.

Ending Liquidity

Liquidity refers to the degree to which debt obligations coming due over the following year can be paid from cash or assets that soon will be turned into cash. Two indicators of liquidity are the current ratio and the amount of working capital. Working capital is the difference between current assets and current liabilities (Table 4). Figure 6 shows that working capital was much higher for the top group of farms than for the other groups, and that it tends to decline for smaller farms and weaker performances. However, the bottom 20 percent farms had the third highest average level of working capital among all groups. This might be incorrectly interpreted as this group being better prepared to cancel short term debts than some other groups. After analyzing the current ratio it becomes clear that in relative terms, the lowest 20 percent farms were in a weak liquidity situation at the end of 2015 associated with high levels of short term debts (likely due to the downturn in livestock prices).

Farms with good liquidity typically have current ratios of 3.0 or higher. Dairy farms or other farms that have continuous sales throughout the year can safely operate with a current ratio as low as 2.0, however. Conversely, operations that concentrate sales during several periods each year, such as cash grain farms, need to strive for a current ratio higher than 3.0, especially near the beginning of the year. The average current ratio in IFBA farms between 2005 and 2014 amounted to 4.47 (Plastina 2016). Figure 6 shows that the top three quintiles had average current ratios higher than 3 in 2015, but the lowest 2 quintiles had average current ratios substantially lower than 3. In particular, the lowest 20 percent farms had an average current ratio of 1.89 that pulled down the average across all IFBA farms to 2.74.

Ending Solvency

Solvency refers to the degree to which all debts are secured and the relative mix of equity and debt capital used by the farm. The total debt-to-asset ratio (Table 6) is one of several ratios used to measure solvency, all of which are based on the same relationship of assets, liabilities, and net worth (Table 4). The average total debt-to-asset ratio in IFBA farms between 2005 and 2014 amounted to 0.20, and the most profitable farms (measured by returns to management) tended to be more leveraged than the least profitable farms: 0.26 vs. 0.21 total debt-to-asset ratios (Plastina 2016). Figure 7 shows that all quintiles but the lowest 20 percent have debt-to-asset ratios in line with the historical averages observed in Iowa. However, the latter group is highly leveraged (with a debt-to-asset ratio of 0.33) at levels of net worth per acre farmed similar to all groups but the top performing one.

Debt Structure

Figure 8 illustrates the structure of average farm leverage by performance group. The top 20 percent has the lowest current to total debt ratio, with about 70 percent of their total liabilities due more than a year after the end of 2015. The cost of debt for this group, calculated as the ratio of interest expense to total liabilities, is the lowest among all groups, averaging 3.9 percent. The next three groups have a higher

but similar current to total debt ratio (averaging 38 percent), but the cost of debt is highest for the second group (6.3 percent), followed by the third (5.4 percent), and fourth group (4.4 percent). Interest expenses for the fourth group, despite being relatively small compared with the amount of debt serviced, represent a much higher proportion of all farm expenses than for the top three groups (5.8 percent vs. 4.1 percent, respectively). For the lowest 20 percent farms, current debt represents about half the total debt, and although the cost of debt is only slightly above average (5.3 percent vs. 5.0 percent), interest expenses represent a much higher percentage of total expenses than for the other groups (8.1 percent).

Final Comments

This article examines the financial performance of a group of Iowa commercial farm businesses in 2015. As in Jolly and Smith (2008), wide variability in financial performance across farms facing similar economic conditions is observed. The top three quintiles (60 percent of the IFBA farms) generated ROAs of at least 3 percent, and were characterized by high liquidity and solvency positions. The lower 20 to 40 percent farms maintained a high solvency position despite their very low ROA and a slightly weak liquidity position. The lowest 20 percent farms incurred in cash losses, were highly leveraged, faced high interest expenses and about half of all their debt would become due over the next 12 months.

This study provides a snapshot of Iowa commercial farmers' financial strengths at a time of low crop prices and a new Farm Bill. Crop prices are expected to remain subdued for a few years at least, adding stress to farm businesses specialized in crop production. Lower grain prices are likely to improve the financial situation of livestock producers, as long as meat demand remains strong. Cash rents will likely continue to decline reducing the mounting pressure on profit margins. But land values and machinery values will also likely decline, reducing the value of total assets and resulting both in lower net worth, higher debt-to-asset ratios, and weaker solvency positions for an increasing number of farms. Under a scenario of sustained low margins with increasing but historically low interest rates, a growing number of farmers will likely try to restructure their loans to reduce their cash needs for principal and interest payments. Two limiting factors for this process will be the declining equity in land and machinery that increases the risk of lending to a farmer; and the cumulative effect of mounting volumes of loan applications on lenders' appetite for agricultural risk exposure – conceived as one among many components of their overall risk portfolio. Furthermore, the new safety net introduced by the 2014 Farm Bill is not directly linked to individual revenue performance but regional or county-level revenue performance, and it remains to be seen how ARC/PLC payments alleviate the cash flow needs of farms with urgent liquidity issues in the coming years.

References:

- Jolly, R.W., and Smith, D. 2008. "A Panel Study of Iowa Farm Financial Conditions: 2000-2007." Iowa State University, Extension and Outreach, FM 1883.
- Hoppe, R.A., Korb, P., O'Donoghue, E.J., and Banker, D.E. 2007. "Structure and Finances of U.S. Farms: Family Farm Report." U.S. Department of Agriculture, Economic Research Service, EIB-24.
- Plastina, A. 2016. "Financial Performance Measures for Iowa Farms." Iowa State University Extension and Outreach Ag Decision Maker File C3-55.

Table 1. Comparison of farm size distribution between 2015 Iowa Farm Business Association and 2012 Ag Census

	IFBA Farms		2012 Iowa Ag Census	
Farm Size (Acres)	Number of Observations	Percent	Number of Observations	Percent
a) 1 to 9	2	0.36	6,707	7.57
b) 10 to 49	6	1.08	20,665	23.31
c) 50 to 179	25	4.48	22,788	25.71
d) 180 to 499	171	30.65	18,654	21.05
e) 500 to 999	238	42.65	11,581	13.07
f) 1000 and up	116	20.79	8,242	9.30
Total Observations	558	100.0	88,637	100
Average Acres	741		345	

Table 2. Comparison of principal operator age distribution between 2015 Iowa Farm Business Association and 2012 Ag Census

	IFBA Farms		2012 Iowa Ag Census	
Age Group	Number of Observations	Percent	Number of Observations	Percent
a) Under 25	3	0.54	595	0.67
b) 25 to 34	24	4.30	5,647	6.37
c) 35 to 44	42	7.53	9,824	11.08
d) 45 to 54	131	23.48	20,765	23.43
e) 55 to 64	232	41.58	25,701	29.00
f) 65 and up	126	22.58	26,105	29.45
Total Observations	558	100.0	88,637	100
Average Age	57.1		57.1	

Table 3. 2015 descriptive information

	Cash Farm Income Quintiles					
Adjusted Cash Income Class	**Top 20%**	**Upper 20% to 40%**	**Middle 20%**	**Lower 20% to 40%**	**Lowest 20%**	**Average**
Operator Crop Acres	1,094	797	615	481	715	741
Labor Months	25.4	15.5	14.8	12.8	26.1	18.9
Average Corn Yield	205.2	205.0	199.9	196.3	193.7	200.0
Average Corn Price	$3.90	$3.73	$3.69	$3.64	$3.57	$3.70
Average Soybean Yield	62.9	62.5	61.3	60.6	62.3	61.9
Average Soybean Price	$9.82	$9.63	$9.52	$9.39	$9.29	$9.54
Livestock Produced per $100 Feed Fed	$162.51	$141.47	$165.18	$112.02	$97.59	$128.32
Sources of Adjusted Farm Cash Income:						
Crops	$213,456	$98,512	$49,358	$31,257	$14,337	$81,561
Hogs	-$1,741	-$700	$641	-$4,057	-$27,577	-$6,663
Cattle	$9,872	$143	-$3,099	-$5,719	-$80,004	-$15,669
Others	$99,798	$43,642	$33,206	$15,763	$12,482	$41,043
Adjusted Farm Cash Income	$321,385	$141,597	$80,106	$37,243	-$80,762	$100,273
Gross Profit per Person per Year	$655,955	$529,504	$414,486	$346,048	$327,552	$455,009
Gross Profit per $ of Expense	$1.33	$1.20	$1.19	$1.08	$0.77	$1.11
Farm types:						
Cash Grain	7.1%	23.2%	20.7%	26.8%	18.0%	19.2%
Grain-Livestock	68.8%	63.4%	63.1%	50.0%	37.8%	56.6%
Hog	1.8%	0.9%	0.0%	4.5%	5.4%	2.5%
Beef	3.6%	3.6%	2.7%	2.7%	14.4%	5.4%
Mixed	18.8%	8.9%	13.5%	16.1%	24.3%	16.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Operator Age	56.4	56.9	57.9	58.4	55.9	57.1

*Farm type definitions are as follows:
Cash grain farms if crops are greater than 90 percent of gross farm income
Grain-livestock farms if crops are greater than 50 percent but less than 90 percent of gross farm income
Hog farms if pork is greater than 50 percent of gross farm income
Beef farms if beef is greater than 50 percent of gross farm income
Mixed farms are all other farms

Source: IFBA data

Table 4. 2015 ending balance sheet (based on adjusted farm cash income ranking)

	Average Farm Cash Flow Quintiles					
	Top 20%	Upper 20% to 40%	Middle 20%	Lower 20% to 40%	Lowest 20%	Average
Farm Assets						
Cash, Account Receivables, Hedge Accounts	$120,124	$94,612	$46,583	$47,596	$37,227	$69,194
Crop Inventory	602,437	429,397	306,826	214,285	351,493	380,543
Livestock Inventory	117,095	44,102	37,857	41,081	359,409	119,485
Investment in growing crop	139,694	117,570	73,466	45,677	58,736	86,985
Purchased feed, pre-paid expenses	11,262	1,650	2,022	831	2,326	3,607
Total current assets	**$990,612**	**$687,331**	**$466,753**	**$349,470**	**$809,192**	**$659,814**
Breeding livestock	65,666	18,878	23,455	24,032	49,013	36,133
Machinery, equipment	782,422	492,857	387,897	268,659	470,225	479,889
Land and improvements	2,518,398	1,317,068	1,153,424	776,370	1,276,192	1,406,538
Investment, cooperative, other	97,076	18,710	14,843	1,320	41,026	34,471
Total non-current assets	**$3,463,561**	**$1,847,514**	**$1,579,619**	**$1,070,381**	**$1,836,457**	**$1,957,031**
Total assets	**$4,454,173**	**$2,534,845**	**$2,046,373**	**$1,419,850**	**$2,645,649**	**$2,616,846**
Farm Liabilities						
Operating notes, accounts payable	299,520	190,669	131,205	123,059	423,262	233,085
Current portion of non-current loans	10,489	7,092	11,931	5,375	4,791	7,937
Total current liabilities	**$310,009**	**$197,760**	**$143,136**	**$128,434**	**$428,053**	**$241,021**
Machinery and equipment loans	157,760	58,451	58,919	37,737	89,800	80,379
Land and improvement loans	324,275	166,557	99,631	131,586	174,648	179,088
Other non-current liabilities	229,796	103,333	77,849	46,853	191,175	129,512
Total non-current liabilities	**$711,831**	**$328,340**	**$236,399**	**$216,176**	**$455,623**	**$388,978**
Total liabilities	**$1,021,840**	**$526,101**	**$379,535**	**$344,610**	**$883,676**	**$630,000**
Farm Net Worth	**$3,432,332**	**$2,008,744**	**$1,666,838**	**$1,075,240**	**$1,761,973**	**$1,986,846**
Working Capital	**$680,603**	**$489,571**	**$323,617**	**$221,036**	**$381,139**	**$418,793**

Source: IFBA data

Table 5. 2015 income statement*

Adjusted Cash Income Class	Cash Farm Income Quintiles: Top 20%	Upper 20% to 40%	Middle 20%	Lower 20% to 40%	Lowest 20%	Average
Income						
Crops:						
Corn	$381,767	$283,046	$211,633	$160,293	$178,085	$242,832
Soybeans	247,904	188,275	138,581	98,637	127,592	160,099
Crop Insurance	28,659	11,461	11,306	5,432	9,480	13,247
Government Payments	55,463	37,680	27,470	21,079	27,819	33,875
Feed Credits and Other Crop Income	51,430	23,343	29,366	23,608	106,605	46,755
Crop Inventory Change	28,635	9,099	-5,806	2,614	8,265	8,526
Total Crop Income	**$793,858**	**$552,905**	**$412,551**	**$311,665**	**$457,847**	**$505,334**
Livestock:						
Livestock and Livestock Products	301,433	123,930	93,189	116,402	891,007	304,149
Breeding Livestock	8,444	3,462	3,514	2,482	9,537	5,475
Livestock Inventory Change	13,412	-20,825	-9,096	-12,163	-205,700	-46,698
Total Livestock Income	**$323,289**	**$106,568**	**$87,607**	**$106,721**	**$694,844**	**$262,927**
Other farm receipts	160,727	65,017	48,270	29,338	76,969	75,911
Other Inventory Change	-144	-168	-708	211	435	-76
Total Farm Income	**$1,277,730**	**$724,321**	**$547,721**	**$447,935**	**$1,230,095**	**$844,097**
Expenses						
Operating Expenses	528,718	323,507	278,097	216,394	437,645	356,419
Purchased Feed	128,164	38,410	47,553	55,855	309,167	115,461
Purchased Livestock	105,172	60,283	28,918	45,493	411,756	129,865
Rent	155,376	137,424	95,387	74,618	116,144	115,718
Interest	37,745	22,309	17,455	18,331	36,145	26,359
Depreciation	121,471	68,567	56,402	37,607	73,807	71,477
Total Expenses	**$1,076,645**	**$650,500**	**$523,812**	**$448,300**	**$1,384,664**	**$815,301**
Accrual Net Farm Income	**$201,085**	**$73,821**	**$23,908**	**-$365**	**-$154,569**	**$28,796**
Adjusted Farm Cash Income	**$322,556**	**$142,387**	**$80,310**	**$37,243**	**-$80,762**	**$100,273**

*Accrual statement, adjusted for inventory changes
Source: IFBA data

Table 6. 2015 financial ratios

	Cash Farm Income Quintiles					
Adjusted Cash Income Class	**Top 20%**	**Upper 20% to 40%**	**Middle 20%**	**Lower 20% to 40%**	**Lowest 20%**	**Average**
ROA: Return on Assets (End)	6.0%	3.9%	3.0%	0.1%	-8.4%	0.9%
PM: Operating Profit Margin Ratio	21.1%	13.3%	7.8%	-0.9%	-18.6%	4.5%
TO: Turnover Ratio (End)	30.9%	31.4%	31.8%	32.5%	26.3%	30.6%
OER: Operating Expense Ratio	0.63	0.69	0.73	0.79	0.99	0.77
DER: Depreciation Expense Ratio	0.12	0.12	0.11	0.12	0.13	0.12
IER: Interest Expense Ratio	0.04	0.04	0.04	0.06	0.08	0.05
NFIR: Net Farm Income Ratio	0.21	0.15	0.13	0.05	-0.18	0.07
ROE: Return on Equity (End)	8.0%	2.1%	6.9%	-2.5%	10.9%	5.0%
COD: Cost of Debt (End)	3.9%	6.3%	5.4%	4.4%	5.3%	5.0%
D/A End: Debt to Asset Ratio (End)	0.23	0.21	0.19	0.24	0.33	0.24
CR End: Current Ratio (End)	3.20	3.48	3.26	2.72	1.89	2.74
CTDR End: Current to Total Debt Ratio (End)	0.30	0.38	0.38	0.37	0.48	0.38

*Ratio Definitions are as follows:

$$\text{ROA (Return on Assets)} = \frac{\text{(Accrual Net Farm Income + Interest Expense – Unpaid Family Labor)}}{\text{Total Assets Ending}}$$

$$\text{PM (Operating Profit Margin Ratio)} = \frac{\text{(Accrual Net Farm Income + Interest Expense – Unpaid Family Labor)}}{\text{Gross Farm Revenue}}$$

$$\text{TO (Turnover Ratio)} = \frac{\text{Gross Farm Revenue}}{\text{Total Assets Ending}}$$

$$\text{OER (Operating Expense Ratio)} = \frac{\text{(Total Operating Expense + Fixed Expense – Interest Expense – Depreciation Expense)}}{\text{Gross Farm Revenue}}$$

$$\text{DER (Depreciation Expense Ratio)} = \frac{\text{Depreciation Expense}}{\text{Gross Farm Revenue}}$$

$$\text{IER (Interest Expense Ratio)} = \frac{\text{Interest Expense}}{\text{Gross Farm Revenue}}$$

$$\text{NFIR (Net Farm Income Ratio)} = \frac{\text{Accrual Net Farm Income}}{\text{Gross Farm Revenue}}$$

$$\text{ROE (Return on Equity)} = \frac{\text{(Accrual Net Farm Income – Unpaid Family Labor)}}{\text{Net Worth Ending}}$$

$$\text{COD (Cost of Debt)} = \frac{\text{Interest Expense}}{\text{Total Liabilities Ending}}$$

$$\text{D/A End (Debt to Asset Ratio, Ending)} = \frac{\text{Total Liabilities Ending}}{\text{Total Assets Ending}}$$

$$\text{CR End (Current Ratio, Ending)} = \frac{\text{Current Liabilities Ending}}{\text{Current Assets Ending}}$$

$$\text{C/T DR End (Current/Total Debt Ratio, Ending)} = \frac{\text{Current Liabilities Ending}}{\text{Total Liabilities Ending}}$$

Source: IFBA data

Figure 1. 2015 Adjusted farm cash income (AFCI) and return on assets (ROA), by AFCI Quintiles

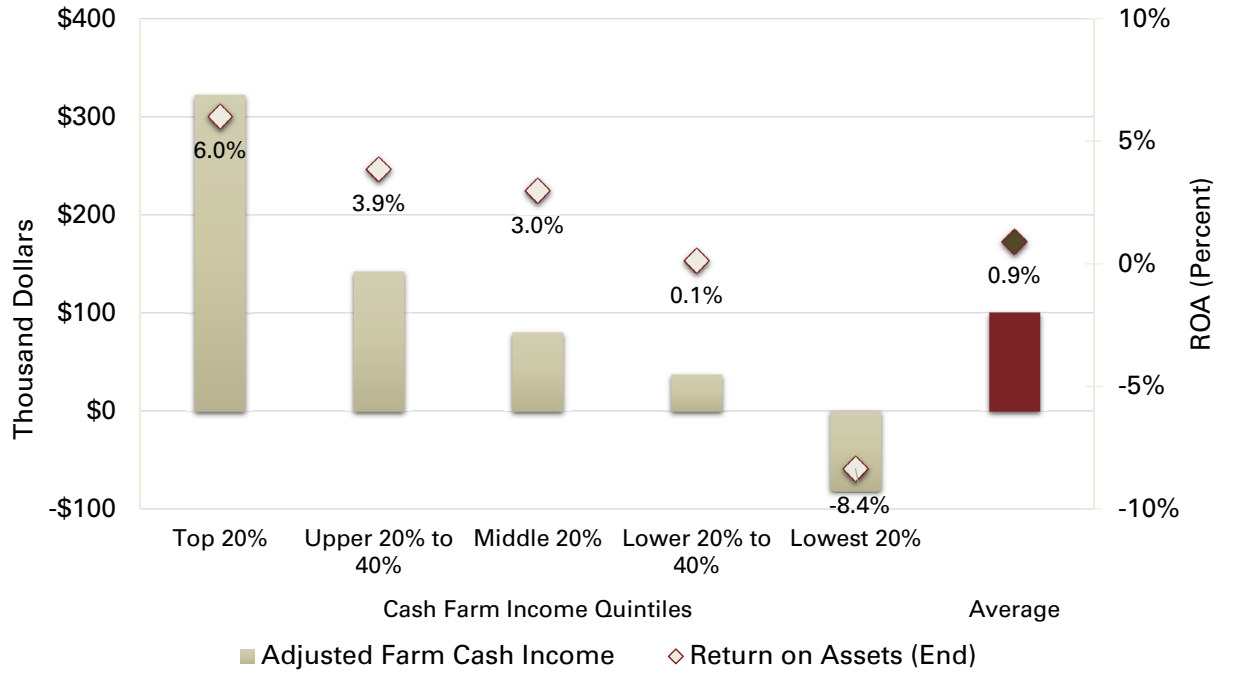


Figure 2. Corn yields and prices received, by AFCI Quintiles

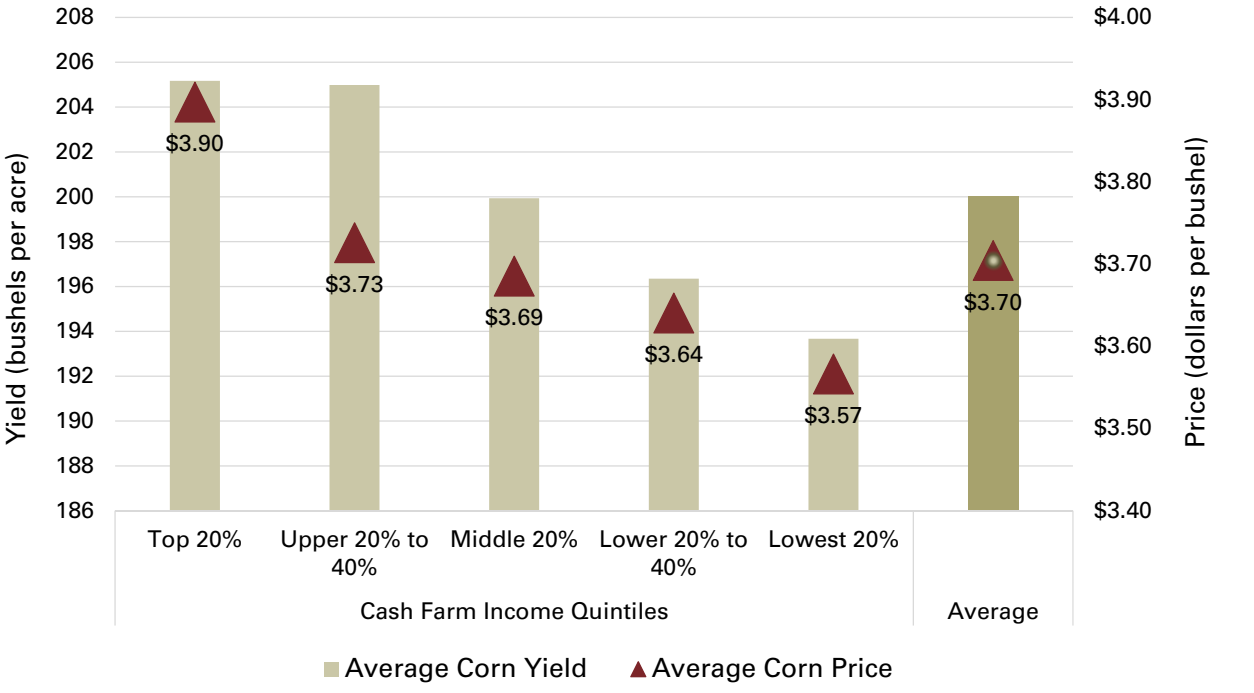


Figure 3. Soybean yields and prices received, by AFCI Quintiles

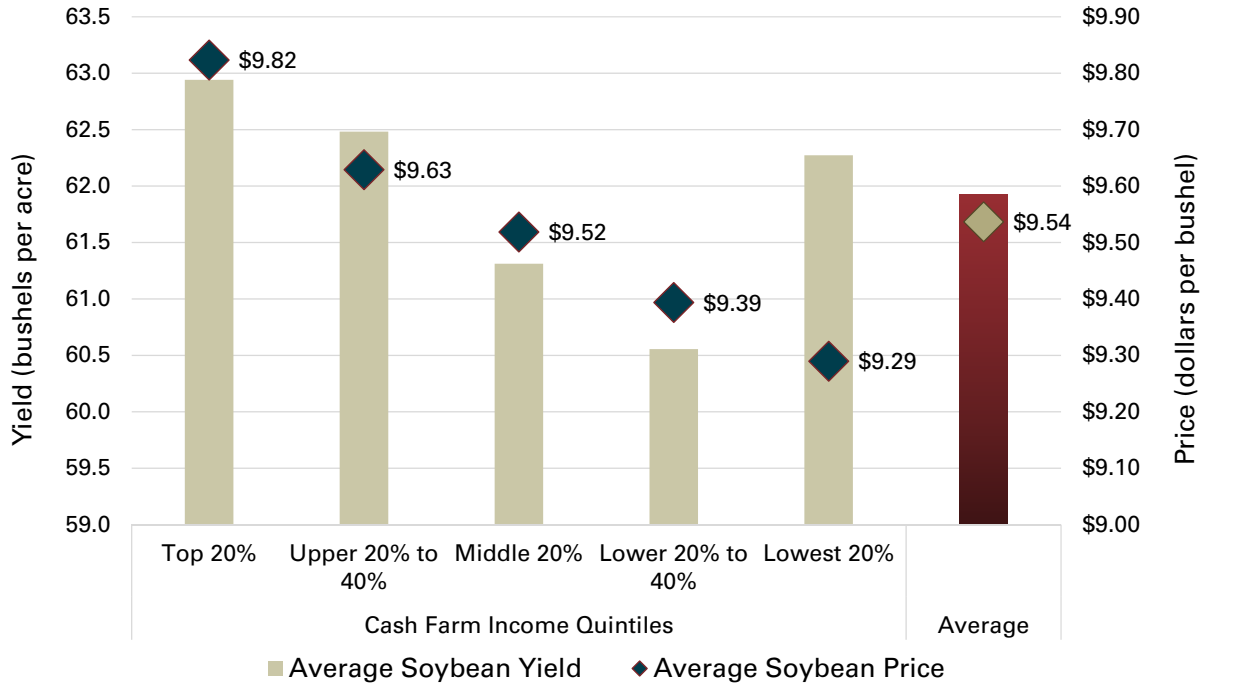


Figure 4. Total expenses in dollars and as a percent of gross farm income, by AFCI Quintiles

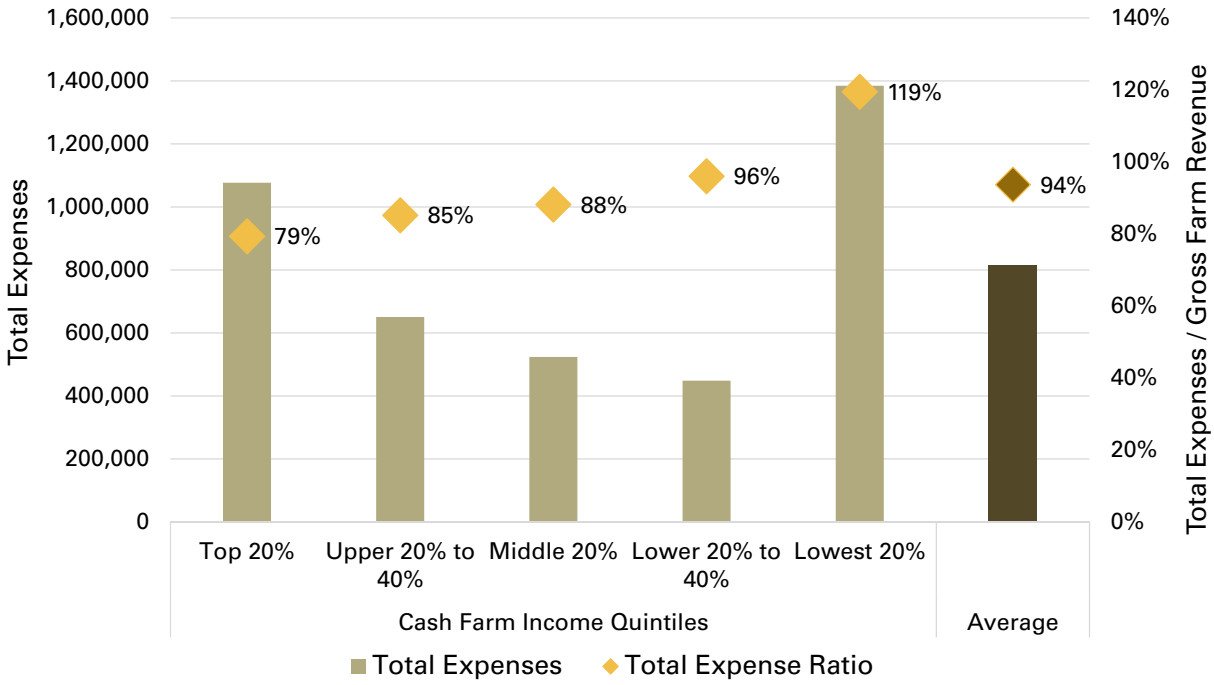


Figure 5. 2015 government and crop insurance payments in dollars and as percent of total farm income (TFI), by AFCI Quintiles

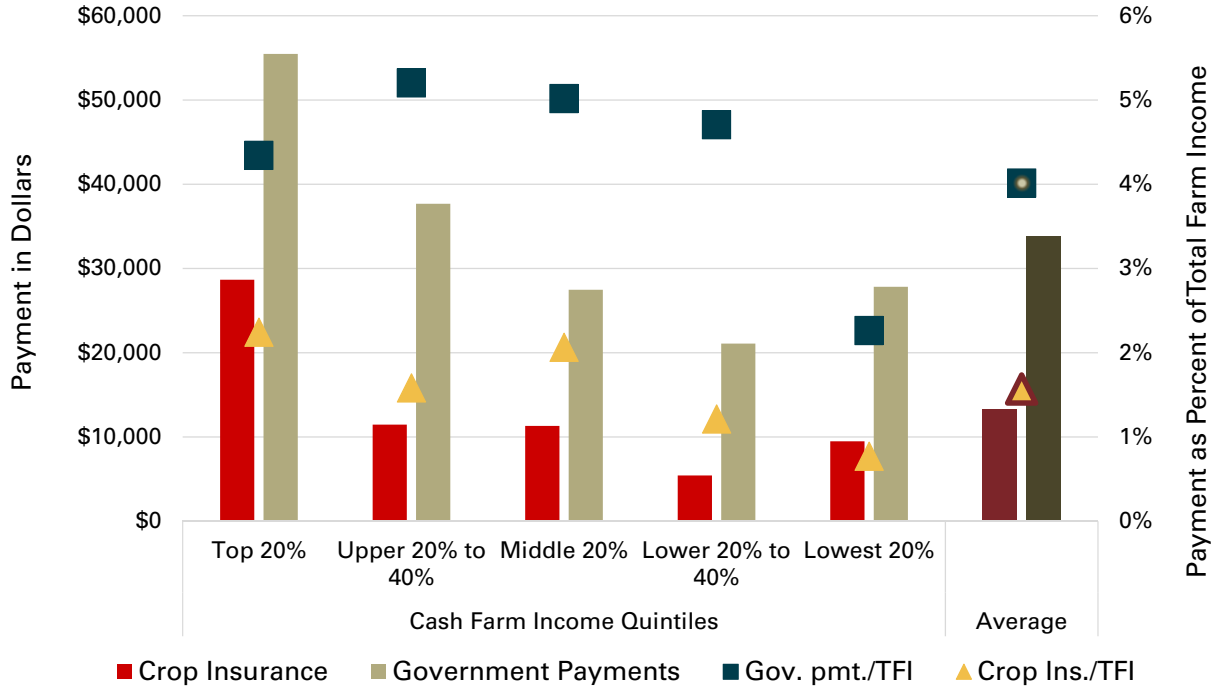


Figure 6. Ending working capital and current ratio, by AFCI Quintiles

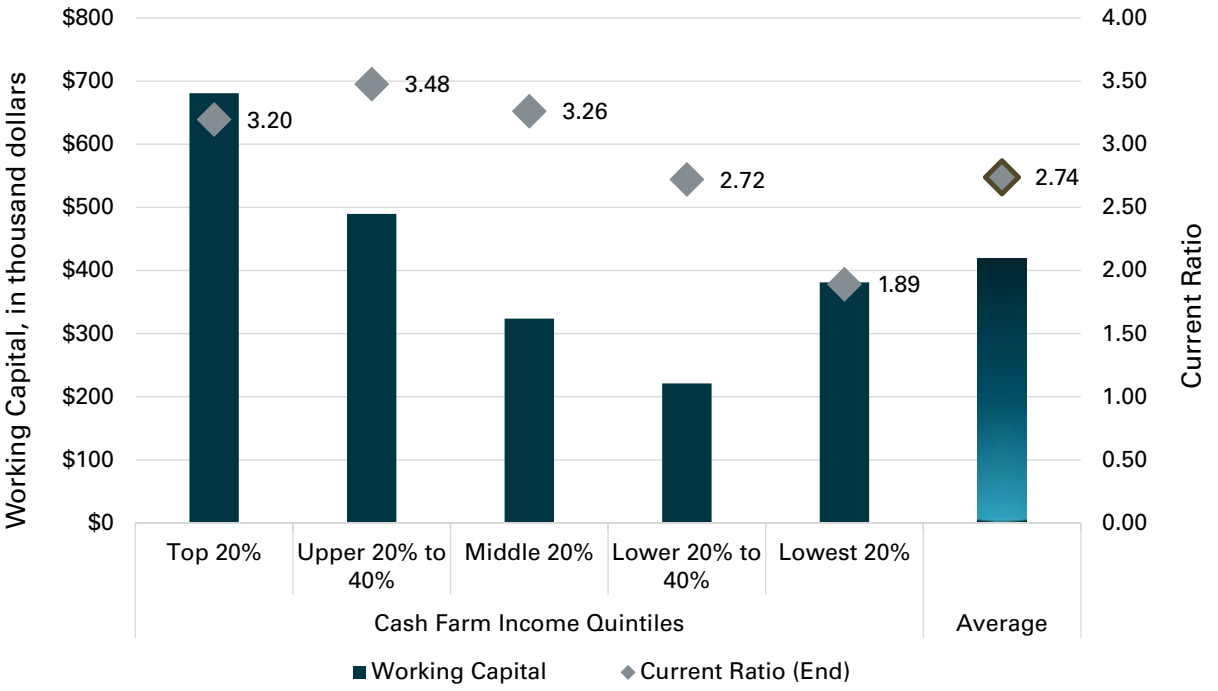


Figure 7. Farm net worth per acre farmed and total debt-to-asset ratio, by AFCI Quintiles

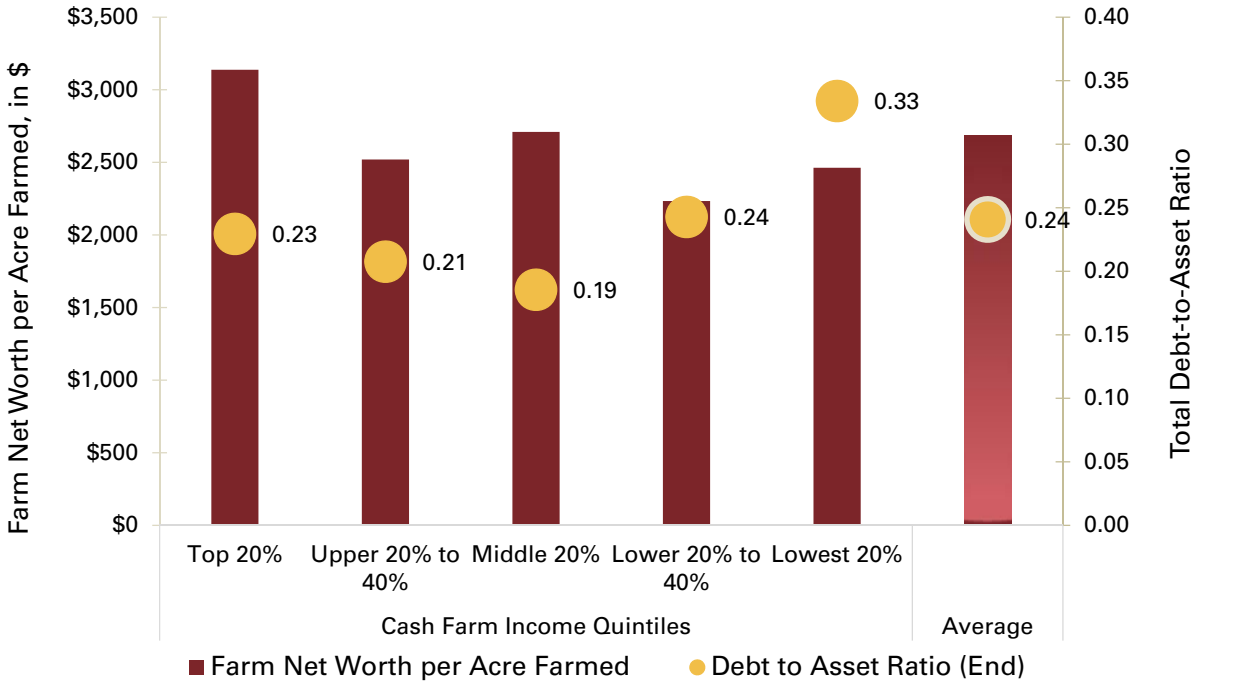
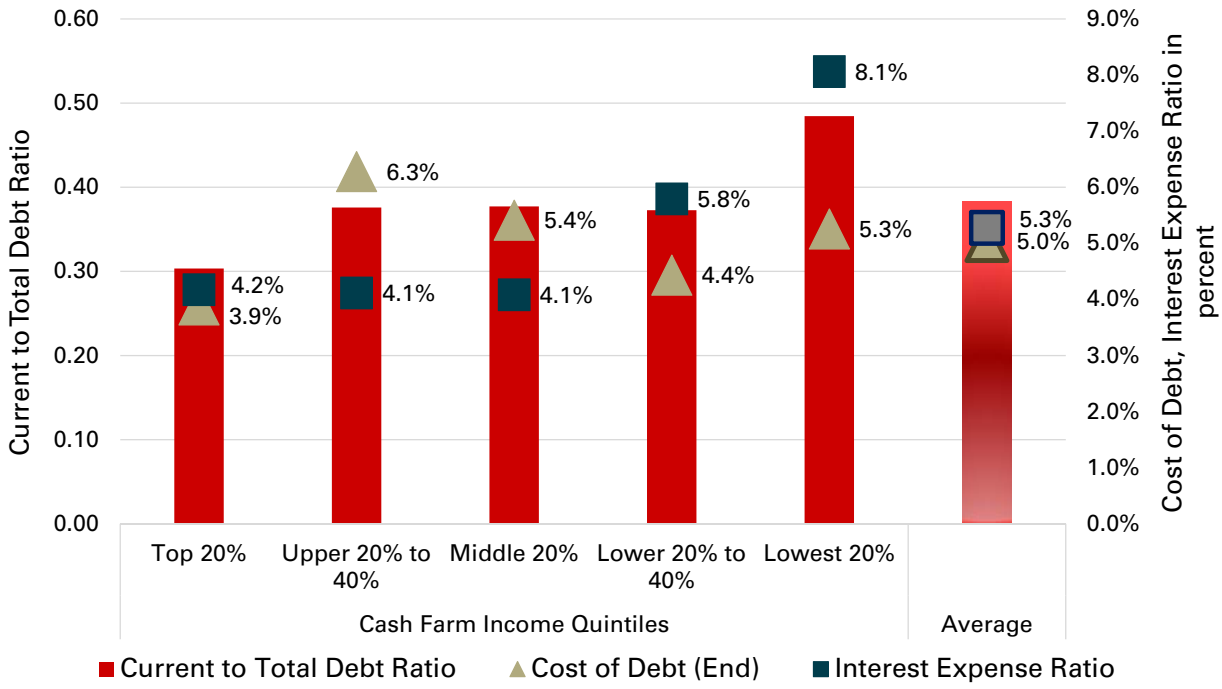


Figure 8. Current to total debt ratio, cost of debt, and interest expense ratio, by AFCI Quintiles



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