

Benchmarking Ohio Farms' Financial Health

Rabail Chandio, Haotian Wu, and Ani L. Katchova

Farm Income Enhancement Program
Department of Agricultural, Environmental, and Development Economics
The Ohio State University
July 24, 2022

There are numerous aspects of any farm business' performance, and it is hard to understand, evaluate, and take definitive action to improve performance without a clear way of assessing a farm business' financial health. This report provides a guideline to measure a farm business' financial health for Ohio farms, and benchmark it against other farms in the Midwest and the US for a complete assessment of absolute and relative performance.

BENCHMARKING FINANCIAL HEALTH

Benchmarking is a process of measuring performance against generally agreed upon standards, other successful farm businesses, or peers in a given geographical region. This allows a farm operator to identify any areas where improvements are needed and determine definitive actions needed to achieve their financial goals. In this report, we provide three different benchmarks against which farmers in Ohio can evaluate the performance of their own farms across three categories of financial performance: liquidity, solvency, and profitability. The three benchmarks we discuss are: first, the industry standards for financial ratios; second, the average performance of Ohio farms; and, third, the average performance of Midwest and US farms.

DATA

We use the Agricultural Resource Management Survey (ARMS) data obtained from USDA Economic Research Service (ERS) regarding a representative sample of Ohio farms. The Ohio numbers should be interpreted with caution, since very few farms are selected in the ARMS survey to represent all 77,800 farms in Ohio. To compare the Ohio farms' financial performance with their counterparts in the Midwest and the US, we also use publicly available ARMS summary data for the Midwest region, along with the ARMS summary data for the entire US. We focus on the farm financial data and extract the financial ratios to perform our analysis. The data range from 2012 to 2020 and are recorded annually.

Here are some basic statistics for farms in Ohio, the Midwest and the US in 2020:

	Ohio	Midwest	US
Assets	\$894,107	\$1,498,286	\$1,436,949
Equity	\$779,453	\$1,325,339	\$1,318,824
Debt	\$114,654	\$172,947	\$118,125
Gross cash income	\$113,587	\$192,263	\$173,947
Net income	\$27,856	\$50,383	\$42,035

As it can be seen from assets and equity, the average size of

farms in Ohio is almost half of the farms that for farms in the Midwest and the US, which are similar to each other. However, despite significantly smaller assets, farms in Ohio have average debt levels that are comparable to the US average but smaller than the Midwest average. Therefore, given their size, Ohio farms would have a higher debt-to-asset ratio than their counterparts in the Midwest or the US. Moreover, the gross and net cash incomes of Ohio farms are smaller in magnitude because of their farm size in terms of assets is smaller too. Working with absolute values and seeing the differences in sizes of Ohio farms compared to those in the Midwest and the US, underlines the importance of also working with relative numbers, such as financial ratios.

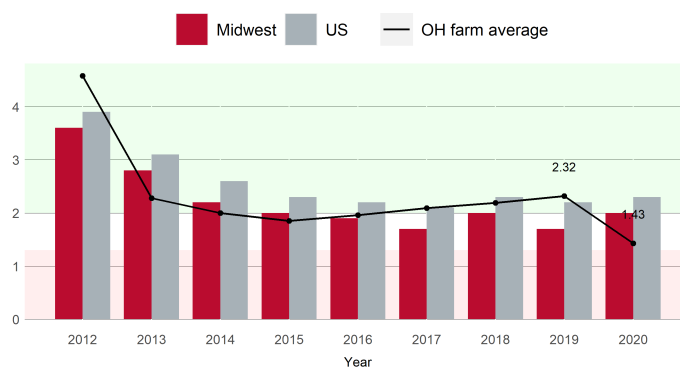
1 LIQUIDITY

Liquidity refers to a farm's ability to generate cash for meeting farm expenses and taxes, and making debt payments. Liquidity is measured most often using the current ratio:

$$\text{Current Ratio} = \frac{\text{Current Farm Assets}}{\text{Current Farm Debt}}$$

which tells farmers if they have enough cash and liquid assets that can be sold right away, in their farm business, to pay off their short-term financial liabilities.

Figure 1: Current Ratio



General industry standards (marked by the red, white, and green areas on the background of figures) suggest that a current ratio over 2 is ideal (green), between 1 and 2 is stable

and acceptable (white), while under 1 is indicative of financial stress (red) on the farm. In the last few years, Ohio farmers have maintained a healthy current ratio overall, which fell sharply at the onset of the COVID-19 pandemic from 2.32 in 2019 to 1.43 in 2020. It is still above 1, but, in comparison, Midwest farmers and US farmers were able to maintain a higher current ratio in 2020 despite the pandemic.

Other indicators that may help the farmers assess the liquidity of their farms are total working capital (operating capital available to perform day-to-day farm business operations), and working capital to gross cash income ratio (measuring the level of available working capital against the size of the farm business).

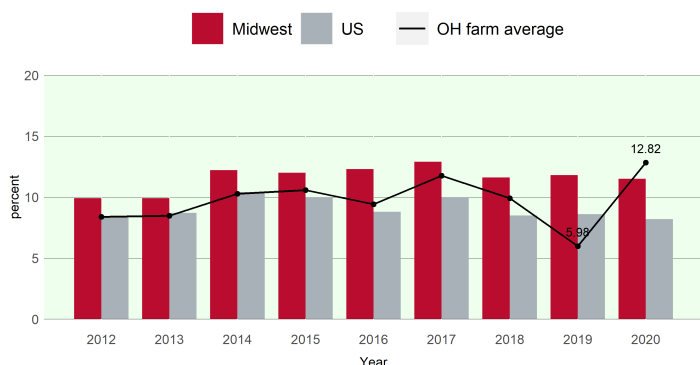
2 SOLVENCY

While liquidity is important in the short term running of the farm business, solvency refers to a business' total capacity to pay off all its liabilities and financial obligations. That is, if the farm business is sold tomorrow, will it generate enough cash to pay off all the short-term and long-term debts? This is imperative in understanding the financial risk and borrowing capacity of a farm business. We can use the debt-to-asset ratio as an indicator of a farm's level of solvency.

$$\text{Debt-to-Asset Ratio} = \frac{\text{Total Farm Debt}}{\text{Total Farm Assets}}$$

This ratio measures the share of total assets for a business that is owed to lenders. Conversely, 1 minus the debt-to-asset ratio equals the equity-to-asset ratio, which measures the share of total assets of a farm business owned by the farmer. Figure 2 shows that on average, Ohio farmers, Midwest farmers, and US farmers are all in the ideal range of the debt-to-asset ratio, which is under 30%. There was a sharp increase in the debt-to-asset ratio for Ohio farms from approximately 6% to 12% at the onset of the COVID-19 pandemic, but if it remains steady at these values, that would still be an indicator of good financial health.

Figure 2: Debt-to-Asset Ratio

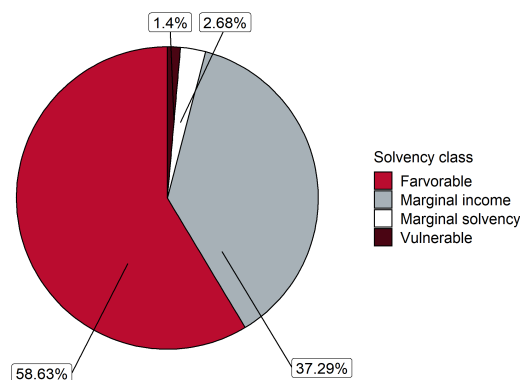


Another interesting thing to note is that the debt-to-asset ratio has been on a slow but steady and almost consistent rise in the last 8 years for farms in the Midwest, which have had a slightly higher debt-to-assets ratio than US farms. In comparison, Ohio farms had a relatively better performance than the Midwest farms, even outperforming the average US farms in the few years before the pandemic. That means Ohio farms faced lower risk with a lower debt-to-asset ratio than Midwest and US farms until the pandemic. Even after the pan-

dem, the average Midwest and US farms remained stable at their debt-to-asset ratio, while Ohio farms faced an increase, yet remained in a favorable state. This is reflected in figure 3 which shows that most Ohio farms are in a favorable or marginal income solvency class, with only a small fraction of farms, 1.4%, in problematic ratio zones (marginal solvency or vulnerable).

According to ARMS documentation "favorable operations have debt/assets less than 40% and positive net farm incomes, marginal income implies debt/assets less than 40% and negative net farm income, marginal solvency implies debt/assets greater than 40% and positive net farm income, and vulnerable implies debt/assets greater than 40% and negative net farm income."

Figure 3: Ohio Farms by Solvency Class: 2020



Nevertheless, despite being in the acceptable range, farmers should still take caution, compare themselves to their past performance, and continue to keep their debt obligations as low as the external constraints allow.

3 PROFITABILITY

Although a farm's profitability is directly measured by net farm income, it is difficult to benchmark it. Net farm income is, therefore, often looked at in comparison to the farm's size and scale. This allows Ohio farms which on average are smaller to be compared to US and Midwest farms which on average are larger. Therefore, we will discuss two financial ratios that take the size of the farming operation in account: rate of return on equity and operating profit margin.

The rate of return on equity (ROE) takes into account the value of unpaid labor and management provided by the farm owner. It is calculated as

$$\text{Rate of Return on Equity} = \frac{\text{Return on Equity}}{\text{Average Farm Net Worth}}$$

where

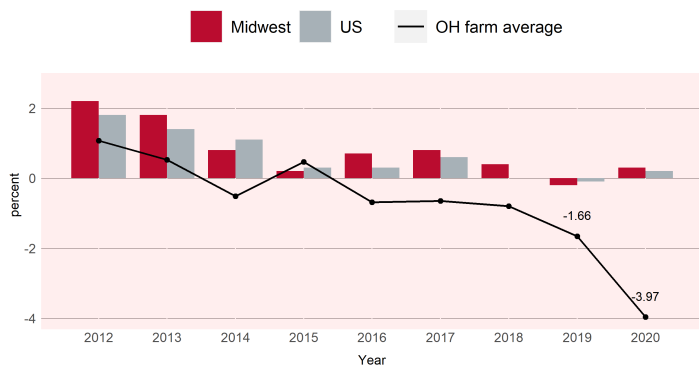
$$\text{Return on Equity} =$$

$\frac{\text{Net Farm Income} - \text{Value of Operator Labor \& Management}}{\text{Average Farm Net Worth}}$

and measures the profitability of the farm as a proportion of the net worth or equity of the farm. A higher number is always better, but the general industry standards for rate of return on equity dictate that a number above 10% is ideal (green), between 3% and 10% is stable (white), and below 3% is weak and worrisome (red). Unfortunately, this is an

area where Ohio, Midwest, and US farms have been struggling (see figure 4). A negative number on the figure means that farms have experienced negative profits (losses). Although farms in the Midwest and the US have mostly been operating with a positive income (profit), they experienced losses in 2019. Moreover, despite having positive income otherwise, their return on equity is less than 3%. Ohio farms, on the other hand, have historically had even larger profit losses on their farms, reaching almost negative 4% of the farm equity value in 2020. That means that an average Ohio farm experienced a loss of approximately \$31,000 in 2020.

Figure 4: Rate of Return on Equity



Another way to assess profitability is to use the operating profit margin, which is a way to measure the profit received per unit of output. It is measured as

$$\text{Operating Profit Margin} = \frac{\text{Return on Assets}}{\text{Value of Farm Production}}$$

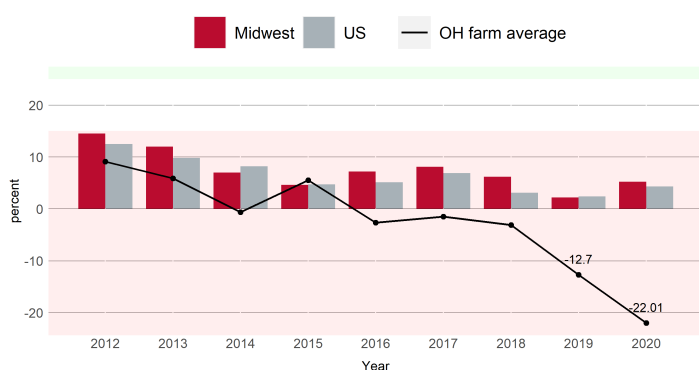
where

$$\text{Value of Farm Production} =$$

$$\text{Gross Cash Farm Income} + \text{Change in inventory}$$

Through this ratio, the farmer can understand how much they earn on each unit of output sold and whether their problem lies in increasing the profit per unit rather than increasing the size of their farm. If the operating profit margin is low (under 15%), the farm is in a concerning zone (red background in figure 5).

Figure 5: Operating Profit Margin Ratio



A stable range of operating profit margin is between 15% and 25% while an ideal number is above 25%. Similar to the ROE

measure of profitability, we can see in figure 5 that Ohio farmers have been in the red zone since 2012 while experiencing high losses in the last couple of years. Among all other farms, on average, Midwest farms have performed relatively better than the overall US farms by achieving an operating profit margin of over 5% in most years, but the green (ideal) range still remained far.

CONCLUDING REMARKS

This report presented statistics of US, Midwest, and Ohio farms along three key areas of financial performance: liquidity, solvency, and profitability. Overall, we observe that while the farm operations performed well along the measures of liquidity and solvency, their performance in profitability is concerning. Especially with the onset of the pandemic, it was expected that some of the small farm operations would go bankrupt due to a significant decrease in sales. A highly probable cause of the very low numbers for Ohio farms in recent years in figures 4 and 5 for return on equity and operating profit margin ratio, respectively, is a decrease in total sales and gross revenue.

REFERENCES

1. USDA ARMS Team. (2021, December 16). USDA ERS - ARMS Farm Financial and Crop Production Practices. <https://www.ers.usda.gov/data-products/arms-farm-financial-and-crop-production-practices/>
2. Meyer, Z. (2020, June 1). One-third of small independent farms could go bankrupt in 2020 due to COVID-19. Fast Company. <https://www.fastcompany.com/90510325/one-third-of-small-independent-farms-could-go-bankrupt-in-2020-due-to-covid-19>
3. Nelson, C. (2020, May 14). Ohio Farmers Hit Hard by Pandemic. <https://spectrumnews1.com/oh/columbus/news/2020/05/14/ohio-farmers-hit-hard-by-pandemic>
4. Bau, D., Hachfeld, G., Holcomb, C. R., Hulinsky, N., Roberts, M. (2018). Ratios and measurements in farm finance. <https://extension.umn.edu/farm-finance/ratios-and-measurements>



Farm Income Enhancement Program