FARM RETURNS:

They Measure Up to Returns To Other Investments

by James Monke, Michael Boehlje, and Glenn Pederson

> ➤ Join most any group of farmers at the local cafes for morning coffee and you'll hear complaints that, "Farm prices are too low, and farm inputs cost too much." "Farmer returns just don't measure up to returns associated with other investments like stocks and bonds," they will often argue. But this just isn't the case. The record shows (when both good times and bad times are considered) that returns from current income and capital gains for farm investment match or exceed that on many nonfarm investments. And the riskiness or fluctuation in returns in farming is actually less than it is for many nonfarm investments.

When we studied returns to farming in southwest Minnesota over a 29-year period (1960-1988), we found that returns matched or beat nonfarm investments. Not only that, we also found that: the year-to-year variability of returns to cash rented farmland assets was more than with nonfarm assets but the variability of returns for a typical farm business including land, buildings, machinery, equipment, and inventories was actually less than for nonfarm assets.

In all we examined the returns to 10 alternative types of investments.

Farm Investments:

• A "typical" farm business (i.e., a combination of land, buildings and improvements, machinery and equipment, and other productive assets),

• Farmland which could be cash rented out to an operating farmer,

Nonfarm Assets:

• Long-term U.S. government bonds,
• High grade municipal bonds of state and local governments,
• AA-grade corporate bonds,
• Common stocks,
• Growth-and-income mutual funds,
• U.S. Treasury Bills with a six-month maturity,
• Six-month certificates of deposit of commercial banks,
• Six-month maturity commercial paper of corporate business firms.

Although these investment alternatives vary in liquidity and maturity characteristics, they are readily available and provide a basis for comparing the returns and risks of investing in farm and nonfarm assets.

We also examined four characteristics of the economic return for each of the 10 alternative types of investments.

(1) The composition of the return—the annual current income

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(profit or loss) and annual changes in the value of the asset (capital gain or loss). Although capital gains and losses are not directly spendable, they affect wealth and therefore should not be ignored in considering alternative investment opportunities. For example, when investors evaluate the prospects of buying stocks or bonds, they are interested in whether the value of the stock or bond is expected to rise or fall, as well as the annual income stream of dividends or interest. Likewise, prospective investors in farm or nonfarm real estate are concerned about the expected change in value of real estate, as well as the income the property will produce in the form of rents or products produced on land.

(2) The average total rate of return—the mean rate of annual income (or loss) plus the mean rate of annual capital gain (or loss). The rate of return measures we report are in nominal (current) pre-tax dollar units.

(3) The variability of total annual rates of return—the year-to-year variability as indicated by the standard deviation, and the coefficient of variation of the total rate of return which measures the relative (unitless) variability of the historical annual rates of return.

(4) The relationship between (1) fluctuations in rates of return to farm assets and (2) fluctuations in the rates of return to alternative investments. We examined this relationship because investment strategies provide opportunities to reduce risk through portfolio diversification if they combine two or more assets whose rates of return exhibit a degree of independence or negative correlation.

Findings

Here is how the rates of returns compare among the alternative investments

Average annual returns 1960-88

Investment	Total	From Income	From Capital Gains
		(Percent)	
Farm:			
Farmland	10.6	5.4	5.2
"Typical" farm	10.7	8.2	2.5
Nonfarm:			
Stocks	10.4	3.9	6.5
Mutual funds	10.5	--	--
Gov't bonds	6.1	7.3	-1.2
Municipal bonds	5.4	6.2	-0.8
Corporate bonds	6.6	8.2	-1.6
Treasury bills	6.5	6.5	--
Commercial paper	7.1	7.1	--
Certificate of deposit	6.8	6.8	--

Note that the total rates of return for cash rented farmland and the "typical" farm—10.6 and 10.7 percent—are quite comparable to the returns for common stocks and mutual funds, but substantially higher than the returns on debt instruments like bonds and certificates of deposit.

The composition of the return for farm related investments, however, is quite different. For farmland the income and the capital gains are about equal. But for the "typical" farm income return is 8.2 percent while capital gains is only 2.5 percent.

Bonds generated negative capital gains when measured for the entire time period, 1960 through 1988. These losses are a result of generally rising interest and inflation rates during the period.

People are concerned not just about the average return they can expect when they make an investment. They also consider the likely variability from year to year in the return. Here is how two measures of variability compare.

Measure of variability of return 1960-88

Investment	Standard deviation	Standard deviation/mean
	(Percent)	
Farm		
Farmland	16.9	160
"Typical" farm	10.7	100
Nonfarm		
Stocks	14.8	143
Mutual funds	14.6	138
Gov't bonds	9.8	160
Municipal bonds	13.4	248
Corporate bonds	10.0	152
Treasury bills	2.6	41
Commercial paper	2.9	42
Certificate of deposit	3.3	48

The risks for farmland, stock, and mutual funds were comparable as indicated by the standard deviation. However, the 10.7 percent standard deviation for the "typical" farm was substantially less. As expected, the risk with Treasury bills, commercial paper, and certificates of deposit is quite low.

The coefficient of variation indicates the relative level of risk. For example, a "typical" farm (at a level of 100) had less relative risk than that of other "equity" investments (farmland, stocks, mutual funds) and bonds. A similar comparison indicates that the relative risk of a "typical" farm was almost double that for Treasury bills, commercial paper, and CDs. The coefficient of variation measure is often interpreted as a "risk/reward" ratio. That is, the amount of risk (standard deviation of returns) one must be willing to accept to receive the associated reward (mean return). Interestingly, the computed risk/reward ratio for the "typical" farm is relatively low when compared to farmland and financial assets such as common stocks, mutual funds, and bonds. Short-term, high-grade investments such as Treasury bills, commercial paper, and CDs have relatively low risk/reward ratios.

Diversifying Assets

Investors frequently diversify their portfolios of assets to achieve a more acceptable risk/reward ratio. The analogy is the old adage, "Don't put all your eggs in one basket." However, different approaches to diversification are not equally effective at avoiding risk.

The key to successful diversification of investments is to combine assets which have rates of returns that (1) move in opposite directions when they change, or (2) do not systematically move in either the opposite or the same direction. When investments are diversified the average total rate of returns may be reduced. So one must search for assets which generate rates of return that meet both the acceptable risk and desired rate of return objectives.

To illustrate the effects of diversification of investments, we computed the returns for four alternative portfolios where investment in a "typical" farm comprised 75 percent of the total value of each portfolio and the balance (25 percent) was invested in another type of asset (mutual funds, government bonds, CDs or farmland). If a farmer would have allocated 25 percent of the overall investment to a representative income-and-growth mutual fund rather than all to farm assets, the average portfolio rate of return would have fallen slightly from 10.76 percent to 10.65 percent. However, the variability of the portfolio rate of return would have been reduced significantly from 10.70 percent to 7.33 percent. There would have been a corresponding reduction in relative risk (the coefficient of variation declines from 100 to 68).

Similar diversification effects are illustrated using government bonds and CDs. The exception to this pattern occurs when the additional 25 percent is invested in farmland. In this situation,
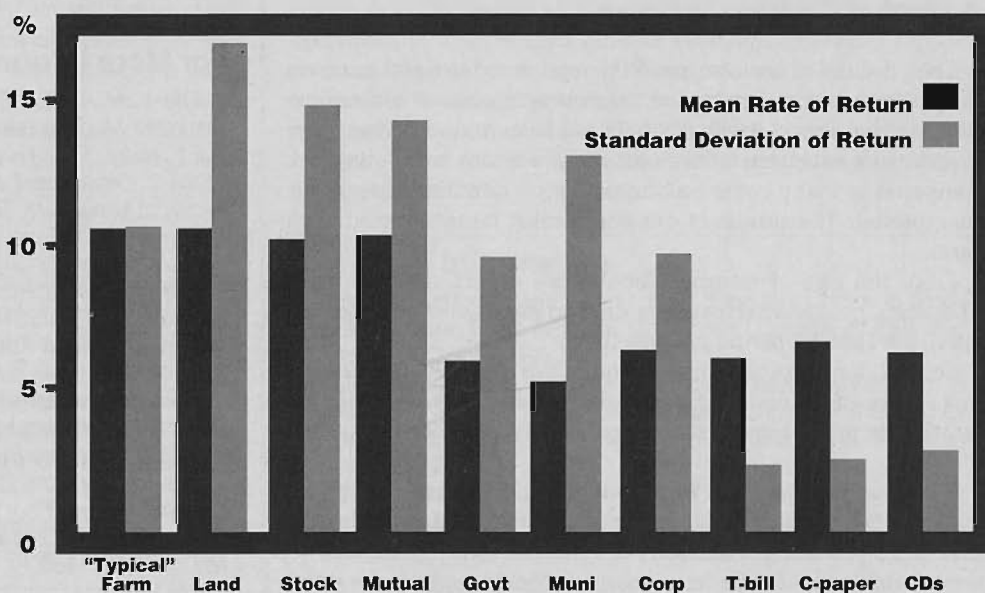
The Data

Data were developed for the 10 investment options for 29 years, 1960 through 1988. This time period captures boom and bust cycles in asset returns. Farm returns, for example, were stable to increasing from the late 1960s into the early 1970s. In contrast during this same period, the stock market experienced volatility and low dividend returns and capital losses. In the 1980s, agriculture experienced a major land price deflation and substantial income volatility, while the stock market showed consistently positive total annual returns.

Data for "typical" farm investment current income rates of return are gathered from the Southwest Minnesota Farm Business Management Association (FBMA) records and reported by Olson and his colleagues at the University of Minnesota. Annual report summaries from 1960 through 1988 provide records for the "average southwestern Minnesota farm." While individual farm data would have been preferred, the number of farms consecutively participating in the association is small and limits the potential sample size. Therefore, this study used the "farm averages" reported in FBMA annual business summaries. Current income rates of return for cash rented farmland were derived from historic gross rental figures for Minnesota as developed by the USDA's Economic Research Service adjusted for estimated property taxes and maintenance charges. Capital gains rates of return for "typical" farm and farmland investment options are based on changes in land prices in Southwestern Minnesota as reported by Schwab and Raup. Data for the remaining investment alternatives are gathered from reports of the Federal Reserve Board of Governors and the Standard and Poors Corporation reports.

Total rates of return for farm and nonfarm assets

Legend: ■ Mean Rate of Return ■ Standard Deviation of Return

X-axis categories: "Typical" Farm, Land, Stock, Mutual, Govt, Muni, Corp, T-bill, C-paper, CDs

the expected rate of return is slightly reduced to 10.6 percent, but the variability of returns is higher, 11.96 instead of 10.70 percent. The higher coefficient of variation, 112 instead of 100, shows that adding cash rented farmland to the portfolios would involve greater risks.

A Word of Caution

This discussion has compared the returns to farm and nonfarm investments and demonstrated the principle of asset diversification for the period 1960-1988. The results indicate that farm investments have generated a competitive return with lower risk compared to many common alternative investments during this time period. The results of our study must be interpreted with care.

First, the rate of return estimates we report are historical. Therefore, prospective investors need to consider how representative the 1960-88 period is of the future.

Second, the "typical" farm option of our analysis represents a mix of crop and livestock farm returns. Thus, the benefits of "on-farm" enterprise diversification are already implied in our estimates.

Third, some observers may conclude that, since returns on farm assets are comparable to returns on nonfarm assets, there is less need for the government to intervene in agriculture to reduce risk and support farm prices, incomes, and asset values.

However, total returns to farm assets were comparable to those in the nonfarm sector during the 1960-88 era due in part to government from programs. Even so farmers might do more to shoulder the risks in agriculture by diversifying their investments. In fact, farmers' lack of off-farm diversification can be reviewed as a form of moral hazard.

For More Information

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