

FARM SECTOR FINANCIAL EXPERIENCE

Presented at the Faculty Seminar, Department of Agricultural Economics,  
University of Maryland, November 6, 1981

Reissued with revised data for 1981

March 31, 1982

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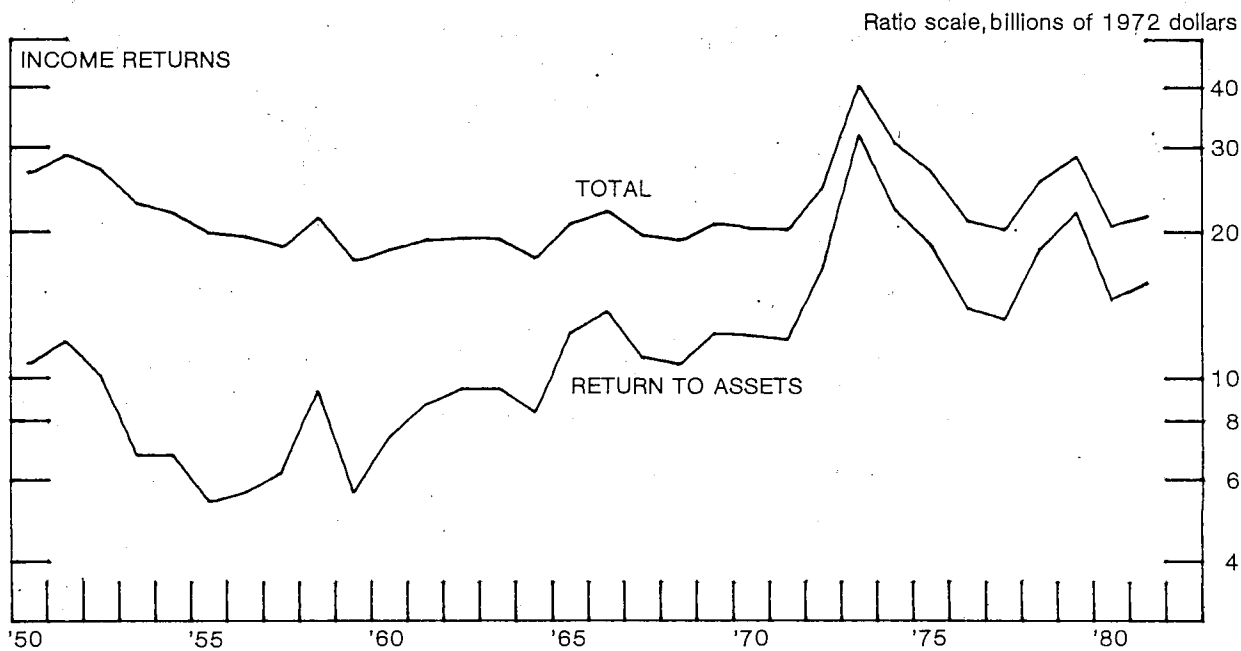
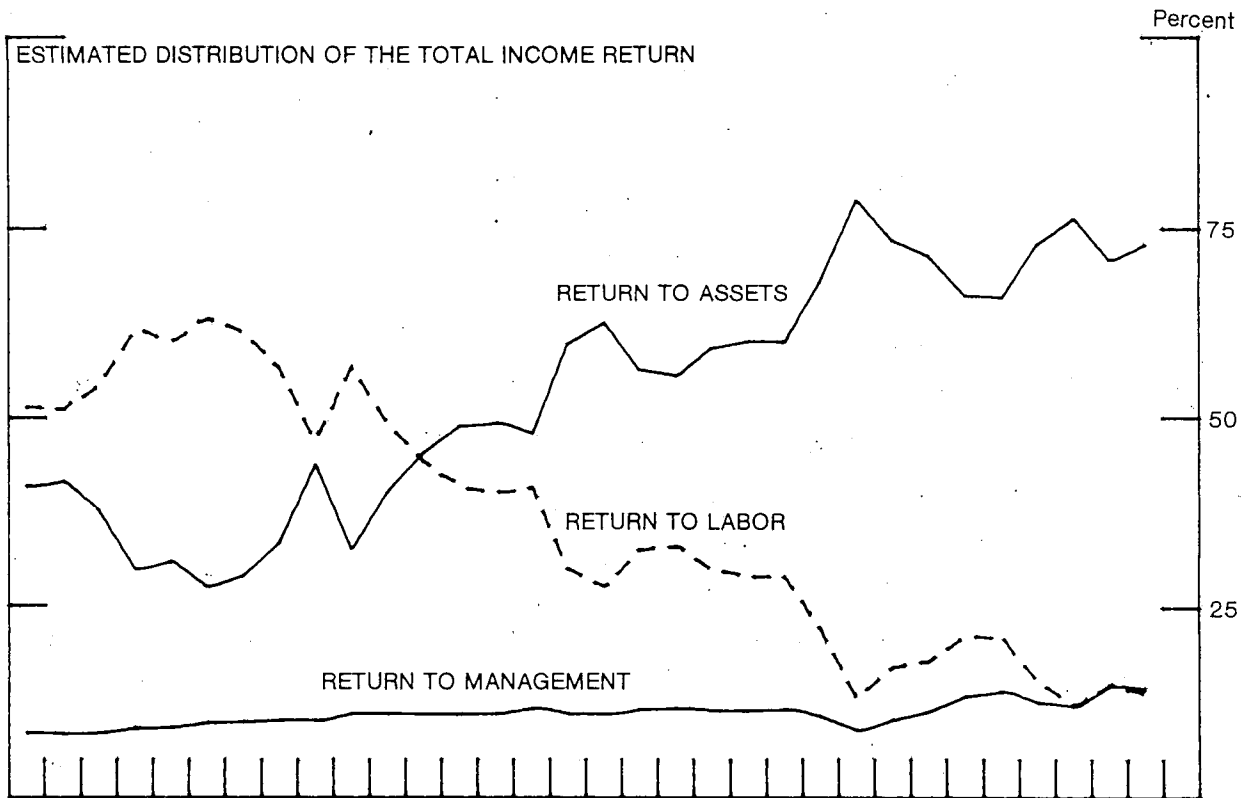
## Farm Sector Financial Experience

The most important negative influence on farm profits in 1980 and 1981 was the relative weakness of farm output prices while prices of most inputs purchased from the nonfarm sector continued to rise. A second depressant, less important in aggregate although equally or more important to some individual farmers, was higher interest rates on farm debt. To sort out the effects of each of these two factors on farm sector profits, the first part of this report discusses profits before the payment of interest. The second part then shows how profits have been affected by the use of debt and by higher interest rates.

In these analyses, the return to capital is used as the measure of farm profits. Because most farm labor and management is provided by owner-operators, the return to capital differs from the most widely used measure of farm income, operators' net farm income, which includes returns to operators' labor and management as well as capital. Because the farming industry since 1950 has reduced its management force by about one-half and its labor man-hours by 74 percent, the combined income to all three factors of production is a poor indicator of profitability. However, credible USDA estimates that partition the total income return among these three factors are available, and are shown in the top panel of chart 1. The share of the total income return that can be regarded as operators' labor earnings has fallen greatly since the mid-1950s, while the return to assets has risen to about three-fourths of the total. Therefore, although the total real income return has been relatively stagnant since the 1950s, the real return to assets has risen significantly, as indicated in the lower panel of Chart 1. The longer-term trend of this constant-dollar series, estimated over 1954-81, rises by 4.7 percent annually. Returns in 1978 and 1979 were just above this trend line, but 1980 and 1981 returns were much lower. As noted, these are real returns to farm assets before payment of interest on farm debt.

Chart 1

# Income Returns to Farm Production Assets and to Operators' Labor and Management



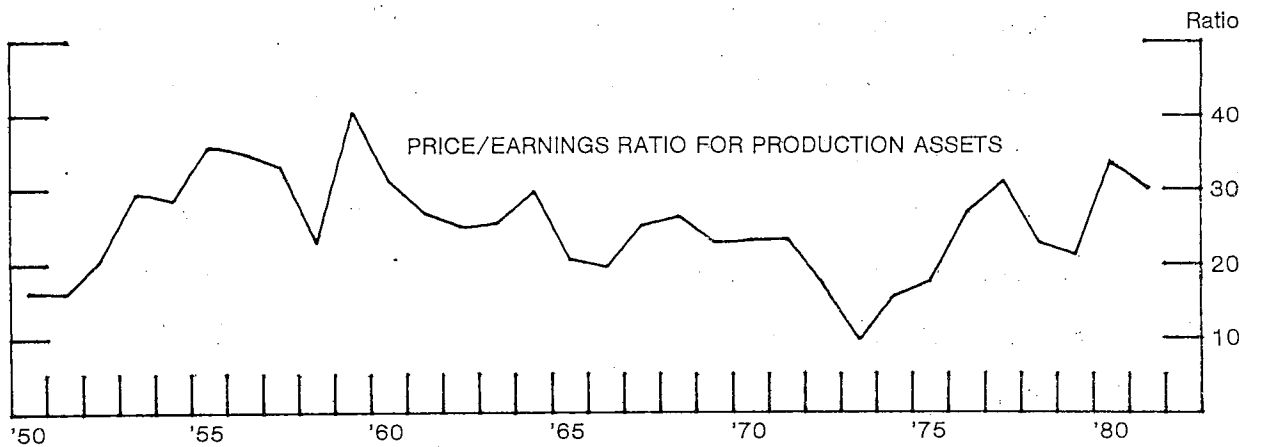
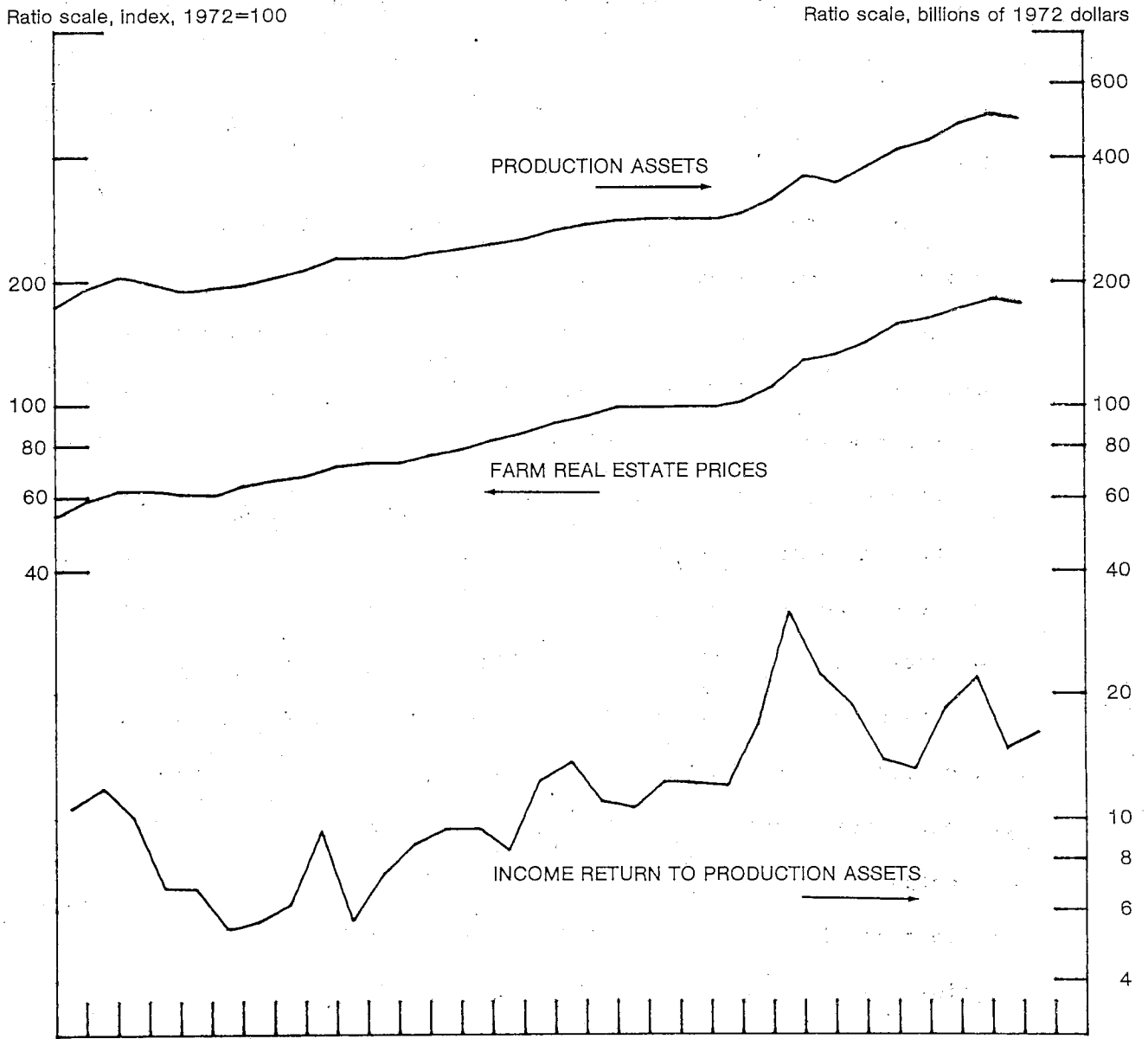
The established trend of real asset earnings is important because of its impact on farm land prices, the cornerstone of farm sector wealth. Both the trend and level of farm land prices are affected.

Over the longer term, as Chart 2 indicates, the price of farm real estate has risen at about the same rate as its earnings, which is how the price of an asset usually reacts if factors other than earnings remain unchanged or are offsetting. Increases in farm estate prices since the mid-1950s have outpaced the overall inflation rate by about 4.2 percent a year, about the same as the growth rate of real earnings. In one sense, therefore, past increases in land prices have reflected past earnings growth, with other influences offsetting one another.

Furthermore, because an established earnings growth record logically generates expectations of continued future growth, an asset with rising real earnings is priced at an appropriately higher multiple of current earnings. The lower panel of chart 2 indicates that farm assets have been accorded a price/earnings ratio averaging about 25 over the last two decades; that is, they have been priced to yield about 4 percent in the form of annual earnings. The payment of this multiple--25 times earnings--by buyers of farms is consistent with this combination: expectations that real earnings will continue to grow at an annual rate of 4 percent, and a desire to obtain a total investment return of 8 percent. Thus the level of farm land prices relative to annual earnings has been appropriate if buyers expect significant future growth in real earnings--expectations grounded in the longer-term earnings record.

From these two effects of real earnings growth, an important analytical insight emerges. To the extent that buyers of farms thus pay in advance for future real capital gains that will result from projected earnings growth, such capital gains are not windfall gains but rather an integral part of the return to farm assets.

Chart 2  
**Farm Assets and Earnings**



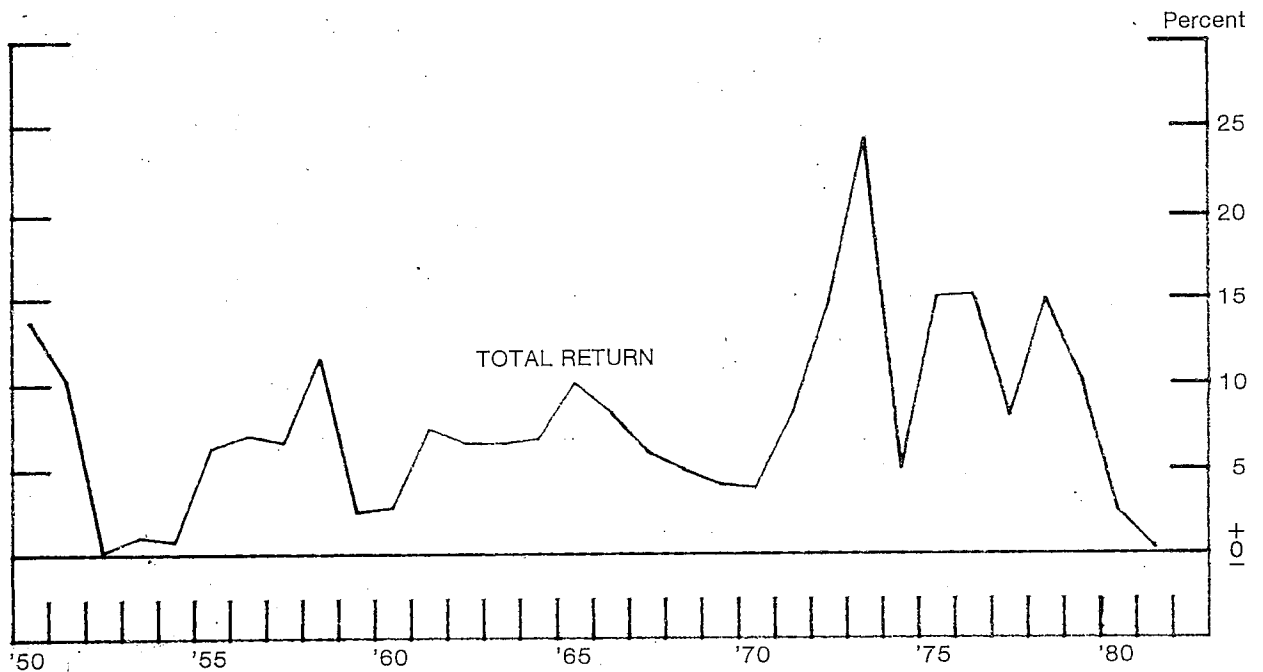
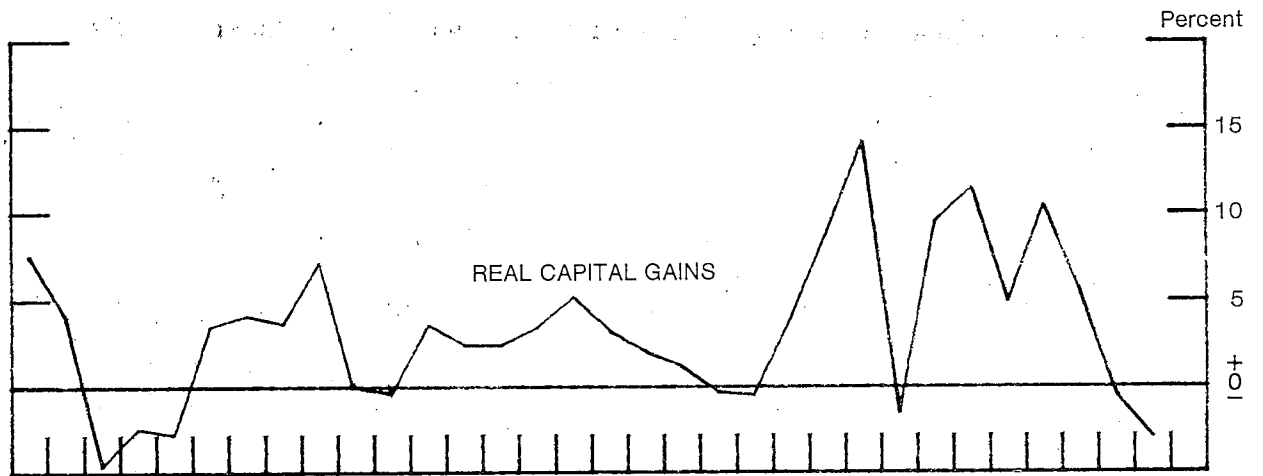
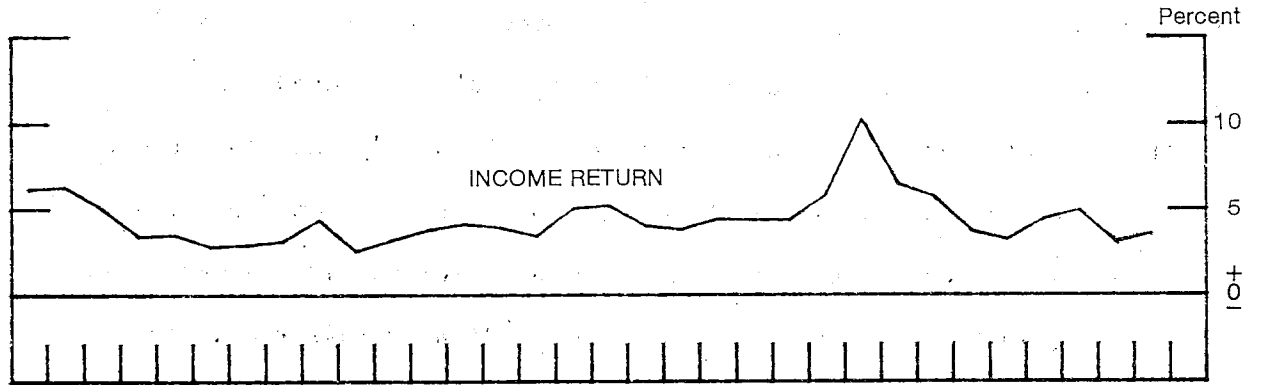
These investment returns are shown in chart 3, which also indicates their cyclical and erratic nature. In the top panel, the rate of return in the form of current income--the inverse of the asset price/earnings ratio--has averaged about 4 percent and is estimated at 3 percent for 1980 and 1981. In the next panel, the rate of return in the form of real capital gains--asset appreciation in excess of net investment and general inflation--was about zero in 1980 and negative in 1981. In the lower panel, the rate of total return is thus about 2.5 percent in 1980 and 0.5 percent in 1981, compared with the longer-term average of about 8 percent.

The chart indicates that a short period of depressed returns is not unprecedented. The current experience follows a string of years with generally above-average returns, and as such resembles experience in 1952-54, when low returns followed many wartime years of high earnings. If, as happened then, significant real earnings growth resumes before current expectations of such future growth are seriously questioned and revised, farm real estate would likely retain its high price/earnings multiple.

There are, however, worrisome differences between the current and earlier situations. In the 1950s and 1960s, productivity advances lowered unit costs of production while government programs dealt with some of their output-increasing, price-depressing effects, allowing real asset earnings to rise without increases in real farm output prices. In the 1970s, gains from reduced labor requirements slackened but greater export demand produced higher output prices and asset earnings. Now, the possibility of significant aggregate gains from further reduction in labor requirements has been about exhausted. To perpetuate the past upward trend in real asset earnings, other productivity gains and/or real farm output price increases are needed. If future trends in unit costs and output prices do not combine to produce longer-term asset earnings growth at roughly the earlier pace, readjustment of the price/earnings multiple placed on farm assets would logically follow.

Chart 3

### Rates of Return to Farm Production Assets



The returns just discussed were before the use of debt is taken into account. Chart 4 compares the general trends of farm sector debt and interest charges with those of asset values and earnings. Outstanding farm debt, which began to increase at the end of World War II, rose faster than asset values until about a decade ago. Since then, assets and debt have risen at about the same pace. The income return to assets has, since the mid-1950s, generally kept up with the rise in debt, except for the recent years of relatively low earnings. Prior to 1976, interest charges rose only slightly faster than the asset earnings from which they are paid. In recent years, however, interest paid has risen sharply, absorbing a much larger share of the return to assets.



Chart 4  
Farm Assets, Earnings, and Debt

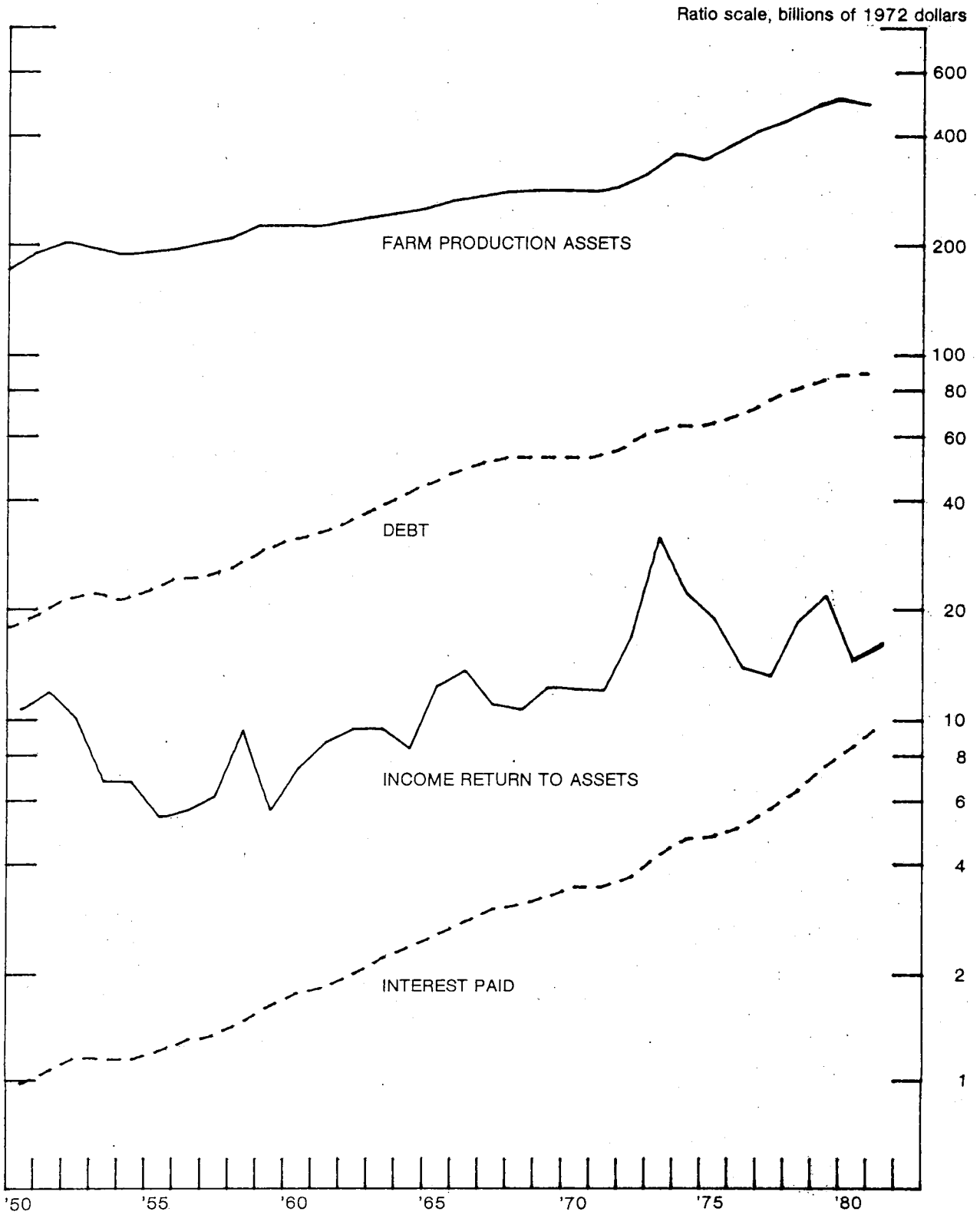


Chart 5 presents some ratios that bring these relationships and trends into sharper focus. The first two panels confirm that, over the longer term, farm debt has not been increasing greatly relative to either asset values or earnings. Since 1965, the ratio of debt to assets has remained in the 17 to 19 percent range—only slightly above the ratio of 15 percent in nonfarm noncorporate business in 1980, and much lower than the ratio of 41 percent in corporate nonfinancial business. The second panel shows that the ratio of debt to asset earnings has for some time averaged about 4, with fluctuations around this level caused mainly by variations in earnings.

While the ratio of debt to earnings thus rose as earnings fell, this development accounts for only part of the recent sharp rise in the relative burden of interest charges, shown in the lower panel. The rest is due to a higher average interest rate on outstanding farm debt, which has risen from 7.5 percent in 1977 to about 10.3 percent in 1981. The chart indicates that interest charges absorbed 57 percent of asset earnings in 1981, even though debt was only 17 percent of asset values.

The rise in the ratio of interest charges to asset earnings indicates that farmers on average have faced a greater cash flow problem. Cash flow problems have been especially severe for those farmers with a much higher debt/asset ratio and/or a significantly higher average interest rate. For these farmers, interest charges may be absorbing the entire return to assets and some or all of the return to labor and management, or they may even exceed the total return. A decline in interest rates will greatly benefit this group; meanwhile, to meet their debt service requirements during this period of reduced income, these farmers may need to increase borrowing or to sell assets. Importantly, however, the data charted also indicate that only a minority of farmers can be in this precarious financial position; otherwise, the averages charted would not lie where they do.

Chart 5  
Farm Debt Ratios

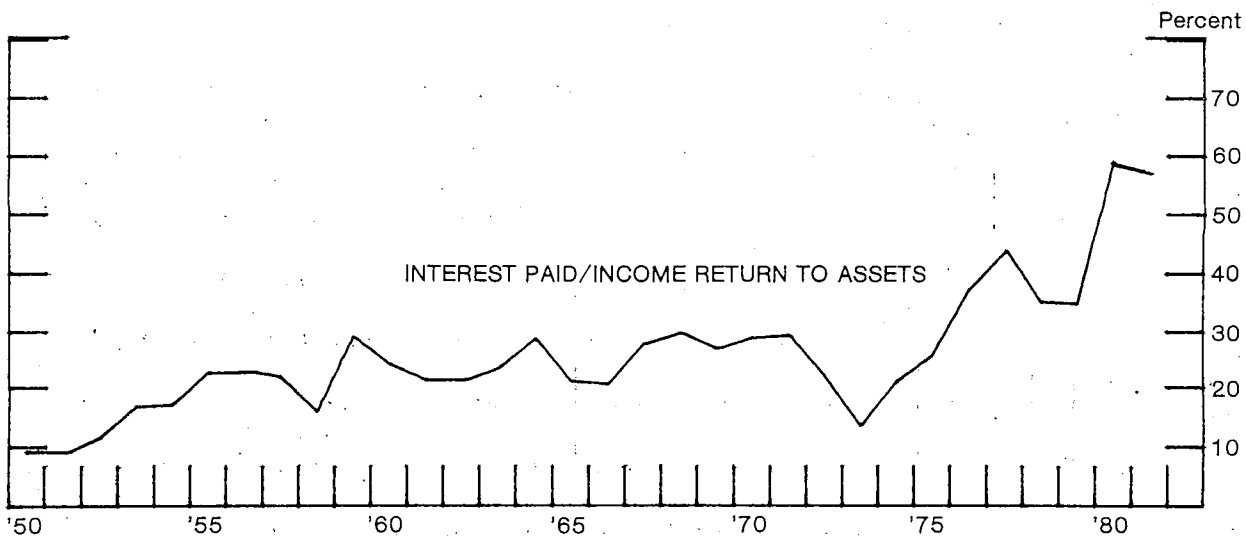
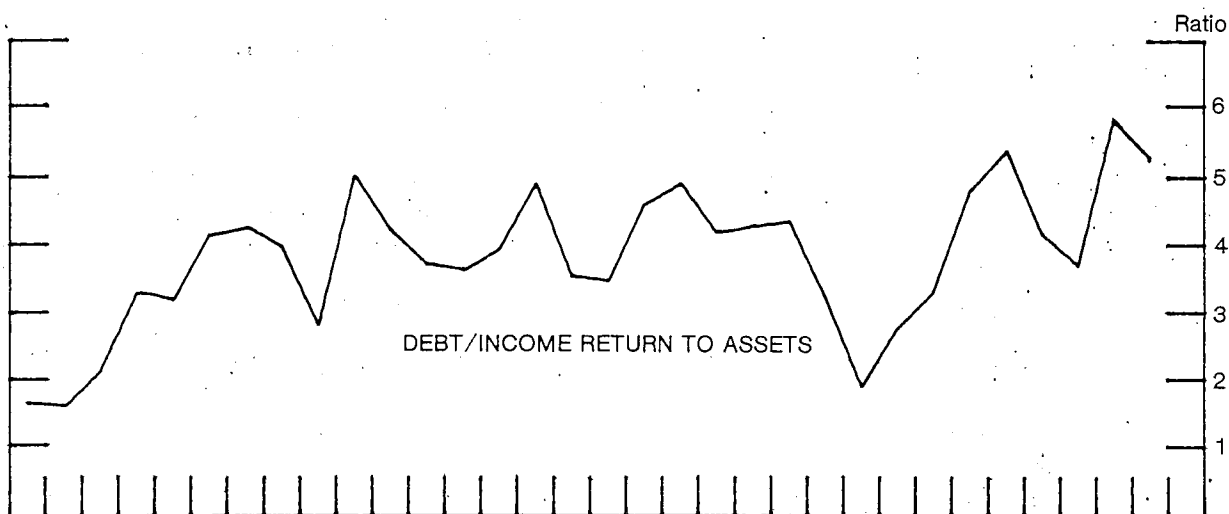
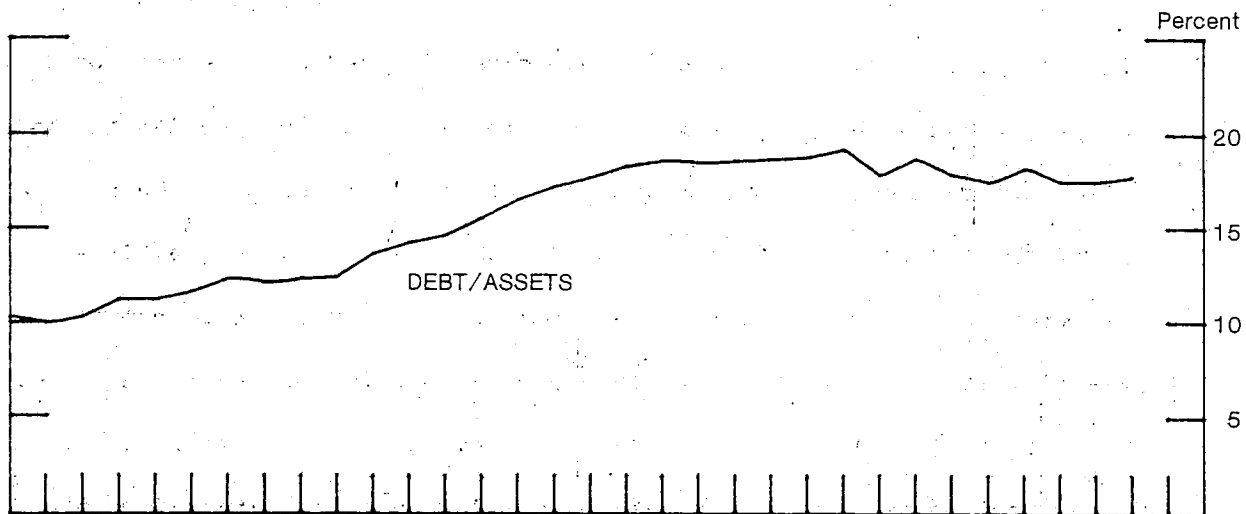


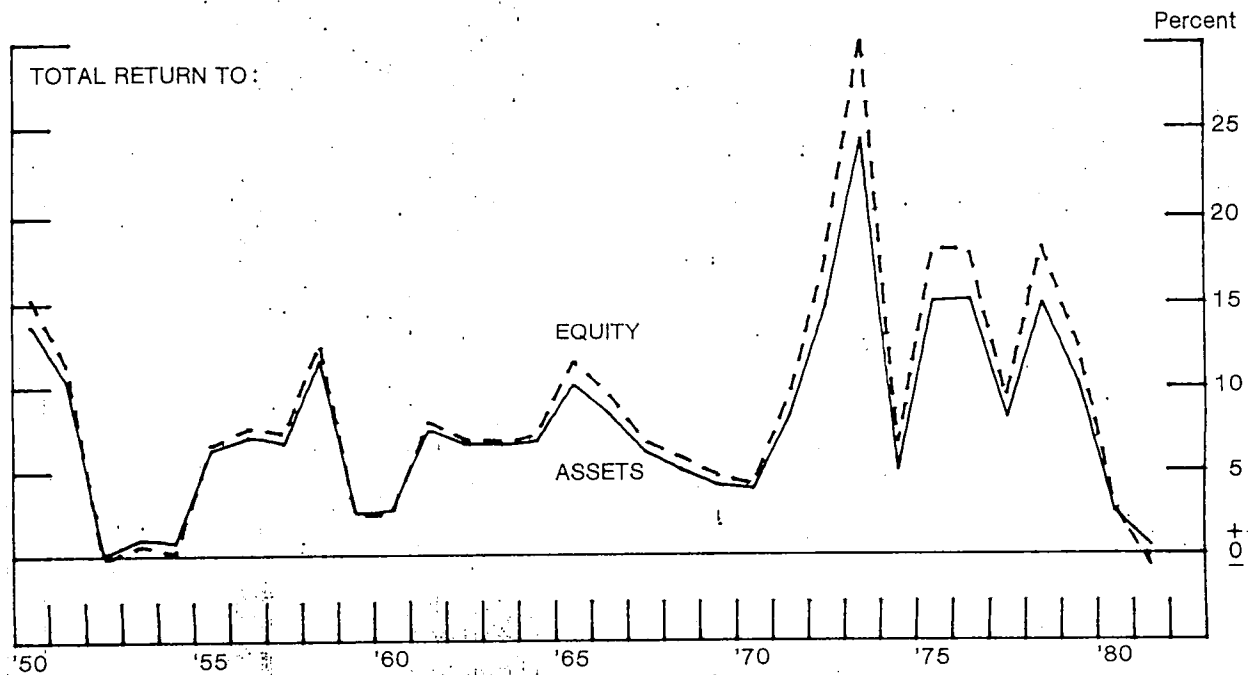
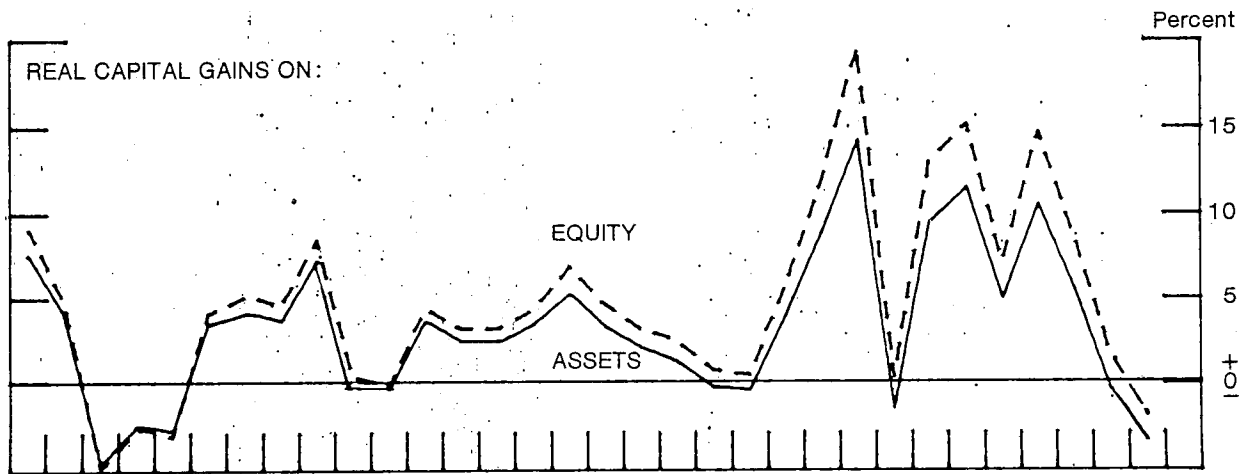
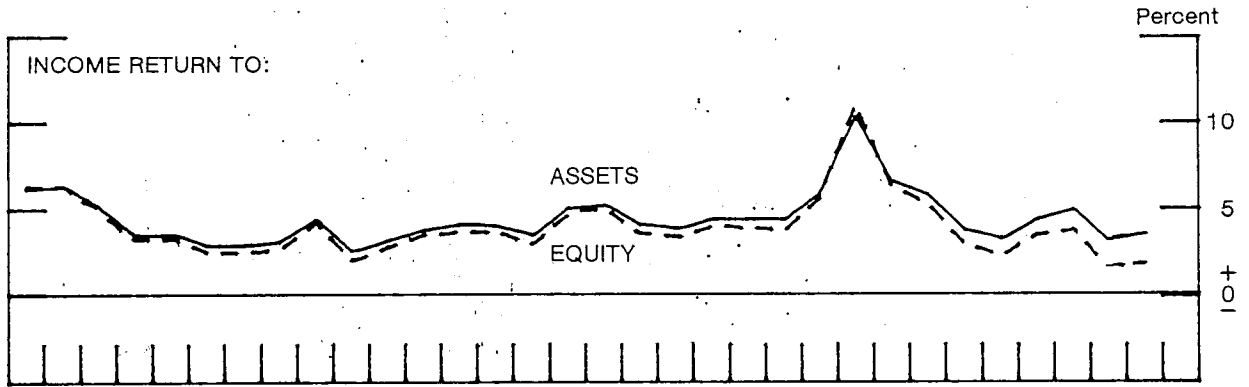
Chart 6 shows the effects of credit use on farm sector profitability.

In each panel, the difference between the solid line and the dashed line is the amount by which the use of debt changed the rate of return. Thus, in the upper panel, the use of credit generally reduced the rate of income return, because the average interest rate paid usually exceeded the rate of return to assets. In 1980 and 1981, this negative impact became more significant than in earlier years. In most years, however, a higher rate of return from real capital gains resulted from the leverage provided by use of debt, as shown in the second panel. And in most years, as the lower panel indicates, this increase more than offset the reduction in the rate of income return, and so the rate of total return was enhanced by the use of credit. In 1981, however, sector credit use slightly reduced the total rate of return. This last happened in 1959-60, and before that in 1952-54.

In summary, it is evident that while returns to farm capital are currently depressed, the rise in interest charges accounts for a relatively small part of the drop in the rate of total return. A minority of farmers who are heavily indebted and/or paying high current rates on most of their debt constitute an exception to this overall finding; they are financially threatened by high interest rates and will benefit greatly when rates fall. For most farmers, restoration of the earlier level and trend of real asset earnings is more important. At their 1981 levels, farm asset values appear to reflect expectations that real asset earnings will rebound from present depressed levels and, over the longer term, resume their upward trend. This outcome, which would favor present owners of farm assets, requires significant productivity gains combined with sufficient strength in demand or government programs to capture the benefits of these gains for producers, or a rising trend in real farm output prices. Over time, the real rate of total return desired by owners and prospective owners of farm assets will tend to be attained--if not through real earnings growth, then through changes in real asset values or some combination of these events.

Chart 6

### Rates of Return to Farm Production Assets and Equity



## Notes

Data used in this paper are primarily as shown in Tables B24 and B25 of the USDA's Economic Indicators of the Farm Sector: Income and Balance Sheet Statistics, 1980 (Stat. Bul. 674, Sept. 1981), with the following differences:

(1) Data scaled in millions of dollars were obtained from ERS, and all computations were made using unrounded data and then independently rounded.

(2) Beginning in 1973, debt includes loans from the Commodity Credit Corporation. Prior to that date, CCC loans are excluded from debt. Debt shown also excludes, as estimated consumer debt of farmers, that proportion of farm non-real-estate debt equal to the proportion of physical non-real-estate assets excluded from production assets.

(3) Interest paid on debt is adjusted in the same manner as the debt, as described in (2) above. (Although footnote 5 of Table B24 states that interest on CCC debt is excluded, interest shown in that table accidentally does include it.)

(4) In converting nominal capital gains to real capital gains as described in footnote 2 of Table B25, the consumer price index (CPI) was replaced by the implicit price deflator for personal consumption expenditures (PCE) in the national income and product accounts. This deflator was also used in converting all of the series to 1972 dollars. To convert asset and debt data measured as of January 1, a January 1 value for the deflator was estimated as the average of its values for the first quarter and for the preceding quarter. Use of the CPI to deflate farm sector data has been particularly inappropriate in recent years because farm families have been little affected by the increase in residential mortgage interest rates that has greatly influenced values of the CPI. The PCE deflator was preferred over the GNP deflator to which many farm economists have resorted because the latter includes items such as business and government expenditures that may also make it an unreliable indicator of prices of farm family living expenditures.

(5) Data shown for 1981 generally reflect USDA estimates published in the monthly Agricultural Outlook and in Agricultural Finance Outlook and Situation, December 1981. However, in calculating capital gains for 1981, the value of farm real estate was estimated to have increased by only 5 percent during 1981, significantly less than the USDA estimate of 8 percent used in the latter publication. This change was prompted by evidence--most of which became available after the USDA estimate was made--that farm real estate prices plateaued or declined in several major farming areas during the fourth quarter, after having risen in most areas earlier in the year.

## References

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