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THE FARM DEBT CRISIS: TEMPORARY OR CHRONIC?

by

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This paper has as its objective a brief analysis of the etiology of the crisis confronting the farm sector and its creditors. Drawing on data for the period 1950 to 1984, it argues (1) that the rising productivity of farm assets led to large increases in asset values in the 1950's, 1960's and 1970's; (2) that rising asset values significantly altered the incentive structure of agriculture; and (3) that the resulting capital gains-based agriculture of the postwar period motivated farmers to alter their capital structure in ways that made inevitable the current financial debacle once the growth in income from assets tapered. From this basis, the paper concludes that the borrowing behavior of farmers bears substantially more responsibility for the existing crisis than often-cited adversities in the markets for agricultural commodities. Accordingly, a farm incomes policy cannot remedy the situation and the current consolidation in agricultural debt, though painful, represents an unavoidable adjustment for American agriculture.

INTRODUCTION

That agricultural credit markets are in a state of crisis is unquestionable. The evidence is that as much as one-third of the $220 billion in agricultural debt nationwide is delinquent, nonaccrual or subject to renegotiation (Melichar, 1985). Solvency problems are generally concentrated on a relatively small percentage of all farmers but those most involved appear to be aggressive, innovative, large scale operators (Harl, 1985). Of the 680,000 commercial size farms with sales of more than $50,000, one-third are either technically insolvent or face serious financial problems that are

leading them towards insolvency. At January, 1985 these farm enterprises were responsible for more than $110 billion in farm debt, a situation that has deteriorated since then (USDA ERS, 1985). In short, a case can be made for the fact that, in the West and elsewhere, the current farm debt crisis threatens the survival of more than one hundred thousand important agricultural entities and, with them, the economic fabric of many rural communities.

While having its origins in the agricultural sector, the debt crisis likewise carries serious consequence for the financial sector. For example, the Bank of America, a well diversified urban based international lender, reports that 13.5 percent of its $1.7 billion farm loan portfolio was at least 90 days past due as of March 31, 1985 compared with 10.5 percent three months earlier. Among agricultural banks, those that have at least a quarter of their assets tied up in farm loans, capital usually represents 8 to 9 percent of assets and farm loans equal some 50 percent of assets so writeoffs of even 20 percent of loans would seriously jeopardize bank solvency. Yet it is estimated that among these institutions as much as 50 percent of outstanding farm credit is in jeopardy (McCoy and Charlier, 1985). Federal Reserve data indicate that within the last two years the number of agricultural banks where nonperforming and past due loans exceed capital has risen from 94 to 371, representing about eight percent of all such institutions. More than half of the banks that have failed this year were classified as agricultural banks. These data, sobering though they are, do not capture an even darker side of the situation: as property values fall some rural banks have avoided marking their collateral to market because doing so would force into foreclosure land held as security for delinquent loans, further depressing local property values.

ROOTS OF THE CRISIS

Income from Farm Assets

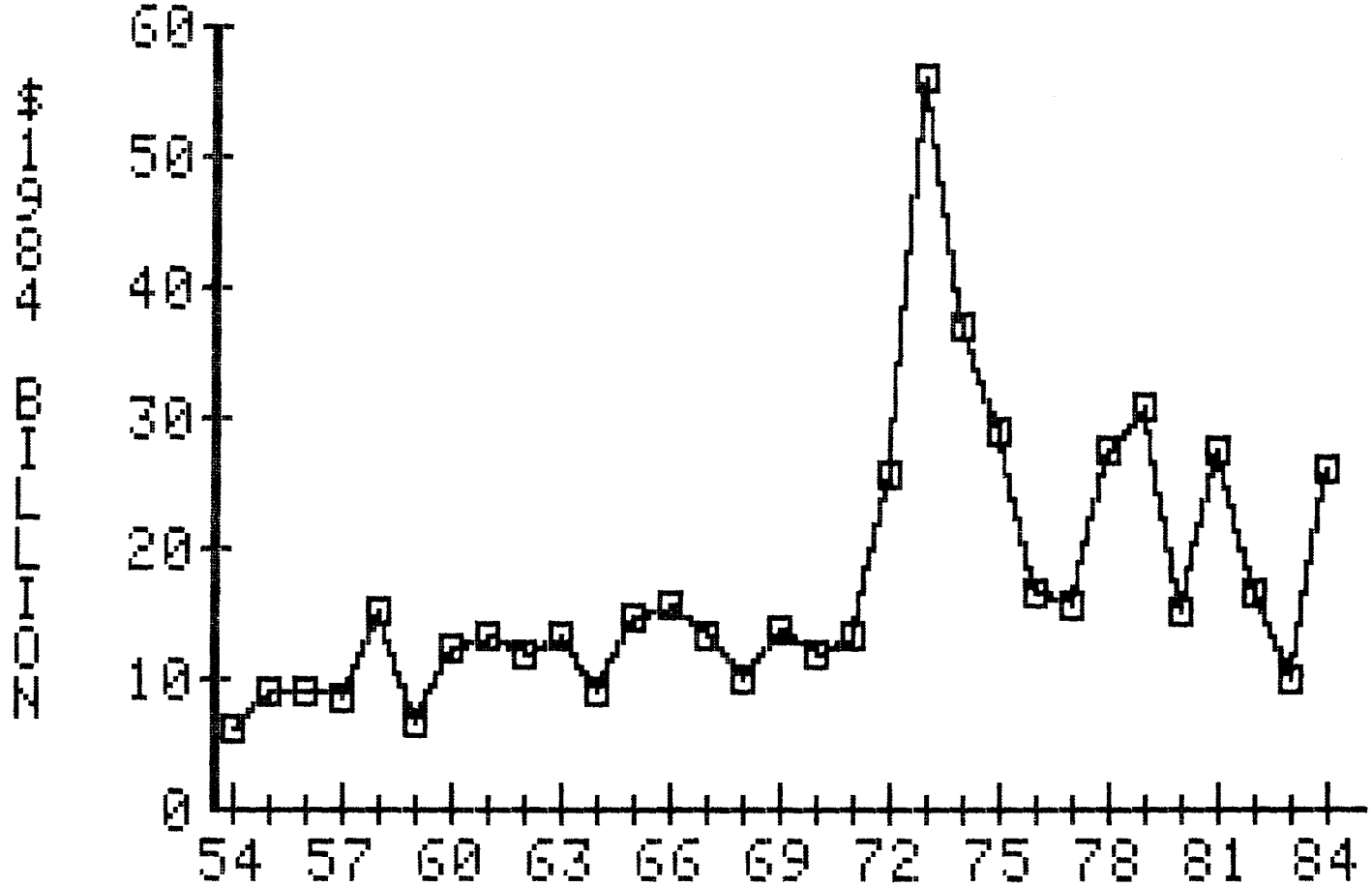
The tremendous gains that have occurred in the productivity of American agriculture are well known. The introduction of modern farm machinery, hybrid seeds, fertilizers, pesticides and irrigation equipment has reduced the demand for labor input while dramatically enhancing the returns to farm assets. Where one in four Americans was employed on the farm at the turn of the Century, now fewer than one in twenty-five is so employed. The typical commercial scale farmer now commands approximately $1 million in assets producing receipts of $175,000 per year (USDA ERS, 1982).

The income from farm assets - estimated as the residual of farm income, net rent paid by farmers, and farm interest expense reduced by the value of proprietors' labor and management - reflects the market valuation of the product of the farm sector's capital stock, principally its land (figure 1) (Melichar, 1979; Hottel and Evans, 1979). Setting aside 1973-1975, the years of the Russian Wheat Deal and other irregularities in the grain and livestock markets, aggregate returns to farm assets exhibited a persistent upward bias from the end of the Korean War to 1979 despite a twenty percent decline in acres in production. Between the latter half of the 1950's and the latter half of the 1970's, the productivity of land tripled on a per acre basis due to capital intensive technologies, generally favorable international markets and a set of agricultural policies that increased and, particularly, stabilized farm returns.

The Value of Farm Assets

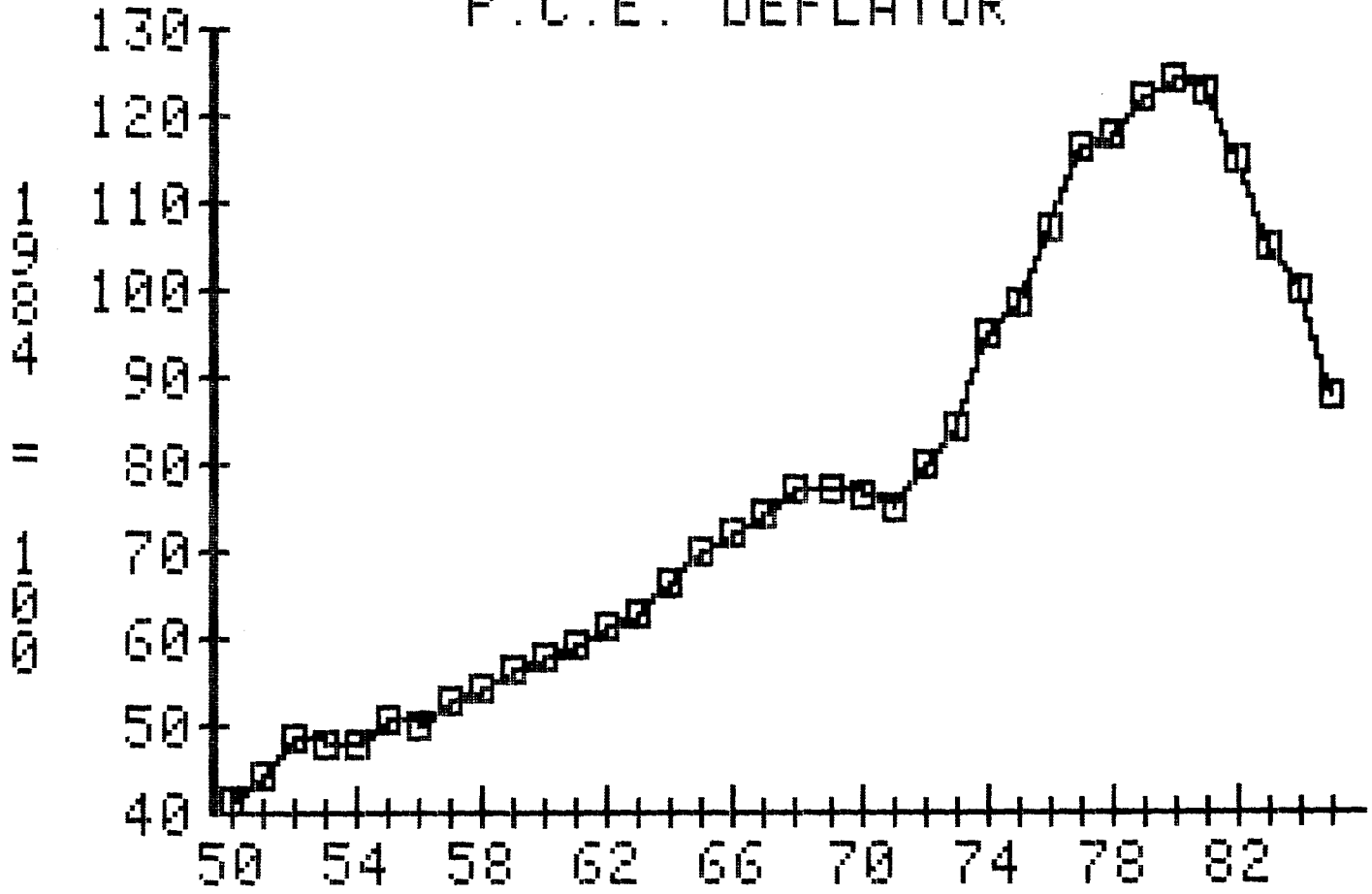
Consonant with the precepts of capital asset pricing theory, the dramatic rise in the productivity of farm assets has been accompanied by a pronounced increase in the value of farm assets (figure 2). When adjusted for inflation, land prices escalated substantially from the mid1950's to the mid1960's

FIGURE 1: INCOME FROM ASSETS



SOURCE: FEDERAL RESERVE SYSTEM

FIGURE 2: FARM LAND PRICE INDEX / P.C.E. DEFLATOR



SOURCE: U.S.D.A.

following closely the pronounced growth in returns to farm assets. Land prices levelled off in 1953-1954 and from 1967 to 1971, when returns stabilized, and then made a modest jump in response to the export boom in 1973-74. Thereafter, as returns resumed their upward course through 1979, land prices also rose. Between the 1950's and the end of the 1970's, the real value of farm land nearly tripled, closely approximating the corresponding increment in income from farm assets. After peaking in 1979-1980, land values fell, however, as income from assets declined. Very recently land prices have plummeted, in some cases falling by more than 50 percent from 1979 levels (Bailey and Charlier, 1985; Charlier, 1985).

The link between income from assets and asset values has only recently appeared in the land price literature. Major econometric studies of land values in the 1950's and 1960's regressed land prices on farm income rather than income from assets, which statistics differ because farm income excludes interest expense and includes the imputed value of farm operators labor and management (Pope, et al, 1979). These models failed in the next decade as land prices rose but net farm income fell, leading analysts to conclude that prices embodied a speculative element ("expected capital gains" or added "collateral value") (Castle and Hoch, 1982; Shalit and Schmitz, 1982). The failure of econometric models to explain the surge in land prices in the 1970's leant support to the notion that land prices persistently overstated the productive value of land, a widely held but theoretically difficult proposition involving, as it does, some variation of the "Bigger Fool Hypothesis" which imputes a degree of irrationality to the ultimate holders of assets. A tantalizing conjecture, perhaps, but not the stuff of behavioral theories.

Rather than linking land prices to farm income, recent work has connected rising asset values to the more appropriate determinant, income from assets

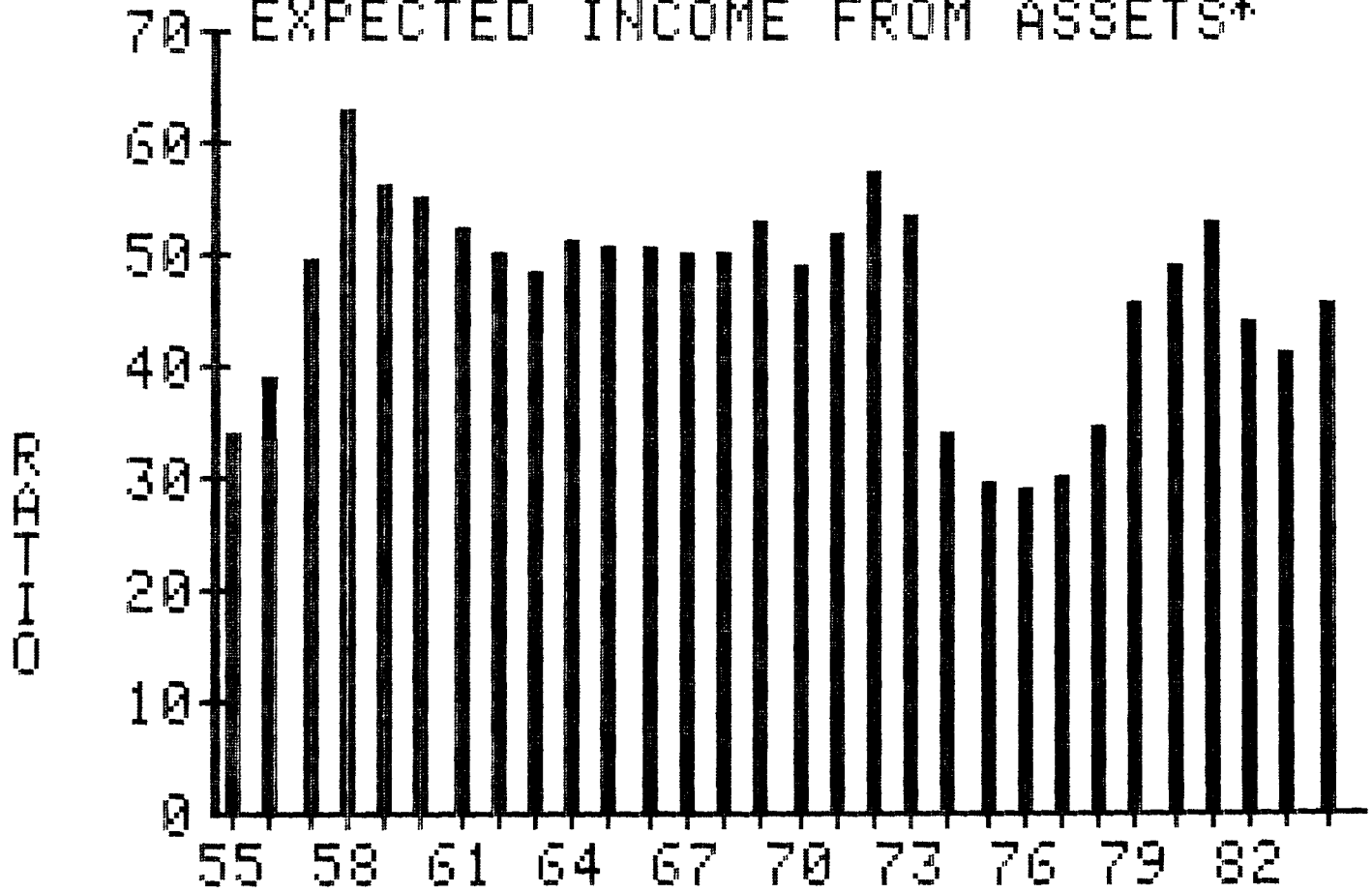
(Melichar, 1981; Shepard, 1985). Return to assets has proven to be a superior predictor of land prices for the period since 1965, when soaring interest expense reduced farm income but left unaffected both income from and the value of farm assets. This fact is of more than academic interest. While land prices rose dramatically in relationship to measured farm income (which is net of interest), the ratio of asset values to expected income from assets - the correct price earnings ratio for farm capital - was in fact lower in the 1970's than in earlier periods (figure 3). The earnings of farm assets were capitalized at more conservative rates in the 1970's than in the 1960's and late 1950's, a point often misunderstood. Land buyers were not Bigger Fools, it would appear.

Capital Gains Based Agriculture

Nevertheless, it is difficult to overstate the significance of rising asset values to the economics of agriculture. The twelvefold nominal increment in land prices since 1950 marked farm land as the most rapidly appreciating major capital asset in postwar America. The associated capital gain was more than a half trillion dollars in the 1970's alone (Federal Reserve System, Dec. 1984). Between 70 and 80 percent of this bounty was shared by the 680,000 farmers whose sales exceed $50,000, suggesting that the representative commercial farmer witnessed capital gains of about $500,000. Far from representing transitory earnings incidental to farming operations, capital gains during the 1970's were more than three times cumulative farm income for the period.

In an important sense, then, the postwar farm enterprise has been characterized by joint production of operating income and capital gains income. From the early 1950's to late 1970's, farm income fell as a proportion of farm assets from 13 percent to less than 2 percent (figure 4). During the same period, return from capital gains increased from negative to

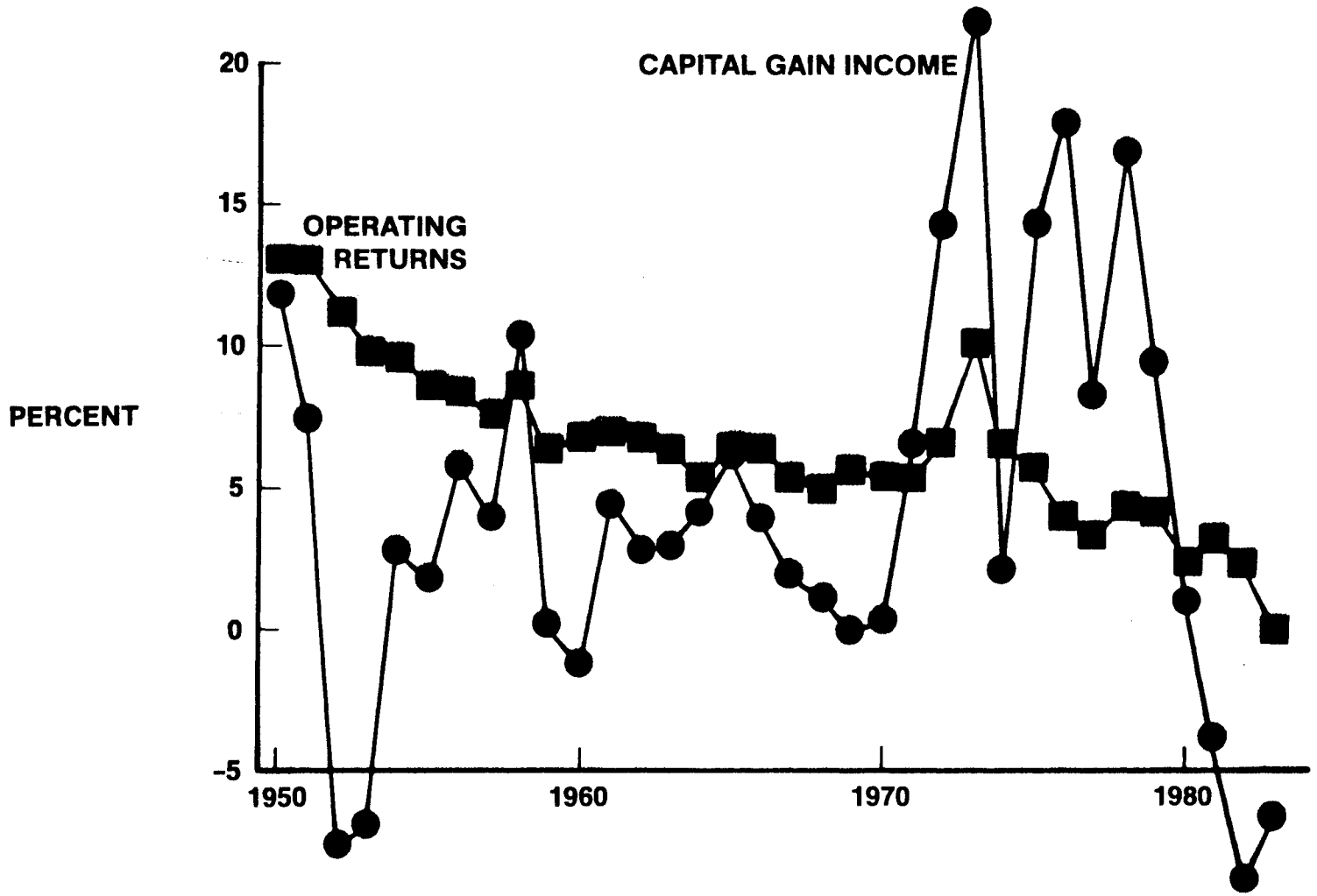
FIGURE 3: VALUE OF FARM ASSETS / EXPECTED INCOME FROM ASSETS*



SOURCE: FEDERAL RESERVE SYSTEM

*5 YEAR MOVING AVERAGE

FIGURE 4. RATE OF RETURN ON ASSETS

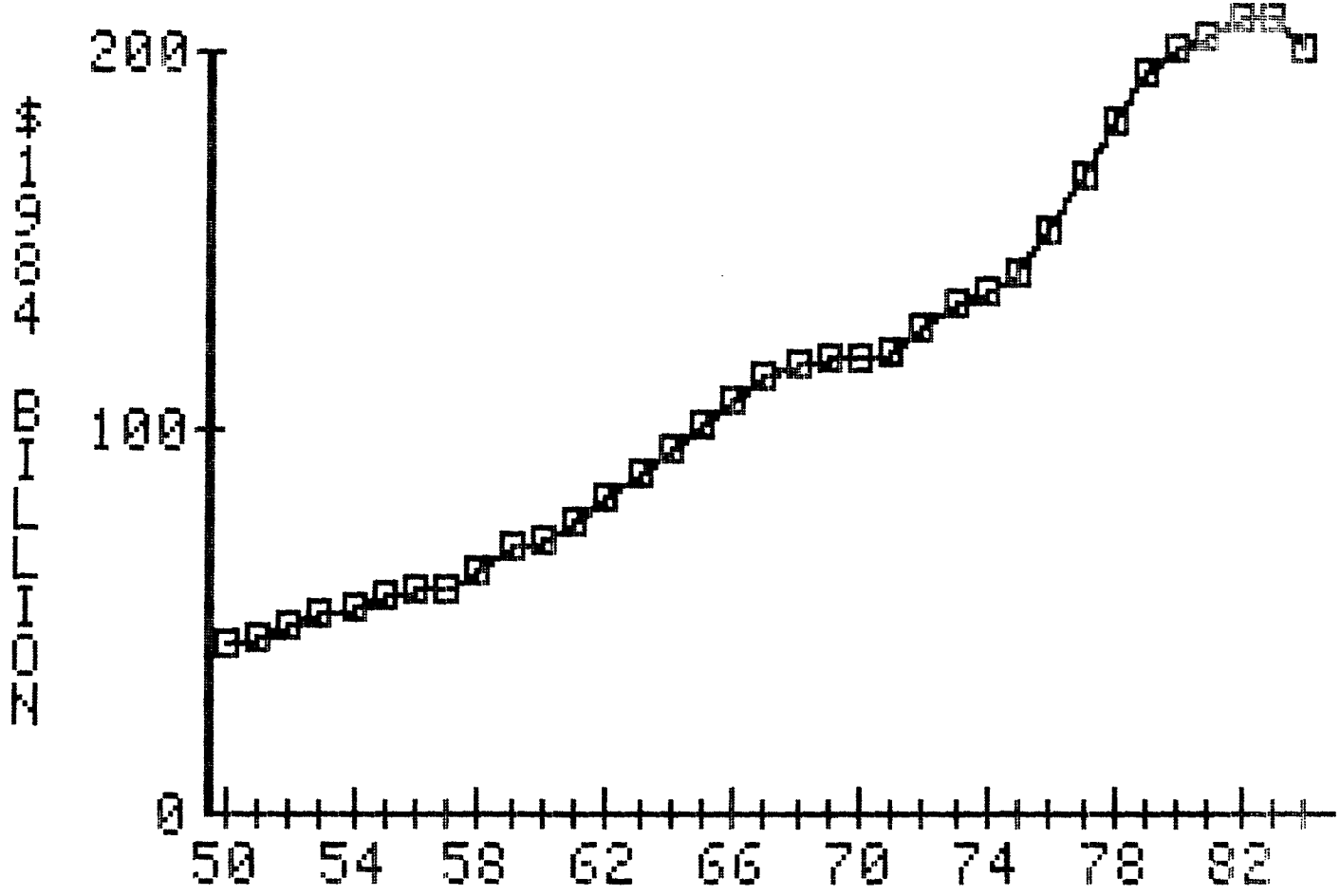


double digit levels. These phenomena were related in at least two ways: first, the $20 billion drop in farm income corresponds closely to the increase in interest expense farmers paid on loans that enabled them to participate in rising land values; second, lower measured farm income was a significant impetus in stimulating Congress to support liberal farm bills, which legislation raised and stabilized income from farm assets, increasing asset values. However, the most important inference is that rapid appreciation of farm assets created a wealth-optimizing opportunity that dwarfed opportunities available to growers through tilling their soil.

Farm Credit

Agriculture was largely a cash financed industry before World War II. No doubt the traditional aversion to leverage at least in part reflected the inherent riskiness associated with farming due to the inelasticity that characterizes both supply of and demand for agricultural commodities. After the mid1950's, however, the emergence of a capital gains-based agriculture appears to have motivated farmers to expand their asset holdings through the intensive use of credit, at least half of which was made available through federal lenders, often at subsidized rates. The inflation-adjusted level of farm borrowing increased fivefold between 1950 and 1980 (figure 5). The data indicate that the largest part of this borrowing was incurred by a small proportion of relatively aggressive, expansion oriented farmers. While borrowing financed production expenses as well as land acquisition, the rate of return on farm assets, averaging just 2 percent (1950-1984), persistently represented just a fraction of loan rates paid by farmers, which averaged 6.6 percent. This bears further evidence that agricultural borrowers were largely driven by speculative motives associated with holding land rather than by the operating income it generated.

FIGURE 5: DEBT OF THE FARM SECTOR



SOURCE: FEDERAL RESERVE SYSTEM

With hindsight one is tempted to criticize these agricultural entrepreneurs but theirs must have appeared a rational, even enticing portfolio strategy in an environment of declining farm income and rising farm values. By borrowing at nominal loan rates that averaged just 7 percent in the 1970's and real rates that averaged just 1 percent, farmers were able to participate in a land market that appreciated at an annual compound rate of more than 25 percent during the decade (Federal Reserve System, Dec. 1984). The evidence is that in many cases lenders encouraged this strategy.

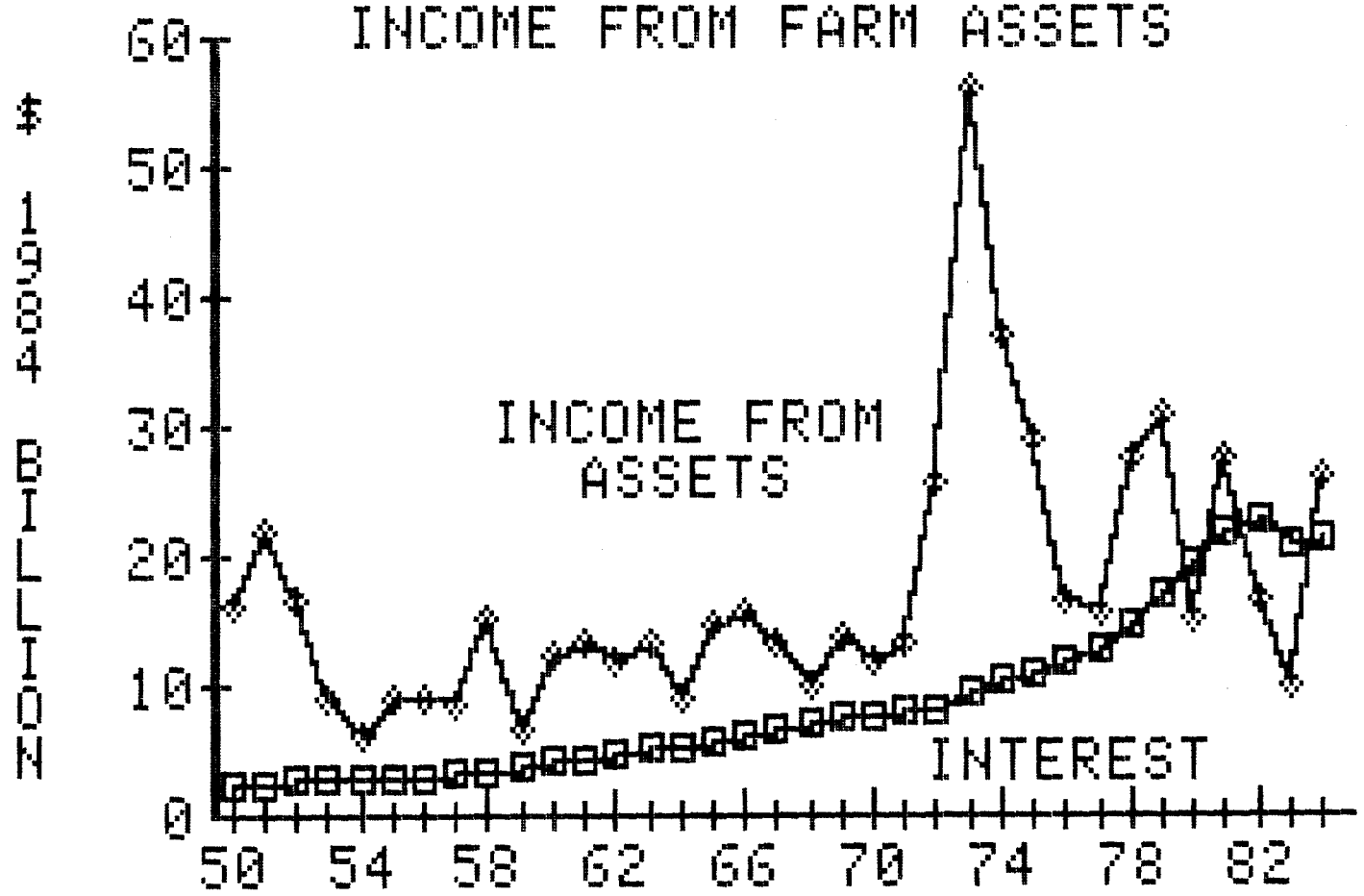
Interest Burden

While capital gain income came to represent the dominant component of farm remuneration, it was not liquid. For this reason, farmers who actively pursued capital gains faced significant cash flow pressure as they employed increasingly large proportions of the return to farm assets to service debt. Even looking at aggregate numbers, which pool those farmers who borrowed heavily with the majority that did not, the figures are staggering. Figure 6, denominated in 1984 dollars, presents the interest expense of farmers and income from farm assets, the residual return after paying for other inputs but before interest expense. During the first 5 years of the 1950's, annual interest expense in the agricultural sector, averaging $2.4 billion, represented only 17 percent of the average annual income from assets, $14 billion. However, by 1975-1979, interest expense had risen to $13 billion and income from assets to $23 billion so the debt burden exceeded 50 percent.

The Crisis

After 1979, a confluence of factors brought the era of capital gains farming to an end. First, farm borrowing reached new heights, finally levelling off at over $200 billion dollars. In addition, sharply higher interest rates stemming from the Fall, 1979 Federal Reserve System's commitment to target money supply raised farm lending rates from an average of

FIGURE 6: INTEREST EXPENSE AND INCOME FROM FARM ASSETS



SOURCE: FEDERAL RESERVE SYSTEM

7 percent in the 1970's to 10.4 percent in 1980-84. Moreover, the new monetary ethic achieved its office, reducing inflation but raising farmers' average real cost of capital from 1.4 percent to 5.0 percent during the same period. As a result of higher interest rates and increased borrowing, the interest expense of farmers in constant dollars rose by 60 percent between 1975-79 and 1980-84, levelling off at $21 billion per year versus income from assets that averaged only $19 billion.

Whether or not the capital gains expectations of farmers continued to justify their highly leveraged portfolios, after 1979 interest accrued at a faster rate than the underlying capital assets could support. As a practical matter the sector could not physically service its debt without resorting to additional borrowing or massive transfers from other sectors. The data thus reveal a situation analogous to the sovereign loan predicament facing some developing nations.

The negative spread between farmers' capital costs and income from farm assets dictated negative returns to equity. Of the six years in the last forty-five when return on equity was negative in the farm sector, four of them have been the consecutive years since 1980. Negative returns to equity forced market exit by some producers and sharply curtailed the expectations of future land price appreciation. Both these factors exerted downward pressure on land values but cash flow is the proximate cause of the present crisis in agriculture.

Can it be argued that soft output markets represent the cause majeur of the present crisis in agriculture? To be sure, the same policies that raised real interest rates for the farmer attracted foreign capital to dollar denominated assets, raising exchange rates to a degree that effectively closed international markets to many American Farmers. By the same token, problems of Third World countries in meeting their debts forced them to reduce their

expenditures for basic agricultural commodities. It is likewise true that domestic price support programs and the Payment in Kind program failed to artificially enhance the value of agricultural output as significantly as had earlier policy regimes.

While all these factors reduced farm revenues, the data presented in figure 6 reveal that between 1975-79 and 1980-84 the average decline in return from farm assets was only about 15 percent, some $4 billion. This was no more severe a contraction than vicissitudes witnessed in the 1950's and, importantly, it was shared by the majority of farmers who were not excessively leveraged. Instead, it was the concomitant 90 percent increment in farm interest expense, averaging $8 billion dollars and concentrated among the farmers who are today in trouble, that represented the driving force in the financial crunch that has ensued. Had U.S. farmers maintained traditional levels of leverage and had interest rates respected normal bounds, the modest downturn in income from farm assets would have been entirely manageable.

CONCLUSIONS

The conclusion that the current crisis largely derives from the borrowing behavior of farmers has three implications for public policy. First, the farm debt crisis reflects a temporary adjustment, albeit serious, rather than a chronic problem. Since human hand first touched seed to soil, the history of agriculture has been one of forced secular adjustment. For millennia, agriculture has compelled the displacement of labor from the primary task of growing food and fiber to the pursuit of other occupations in urban settings and has regularly drawn capital inputs there produced back to the farm. The systematic displacement of labor and rapid adoption of new technologies have in turn had recurring impact on the quality of urban and rural life, on farm size, and on land tenure patterns. However there is nothing in the origins of the debt crisis here identified to suggest that it has similar permanence or

pervasiveness. The tumultuous problems American agriculture faces today do not derive from some fundamental characteristic of the way in which agricultural markets operate.

Second, the conclusion that the debt crisis has its primary source in the capital structure of agriculture dictates that, in seeking solutions, we should not focus on output markets or farm incomes policy. Higher support prices, lower exchange rates and recovery of international markets could modestly contribute to a solution but even if income from farm assets returned to pre1980 levels, it would just cover interest payments. Realizing that the debt is unequally distributed among farmers, this would still leave leveraged farmers unable to meet their obligations.

Ultimately, the solution of the farm debt crisis, like its genesis, lies in altering the capital structure of farming. A $1 trillion agricultural capital stock that annually produces average returns of less than $20 billion dollars cannot and will not sustain a debt load of $220 billion at double digit interest rates. Were rates to fall so that the aggregate return from assets exceeded interest expense, significant problems would persist since two-thirds of the debt resides with farmers who control only one quarter of the assets (Federal Reserve System, January 1984). At current rates, those farmers' $5 billion share of annual income from farm assets will fall $10 billion short of the annual interest obligation associated with their $150 billion share of agricultural debt, to say nothing of their ability to make principal payments on their loans.

American agriculture is carrying more, as much as $100 billion more in debt than it can realistically support. While policy makers are urging farm lenders towards greater patience with debtors and have funded a $650 million emergency agricultural loan program, the nature and magnitude of the problem clearly defy policy solutions. Because a significant part of the agricultural

capital stock cannot support its encumbrances, a major financial restructuring will occur. The sobering reality is that American agriculture and its creditors cannot avoid losses of tens of billions of dollars in equity and uncollectable loans. The only question is, in what relative proportion and in what time frame will leveraged farmers and their lenders recognize these losses.

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