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DEBT PROBLEMS AND  
MACROECONOMIC POLICIES

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Debt Problems and Macroeconomic Policy

ABSTRACT

This paper examines the recent dramatic increase in the ratio of US non-financial debt to GNP. It concludes that it is largely the result of federal budget deficits. There does not appear to have been a major change in traditional patterns of private sector borrowing in recent years. The excessive accumulation of Federal debt probably threatens financial stability more than recent increases in private debt.

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Events of the last few years have led to increasing concern about the possible adverse consequences of the substantial accumulation of debt by key sectors of the American economy. Fears are often expressed that excessive private debt burdens will threaten financial stability, with adverse consequences for the real economy, or that increases in debt will create political pressures that will make an acceleration of inflation inevitable. A combination of a rapidly rising ratio of total indebtedness to GNP and widespread financial distress manifested most vividly in the Continental Illinois bank failure, the agricultural sector of the American economy, and problematic foreign loans, has led to calls for policy action to head off debt problems. Henry Kaufman (1986, p.52) for example, has labelled the rapid growth of debt as "one of the most pressing problems of the day". And one study group has urged that we "fix the roof while the sun is shining" (Center for a New Democracy, 1986).

Debt problems have both a micro and a macroeconomic dimension. The case for microeconomic policies directed at limiting the indebtedness of firms and households is easily made on the basis of standard externality arguments. In an interdependent economy, the failure of any institution has pervasive consequences for the remainder of the economy, consequences which cannot be internalized by the affected parties. Creditors represent only one class of losers when a large corporation or bank fails. When a corporation fails, a

network of employees, customers, and suppliers, all of whom have made investments in anticipation of the corporation's continued viability, suffer as well. And in a world where information is far from perfect, the failure of any one company inevitably creates doubts about the solvency of others, making it harder for them to attract capital and enter into long term relationships with customers and suppliers. In addition to these types of costs, the failure of a bank imposes direct costs on the government because of deposit insurance.

The externalities associated with financial failure make it unlikely that any laissez faire policy towards the accumulation of debt will be optimal. The private costs of taking on increased debt almost certainly do not reflect the full social costs that are imposed by the increased risk of financial failure. This creates some presumption in favor of regulatory and other microeconomic policies directed at preventing the excessive accumulation of debt, especially in sectors of the economy like banking where the externalities are likely to be large. But regulation imposes costs of its own and in many cases requires information that government is unlikely to possess or be able to obtain easily. It is reasonable to ask therefore whether there are alternative macroeconomic policies which could complement microeconomic measures by altering the environment so as to make the accumulation of debt less attractive. Even if macroeconomic policy can do little to alleviate debt problems, it should surely be sensitive to their existence.

This paper explores the issue of monetary and fiscal policy responses to possible debt problems. In considering debt problems, I draw a sharp distinction between private and public sector debt. The excessive accumulation of private sector debt is a source of concern primarily because of default risks. For the foreseeable future the risk of explicit default is not a serious concern with respect to the buildup of Federal debt. Rather, distortion in the composition of economic activity is the primary problem posed by Federal deficits.

The first part of the paper considers the relationship between monetary policies and the accumulation of debt in the private sector. I begin by assessing the usefulness of credit aggregates in the setting of monetary policy. Following the decision of the Federal Reserve in 1983 to monitor domestic non-financial debt as an intermediate target, increasing attention has focused on the debt to GNP ratio as an object of policy. I review the evolution of this ratio briefly, noting its recent extreme instability. Then I argue that while it may have some value as a cyclical indicator, a number of definitional and conceptual problems preclude its usage as a gauge of risks to financial stability. More generally, it appears that monetary policy as distinct from regulatory policy is too blunt a tool to be useful in preventing debt problems. However, when debt problems do surface, the Fed has a crucial role as a "lender of last resort".

Recent years have witnessed an increased degree of financial

distress. However, this distress is for the most part a concomitant of sharp disinflation and major changes in the sectoral composition of output. It is not primarily the result of excessive financial leverage. If policies restricting growth in non-financial debt had been in place over the last five years, they would have exacerbated the costs of disinflation.

The second part of the paper examines the relationship between fiscal policies and debt problems. I argue that rapid increases in government debt burdens such as those experienced recently in the United States have potentially serious consequences for long term economic growth because of their crowding out effects. They may also exacerbate the debt problems of the private sector by pushing real interest rates upwards and causing sectoral dislocations.

Beyond the effects of the total level of tax collections on the government deficit, the structure of taxation exerts an important impact on financial structure. Because much more interest paid is reported on tax returns and deducted than interest received is reported and taxed, the tax system works to encourage the issuance of debt. The tax incentive to issue debt for corporations at least is likely to be increased by the tax reforms currently under consideration. However, tax reforms that moved in the direction of consumption taxation could significantly reduce the tax incentive to leverage.

The paper concludes by arguing that the buildup of debt is a microeconomic but not a major macroeconomic problem.

Macroeconomic policies that maintain the real economy on an even keel would help to enhance financial stability. Beyond this, there is little scope for macroeconomic policy to address concerns about financial stability.

#### MONETARY POLICY, CREDIT GROWTH AND FINANCIAL STABILITY

The maintenance of financial stability has been a priority of the Federal Reserve since its inception. The current combination of disinflation, high real interest rates, financial deregulation and severe sectoral dislocations has brought the problem of financial stability into sharp policy focus. While monetary policy has traditionally focused on monetary aggregates and interest rates as intermediate targets in its attempts to assure steady growth and price stability, recently attention has also focused on credit aggregates. Following demonstrations by Friedman (1982) that there had been a stable relationship over many years between the level of total domestic non-financial debt and nominal GNP, and that the linkages between this credit aggregate and GNP was as close as the relationship between nominal GNP and the traditional money aggregates, the Federal Reserve in 1983 decided to set monitoring ranges for this aggregate.<sup>1</sup>

Since the Federal Reserve's announcement, the debt-GNP relationship has broken down. Over the last three years,

non-financial debt has grown at an average rate of over 12 percent, exceeding the upper end of the monitoring range in each year. Since 1981, the ratio of non-financial debt to GNP has risen by 22 percentage points after varying within a 13 percentage point range over the whole of the 1952-1980 period. The seemingly anomalous behavior of the debt aggregate and recent strains on the financial system raise obvious questions for policy. Does the unusual pattern exhibited by the debt-GNP ratio recently represent a cause for concern? Are changes in debt ratios likely to be useful forecasters of future financial problems? If so, what monetary policy response is called for? I take up these questions in turn.

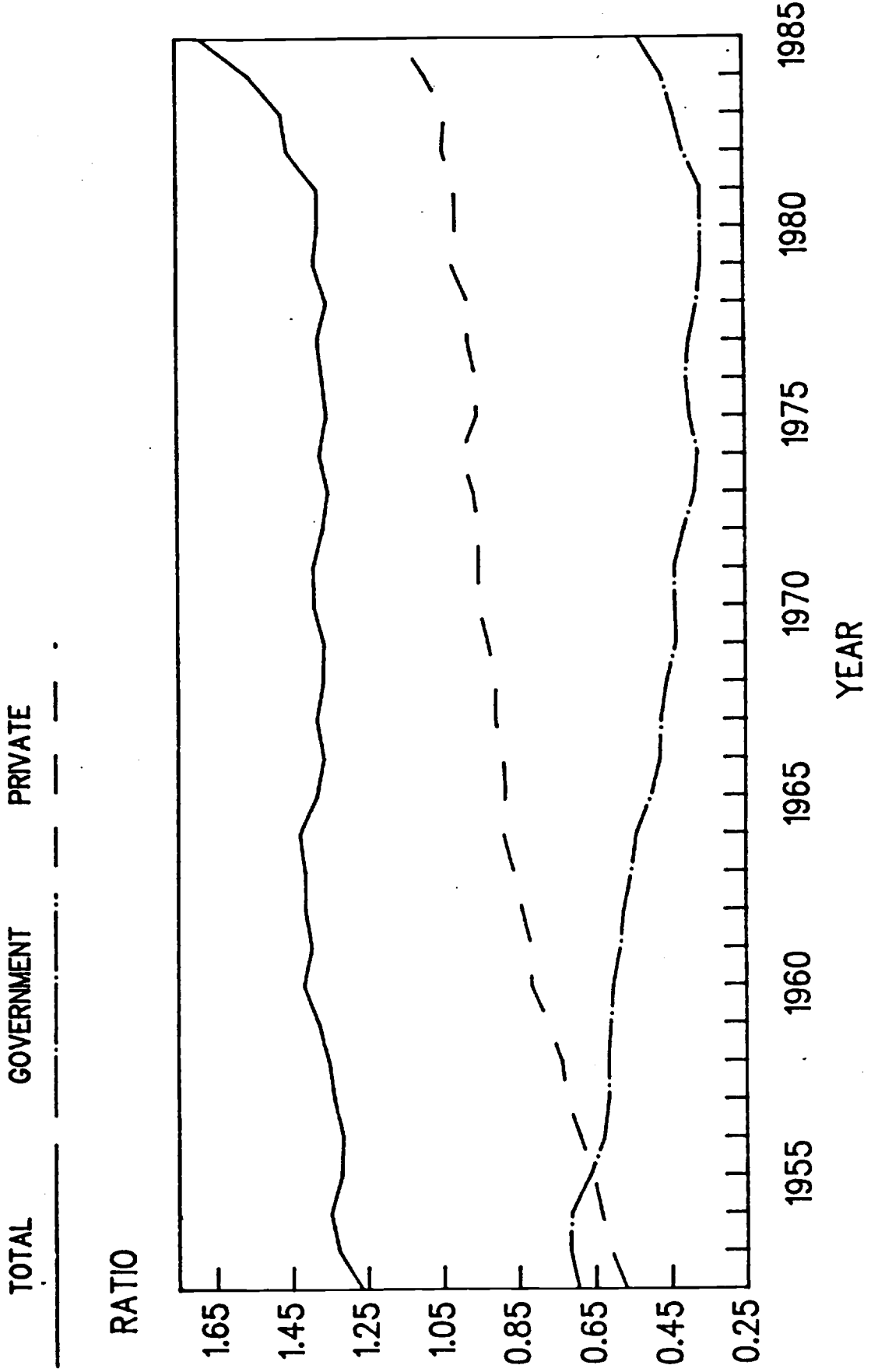
#### Explaining Movements in the Debt-GNP Ratio

Figure 1 illustrates the evolution of the total debt-GNP ratio over the 1952-1985 period, along with movements in several of its components. The unprecedented movement in the total debt-GNP ratio in recent years is evident as is its remarkable stability over the 1952-1980 period. Friedman (1982) noted the stability of the debt-GNP ratio and stressed that total debt appeared to be much more closely related to GNP than to any of its components. He went on to offer several hypotheses regarding the reasons for stability in the debt-GNP ratio. On the view that the debt-GNP ratio tends to revert towards some long run equilibrium value, the recent sharp rise in the ratio is



FIGURE 1

# DEBT RATIOS OVER TIME



alarming. It presages either rapid inflation tending to reduce the value of the debt relative to GNP, or a wave of defaults tending to bring the value of outstanding debt back in line with GNP. Either would be a cause for serious concern.

Studying the figure with the benefit of recent experience suggests an interpretation of the evolution of debt and GNP which is less alarming than Friedman's. It may be that there has been a secular, relatively steady trend towards increased private sector indebtedness, which only coincidentally was offset by a declining ratio of government debt to GNP up until 1980. On this view, there is nothing very surprising about the recent behavior of the total debt to GNP ratio. Increases in private debt have continued since 1980, but the long term decline in the Federal debt-GNP ratio has been reversed. And, there is no particular cause for concern about the solvency of the private sector. In order to assess the validity of this alternative view, Figures 2a, 2b, and 2c present some evidence on trends in the ratio of household, business and total private debt to GNP. In each case, the values during the mid-1980s are quite close to what would have been predicted on the basis of secular trends. There is no indication that either businesses or households have deviated from long term patterns in recent years. The aberrant behavior of the ratio of total debt to GNP appears to be almost entirely the result of increases in Federal borrowing. As I discuss below, the rapid growth of the national debt during the 1980s is a serious problem, but not one closely related to the question of

FIGURE 2A

TOTAL HOUSEHOLD DEBT / GNP

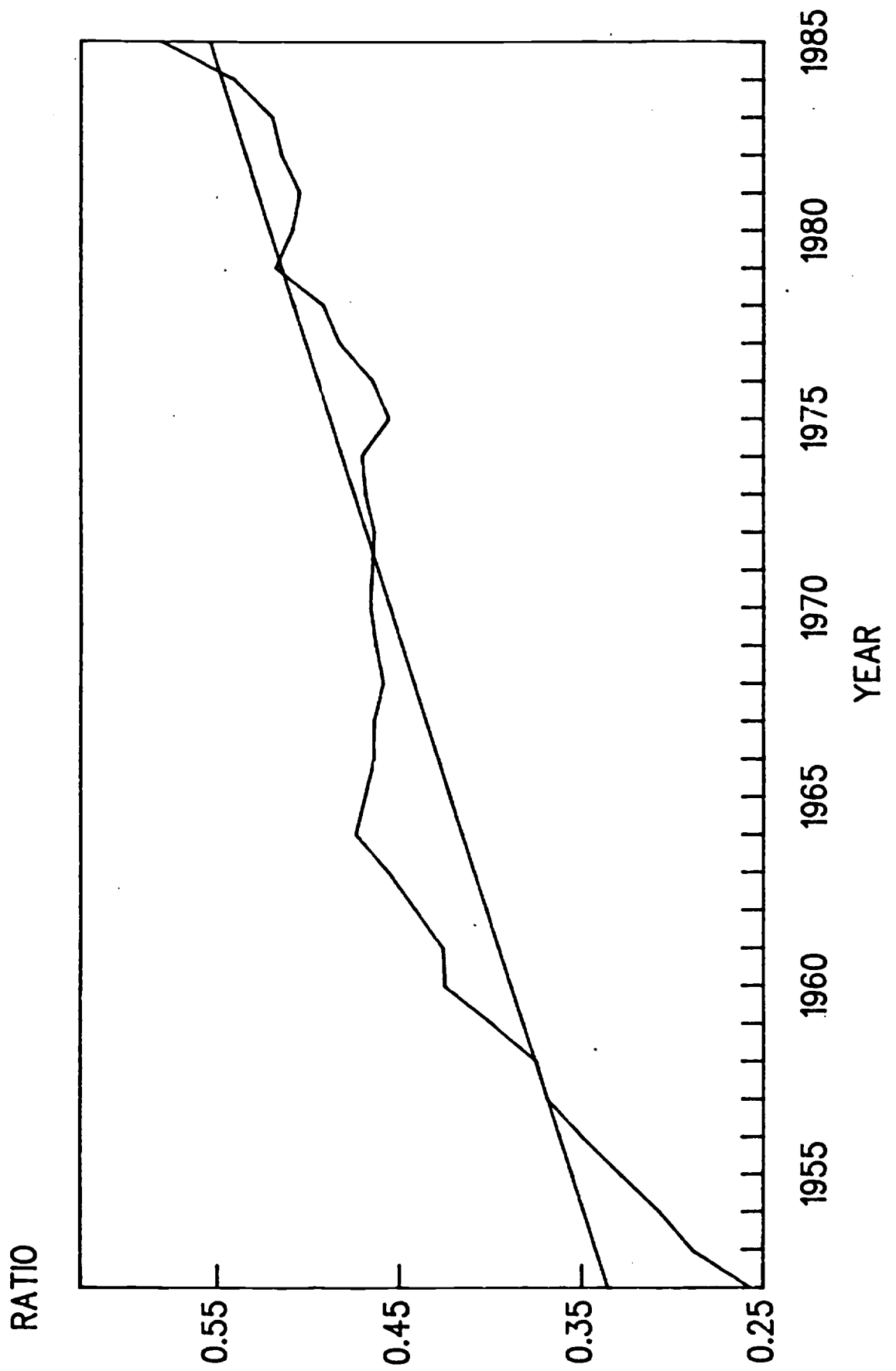


FIGURE 2B

# TOTAL BUSINESS DEBT / GNP

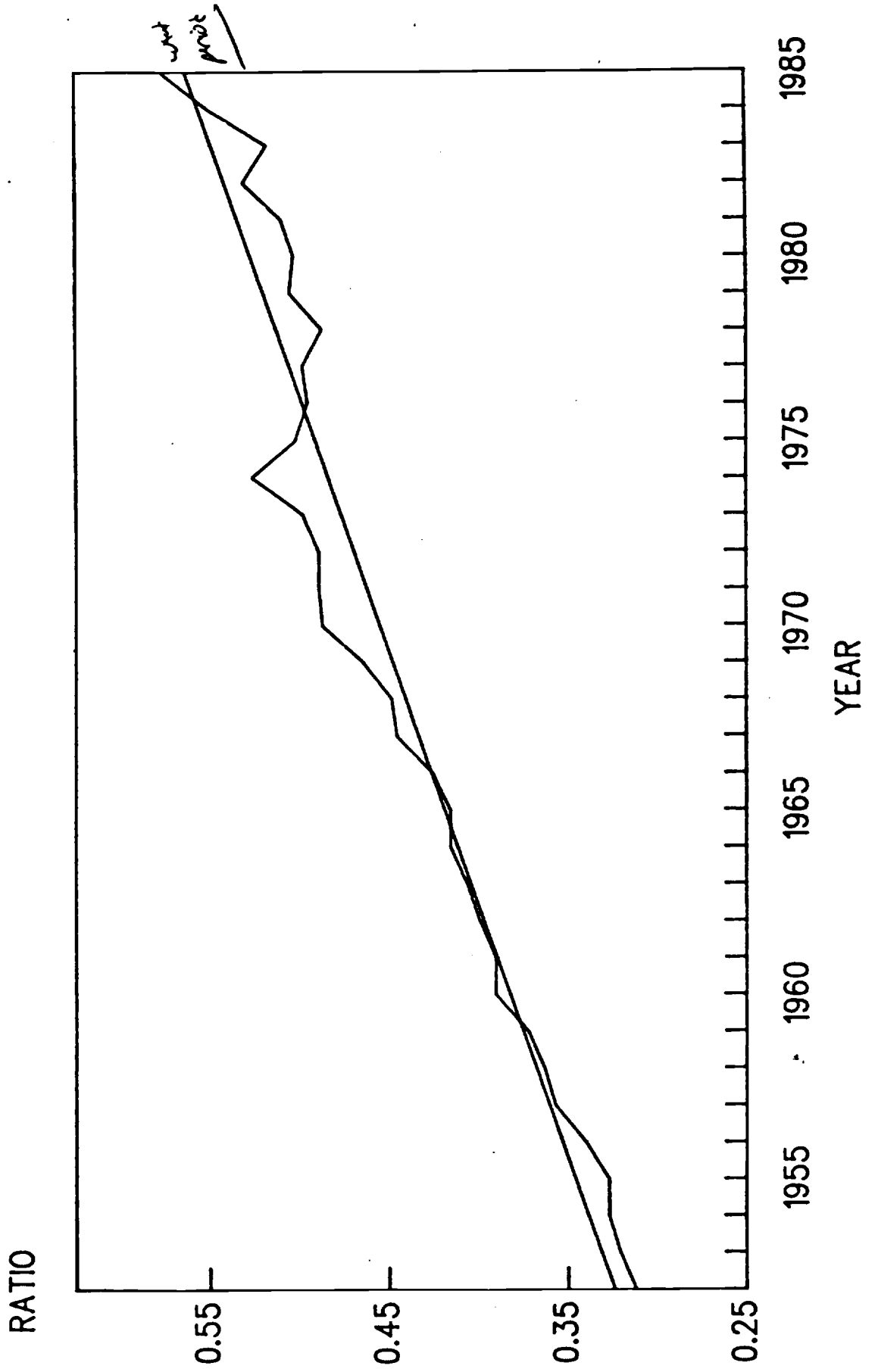
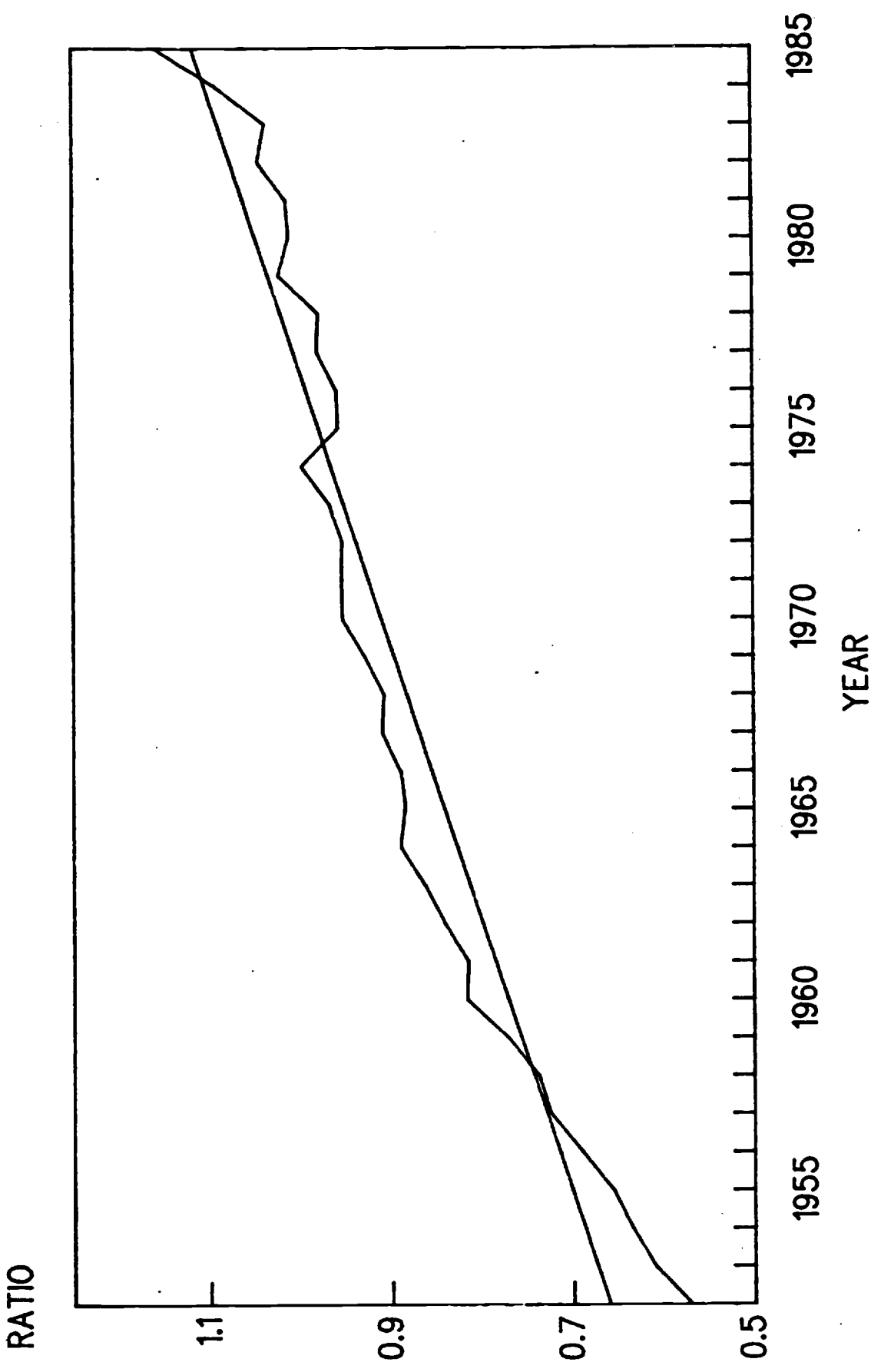


FIGURE 2C

TOTAL PRIVATE SECTOR DEBT / GNP



the financial stability of the private sector.

It could be argued that the conclusion that nothing unusual has happened to private sector indebtedness is misleading because one would expect, as Friedman originally argued, that increases in Federal borrowing would curtail private borrowing. On this view, the failure of private debt ratios to grow less rapidly than normal in recent years should be a source of concern. An easy way to test this idea is to see whether there historically has been a tendency for increases in government debt to be offset by reductions in private debt, once allowance is made for trends. Table 1 presents a number of regression equations for both the 1953-1985 and the 1953-1980 periods relating the private debt-GNP ratio to the Federal government debt-GNP ratio, its lags, and a simple time trend.

The results suggest that there is no systematic historical tendency for increases in Federal indebtedness to be offset by reductions in private sector indebtedness. Equations estimated through 1985 suggest that after controlling for the trend, increases in government debt are actually associated with increases in private debt. Even the equations estimated through 1980 do not reveal any statistically significant negative relationship between government and private debt accumulation. Moreover, the point estimates suggest that any effect of increases in public debt on private debt is relatively modest. Quite similar results are obtained from alternative specifications using logarithms of the debt ratio variables, and

Table 1

The Relation Between Government and Private Debt Ratios

1952-1985

GOVDEBT	GOVDEBT(-1)	GOVDEBT(-2)	TIME	RHO	R <sup>2</sup>
.281 (.166)			.013 (.003)	.834 (.085)	.981
.466 (.120)	-.276 (.242)		.012 (.002)	.780 (.010)	.980
.572 (.178)	-.592 (.216)	.678 (.195)	.012 (.006)	.883 (.079)	.984

1952-1980

GOVDEBT	GOVDEBT(-1)	GOVDEBT(-2)	TIME	RHO	R <sup>2</sup>
-.154 (.229)			.008 (.004)	.816 (.096)	.983
-.038 (.249)	-.352 (.231)		.005 (.004)	.784 (.109)	.981
.228 (.323)	-.502 (.277)	.363 (.290)	.009 (.006)	.844 (.109)	.978

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The table presents regressions of total private debt on a constant, a time trend, and lags of total government debt. Total private debt and total government debt are expressed as a percentage of GNP. GOVDEBT(-1) and GOVDEBT(-2) are one and two period lags of total government debt. TIME is the coefficient on the time trend, and RHO is the AR(1) coefficient. Standard errors are in parentheses.

various components of the private and government debt ratios. This evidence suggests that rather than there being a stable ratio of total debt to GNP, private sector debt has trended upwards relative to GNP largely independently of the behavior of government debt.<sup>2</sup> Such an empirical conclusion is consistent with received economic theory. There is little reason to expect stability in the ratio of private debt to GNP or to expect that it will be systematically negatively related to increases in Federal debt. Leaving aside the foreign sector, which even today holds only a negligible fraction of total US financial liabilities, private debt is a purely inside obligation. Increases in debt on one part of the private sector's balance sheet are tautologically related to increases in assets on another part of the balance sheet. The level of both assets and liabilities in the economy will depend largely on the extent of intermediation in the economy, a variable about which economic theory makes few predictions.

Friedman, on the contrary, suggests a number of possible mechanisms through which the debt-GNP might tend to be stabilized, relying alternatively on ultrarationality, limits on collateral, and limits on the substitutability of assets in individual portfolios. Even on the unlikely supposition that households were ultra-rational in the sense of David and Scadding (1974) and Barro (1974) and saw through the government sector fully, it is unlikely that they would decrease their liabilities dollar for dollar when the government issued debt. Rather they



would increase their asset holdings in anticipation of future tax obligations. Recall that the private sector as a whole cannot affect its wealth position by issuing less debt since private sector debt is a purely inside asset.

Nor is it likely that increases in the supply of government debt would reduce the private sector's ability to take on debt. Government debt surely represents as good collateral as any tangible assets that it might crowd out. It is hard to see why one should expect the private sector's willingness to both hold and issue debt obligations of the non-financial sectors to be reduced when government indebtedness rises. Any set of risk preferences that asset holders might have would presumably condition their net, not gross, holdings of financial assets and liabilities.

A fair conclusion seems to be that what has happened to the debt-GNP ratio in recent years is not surprising given the fiscal policies followed by the Federal government. Both empirical evidence and theoretical considerations support the judgment that the private-sector's long term trend towards increased indebtedness has continued largely independently of the actions of the Federal government. Although the private sector's debt ratio has not behaved aberrantly in recent years, the question of whether its secular increase poses problems remains, as does the question of whether a policy response would be appropriate if in the future it were to show large unexpected movements.

Financial Stability and the Credit Aggregates

The debt ratio monitored by the Federal Reserve is the sum of all the debt issued by the non-financial sectors of the economy. In thinking about financial stability, it is clearly necessary to treat very differently the debt issued by private households and firms and Federal debt. Only the former is plausibly likely to lead to financial distress. I therefore focus on the question of whether or not the ratio of aggregate debt to GNP for the household and business sectors is likely to be a very satisfactory proxy for future financial risks. I also consider the closely related question of whether in an aggregate sense the business and household sectors of the economy are overly leveraged.

The most obvious problem with using debt-GNP ratios to measure financial risks is that they ignore the asset side of the balance sheet. Careful evaluations of potential debt problems such as Benjamin Friedman's contribution to this volume have long recognized the importance of simultaneously considering both sides of the balance sheet. Non-academic evaluations of financial stability have sometimes been less careful. Many types of transactions which are innocuous from the point of view of financial stability because they lead to equal increases in assets and liabilities will lead to increases in debt ratios. For example, if a corporation issues debt in order to fund its pension obligations, the measured debt ratio will increase with

little consequence for financial stability. If corporations make increased use of bank as opposed to trade credit, their debt ratio will increase while financial stability is actually enhanced. If households borrow in order to take advantage of attractive investment opportunities, to make IRA contributions or to engage in other forms of tax-favored savings, their measured debt will increase without important consequence for financial stability. A similar pattern will be observed if, as has been the case recently, households make increased convenience use of credit cards. Without knowing why the debt to GNP ratio has moved, it is impossible to make inferences about financial stability.

While movements in the debt-GNP ratio need not have important implications for financial stability, it is also the case that developments with important consequences for financial stability are likely to leave little trace in debt-GNP ratios. When the assets of a sector decline in value relative to its liabilities, the risks of default are increased but the ratio of liabilities to GNP need not decline. This point is vividly illustrated by the farm sector of the US economy. While financial distress is painfully evident, the ratio of farm sector credit market liabilities to GNP has declined by 25 percent over the last five years. The point is very general. Fundamentally, financial solvency has to do with differences between assets and liabilities. Measures which look only at liabilities are not likely to be especially useful in assessing financial risks.

While the debt-GNP ratio may at times move in tandem with the degree of financial distress, the preceding considerations suggest that it is hardly satisfactory as an indicator of the degree of distress. Examining net worth rather than total liabilities on a sectoral basis is likely to provide a much better indicator of the risks of financial distress. Viewed in this light, it is unlikely that recent increases in debt pose serious risks. The dramatic increase in the stock market over the past three years has improved the net worth of both the corporate and household sectors. Even making some allowance for differences in the distributions of assets and liabilities within sectors, it is hard to see how the risks of default could have increased a great deal recently. Indeed, the impressive feature of recent experience is that a period of sharp disinflation and unprecedentedly high real interest rates has been associated with so little financial distress outside of parts of the economy that have experienced adverse sectoral shocks.

A point of major concern in many discussions of financial stability has been the sharp increase in recent years in the use of junk bonds, particularly in the context of hostile takeovers. In assessing the risks posed by junk bond financing, two points frequently ignored in popular discussions should be recalled. First, the vast majority of junk bond financing has not been associated with hostile takeovers. The total volume of new issue high-yield debt grew from \$1.7 billion in 1981 to \$19.8 billion in 1985, while new issue debt for takeovers was only \$1.6 billion

in the first half of 1986. In many cases, it is likely that junk bond financing was used by companies as a substitute for more expensive bank debt. In these cases, it probably enhanced financial stability. Second, as Jensen (1986) persuasively argues, in many cases where junk bond financing substitutes for the use of equity it improves capital market efficiency. Where fixed debt obligations constrain managers from investing in marginal projects, and so force more investments to meet market tests, they probably improve the allocation of investment in the economy.

The preceding discussion does not imply that current concerns about financial stability are wholly unwarranted. Strains on the financial system are an inevitable concomitant of the sharp disinflation of recent years. The agricultural and energy sectors of the economy, along with parts of the manufacturing sector, are in difficult straits. But these problems reflect the very large adverse demand shocks that have buffeted these sectors in recent years and the effects of high real interest rates more than they reflect a systematic pattern of over-borrowing. There is little basis for generalized concerns about the excessive growth of private sector debt.

The point may be made in another way. Suppose that policy makers, either through direct credit controls, or indirect monetary policies, had restricted the growth of debt in recent years. Marginal borrowers would have been rationed out of credit markets. No doubt, some would have failed. Others would have

survived but cut back on new capital outlays, reducing the total level of demand in the economy. It is very likely that restrictions on debt growth would have raised rather than lowered the costs of disinflation.

### Monetary Policy and Credit Aggregates

It might be argued however that debt ratios, even if they are not useful predictors of financial distress, are useful in predicting movements in GNP. As a huge econometric literature documents there are literally hundreds of variables with some predictive power for GNP over some intervals. The crucial issue is whether or not there is a strong reason to expect movements in the debt ratio to have a causal influence on GNP. The financial distress arguments just considered would, if anything, tend to suggest that increases in the debt-GNP ratio would tend to precede downturns associated with financial problems.

On the other hand, arguments linking economic activity to credit availability such as those of Wojnilower (1980) and Blinder and Stiglitz (1982) would tend to suggest that increases in debt ratios should be associated with subsequent strength in GNP. If as these authors suggest, various informational imperfections lead to credit rationing at relatively rigid interest rates, it may be necessary to look at the quantity of loans being made as well as their price to gauge the effects of monetary policy on the real economy. However, it is hard to see

why credit availability doctrines would justify looking at an aggregate which included government debt and freely traded long term securities. Credit availability theories would suggest investigating much narrower aggregates linked to the parts of the financial system where credit might plausibly be rationed. A measure of total bank credit would seem more suitable but Friedman (1982) reports that the empirical evidence linking such measures to GNP fluctuations is very weak. On balance, there is no obvious reason for expecting movements in the total debt to GNP ratio to systematically lead either to booms or busts.

All economic indicators contain some information which is useful in assessing the future course of the economy and in guiding policy. But the foregoing analysis suggests that the debt-GNP ratio is probably not an especially useful indicator for guiding monetary policy. Because it focuses on only one side of the balance sheet, it is unlikely to be a reliable predictor of either future financial distress or economic fluctuations. As the recent experience with monetary targetting has taught us, reliance on any simple aggregate is unwise. Friedman is correct in noting that conventional monetary aggregates also examine only one side of the balance sheet. Like credit aggregates, they do not provide a very satisfactory basis for conducting monetary policy.

One way to see the problem with making use of a credit aggregate in setting monetary policy is to consider a basic question. In which direction should the knowledge that debt

growth has been rapid in recent years influence policy? To the extent that it occasions fears of spreading default, the appropriate macroeconomic policies are expansionary. To the extent that credit growth presages rapid growth in nominal GNP, unexpectedly, as Friedman argues has been true historically large growth may call for contractionary policies to raise interest rates and reduce debt growth.

This ambiguity sharply distinguishes credit and monetary aggregates. A finding that money has grown rapidly may or may not be an indication that policies to reduce its growth are in order, depending on whether the money demand function is thought to have shifted. But it is difficult to imagine circumstances in which rapid past growth of money would suggest that more expansionary Federal Reserve policies were called for. On the other hand, rapid growth in the credit aggregates can easily occur in situations, where very expansionary policies are appropriate, because of the risk of financial panics.

As the example of the Depression makes abundantly clear, the Federal Reserve has a crucial role to play as lender of last resort. Declines in confidence can be both contagious and self-fulfilling in a tightly knit financial system like that of the United States. The willingness of the Federal Reserve to act decisively to preserve confidence is crucial to the maintenance of stability. While crucial to stability, the willingness of the Federal Reserve and the government more generally to take actions to restore confidence in times of crisis no doubt encourages



private sector risk taking. This is part of the case, noted in the introduction, for regulatory policies directed at financial stability. It is very unlikely however that by tracking the debt-GNP ratio or any other financial aggregate that monetary policy can do much to maintain stability.

#### THE FEDERAL DEFICIT PROBLEM

As Figure 1 illustrated the behavior of the private sector in taking on debt during the 1980's has been consistent with long term historical trends. On the other hand, recent years have seen a sharp departure from long term trends in the behavior of the Federal deficit. The downwards trend in the ratio of the national debt to GNP which continued essentially without interruption during the 30 years following World War II, has been reversed in the 1980's. The ratio of outstanding government debt to GNP has risen sharply from 37% in 1980 to 53% in 1985, and is likely to continue to increase for the next two years even on very optimistic projections. It is this behavior which gives rise to the "Reagan parabola" in the graph of government debt-GNP ratio.

It is important to clarify the dimensions in which the Federal deficit represents a serious economic problem. Unlike the debt of the private sector, Federal debt has almost unlimited backing--the government's capacity to tax. The risk of explicit default by the Federal government is not an important one for the

foreseeable future, nor is there much reason to fear that the private sector will lose confidence and become unwilling to hold Federal debt. Rather the continued growth in Federal indebtedness is primarily a problem because of its impact in distorting the composition of GNP and reducing its growth in the long run. I begin by considering the Federal deficit's impact on the level and composition of GNP and then suggest that through its effects on interest rates and the composition of economic activity, the Federal deficit may indirectly exacerbate the debt problems of the private sector. The distorting effects of Federal debt on the composition of GNP has probably caused more financial distress than the build-up of private debt in recent years.

#### Federal Deficits and the Level of Economic Activity

Economists have long debated the pure effects of expansionary fiscal policies. Opinions have fluctuated through time though it is fair to say that the consensus estimate of the fiscal policy multiplier has declined fairly steadily since World War II under the influence of increasing evidence of the interest sensitivity of aggregate demand and the interest insensitivity of money demand. The increasing recognition that expansionary policies lead to price increases has also contributed to reductions in estimates of the fiscal multiplier.

The relevance of these debates about pure fiscal policies to

the analysis of actual deficit policies is questionable. The impact of deficits depends critically on what monetary policies accompany them. A homely analogy illustrates the point. Suppose one were interested in the effect of making a car more powerful on the speed at which it would be driven. What should be held constant, the degree of pressure the driver applies to the accelerator, the setting of the transmission or the speed limit she respects? Clearly the question of the effect of a more powerful car on driving speed is meaningless without a specification of what is to be held constant.

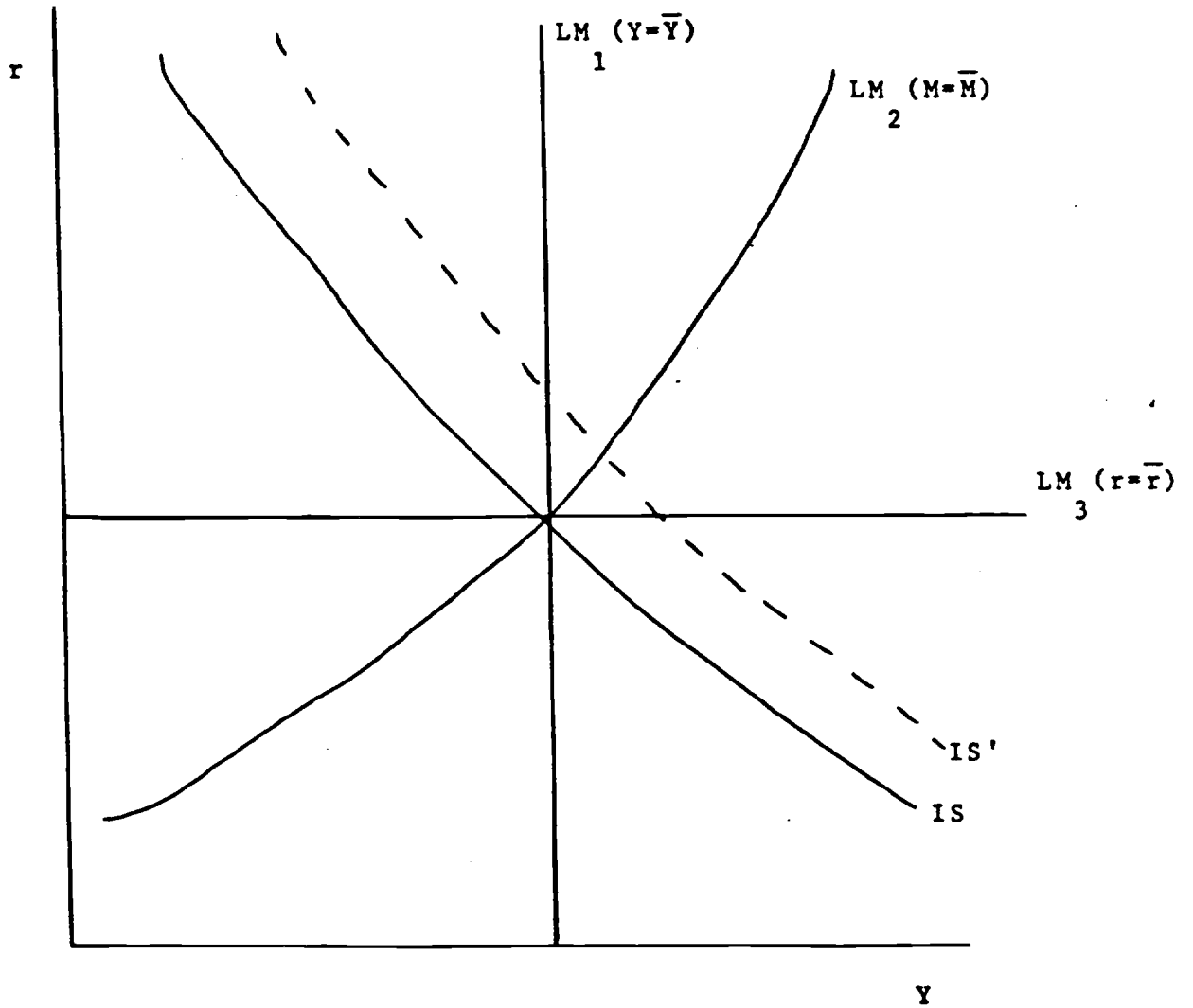
As illustrated in Figure 3, the fiscal multiplier can vary between zero and quite substantial values, depending on what monetary policy holds constant in the face of deficits. If the Federal Reserve acts to maintain the level of nominal GNP, fluctuations in the deficit will have no effect on the level of output. On the other hand, if they act to maintain the level of interest rates, the multiplier is likely to be quite large. On the assumption that they maintain the level of the money stock, standard analysis suggests that the multiplier will have an intermediate value.<sup>3</sup>

Academic controversies about the effects of fiscal policy have centered on the magnitude of the multiplier on this last assumption that the money stock is held constant. It is far from clear that this is a very realistic assumption about the monetary policy response to changes in Federal deficits in the current policy environment, where monetary policy is no longer directed

FIGURE 3

Fiscal Policy Effects

Under Alternative Monetary Policy Assumptions



at pegging the monetary aggregates.<sup>4</sup> The difficult issue for the analysis of fiscal policy is deciding what alternative reaction function is more plausible to use for monetary policy. My preference is for the assumption that the Federal Reserve seeks to maintain a nominal GNP target in the face of fiscal shocks. That is, it offsets any expansionary impact of deficits with contractionary monetary policies. This assumption is appropriate if monetary policy is selected to balance economic growth and inflation. Fiscal expansions which do not shift the tradeoff between inflation and growth will not lead to the choice of a different level of GNP. Even if the assumption that the Federal Reserve acts to stabilize nominal GNP in the face of changes in deficits is not completely accurate as a predictive theory, it is still a useful benchmark for the analysis of fiscal policy. It permits isolation of the effects of deficits on the composition of GNP. In the long run when wages and prices are flexible, these effects are likely to be the primary consequences of fiscal policies.

#### Fiscal Deficits and the Composition of GNP

The effects of fiscal deficits on the composition of GNP are a subject of continuing controversy. If GNP remains constant following an increase in government deficits, some other component of spending, consumption, investment, or net exports must be crowded out. The conventional view embodied in most

textbooks is that increases in government deficits, arising from tax cuts for example, increase the demand for goods. If monetary policy maintains a fixed level of output, interest rates rise to choke off the additional demand created by deficits. Increased interest rates reduce investment demand. They also lead to capital inflows from abroad, which cause an exchange rate appreciation, which in turn leads to increases in import demand and reductions in export demand.

This view of the effects of budget deficits has been challenged in recent years by Barro (1974) and a number of other authors. Their counterargument is often referred to as the Ricardian Equivalence Proposition.<sup>5</sup> They suggest that increases in budget deficits lead instead to reductions in consumption as households save in anticipation of future tax liabilities. Their argument runs as follows. In the long run, the present value of the government's tax receipts must equal the present value of its expenditures. Deficit increasing reductions, in taxes today, with expenditures held constant, necessarily entail increases in taxes tomorrow. The present value of the taxes that will be collected from consumers is unaffected by a tax change. This means that their wealth is unchanged and therefore that they should not alter their consumption decisions. Instead, households should save the whole of any tax reduction in anticipation of future tax liabilities. In this case, there will be no increase in the demand for goods and so interest rates will not rise when the government deficit increases.<sup>6</sup>

Much of the discussion of the Ricardian equivalence proposition has centered on whether or not persons currently alive are likely to be able to use debt to impose burdens on future generations, thereby making themselves wealthier and leading to increases in spending. Proponents of the Ricardian equivalence view have stressed the possibility that any altruistic parents will tend to offset any burdens imposed on future generations by increasing their bequests. Skeptics have dismissed this possibility. In all likelihood, however, intergenerational transfers are not of great importance in determining the effects of changes in government deficits.<sup>7</sup> The typical adult consumer has an expected life span of about 35 years. If the government runs a deficit, most of the burden of servicing the resulting debt will be borne within his lifetime. Hence, the opportunities for passing burdens on to future generations are relatively limited and so are unlikely to cause deficits to have large effects on consumption spending.

The most serious problem with the Ricardian equivalence proposition is its extreme assumptions about consumers' rationality in foreseeing future tax changes. Even where future tax changes have been legislated, consumers appear not to take account of them in making their consumption decisions. This is well illustrated by recent experience. In the summer of 1981, a three year program of substantial reductions in income taxes was enacted and government spending was slashed. If consumers acted in a forward looking way, one would have expected consumption to

surge immediately and then not to change much at all when the tax cuts actually took place. In fact, the personal savings rate was higher in 1981 when the tax cuts were anticipated than in 1982 and 1983 after they took place. Similar patterns have been observed when other tax changes were announced in advance. If consumers do not take account of tax changes that have already been legislated, it seems most unlikely that they consider tax changes that will ultimately be made necessary by government deficits.

While the Ricardian equivalence proposition seems implausible, its validity is ultimately an empirical question. More generally, in considering the effects of budget deficits, it would be useful to have estimates of the effects of deficits on each of the components of GNP. The starting point for an analysis of this question is the national income accounting identity:

$$(1) \quad D - G - T = PS + NFI - I$$

where D represents the total government deficit, PS is private saving, NFI is net foreign investment and I is domestic investment. This identity demonstrates that, with GNP held constant, increases in Federal deficits must raise private savings, draw funds in from abroad by crowding out net exports, reduce investment or have some combination of these effects. I estimate the effects of increases in deficits on the composition of national output by fitting reduced form equations of the type:



$$(2) Z_{it}/GNP_t = a_i + b_i(D_t/GNP_t) + c(\text{Cycle}) + u_i$$

where  $Z_i$ ,  $i=1-3$  represent components of GNP and Cycle represents a vector of variables intended to control for cyclical conditions. The coefficients  $b_i$  measure the extent to which deficits affect each national income component. In alternative specifications, Cycle contains controls for contemporaneous and lagged real growth, and for these variables and contemporaneous and lagged inflation.<sup>8</sup> The equations are estimated using the total government deficit as reported in the National Income Accounts. The sample period was 1950-1985. The equations are not corrected for autocorrelation in order to focus on the "low frequency" effects of budget deficits. Results are reported in Table 2.<sup>9</sup>

Both specifications produce similar results regarding the effects of budget deficits. Increased budget deficits calls forth only a negligible amount of extra private savings. Put differently, they crowd out only very little consumption expenditure. The data easily refute the prediction of the Ricardian equivalence view that deficits lead to dollar for dollar increases in private savings.

The estimates suggest that historically the primary burden of government deficits has fallen on private investment and net exports. Each dollar of deficit reduces investment by about 60 cents. The three components of investment, non-residential, residential and changes in inventories are reduced by approximately equal amounts--about 20 cents apiece.

Table 2

Deficits and the Composition of GNP

	<u>Real GNP Growth as Cyclical Control</u>	<u>Real GNP Growth and Inflation as Cyclical Controls</u>
<u>Investment</u>	-.674 (.088)	-.605 (.098)
Non-residential	-.297 (.075)	-.299 (.081)
Residential	-.272 (.086)	-.282 (.086)
Inventory	-.143 (.053)	-.074 (.047)
<u>Private Savings</u>	-.061 (.113)	-.019 (.129)
<u>Net Foreign Investment</u>	-.320 (.095)	-.364 (.108)

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Note: Coefficients indicate the effect of a \$1 increase in the deficit of the federal government and state and local governments on the indicated variable. The estimated equations relate the percentage of GNP accounted for by the indicated sector to a constant, a time trend, the percentage of GNP of the combined budget deficits of the federal government and state and local governments, the contemporaneous and twice-lagged values of real GNP, and, for the second column, the contemporaneous and once-lagged value of the change in the GNP deflator. All equations are estimated for the period 1950-1985 except for Non-residential and Residential investment, which, due to data limitations, are only estimated for the period 1950-1984. Standard errors are in parentheses.

The results also confirm the prediction that increased deficits crowd out net exports by attracting foreign capital inflows. However, the effect appears relatively modest, only about 25 cents of net exports are crowded out by each 1\$ increase in budget deficits. This is quite likely the result of the relatively long sample period used in the estimation. The coincidence of large budget deficits and large current account deficits at present suggests that in the current flexible exchange rate environment budget deficits have somewhat larger effects on net exports. Consequently, their effects on aggregate investment are probably somewhat smaller than these estimates imply.

These estimates confirm the conventional view that deficits have their primary impact on investment, with secondary impacts on the foreign trade sector of the economy and on private savings. For this pattern of responses to fluctuations in the deficit to be observed, deficits must tend to increase real interest rates. This suggests that deficits have potentially serious consequences for economic growth. In assessing these costs, it is important to recall that deficits are not an alternative to tax increases or spending cuts. Rather they simply postpone these actions and increase the size of the adjustment that will ultimately be necessary.

Federal Deficits and Financial Stability

The arguments suggesting that Federal deficits distort the composition of economic activity carry the implication that they may pose threats to financial stability. To the extent that they raise real interest rates, highly leveraged borrowers are put under increased financial pressure. The importance of this effect is difficult to gauge.

Probably more serious are the large sectoral dislocations associated with increased budget deficits. Financial health depends more on the balance sheet position of the worst off parts of the private sector than it does on the aggregate private sector balance sheet. Policies, such as those pursued recently, which lead to large shifts in the composition of output, increase the demand for some products at the expense of others. From the point of view of total demand, the shifts may be neutral but almost certainly the adverse shocks create more financial distress than the favorable ones alleviate. The financial distress of the agricultural sector of the economy, for instance, is in substantial part, the result of the crowding out of agricultural exports by the strong dollar.

If this distress and many of the problems faced by the manufacturing sector are to be ameliorated, profitability needs to be enhanced. The most direct way of assuring this is reductions in Federal deficits.

## FINANCIAL STABILITY AND THE TAX STRUCTURE

The overall level of tax collections determines the level of the Federal deficit and so has ramifications for financial stability through its effects on the composition of demand. Changes in the overall level of tax collections do not have a direct effect on the private sector's incentive to take on risky debt, but these incentives are directly affected by the structure of the tax system.

Table 3, drawn from the work of Eugene Steuerle (1985), illustrates a fundamental and little recognized feature of the tax system. Total tax collections on interest income are substantially negative in the United States. Steuerle's calculations suggest that in 1981, tax deductions for interest exceeded tax payments on interest income by almost \$30 billion. This reflects primarily two factors. Most importantly, borrowers tend to be in higher tax brackets than do lenders. For example, corporations, do a great deal of borrowing while a substantial amount of debt is held by tax-exempt organizations, pension funds and other tax favored savings vehicles and foreigners none of whom pay taxes on interest income. Moreover, underreporting appears to be much more serious for interest income than for interest deductions.

The fact that total interest tax collections are negative means that the tax system is subsidizing the use of debt finance. Whenever a transaction can be structured in a way that enables a

Table 3

Estimated Taxes Paid on Interest Income in 1981

(billions of dollars)

<u>Type of Payer or Recipient</u>	<u>Taxes Paid</u>
Interest Paid:	
Nonfinancial corporations	-48
Sole proprietors and partnerships	-18
Other individuals who pay interest	-31
Interest Received:	
Nonfinancial corporations <sup>a</sup>	19
Individuals <sup>b</sup>	38
Businesses <sup>c</sup>	7
Financial intermediaries	4
Total	-29

Source: C. Eugene Steuerle "Tax Arbitrage, Inflation and the Taxation of Interest Payments and Receipts," Wayne Law Review, vol. 30 (Spring 1984), p. 1007, as reprinted in Steuerle (1985), Taxes, Loans and Inflation, p. 55.

- <sup>a</sup>. Includes a small amount from financial noncorporate business.
- <sup>b</sup>. Includes receipts of estates and trusts.
- <sup>c</sup>. Services to businesses.

high bracket taxpayer to make and deduct interest payments to a low or zero bracket taxpayer, the Treasury loses revenue. Transactions which can be structured in this way are therefore subsidized. Tax arbitrage can account for the way in which many transactions are structured.

#### Taxes and Corporate Debt Equity Decisions

An obvious example is provided by the issuance of corporate debt.<sup>10</sup> For simplicity, consider initially a corporation whose future stream of profits is riskless. It is clear in this case that in the absence of tax considerations the labelling of claims on the corporation as debt or equity will be a matter of complete indifference. But the choice of a means of finance is consequential given the tax system. When the firm relies on equity finance, its cash payments to shareholders are not deductible. On the other hand, when it relies on debt finance, interest payments to bond-holders are tax deductible. If the taxation of debt and equity income at the individual level were identical, individuals would require the same rate of return on both debt and equity securities. In this case, corporations would all rely on debt finance. However, equity is tax favored at the individual level because capital gains are taxed preferentially. This means that individuals will require a higher pre-tax rate of return on debt than on equity with the size of the differential depending on their tax bracket.

The ultimate debt equity ratio actually selected by corporations will depend on the tradeoff of the tax advantages to deducting debt at the corporate level, against the tax advantages of holding equity at the individual level, and any associated bankruptcy risks. Under current tax rules, there are few if any taxpayers for whom the tax advantage to holding equity securities exceeds the corporate advantage to being able to deduct interest payments. Debt equity ratios therefore largely result from a balancing of the tax advantages to debt finance against the associated risks. In the absence of the tax advantage to debt, corporations would find it profitable to issue less debt and take on fewer risks.

I have highlighted the effects of the tax system on the choice of corporate debt equity ratios. Similar logic may be applied in other situations. Consider a stock trader considering marginning his holdings in order to purchase more stock. If the interest deductions he receives were exactly matched by interest taxes paid by the holder of his debt, the issuance of debt would have no effect on total tax collections and the tax system would provide no inducement to leverage. All the tax savings provided by the deductability of interest would be offset by the higher interest necessary to compensate debt holders for their tax burdens. On the other hand, if, as Table 3 suggests, debt issuers are typically in higher tax brackets than debt holders, the tax system does provide an incentive to leverage. The crucial point parallels the analysis of corporate debt equity



ratios. The tax incentive to debt depends on the difference between the tax rates of borrowers and lenders. Because this difference is normally positive the tax system provides incentives for the private sector to take on more leverage than it otherwise would.

It is very difficult to gauge the quantitative significance of tax incentives on private sector financing decisions. One piece of evidence suggests, however, that it may not be very large. The last decade has seen reductions in tax rates on individuals, expansions in the availability of tax sheltered savings, and sharply higher interest rates, all of which should have provided significant impetus to the use of debt. But as Figure 2 illustrated, there has been little or no acceleration in the long term trend towards the increased use of debt over this period.

#### Tax Reform and Financial Stability

It is unlikely that the tax incentives towards the increased use of private debt will be reduced very much by the tax reform package currently working its way through the Congress. While tax reform will reduce marginal tax rates on both firms and individuals, it is unlikely to reduce the differential between the tax rate on borrowers and the tax rate on lenders by very much. Indeed, because the corporate rate will rise relative to the rates of tax on high income individual taxpayers, it is

likely that the incentive for corporations to issue debt will be increased. This effect will be enhanced by increases in capital gains taxes, which will make equity securities less attractive. Reductions in after tax corporate profits will reduce internal finance and so will also tend to raise reliance on debt.

While whatever tax reform bill is passed is likely to contain limits on the deductability of interest for various purposes, it is far from clear that these will in fact bind for many taxpayers. Many will find it easy to rearrange their borrowing--by increasing their home mortgage for example--and so avoid any limits contained in the law.

In order to reduce the tax incentive to use debt finance, it is necessary to reform the tax system to narrow the spread between the rate at which interest is deducted and taxed. This is likely to be very difficult within the context of an income tax system which exempts a great deal of interest income from taxation. Reforms which move in the direction of a consumption tax and disallow all interest deductions probably offer the best hope of reducing the tax incentives favoring debt finance. But such reforms are not likely to be enacted in the near future.

#### CONCLUSIONS

This analysis of debt problems and their interaction with macroeconomic policies suggests that insuring financial stability is primarily a microeconomic policy problem. There is relatively

little that aggregate fiscal or monetary policies can do to insure financial stability other than trying to maintain economic stability. Nor, despite widely expressed concerns about the increases in various debt ratios, is there cause for generalized concerns about excessive leverage at present. Given the economic record of the past decade, aggregate private sector balance sheets appear surprisingly healthy. The problems that exist are largely sectoral and so call for microeconomic rather than macroeconomic remedies.

While financial stability is not a critical macroeconomic policy problem at the present time, there are important considerations suggesting that budget deficits have adverse economic effects. Budget deficits have little effect on the overall level of output in the current policy environment but distort the composition of output away from the investment and export sectors of the economy. The longer the delay until action is taken to reduce deficits, the larger will be the tax increases or spending cuts that will ultimately be required.

Footnotes

1. Domestic non-financial debt is defined as the sum of the credit market instruments issued by Federal government, state and local governments, business firms and households. It does not include the obligations of financial intermediaries. For a fuller description of its measurement see Friedman (1982).
2. Friedman (1982) emphasizes the stability of the debt ratio over periods much longer than the one considered here. The longer term evidence is however difficult to interpret. The debt-GNP ratio did fluctuate substantially during the Depression and War years. Whether the similarity of its value in the 1920s and the post-War period has structural significance or whether it is coincidental is difficult to judge.
3. Mankiw and Summers (1986) note that the standard analysis of the effects of tax induced deficits like those we are not experiencing depends on the implausible and empirically unsupported assumption that income and not consumption is the proximate determinant of the transactions demand for money. If this assumption is not maintained, it is possible for the multiplier to be negative when the money stock is held constant.
4. The relevance of the constant money assumption in the past is also highly questionable. In the pre-1970 period, monetary policy sought at least to some extent to peg interest rates. Even when monetary policy was explicitly tied to the monetary

aggregates, the existence of fairly broad target ranges for the money stock, and adjustments for base drift allowed for changes in the money stock in response to fiscal policies.

5. While Ricardo laid out the argument he concluded that it was unlikely to be valid in practice. My views on the Ricardian equivalence proposition are laid out in detail in Summers (1985) upon which the subsequent discussion draws heavily.

6. This analysis is exactly correct for the case of a change in taxes or a permanent change in government spending. The Ricardian equivalence view does allow for the possibility that a transitory increase in government spending will affect national savings and interest rates in the short run.

7. The point made here is developed more fully in Poterba and Summers (1986).

8. For estimates of a wider range of specifications over a slightly shorter sample period than used here with broadly similar results see Summers (1986). Corroborating evidence from econometric model simulations is also reported. Because of the inclusion of cyclical controls, very similar results are obtained using either actual or cyclically adjusted budget deficits. With the annual data used here, the inclusion of lagged deficits also has little impact on the results.

9. The major difference in the results when a correction is made for autocorrelation is that deficits are estimated to have a large impact on savings and a smaller impact on net exports.

10. The discussion here explicates the so called "Miller Model"

of the determination of corporate capital structure. See Miller (1977) for more details.

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