

FINANCIAL RESOURCES IN A FRAGILE
FINANCIAL ENVIRONMENT

by

Hyman P. Minsky
Professor of Economics
Washington University, St. Louis

paper prepared for the Seventeenth Annual Forecasting Conference of the
New York Chapter of the American Statistical Association, April 18, 1975

Introduction

The general aim of this conference is to explore how "Resources - Physical, Human, and Financial" affect the course of economic events. The particular aim of this session is to examine Financial Resources and Liquidity; whether the availability of loanable funds and the changing credit-worthiness of borrowers either constrains growth or leads to undesirable cyclical behavior.

The cycle and growth characteristics of the economy since the middle 1960's differ significantly from the experience of the first two decades after World War II. These differences are due to the fragility of the financial system and the response of monetary and fiscal policies to threats of financial crises and serious depression. As a result of the combination of the fragile financial environment and inept policy, during the past decade the economy has oscillated between accelerating inflation and threats of financial crisis and debt-deflation. This behavior means that we need new approaches to stabilization policy and structural changes in financial arrangements. However before we can prescribe a cure we have to understand the disease.

A question has been raised about the availability of loanable funds. Inasmuch as the nominal production costs of bank reserves are zero, and as the real resource cost of bank lending is small, in principal the banking system can readily supply loanable funds by creating money. It is also true that the sum of sectoral surpluses and deficits, summed over all sectors, must equal zero. Both propositions state after the event results. The interesting economic question is what are the processes

by which such identities are realized, even though planned values differ.

This is, of course, the question of why supply equals demand and of why savings equals investment. Keynes, who worked with a system in which ex-post savings equals ex-post investment clearly defined savings and investment as variables which as sums of individual intentions are not necessarily equal, but which are forced into equality by system behavior. Keynes' insight of genius, which revolutionized economics, was to allow income to be a variable which ensured this equality, whereas previous theory relied solely upon the weak reed of interest rates to assure equality between savings and investment.

The discussion about the availability of financial resources and the possibility of crowding out is pre-Keynesian, in that much is made of ex-ante differences without inquiring into the mechanisms which assure that the sum over all sectors of realized surpluses and deficits equal zero. In particular, the argument that a huge government deficit will crowd out private financing by increasing interest rates ignores the income and fund flow changes that will occur as spending takes place.

Of the expected deficit very little is due to increased government purchases of goods and services - the deficit is mainly due to increased transfer payments and decreased taxes. The government will not, as in war absorb increased amounts of real resources. However if and as households and business spend the newly available funds, household income, corporate profits, state and local receipts, and the foreign balance will all change, affecting the realized government deficit and the realized surpluses and deficits of private sectors. The changes needed to generate the realized outcome may involve accelerating inflation - but that is a

price we may have to pay for policies which ineptly maintain income, even as the need to sustain a fragile financial structure affects Federal Reserve behavior.

Robust and Fragile Financial Structures

To understand our economy, it is necessary to distinguish between robust and fragile financial structures. The financial structure consists of interrelated balance sheets. The various financial instruments are commitments to pay cash upon demand, at particular dates, or upon the occurrence of specified contingencies. These balance sheet commitments are on account of both principal and interest; short term debt involves a greater commitment to make payments than long term debt of the same face value.

For all operating units, except national states with respect to internally held national debt, the basic ability to meet payment commitments rests upon cash flows from operations: the excess of disposable income over current budget needs for households, some variant of gross profits after taxes for business, and the excess of tax and transfer receipts over current expenses for state and local governments. For strictly financial units - such as banks and R.E.I.T.'s - payment commitments can be met if the terms of contracts owned are fulfilled.

In addition to cash flows from operations, units can obtain cash to meet payment commitments by 1) having cash on hand 2) disposing of financial assets which are superfluous to operations, and 3) borrowing. Obtaining or using such cash involves changes in portfolios.

We therefore distinguish among balance sheet, income, and portfolio cash flows. Ultimately the viability of a debt structure depends upon

income cash flows. These in turn depend upon ruling prices and operating costs being such that revenues from operations, employment, or taxes do, or are expected to, exceed current expenses by a large enough amount to satisfy contractual commitments and the risk aversions of lenders. The worth of utility bonds is questioned because investors doubt whether market prices and quantities will generate sufficient income in excess of current operating costs to satisfy the contractual commitments. R.E.I.T.'s are in trouble because anticipated cash flows fall short of what is needed to validate debts; New York City bonds are difficult to market because given the tax and transfer expectations of the city and the costs of city services there is no foreseeable current surplus that will validate this debt.

Because the validation for all non-governmental debt depends upon current and expected prices and costs there are strong linkages between the price system and the financial system. The weak linkages specified in the Quantity Theory of Money and standard Macroeconomic Models miss the point about how our economy works.

A financial system is robust when debt servicing can be readily satisfied by income cash flows and when portfolios contain sufficient cash and other financial assets not required by operations to absorb temporary shortfalls in cash receipts. A financial system evolves towards fragility as the cash flows on liabilities increase relative to the relevant cash receipts and as units are "stripped" of liquidity.

Hedge, Speculative, and "Ponzi" Finance

Fundamental to the distinction between robust and fragile financial structures is the distinction among hedge, speculative, and "Ponzi"

finance by economic units. A unit engages in hedge finance when the cash flow from operations exceeds the cash payments due on contracts; a household mortgage is an example. A unit is engaged in speculative finance when the cash flow from operations falls short of the payment commitments on contracts, although cash flow from operations exceeds the interest charges. Speculative finance occurs when term to maturity of liabilities are short relative to asset life; banks normally engage in speculative finance, as do corporations that have a floating debt in the form of bank loans and commercial paper. A unit engages in "Ponzi" finance when interest charges on outstanding debt exceed cash flows from operations. A unit engaged in constructing facilities with long gestation periods or for which the cash flow from operations or contracts falls short of anticipations engage in "Ponzi" finance. New York City is obviously playing a "Ponzi" game.

Indicators of Financial Robustness/Fragility

The relative robustness/fragility of the financial structure is determined by the proportion of units that are engaged in hedge, speculative and "Ponzi" finance; the greater the proportion engaged in hedge finance the more robust the financial system. Because information of detailed financial practices is not available the aggregate flow of funds data on liabilities and cash flows are used to indicate the hedge-speculative finance dimensions of the economy.

Other indicators of the robustness/fragility of the financial structure are the ratio of cash or near cash to liabilities and the ratio of "exotic" or short term liabilities to total liabilities. These measures point to the shortfalls of cash flows that can be absorbed

without affecting operations and whether "runs" can occur on the sector's liabilities, perhaps through some weakness of the lender.

Data Indicating the Transition from Robustness to Fragility

From data in the Flow of Funds accounts indicators of the relative robustness and fragility of the financial structure can be derived. In the first four charts measures on the Non-Financial Corporate Sector are presented, Charts V and VI deal with Households, and Charts VII through X deal with Commercial Banking.

The first chart shows the ratio of corporate investment in fixed plant and equipment to internal funds. Whereas in the first fifteen years charted this measure fluctuates around one, in the past decade this measure has always exceeded one and this ratio has trended up. That is, an increasing portion of fixed investment has been externally financed. My interpretation of this is that as the desire to invest increased, because the economy did well and because incentives to investment - such as the investment tax credit and accelerated depreciation - were intruded into the tax system, our sophisticated financial system accommodated the demand for finance.

Chart II shows the ratio of liabilities to Gross Internal Funds which is an indicator, albeit crude, of the cash payment commitments of corporations relative to a measure of the validating cash flows. The indicator as presented is very conservative, because it does not allow for the increased proportion of short term debt in the corporate liability structure and for the rise in interest rates. Even so the ratio showed no discernable trend until the middle of the 1960's; in the past decade this ratio has shown a strong upward trend. Certainly

the cash flows from operations of corporations now provide a substantially smaller cover to debt than was true a decade ago.

Chart III is an indicator of the cash assets that corporations keep in their balance sheet; other liquid asset indicators such as the ratio of liabilities to no default assets show the same trends. Liabilities relative to Demand Deposits has trended up throughout this period, however as is indicated by the vertical line the rate of growth increased in the late 60's, and perhaps again around 1970.

In Chart IV one measure of the liability structure of corporations is exhibited. The ratio of Open Market Paper plus Borrowings from Finance Companies to total liabilities indicates the recourse to "exotic" financing by corporations. Of course these are a minor portion of total corporate liabilities; however it is clear that they now provide substantially more funds than twenty years ago. The dependence on exotic finance apparently has increased in two steps - the first around 1960 and the second around 1969-1970.

Charts V and VI give two indicators of the financial development of Households. The ratio of household liabilities to disposable income rose from about .35 in 1950 to .68 in 1965 - and since 1965 this ratio has remained in the neighborhood of .65 to .70, with no perceptible trend. A similar pattern is shown by the ratio of Liabilities to Demand Deposits and Currency - a relatively smooth upward trend for about the first fifteen years during which this ratio rose from about 1.2 to 3.8 and a decade in which this ratio has been between 3.4 and 4.0. In terms of the measures used here the household financial picture seemingly has stabilized over the past decade; however if we

adjusted the liabilities for rising interest rates an upward trend might very well have continued throughout the decade.

In Charts VII through X some of the financial relations for Commercial Banking are exhibited. In Chart VII the ratio of Financial Net Worth to Total Liabilities is shown. Between 1950 and 1960 this ratio trended upwards from the neighborhood of .074 to .085, in the years since 1960 it has fallen to .056. The equity protection in Commercial Banking has fallen sharply - and we know that the aggregate ratios exhibited here are large compared with similar ratios for the giant bank holding companies.

In Chart VIII, the ratio of total liabilities to protected assets is shown; this ratio increased slowly from about 3.0 in 1950 to 5.5 in 1963, since 1963 the rate of increase has been faster so that by 1974 this ratio was around 11.8. In Chart IX the ratio of demand deposits to total liabilities is shown; this ratio has trended downward throughout the entire period, however once again a break occurred in the neighborhood of 1960 which increased the trend rate downward. We can explain this change in trend by the introduction of the negotiable C.D.'s. Chart X shows the ratio of bought funds (non-deposit funds + large negotiable C.D.'s) to total liabilities. This ratio was in the neighborhood of .05 until 1962 or so, at which time it exploded upwards reaching a high of .18 in 1969, and standing at .15 in 1974.

The above is but a sampling of the data available on financial changes over the past decades, which indicate that the speculative element in finance has increased. As a result, the financial system is much less robust now than hitherto.

In the charts a vertical dashed-line is drawn at those dates in which a change in trend or a change in the mode of behavior took place. These vertical lines indicate that structural changes in the behavior of the economy occurred. It is my hypothesis that these changes indicate that in the early 1960's the financial system became fragile.

Fringe Banking and Financial Fragility

In addition to the above indicators of the changing financial structure of major sectors, institutional changes, which increase layering of financial claims, also contribute to the fragility of the financial structure. There is no need to document with numbers what is well known. Over the past decade and a half fringe banking institutions and practices - such as business lending by finance companies, commercial paper issued by corporations, R.E.I.T.'s, and non-member commercial banks - have grown relative to other elements in the financial system.

With the growth of fringe banking institutions member banks - and especially the large money market banks - have become de factor lenders of last resort to these institutions. We now have a system in which the Federal Reserve is the lender of last resort to giant commercial banks, and the giant commercial banks are the lenders of last resort to fringe banking institutions. The heirarchical model of the National Banking System has been brought into being again.

Such hierarchical banking relations can be a source of weakness for the financial system, as the drawing upon lines of credit by fringe institutions occurs when alternative financing channels become unuseable. This usually occurs when doubt arises about the validity of payment commitments by fringe institutions because of weaknesses in their asset

structures. Thus the banks which act as residual lenders typically refinance institutions which are adjudged weak. Inasmuch as some of the assets that banks hold are like those in the portfolios of fringe institutions, when the weakness of the fringe institutions becomes apparent, some of the assets held by these back up banks have been weakened. Thus the need for some banks to act as a lender of last resort to fringe institutions means that weakened portfolios are made even weaker.

Implicit in the hierarchical pattern that has developed is a potential for domino effects. Introduction of additional layering in finance and the invention of new instruments that are designed to tap pools of liquidity, are evidence of the fragility of the financial system which reinforces that revealed by the data on financial stocks and flows.

Fragile Finance, Crunches and Business Cycle Experience

In a fragile financial structure, the feedbacks from the rising interest rates of vigorous expansions, even in the absence of overt monetary constraint by the central bank, lead to financial crunches and crises which in turn threaten to trigger a cumulative debt-deflation. Three times in the past decade - in 1966, 1970, and currently - near crises have threatened to set off a debt deflation. Intervention by the Federal Reserve, acting as a lender of last resort, aborted these threats. However in the process of averting debt deflations the Federal Reserve fed reserves into the banking system and validated the particular financial usages that were the focal point of the threatened crisis. In this manner the Federal Reserve set the stage for the financing of a subsequent inflationary expansion - and for the continuation of the

trend towards more fragile finance.

One result of the increased financial fragility has been the changing nature of the business cycle. The business cycles of the first twenty years after World War II were mild and did not threaten serious financial dislocations. Furthermore, by the standards of the past decade the inflations were trivial. It was over this period that the standard rules for monetary and fiscal policy were developed, and during these years they were sufficient to achieve a rather successful performance for the economy.

Beginning with the crunch of 1966 the business cycles - even if they were growth recessions - have contained both threats of serious financial disturbances and, in the expansion phase, accelerating inflation. The standard policy prescriptions for moderating inflation and sustaining employment do not seem to work. The economy seems to oscillate very rapidly between a threatened deep depression and accelerating inflation.

The story that was sketched in the charts reflects the way in which financial resources were mobilized to finance investments during expansions. The financial changes which took place in the balance sheets of the various sectors reflect the financing of expenditures by activating previously idle pools of liquidity, pools which tended to make the financial system robust. However, underlying the greater reliance upon debt financing of investment and positions in the stock of capital assets was the belief that income of business, households, and state and local governments would grow, so that the cash flows required to validate the debt would be forthcoming. Once expectations of unbounded growth were abandoned, the inherited debt structure becomes untenable.

Even though we are not out of danger in the current near financial crisis - there are many taut situations which still need to be resolved - let us assume that the government deficit first sustains income and then leads to a rise in income. We can expect the deficit to be reflected in whole or in part by surpluses of finance, business, households, and state and local governments. Given the scare that households, firms, and financial institutions had in the past two years, we can expect that initially cash flows would be used to increase the robustness of balance sheets rather than as the basis for continuing the trends exhibited in the charts: business, for a while, will invest less in plant and equipment than gross internal funds, and banks will let their equity base grow relative to their liabilities. Demand deposits and treasury debt might become increasing proportions of the assets of households, businesses, and banking institutions.

The scare of the past year can be expected to lead to developments which move the financial structure toward the robust side of the robustness/fragility scale. However, in the absence of the repudiation of debt that occurs in a debt deflation process and the lengthy period of low investment that characterizes a deep depression we can expect the movement towards robustness to be reversed while the financial structure is still fragile by the standards of the 1950's.

The two scares of 1966 and 1970 did not reverse the trend towards financial fragility. In the absence of positive policies to restrain both private investment and new explorations in fancy finance, it is likely that current policy will lead to a resumption of inflationary expansion, once the view becomes generalized that income will be sufficiently

high so that cash flows will not only validate the outstanding debt but also will validate new equity and debt commitments. Inasmuch as debt is in nominal terms, the early stages of accelerating inflation reduce the real burden of inherited debt: the nominal cash flows that will validate the debt reflect a smaller real mark up on current costs. Inflation decreases the real mark ups on current costs that are needed to validate debt.

However in the light of recent experience there is a barrier to the resumption of the process by which financial resources are made available for investment by portfolio adjustments. This barrier is the doubt that the price system of the real economy will generate the cash flows needed to validate debts. Certain types of deficit financing seems incapable of meeting market tests in the near future. Given the current financial plight of housing, commercial facilities, electric utilities and air and rail transportation it is doubtful whether the excess of revenues over total operating costs that can be expected in the near future will be sufficient to validate any appreciable investment. Thus if there is to be a resumption of a vigorous boom and a continuation of a tendency towards increasing financial fragility, at least in the initial stages the leading sectors may have to differ from those of recent experience.

A Depression Without a Depression

It seems as if current policies, after a shorter or a longer pause, will lead to resumption of an inflationary expansion financed by balance sheet adjustments that will lead, in time, to an even more fragile financial structure than we had in 1973-74. Once again endogenous feedbacks will lead to threats of financial crises and a replay of the scenario we have gone through three times in the past decade. Is there a way out of this

dismal cycle?

There is. It is by recognizing that the deep depressions of history, albeit at a heavy price, accomplished three necessary results: the financial system was much more robust after a deep depression than before, the willingness to engage in speculative finance was much diminished, and the low investment of the depression, as well as the bankruptcy of firms, meant that the investments of the preceding period were in part used up and the unwarranted capital intensive boom investments were written down.

Thus the prescription for getting out of the dismal cycle we have experienced over the past decade is to achieve the economics of a deep depression without the waste and suffering of mass unemployment. We need a period - perhaps as long as a decade - of low investment and high consumption in which employment is maintained by devices like the W.P.A., C.C.C., and N.Y.A. of the 1930's rather than by increased inducements to finance private investment in a speculative manner.

What we have now is a national policy to induce private investment and private construction in the face of excess supplies of housing, commercial properties, and industrial capacity. These excess supplies mean that new investment will not be able to generate sufficient cash to validate the debts and the owners' commitments incurred in financing that investment. The ever more pervasive subsidies to housing, utilities, construction, and investment that have been required over the past decade is persuasive evidence that such facilities are incapable of generating validating incomes. The market signals are clear - such investments are a misallocation of resources. It is now time to manage

affairs so that we achieve a close approximation to full employment in the context of a low investment economy.

But there is another message from recent experience, which is that the tendency towards speculative finance means that free market developments in finance are destabilizing - first upwards, so that a reasonably stable period is transformed into an inflationary expansion, and then downwards - by threats of financial crises and deep depressions. Thus we need comprehensive rules as to what is permissible in finance, rules which would eliminate many of the layering and liability management devices that developed over the past three decades. We need a discussion of the constitution for a good financial economy. The time has arrived for meaningful reforms which look not towards "freeing" finance, but which look towards erecting barriers against the development of financial fragility.

"FINANCIAL RESOURCES IN A FRAGILE FINANCIAL ENVIRONMENT"

by

Hyman P. Minsky

Washington University, St. Louis

APPENDIX - CHARTS

Prepared for the Seventeenth Annual Forecasting Conference of the New York
Chapter, American Statistical Association April 18, 1975

CHART I
Fixed Investments ÷ Gross Internal Funds
Non-financial Corporations
1950-1974

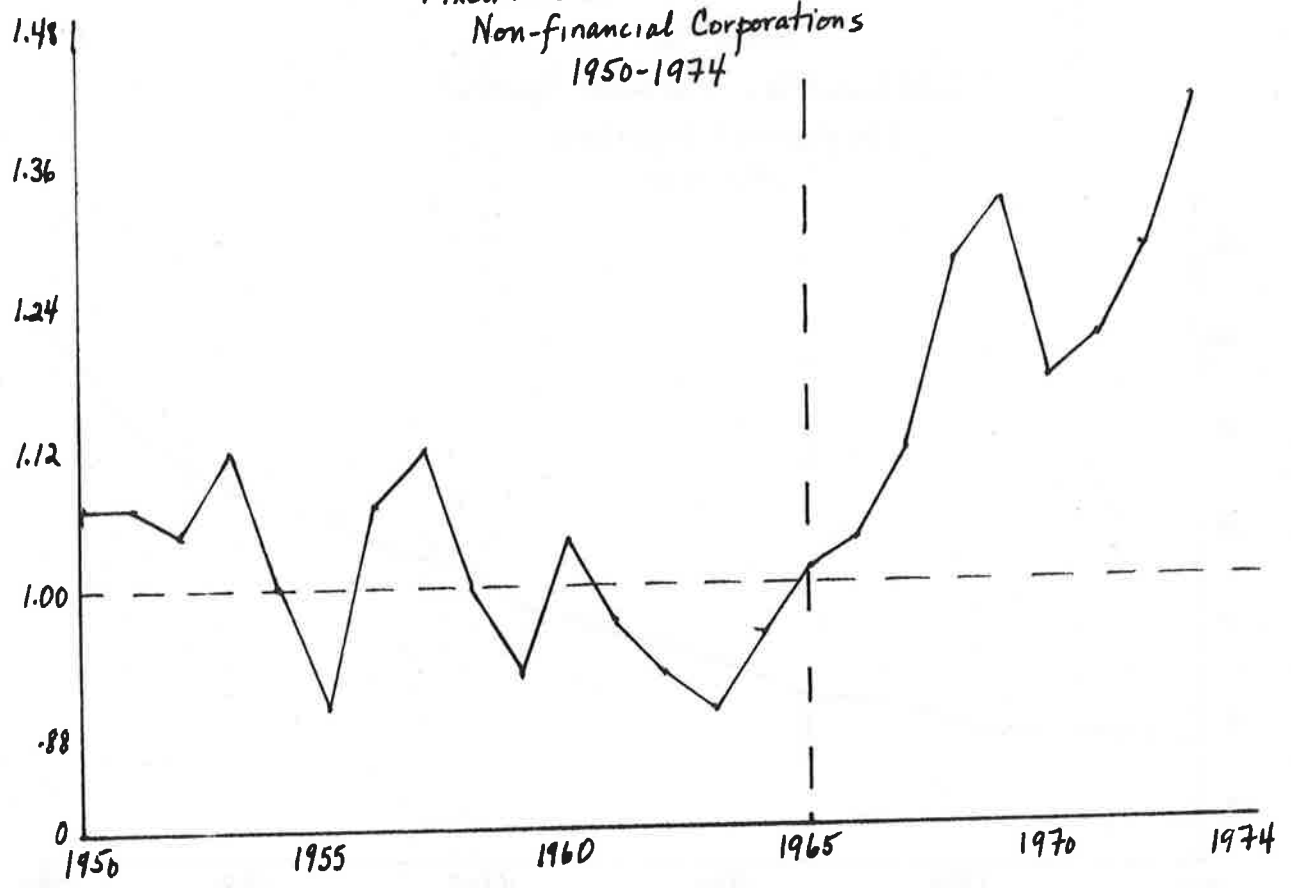
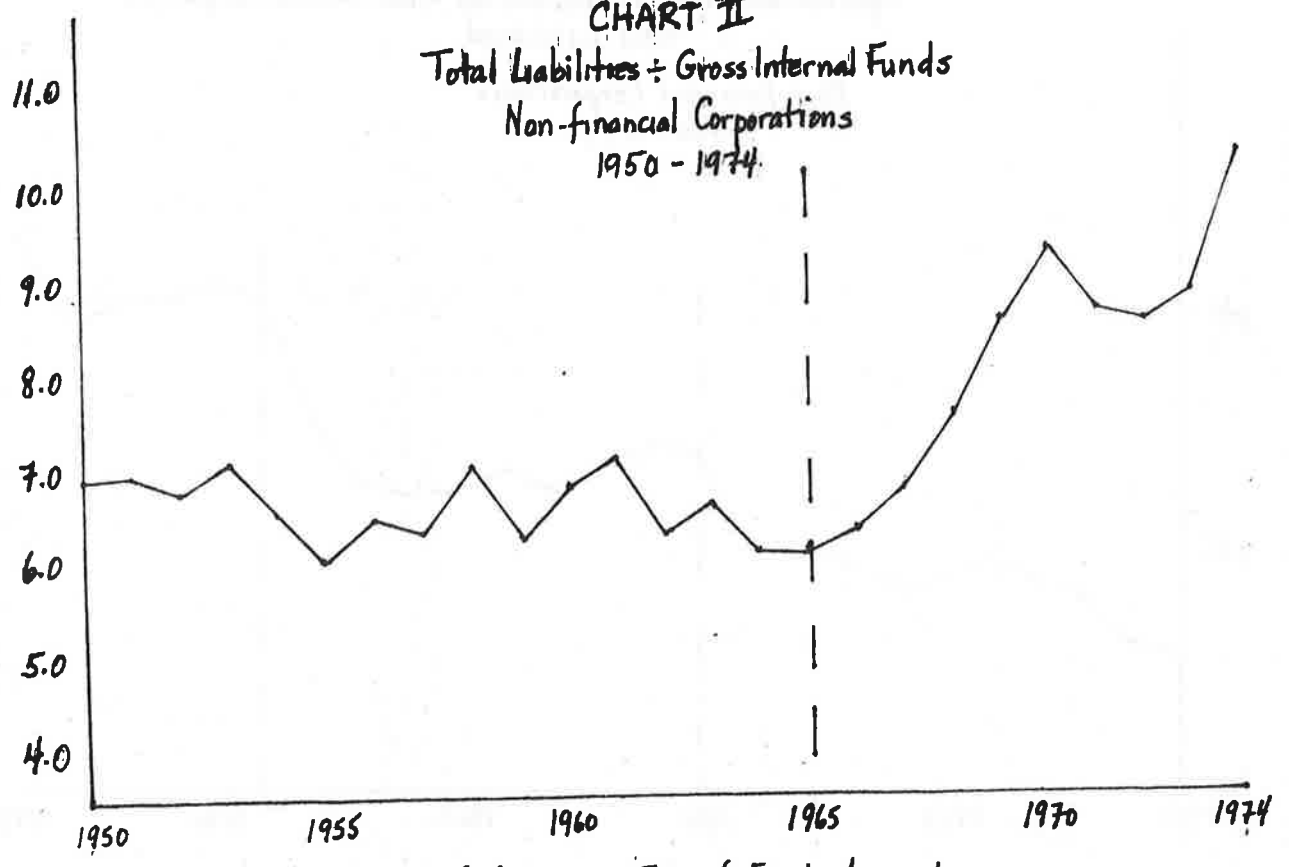


CHART II
Total Liabilities ÷ Gross Internal Funds
Non-financial Corporations
1950-1974



Source: Underlying Data: Board of Governors Flow of Funds Accounts

CHART V
 Liabilities ÷ Disposable Personal Income
 Households
 1950 - 1974

A3

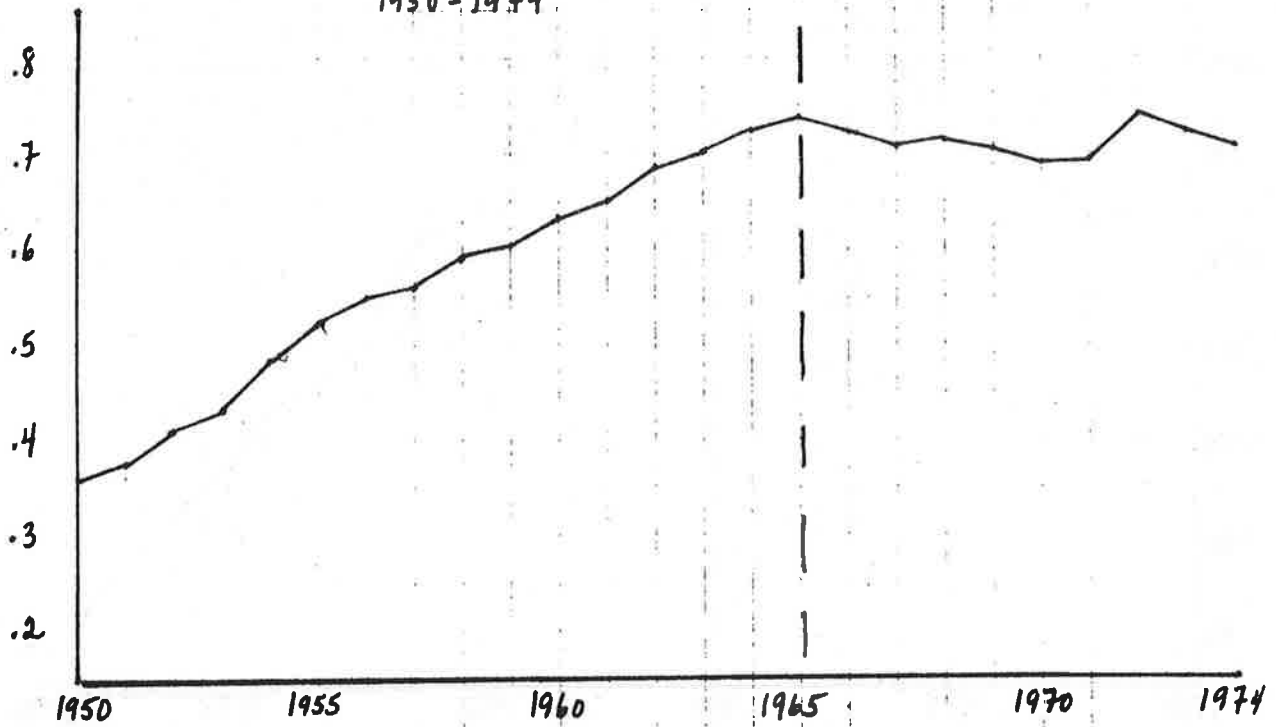
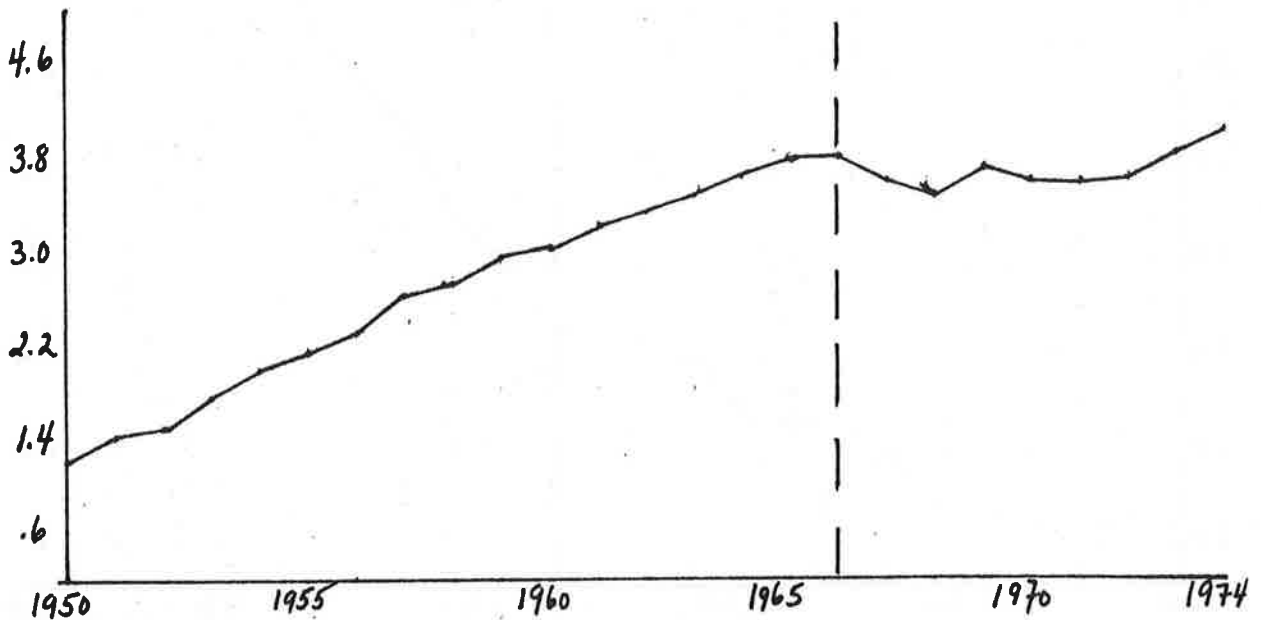


CHART VI
 Liabilities ÷ Demand Deposits + Currency
 HOUSEHOLDS
 1950 - 1974



Source: Underlying Data: Board of Governors Flow of Funds Accounts

CHART IX
Demand Deposits ÷ Total Liabilities
COMMERCIAL BANKING
1950 - 1974

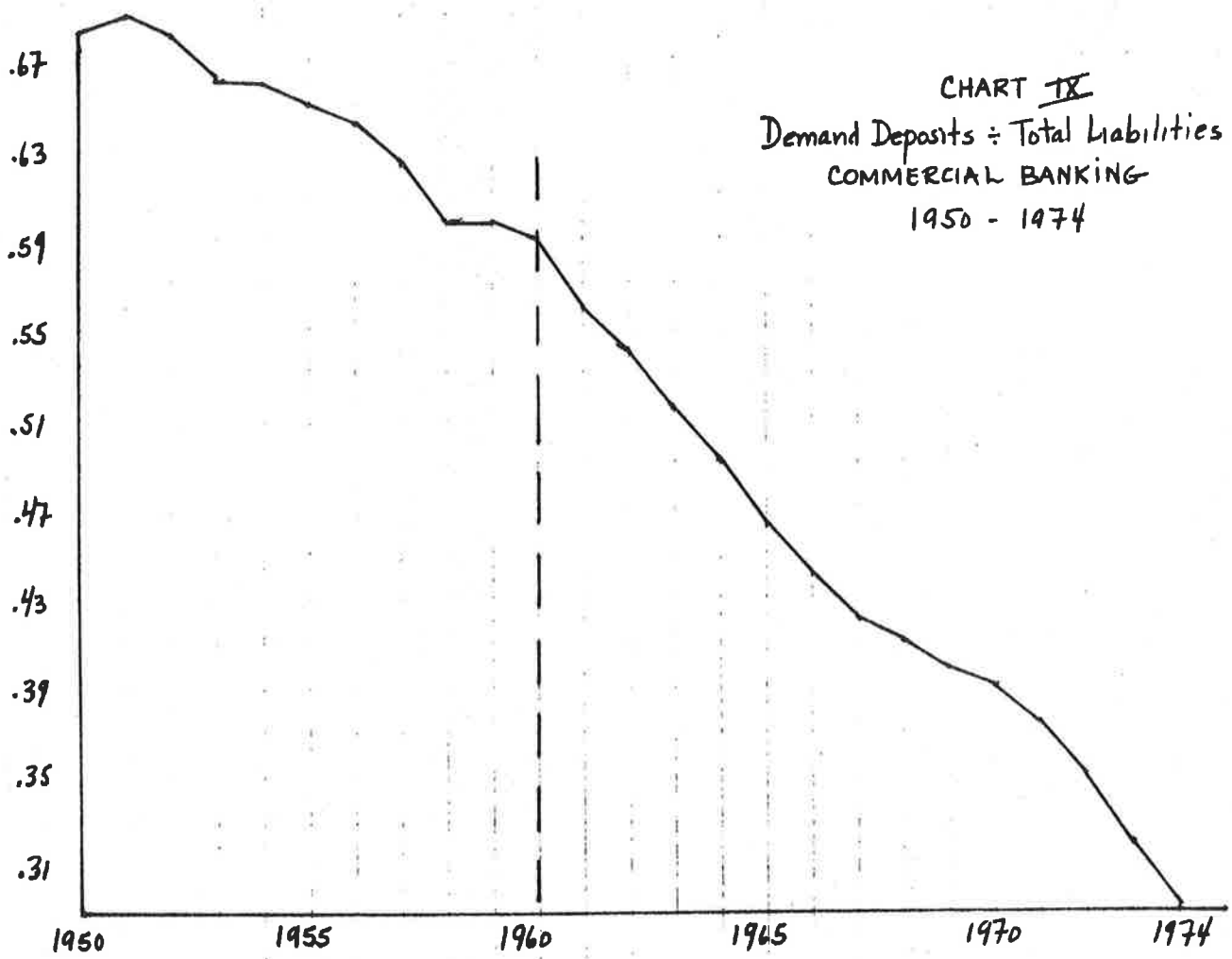
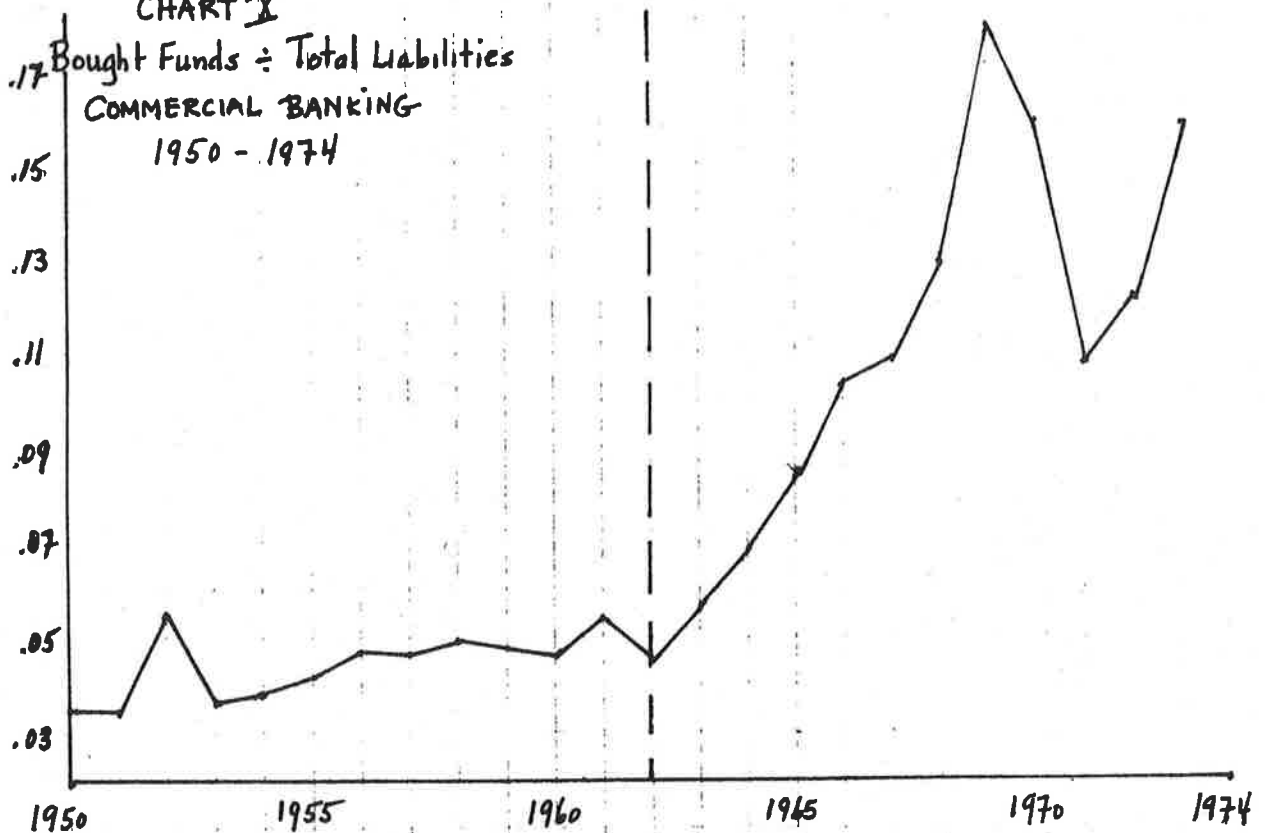


CHART X
Bought Funds ÷ Total Liabilities
COMMERCIAL BANKING
1950 - 1974



Source: Underlying Data: Board of Governors Flow of Funds Accounts