

The Finance Process on a Macroeconomic Level from a Flow Perspective: A New Interpretation of Hoarding

MATHIAS BINSWANGER

The simple circular flow model of money presented in this paper aims to show that the relation between money creation, saving, investment and growth becomes more complex, the more the financial sector is involved in economic activities. If an increasing part of financial funds circulates outside the circular flow of money, which describes the money flows connected to the real activities within the economy, the relation between money creation and real investment but also between money creation and the price level is obscured. These money flows may be interpreted as a new kind of "financial hoarding" which plays a major role in modern credit money economies.

I. INTRODUCTION

Current economic research provides strong empirical support for the significance of financial factors in the real behavior of the economy (see Fazzari, 1993, or Mayer, 1994, for surveys), which were considered to be of minor importance over the last decades. But recently, there emerges a high degree of consensus that the availability of finance influences the course of investment because many investors face a finance constraint, which can only be relaxed by credits of banks and other financial institutions (credit expansion). In this paper, however, we want to focus on the finance process and the resulting finance constraint on the aggregate level. The fact that there is also a macroeconomic finance constraint that applies to a whole economy has gained much less attraction in recent economic research (exceptions are Vickers, 1993; Wray, 1991). Also the whole economy would be constrained by the availability of financial funds (prior saving) if there would not be the possibility of credit expansion by banks, which results in money creation.¹

Relevant information about the financial flows on an aggregate level can not be derived from a macroeconomic approach that treats money as a stock at a certain point of time. Instead, we have to pay attention to how money circulates between the different sectors of an economy within a certain period of time.² This "flow approach" has a long tradition in economic theory and goes back to Dennis Robertson (1940), who emphasized the flow nature of money in his loanable funds theory against Keynes' liquidity preference theory, where money is basically interpreted as a stock. Later on, the flow analysis of money was especially put forward by Tsiang (1949, 1956, 1988), who never became tired of advocating this approach, although, it did not attract too much attention during the last decades. The "flow approach,"

Mathias Binswanger • Institute for Economics and the Environment, University of St. Gallen, Switzerland, Tigerbergstr. 2, 9000 St. Gallen, Switzerland, Fax: (071) 224-2722; E-mail: mathias.binswanger@iwo.unisg.ch.

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however, is not at odds with a “stock approach” of money but it emphasizes different aspects. The stock approach is a timeless concept and deals with allocation of funds at a certain point of time between various kinds of real and financial assets, which differ in their degree of liquidity. The “flow approach,” on the other hand, asks what money is spent for during a certain period of time, which results in adjustments of stocks.

In this paper, a simple three sector model of a *circular flow of money* is developed, which refers to all the money flows directly related to the real activities within the economy. Additionally, as we shall see, there is also an increasing amount of funds, which are not directly related to real activities within an economy, diverted from the circular flow of money. These funds outside the circular flow of money will be referred to as “financial hoarding.” The existence of these funds circulating in the financial sphere of the economy leads to important consequences for the finance process on a macroeconomic level.

II. THE QUANTITY IDENTITY

Usually, the relation between money and the real economy on a macroeconomic level is analyzed in terms of the quantity identity, which may serve as the starting point for the considerations in the following sections. The macroeconomic finance constraint can be demonstrated by looking at the (ex post) quantity identity for a certain period of time, on which traditional macroeconomic monetary theory is based:

$$M \cdot V = P \cdot Y \quad (1)$$

which might be rewritten as (taking logarithms and deriving the total differential):

$$\Delta Y/Y = \Delta M/M + \Delta V/V - \Delta P/P \quad (1a)$$

An increase in Y could, therefore, principally be financed in three different ways from an ex post-perspective: with already existing funds if there is 1) an increase in velocity ΔV , or 2) a decrease of the overall price level ΔP , or 3) with newly created funds if there is an increase in the money supply ΔM .

A decrease in the price level is a rare phenomenon in modern industrial economies and must be ruled out as a source for financing growth in the aggregate. The price level never decreased in industrial countries since World War II except for some short term fluctuations. This is not surprising given the actual functioning of modern economies, which are dominated by labor market institutions creating substantial downward rigidity of money wages as wages are usually fixed by contracts before production activities start (see Knodell, 1988).³ For simplicity, we assume a constant price level in the following description of the circular flow of money implying that a decreasing price level is not an option for relaxing the macroeconomic finance constraint.

Normally, the macroeconomic finance constraint is relaxed by a rise in the velocity of money and/or additional money creation in a modern credit money economy. However, a rise in the velocity of money in terms of some traditional money aggregate should always be interpreted with caution. If velocities in terms of particular money aggregates increase over a period of time it does not necessarily indicate that “money” really circulates faster within the economy. The increase can also be due to the fact that other forms of money not included in a particular aggregate are increasingly used to fulfill the functions that previously were fulfilled by forms of money which are part of the particular aggregate. Especially financial innovations

might lead to new forms of money (an increase in the money supply), which are not included in traditional money aggregates. Therefore, it is a very difficult task to measure an income velocity of money in a meaningful way if we adopt a broader view of money that expands the narrow definitions of M1, M2 or M3. These aggregates are not able to keep pace with the fast changing variety of money substitutes existing today (Blank, 1991; Petersen, 1995). Under these circumstances, it can hardly be distinguished, whether there is an increase in the money supply, as measured by a traditional money aggregate, or an increase in the money supply by forms of money not captured in traditional money aggregates. This can be demonstrated by taking a look at the development of M1-velocity in the United States. In 1980, there was a sharp breakdown of M1-velocity growth, as M1 constantly increased from 1950 to 1980 and fluctuated around the 1980-level thereafter. This breakdown is frequently explained by financial innovations (e.g. Thornton & Stone, 1992). However, as Guttman (1994, pp. 204-205) shows, the breakdown is at least partially due to a redefinition of M1 in 1978 by including interest-bearing deposits, which were not part of M1 before 1978. In terms of the pre-1978 M1, there is no breakdown of M1-velocity growth and velocity in terms of pre-1978 M1 continued to rise also after 1980. Therefore, the movement of M1 in relation to Y can either be interpreted as an increase in velocity (in terms of pre-1978 M1) or as an increase in the money supply (in terms of the post-1978 M1). However, from a flow perspective, the effect is the same. An increase in the velocity, same as an increase in the money supply results in an increase in the money flow during a certain period of time.⁴

Thus, a direct relation between money creation and real output growth may not always directly be evident from statistics as the forms of money used for financing purposes are not necessarily part of monetary aggregates and frequently subject to change. Nevertheless, also conventional monetary statistics indicate a positive correlation between money aggregates (M0, M1, M2) and real output growth in the 21 OECD countries between 1960 and 1990 as a recent study shows (McCandless & Weber, 1995). This positive correlation does not exist in the rest of the world (there is a negative correlation), but this is hardly surprising given the high levels of inflation in many non-OECD countries. If money creation primarily leads to inflation, as it does in most economies without well-established financial institutions and monetary authorities, the negative impact on economic growth due to inflation is of greater significance than the relaxation of the macroeconomic finance constraint by additional money creation.

In the following sections we will deal with some important issues of the macroeconomic finance process. By analyzing the financial flows between different sectors of the economy in more detail, we will get a clearer idea how savings, investment, growth and money creation are fundamentally intertwined. Money, in this context, should not be thought of as corresponding precisely to any money aggregate such as M1, M2 or M3 because financial innovations continuously increase the variety of financial assets that may be interpreted as money. Here, money stands for all assets used as commonly accepted means of payment (mainly various kinds of deposits) or assets which may be converted into commonly accepted means of payment with negligible transaction costs.

III. THE CIRCULAR FLOW OF MONEY AND FINANCIAL HOARDING

The flow analysis of money is based upon the crucial conception that, in a modern credit-money economy, there exists a continuous *circular flow of money*, which coexists with the real activities within the economy. The circular flow of money, therefore, describes all mon-

etary transactions that are directly related to the real activities of an economy (producing, selling and using goods and services). On a macroeconomic level, this flow is between economic sectors, which in the most simple model are business firms (non-financial business) households and a financial sector. In a more complete model, there would also be a government and a foreign sector. On this aggregate level, all financial flows within a sector are netted out and do not appear as part of the circular flow of money. Therefore, also the funds spent for purchasing investment goods in the business sector are netted out. These funds become visible after the investment good firms pay their employees and, by that, transfer the funds to the household sector.

In this section, we try to outline a simple three sector-circular flow model of money in a modern credit money economy, in relation to which, also the concept of "hoarding" may take on a new meaning. Hoarding, in our model, is defined as all the monetary funds withdrawn from and not reinjected into the circular flow of money during a period of time. Or, alternatively stated, hoarding describes saving not reinjected into the circular flow of money during a period of time.⁵ This definition of "hoarding" is similar to the definition given by Robertson (1933), who defined hoarding of an economic agent as "a rise of the proportion between his money stock and his disposable income" from one period to the next under the assumption that the agent receives the same income at the beginning of every period. Therefore, hoarding is something entirely different from saving. Saving is non-spending on consumption, while hoarding is non-spending on neither consumption nor investment and, therefore, not spending at all. Only, if money is not spent at all, it will raise the proportion between the money stock and disposable income from one period to the next, because the agent will, additionally to the money he receives as regular income at the beginning of the period, also be in possession of the hoarded money from the previous period. The proportion of his money stock to his disposable income is higher in this case, as in the case, when he would not have hoarded money in the previous period. Therefore, hoarding in the definition of Robertson also results in hoarding according to our definition, as it results in non-spending of money in the circular flow of money.

Our interpretation of hoarding, as well as the definition given by Robertson (1933), should not be confused with the Keynesian interpretation. In the *General Theory* (Chapter 13), Keynes defines hoarding as a rise in liquidity preference or an increase in the asset demand for money. Therefore, in the "Keynesian liquidity preference theory," hoarding is not exactly the same as in the "Robertsonian flow of funds theory," as the former does not include a time dimension while in the "flow of funds theory," hoarding is related to a certain period of time.

Basically, all sectors could hoard money. However, as we shall see, hoarding of households and firms is only a meaningful concept if it is hoarding in form of cash as all other forms of money not directly spent on consumption or investment by these sectors are, in fact, made available to the financial sector. Traditionally, cash hoarding of households was considered to be the main form of hoarding. But cash hoarding of households is small in a modern credit money economy as households do not withdraw substantial amounts of money from their bank accounts after they receive payments (wages). Because of its marginal impact, hoarding of households will be neglected thereafter. Cash hoarding of money within the business would occur, if certain companies with a savings surplus neither use these funds for financing internal projects nor intermediate them to the financial sector (money is withdrawn from bank accounts). However, these transactions, except for illegal activities, are irrelevant in modern credit money economies and will also be neglected.

Except for cash holdings, no other form of money held as liquid reserve by the non-financial sectors can be considered as hoarding, in the way we defined it above, because in a mod-

ern credit money economy all these non-cash liquid reserves are deposits at banks and add to the funds, which the financial sector can intermediate to other sectors.

In order to develop our simple three sector-circular flow model of money (implying a closed economy without a government) we have to make some additional assumptions and simplifications concerning the activities of the three sectors:

The financial sector⁶ operates only on financial markets. It intermediates financial funds between different sectors and issues money by granting new bank loans. Investment in real capital of the financial sector is neglected and income received by the financial sector paid out as wages to employees is not explicitly modelled. The financial sector receives income by providing financial services and a substantial, however declining, part of this income is net interest income, which is the difference between interest received and interest paid. As long as income is used to finance the wage bill, it is to a large part (except saving) reinjected into the circular flow of money when employees of the financial sector spend their money on goods and services and the business sector will get hold again of the money originally spent on interest payments. Net payments of the business sector to the financial sector (interest payments and various fees) and spending on goods and services of employees of the financial sector largely cancel out as long as the financial sector spends income on the wage bill. Therefore, the financial sector indirectly also takes part in the circular flow of money but these financial flows are not visible in our model.

Direct lending and borrowing flows between business firms and households as well as direct flows within the household sector and within the business sector are neglected as these flows are small nowadays. Most lending and borrowing transactions involve the financial sector. This is also the case if an individual investor directly purchases e.g. corporate bonds as the trade is usually done through a bond dealer who is part of the financial sector.

The major part of the circular flow of money in our model are wages paid to households, which households spend again for purchasing goods and services from firms. Additionally households also receive a share of firms' profits (paid out dividends) which further add to their income. But firms do not directly spend all their income on wages and dividends, and households do not directly spend all their money on consumption. Firms and households also save money, which goes to the financial sector. All of the money not directly exchanged between the business sector and households during the current period represents current saving⁷ and goes almost entirely (except for the neglected cash hoarding) to financial institutions. In the household sector, current saving is current income not spent on consumption and in the business sector saving is current income not spent on wages and dividends (retained profits). The financial sector can transform current saving into a supply of financial funds available to other sectors. They might be offered as loans or exchanged for financial assets of the business sector on commercial paper markets.

Having made these assumptions we can describe more accurately, how the concept of hoarding becomes important again in our simple three sector-circular flow model of money. Financial institutions do not supply all of the saving they get as funds to nonfinancial business and households for financing real activities (investment in real capital or consumption) which are activities part of the circular flow of money.⁸ A portion of current saving remains within the financial system and is used for trading financial assets (all kinds of financial securities) among financial institutions, households and firms without being reinjected into the circular flow of money.⁹ These funds are withdrawn from the circular flow of money during the current period because the recipients of the money do not use it in the circular flow of money during the current period. Of course, financial assets may change hands many times and single agents reinject money into the circular flow of money. But, then, someone else, the purchaser of the financial assets, will withdraw money from the circular flow. Therefore, in the aggregate, a part of the funds will always be invested in the financial sphere outside the circular flow of money. These funds circulating outside the circular flow of money are the *new form of hoarding* that is of importance nowadays. We will use the term "*financial hoarding*" there-

after to describe the funds circulating in the financial sphere that are temporarily withdrawn from the circular flow of money.

Current saving not reinjected into the circular flow of money during the current period represents an increase in financial hoarding. In our three sector model, this is current income spent neither on consumption nor on investment in real capital during the current period. Analogously, a decrease of financial flows outside the circular flow of money represents a decrease in financial hoarding or financial dishoarding. It occurs, when funds previously hoarded are reinjected into the circular flow of money.

The economic consequences of financial hoarding are quite different from the now obsolete cash hoarding. While cash hoarding implies that these funds are physically stored somewhere, this is not the case with financial hoarding. The financial funds circulating in the financial sphere are actively traded for the search of an optimal risk-return mix according to the attitude towards risk of the agents involved. Financial institutions, same as other economic agents, try to adjust their holdings of real and financial assets towards a preferred risk-return mix. If returns on financial assets increase for some reason in relation to returns on real investment projects, this probably leads to a restructuring of portfolios, as economic agents in all sectors try to increase their holdings of financial assets. In this situation, financial flows outside the circular flow of money are likely to be increased (increased financial hoarding). Additionally, money creation does not lead to inflation (as traditionally measured) under these circumstances even if there is no real growth, because the newly created money goes directly into the financial sphere without affecting the circular flow of money. In modern credit money economies there is a substantial amount of financial transactions outside the circular flow of money, which constitute flows of money without any directly corresponding real transactions. These flows of money may lead to “speculative bubbles” or “fads” as, for example, described by Shiller (1984).¹⁰

The most important difference between cash hoarding and financial hoarding is the impact on the non-financial business sector. Cash hoarding certainly has a negative impact as it diminishes the circular flow of money and income of the business sector. It does so, either directly by a reduction of consumption expenditures of households or indirectly by decreasing the funds intermediated from households to the financial sector (“non-hoarded saving”), which decreases income of the financial sector (it can not lend out these funds and receive interest) and reduces consumption of employees in the financial sector. Contrary to traditional cash hoarding, financial hoarding does not necessarily have a negative impact on the business sector.¹¹ Financial hoarding is also income generating as it creates additional income in various forms (capital gains, interest payments, fees, commissions). This income finally increases the circular flow of money, when it is invested in real capital or, more important, spent on consumption goods by employees of the financial sector and, by that, transferred to the business sector as part of the circular flow of money. The evolution of the financial sector created a variety of new financial services (all connected to financial hoarding) by which the financial sector earns income.

The arguments presented certainly remind of the distinction in the *Treatise on Money* (1930) between the industrial and the financial spheres of circulation. Keynes's concern was with those instances where the financial sector is allowed to “steal” resources from the industrial sector leading to a fall in real output. This view became popular again recently among economists in the Post Keynesian Tradition in their analysis of the 1980s (e.g., Crotty & Goldstein, 1993; Pollin, 1996; Rousseas, 1994) when financial markets especially in connection to M&A activities (e.g., leveraged buyouts, junk bond issues) showed signs of speculative financial market practices. However, due to an enormous evolution of the financial system, the sit-

uation is different as it was in the 1920s, when Keynes was writing the *Treatise on Money*. On the one hand, a decrease in investment in real capital leads to an immediate decline of the circular flow of money and therefore, of aggregate demand. But, on the other hand, financial hoarding may be reinjected as prior saving into the circular flow of money at a later period and it also creates income while it is hoarded. Therefore, the impact of financial hoarding on the real economy crucially depends on the returns on real investment as compared to the returns on financial hoarding. If profitable real investment projects are scarce, and, therefore, the marginal return on real capital is low on average, as it seems to be the case in several industries today (Binswanger, 1996), additional financial hoarding may create more income than investing all money in real capital.¹² Additionally, it may pay off to postpone investments in real capital and invest the money during a later period, when the expected returns on real investments raise again. Whether the overall effect of financial hoarding (and how much of it) on the economy is positive or negative in a modern credit money is still an open question and further research is needed. At this point, we just try to offer a different analytical approach that may be useful in answering these questions.

IV. SUPPLY AND DEMAND OF FUNDS

Including the funds defined as financial hoarding in the previous section, we will now focus on the funds supplied and demanded during a period in the circular flow of money. All monetary flows must be measured between two points of time. In this context it does not really matter, how long this period of time actually is (a month, a quarter, a year).¹³ Of course, the longer the period of time is, the more financial flows are netted out as e.g., short term loans might be granted and paid back during the same period. But what we want to focus on here, are some basic features of the monetary flows, which are not affected by the chosen length of time. It, however, leaves open the question, how firms finance their initial spending on wages at the beginning of the period, that is to say, how economic activities are started.

In our simple three sector model, we will assume that firms finance their spending on the wage bill by the monetary funds already circulating in the circular flow of money, which do not disappear from one period to the next. There is a continuous flow of money between the sectors, which also reflects the time structure of the finance and production processes during the period under consideration. Therefore, firms will not start production without money available to pay the wage bill. Only if they want to increase their spending, they have to rely on additional credits from the financial sector.¹⁴

Before formulating the finance constraint as it applies to the real sectors of the economy, we may identify the funds (loanable funds), which constitute demand and supply on money markets during a certain period of time. The flow demand (of all economic sectors) would then be determined by the need of finance for the following purposes (see Tsiang, 1988, pp. 19-20):

D1: *The funds required to finance current expenditures during a period, which exceed current income.*

Business firms use these funds to finance investment expenditures, while households borrow funds mainly for mortgages. Since we look at the actual monetary flows during a certain period the amount of money that has to be paid for investments equals gross investments. If business firms invest into real assets, they have to pay the full price for

purchasing new investment goods no matter whether there are depreciation allowances for capital already in use. The depreciation allowances, on the other hand, add to the supply of financial funds (see below). By spreading (gross) investment costs (depreciation) over the assumed life span of an investment good, accounting procedures allow firms to make profits during a period even if they actually spend more money than they earn.

D2: *The funds demanded for financial hoarding.*

These are the funds demanded for increasing financial flows outside the circular flow of money, which are not spent on products of the business sector during the current period of time.

The supply of financial funds to the money market comes from the following sources:

S1: *Current savings*

For households, current savings represent current income minus current consumption. Business savings, in this context, are undistributed profits (retained earnings).¹⁵

S2: *Current depreciation allowances,*¹⁶

These funds are not spent during the current period of time and are the result of accounting procedures which spread costs of investment goods over several periods of time, although all the payments for the investment good are actually made in the period when the investment good was bought. Therefore, current depreciation allowances on previously bought investment goods add to the supply of financial funds during the current period of time as they are not part of current spending.

S3: *Funds, which are made available by financial dishoarding.*

These funds are the pendant of the above mentioned (D2) funds demanded for increasing financial flows outside the circular flow of money and refer to the supply of funds due to a decrease in financial flows outside the circular flow of money.

These three sources of financial funds represent gross savings of the economy and correspond to the savings term, as it was used in the quantity identity in section 2. But, there remains one further source of financial funds supplied to the money market:

S4: *Net¹⁷ creation of additional money by financial institutions .*

After having identified the flow demand and supply of financial funds on the money market, we can formulate the finance constraint within the circular flow model of a closed economy without government as:

$$Y_t + D_t + DF_t + \Delta M_t = GI_t + C_t + IF_t \quad (2)$$

or, since $Y_t - C_t = S_t$:

$$S_t + D_t + DF_t + \Delta M_t = GI_t + IF_t \quad (2a)$$

Y: income

C: consumption

S: savings

GI: gross investment

D: depreciation allowances

ΔM : net creation of additional money

DF: financial dishoarding

IF: financial hoarding

The right hand side of (2) represents the supply for financial funds on the money market during period t and the left hand side stands for the demand for these funds. Equation (2) is not an equilibrium condition but an identity of financial flows on the money market derived from a circular flow model of the economy.

The term DF_t needs some further explication as it actually is a function of IF_{t-1} , IF_{t-2} , ... , which in previous periods increased financial flows outside the circular flow of money:¹⁸

$$DF_t = FC(IF_{t-1}, IF_{t-2}, IF_{t-3}, \dots) \quad (3)$$

DF_t depends on how much financial institutions are willing to make the IF, they acquired in certain periods, available again to the circular flow of money in subsequent periods. We might assume for simplicity that a certain fraction f ($0 < f < 1$) of the remaining IF is reinjected into the circular flow of money in every period.¹⁹ This could be written in the following form:

$$DF_t = fIF_{t-1} + f(1-f)IF_{t-2} + f(1-f)^2IF_{t-3} + \dots = f(1-f)^{n-1} \sum IF_{t-n} \quad (3a)$$

We may simplify by letting:

$$\Delta F_t = DF_t - IF_t \quad (4)$$

where ΔF_t stands for the net increase (or net decrease if it is negative) of funds made available to the circular flow of money by a reduction of the financial flows outside the circular flow of money during period t . Therefore, ΔF_t may be called *net financial dishoarding*.

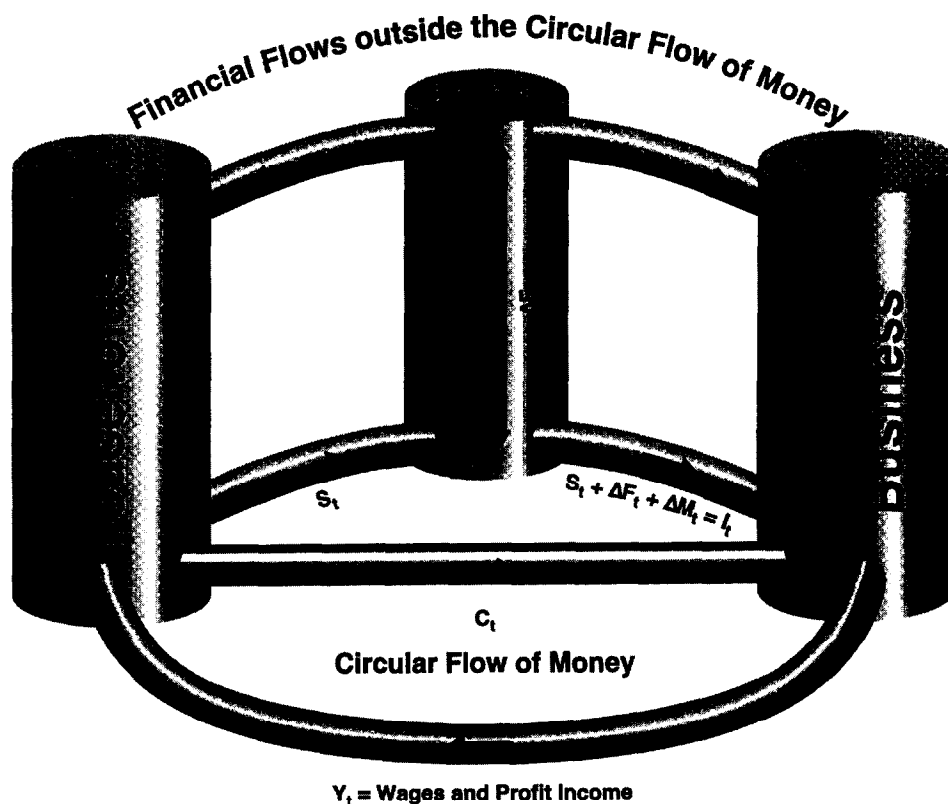
It will facilitate further analysis, if we just look at the net flows of financial funds between the sectors in our three-sector-economy. In the aggregate, households will be net savers, while business firms will be net borrowers on the money market. Therefore, in a net circular flow model, S_t stands for current net savings of households, while there are no net savings of the business sector.²⁰ I_t , on the other hand, stands for funds demanded (borrowed) by the business sector for financing net investments,²¹ while there is no net borrowing of households from the financial sector. Therefore, if we subtract D_t on both sides of (2) and use equation (4) we get:

$$S_t + \Delta F_t + \Delta M_t = GI_t - D_t = I_t \quad (5)$$

which formulates the finance constraint expressed in net flows between the sectors of the economy. The macroeconomic finance constraint, therefore, becomes the finance constraint of the non-financial business sector. On the left hand side, we now have current net investment I_t , which might be financed 1) by current savings, 2) by a net increase in funds reinjected into the circular flow of money by the financial sector, which represent prior savings of firms and households, or 3) by money creation. S_t and ΔF_t together represent net savings (prior and current) made available to firms by the financial sector during period t .

If ΔF_t and ΔM_t were zero, we would get the familiar

$$I_t = S_t \quad (6)$$



Note: Y_t : current income, C_t : current consumption, S_t : current saving, I_t : current net investment, ΔM_t : current net creation of additional money, ΔF_t : current financial dishoarding, IF_t : current financial hoarding, $\Delta F_t = \Delta F_t - IF_t$: current net financial dishoarding.

Figure 1. The Circular Flow of Money and Financial Flows Outside the Circular Flow of Money

In an economy stripped of money and the financial sector, the finance constraint (5) turns into a “real constraint” (6), where savings equal investments in real assets.

If there would not be any money creation ($\Delta M_t = 0$), I_t would have to be entirely financed by S_t and ΔF_t . (We still assume a constant price level.) This, however, is impossible in the longer run, if the economy is growing. An increase in Y from one period to the next can only occur, if there is an increase in consumption and/or investment during this period. However, an increase in consumption will decrease current savings at the same amount and therefore, reduce the funds available for investments. And an increase in investment could only occur, if there is an increase in an equal amount of savings, which, in turn, will reduce consumption.

Therefore, there would only remain ΔF_t as a source of finance, but, in the long run, ΔF_t can not be a net source of finance because:

$$\Delta F_t = \Delta F_t - IF_t = F(IF_{t-1}, IF_{t-2}, IF_{t-3}, \dots) - IF_t \quad (7)$$

or, in a explicit form by applying (3a)

$$\Delta F_t = DF_t - IF_t = f(1 - f)^{n-1} \sum IF_{t-n} - IF_t \quad (7a)$$

ΔF_t cannot be a net source of finance as all positive values of ΔF_t must have been preceded by negative values of ΔF_t in earlier periods. The financial sector can only supply funds to the economy in excess of current savings in a period t when savings supplied to the financial sector exceeded the supply of funds to the economy in earlier periods. Therefore, aggregated over time, there is no net supply of financial funds by ΔF_t . This can be made clear if we assume that IF is same over all periods. In this case, we would get:

$$\Delta F_t = IF(f + f(1 - f) + f(1 - f)^2 + \dots) - IF = IF - IF = 0 \quad (8)$$

Only newly created money can be a net source of finance in the long run and is able to permanently relax the macroeconomic finance constraint. However, in the short run and for several periods, ΔF might be a net source of financial funds, if the financial sector during previous periods absorbed monetary funds and increased the financial flows outside the circular flow of money. But this implies that money was created during previous periods in excess of the monetary funds demanded for real investments of business firms, which then increased the financial flows within the financial sector. In reality, correlation between money creation and investment of business firms might not be too strong, because the various activities of the financial sector make the whole finance process far more complex.²²

In times when expected returns on real investment are high (booms) it is likely that $I_t - S_t > 0$ which leads to net financial dishoarding ($\Delta F_t > 0$) as past saving is made available for financing investment in real capital. Conversely, when expected returns on investment in real capital are low (recessions), it is likely that $I_t - S_t < 0$ which leads to net financial hoarding ($\Delta F_t < 0$) as more money is invested in financial assets instead of in real capital. These basic relations, however, may be obscured by simultaneous changes in the money supply (usually increases), which are used either to finance additional investments in real capital, or to increase net financial hoarding. Money creation, in turn, depends on the financial sector's (mainly banks) willingness to lend, which is determined by variables such as the interest rate set by the central bank and the financial sector's attitude towards risk.

Additionally, we have to keep in mind that, so far, we looked at a very simple economy without a government and a foreign sector. As soon as these sectors are integrated, the basic circular flow, that we analyzed in our model, is complicated by various other financial flows, which continually increase the more the government runs budget deficits and the more international transactions become part of economic activity. If we integrate the government as well as the foreign sector in our circular flow model, the finance constraint (5) of the economy as a whole becomes:

$$S_t + \Delta F_t + \Delta M_t + NF_t + (X_t - Im_t) = I_t + GD_t \quad (9)$$

where:

GD: government deficit
 (X - Im): net trade surplus (or deficit if negative)
 NF: net capital inflows (or outflows if negative)

If the sum of $(X_t - Im_t)$ and NF_t is positive, it relaxes the finance constraint of the domestic economy but it makes the finance constraint of the rest of the world more severe. To the whole

world economy the finance constraint applies as to a closed economy including the government. Of course, NF_t and ΔF_t are totally intertwined nowadays, as most financial flows circulate without national boundaries in the international financial system perpetually searching for an optimal risk-return mix.²³

V. THE CIRCULAR FLOW OF MONEY AND ITS RELATION TO THE FLOW-OF-FUNDS FRAMEWORK

The simple circular flow model of money presented in the previous section can easily be compared with a flow-of-funds-analysis of the financial transactions in an economy for a specific period of time.²⁴ The flow-of-funds-accounting system was designed to measure the financial flows between sectors of the economy on an aggregated level. It allows us to investigate how the investments of a sector are financed by financial flows (savings which become loanable funds) coming from other sectors.²⁵ Therefore, the flow-of-funds approach can be compared with the circular flow model of money. Flow-of-funds-accounts distinguish between different types of financial flows among the sectors of the economy. For purposes of a flow-of-funds-analysis current net savings S_t of a sector might be defined as (see van Horne, 1990, p. 14):

$$S_t = (MT_t + L_t + E_t) - (IM_t + B_t + IE_t) + (GI_t - D_t) \quad (10)$$

where

- MT: change in money held by sector (for all sectors together this equals the total sum of money circulating in the circular flow of money)
- L: lending (change in loans and fixed income securities held)
- E: equity investment (change in equity securities held)
- IM: issuance of money
- B: borrowing
- IE: issuance of equity securities
- GI: gross investment in real assets
- D: depreciation allowances

Equation (10) defines net saving of a sector as current income minus current expenditures, which means that S_t can also be negative. The first term in parenthesis represents gross savings through financial assets (net acquisitions of financial assets) and equals investments in financial assets. The second term in parenthesis stands for funds raised in financial markets (net increase in liabilities). The difference between the two terms is net saving through financial assets (net financial investments) representing the net financial flows a sector provides to other sectors (if positive) or receives by other sectors (if negative). The third term in parenthesis represents net saving through real assets, which equals net investment in real assets (capital expenditures minus depreciation allowances). Of course, some of the variables are only applicable to certain sectors, as, for example, only financial institutions are able to issue money.

Some slight changes of (10) will show, how (10) is related to equation (4). IM_t actually stands for all money injected into the circular flow of money during a period as the flow-of-funds-accounting system can not distinguish between net money creation, ΔM_t , and net financial dishoarding, ΔF_t . Therefore, we may write:

$$IM_t = \Delta M_t + \Delta F_t \quad (11)$$

which leads to:

$$S_t = (MT_t + L_t + E_t) - (\Delta M_t + \Delta F_t + B_t + IE_t) + (GI_t - D_t) \quad (10a)$$

For the economy as a whole (abstracting from the foreign sector) there is no such thing as savings through financial assets. Changes in financial assets for a period cancel out when summed for all sectors in the economy. The reason for this is evident. Every increase in financial assets of one sector is accompanied by a simultaneous increase in financial liabilities of another sector. There is no financial net wealth in a closed economy. And because the flow-of-funds-accounting system is based on changes in financial assets and liabilities of all sectors, all forms of financial saving disappear from the economy as a whole. Summation of changes in financial assets of all sectors, therefore, implies:

$$(MT_t + L_t + E_t) - (\Delta M_t + \Delta F_t + B_t + IE_t) = 0 \quad (12)$$

and, therefore:

$$S_t = GI_t - D_t = I_t \quad (13)$$

Ex post savings for a given period of time must equal ex post net investment in real assets for that period (van Horne, 1990, p. 14).

By aggregating all net savings through financial assets we cancelled out all financial and monetary transactions of the economy. What remains is an ex post macroeconomic identity, which states that investments in real assets equals savings as already expressed by equation (5). This might lead to the erroneous conclusion that finance does not matter for an economy as a whole. But investments in real assets would not be possible without money creation. This becomes clear by a comparison of equation (13) to equation (4). Both equations describe the economy as a whole, but in equation (4), the financial sector is not totally cancelled out as in (13), because in (4) there remain the variables ΔM_t and ΔF_t on the left hand side. Why is there a difference between (4) and (13)?

In (13) money is cancelled out because of summation of all sectors for a period. The difference between (4) and (13) is due to the fact that in the flow-of-funds-accounting system ΔM_t and ΔF_t (which equal IM_t) are accounted as liability increases that are accompanied by an increase in monetary assets MT_t . But (13) is an ex post identity, and ex post ΔM_t and ΔF_t must show up on both sides of the balance sheet of the aggregated economy. Equation (4), however, is not based on an analysis of changes of balance sheets, but on the flows of money between two points of time. Therefore, money is only counted once, as a flow, which does not cancel out. But the basic insight of (4) remains also true in the flow-of-funds-framework. An increase in expenditures from one period to the next requires net creation of money or net financial dishoarding, which must precede the actual spending of money during the period simply because money can not be spent before it is made available to the circular flow of money.

As a consequence of the difference between the flow-of-funds-framework and the circular flow model of money it is not possible to gain any direct empirical evidence about ΔM_t and ΔF_t by analyzing flow-of-funds data. Neither an increase in ΔM_t nor in ΔF_t leads to a saving surplus in the financial sector. Therefore, the financial sector is always more or less balanced in the flow-of-funds accounts.²⁶ If the financial sector provides net funds to the circular flow

of money by an increase in the money supply ($+\Delta M_f$), assets and liabilities of the financial sector are increased at the same amount as “loans make deposits.” Therefore, money creation does not translate into a saving surplus of the financial sector as there are no “net financial investments.” This is also true if funds are provided by net financial dishoarding ($+\Delta F_f$). In this case, non-financial sectors increase spending in the circular flow of money which creates an additional need for money (mainly deposits). Money is transferred back from the financial sphere to the circular flow of money but this does not result in net financial investments of the financial sector. Net financial dishoarding just means that money is used for financing real activities instead of financing financial transactions which does not affect the “net position” of the financial sector vis à vis the non-financial sectors.

Within the flow-of-funds framework, only non-financial sectors can be saving surplus or saving deficit sectors as net financial investments result from differences between investments in real capital (or expenditures in case of the government) and the availability of funds in the circular flow of money. And because investments of financial sectors in real capital are negligible, they more or less show zero net financial investments.

VI. SOME EMPIRICAL EVIDENCE FROM THE FLOW-OF-FUNDS ACCOUNTS OF THE U.S. ECONOMY

As was outlined in the previous section, it is not possible to find direct evidence for an increase in financial hoarding by analyzing the flow-of-funds accounts of specific economic sectors. However, we may find some indirect hints as the flow-of-funds accounts allow us to compare the size of real activities during a certain period, as indicated by GDP, with the size of financial flows during the same period. If there are secular shifts that indicate a relative increase in financial flows, this may be taken as evidence for a raising importance of financial hoarding. In this section, we will present some major trends in the flow-of-funds accounts of the U.S. economy between 1952 to 1995 that, hopefully, add further plausibility to the theoretical considerations of the previous sections.

First, we will have a look at the net volume of financial transactions between all sectors during a certain period of time.²⁷ The most important channel for transferring funds between sectors is “credit market borrowing” which accounts for the acquisition of funds other than equities through formal credit channels such as the issuance of securities or borrowing from financial institutions. Figure 2 shows total credit market of financial and non-financial sectors in relation to GDP.

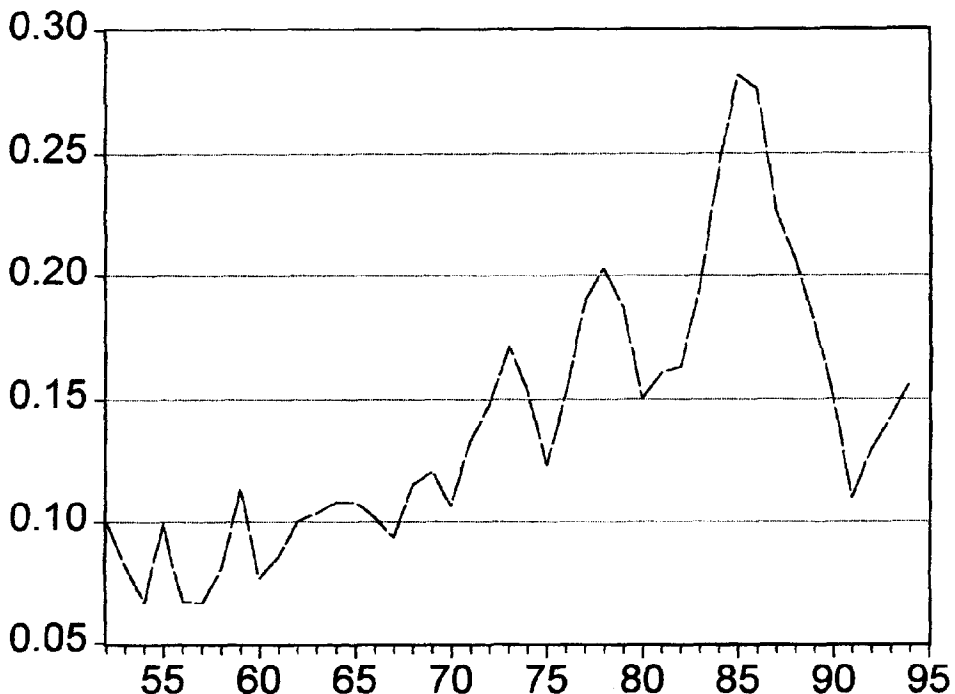
It is evident from figure 2 that, in average, credit market borrowing grew much faster than GDP from the beginning of the 1950s until the mid 1980s. The ratio rose from 0.1 in 1952 to the peak level of 0.28 in 1985. Since then, the ratio came down to 0.15 again, which is about the same level as in the early 1970s. Although the ratio depicted in figure 2 declined again heavily in the second half of the 1980s, there is a general trend of rising credit market borrowing as compared to GDP. But the period from 1980 to 1985 stands out as unusual as there was an enormous increase in credit market borrowing to unprecedented levels. If we compare credit market borrowing of financial sectors (commercial banks, thrift institutions, insurance companies, pension funds and mutual funds are the most important) to credit market borrowing of non-financial sectors, it can be seen from figure 3, that credit market borrowing of financial sectors is rising much faster than credit market borrowing of non-financial sectors since the beginning of the 1980s.

For depository institutions, borrowing is a relatively minor source of funds, but for other financial institutions it accounts for most of their funds as their main business is raising funds in certain financial markets and relending them in other markets. As indicated by figure 3, an increasing amount of funds is not directly intermediated from lenders to borrowers any more. Financial institutions themselves borrow funds, change their characteristics (maturity, risk etc.) and relend them to non-financial sectors or other financial institutions. Therefore, more and more funds are transferred among financial and non-financial sectors and are not directly spent in the circular flow of money.

The enormous increase in credit market borrowing between 1980 and 1985 was caused by the government as well as by nonfarm nonfinancial corporate business (NNCB). The federal government started to run huge deficits in the beginning of the 1980s, which in contrast to earlier periods, were not offset by nonfederal sectors. However, the largest oscillations of credit market borrowing in the early 1980s was due to NNCB who changed their business from investing in real capital to investing in financial assets. Credit market borrowing became completely decoupled from net investments of NNCB, as is shown in figure 4.

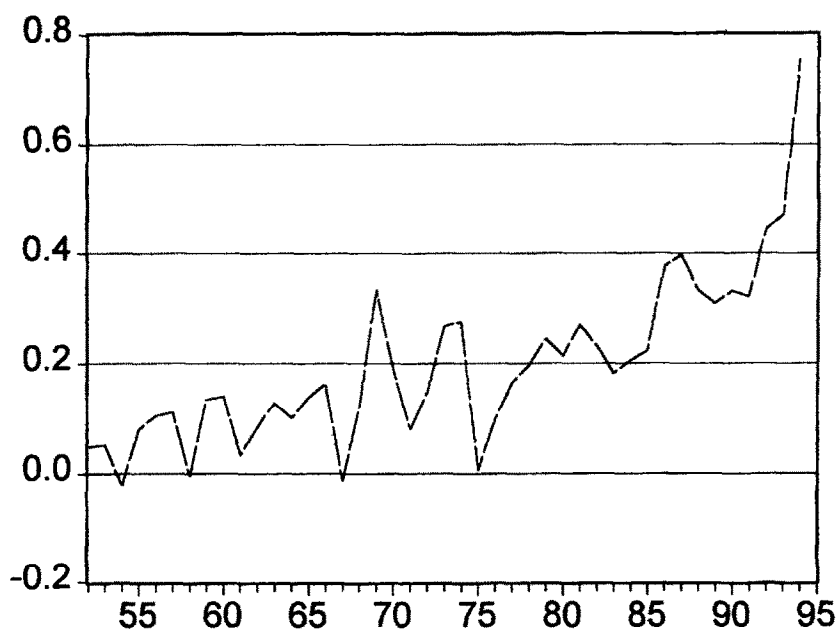
So far, we concentrated on the credit market, but there is an alternative to credit market borrowing for corporations: issuance of corporate equities. However, as can be seen from figure 5, net issuance of equities has never been an important source of finance

Recently, especially for some short periods around 1985-87 and the beginning of the nineties, the issuance of mutual fund shares emerged as a new way of fund raising by the financial sector. Mutual funds purchase corporate equities, U.S. government securities and, to a lesser degree, corporate bonds, which they transform into mutual fund shares.



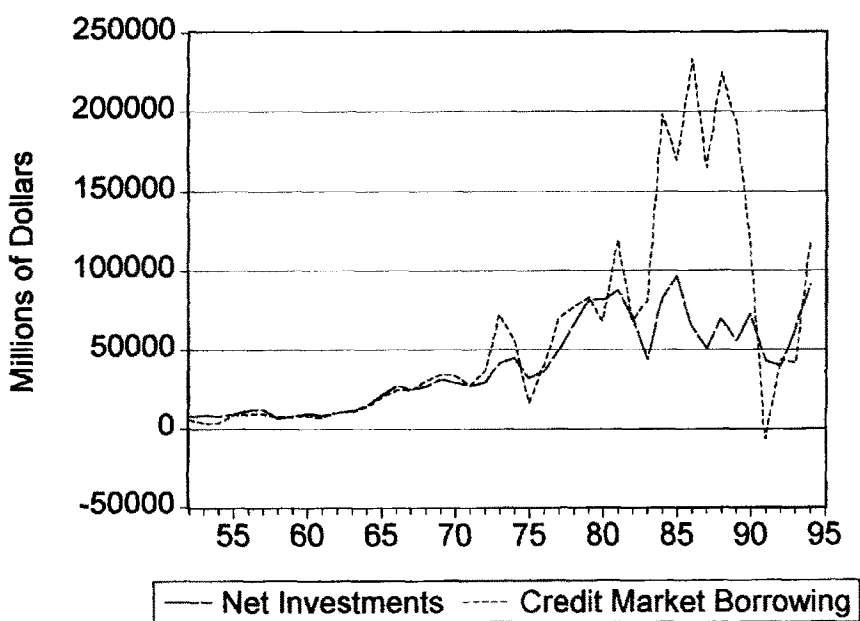
Source: Flow of Funds Accounts Table F.4

Figure 2. Ratio of Total Credit Market Borrowing to GDP



Source: Flow of Funds Accounts: Table F.2 and F.3

Figure 3. Ratio of Credit Market Borrowing by Financial Sectors to Credit Market Borrowing by Non-Financial Sectors

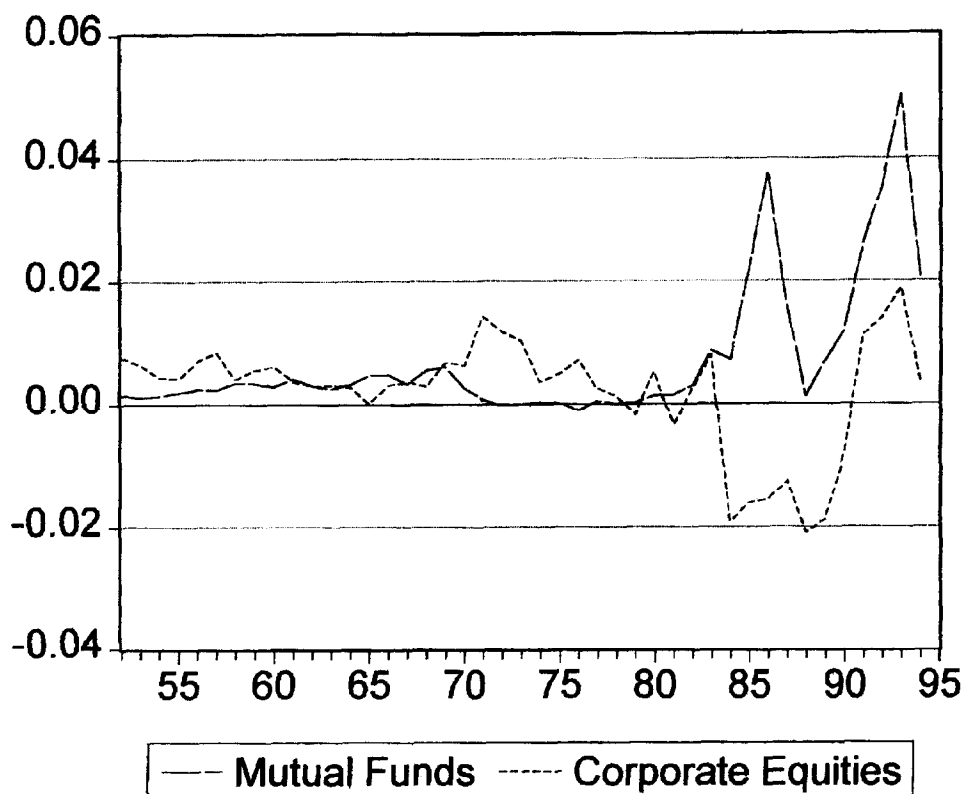


Source: Flow of Funds Accounts: Tables F.2 and F.104 Net investments are calculated as capital expenditures minus depreciation charges

Figure 4. Nonfarm Nonfinancial Corporate Business: Credit Market Borrowing and Net Investments

Looking at the way how NNCB finance their activities, clearly shows that equities are not an important source of funds. Almost all funds are raised through credit markets, which until the beginning of the eighties were mainly used to finance investments in real assets. However, with the high merger & acquisition activity after 1983, this relation completely broke down, and credit market borrowing became dominated by acquisition of shares of already existing firms. The mirror image of the rise in borrowing of NNCB was an unprecedented retirement of equity (negative values of issuance of corporate equities in figure 5). Real investment does not explain credit market borrowing of NNCB any more, as it used to be the case from the 1950s to the 1970s.

The high levels of credit market borrowing by NNCB that was accompanied by equity purchases and repurchases and low levels of investment in real capital during the 1980s may be interpreted as an example of financial hoarding. Firms borrowed funds on the credit market to buy shares of other companies or to buy back their own shares. This resulted in a huge increase in stock prices which made investment in equities highly profitable. Since the early 1980s the ratio of the market value of corporate equities to GDP rose from about 0.5 to more than one in 1995 (see figure 6) and it continued to a record level of 1.24 in 1996. Obviously, the present function of the stock market in the United States is not financing business activi-

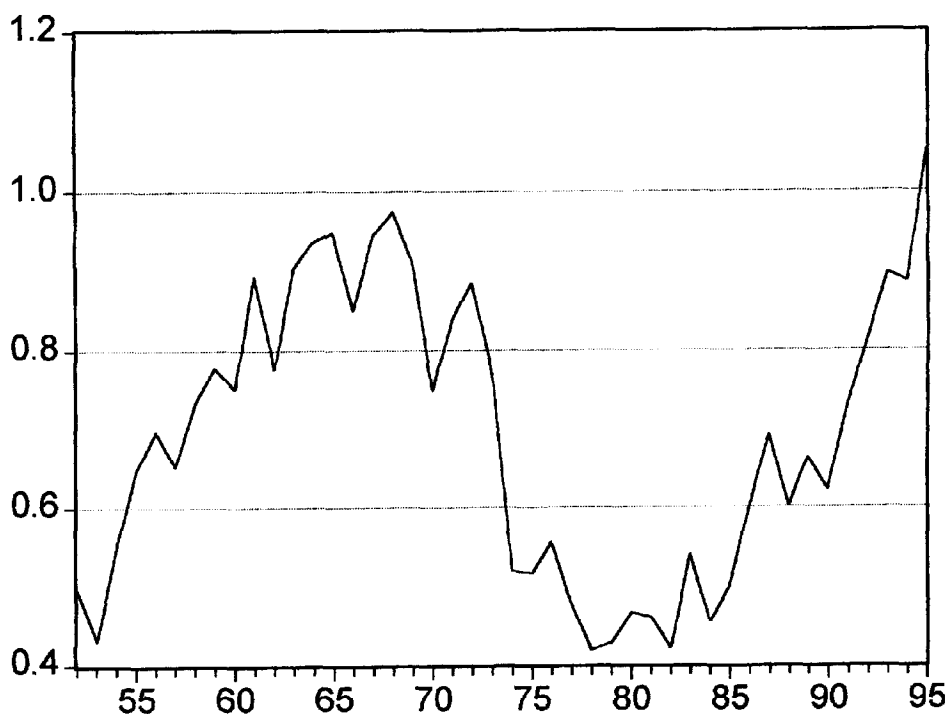


Source: Flow of Funds Accounts: Table F.5

Figure 5. Ratio of Funds Raised Through Corporate Equities and Mutual Funds to GDP

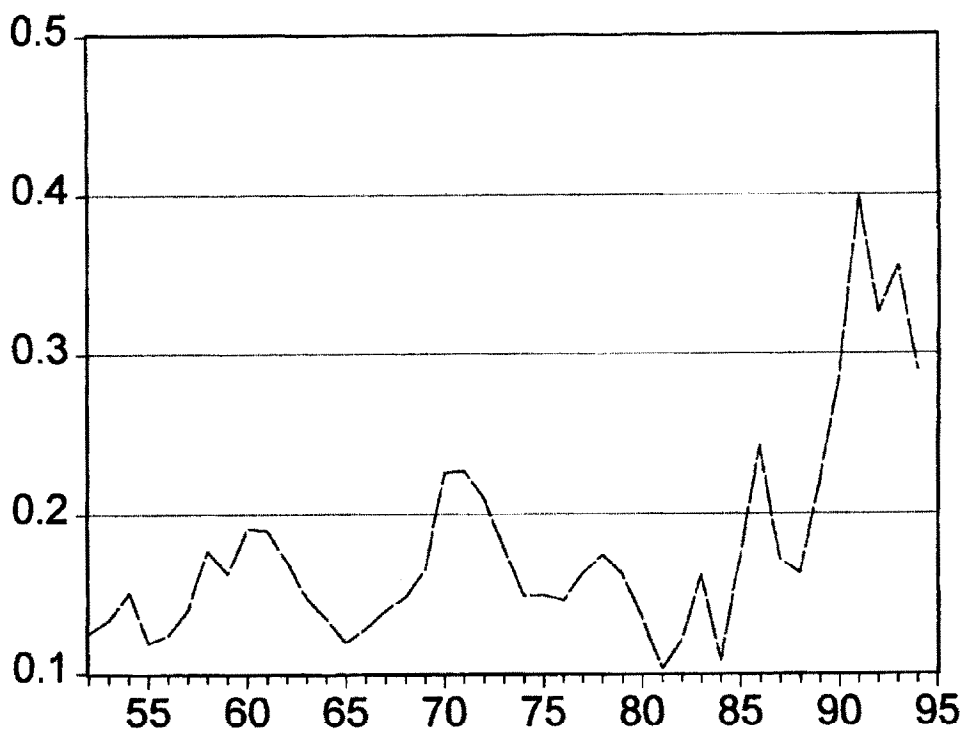
ties by issuing new stocks but trading already existing stocks in the search for profits due to price changes. The stock market mainly constitutes a financial flow outside the circular flow of money (financial hoarding) with capital gains (and broker's commissions) as the main income generated.

Additionally, we can also compare the book values of profits made by domestic nonfinancial corporations to profits made in the financial sector (figure 7). From the beginning of the 1950s until the beginning of the 1980s, profits of financial corporations just accounted for between 10% and 20% of profits of the nonfinancial corporations. But since 1985, there is a sharp increase in profits in the financial sector that reached a peak level of 40% of profits of the nonfinancial sector in 1990. Therefore, during the 1980s, more and more income was generated in the financial sector whose importance to the economy increased a lot. This may be taken as evidence for the importance of income generated by the financial sector during periods when profits of nonfinancial corporations are comparatively low as they in fact were during the 1980s. And an important portion of income generated in the financial sector may be attributable to financial hoarding as the shift of profits from the nonfinancial to the financial sector corresponded to low levels of investment in real capital. Financial funds were primarily used to invest money in financial assets (especially stocks), which generated profits especially in the financial sector.



Source: Flow of Funds Accounts: Table L.215

Figure 6. Ratio of the Value of Corporate Equities to GDP



Source: Flow of Funds Accounts: Table F.1

Figure 7. Ratio of Profits of Financial Corporations to Profits of Domestic Nonfinancial Corporations

VII. CONCLUSION

With the evolution of the financial sector and financial markets there emerged a new kind of financial hoarding. This term makes sense in connection to the circular flow of money which was defined as all monetary flows directly connected to real activities. Financial hoarding describes financial funds that are used for investments in financial assets without the purpose of financing real activities. These funds, therefore, are not directly connected to real activities and are traded in the financial sphere of the economy. An increase in these funds during a period is called financial hoarding and a decrease is labelled financial dishoarding. Net financial dishoarding, therefore, stands for the difference between financial dishoarding and financial hoarding and may be positive or negative during a certain period.

If there would be no money creation, the funds available for investments in real capital would be constrained by the sum of current saving and net financial dishoarding. In other words, investments in real capital would be constrained by saving which consists of current saving and prior saving made available during the current period. The financial sector is not only an intermediary but also a temporary absorber of financial funds, which however, offers returns to its owners. Consequently, the availability of financial funds for financing investments in real capital during a certain period is determined by the sum of current saving, net financial dishoarding (which is positive or negative) and net money creation.

The simple circular flow model of money presented here aims to show that the relation between money creation, saving, investment and growth becomes more complex, the more the financial sector and financial markets are involved in economic activities. If an increasing part of financial funds circulates outside the circular flow of money (more financial hoarding), the connection between money creation and real investment but also between money creation and the price level is obscured. Moreover, money creation will not cause inflation during times of high financial hoarding activity even in the absence of real growth. Financial funds might be used for investment in financial assets without the ultimate purpose of financing real economic activities. But the impact of financial hoarding on the real economy is ambiguous and may vary from time to time.²⁸ On the one hand, financial hoarding generates additional income in the financial sector and, if this income is reinjected into the circular flow of money, it may also add to economic growth. On the other hand, financial hoarding may grow at the cost of investment in real capital during times when financial assets offer higher returns than investments in real capital, which usually are periods of low real growth. But even this development has to be interpreted with caution, as it may be the result of a scarcity of profitable real investment possibilities (e.g. due to saturated markets) which results in comparatively low returns on real investments. In this case, the gains resulting from income generation in the financial sector must be compared to the potential income losses in the real sector due to non-realized investment projects. But no matter whether the overall impact of financial hoarding is considered to be positive or negative, the phenomenon is too important to be neglected by economic research.

The most striking example for financial hoarding seems to be the development of the stock market in the United States. Since 1960 nonfinancial cooperations in the aggregate hardly ever financed business activities by issuing shares. There were no net flows of financial funds to the nonfinancial business sector through the stock market. Obviously, the present function of the stock market in the United States is not financing business activities by issuing new stocks but trading already existing stocks in the search for profits due to price changes. This became especially attractive since the early 1980s, as stock prices were rising almost continuously.

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NOTES

1. This is the basic message of the Post Keynesian theory of endogenous money creation.
2. By applying this money flow approach we sidestep all the research dealing with the question how money might be integrated into a Walrasian equilibrium system, which also leads to a finance constraint (cash-in-advance-constraint, Clower, 1967) if the medium of exchange function of money is emphasized. This finance constraint, however, is due to inconsistencies between the timeless Walrasian system and the time related function of money (see Hellwig, 1992 for a recent survey).

3. Also the price for other production factors is usually set before production starts and adds to the downward rigidity of the aggregate price level.
4. In fact, the velocity-term is needed in the quantity identity, to make Y comparable to M , as M is a stock variable and Y is a flow variable.
5. Also Tsiang (1988) defines hoarding in relation to the circular flow of money. In his words, hoarding occurs, when people attempt to divert money from the main circular flow of money (the circular flow of money in our definition) into “stagnant puddles” or “idle balances.” However, it remains unclear, what the so defined hoarding actually refers to, as hardly any form of non-cash money can be considered as “idle” or “stagnant” in a modern credit money economy.
6. The financial sector should also include financial activities of non-financial business firms if they engage in activities traditionally performed by banks and other financial institutions. There is a lot of empirical evidence that these financial activities of non-financial business firms are increasing (see e.g., Gowland, 1991).
7. Also the money directly exchanged between the business sector and households involves the financial sector as the bulk of these funds is just transferred between bank accounts of firms and households. But this money does not add to the supply of financial funds already available to the financial sector, as it continuously circulates in the circular flow of money, where it is directly related to wage payments and consumption expenditures. Only if the velocity of money increases for some reason, additional funds become available to the financial sector.
8. Also reserves (required or deliberately held) of commercial banks represent “hoarded funds” not supplied for financing real activities. But money, as the term is used here stands for currency plus various kinds of deposits held at commercial banks, and reserves are not part of so defined money aggregates.
9. An example would be a credit financed takeover of a firm by another firm belonging both to the nonfinancial business sector. First, there would be a money flow from financial institutions to the business firm sector, as the acquiring company receives money for financing the takeover. The target company, who then gets hold of the money, will mediate the funds to its shareholders in exchange for the stocks, which are now owned by the acquiring company. The shareholders of the purchased company will probably transfer the funds back to the financial sector, and either buy other financial assets or leave the money in their bank deposits. The acquiring company will usually also try to resell the acquired shares to new investors and therefore, money is transferred from the financial sector to the business sector again, which will finally allow them to pay back their original bank loan (money is transferred back to the financial sector). During this whole process, no money was reinjected into the circular flow of money. The funds just circulated in the financial sphere of the economy without involving any real transaction.
Of course, this description is a simplification, as employees in the financial sector earn money, which they spend in the circular flow of money. And there might also be huge profits made by these financial transactions increasing profit income of different sectors and becoming part of the circular flow of money if these funds are invested in real capital or if they are spent on consumption. Therefore, there are probably also real effects of these financial transactions, which are neglected in our simplified model. The bulk of funds, however, remains within the financial sphere of the economy without becoming part of the circular flow of money. There was just a reallocation of ownership and risk.
10. The argument presented here does not imply that financial hoarding is the only or most important function performed by financial institutions. They also act as intermediators

between borrowers and lenders and these activities are closely related to activities of the real sector. Financial hoarding refers to additional activities of financial institutions.

11. Of course, if one interprets the economy in terms of the standard Keynesian multiplier, financial hoarding has a negative effect. It reduces investment in real capital, which causes income and consumption to fall. However, as we try to show here, this model is too simple to catch the reality of a modern economy with a large financial sector.
12. From a different point of view, financial hoarding can also enhance dynamic efficiency of an economy even if it is spent on intrinsically useless financial assets and creates speculative bubbles.
13. This differs from the definition of the production period in Tsiang (1988).
14. Another possible assumption is that firms finance their spending on the wage bill by short term credits granted to them by the financial sector. These credits are paid back during the same period, and, therefore, do not show up in the circular flow of money in our model as they are netted out in time. According to this interpretation, which is put forward by the French school of circuitists (see e.g., Graziani, 1990) and some Post Keynesians, short term credits would be the "revolving fund of finance" (Keynes, 1937), that enables production to be continued in every period.
15. Typically, households are the main providers of saving, as, in the aggregate, they represent a saving-surplus sector.
16. In case that a firm does not make any profits, depreciation allowances lower the actual lack of cash flows to fulfill its payment contracts.
17. The term "net" is used here to indicate, that, as some loans and debts of other sectors towards the financial sector are paid back every period, there are also reductions of the money flow in every period. Net money creation, therefore, is money created minus money destroyed within one period. If part of the newly created money is used for financial hoarding, this should be interpreted as a decrease in funds made available by net financial dishoarding in our model (a decrease of S_3).
18. Our model bears some resemblance to the analysis of Gurley and Shaw (1960). In Gurley and Shaw's theory, there is a monetary leakage out of the circular flow of money as monetary inventories increase along with income in mature economies. From time to time, when opportunity costs of holding money become too large, these inventories decrease again (they are reinjected into the circular flow) as financial innovations allow to economize on money holdings. Therefore, in Gurley and Shaw's theory, there would be cyclical movements of ΔF as defined in equation (4).
19. In reality, this will mostly depend on the returns from financial hoarding compared to the returns on real investment.
20. These conditions would hold for a three sector economy, as it is described by the simple circular flow model of the economy. In reality, business firms sometimes may also be net savers due to interactions with the government and with the foreign sector.
21. This does not ignore the fact that the largest part of investment is financed by internal funds (retained profits), which, in our model, are part of prior savings. These prior savings are on some bank accounts or invested in financial assets and, therefore, part of financial hoarding. If these funds are used to finance investments in real capital in subsequent periods they add to ΔF . On the other hand, profits out of current income retained in the current period decrease ΔF .
22. This point is also elaborated in an instructive paper of Earley (1981), who uses a "Sources and Uses of Funds Analysis" to analyze international financial flows. Earley writes (p. 214) that in well developed financial economies "the main lenders are bank

and non-bank financial intermediaries, whose sources of loan funds now become only very loosely linked to either money stocks or current saving.”

23. In a single country, financial hoarding can have the same negative impact as cash hoarding, if the money is “hoarded” abroad and, therefore, generates income in financial sectors of other countries. In this case, no money is reinjected into the circular flow of money of the domestic economy. This problem especially applies to some developing countries.
24. The definition of the period of time of the circular flow model of money has been chosen in such a way, that the model might be adapted to the flow-of-funds-accounts. This is one of the reasons, why the model presented here differs from the one presented by Tsiang (1988).
25. For a more detailed description, see e.g., van Horne (1990). Reid and Schreft (1993) provide a recent survey of the main features and shortcomings of this framework.
26. This can easily be seen, if one takes a look at the balance sheet of the financial sector as shown in the flow-of-funds tables of the U.S. economy, published by the Board of Governors of the Federal Reserve System. There, the financial sector mainly consists of commercial banks (Table F.111) and private nonbank financial institutions (Table F.116). In both sectors, net acquisition of financial assets always more or less equals net increase in liabilities, which means that net financial investments are more or less zero.
27. The flow-of-funds accounts (FOFA) only report the net volume of transactions between sectors and not the total volume of transactions. If, for example, a firm borrows \$1.000 and another firm repays a loan of \$800 during the same period, the FOFA only reports an increase (net volume of financial transactions) of \$200 in bank loans. The total volume of transactions was \$1800 but opposite flows are netted out in the FOFA.
28. Here, we abstract from problems such as the increase in financial fragility or the creation of new financial risks.

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