

On the Non-Neutrality of Money

by Hyman Minsky*

I. Introduction

A. *The paradigm*

As Bernanke points out, the dominant microeconomic paradigm is an equilibrium construct in which initial endowments of agents, preference systems, and production relations, along with maximizing behavior, determine relative prices, outputs, and an allocation of outputs to agents. Money and financial interrelations are not relevant to the determination of these equilibrium variables. The dominant macroeconomic paradigm builds upon this microeconomic paradigm, so that "real" factors determine "real" variables.

An implication of these constructs in the dominant microeconomics and the core of the dominant macroeconomics is that money and finance are neutral. The essential problem is whether any macroeconomic theory that is constructed upon a set of assumptions from which the proposition that money and finance are neutral is derived can be a serious guide to understanding our economy and to the development of policies for our economy. For such a theory to be made relevant, it is necessary to add particular auxiliary assumptions, whose effects are assumed transitory, to the core model so that money and finance are not neutral for the time that the transitory factors are operative.

B. *The veil of money*

In these dominant monetarist models money is a veil. Jack Gurley put the standard monetarist model away when he remarked, anent one of Milton Friedman's works, that "money is a veil, but when the veil flutters the economy stutters." Robert Lucas, realizing that money has to be more than a veil for the conclusions he preferred to be acceptable, structured the game that became mon-

etarism Mark 2 by postulating that agents are unable initially to discriminate between own market (relative price) price changes and general market (price level) price changes. He achieved a transitory non-neutrality of money by assuming that in each episode, agents are initially confused, so that some assume one and others the other; but the market rewards those who made the correct choice, and those who made the incorrect choice either lose out in the market or they learn and change their behavior.

C. *Private information*

Macroeconomic model building since Lucas' day has largely consisted of first accepting that a "real system" determines equilibrium and then inventing *imperfections* in the economic structure, money system, or financial markets so that non-neutrality results. Such a model is New Keynesian if the result is the existence of a number of equilibria that are not necessarily at full employment and if policy is effective. Such a model is New Classical if the result is that a unique real equilibrium exists and if policy is ineffective.

A popular way to generate non-neutrality of monetary or financial factors is to assume that information is asymmetric: that each agent has some private information. Furthermore, each agent knows that the others know something that he does not know, even as he has some informational advantages. Information asymmetry implies that the foresight of each agent is imperfect.

But if the basic microeconomic model is opened to include yesterdays, todays, and tomorrows, then the demonstration that equilibrium exists depends upon assuming that the agents have perfect foresight.¹ This implies that when the economic theorist does microeconomics, the assumption is made that the agents have perfect foresight—a necessary assumption if it is

*Distinguished Scholar, the Jerome Levy Economics Institute of Bard College. The author would like to thank W. Randall Wray for comments. He notes that the views expressed, the analysis, and the policy recommendations are his own and not necessarily the views of the directors, advisors, and staff of the Jerome Levy Economics Institute.

¹Bruno Ingrau and Georgi Israel. *The Invisible Hand* (Cambridge, Mass.: MIT Press, 1990).

to be asserted that there is an equilibrium of the economy. When the theorist puts on his macroeconomics hat, he assumes that the agents have different information about the world. On the one hand, perfect foresight is assumed in order to demonstrate the existence of an equilibrium, and on the other hand, imperfect foresight is assumed under the rubric of asymmetric information (imperfect foresight) to generate the existence of a plausible underemployment equilibrium and the possibility of policy effectiveness.

There seems to be a logical flaw in the asymmetric information argument, for perfect foresight is first postulated to obtain an equilibrium and then repudiated in order to get targeted results. Once it is agreed that macroeconomics studies the course of events in historic time and that information asymmetries are pervasive, significant, and inevitable, then it follows that macroeconomics cannot be constructed on the foundation of equilibrium microeconomics.

D. An alternative paradigm

The conventional economic paradigm is not the only way economic interrelations can be modeled. Every capitalist economy can be described in terms of sets of interrelated balance sheets. Except for two sets of entries—those that allocate the real capital assets of the economy to particular balance sheets (of firms) and those that allocate the net worth of the economy to other particular balance sheets (of households)—every asset is a liability in another balance sheet and every liability is an asset in other balance sheets. Balance sheets balance.

The entries on balance sheets can be read as payment commitments (liabilities) and expected payment receipts (assets), both denominated in a common unit. The essential content of any set of interrelated balance sheets is the payment commitments or expectations (cash flows) that they represent. These payment commitments and expected receipts are demand, dated and contingent.

An economy consists of households, nonfinancial firms, financial institutions, and governments. At every reading of the balance sheet the financial instruments can be interpreted as generating two sets of time series: the liabilities generate payment commitments, and the assets generate expected cash receipts. In addition to the time series of cash flows due to the financial structure, households have a time series of expected cash receipts in the form of wages and transfer payments, and firms have a time series of expected cash receipts due to expected gross sales. The gross sales receipts of firms over a period of time are, in turn, paid out to workers as wages, to suppliers as payments for purchases, to government as taxes, and to the

owners as gross profits. Part of the gross profits are retained and the rest paid out as interest, payment of principal on debts, and dividends.²

Balance sheet relations link yesterdays, todays, and tomorrows: payment commitments entered in the past lead to cash payments that need to be executed now as well as future cash payments, even as liabilities are taken on now that commit future cash flows. In this structure the real and the financial dimensions of the economy are not separated: there is no so-called real economy whose behavior can be studied by abstracting from financial considerations. Wages and profits earned in current production are in part, in whole, or in more than whole committed to fulfill obligations arising from liabilities, even as the cash received now in exchange for commitments to pay in the future finances portions of the current demand for investment output, consumption output, and government demand. In addition, liabilities are issued when a restructuring of the liabilities of holders of inherited capital takes place; the contractual cash payments from debtors are modified when refinancing takes place.

This system, linking yesterdays, todays, and tomorrows both financially and in terms of the demand for and supply of goods and services, is not a well-behaved linear system. Furthermore, the presumption that this system has an equilibrium cannot be sustained. This modeling of the economy leads to a process in time that generates a path that can fly off to deep depressions and open-ended inflations, even in the absence of exogenous shocks or strange displacements. In this model, money is never neutral.

In *The General Theory* Keynes sought to create a model of the economy in which money is never neutral. He did this by creating a model of the capitalist economy in which the price level of financial and real assets is determined in markets where money is taken as a financial instrument with the special properties 1) that debts are denominated in it and 2) that its price for fulfilling contracts is always 1: that is, money is the asset whose value is derived from its liquidity.

Recall that for Keynes each capital and financial asset yields an income stream, has carrying costs, and possesses some degree of liquidity—that is, it could be transformed at a cost into money: the cost depends upon the nature of the asset and the properties of the market in which it is sold or pledged. The price level of assets is determined by the relative value that units place upon income in the future and liquidity now. Thus the greater the value placed upon liquidity, the lower the price of those assets that are mainly valued for their

²This abstracts from timing problems such as wages being paid before cash is received for goods sold.

expected income. Note that any disruption of the market in which a particular asset can be sold or pledged lowers its liquidity and therefore its price.

The price level of current output is determined by the labor costs and the markup per unit of output. As a first approximation, the aggregate markup for consumption goods is determined by the ratio of the wage bill in investment goods, the government's deficit adjusted for purely financial transactions,³ and the international trade balance to the wage bill in the production of consumption goods. These aggregate relations determine the mass of gross profits. In this construct, the competition of interest is that among firms for profits. In this perspective, output prices carry gross profits—the cash flows that enable firms to meet their payment commitments on their liabilities.

The non-neutrality of money in this version of Keynesian economics is due to the difference in how money enters into the determination of the price level of capital assets and of current output, that is, investment goods and consumption goods in the simplest case. The Keynesian assumptions that lead to the non-neutrality theorem reflect essential aspects of capitalism in that they recognize that capital and nonmonetary financial assets exist and that they not only yield income streams but can also be sold or pledged in order to get control over money. Furthermore, capital assets can be newly produced (investment output), and decisions to order and to produce such new production of capital depend upon the relation between the price level of investment goods, the price level of capital assets, the flows of retained earnings of firms, and the conditions for external finance.⁴

It strikes me that this way of modeling non-neutrality is superior to the asymmetric information way, in which non-neutrality depends upon borrowers being smart and bankers being dumb. While asymmetric or private information is a pervasive fact of life and of decision making in historic time, it is not necessary to non-neutrality, for even if information were symmetric and no private information existed, the prices of capital assets and current output would be determined in quite different markets and the dominant proximate determinants of the two would differ.

Note that this way of modeling capitalism emphasizes decisions to invest and the determinants of the structure of portfolios. The decision makers are at once

³The government's spending on the resolution of the debacle of the savings and loan associations and on sustaining commercial banks is not part of the deficit for purposes of income and profit determination.

⁴See Hyman P. Minsky, *Stabilizing an Unstable Economy* (New Haven: Yale University Press, 1986); and *John Maynard Keynes* (New York: Columbia University Press, 1975).

rational agents and maximizers, but they know that their well-being rests upon the performance of markets that are subject to both evolution and breakdowns. Furthermore, they know that they do not have the gift of perfect foresight. For economics the appropriate question is, How do rational individuals behave in an irrational world, that is, a world they do not fully understand? Rational agents know that they might not know. The assumptions underlying the models of investment and portfolio choice that lead to the Keynesian concept of liquidity preference are that agents recognize their own fallibility and, as a result, that events deviating from what a maintained model indicates as outcomes will lead to revisions in the maintained model that in turn can change behavior. In this way, observations that seem like small impulses can have large impacts. Thus a small increase in the failure of assets to perform can lead to large changes in available financing because the models of the economy that guide the behavior of agents change. An episode of, say, overindebtedness can lead to an increase in the utility derived from the asset whose market value seems secure relative to the utility derived from holding an asset whose income earning capacity is greater but whose market value seems less secure. Such relative prices of assets are in turn inputs in the determination of investment.

II. Balance sheets and cash flows: Robust and fragile financial structures

Every capitalist economy is characterized by a system of borrowing and lending based upon margins of safety. The fundamental borrowing and lending act in this system is an exchange of "money" now for "money" in the future. This exchange takes place in the aftermath of a negotiation in which the borrower demonstrates, to the satisfaction of the lender, that the money of the future part of the contract will be forthcoming. The results of this negotiation, including what happens when the debtor fails to fulfill the commitments to make payments, are stated in a contract. The money in the future is to cover both interest and the repayment of the principal of the contract.

A. Hedge, speculative, and Ponzi finance

For a particular balance sheet, whether it be of a household, nonfinancial firm, bank, other financial institution, or government unit, the liabilities call for payments to be made now or at specified dates in the future or when specified contingencies arise. The assets transform into current and expected receipts. If the assets owned by a unit fail to generate the funds needed to meet the payments on liabilities, then somewhere in the economy there are nonperforming assets.

If, for an economic unit, the current and expected

flows of funds that result from the normal functioning of the assets it owns (together with the flows of cash due to wages for households) are sufficient to fulfill current and future expected payment commitments due to liabilities, then the unit is in a financing posture that I have labeled hedge. For example, during the heyday of the fixed interest fully amortized mortgage, the monthly payments were, for most such contracts, an allocation of expected wage incomes, which were expected to be sufficient to meet all payment commitments. It should be noted that the paper that the real bills doctrine held to be appropriate for banks restricted bank financing to transactions that corresponded to the definition of hedge financing.

If we consider a partially amortized five-year balloon mortgage, wages can be the expected source of the funds to honor the contract for five years. A refinancing—replacing maturing debts with new debts—is expected to be the source of funds at the end of the five years. Balloon mortgage financing introduces an element of uncertainty in financial relations, in that the terms of the refinancing depend upon market conditions when the refinancing takes place. I have called this type of financing speculative financing.

Speculative financing covers all financing that involves refunding at the market terms that rule at the refunding date. Banks are always engaged in speculative financing. The floating debts of companies and governments are speculative financing arrangements.⁵

If the cash flow of a highly indebted operation—firm, household, government, or financial institution—is less than the interest part of its debts falling due during a relevant period, then new debt must be issued if the interest is in full or in part to be paid. Long ago I labeled such “payment in kind” financing Ponzi finance.⁶ If units engaged in speculative financing are confronted with sharply rising interest rates, and if they cannot adjust the income their assets earn to the interest their liabilities carry, then they become Ponzi financing operations. The savings and loan associations were in this position during the high interest rate period of the late 1970s and early 1980s.⁷

⁵I am not certain but I believe that Olympia and York used commercial paper to finance at least part of their holdings of commercial real estate.

⁶I would have been better served if I had labeled the situation “the capitalizing of interest,” but the discourse would have lost a colorful description.

⁷There was an implicit contract between the “government” and the savings and loan associations in the financing arrangements for housing that the New Deal introduced: the savings and loan associations would make long-term fixed interest rate mortgages and the “government” would keep the funding rates of the associations within bounds determined by the rates on their long-term assets. The monetarist episode in Federal Reserve policy

For a private operation engaged in Ponzi finance, net worth is debited by the amount that indebtedness increases. Thus the margin of safety provided to lenders by the excess of the book value of assets over indebtedness shrinks. Furthermore, the shortfall of income relative to payment commitments that characterizes a run of Ponzi finance throws the book value of assets into question, lowering market value equity more than book value equity.⁸ As equity diminishes, the ability to continue capitalizing interest vanishes: for private units there are limits to Ponzi financing.

Note that construction financing is almost always a prearranged Ponzi financing scheme that is to be validated by the payment on completion, usually by funds derived from a takeout mortgage. Delays in transforming a nonperforming construction asset into a performing real estate asset can be deadly to thin equity projects, which are common during a property boom.

It is worth noting that the current income and expenses posture of the United States can be viewed as a case of Ponzi finance: interest on the public debt accounts for a large measure of the deficit. As long as this goes on, the burden of the debt (current carrying costs) is increasing with no corresponding increase in the nation’s productive capacity.

B. Robust and fragile finance

The place of an economy on a financial robustness-fragility scale is determined by 1) the weight of hedge, speculative, and Ponzi finance units in the economy; 2) the willingness and ability of the authorities to refinance units at concessionary terms when current market rates transform units into Ponzi units; and 3) the in-place power of the authorities to sustain aggregate profits (cash flows to business) and aggregate wages when current market rates turn a large number of units into Ponzi financing units and when the flow of profits and wages could slow down (because the failure of financial contracts and real assets to perform leads to a decline in the willingness and the ability of firms to invest and of financial institutions to finance investment activity).

The above is quite general. The special assumption of the financial instability way of looking at the world is that over a run of good times, the structure of units among hedge, speculative, and Ponzi financing changes, so that the weight of hedge financing decreases and the weight of speculative and Ponzi financing increases. This happens because during a

Footnote 7 continued
(whether the monetarism was full-blown or practical) did not acknowledge this implicit contract.

⁸Whether the stock market valuation of a financial firm reflects such a lowering of market to book value equity when it occurs is an open question.

period dominated by hedge financing, the structure of financing terms and the performance of markets and institutions that trade in assets and refinance debts lead profit-seeking clients of banks and markets and the operators of banks and the operators in markets to substitute debt for equity and short-term debts for long-term debts. This substitution operates from both the demand and the supply sides: bankers, both commercial and investment, are liquid or know organizations that are liquid and seek borrowers.

Given a sufficient weight of speculative units, a not abnormal event can lead to an increase in Ponzi financing units and then trigger a debt deflation process. The course of events after the triggering occurs depends upon the strengths of both generalized lender of last resort interventions and the ability of governments to sustain income and employment by running deficits.

The gist of the argument is that the Smithian invisible hand proposition does not necessarily hold in a world where the financial structure has the characteristics of our financial structure. Each agent maximizing income or wealth in such a world may in an unintended way promote the emergence of a situation where an inefficient debt deflation and a deep depression are the outcomes.

C. *The determinants of the basic cash flows*

I will not repeat here the straightforward Levy-Kalecki formulation of how the structure of aggregate demand determines the distribution of incomes.⁹ It is enough to say that in an economy where government-financed demand for labor is a large percentage of the total demand for labor, a collapse of gross national product and the associated aggregate gross profits such as took place in the 1929-33 period cannot occur. This means that the cash flows available to validate financial contracts cannot fall as far as they did in the Great Depression. We need to recall that in the great contraction of 1929-33, nominal GNP fell by 50 percent and the price level fell by one-third, but the indices of stock prices, the Dow Jones and the Standard and Poor's, fell by 85 percent.

A government that is large enough to sustain profits is necessary if we are to have 1) financial markets where freedom to innovate and to finance is the rule and 2) an ability to avoid deep and long depressions. We also need to be able to swing from periods in which the private economy dominates in the determination of gross profits and periods in which public debt-financed spending takes over the burden of sustaining gross profits.

⁹Michael Kalecki, *Selected Essays on the Dynamics of the Capitalist Economy (1933-1970)* (Cambridge: Cambridge University Press,

III. **The dog that didn't bark**

The main problem that the experience of the past several years poses for the endogenous instability view is that the thrust toward a deep depression was contained. The so-called bailout of the savings and loan associations and the banks, together with the huge government deficit, explains how that happened.

In an earlier work, Bernanke concluded that the taking out of much of the financial institutional world—the destruction of banks, building and loan associations, and brokerage houses—delayed the recovery from the great contraction.¹⁰ On the basis of our current understanding, which owes much to Bernanke, the stagnation hypothesis of A. Hansen and R. A. Gordon should be reconsidered.¹¹ The Hansen-Gordon version of the stagnation hypothesis held that an exhaustion of investment opportunities was responsible for the protracted stagnation or the incomplete recovery from the bottom of the Great Depression (1933) until the beginning of rearmament (1939). The alternative version of the stagnation hypothesis holds that stagnation occurred because the financial system was smashed in 1929-33 and therefore there was no system in place that could translate improved profit prospects into financed investment.

If we think of "normal prosperity" as being powered by private demands, arguably the great stagnation lasted through the Second World War and beyond. Prosperity led by private demand did not reappear until after the demobilization from the war was completed. Furthermore, the initial conditions for postwar prosperity included households, nonfinancial businesses, and banks and other financial institutions that were extraordinarily rich and liquid, a government that was a much larger percentage of GDP than any prior peacetime government, and a system of regulated and guaranteed financial institutions. Because of the depth of the depression and the drain of resources to war, the great contraction and the ensuing absence of a private demand-driven prosperity may have lasted sixteen or more years, from 1929 though 1946 or 1947.

Our current situation is similar to that of the Great Depression-stagnation period in that we have had a

Footnote 9 continued
1971); S. Jay and David Levy, *Profits and the Future of American Society* (New York: Harper & Row, 1983).

¹⁰Ben Bernanke, "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression," *American Economic Review*, June 1983, pp. 257-76.

¹¹Alvin H. Hansen, "Economic Progress and Declining Population Growth," *American Economic Review*, vol. 29, no. 1 (March 1939), rpt. in Committee of the American Economic Association, ed., *Readings in Business Cycle Theory* (Philadelphia: Blackiston and Co., 1944), pp. 366-84; Robert Aaron Gordon, *Business Fluctuations*, 2d ed. (New York: Harper, 1961).

period during which financial institutions in large number have either been hurt or disappeared. Deposit insurance prevented the losses on asset values of savings and loan associations and banks from passing through to depositors. In this, our recent bout of instability was unlike the Great Depression. The way the intervention that prevented the pass-through was carried out, however, has resulted in a decrease in the number of independent financing sources as well as an increase in the size of the surviving institutions. The consolidation of banks into larger units is continuing because of the relaxation of the regulatory barriers to interstate banking and to combining various "banking" functions in one unit.

There always has been a conflict between those who see banks as the operators of a safe and secure payments mechanism and those who see banks as an essential institution for the capital development of the economy. The first group views banking and financial intermediation as essentially passive processes by which a predetermined amount of savings is allocated among alternative uses. The second group views banking and financial intermediation as active agents in the economy that, by financing investment, force resources to be used to put investment in place, thereby fostering the development of the economy.¹²

This forcing of investment determines income. Income achieves that level at which savings and investment are equal. Keynes treated the forcing as a generalized income increase. Kalecki et al. treated the forcing as operating through income distribution as well as through a generalized rise in income.

From this second point of view, the financial trauma of the past several years has erected a barrier to our achieving a close approximation to full employment as a

result of private debt-financed demand for some time in the future. Furthermore, in the 1930s as well as in our recent and continuing experience, major firms have suffered major losses. The bankruptcy and near-bankruptcy of major firms in the past several years are reminiscent of what happened to the blue chip railroads in the 1930s.

Both the 1930s and the current situation began as Fisher had the debt deflation begin: the initial position is what Fisher called over-indebtedness, and what I call heavily indebted.¹³ In Fisher's time the debt deflation was not contained: neither the ideas that rationalize containment nor the tools for containment were in place. The ideas are those that follow from Keynes' *General Theory*; the tools are a central bank free from the fetishes of the gold standard and governments throughout the world that spend 20 percent or more of their full employment GDP.

One conclusion that follows from this institutional interpretation of the stagnation of the 1930s and our time is that tax initiatives that look to inducing investment—for example, an investment tax credit—will not have the kick in the 1990s that they might have had in the 1960s, when the financial system was much more robust than it is now.

To return to Bernanke's paper: There is much to praise in the exposition of the asymmetric information boomlet. The asymmetric information approach is more serious than the New Classical approach in that it recognizes the importance of the institutional structure. However, the asymmetric information approach stops short of modeling the financial relations of a capitalist economy and therefore seemingly bypasses the two-price-level characterization of a capitalist economy. It is the two price levels and the difference in the information that determines their behavior that make non-neutrality an unavoidable attribute of capitalist economies.

¹²The Jackson-Biddle conflict over the Second Bank of the United States was largely a conflict between the view of banking as an engine of development and the view of banking as the provider of a safe and secure payment mechanism.

¹³Irving Fisher, "The Debt-Deflation Theory of Great Depressions," *Econometrica*, October 1933, pp. 337-57.