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# MINSKY'S ANALYSIS OF FINANCIAL CAPITALISM

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Hyman Minsky used to joke that there are as many varieties of capitalism as Heinz has pickles--57. (Minsky 1991) In this contribution, we will be analyzing one of them--the general form of post-war capitalism taken in the developed countries, which can be characterized as Financial Capitalism. Obviously, there are differences in the specific form that financial capitalism takes over the postwar period in each of these countries, as well as cross-country differences. However, Minsky's model is applicable to all of them, at least at a general level.

The term finance capital appears to come from Hilferding's 1910 book, which proclaimed a new stage of capitalism characterized by complex financial relations and domination of industry by finance. (Hilferding 1981) Importantly, Hilferding argued

> The most characteristic features of 'modern' capitalism are those processes of concentration which, on the one hand, 'eliminate free competition' through the formation of cartels and trusts, and on the other, bring bank and industrial capital into an ever more intimate relationship. Through this relationship...capital assumes the form of finance capital, its supreme and most abstract expression....The progress of industrial concentration has been accompanied by an increasing coalescence between bank and industrial capital. This makes it imperative to undertake a study of the processes of concentration and the direction of their development and particularly their culmination in cartels and trusts. The hopes for the 'regulation of production', and hence for the continuance of the capitalist system, to which the growth of monopolies has given rise...requires an analysis of crises and their causes. (Hilferding 1981, pp. 21-22)

While the details of Hilferding's analysis seem to be applicable to very particular institutional arrangements that existed in Europe around the turn of the century, in a general sort of way one could argue that Veblen, Keynes, Schumpeter and, later, Minsky were analyzing this new stage of capitalism. While Keynes placed less emphasis on economic concentration, market power played a significant role in the theories of Schumpeter, and especially in those developed by Veblen and Minsky. Veblen (1919a, 1919b), in particular, argued that modern crises could be attributed to the "sabotage of production" (or "conscientious withdrawal of efficiency") by the "captains of industry". As we will argue, in Minsky's approach modern capitalism requires expensive and long-lived capital assets, which in turn necessitate financing of positions in these assets as well as market power in order to gain access to financial markets. It is the relation between finance and investment that creates instability of the modern capitalist economy, and Minsky emphasized that market power, alone, proved to be insufficient to ensure revenue flows that are necessary to meet financial commitments.

According to Minsky, the two world wars and the intervening Great Depression represented something of a failure of Hilferding's finance capital stage: "Sixty years ago capitalism was a failed economic order..." (Minsky 1993, p. 2) He used to argue that even the cartelization of industry proved to be impotent in the face of pressures to cut prices, which in turn made it impossible to service debt issued to finance positions in capital assets. Thus, Veblen's "sabotage of production" failed to protect profits, leading to "fire sales" of assets and debt deflation. However, financial capitalism emerged from WWII with an array of new institutions that made

it stronger than ever before. As we will argue, the two most important institutions were "big government" and "big (central) bank": "The capitalism that had a good run after the second world war was a big government interventionist economy with central banks that were less constrained than during the inter war years." (Minsky 1993 p. 19)

Of course, the economy continued to evolve, and Minsky argued that the postwar period could be subdivided into half a dozen stages--from paternalistic capitalism to money-manager capitalism. Generally, this evolution was from a more successful form of financial capitalism to a more problematic form: "While the capitalisms of the United States and Western Europe were truly successful societies during the first two and a half decades after the second world war, their performance over the last decade and a half falls short..." (Minsky 1993, p. 2) We will discuss Minsky's analysis of this evolution to the fragile form of capitalism that exists today.

**CRISES**

Minsky's analysis began with the recognition that the post-war capitalist economy is different: before the war, depressions were frequent events--occurring about every quarter century. Furthermore, a financial crisis--sometimes a Fisher-type debt deflation--typically coincided with depression. After WWII, however, there were no depressions in the developed capitalist countries (with the possible exception of post-1990 Japan). Interestingly, in the US although there were recessions throughout the postwar period, there were no financial crises until 1966. (Minsky 1986, Wray 1999) After 1966, crises became increasingly frequent and more severe even as recessions became more severe and economic growth generally slowed. However, none of the downturns has thus far led to depression.

Minsky argued that financial capitalism is inherently unstable--thus, the Great Depression was not at all unusual--indeed, it should have been the expected outcome of the forces at work in the modern capitalist economy. He argued that institutions had to be developed that would constrain the natural instability of this sort of economic system. As discussed above, the modern corporation tried to develop institutions (for example, constraints on price competition) that would constrain the instability, but proved unable to do so in what Minsky called the small government economy. Thus, it was up to government to create adequate constraining institutions. And the two most important were Big Government and the Big Bank.

The problem with the pre-war economy was that the US government was too small--on the order of three percent of GNP. When the economy slowed, tax revenues would fall and some types of government spending might rise, generating a deficit that could act as an automatic stabilizer. However, given the small size of the government, the swings of its budget could not be large enough to offset swings of private spending. Thus, aggregate demand would fall, generating idle capital and labor and placing downward pressure on prices. Cartelization (and its consequent sabotage of production) represented an attempt to hold wages and prices steady, but this was never adequate to the task. Falling revenue would make it difficult to service debt and thereby add to pressures to leave the cartel and cut prices and costs.

However, in the postwar period, government grew significantly--typically to a third or even half of GNP. (In the US, the federal government's spending alone amounts to 20-25% of GNP.) With a government this large, budget swings could offset fluctuations of private spending and potentially stabilize income, employment, and output. Thus, the effects of countercyclical big government deficits in downturns and surpluses in booms would be big. Unlike orthodox Keynesians, Minsky emphasized the importance of government transfer payments and interest payments over direct government employment and production (quite small and actually declining in the US) or government spending on contracts (larger, but still declining in importance in the US). For Minsky, transfer payments did not simply "net out" but represented a large automatic stabilizer that caused the budget to swing between deficit and surplus. With a lag, interest payments on the debt rose as a result of tight money policy (which usually preceded recession) and as a result of a greater quantity of outstanding debt generated by government deficits in downturns.

> According to Minsky the deficit of a big government will have three effects:
> (1) Income and employment effect
> This is simply the "multiplier effect" of government spending, although as discussed above, Minsky included transfers and interest payments.

(2) Cash flow effect
What Minsky meant is that government deficits maintain cash in-flows so that private debts can be serviced. Most importantly, deficits maintain profit flows to firms--as we'll see later.
(3) Portfolio effect
Government deficits mean that government debt is issued, which is a safe asset. This helps to stabilize the economy by providing safe assets for private portfolios, which can be "leveraged".

Orthodox Keynesians focused only on the first of these effects: they wanted to fine-tune economy through discretionary tax and spend policies, and emphasized the multiplier effects on income and employment. Orthodoxy ignored the other effects, or, even worse, got them wrong. For example, crowding-out theory completely misunderstands the impact of government bond sales--that is, what Minsky called the portfolio effect. As will be discussed below, Minsky rejected the ISLM-fixed money supply model which is used to demonstrate that deficits push up interest rates. Instead, he argued that an economy with a lot of government debt is more "robust"--thus, would probably face lower interest rates. Below, we will return to the "cash flow" effects of budget deficits--with particular attention given to the role that deficits play in maintaining profit flows.

Minsky argued that post-war recessions are unusual because government deficits place a floor on employment, personal income, and profit flows; in fact, in some recessions, personal income and profits actually continue to rise--thwarting the normal, cumulative, invisible hand processes that would lead to depression. Minsky argued that the first serious recession of the postwar period--the 1974-75--was contained by government deficits that maintained income flows. For example, "although unemployment rates went to 8.9 percent in May 1975, in no quarter during 1973-75 did disposable income decline..." mainly because transfer payments grew quickly. (1986, p. 25) Similarly, Wray (1989) showed that during the deep Reagan recession of the early 1980s, personal income grew in every quarter, with transfer payments accounting for 65% of the growth of personal income during the depths of the recession, in the third quarter of 1982.

While Minsky did not explicitly analyze changes to the US transfer "safety net", it is likely that cut-backs in the 1980s and 1990s reduced the effectiveness of deficits to place a floor on aggregate demand. On the other hand, Minsky did argue that changes to the tax system during the Reagan presidency had reduced the ability of the budget to constrain a boom in private demand (by moving toward surplus) since even at relatively rapid rates of economic growth, the budget remained in deficit. It was only during the 1990s--and mainly through spending cuts (although supplemented to some extent by tax revenues resulting from capital gains)--that the US federal government budget was changed such that robust growth would generate surpluses. It is possible that the shift of stance has been too great and that today Minsky might argue that it is now too difficult to generate a budget deficit in order to maintain profit and personal income as spending falls.

In any case, Minsky argued that the three effects of government deficits may not be sufficient to prevent crises. If one very large firm or bank defaults anyway, this can generate a debt deflation because of the way in which balance sheets are interlocking. In particular, if the default of a debtor imperils the ability of a creditor to service its own debt, the creditors may be forced to "make position by selling out position"--that is, to sell assets. If this occurs on a large enough scale, asset prices can become depressed so far that revenue from sales does not permit servicing of debt. Defaults can spread and bring down more creditors. Thus, a lender of last resort is needed to prevent failure of a big firm or bank that might lead to a snowball of other failures. The lender of last resort might directly purchase assets of questionable value and issue liabilities that are riskless, or it might simply lend (or promise to lend) to creditors in difficulty if they will not foreclose on debtors.

This is the Big Bank institutional constraint. It is generally undertaken by the central bank, although that is not absolutely necessary. For example the treasury or another governmental or quasi-governmental organization (such as the FDIC in the US) can undertake lender of last resort activity (so long as it is backed by the "full faith and credit" of the government, which means in practice that its liabilities are redeemable for central government liabilities). What is important is that the intervention can provide reserves or "high powered money" as necessary and without limit--as Bagehot had argued. The lender of last resort is needed because the economy is naturally unstable. According to Minsky, this is the primary purpose of central bank, and not, as orthodoxy assumes, to control the money supply or inflation.

However, every lender of last resort intervention has side effects--it changes expectations of economic agents, so leads to innovation, taking the form of institutional change. The main side effect of such interventions--such as the recent Fed-arranged bailout of Long-Term Capital Management (a private hedge fund)--is that risky behavior is rewarded. When this is done, bad ideas do not result in losses, sending the wrong signals and increasing risks. This increases the potential for instability and makes the financial structure more fragile. To reduce the "moral hazard" effects, lender of last resort activity must be accompanied by Big Bank (again, not necessarily the central bank; in the US, supervision is undertaken by the FDIC and the Comptroller of the Currency, as well as by the Fed and by state bank supervisors) supervision of balance sheets. (Minsky 1992)

In sum, households, firms, and banks cause institutional change through innovations. These transform the financial and economic system from a robust one in which crisis is unlikely to a fragile one that is vulnerable to crisis. As Minsky used to say, stability is destabilizing. Even though the New Deal and postwar reforms erected institutions to constrain instability, these reforms changed behavior such that fragility increased. By the mid 1960s, this change became apparent, as evidenced by riskier assets, more debt relative to income flows, and lower liquidity--what Minsky called fragility. Then the crises began, each one halted by Big Government and Big Bank intervention--changing behavior so as to increase fragility.

## MINSKY'S CRITIQUE OF ORTHODOXY

Note how different the view of Minsky presented above is from the one that underlies conventional wisdom, which argues that the economy is naturally stable, with the invisible hand guiding the economy to equilibrium. Shocks might temporarily move the economy away from equilibrium, but the forces that move us back to equilibrium are strong. Furthermore, rather than viewing institutions as contributing to stability, orthodoxy views institutions as barriers to achieving equilibrium. In contrast, Minsky's vision, insists that "institutions and interventions thwart the instability breeding dynamics that are natural to market economies by interrupting the endogenous process and 'starting' the economy again with non-market determined values as 'initial conditions'." (Minsky and Ferri, 1991, p. 4) Moreover, "To contain the evils that market systems can inflict, capitalist economies developed sets of institutions and authorities, which can be characterized as the equivalent of circuit breakers." (Minsky et al., 1994, p. 2)

Let us look briefly at Minsky's analysis of the dominant paradigm. Even what is called the Keynesian approach in the textbooks is really based on a flawed view of the way in which financial capitalism operates. First we will examine the assumptions that underlie the micro and macro models of the orthodox approach.

### Assumptions Underlying the Orthodox Micro Model

The micro model that underlies the orthodox approach is based on a simple barter paradigm, with price as the parameter of behavioral equations. In it, the auctioneer announces a vector of prices and receives bids and continues until an equilibrium price vector is achieved. No trading occurs until the equilibrium price vector is achieved--that is, no "false trading" occurs. By design, the model is very "general"--with no money, virtually no institutions (as Kregel 1995 has argued, the model actually assumes a very particular market form--the auction market--but this is generally not recognized), no long-lived capital assets and no financed positions. Ironically, the things that are assumed away happen to be the most obvious features of the economy we actually live in. Thus, in a quite different sense, the model is very "restricted" because it excludes the institutions that make ours a modern, financial capitalist economy. With these restrictions, the free market is supposed to lead to an efficient allocation and a coherent equilibrium. As Minsky argued, however, demonstrating that an exchange economy based on barter can achieve equilibrium is not the same as demonstrating that a modern capitalist economy can do the same thing.

Furthermore, while the existence of equilibrium in such a model has been proven, it has not been shown that it is unique or stable. Minsky often cited the excellent book by Ingrao and Israel (1990), which argues that it is precisely the absence of institutional constraints that makes it impossible to demonstrate uniqueness and stability of equilibrium. Minsky took this as confirmation of his own belief that the "free market" would be unstable without the "ceilings and floors" provided by institutional constraints.

Even though general equilibrium theory has been largely unsuccessful as a microeconomic approach, all mainstream theory at least implicitly refers to it as providing the micro foundations for the macro model. Let us turn to that macro model.

**Assumptions Underlying the Orthodox Macro Model**

The macro model adds an aggregate labor market and an aggregate production function (see Figure 1). The labor market "dominates" in the sense that flexible wages ensure full employment; given full employment, the production function determines aggregate output. Saving and investment in a loanable funds model determines the "real" interest rate, which simply determines the division of output between consumption today and consumption tomorrow (which is saving and investment). According to Minsky, there is no explanation of how an unemployment equilibrium could be achieved in this model. Involuntary unemployment must be explained as a result of irrational rigidities or fooling--which should be only short run phenomena. Thus, in the long run the economy must be at full employment equilibrium.

**Features of the Orthodox Model**

Minsky focused on four particular features of the orthodox approach that are quite different from his alternative, institutional approach: (1) the role of prices as signals; (2) the treatment of capital; (3) the role of saving; and (4) the role of money.

*The role of prices in the neoclassical model: signals*

In the perfectly competitive, neoclassical model, no economic agent can influence prices, thus each takes price as given (prices are parameters). Consumers maximize utility, subject to given prices and a budget constraint; firms maximize profit given prices of inputs and outputs, and given a production function. Then it can be shown that if all act as if the current price will always exist, the model can achieve a coherent result such that price equates quantity demanded and supplied. But what if there is power to influence price? Or, if agents act on the basis of what they expect price to be--rather than taking price as a parameter? Then coherent results won't be achieved. According to Minsky, in the real world, some firms can influence price and expectations play a role: at the extreme, agents speculate on price. In fact, investment is always a function of expected price, not current price. So free markets can fail to achieve equilibrium.

*Treatment of capital*

Neoclassical theory cannot handle the existence of anything like the capital that exists in the real world, so it cannot handle investment that results in longlived capital assets. Neoclassical capital is some physical thing that is instantly malleable. It produces some physical product and earns a real return based on its physical productivity. Marginal products are just technical relations and in the end, technical proficiency will triumph. According to modern finance theory, it makes absolutely no difference how positions in physical capital are taken--whether they are financed out of earnings, savings, sales of equity, or debt. Mistakes cannot be made--at least persistently. In the real world, in contrast, a capital asset is purchased today, based on expectations of future prices, and all positions are financed positions. Exactly how the position was financed does make a difference. A purchase of capital today will not be validated until the future--by future income flows. Present income flows validate past investment decisions and if current flows are less than what was expected at the time the investments were made, then past decisions will not be validated. This implies that contracted financial commitments may not be met, which has an effect on expectations about the future, and so affects current investment, which affects current income. This leads to an incoherent result: the feedback from falling investment makes things worse--moving the system further from equilibrium as positions are not validated--causing investment to fall further. The feedback effect, then, generates persistent "mistakes" because, in retrospect, past investment decisions turn out to have been based on incorrect expectations about the future.

*The role of saving*

All orthodox models of the long run are essentially saving-driven. In these models, thrift is good because more saving leads to more investment which leads to more growth. While Minsky rejected the orthodox long-run

growth models, he focused his attention on a critique of the neoclassical short run model. In this model, saving and investment determine the interest rate, therefore, determine the split between consumption and investment goods. If thrift rises, consumption falls but investment rises to maintain full employment so that an increase of thrift will not cause unemployment.

Minsky (1986) offered three main critiques of this loanable funds approach. First, the orthodox model ignores the impact of falling consumption on investment. Since in the neoclassical model, a decision not to consume today is a decision to consume tomorrow, firms can go ahead and invest even as sales fall today. In the real world, a decision to not consume today does not represent a decision to consume tomorrow--or ever. Second, orthodoxy ignores inherited financial obligations. When consumption falls and sales fall, some firms would not be able to meet obligations--leading to defaults, cuts of spending, and falling incomes. Falling incomes can force household bankruptcies as well, and further curtailment of consumer spending. In other words, incoherent results are obtained if nominal financial obligations exist. Finally, orthodoxy makes the interest rate a function only of real variables--money plays no role. This is another aspect of the real-nominal dichotomy rejected by Minsky. Let us turn to Minsky's critique of the way in which orthodoxy treats money.

*The role of money: The quantity theory*

Hahn nicely summarized the current state of orthodox monetary theory as follows: "The most serious challenge that the existence of money poses is this: the best developed model of the economy cannot find room for it. The best developed model is, of course, the Arrow Debreau version of Walrasian general equilibrium." (Hahn 1983, p. 1) In the orthodox model, money is added as an after thought, as fiat or helicopter money to facilitate transactions and thereby reduce costs entailed in barter exchange. Since there is no uncertainty, only a fool would hold money because it earns no interest--liquidity has no value in the orthodox model. In the long-run, money must be neutral--determining only nominal prices--although it might be nonneutral in the short-run (with some disagreement among factions--old style monetarism versus rational expectations augmented new classical monetarism). As mentioned above, the theory ignores financial institutions and financed positions in assets. In conclusion, the orthodox model is based on a barter paradigm, with real or relative prices as parameters. As Friedman put it, although money and other institutions complicate the analysis, all the important characteristics of a modern capitalist economy are supposed to be contained in the simple model of the barter economy. But in the real world, in the financial capitalist world, money is the key institution. It is endogenous, created during normal economic processes. Access to money gives power--not just purchasing power, but market power. In the capitalist economy, production is always undertaken with money to get more money. There never was an economy based on barter exchange, outside of trivial prisoner of war cases, and money did not arise as a cost-minimizing medium of exchange. Indeed, most likely money evolved out of imposition of taxes--long before there were private markets. (Wray 1998) The medium of exchange function of money derives from its unit of account function, and in all modern economies, it is the state that determines what will function as the unit of account. In any case, money is the key link between present and future, a one-way time machine, that allows capitalists to buy now, produce, and pay later. Minsky emphasized that most importantly, it is created in the process of financing positions in assets. Banks increase the money supply whenever they share the belief of the borrower that positions in assets or financed activity will generate sufficient cash flows. If the future turns out to be worse than expected, it may be impossible to meet commitments. So money and nominal financial commitments matter.

## THE ALTERNATIVE MODEL

We are now ready to turn to the main features of the alternative model advanced by Minsky. Our plan for the rest of this paper is to first examine in detail Minsky's view of the roles of prices in the modern financial capitalist economy. We next turn to his analysis of instability that is inherent to this sort of system. This will lead us to his exposition of the "financial theory of investment and investment theory of the cycle". We will then conclude with a summary of the main features of his alternative approach.

### What Do Prices Do?

In the neoclassical model, only real or relative prices matter as they allocate scarce resources among unlimited wants. Any scarce resource will have a positive price that is competitively established to ration its use. In

Minsky's alternative approach, all financial commitments are in nominal terms and all income flows are in nominal terms. It matters whether an economic unit's nominal inflow is greater than its nominal outflow. Money cannot be neutral in this sort of world. This view is similar to the "monetary theory of production" advanced by Marx, Veblen, and Keynes, however, Minsky's analysis focuses in greater detail upon modern financial relations. In the real world, nominal prices are administered, in large part to gain control over nominal inflows, while relative prices are just a residual that is mainly nondiscretionary.

If one thinks about the problem faced by the colonial governor who wants to move surplus resources to his command, one obtains some idea of the purpose of prices in the modern world. (See Wray 1998, Chapter 3.) The governor would impose a monetary head tax on the population--say, 100 pounds per year. The population would then ask what could be done to obtain the 100 pounds. The governor would put prices on resources--a pound for an hour of labor, a half pound for a bushel of corn, and so on. The tax created a demand for money while the prices paid by the governor determined how many surplus resources would be moved. Now, the modern corporation cannot impose head taxes, and unlike the colonial governor, it really does not care about moving real resources around. It operates in a thoroughly monetized economy, it is a money-in, money-out operation, and it wants to ensure that a surplus in money terms is left after paying all operating costs and costs of servicing its financial commitments. Let us look at the purpose of prices in the financial capitalist economy.

Minsky (1986, Chapter 7) argued that prices have five functions (and note he didn't necessarily mean to imply that these are behavioral functions). An adequate or proper price would: (1) ensure a surplus is generated, (2) ensure that at least some of the surplus goes to owners of capital, (3) ensure the market (or demand) price of capital assets is consistent with current production costs (or supply price), (4) ensure obligations on business debts can be fulfilled, and (5) ensure resources are directed toward the investment sector, that is, to allow accumulation of capital. Each of these is important enough to warrant further examination.

*Prices ensure a surplus is generated*

The price at the aggregate level must be set high enough above labor costs to make sure workers cannot buy everything--leaving a surplus. This leads to an aggregate markup theory of pricing in which price is set at the macro level as labor costs plus a markup. The price of consumption goods must be set high enough above wages in that sector so that some consumption goods will be left for workers in other sectors. This allows some workers to be put in the investment sector (and government and trade sectors) to produce the surplus (goods and services) that workers cannot buy.

*Prices ensure profits go to capitalists*

At the micro level, each capitalist must be able to obtain a markup over labor costs. Market power helps at the micro level to ensure the individual capitalist can obtain a markup. But at the macro level, there won't be any profits to distribute unless there is spending in excess of the wage bill in the consumption sector. The aggregate, macro, price level determines the aggregate potential surplus to be divided among all the firms in society; the capitals compete at the micro level for profit flows. What generates this aggregate surplus to be realized by firms at the micro level? As the Kalecki-Levy equation shows, the aggregate amount of profits is identically equal to the sum of investment plus consumption out of profits plus the government's deficit and the trade surplus, less saving out of wages. (See Figure 2.) In the simplest model (no government deficit, balanced trade, and no saving out of wages), profits equal investment plus capitalist consumption: "Capitalists get what they spend", according to the Kalecki-Levy way of looking at profits. Again, as long as the price is set high enough that workers cannot buy all the output, capitalists can get the rest so long as they spend.

*Prices ensure demand prices are consistent with supply prices so that capital assets are produced*

Capitalists get what they spend; but what determines their spending? Consumption out of profits is negligible--capitalists don't exist to consume. What is important is investment. Spending on investment depends on the demand price of capital assets (the price one is willing to pay to purchase them) relative to supply prices (the price at which suppliers are willing to produce them). We will go into this in detail shortly. If the demand price is below the supply price, no investment is forthcoming, which means there is no generation of profit (in the simple model). Thus, it is necessary for demand prices to exceed supply prices so

that capital assets are produced, which then generates profits, and this validates previous investment. In the simple model, investment today determines whether investment yesterday was a good idea, but investment today depends on expectations about the future, which are incorporated into demand prices, and the relation of these to supply prices. Minsky liked to say that investment won't occur today unless it is expected to occur tomorrow because unless investment occurs in the future there will not be any profits (again, in the simple model).

*Prices ensure firms can fulfill debt obligations*

Clearly, prices at the individual firm level must be set sufficiently high as a markup over labor costs to ensure that the firm can service its debt. As we have seen, market share is a major determinant of the ability to set price at a level at which a share of the aggregate profit is obtained. However, whether there will be any aggregate profits to distribute depends on aggregate capitalist spending.

*Prices ensure resources go to investment so that capital is accumulated*

At the individual level, market share is important to maintain a sufficient markup--the source of profits at the micro level. Normally, a firm cannot even obtain finance unless it has market power. Each firm tries to set a price high enough to cover all expected costs and to provide a margin of safety. The bigger the margin of safety, the more willing banks are to lend. To put it very simply, the goal of every firm is to get market power so that it will have control over its markup so that it can get loans. Thus, the ability to set and maintain price is critical at the micro level to obtain loans and to service them. Schumpeter (1949, p. 70) argued that credit is the means by which capitalists ensure they can divert the allocation of resources to the investment sector. (See Wray 1994) Market power and the ability to set price is critical in determining who gets credit, but the amount of surplus available at the aggregate level depends on the aggregate markup. This, in turn, depends on capitalist spending, mainly on investment, although it is supplemented by government deficit spending and trade surpluses in the expanded model. In other words, market power and even technological efficiency only affect the distribution of profits, but not the aggregate amount. It is the aggregate spending on investment that generates the profits that validate the accumulated capital. Neither "thriftiness" nor even technology have anything directly to do with capital accumulation.

In this sort of world, with ability to affect price, and with expected price rather than actual price as the critical parameter, there is no reason to believe that equilibrium exists and even less to believe that it would be stable. Next we turn to Minsky's analysis of instability.

**Natural Instability**

When a "small government" economy is not at full employment, this causes wages and prices to fall. According to Patinkin, this increases aggregate (real) demand and moves the system back to full employment. (See Minsky 1986, pp. 133-138.) However, Minsky argued that in the real world, falling prices make it impossible for debtors to meet commitments; this generates asset price deflation and repudiation of debt. According to Minsky, the economy will not turn around until the financial system is "simplified", or, a good portion of private debt is wiped out such that most positions in assets that remain are those that were not debt-financed--that is, equity positions. This is essentially what happened during the Great Depression. Alternatively, when this "small government" economy is at full employment, aggregate demand, investment and profits are high so that projects are successful on average. Success breads greater risk taking; borrowing and lending take place on smaller margins of safety; financial innovations make it easier to finance various schemes. This leads to a speculative boom as capital gains are generated and spending on assets booms. Over time, the financial structure becomes weak as increasingly risky financial positions are taken. Eventually, someone defaults and the whole financial system comes crashing down.

One might ask: if the economy is so unstable, why doesn't debt deflation or a runaway speculative boom occur anymore? Minsky argued that it is the ceilings and floors that have constrained the inherent instability. (Minsky and Ferri 1991) The Big Government has set ceilings and floors on prices of current output, helping to constrain the natural tendency of aggregate demand toward boom/bust cycle, while the Big Bank has put into place ceilings and floors on asset prices and, more specifically, prices of capital assets, helping to curb financial

system instability. Minsky would thus argue that the economy is still inherently unstable, but is constrained within ceilings and floors. The endogenous instability of our system stems primarily from the interaction of finance and investment. Minsky characterized his approach as a "financial theory of investment and an investment theory of the cycle". Let us turn to his financial instability hypothesis--a hypothesis that follows from his approach to investment finance--and a detailed look at the evolution process in which the economy is transformed from one in which crisis is unlikely to one in which crisis becomes probable.

*Financial instability hypothesis*

We begin with Minsky's analysis of what he called the two price systems. His exposition is an alternative to the typical treatment presented in textbooks, which distinguishes between two primary components of aggregate demand, consumption and investment, but then posits a single aggregate "price level". In Minsky's view, this conflates two very different kinds of prices, or, really, systems of prices. Further, the two price systems analysis is a better way to analyze the financial capitalist economy than is the consumption/investment approach of the orthodox textbooks.

First, there is the price system for current output, which includes consumption, investment, government, and export goods and services. Prices of current output are essentially set as a markup over labor costs. Of course, market power allows the individual firm to set price at a greater markup. At the micro level, the markup distributes profits among firms, with market power leading to a greater share of profit flows. At the macro level, the markup delineates the aggregate amount of profit to be distributed among firms, which is realized only when spending on investment, plus capitalist consumption, plus the government deficit, plus the trade surplus and less worker saving is sufficient.

Second, there is the asset price system. Most importantly for Minsky's analysis, this includes the price of capital assets--which is critical to the determination of the amount of investment that will be undertaken, which, in turn, is a critical determinant of the amount of aggregate profit to be realized and distributed. The quantity of investment depends on the relation between the demand price and supply price of capital assets.

Figure 3 presents a simplified version of Minsky's investment model. The supply price, depicted as Pi has two main components: purchase price (as discussed above) plus financing costs. The purchase price comes from the price system for current output, because capital assets are part of current output; thus, this price is determined as a markup over labor cost. (Since some consumption goods and services are also financed, these would include finance costs in their supply price--but Minsky's model presented in Figure 3 applies directly to investment purchases only.) Of course, the alternative to newly produced capital assets is existing second-hand capital, however, in practice, capital assets are generally firm-specific and custom produced on order, thus, prices in second-hand markets are not usually an important source of competitive pressure. The purchase price can be thought of as a horizontal line, with the price independent of the quantity of investment, although it is possible that beyond some point it could be upward sloping due to bottlenecks. In addition to purchase price, unless capital assets are purchased wholly out of retained earnings, supply prices must also include finance costs--this is the primary reason for the kink in the Pi curve. Finance costs include explicit costs (interest rate and fees) and implicit costs (increased supervision by lenders). These tend to rise with the quantity of investment because lenders perceive greater risk associated with larger loans--what Keynes had called lender's risk. Lenders must take into account the balance sheet of the borrower (which is leveraging capital, net worth, and prospective income flows) as well as their own balance sheets. Informal rules of thumb are applied to maintain what is believed to be an adequate margin of safety. In short, the main component of Pi comes from the current output price system, however, because capital assets are typically financed, finance costs are also a significant portion of supply price.

The supply price must be weighed against the demand price--which mainly comes out of the asset price system. This is the price one is willing to pay for an asset, including capital. The main determinant of demand price is expected profit. However, expected profits are in the future and are uncertain, so are discounted before they can be compared with supply price. If the capital asset will have to be at least partially externally financed, the demand price must include a margin to compensate for what Keynes called borrower's risk. This is the main reason that the Pk curve is kinked--the greater the quantity of external finance required, the greater the perceived borrower's risk because of higher payment commitments. Expectations will affect the position of the

curve--it will be higher with more optimism--while the more fragile the financial structure or the more indebted the firm, the lower the curve.

For investment to occur, the demand price must exceed supply price. Innovations, changes of rules of thumb, changes of quantity of liquidity, and changes of perceived lender's and borrower's risk, will all shift the curves. There is no fixed rule about how liquid a portfolio should be, nor are there fixed rules about margins of safety. To a large extent, borrowers and lenders operate on the basis of trial and error; if a behavior is rewarded, it will be repeated. Thus, stable periods naturally lead optimism, to booms and to increasing fragility. If, however, government prevents any crises from becoming deflations, then riskier behavior is encouraged and financial positions evolve from robust to fragile.

Minsky used three terms to describe possible financial positions:

1. Hedge: income flows are expected to meet balance sheet outflows in every period
2. Speculative: the firm must roll over debt because income flows are expected to only cover interest costs
3. Ponzi: income flows won't even cover interest costs, so the firm must issue new liabilities at the end of each period to capitalize interest (or must sell-off assets)

Note that hedge positions are relatively immune to monetary policy--unless interest rates rise tremendously it is unlikely that interest costs will exceed income flows--while rising interest rates can turn a speculative position into a Ponzi position. Similarly, falling income flows can push a speculative position into a Ponzi position. According to Minsky,

> It can be shown that if hedge financing dominates, then the economy may well be an equilibrium seeking and containing system. In contrast, the greater the weight of speculative and Ponzi finance, the greater the likelihood that the economy is a deviation amplifying system...[O]ver a protracted period of good times economies tend to move from a financial structure dominated by hedge finance units to a structure in which there is a large weight to units engaged in speculative and Ponzi finance. (Minsky 1992, pp. 7-8)

The shift toward speculative positions, or fragility, occurs intentionally (and more-or-less inevitably because of the way in which expectations are affected by success in a boom), while the shift from speculative toward Ponzi finance is mainly unintentional.

Minsky's analysis typically began with the early post-war period, following the Great Depression that "simplified" balance sheets. The postwar economy thus commenced with hedge positions and conservative strategies. Over time, as the economy performed well, success bred innovations and revisions of rules of thumb, which allowed margins of safety to fall. The weight of speculative finance increased in the economy as a whole. As the expansion proceeded, one of two events could push some units to Ponzi positions that could precipitate a crisis: Either interest rates could rise or income flows could fail to meet expectations. Interest rates could begin to rise either "endogenously" as lenders began to build in larger "lender's risk" out of fear that balance sheets and become over-extended, or "exogenously" as the central bank began to fear inflation and thus instituted tight money policy. Alternatively, some borrowers might find income flows less than expected, leading to "belt-tightening" spending reductions that would cause income flows of others to fall below expectations. Of course, rising interest payments could also cause spending to decline (some spending is interest-elastic, and as interest rates rise the cost of servicing debt rises and can cause other spending to fall) which lowers income flows.

Thus, over the course of an expansion, the economy moves from hedge to speculative to Ponzi finance. Minsky argued that this is a necessary precondition for an unstable financial system. As income flows fall and as lenders cut-off lending to Ponzi units, economic units try to make position by selling out position. This generates falling asset prices and a Fisher-type debt deflation process. After a debt deflation, the system starts again with a robust financial system, leading to another boom and then to another crisis. However, postwar Big Government sustains profits, and Big Bank intervention prevents debt deflation and its purging effect, thus, the instability is constrained even as behavior changes in such a way as to increase the system's fragility.

**Summary: Components of The Alternative Model**

Let us summarize the key features of Minsky's alternative model of the financial capitalist economy.

*The focus should be on firms, not on households, and on investment and its finance, not on consumption and saving out of household income flows.* This stands in sharp contrast to the exposition found in textbooks, which begin with households and their consumption/saving decision, and with thrift determining investment and therefore growth. Minsky's firms have market power--it is impossible to conceive of a perfectly competitive form of financial capitalism given the cost of modern capital equipment--which necessitates huge financial positions that must be validated. Only firms with substantial market power can give the necessary assurance that they will service such positions. The focus on financing of investment leads in turn to Minsky's two price approach--an alternative to the consumption/investment approach of textbooks (which presumes a single price system).

*Cycles are endogenously generated, and are not due to shocks.* In large part, the cyclical behavior has to do with the interplay between the two price systems and the way the financial system evolves endogenously and toward fragility through time. While it is true that an exogenous event (failure of an important firm or bank, or imposition of tight money policy) can precipitate crisis, these events would not generate crises unless the system had evolved to a fragile position.

*Agents in the model have a model of the model and the agents know the economy is naturally unstable.* This is why uncertainty plays a role in their decisions, why they must have contingency plans, why they build in margins of safety, and why liquidity matters. The world is uncertain--but in a very particular way. Minsky always argued that most of the uncertainty is over the validity of the model held by the agents. In other words, the problem is not that the sun might not come up tomorrow, or even that the stock market might crash. Rather, it is that we all operate on the basis of a particular view as to how the economy works, but we believe our understanding could be flawed. So Minsky always credited Rational Expectations theory with the recognition that agents have a model of the model; but he criticized it for what he called the heroic assumption that the agents have the correct model.

*If government always intervenes to prevent deflation, it lowers the value of liquidity and margins of safety so that fragile balance sheets are accepted.* That is, agents change their model to include government intervention, so their behavior changes. Again, Rational Expectations was correct in criticizing the bastard Keynesian model of the textbooks which presumed that the fine-tuning government could intervene without inducing economic agents to change their behavior.

*Money is endogenously supplied, and bankers live in the same expectational environment as everyone else.* If the value of liquidity is lowered, this increases the willingness of "lenders" to also reduce their own liquidity as they finance leveraged positions. In fact, bank money is leveraged money--it leverages high powered money, what Minsky called the "fundamental hierarchical property of our money and banking system." (Minsky 1986 p. 231)

*The financial instability hypothesis is pessimistic: financial capitalism is fundamentally flawed because each success at crisis containment leads to further risk taking.* This fundamental flaw, in turn, results from the necessity of complex financial arrangements that must exist in an economy in which capital assets are expensive.

*Big Government is necessary and countercyclical deficits are necessary to put a floor on aggregate demand and thus on current output prices. The Big Bank is necessary and lender of last resort intervention is necessary to put a floor on asset prices to prevent debt deflation* . But the other side of the coin is that regulations and supervision are needed and they must continually evolve so they stay only a step behind innovations. A variety of institutions are needed to constrain the inherent instability--they don't all have to come from government, but many must.

**CONCLUSION**

Minsky's analysis always concerned "modern" capitalism, a capitalism that could be called financial capitalism because of the important role played by financial arrangements in this sort of economy. Private ownership of expensive and long-lived capital assets normally necessitates access to external sources of finance. While modern corporations might have relied on equity finance of capital purchases, in practice this is not a significant source of funds. Instead, corporations have relied on a combination of retained earnings and debt issues. As Minsky argued, the problem is that debt entails a commitment to make nominal payments in the future. This, in turn, necessitates market power because a firm that cannot administer its prices cannot provide the necessary assurance that it will be able to service its debt. The "process of concentration" already recognized by Hilferding after the turn of the century, as well as the cartelization and "sabotage of production" noticed by Veblen a decade later represented the private sector's attempt to control price in order to protect profits and the ability to service debt. This failed spectacularly in the Great Depression, leading to the development of stronger institutional constraints. The New Deal and postwar reforms worked exceedingly well to constrain the natural instabilities of financial capitalism for several decades. However, successful containment of instability led to the evolution of fragile financial structures and to renewed financial crisis. The problem as Minsky saw it, is that the institutional reforms have not evolved to keep pace with innovations that make it more likely that "it" (another debt deflation) might happen again.

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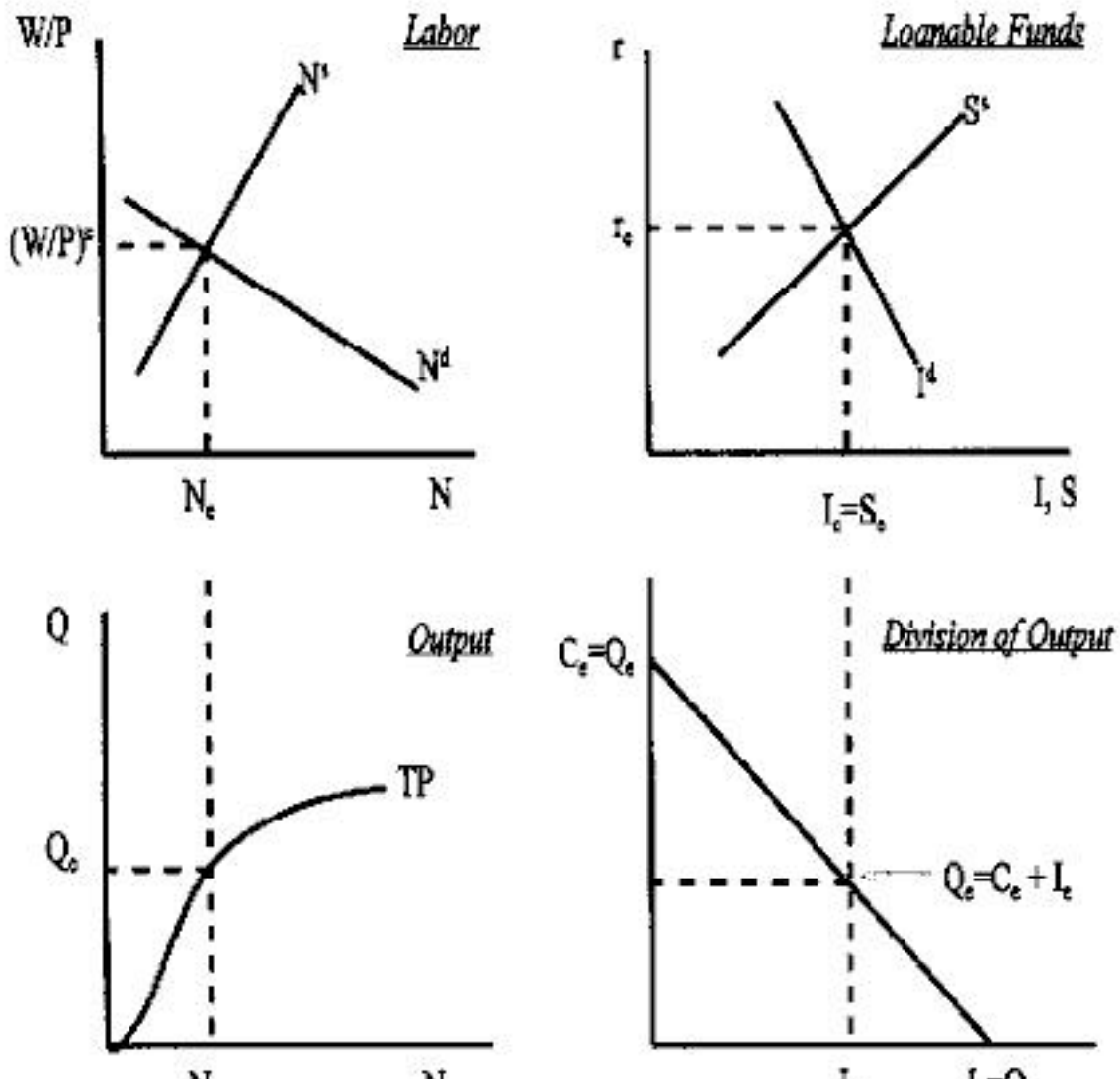
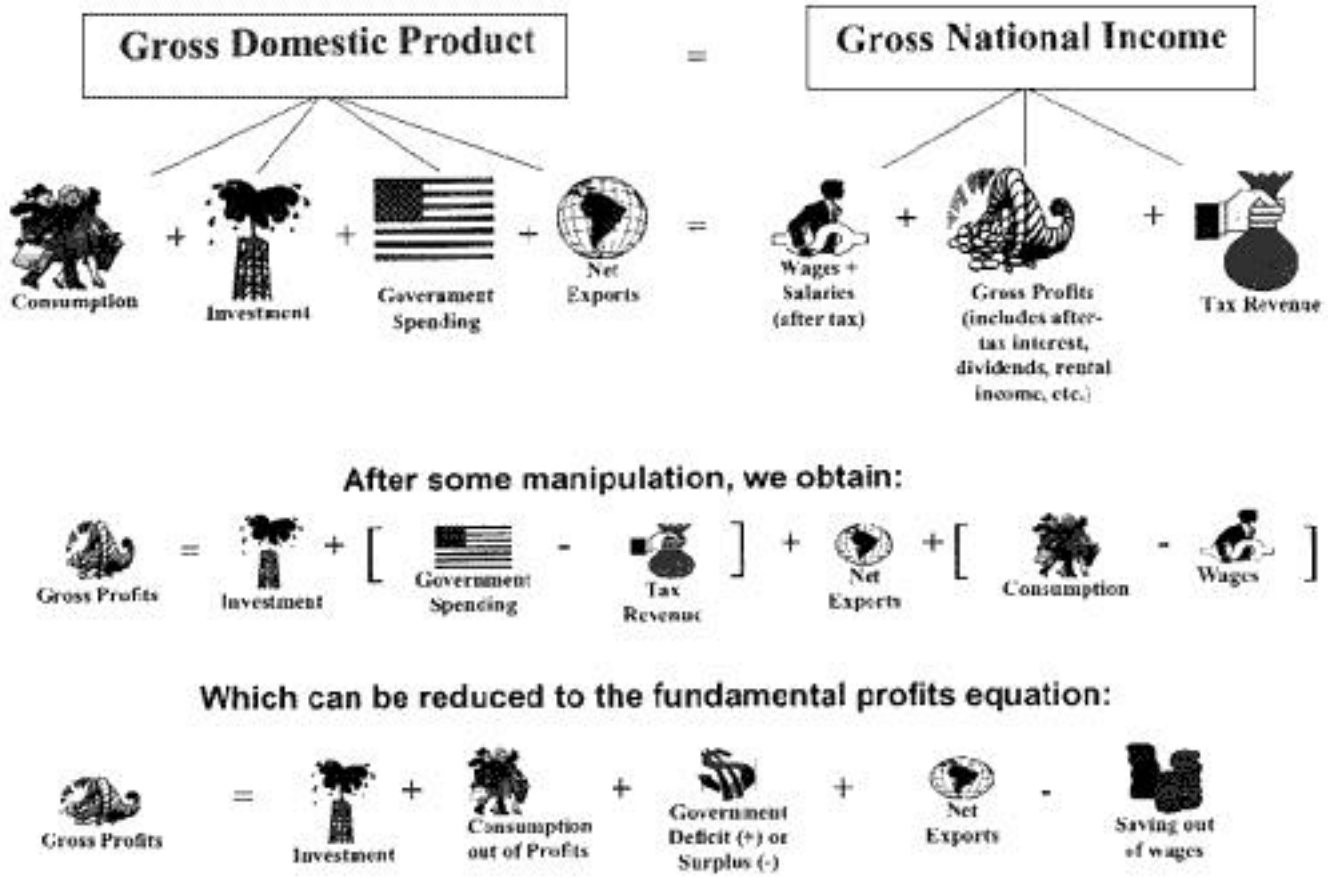
**Figure 1: The NeoClassical Model**



$N_c$ $N$ $i_c$ $i_c=Q_c$

**Figure 2: The Kalecki-Levy Equation**



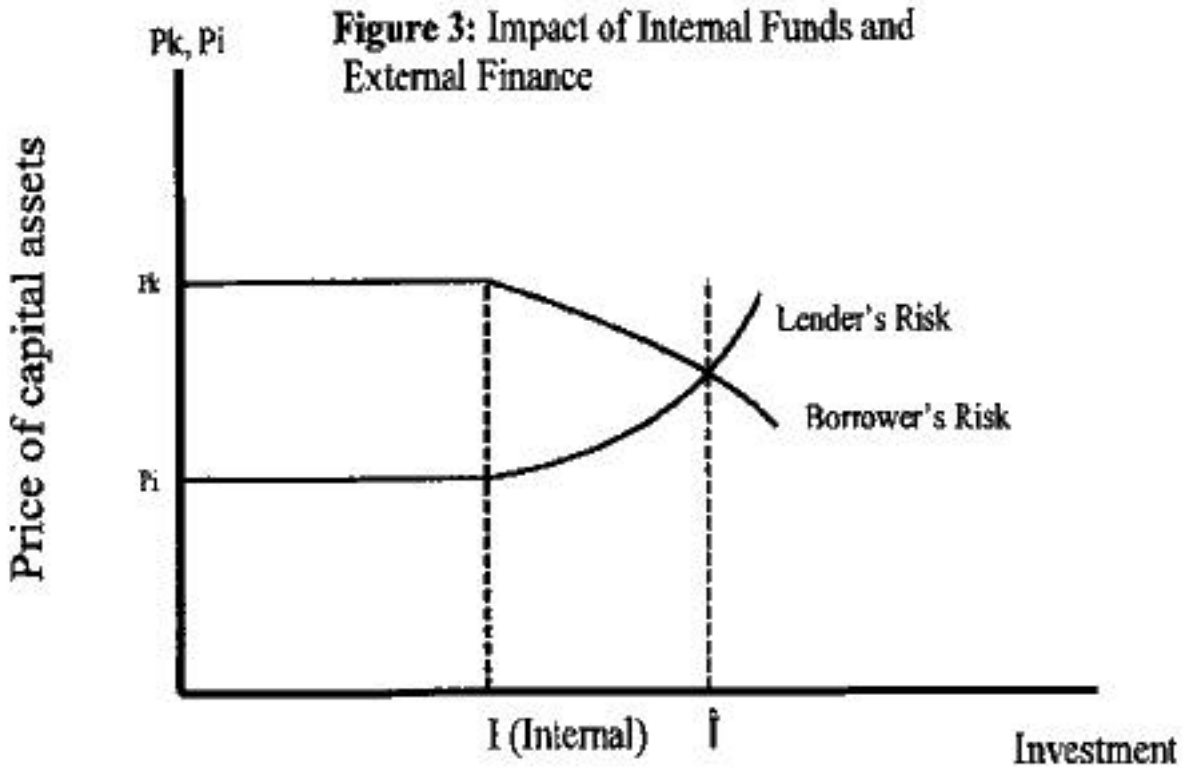



**Figure 3:** Impact of Internal Funds and External Finance

*Note:* $P_k$ is defined as the Demand Price and $P_i$ is defined as the Supply Price.

**ENDNOTES**

1. Minsky did not believe the Fed can control the money supply or even reserves even if it tried. He did believe the central bank can affect interest rates (most directly, the fed funds rate), but this would then affect private lending and private borrowing (thus, private expansion of the money supply) only indirectly and only at a critical phase of the business cycle--when what he termed "speculative positions" dominate. (See the discussion below.)
2. One could certainly argue that the propensity to runaway speculative boom has increased in the last two decades--a point recognized by Minsky, as we will discuss below. One could point to the savings and loan fiasco in the US during the 1980s, to the mid-1990s Asian "tiger" financial crisis, and to the late 1990s US stock market boom as examples of speculative excesses.

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