Keynesian Prospects for the US Economy

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Historically, financial crises have been commonplace. Why did the latest episode almost derail the world economy? The macroeconomics developed by John Maynard Keynes and his close followers provides the only plausible set of answers, including rising income inequality which spilled over into debt accumulation at the same time as household consumption rose, low real interest rates, massive expansion of financial assets and liabilities as investors borrowed heavily (increased leverage) to buy assets with rising prices, and an ample supply of imports and capital inflows from the rest of the world. In an accommodating political economic environment these factors linked the real and financial sides of the economy to create the crisis.

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I. Introduction

John Maynard Keynes was correct about how to do macroeconomics, and the mainstream economists' counter-attack launched against his ideas beginning in the 1940s was simply wrong. This paper expands on these points, drawing on a forthcoming book, *Maynard's Revenge: The Collapse of Free Market Macroeconomics* (Taylor 2010).

It will be argued that the macroeconomics created by Keynes and his closest followers provides the only plausible path toward understanding the huge changes that engulfed the world economy in the last quarter of the 20th century. The narrative incorporates major shifts in behavior

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on the real and financial sides of the U.S. and global economies after around 1980. Changes in the distributions of income and wealth played central roles. In George Soros's (2009) terminology, economic actors' imperfect cognitive perceptions about the economic system interacted with their limited ability to manipulate it to produce the crisis of 2007-09.

Secondly, cognition and manipulation will mutate in ways that are impossible to foresee. The political economy that will emerge in the 20-teens will differ markedly from the one in place during the late 20th and early 21st centuries. At the level of mere macroeconomics, Keynesian principles are the only tools available to help guide the system through a fraught transition to a new regime whose nature as of 2009 is veiled by "the dark forces of time and ignorance."

We begin by considering long-term shifts from a political economic perspective. We then summarize important ideas from Keynes and his school (largely practicing in Cambridge U.K.), followed by a recital of the major macroeconomic changes that took place after around 1980. Using this material as background, the key forces that created the crisis are reviewed, leading into observations about developments that may be in store and how policies may be designed to help cope with them.

II. Long Swings in Political Economy

The share in income (including realized capital gains) of the richest one percent of the U.S. population in 1929 was around 22.5%. It fell to about 9% in 1979, and then rose again to 22.5% in 2006 (Piketty and Saez 2003). An index of the share of wages in value-added discussed below fell from cyclical peak levels of about 105 during the 1960s and 1970s to around 97.5 when the most recent cycle peaked in the mid-2000s. The swing toward greater income inequality in the USA after around 1980 was associated with notable changes in the way the macroeconomic system behaved.

Great political economists have emphasized that there are long waves in how the economy functions, going well beyond the tedious trudge of formal growth models toward a steady state in which all relevant ratios of macroeconomic variables stay constant (see below). In his *Great Transformation*, Karl Polanyi (1944) saw a *double movement* in 19th century Europe, first toward a liberalized market system largely created by

state intervention. It was followed by regulation aimed at reducing the worst aspects of capitalism such as child labor, a long work week, and unemployment. A counter-reaction to regulation and the trauma of WWI helped set the stage for rising inequality and Fascism in the first third of the 20th century. The Great Crash and Depression set off the Keynesian period that followed.

Michal Kalecki (1971) described a political business cycle in which capitalists can at times convince the state to hold the level of economic activity below the full employment level, to cut into the power of workers. The contemporary Cambridge economist Gabriel Palma (2009) describes how the two adversary classes operate. "Both seek to change the balance of power between income groups: [workers advocate] Keynesianism in order to prevent the disruptive effects of crisis-ridden capitalism, [capitalists advance] neo-liberalism in order to return power and control to their 'rightful owners' — capital."

A similar cycle between public and private domination of the economy was pointed out by Albert Hirschman (1982). Characteristically he adopted a dialectical formulation built around a *rebound effect* between social preferences for public and private control of the economy. After general frustration with the ruling situation crosses a threshold, the rebound kicks in.

Broadly speaking, such theories are consistent with a long term political economy cycle in the 20th century. The early liberal phase (in the European sense of the word) ended with the Depression. The rebound continued through the New Deal and WWII into the Golden Age of the 1950s and 1960s. Building up the welfare state (a development not anticipated by Keynes) was a major contributing factor to a sustained and historically unprecedented output boom. This long cycle broke down during the stagflation of the 1970s, and was succeeded by a new liberal resurgence beginning around 1980.

One problem with these theories is that they are unclear about *agency* — how do actors (individual or collective) proceed to alter the situation at hand, and why do they do it? Palma quotes an advisor to Mrs. Thatcher who had apparently had read his Kalecki on the benefits of recessions for capital, but such observations are unusual. Nor is it clear whether the latest liberal cycle really ended in 2009. Even if in some sense it did, the extended transitions between Polanyi's 19th and 20th century cycles suggest that macroeconomic changes during the decade of the 20-teens are unpredictable, and may be dramatically unstable. The only way to think about them is with Keynes.

III. Lessons from the Master

Keynes's foremost idea is that all economic decisions are taken under conditions of fundamental uncertainty — not "risk" in the sense that possible events in the future can be fully described by an objective probability distribution known to at least some (and possibly all) participants in the market. For example, from Keynes's point of view the idea that sub-prime mortgage borrowers' probabilities of default could be quantified on the basis of historical data during a period in which housing prices rose at an unprecedented rate was nonsense — of course prices could always go down as demonstrated after 2005.

A. Two Sets of Prices

The recent significance of housing price fluctuations points to the fact, noted by Keynes and emphasized by his followers, that a capitalist economy has two sets of prices — for assets such as housing and securities, and for goods and services. In his magnum opus, the General *Theory of Employment, Interest, and Money*, Keynes broke from the quantity theory (which says that the overall commodity price level is determined by the money supply) that he espoused in his *Tract on Monetary Reform* a dozen or so years before. Rather, he assumed that goods and services prices are driven by costs — notably the wage and exchange rates as costs of labor and imports respectively.

Like the younger Keynes mainstream economists assume that commodity prices are determined by monetary forces. Monetarism in its contemporary incarnation is inflation targeting. Tightening money by raising the interest rate is supposed to slow down increases in goods and services prices. With low inflation in the 1990s and 2000s, the Fed apparently thought that it could safely hold interest rates down, arguably setting the stage for spiraling asset prices which can take off when the ratio of asset returns including capital gains to interest rates is high.

Along with financial deregulation, rising prices for housing — the principal household asset — helped propel rapid expansion of debt to help support high levels of consumption even as consumers' real income positions deteriorated (details below). The rapid increase in debt fed into a financial boom based on securitization or bundling mortgages into highly structured bonds which could be sold in the market.

Keynes would say that thinking that securitizing the increasing

volume of debt would "diversify" default risk was nonsense upon stilts. So long as housing prices kept rising, consumers increased their borrowing. Financial traders ran up more debt with one another and the rest of the world to buy more securitized mortgages. When housing prices stalled and started to go down, an unexpectedly high number of borrowers walked away from their mortgages and the whole highly leveraged and securitized house of cards went down. Keynes did not discuss bubbles based upon linked increases in asset prices and leverage but Charles Kindleberger — a true blue Keynesian — certainly did (see Kindleberger and Aliber 2005). Soros's model of financial cycles follows a similar line.

For the real side of the economy, Keynes used psychological and sociological observation to frame hypotheses about how market actors operate — hence his assumed dependence of saving on income and of investment on interest and profit rates along with asset prices. He also thought that saving and investment decisions were strongly affected by current economic perceptions, or "expectations."

As securitized finance imploded in 2007-09, expectations shifted. Fear pure and simple drove households to save more and business investors to spend less so that aggregate demand and real output plummeted. Surviving financial institutions curtailed lending in a flight to liquidity while those that survived the crisis in better shape re-engaging in trading games within less than a year. Keynes argued vigorously that Say's Law of markets does not apply. With his principle of effective demand operating there is no natural tendency for the economy to arrive at full employment. Mainstream economics completely ignored these insights, with the reaction beginning as early as the 1940s.

The experience of 2007-09 shows that under pervasive fundamental uncertainty, the economy is unpredictable and at times may be highly unstable. The applicability of any macro model is contingent upon events which few if any players foresee — the economy can always swerve. But Keynes provided useful categories for thinking about it.

B. Keynesian Categories

One is setting up models involving collective social actors instead of "rational" agents which act individually. The quotation marks are meant to signal that most people's understanding of rationality lies light-years away from the standard macroeconomists' assumption that it amounts

to behaving consistently with a "true" model of the economy (which on the basis of Keynesian ontology cannot possibly exist). The justification for thinking about collective actors is that the socioeconomic circumstances in which groups of people operate — be they sweepers in Mumbai or traders on Wall Street — impel them toward shared economic attitudes and patterns of behavior. Even after 2007-09, the fact that financial sector leaders in both Europe and the USA seemed to think that the system that failed should be largely reinstated with their same income levels as before demonstrates the strength of collective patterns of belief.

Fallacies of composition can easily arise, in which apparently rational decisions at the level of individual or collective actors create a macroeconomically unsustainable situation. How that happened after 1980 is discussed below.

Considering broad social classes of collective actors means that macroeconomic models can conveniently be based on the sectoral/functional income distribution built into the national income and product accounts (largely by Keynes and his followers James Meade and Richard Stone at the U.K. Treasury in the early 1940s). Distributive issues in the discussion to follow are described in terms of the functional rather than the size distribution of income because the former fits more easily into macroeconomic discourse. As noted above, since around 1980 data from both approaches pointing toward higher inequality are broadly consistent.

There is always distributive conflict among classes, at times latent and at other times painfully visible. It may lead to overt hostility or be displaced into other areas. Inflation has been a common outcome of conflicting income claims worldwide. As recognized by Keynes, the German hyperinflation in the early 1920s can be traced to workers' attempts to restore their pre-WWI real income level by pushing up money wages abetted by a compliant central bank. U.S. stagflation in the 1970s is another example, which was ended by tight money and union-busting under Reagan. Running up debt, as sketched above and analyzed below, can be another outcome of conflict (a point raised by Albert Hirschman among others).

On the financial side, Keynes's villains in the *General Theory* were high savers and bear speculators holding out for high interest rates. He thought that these groups, probably overlapping in terms of social background, would cause long-term stagnation by holding down aggregate demand. Both groups were conspicuously absent in the U.S.

during the 1990s while investors' animal spirits were high. The dot. com asset price crash ended a very Keynesian boom, a possibility that he did not fully consider.

Rather, Keynes proposed a business cycle theory with output swings upward and downward led by investment. Along with shifts in the level of saving, he thought that changes in the interest rate would be the main factor amplifying or dampening the cycle. The basic framework fits the recent period, but with movements in distribution, debt (which did not enter into his cycle theory), and asset prices playing central roles.

Finally, Keynes devoted a lot of effort in the 1920s to formulating industrial policies to deal with structural unemployment in Britain's lagging industries such as coal. In the 1940s he labored long and hard to set up a stable, balanced global macroeconomic system. How such ideas can be updated to deal with contemporary problems is a pressing issue.

IV. Ideas from the Disciples

Fundamental uncertainty, the absence of Say's Law, and the presence of tensions between the classes characterize Keynes's economics. Over more than three generations his close followers, many at the University of Cambridge and a few in the USA, have extended Keynesianism into an impressive body of thought. It is virtually unrecognized by the American mainstream but nevertheless provides insights into the latest long liberal political economy cycle and the events of 2007-09. The models about to be described should be interpreted as being contingent on fundamental uncertainty, with specifications that must be adjusted accordingly.

A. Macroeconomic Behavior

Nicholas Kaldor (1978) argued that like the level of economic activity, the rate of economic growth is driven from the demand side. In his models from the 1960s the growth rate may or may not converge to a steady state level and full employment is not guaranteed. Because of economies of scale and technological advances embodied in learning processes as well as new capital goods, the growth rate of labor productivity responds positively to the rate of output growth, especially in industry (an increase in the output growth rate of 1% may be associ-

ated with an increase of 0.5% in productivity growth). Arthur Okun's Law from the U.S. in the 1960s conveys a similar message, with an emphasis on cyclical fluctuations in productivity.

Like all Cambridge economists including Keynes (though he downplayed it), Kaldor assumed that saving is influenced by the income distribution. In a convenient formulation, the private sector saving rate from income is a decreasing function of the wage share of total income.

Kalecki proposed a theory in which investment is driven by the rate of profit. His follower Josef Steindl added the level of economic activity (measured as the rate of capacity utilization) as an additional determinant. A model can also be set up in terms of the output/capital ratio as a measure of utilization and the profit share of GDP (the profit rate divided by the output/capital ratio, with profit share + wage share = 1) representing distribution. In an economy open to foreign trade at a given level of the exchange rate, exports are likely to respond positively to the profit share because an increase signals a reduction in unit labor costs.

With these investment and export functions and a Cambridge saving function in force, output and the rate of capital stock growth as determined by aggregate demand can both respond either positively or negatively to an increase in the wage share. The alternative possibilities have come to be called "wage-led" and "profit-led" respectively.

B. Distributive Cycles in Effective Demand

Richard Goodwin (1967), an American who ended up in Cambridge for political reasons and also spent time in Siena as an eminent abstract painter, set up a model of cyclical growth based on a Cambridge savings function. His dynamic specification took the form of a highly simplified system borrowed from models of predators (say foxes or the wage share) and prey (rabbits or the level of saving) in mathematical ecology. Faster growth stimulates employment. Higher employment in turn drives up the wage share, reducing saving and cutting into growth. The resulting cycle closely resembles one proposed by Marx in Volume I of *Capital*.

Goodwin's model is not Keynesian because its level of investment is determined by available saving, following Say's Law and Marx. However its pattern of cyclicality can easily be extended in a Keynes-Kalecki-Steindl direction by incorporating dynamics of the wage share, which is equal to the real wage divided by the level of labor productivity. In this set-up Kaldor-Okun productivity dynamics come to the fore. As an

economy comes out of a recession, labor productivity usually rises because firms have been hoarding labor during the trough in anticipation of rising output in the future. When that happens, productivity or the output/labor ratio goes up. This jump forces the labor share downward, stimulating aggregate demand in a profit-led economy.

As output rises, productivity growth tails off and the real wage starts to rise as the labor market tightens. The income distribution shifts against profits, slowing demand growth near the upper turning point. As will be seen, such a system with profit-led demand and a "full employment profit squeeze" is not a bad fit to the business cycle in the USA.

C. Macro Accounting Restrictions

Keynes built his macroeconomic system around the postulate that the value of output is always equal to income. This "identity" serves as the foundation for all contemporary national accounting. The Cambridge Keynesian Wynne Godley (see Godley and Lavoie 2007) emphasizes three important implications.

One is that the excess of spending over income can take either sign for any individual or socioeconomic group (say households, non-financial business, financial business, government, and rest of the world), but that the economy-wide sum of these "net borrowing" flows must be zero. As will be seen, a decomposition of net borrowing provides a convenient means for analyzing macro cycles and trends.

Second, in a complete accounting set-up with no "black holes" one can see how shifting ratios of macro flows (*e.g.*, investment in new capital goods, saving, *etc.*) and stocks (*e.g.*, the capital stock, net worth or wealth, *etc.*) can either stabilize or destabilize the system. The fiction built into economic growth theory is that all flow/flow, flow/stock, and stock/stock ratios converge to "steady state" levels (or perhaps cycle around them as in a Goodwin model). We will see that over the recent long political economy cycle the U.S. economy key variables have demonstrated divergent trends.

Finally, global macroeconomic accounting without black holes reveals that there is not much room for variables such as exchange rates and external deficits to adjust independently of one another (in the jargon the system has very few "degrees of freedom"). How one can ascertain directions of macroeconomic causality when they are so circumscribed has been subject to fierce debate.

In a bit more detail, suppose that two countries with output determined by effective demand share a current account balance between them. Its level responds to the exchange rate between their two currencies. So either the level of the balance could be (somehow) fixed, or else shifts in the exchange rate could drive the balance. More generally, for N countries there will be $N-1$ degrees of freedom on current account.

Now consider national balance sheets, which can adjust rapidly to capital movements. Without capital controls, one can show that if central banks are fixing interest rates, then the exchange rate between them will be stable *unless* one country intervenes in markets to control its level of international reserves and the other country acquiesces. Then the rate will have to float. This game also generalizes to N countries with $N-1$ degrees of freedom on capital account.

The bottom line is that with rapid adjustment in capital markets and much slower adjustment in trade, among N countries $N-1$ bilateral exchange rates are determined on capital account which in turn, all other factors held equal, determine current account balances. The rates can either float or be fixed by policy interventions (which can include controls on capital movements, as in China) with at least one country accepting the consequences. Implications are pursued below.

D. Finance

Turning to the financial side, we have already noted Charlie Kindleberger's historical discussion of asset price booms fueled by increasing debt — a good description of the run-up to the 2007-09 crisis (also pointed out by Soros). Such phenomena were not emphasized by Keynes. Nor was the increasing financial fragility due to rising debt-service burdens in an upswing emphasized by the American Keynesian Hyman Minsky (2008), though his macro model is a natural extension of Keynes's trade cycle theory discussed above. Besides debt burdens Minsky emphasizes the influence of changing asset prices on financial decision-making over the cycle.

Minsky also argued that financial evolution linked to fragility can be destabilizing. *Via* changes in asset and commodity prices and its political efforts to remove regulatory controls, a growing financial sector can upset the rest of the system in several ways.

Bailing out finance in recurring crises encourages the surviving institutions to move into more fundamentally uncertain territory because

they are less inhibited by regulatory restriction. Traders always respond to short term incentives for high uncertainty/high return trading and management may not be able to stop their games. Responsible Boards of Directors of aggressive firms might wish to rein in their traders but do not do so for fear of "losing talent." Every financial shake out in which at least some institutions get rescued seems to worsen these problems of moral hazard.

Cutting interest rates to support the level of output when inflation is low may stimulate an asset price bubble, feeding into output expansion. On the fiscal side, a stimulus package could provoke commodity price inflation, especially if labor is in a position to meet price increases by successfully bargaining for higher wages which could lead to further increases in prices, *etc.*

But then if the central bank raises rates to slow the economy it could provoke an asset price crash and major recession, creating a need to bail out the system once again.

V. The Theory and Data for the USA

The next step is to use these theories to discuss how decisions of different social groups shaped post-WWII developments in the U.S. and world economies, especially during the long-term liberal cycle that settled in after 1980. The discussion begins on the real side of the economy, switches to the financial side, brings in international complications, and then ties the three together.

A. Labor Productivity and the Goodwin Cycle

Figure 1 illustrates cyclical behavior of labor productivity. The data are presented in the form of quarterly logarithmic deviations (basically growth rates) of macro level productivity from its trend. The shaded areas represent recessions as defined by the National Bureau of Economic Research (NBER). The general picture fits the stylized description set out above, with productivity rising as the economy moves out of a recession trough, and then leveling off or growing more slowly than the trend.

Together with rising real wages, this pattern of productivity changes generated the fluctuations in the index of the labor share (solid line) shown in Figure 2. Economic activity also appears in the diagram, represented by "capacity utilization," or output divided by its trend (the

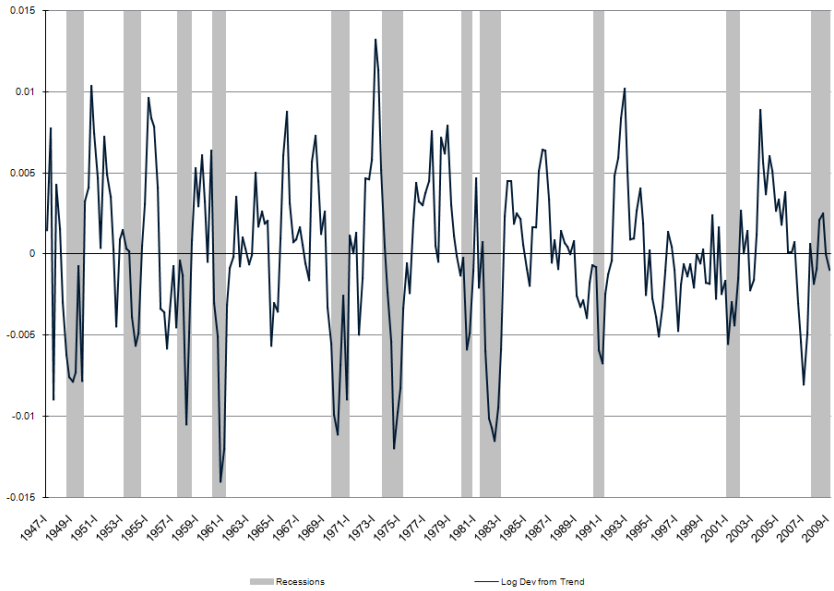

FIGURE 1
DEVIATION OF ACTUAL LABOR PRODUCTIVITY FROM ITS TREND
(LOG OF QUOTIENT) FOR THE U.S. BUSINESS SECTOR

dashed line). Typically, utilization jumped up rapidly in a "*V* shape" as the economy emerged from recession. In 2007, utilization moved down sharply. At the time of this writing whether the fall will be as great as the one between 1979 and 1983 remained to be seen.

Prior to 1980, periods between recessions were relatively brief. That tendency began to weaken in the 1960s, but reappeared in the following decade of stagflation. Between the early 1980s and late 2000s there were only three recessions. This change is usually attributed to increased ability of households and firms to smooth their spending flows by using new sources of finance.

Throughout the period, the labor share followed the Goodwin cycle described above, moving downward as the economy emerged from recession, and then rising later in the upswing. The pattern persisted after 1980, superimposed on a clear downward trend.

B. Net Borrowing

Figure 3 summarizes data à la Godley on net borrowing flows by

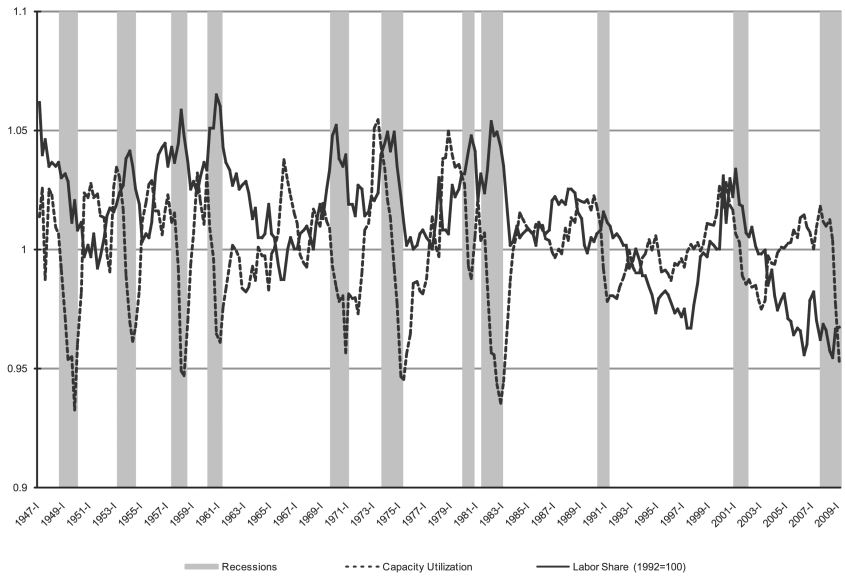

FIGURE 2

TIME SERIES FOR CAPACITY UTILIZATION AND LABOR SHARE

households, the rest of the private sector ("business"), government, and the rest of the world. Household borrowing is approximated by the difference between residential investment and gross saving. The flows are presented as shares of GDP. The shaded areas again signal periods of recession. Several changes over time stand out.

After the pattern break in the early 1980s there was a steady downward movement in foreign net borrowing (or foreign net lending to the U.S. went up). The trend was interrupted by a brief recovery around 1990, mostly due to capital inflows which financed military services rendered during the Gulf War. The external deficit fell during 2007-09, in response to the sharp reduction in economic activity illustrated in Figure 2.

After around 1980 the pattern for household net borrowing was almost a mirror image of foreign borrowing, with the sign reversed. The question about which movement "caused" the other is under intense debate, as discussed below.

During Golden Age and stagflation, household borrowing was negative (or the sector's lending was positive). The foreign gap as a share of GDP was around zero, implying that households financed deficits of

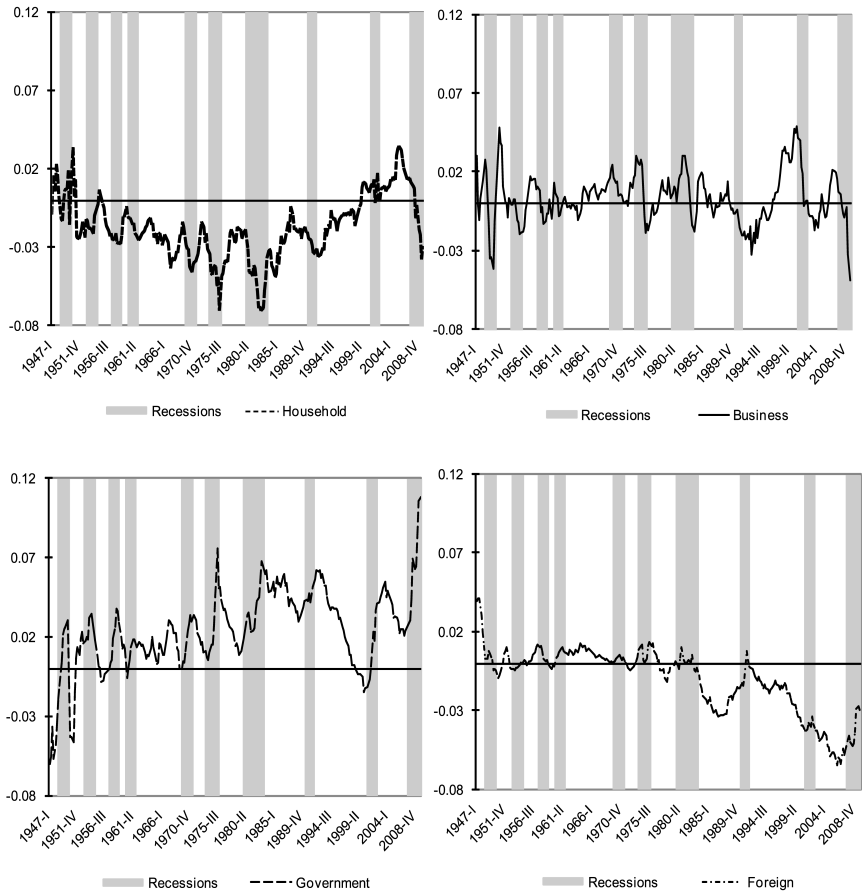

FIGURE 3
SECTORAL NET BORROWING FLOWS NORMALIZED BY GDP AND NBER REFERENCE CYCLES

business and the government, a pattern built into traditional Keynesian models. As discussed below the change in the household borrowing pattern was the result of an increasing consumption share in disposable income and a corresponding fall in saving. These trends reversed abruptly in the mid-2000s accompanied by a big drop in residential investment, setting off the subsequent recession — a clear violation of Say's Law.

Two points about the business cycle should be mentioned. Throughout

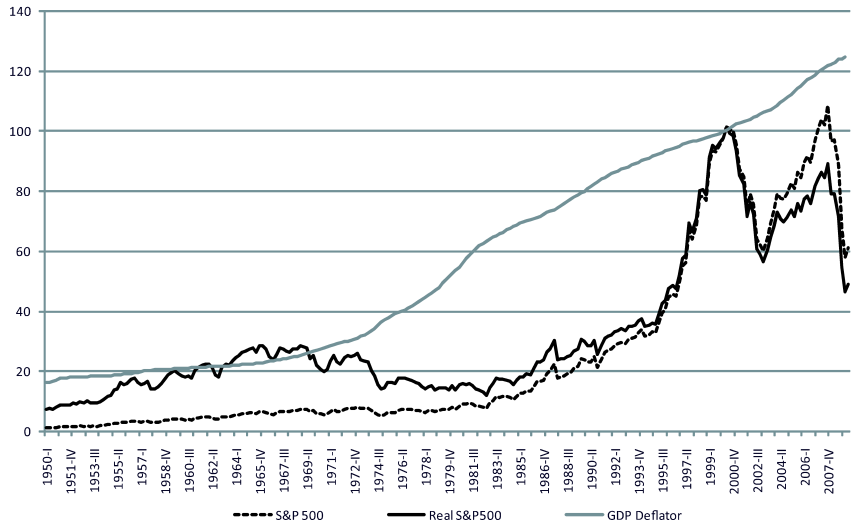

FIGURE 4

INDEXES OF NOMINAL AND REAL S&P 500 AND GDP DEFLATOR RESCALED (2000Q1 = 100)

the period, household net borrowing led the cycle in capacity utilization, swinging upward as the economy emerged from recession. Rising residential investment was the driving force. Whether or not this pattern reappears will play a big role in determining the strength of recovery after 2010.

Secondly, government net borrowing is counter-cyclical because of changes in tax receipts and pro-cyclical spending driven by automatic stabilizers such as unemployment insurance along with conscious shifts in fiscal policy. The Obama stimulus package shows up clearly at the right side of the diagram.

C. Asset Prices

With these developments on the real side as background, we can bring asset prices into the discussion. Two key points are relevant to macroeconomics post-1980.

Figure 4 shows how a long upswing in the stock market got underway around 1980. It peaked in the late 1990s, followed by a sharp decline and then recovery. Using the GDP deflator for prices of goods and services (the broadest index available) to restate the S&P 500

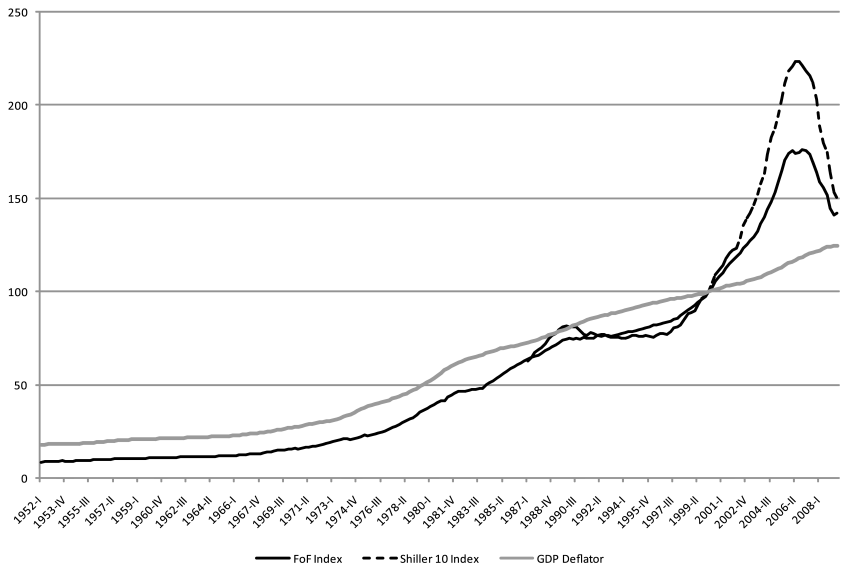

FIGURE 5

HOUSING PRICE INDEXES AND GDP DEFLATOR (2000Q1 = 100)

index shows that equity prices in real terms did not recover their late 1990s level after the upswing in the early 2000s.

Prior to the mid-1990s, housing price indexes shown in Figure 5 tracked the GDP deflator rather closely. Thereafter their growth accelerated, with the move upward lasting for roughly a decade. Observing the data presented in the diagram, it is difficult to avoid calling the housing price excursion a bubble.

D. Interest and Profit Rates

The Keynes-Minsky business cycle theory sketched above suggests that interest and profit rates do not move together. Along with a falling labor share, low interest rates as the economy emerges from a trough stimulate rising profitability, which gets cut back at the peak. Standard "Fisher arbitrage" arguments from mainstream theory suggest that the profit and real interest rates should tend toward equality, but this tendency is not observed in the data.

This cyclical pattern can be seen in Figure 6, which adds the interesting twist of opposing movements of the two rates over the

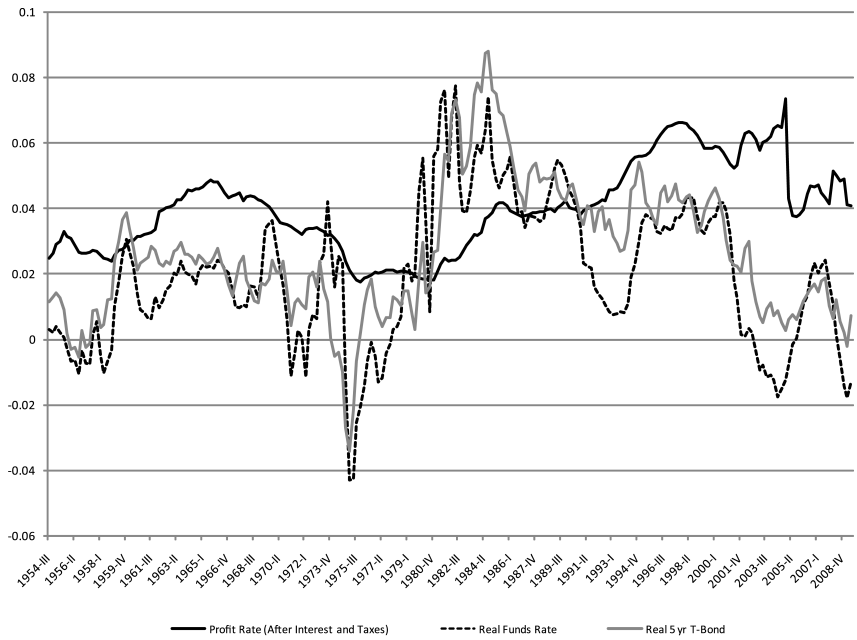

FIGURE 6

PROFIT RATE AND REAL SHORT- AND MEDIUM-TERM INTEREST RATES

Keynesian and liberal long cycles after WWII (profit rates are computed from national accounts and flows of funds data, but similar movements show up in other estimates).

Real interest rates prior to the 1970s were low but positive. They went negative during the stagflation period, shot up with the Fed's monetary shock at the end of the decade, and then drifted downward. The decrease after the mid-1990s reflects the "Greenspan put" in Fed policy which took the form of cutting interest rates after each financial tremor. An attempt at monetary tightening in the mid-2000s had some impact in real terms but was limited in part by factors such as capital inflows from the carry trade.

The profit rate gradually fell during the Keynesian Golden Age, hit a trough after the interest rate shock, and rose strongly thereafter. The increase since the 1980s is the counterpart of the decrease in the labor share noted above (at the macro level, the profit share is the profit rate times the output/capital ratio). It also was a response to steadily falling interest rates.

E. Institutional Changes in Finance

Minsky's insights into financial evolution played out in detail, beginning in 1980 with the abolition of the Fed's Regulation *Q* putting a ceiling on deposit rates. This step was followed by a long sequence of moves relaxing financial sector controls, all pushed politically by the financial industry. Deregulation continued through the Garn-St. Germain Act which was supposed to save the Savings and Loan system but in fact provoked a crisis, went on to hands-off policy regarding derivative transactions in the 1990s and the abolition of the Glass-Steagall Act in 1999, and then to relaxation of leverage restrictions on big investment banks in 2004. During the same period, policies aggressively promoting home ownership fed into the sub-prime mortgage boom and subsequent crash.

All these changes encouraged financial firms to engage in high uncertainty/high return trading operations which took the form of running up debt to acquire assets with prices that in effect were assumed to be rising along exponential growth paths (subject to mild shocks) that would last forever. When prices inevitably fell, leverage or the ratio of assets to equity shot up, forcing firms to try to dispose of their assets in an imploding market.

Derivative transactions, off-balance sheet vehicles, and the expansion of the originate-and-distribute model of asset securitization through the shadow banking system made financial fragility that much worse.

A final contributing factor was the emergence of academic finance theory beginning in the 1950s. It added a luster of "scientifically based" valuations to collaterized debt obligations, credit default swaps, and any number of other forms of derivatives. Along the lines argued by the French sociologist Pierre Bourdieu, finance theory with its key assumption of fully efficient, completely deregulated markets dominated the discourse about financial practices to the extent that bankers were freed to engage in destabilizing transactions completely shielded from any critical view. Their regulators shared the same mentality. Small wonder that there was a crash.

F. Housing Prices, Household Debt, and Interest Rates

In retrospect, the major channel *via* which asset price movements and institutional changes in the financial sector affected the real side of the economy ran through shifts in household consumption and borrowing. Distributive changes were at the heart of the matter, as illus-

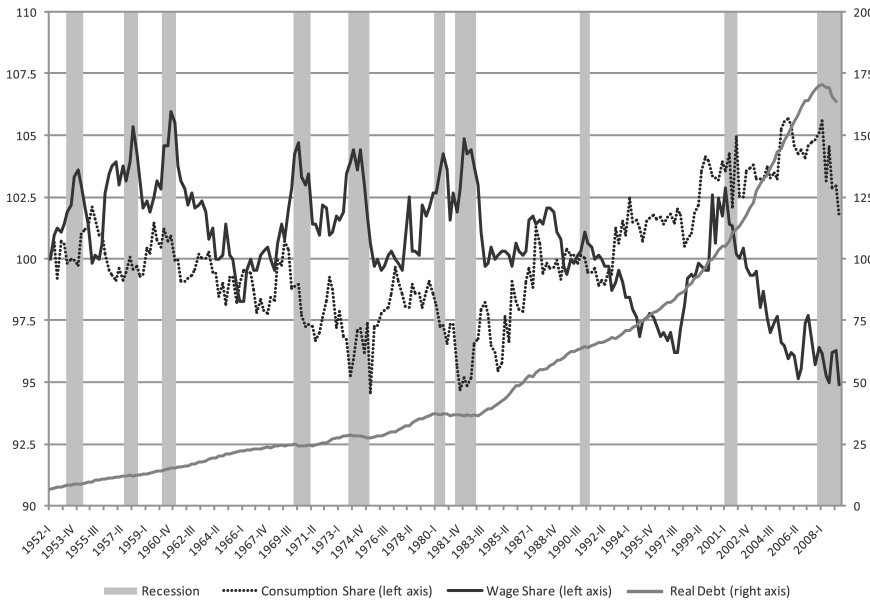

FIGURE 7

WAGE SHARE OF VALUE-ADDED, CONSUMPTION SHARE OF DISPOSABLE INCOME, AND HOUSEHOLD DEBT TO INCOME RATIO WITH NBER REFERENCE RECESSIONS

trated in Figure 7.

The diagram shows that the post-1980 decline in the wage share of total income noted above was accompanied by a steady increase in an index of the consumption share of households' disposable income. Much of the consumption increase was due to rising spending on health care. The household saving rate fell sharply over the period.

How did households sustain rising consumption at the same time as the wage share declined and real income was stagnant or falling across most deciles of the size distribution of income? The answer, of course, is steadily rising indebtedness, with the debt/income ratio more than doubling between the early 1980s and the mid-2000s. Potential distributive conflict, as Hirschman observed, was diverted into increasing debt. George W. Bush's cheerleading about an emerging "ownership society" was a rationalization of this change.

Associated trends show up in Figure 8. The decline in the real medium-term interest rate has already been noted. By bidding up the ratio of returns to holding housing (including capital gains) to the cost

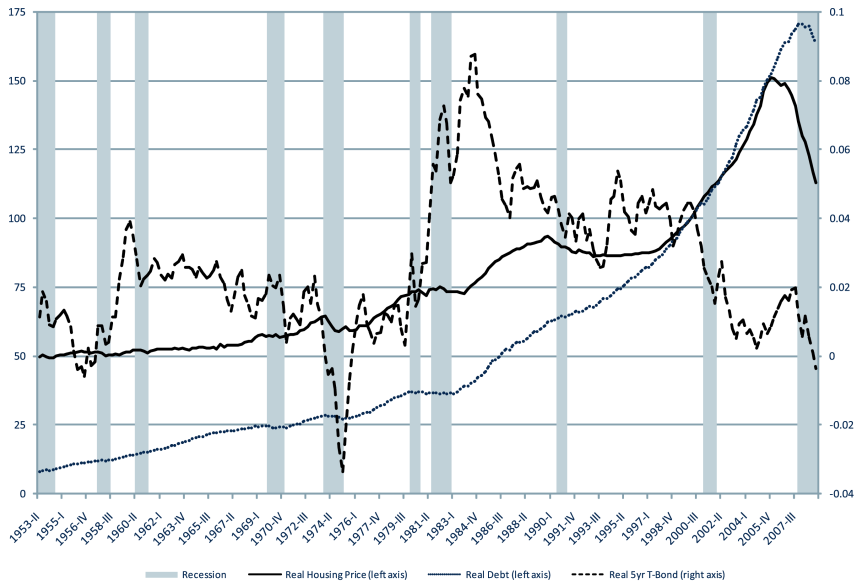

FIGURE 8

REAL MEDIUM-TERM INTEREST RATE, HOUSING PRICES, AND REAL HOUSEHOLD DEBT WITH NBER REFERENCE RECESSIONS

of finance, it fed into the growth of the real housing price index. That increase, in turn, was accompanied by growth in real debt. Toward the end of the period, the debt expansion continued for a year or two after the break in price growth, overshooting its source of nourishment. There is some inconsistency in the literature about whether expansion of liabilities typically continues after a boom in asset prices ends, or not. Kindleberger suggests that credit expansion ends with the crash, while Soros gives examples of overshooting.

Be that as it may, Figure 9 adds another viewpoint on households' behavior — prior to the stock market crash in the late 1990s, the ratio of their spending to net worth (with equity and mutual fund valuations and the value of housing as major components) declined steadily after the late 1970s. They could be seen as rationally converting income in the form of capital gains into current spending power.

The equity crash set off a jump in the expenditure/net worth ratio because the denominator went down. It subsequently fell back and then shot up again after housing prices dropped. Meanwhile the debt/

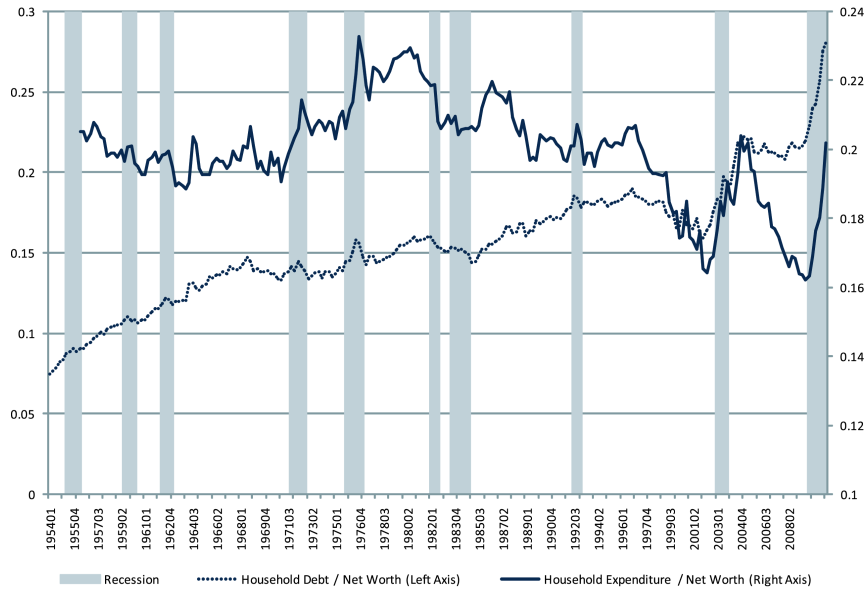

FIGURE 9

HOUSEHOLD DEBT AND EXPENDITURE RELATIVE TO NET WORTH

net worth ratio was quite stable until its denominator went down and numerator rose after the mid-1990s. As opposed to the financial sector, households did not engage in active leverage games until falling asset prices boosted their debt/net worth in the 2000s.

Cognitive misperceptions and inappropriate actions acted together at many levels to produce this most recent Kindlebergian Mania, Panic, and Crash. From a Keynesian perspective its unfolding can be understood as encompassing distinct groups of social actors with imperfect knowledge. There was effectively an alliance between mostly non-affluent households, finance, and politicians in power (backing the expansion of Fannie Mae and Freddie Mac, for example) in support of more debt. Even if each group could be seen as pursuing its own self-interest, macroeconomically they created an unstable situation — a Keynesian fallacy of composition came into play with a vengeance.

A mainstream economist might well ask how macroeconomic output determination by effective demand combined with rising income inequality could translate into incentives for millions of households to go into debt, aided and abetted by financial innovation. But it happened.

Capital gains on equity and housing spilled over into behavior on the real side which overwhelmed presumptions of perfect foresight and the applicability of Say's Law.

G. No Steady State

There is a strong presumption in economic growth theory that the economy will tend toward or cycle around a steady state position at which all ratios of stocks and flows are stable. During the liberal long cycle of the late 20th and early 21st centuries, no such pattern has been observed. The Goodwin distribution-demand cycle appears to be persistent, but the level of the labor share at its focus fell after 1980. As we have seen, household and foreign net borrowing flows were strongly trended until 2007-09.

The only stable ratio on the real side appears to be between GDP and "primary wealth," or the value of the capital stock plus government debt. Since around 1950 this ratio has been close to one-quarter. Because government debt is a fraction of the value of capital, this observation means that the U.S. capital/output ratio fluctuates around a level of four, consistent with the range of variation in capacity utilization shown in Figure 2.

On the financial side, the structure of the economy has changed dramatically — especially after 1980. The changes are clear in Figure 10 which shows ratios of financial positions to primary wealth for households, the rest of the world, the financial sector, and non-financial business.

The most striking change is the growth of total assets and liabilities of the financial sector from around 40% of primary wealth in 1980 to over 100% in the late 2000s. Much of the shift can be explained by the expansion of mutual and retirement funds. But it also reflected the explosion of securitization. There was a major reallocation of sources of the non-financial sector's debt from the balance sheets of banks (*e.g.*, mortgages, credit cards, *etc.*) to securities markets (*e.g.*, corporate bonds, commercial paper, and asset-backed securities). The banks' share fell from over 45% to 30% and the securities markets' participation rose correspondingly.

The asset and liability positions of the rest of the world rose by around 20% of total wealth. More importantly, the share in wealth of the sector's own net worth rose by more than five percentage points, building up with the string of current account deficits that began after

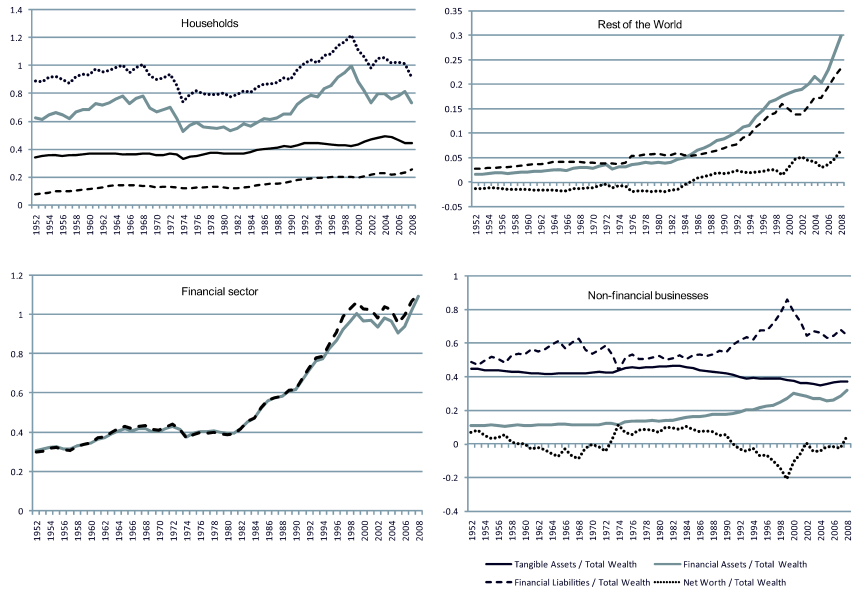

FIGURE 10

FINANCIAL POSITIONS OF HOUSEHOLDS, REST OF THE WORLD, FINANCIAL SECTOR, AND NON-FINANCIAL BUSINESS RELATIVE TO TOTAL WEALTH

1980.

The share of net worth of households fluctuated parallel to the value of their financial assets. The value of tangible assets rose in line with price of residential capital and as already illustrated in Figure 8 debt rose a bit faster. The non-financial business borrowing binge during the 1990s shown in Figure 3 (the dot.com episode) was reflected in a rising share of debt before 2000.

These financial movements provide another angle to view the economy after 1980. Divergent trends emerged, with contradictions that became apparent during 2007-09. How they will shift in the 20-teens remains to be seen.

VI. International Complications

The U.S. position in the global economy has shifted markedly over the decades. Emerging from the war it was clearly the international *hegemon* (in a favorite label from Charlie Kindleberger), but its potency

TABLE 1
SCHEMATIC BALANCE OF PAYMENTS FLOWS AROUND 1950

	USA	Rest of World
1. Interest and dividends	0	0
2. Trade and services	+A	−A
1+2	+A	−A
3. Long-term investments	−B	+B
4. Unilateral transfers	−C	+C
1+2+3+4	−D	+D
5. Short-term capital, changes in reserves	+D	−D
1+2+3+4+5	0	0

deteriorated steadily over time. Following a schematic proposed by Minsky, Table 1 illustrates world payments flows in the early post-war period (late 1940s and early 1950s).

At that time, developing countries had no significant debt after a period of high export prices for raw materials; debt-service obligations among the rich countries were ill-defined. As a consequence international payments of interest and dividends were minimal. The U.S. had a strong trade surplus so its overall current account ($+A$) was positive. On capital account there were large flows from the U.S. to the rest of the world of long-term investment ($-B$) and transfers ($-C$) supporting post-war reconstruction.

These flows exceeded the current account surplus and had to be offset by movements of short-term capital toward the U.S. and/or changes in reserves. On the U.S. side the capital inflow took the form of increasing foreign deposits in money center banks and sales of Treasury bonds abroad. These dollar "exports" added liquidity and propelled credit expansion by banking systems in the rest of the world. Meanwhile the trade surplus propped up profits and employment in the U.S.

The structure of international payments outlined in Table 1 was the foundation for historically rapid and stable output growth worldwide during the Golden Age in the 1950s and 1960s. Perhaps unsurprisingly the long bonanza carried the seeds of its own destruction in the form of dynamics of stocks and flows over time (a point neglected by Keynes but emphasized by Minsky and Godley).

The problem was that the long-term capital movements from the U.S. exceeded its short-term capital inflows. The resulting increase in

net foreign assets meant that interest and dividend income rose from "zero" in Table 1. With both major components of the current account positive, on capital account there would have to be ever rising U.S. foreign investment and transfers, or reduced short-term inflows.

The response of the U.S. was to "go negative" on its trade and service account, absorbing rising net exports from the rest of the world. Recognizing that the international payments system lacks degrees of freedom, Robert Triffin invented a dilemma to describe the situation. A trade and services deficit was required of the U.S. to permit short-term capital inflows to generate liquidity for the rest of the world. The other horn was that the U.S. presumably could not sustain the deficit indefinitely (another stock-flow argument). Dollar devaluation might ultimately be needed to reduce the U.S. current account deficit.

Triffin's proposed remedy was to create an international reserve currency to take the burden off the U.S. The institutional response that actually occurred was to give the IMF power to issue *special drawing rights* (SDR) to serve as an international reserve asset. SDRs in practice never got anywhere. There was no felt need because beginning with Eurodollars and expanding exponentially thereafter the world financial system could produce international liquidity without limit. In any case the overall U.S. current account turned negative in the early 1980s.

For the period after 1980 it is possible to insert numbers into the format of Table 1. Table 2 takes up the story for selected years through 2006, presenting payments flows as shares of world GDP. Several points stand out.

By 1980, U.S. interest and dividend income from abroad had risen to 0.25% of world GDP. The overall current account was still positive but small (0.09%) and short-term capital movements were negligible. Already in 1983, the configuration of flows had begun to shift markedly. The current account became visibly negative (-0.22%). With continuing net foreign investment and transfers (mostly the latter in 1983) short-term capital movements toward the U.S. reappeared at 0.34%. But now the U.S. was issuing short-term liabilities to finance foreign investment and transfers *plus* a current account deficit, not investment and transfers *minus* a current surplus as during the Golden Age. Its hegemonic role was beginning to erode.

The situation deteriorated further after 1983. As a share of world GDP, dividend and interest income declined and the trade and services account steadily worsened. Long-term investment and transfers continued to be negative items but their importance diminished in comparison to

TABLE 2

BALANCE OF PAYMENTS FLOWS — SELECTED YEARS 1980-2006
(PERCENTAGE SHARES OF WORLD GDP)

(Unite: %)

1980	USA		Rest of World
Interest and Dividends	0.25		-0.25
Trade and Services	-0.16		0.16
Long Term Investment	-0.02		0.02
Unilateral Transfers	-0.07		0.07
Short-Term Capital	0.00		0.00
1983	**USA**	**China**	**Rest of World**
Interest and Dividends	0.25	0.01	-0.26
Trade and Services	-0.47	0.02	0.45
Long Term Investment	0.02	0.00	-0.03
Unilateral Transfers	-0.15	0.00	0.14
Short Term Capital	0.34	-0.04	-0.30
1994	**USA**	**China**	**Rest of World**
Interest and Dividends	0.06	0.00	-0.06
Trade and Services	-0.37	0.03	0.34
Long Term Investment	-0.13	0.12	0.01
Unilateral Transfers	-0.15	0.00	0.15
Short Term Capital	0.58	-0.14	-0.44
2002	**USA**	**China**	**Rest of World**
Interest and Dividends	0.08	-0.05	-0.04
Trade and Services	-1.28	0.11	1.17
Long Term Investment	-0.21	0.14	0.07
Unilateral Transfers	-0.20	0.04	0.16
Short Term Capital	1.61	-0.25	-1.36
2006	**USA**	**China**	**Rest of World**
Interest and Dividends	0.12	0.03	-0.15
Trade and Services	-1.54	0.43	1.12
Long Term Investment	0.00	0.12	-0.12
Unilateral Transfers	-0.19	0.06	0.13
Short Term Capital	1.61	-0.64	-0.98

Sources: IMF Balance of Payments Statistics; IMF Global Economic Outlook Database.

the trade deficit. By the mid-2000s short-term capital inflows were 1.6% of world GDP — a macroeconomically important movement of funds.

The U.S. deficit on trade and services of course had to be met by surpluses in the rest of the world. China (following Japan) became a

key player, with its surplus rising from 0.02% in 1983 to 0.43% in 2006, with the growth concentrated in the 2000s. It also received large inflows of net foreign investment and transfers, although the magnitude was smaller than the current account surplus. The balancing item in Chinese accounts took the form of large increases in international reserves.

The reserve growth can be interpreted as being defensive in part, to build up a hedge against a replay of the Asian crises of the late 1990s. But it was also the counterpart of the consumption-led U.S. trade deficit, which had to be financed by rising capital inflows which to a large extent took the form of acquisition of U.S. Treasury and government-sponsored agency (Fannie Mae and Freddie Mac) bonds by the Chinese and other foreign central banks.

As shown in Figure 3 the U.S. payments situation began to change with the onset of crisis — there was at least a modest reduction in net lending from the rest of the world. Whether the economy can switch back toward external current balance or even a surplus is an open question.

VII. Deciphering the Past

One way to summarize the discussion so far is to list the forces that led into the 2007-09 crisis.

A. Factors Contributing to the Crisis

1) There was a major shift in the political economic environment. The liberal rebound gathered strength beginning in the 1960s and triumphed in the USA with the election of Ronald Reagan. The practical effects of (neo)liberalism included dismantling financial regulation, successful attacks on labor's bargaining power, and an ideological shift in support of God and capitalism. It remains to be seen if this wave will recede.

2) The American business cycle continued, with changes over time in the real interest rate, the labor share and profit rate, and household net borrowing helping to drive fluctuations in output. But all four variables began to trend after 1980, weakening their cyclical role but generating effects that spilled over into asset prices and the balance of payments.

3) The ratio of household net borrowing to GDP increased by around

10 percentage points between the early 1980s and the mid-2000s. The household debt to income ratio roughly doubled over the same period. As just noted, these trends were superimposed on a sharp decrease of the wage share of GDP and an increase in the rate of profit. Inequality in the size distribution of income increased markedly.

4) The real S&P 500 index of equity prices grew more than five-fold between the early 1980s and late 1990s. Thereafter it fell and rose, but did not attain its previous peak.

5) Much of the higher borrowing was collateralized by rising prices of equity and (especially) housing. Real housing prices also roughly doubled over 25 years. The ratios of household debt and expenditure to net worth respectively were stable and fell until the late 1990s when both shot up as the dot.com and housing crashes cut into net worth. The obvious interpretation is that households with incomes below the top percentiles of the size distribution took advantage of the opportunity that capital gains on equity and housing provided to run up debt to maintain their living standards in the face of stagnating or falling real incomes.

6) As a share of GDP, foreign net borrowing decreased (or net lending to the U.S. increased) by around seven percentage points, roughly "twinned" to rising household net borrowing. By the mid-2000s the U.S. deficit for foreign trade and services was around 1.5% of world GDP, offset by short-term capital inflows of roughly the same magnitude. Meanwhile, China's current account surplus grew to around 0.45% of world GDP. One might argue on somewhat functionalist lines that the U.S. deficit was driven by a strong exchange rate, which in turn both allowed cheap imports to help offset overall stagnation of real wages and attracted capital inflows.

7) Real interest rates fell steadily from high single digit levels to near zero between the early 1980s and mid-2000s. Standard arguments suggest that falling rates probably stimulated the booms in equity and housing prices.

8) The ratios of assets and liabilities of the financial sector to total wealth rose from around 0.4 to 1.15 between 1980 and 2005. This increase in financial depth was accompanied by a steady relaxation of regulatory controls over finance imposed during the New Deal. In most instances, regulation was eased in response to innovations in the market. The possibilities they created to make paper profits generated political pressure on regulators to relax existing controls. A "light touch" regulatory regime was put into place, on the assumption that firms

would effectively police themselves to avoid financial breakdowns.

9) Beyond the changes in ideology mentioned above, the intellectual rationale for much of the shift in regulation came from the abolition of Keynesian concepts in macroeconomic theory and finance theory's orogeny beginning in the 1950s. Wall Street applauded both developments, because they veiled extreme speculation with intellectual respectability.

B. Weighing the Contributions

All nine factors acted together to cause the crisis. Nevertheless, there may be room to ponder the relative significance of each. Factors 7 through 9 would probably have supported a financial mania, followed by panic and crash, regardless of what happened on the real side of the economy. After the long ascent of equity prices mentioned in point 4 the system was ripe for a shake-out, while deregulation set the stage for a major crisis. The key question is how it was transmitted to the real side.

The shift in household behavior noted in points 3 and 5 provided the crucial link. Households were pushed in the direction of running up debt to maintain living standards in the face of their deteriorating earned income position (point 2). The booms in asset prices provided collateral to enable them to borrow domestically. With the U.S. economy as a whole becoming a positive net borrower, it needed short-term capital inflows. The rest of the world was willing to provide the finance, with China and the oil exporters providing the counterpart imports into the U.S.

In global macroeconomic terms all these economic factors acted together, as of course they had to. The shift in political economy (factor 1) made the whole process possible. That environment will have to change if a relapse into economic crisis is to be avoided. In fall 2009, irrational enthusiasms supported by extremely cheap money were re-emerging in the financial sector — not a good omen.

VIII. Pondering the Future

Donald Rumsfeld is probably not a close student of Keynes. But he does know how military planners think, no doubt including the early 19th century Prussian theorist Carl von Clausewitz who wrote about the "fog of war." Maynard himself would probably have approved of

Rumsfeld's 2002 observation (with its own version of fundamental uncertainty) that "There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we now know we don't know. But there are also unknown unknowns. These are things we do not know we don't know." Rumsfeld's formulation was on target for the future of U.S. and global macroeconomics. Even more than usual, it undoubtedly holds unknowns that we cannot possibly know.

In considering the prospects, it makes sense to begin by thinking about known knowns. Among them are the facts that U.S. net borrowing flows must sum to zero, and that there are very few degrees of freedom in an aggregated global macro model comprising the USA, "China" broadly construed to include countries with structural trade surpluses, Euroland, oil exporters, and the rest.

A. Net Borrowing

It is not hard to put together unpleasant scenarios. A more interesting question is what a favorable one might look like. One component could be a return of household net borrowing to its *circa* 1980 levels in the range of -7% of GDP at the trough of a recession (that is, households would be lending +7% of GDP to the rest of the system). Net borrowing was heading in that direction in late 2009. Where it will bottom out depends on how strongly fear of the future will drive households toward more saving. The relevant historical parallel is the Great Depression. U.S. consumers practiced conservative finance for more than a generation thereafter.

If residential investment recovers on the upswing, a return to the range of net borrowing prior to and immediately after 1980 in Figure 5.8 is a possibility. Say that households borrow -3% of GDP (or lend +3%) near the top of the cycle.

There will have to be fiscal contraction in the wake of the Obama stimulus package. If government net borrowing drops to the +3% range, then government and household borrowing flows would be offsetting, with foreign and business net borrowing becoming "twins."

B. International Implications

If these changes play out, the peak U.S. current account deficit could fall to the range of 0.5% of world GDP, or roughly 2% of local output. How would the global economy adjust? On capital account, it

probably would have no problem in providing short-term capital flows to "finance" a U.S. deficit of that magnitude. On trade account, the non-oil economies with structural export surpluses such as Germany and China would have to go through a large readjustment; to a lesser extent oil exporters would be in trouble as well.

One relevant question is whether the U.S. retains enough hegemonic power to force such an adjustment. Contemporary theories discussed in Chapter 8 such the global savings glut or Bretton Woods II assign a passive role to the U.S. In an update of the Triffin dilemma it reacts to whatever the rest of the world chooses to do. Controlling national net borrowing is not easy but there are highly imperfect policies discussed below that might allow it to be done. A related question is whether the U.S. still has the industrial capacity to increase exports and/or substitute imports to the tune of 1% of world GDP or 4% of local GDP at the top of the cycle.

C. Income Distribution

Another known unknown involves future shifts in the income distribution, with the labor share and the interest rate as the key variables. Exiting from the stimulus will require interest rate increases which would dampen asset price excursions and presumably discourage household borrowing. Whether there will be a recovery in households' earnings big enough to let them pay for desired consumption without running up new liabilities is a key known unknown.

The standard explanation of income inequalities from the economic mainstream is that they are inevitable. The economy is operating perfectly efficiently so that there is no slack that could be utilized for income redistribution. The simple truth is that factors such as globalization and financial innovation have shifted incomes in favor of affluent agents. A more fundamental cause was systematic repression of labor's bargaining power beginning with the Reagan administration.

From a broader perspective, the sociopolitical question is why such income concentration has been permitted to occur — surely changes in the nature of the social contract must be involved. Consider the head of the Norway's Norsk Hydro. A few years ago he was getting around $1 million per year in salary plus rather less in realized stock options, levels that his board's compensation committee allowed him. He received less than 10% of what CEOs at smaller American competitors were paid. His relative penury was in part a consequence of the Nordic

socioeconomic model which has rested for decades on income equalization. The United States was never anywhere near as egalitarian as Norway, but it is striking how its societal tolerance for enormous payments to people at the top has grown over the past two or three decades.

D. Finance

The main question is *not* about formulating policies to help the financial sector restrain its own excesses, although that would certainly be desirable. On that front the prospects are not promising. After all, over a period of 20 years the sector staged the 1987 stock market crash, the Mexican crisis, the Asian crisis, Enron, the LTCM collapse, the end of the internet bubble, and 2007-09. An almost known known is that finance has some new catastrophe hiding up its sleeve.

IX. Policy Options

The real policy challenge in this area is to build a firewall between finance and the real economy, to shield the rest of us from the bankers' excesses. A revived version of Glass-Steagall on the financial side would be helpful, along with restrictions on households such as ceilings on loan-to-value ratios for residential mortgages. Long before James Tobin, in the *General Theory* Keynes recommended a transfer tax on financial transactions. Restrictions or taxes on short-term borrowing by financial firms could help avoid maturity mismatches between assets and liabilities. Such policies might prove politically feasible if Congressional hearings into finance that got underway in early 2010 follow the path blazed by the Pecora Hearings after the Great Crash.

The state can be all thumbs when it attempts intervention to reduce income inequality. Nevertheless tools do exist — progressive taxes on income and capital gains which could be used to hold back growth of high incomes, steps to strengthen union recruiting and bargaining power, aggressive Congressional or judicial investigations of Wall Street, salutary jail sentences for financial insiders besides Bernie Madoff, an excess profits tax or capital levy on finance to recoup part of the cost of the bailout — all spring to mind. One reason why the Norsk Hydro chief mentioned above was so poor is that the government as part-owner of the company intervened to hold his remuneration down.

The trade balance does respond to the exchange rate in the U.S.,

meaning that there is room for intervention by the Fed to devalue the dollar. Selective capital controls might ease the task (Wall Street would resist furiously but would not necessarily be 100% successful). Export subsidies and import restrictions, disguised or not, might also have a role to play. So would conscious industrial policy, expanding on the ones included in the Obama stimulus package. The point is not so much begger-my-neighbor but rather rebalancing the external position of the U.S. economy so that it does not have to operate in self-destructive fashion.

All these and similar policies will not be applied unless the world and national economies do go through a double movement, toward a more egalitarian and anti-liberal sociopolitical regime. That happened late in the 19th century and in the wake of the Great Depression. This possibility is the most important known unknown. It is not obvious that it will come to pass — the unknown unknowns will seal its fate.

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