

MINSKY, KEYNES AND FINANCIAL INSTABILITY: THE RECENT SUBPRIME CRISIS

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Abstract

Minsky was not the faithful interpreter of *The General Theory* that he supposed himself to be: he applied Keynes's economics to a system intrinsically prone to over-indebtedness and over-investment. Under this perspective, Minsky had the indisputable merit of questioning the myth of growth, which in his view endogenously evolves into financial fragility and consequently tends to be shaken by financial crises followed by debt deflations and deep depressions. At the same time, however, Minsky discarded important issues in *The General Theory*, first of all the tendency of capitalism to the exhaustion of investment opportunities and to stagnation. Considered as a whole, the US experience of the last fifteen years does not seem to confirm the core of the financial instability hypothesis. More generally, it would seem to be a Keynesian, rather than a Minskyan, phenomenon. After all – in spite of the support from technological innovation in the 1990s and from the Fed in the 2000s– the American economy has failed to avoid a new depression, a depression that – while losing intensity- might also turn out to be persistent. Under Keynes's stagnationist perspective, the contribution of Hyman Minsky would keep being important. It would consist in showing that finance can sustain and prolong growth, but not prevent (indeed, even accentuating) the collapse.

Keywords: Minsky, Keynes, business cycle, financial instability, subprime crisis

1. Introduction

Axel Leijonhufvud's metaphor of the 'Swedish flag' offers a picturesque fresco of the evolution of macroeconomic theory.¹ Starting with the dichotomy of general equilibrium, Leijonhufvud classifies both impulses and propagation mechanisms as either nominal or real. The combination of the possibilities gives a four-square table, which Leijonhufvud patriotically overlays on the Swedish flag. In his hands, the flag becomes an instrument for describing the course of the debate. According to his reconstruction, macroeconomic theory started with Keynes's square and subsequently made the full round of the flag. By so doing, however, it re-proposed the omnipotence of the invisible hand, losing sight of the effective demand failures envisaged by Keynes.

In our view, the 'Swedish flag' contains another important message: it shows that the dominant macroeconomic theory - though assuming ever new and more sophisticated facets - has constantly referred to the benchmark of general equilibrium. According to the mainstream, this has always represented the state of health of the system on which analysis must be focused. Deviations (the fruit of the imperfections that disturb the functioning of the system) represent pathologies of temporary nature and of minor importance that can be simply ignored.² With this, coordination was taken for granted.³ As a tribute to the dichotomy of general equilibrium, the interaction between the real and the monetary sectors was conceived as the result of imperfections. Analogously, the business cycle was traced back to

¹ The flag applies the impulse-propagation approach to a general equilibrium framework. The impulse is the initial shock. The propagation mechanism is the maladjustment that jams the re-equilibrating mechanisms, translating the shock into fluctuations in real income and employment. See Leijonhufvud's 2000, pp. 3–32 and pp. n33–51.

² Not by chance, according to the transcript of his talk, Robert Lucas himself claimed (2003): "The problem is that in the new theories, the theories embedded in general equilibrium dynamics of the sort that we know how to use pretty well now, there is a residue of things they don't let us think about. They don't let us think about the U.S. experience in the 1930s or about financial crises and their real consequences in Asia and Latin America".

³ Under this perspective, institutions, economic policy, the rules of the game could only spoil the optimality of market mechanisms. Today we know how big a mistake this was.

exogenous shocks and to the imperfections transmitting those shocks to real income and employment.

All of this raises important questions. Why use the unrealistic benchmark of general equilibrium? Why assume that the price mechanism is able to ensure perfect coordination? Why conceive the interaction between real and monetary variables as the result of imperfections? Why neglect the possibility that this interaction endogenously generates the cycle? The ‘financial instability hypothesis’ of H. P. Minsky represents a heterodox answer to these questions. Minsky denied the omnipotence of the price mechanism.⁴ He rejected the benchmark of equilibrium, not only general but also under-employment.⁵ In his view, there are forces for change in every situation.⁶ Thus, while the Neoclassical egg stably settles down on its side, Minsky’s egg rolls endogenously and endlessly in a permanent disequilibrium. The physiologic interaction between financial and real variables represents a fundamental ingredient of this incessant rolling.

Hyman Minsky presented his “financial instability hypothesis” as a cyclical interpretation of *The General Theory* highlighting Keynes’s most innovative insights. This paper analyzes how Minsky’s work relates to Keynes and, specifically, to the Chapter of *The General Theory* devoted to the business cycle. To start with, Section 2 will introduce a benchmark different from general equilibrium. On that basis, Sections 3 and 4 will compare Minsky and Keynes pointing out the differences concerning, respectively, the subject of the analysis and the conception of the business cycle. Section 5

⁴ According to Minsky (1975; 1978; 1986), in conformity with the experience of 1929-33 and the “true” thought of Keynes, the fall in prices can further depress aggregate demand thus accentuating unemployment instead of reabsorbing it. To start with, wage and price deflation increases the real burden of bank credit. In addition, insofar as it is associated with a fall in profits, it decreases firms’ ability to meet inherited debt commitments. All of this jeopardizes the robustness of the financial system, with depressing effects on long-term expectations and investment.

⁵ With regard to Keynes’s under-employment equilibrium, Minsky (1975, p. 68) writes: “During each short-period equilibrium, in Keynes’s view, processes are at work which will ‘disequilibrate’ the system.”

⁶ According to Minsky (1986, p. 176): “The use of the term equilibrium...may be misleading. It may be best to borrow a term from Joan Robinson and call situations in which rapid disruptive changes are not taking place *periods of tranquillity*, noting that tranquillity is disrupted by investments booms, accelerating inflations, financial and monetary crises, and debt deflations.”

will analyse the Minskyan and Keynesian aspects of the recent financial crisis. Section 6 will conclude.

2. Our heterodox benchmark

As a benchmark for our comparison between Minsky and Keynes, we shall use H. R. Hudson's (1957) representation of the trade cycle.⁷ By introducing monetary forces into Kaldor's (1940) trade cycle, such a representation describes a system in permanent disequilibrium where phases of excess investment and of excess saving follow one another. Given its Kaldorian inspiration, Hudson's framework belongs to the intellectual tradition of our two authors. Hudson's starting point is the short-run IS-LM model with given money wages and prices shown in Figure 1.⁸ Needless to say, the richness of Keynes's and of Minsky's analysis cannot be captured in a two curve graph, least of all in the controversial IS-LM model. From our purposes, though, the relevant aspect of Hudson's IS-LM model is the unconventional features out of which the interaction between the money and goods markets generates the trade cycle.

The upward slope of Hudson's LM_0 curve in Figure 1 reflects the usual assumption that the increase in income stimulates the transactions demand for money (more than money supply) thus implying a higher equilibrium interest rate. But we could also re-read the LM_0 curve from a more convincing credit perspective. A higher level of investment and income would then imply greater demand for credit, satisfied endogenously by the financial system at a rising interest rate that in turn mirrors increasing lender's risk. After all, the latter is a concept that Minsky (1975, p. 106) borrows from Keynes (1936, p. 144) and so is common to both our authors.

⁷ We are grateful to Velupillai (2008) for signalling this interesting article.

⁸ Using the conventional notation, the expressions for Hudson's IS and LM curves are the usual ones represented, respectively, by $I(Y, r, K) = S(Y, r)$ and by $L(Y, r) = M(Y)$. The signs of the corresponding partial derivatives are also the traditional ones: $S_y > 0$, $S_r > 0$, $I_y > 0$, $I_r < 0$, $I_k < 0$, $L_y > M_y > 0$, $L_r < 0$. With regard to the time behaviour of endogenous variables, Hudson as usual assumes i) that the time derivatives of income and of the interest rate are positive functions, respectively, of the excess of planned investment over saving and of the excess demand for money and ii) that the time derivative of the capital stock is zero in the short run and equal to net investment in the long run.

The unconventional shape of Hudson's short-run IS_0 curve mirrors the introduction of a Kaldorian non-linearity in the investment function. In Hudson's view, saving and investment are both positive functions of income. However, while the income sensitivity of saving is constant, that of investment varies with the level of income itself. Specifically, it is small at low levels of income and falls again at high levels. This is because of the under-utilization of the given capital stock at low activity levels and because at high rates of resources utilization the supply price of capital is no longer constant but becomes increasing. The result is that at income levels outside the range $Y_0'Y_0''$ (Figure 1) the income sensitivity of saving is greater than that of investment. The rise in income then generates an excess of saving over planned investment, driving the equilibrium interest rate down. The result is a downward sloping IS_0 curve. Inside that range $Y_0'Y_0''$, by contrast, the income sensitivity of saving is lower than that of investment and consequently the IS_0 curve is positively sloped.⁹

The intersection between the IS_0 and LM_0 curves identifies three short-run equilibrium points in Figure 1. A_0 and C_0 represent locally stable equilibriums. The reason for this becomes evident if we assume that the interest rate clears the money market instantaneously while income clears the goods market only gradually. Starting from these premises, on the left of A_0 and C_0 , the interest rate determined by the LM_0 curve is lower than required by IS_0 (on the right, higher). The goods market thus experiences an excess of investment over saving that stimulates income towards the corresponding equilibrium value (or else a saving excess that depresses it). By analogous reasoning, B_0 represents a locally unstable equilibrium: income tends to fall to its left and rise to its right.¹⁰

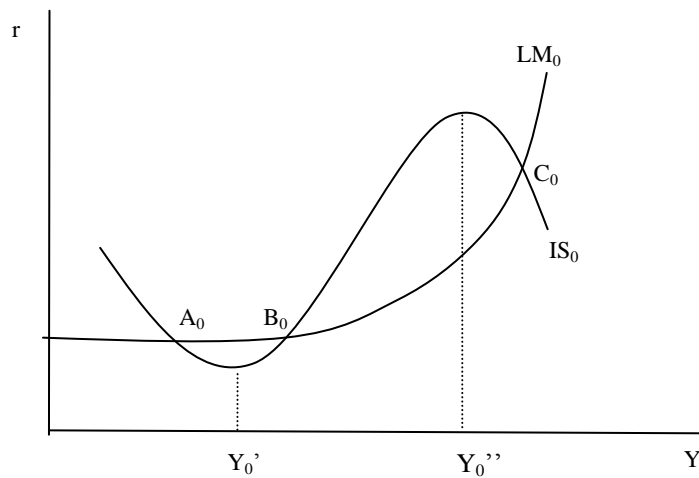
The upshot is that, if in the short run the system is out of equilibrium, any change in income will be away from B_0 , towards either A_0 or C_0 . According

⁹ The slope of Hudson's IS curve is $dr/dY=(S_y-I_y)/(I_r-S_r)$. Since the denominator is negative, the slope is negative if $S_y>I_y$, positive if $S_y<I_y$.

¹⁰ As Hudson (*op. cit.*, p. 381) maintains, local stability requires that the slope of IS be lower than that of LM. The model is thus locally stable in A_0 and C_0 (where IS is negatively sloped) and locally unstable in B_0 (where the slope of IS is positive and greater than that of LM).

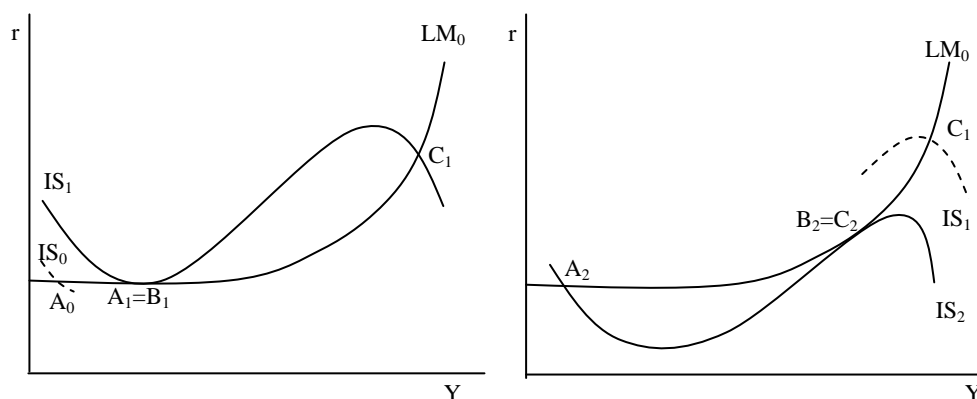
to Hudson, however, the zero net investment income level lies in the neighbourhood of locally unstable equilibrium B_0 . In the long-run, A_0 or C_0 thus imply a changing capital stock. As we shall see, it is precisely this incompatibility between the short-run local stability and the long-run steadiness of the capital stock that originates Hudson's trade cycle.

Figure 1. Hudson's IS-LM model



Let us start with the locally stable short-run equilibrium point A_0 in Figure 2. By assumption, at A_0 investment is so low that it fails to replace the existing capital stock. In the long run, the progressive decline in capital will cause a shortage of productive capacity that in turn will stimulate investment. The IS curve will thus gradually shift upwards, from IS_0 to IS_1 , expanding the economy from A_0 to the tangency point $A_1=B_1$. Here, however, upward local instability comes into play. To the right of $A_1=B_1$, the interest rate given by LM_0 is always lower than that required by IS_1 . This denotes a chronic excess of planned investment over saving, which stimulates the economy. Other things being equal, the rise in income will be proportional to the imbalance in the goods market denoted by the vertical distance between IS_1 and LM_0 . Income will thus rise first at an increasing and then at a decreasing rate, finally reaching the new locally stable short-run equilibrium point C_1 .

Figure 2. Upswing and downswing



Starting from the peak C_1 , the right-hand panel of Figure 2 now shows the downswing. By assumption, this time the high level of investment increases the capital stock. In the long run, this expansion will create excess capacity, which in turn depresses investment. The IS curve thus gradually shifts downwards, from IS_1 to IS_2 , depressing the economy from C_1 to the tangency point $B_2=C_2$. But here downward local instability comes into play. To the left of $B_2=C_2$, the interest rate determined by LM_0 is constantly higher than that required by IS_2 . This denotes a chronic excess of saving over planned investment, depressing the economy. Ceteris paribus, the fall in income will be proportional to the imbalance in the goods market, shown by the vertical distance between LM_0 and IS_2 . Income thus falls first at an increasing and then at a decreasing rate, finally reaching the locally stable short-run equilibrium point A_2 (the new trough) from which the upswing starts again.

3. The different subject of the analysis

As a graphical representation, Hudson's framework does not specify all its analytical aspects adequately.¹¹ For our purposes, though, it has the

¹¹ A model analogous to Hudson's has been formalized by Schinasi (1981). Here, however, the effect of flows on stocks is due to the repercussions of government budget financing on financial wealth instead than to the impact of net investment on the capital stock. This,

considerable merit of simplicity. In its immediacy, it brings out some important analogies between Minsky's "financial instability hypothesis" and Keynes's Chapter 22.

i) Hudson's cycle arises endogenously from the structural characteristics (the non-linearity and the dynamic behaviour) of the system. It requires neither exogenous shocks, nor specific time-lag and parameter values. This is in line both with Keynes and with Minsky.¹²

ii) In Hudson's framework, what causes cyclical fluctuations in income is the cyclical fluctuation in investment. This centrality of investment is crucial both in Keynes and in Minsky.¹³

iii) In Hudson framework, income grows in the phases of excess investment and falls in the subsequent phases of excess saving. The orthodox price mechanism is thus replaced by quantity adjustments that are in line both with Keynes's and with Minsky's views. By admitting the income sensitivity of investment, Hudson strengthens Keynes's multiplier processes. By assuming that investment affects income while income in turn affects profits and then investment, Hudson's framework is also compatible with the link investment-profits-investment at the basis of Minsky's cumulative processes. As far as Hudson's turning points are concerned, the effect of the capital stock on investment is explicitly recognized both by Keynes and by Minsky.¹⁴

however, means that this time the cycle is originated by the behaviour of government instead of the structural characteristics of the economy.

¹² To quote Minsky (1986, p. 172): "instability is determined by mechanisms within the system, not outside it; our economy is not unstable because it is shocked by oil, wars or monetary surprises, but because of its nature". Analogous considerations hold for Chapter 22 of *The General Theory*, in which Keynes (p. 321), for instance, claims: "The situation, which I am indicating as typical, is...where investment is being made in conditions which are unstable and cannot endure, because it is prompted by expectations which are destined to disappointment."

¹³ Minsky (1978, p. 30) expressly defines his theory as "an investment theory of the business cycle". Analogously, in Keynes (1936, p. 313) we read: "The Trade Cycle is best regarded, I think, as being occasioned by a cyclical change in the marginal efficiency of capital, though complicated and often aggravated by associated changes in the other significant short-period variables of the economic system".

¹⁴ To quote Keynes (1936, p. 317): "The disillusion comes because doubts suddenly arise concerning the reliability of the prospective yield, perhaps because the current yield shows signs of falling off, as the stock of newly produced durable goods steadily increases". Analogous considerations can be found, for instance, in Minsky (1975, p. 126).

iv) Hudson's investment fluctuations mirror changing profit expectations. If income has a positive influence on investment along any given short-run IS curve, this is because it stimulates current and hence expected profits.¹⁵ If in the long run the capital stock has a negative effect on investment and hence on the position of the IS curve, this is because it depresses current and therefore expected profits.¹⁶ The upswing and downswing shown in Figure 2 thus respectively reflect rising and falling profit expectations. So, Hudson's cycle is compatible with the waves of optimism and pessimism envisaged both by Keynes and by Minsky.¹⁷

v) Hudson only keeps his traditional LM curve unchanged in order to simplify the exposition. But he expressly recognizes (op. cit., p. 382 and p. 384) that liquidity preference is powerfully affected by expectations and confidence. As profit expectations improve or worsen, the resulting upward or downward shift of IS curve in the left or right panel of Figure 2 may be thus associated with a downward or upward shift of LM. According to our credit interpretation of such a curve, the fall or increase in the lenders' risk would lead to the same results. This means that monetary and financial markets may accentuate fluctuations. Such a destabilizing role seems perfectly in line with Chapter 22 of *The General Theory* and with Minsky's analysis.¹⁸

If Hudson's trade cycle represents a common cyclical framework, Minsky and Keynes seem to apply it to different contexts. A careful reading of their works suggests that – whilst both are at the mercy of the trade cycle –

¹⁵ To quote Hudson (1957, p.379): "Alternatively, at higher levels of income...the consequent rise in profits induces entrepreneurs to plan additional investment."

¹⁶ Hudson (1957, p. 384) writes: "It is the growing surplus capacity that is crucial, for it implies that the current rate of profit falls and that expectations as to the future profitability of investment projects are now less favourable for further investments".

¹⁷ With regard to the illusions of the boom and to the disillusion of the slump, see Keynes (1936, pp. 321-322) and Minsky (1975, 1982a, 1982b, 1986).

¹⁸ To quote Keynes (1936, p. 316): "Moreover, the dismay and uncertainty as to the future that accompanies a collapse in the marginal efficiency of capital naturally precipitates a sharp increase in liquidity-preference—and hence a rise in the rate of interest. Thus the fact that a collapse in the marginal efficiency of capital tends to be associated with a rise in the interest rate may seriously aggravate the decline in investment." As we shall see, in Minsky the financial sector becomes the primary source of instability: "the capitalist market mechanism is flawed, in the sense that it does not lead to a stable price-full employment equilibrium, and..the basis of the flaw resides in the financial system" (Minsky 1974, p. 267)

Minsky “combats” the upswing, Keynes the downswing. What mainly worries Minsky is the tendency of his economy to an over-indebted investment boom.¹⁹ Not by chance, most of his writings are devoted to this problem.²⁰ On the opposite side, what mainly worries Keynes is the tendency of his economy to the stagnation of investment and high, long-lasting unemployment. Thus, Chapter 22 of *The General Theory* stresses the precariousness of full employment owing to the depressive effect of accumulation on the marginal efficiency of capital,²¹ the chronic inadequacy of investment with respect to full employment,²² and the need to support the economy always and anyhow.²³

In a word, the subject of the analysis seems to be different. Minsky (1974, p. 272; 1975, p. 165) *explicitly* refers to an economy whose “fundamental instability is upward”. At the extreme, the relevant curves may then be IS_1 and LM_0 in the left-hand panel of Figure 2. Other things being equal, the expected profitability of investment tends to be high with respect to the money market interest rate. The result is an excess of investment over saving that stimulates the economy to the peak C_1 . On the contrary, the economy described in Chapter 22 of *The General Theory* tends to be characterized by low marginal efficiency of capital relative to the money market interest rate.²⁴ At the extreme, the relevant curves may then be LM_0 and IS_2 in the right-hand panel of Figure 2. The result is an excess of saving over investments, driving the economy down to the trough A_2 . To sum up,

¹⁹ Minsky (1986, p. 173): “The spectacular panics, debt deflations, and deep depressions that historically followed a speculative boom as well as the recovery from depressions are of lesser importance in the analysis of instability than the developments over a period characterized by sustained growth that lead to the emergence of fragile and unstable financial structures”.

²⁰ One of the very few exceptions is Minsky (1982b), which deals with debt-deflation.

²¹ Keynes (1936, p. 325): “Whilst aiming at a socially controlled rate of investment, with a view to a progressive decline in the marginal efficiency of capital, I should support at the same time all sorts of policies for increasing the propensity to consume.”

²² Keynes (1936, p. 322): “Except during the war, I doubt if we have had any recent experience of a boom so strong that it led to full employment.”

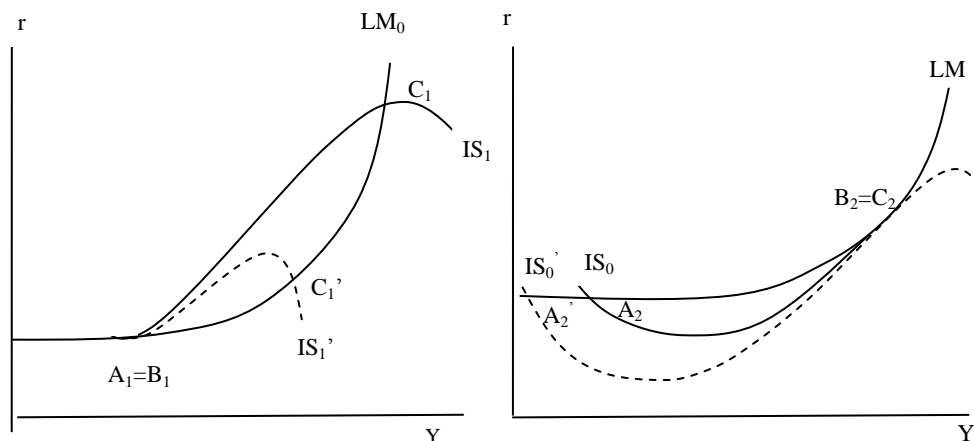
²³ Keynes (1936, p. 322): “Thus, the remedy for the boom is not a higher rate of interest but a lower rate of interest. For that may enable the so-called boom to last.”

²⁴ In his comment on the under-consumption school, for instance, Keynes associates the inadequate investment level to “a long-term rate of interest which seldom or never falls below a conventional level (1936, pp. 324-5).

Minsky's economy seems to be dominated by the upswing, Keynes's by the downswing.

Can this disparity be reduced to a unitary framework? A possible solution is suggested by Figure 3, where the solid lines show an economy à la Minsky, the broken lines à la Keynes. Minsky's might be an optimistic economy in the aftermath of a burst of innovation, where the upswing implies a greater improvement and the downswing a milder deterioration in profit expectations. In this economy, profit expectations are systematically more optimistic. The result is a higher IS curve in both panels. As the vertical distance between IS and LM shows the intensity of the cycle, Figure 3 carries two main implications. For one thing, an economy à la Minsky will experience comparatively stronger upswings in the first panel and smaller downswings in the second. In addition, if we compare the two panels, the dominant in terms of intensity might be the upswing in Minsky²⁵ and the downswing in Keynes. Ceteris paribus, the greater growth of the upswing-dominated economy confirms and sustains its higher degree of optimism.

Figure 3. Upswing and downswing in an economy à la Keynes and à la Minsky



²⁵ This might explain why the “Agenda for Reform” that closes Minsky’s famous 1986 book does not question the compatibility between i) the fiscal stabilization (p. 297) and support (p. 308) of the economy and ii) the constraint (p. 302) of a government budget balanced over the cycle or in surplus. In an economy dominated by the upswing, this compatibility is more likely.

If the previous interpretation is correct, Minsky was not the faithful interpreter of *The General Theory* that he supposed himself – and is generally supposed – to be: he applied Keynes’s economics to a system whose fundamental instability is upward. This change in the subject of the analysis might in turn reflect the different historical experience of our two authors: where Keynes experienced the tragedy of the Great Depression, Minsky was formed by post-war political and economic renaissance.

4. The different conceptions of the business cycle

The “dipping” of Figure 3 in the writings of Minsky and in Keynes’s Chapter 22 brings to light two different conceptions of the business cycle. Let us start with the upswing in the left-hand panel. In Minsky, the excess of planned investment over saving (even more so, over firm’s saving) is so great that it inevitably requires business indebtedness.²⁶ Finance is at the centre of Minsky’s architecture. Keynes, by contrast, does not even mention firms’ indebtedness. Given the smaller excess of planned investment, producers may have sufficient liquidity to finance it.

This different role of finance engenders disparate concerns about growth. In the euphoria of Minsky’s boom, external financing grows proportionally more than internal. As a result, debt commitments end by rising above profits. The honouring of debt commitments no longer comes out of profits (hedge finance) but out of borrowing (speculative and ultra-speculative or Ponzi finance).²⁷ As Minsky puts it, the initially robust financial system

²⁶ Minsky’s writings explicitly refer to advanced capitalist economies with large and costly long term investment that is debt financed.

²⁷ Minsky takes the profitability of ongoing investment for granted. His famous distinction between hedge, speculative and ultra-speculative finance (or Ponzi) exclusively concerns the timing of cash receipts and cash commitments. In the case of hedge finance, creditors and debtors foresee cash receipts greater than debt commitments in every single period of the life of the loan. In the case of non-hedge finance, this holds only for the distant future. Given the expectation of a future bonanza, the plan concerning the present and the near future is to cover commitments by borrowing: principal in the case of speculative units and interest as well in the case of ultra-speculative or Ponzi units. Thus, initially, the debt of speculative units is rolled over while that of ultra-speculative units automatically grows with interest payments.

turns fragile.²⁸ It is precisely financial fragility that threatens Minsky's boom. In Keynes, the problem is not indebtedness but the increasing divergence opened by the boom between the rising expected yield on investment and the falling actual one.

This brings us to the peak. As Figure 3 shows, the interruption of the upswing is due to the LM curve in Minsky and to the IS curve in Keynes. In Minsky's case, expansion leads to an endogenous rise in the interest rate.²⁹ Given the speculative financial system inherited from the boom, the higher rate triggers the financial crisis. Keynes expressly rejects any such diagnosis.³⁰ In his view, the excess of the expected return to investment over the actual cannot grow infinitely, so it is the inevitable disappointment of expectations to provoke the crisis. The origin and the nature of the crisis are thus financial in Minsky and real in Keynes. The corresponding income levels are also different. The rise in the interest rate that triggers the Minsky crisis reflects the bottlenecks, financial or real, created by the boom. The upswing, in fact, may attain or even surpass full-employment. According to Keynes (1936, p. 322), on the contrary, income growth tends to stop before that point. The marginal efficiency of capital is generally insufficient to ensure full-employment.

Let us now turn to the right-hand panel of Figure 3. With Minsky's financial crisis, firms' primary activity becomes to sell assets in order to reduce debt

²⁸ Given their dependency on credit, speculative and ultra-speculative units are financially fragile. A negative, non necessarily an uncommon, shock such would throw them into financial crisis. See Minsky (1964). As a consequence of the shock, firms would have insufficient profits and borrowing capacity to discharge their inherited debt commitments. Their only alternative would be to reduce debt and debt service by liquidating non-monetary assets (both financial and real). But the resulting fall in asset prices would imply the risk of selling them off and of becoming insolvent.

²⁹ "For a variety of reasons - the limited equity base of banks, internal and foreign drains of bank reserves, and, in modern times, central bank (Federal Reserve) actions to restrain the money supply - the supply of finance from banks eventually becomes less than infinitely elastic" (Minsky 1986, p. 195).

³⁰ "Now, we have been accustomed in explaining the 'crisis' to lay stress on the rising tendency of the rate of interest under the influence of the increased demand for money both for trade and for speculative purposes. At times this factor may certainly play an aggravating and, occasionally perhaps, an initiating part. But I suggest that a more typical, and often the predominant, explanation of the crisis is, not primarily a rise in the rate of interest, but a sudden collapse in the marginal efficiency of capital" (Keynes 1936, p. 315).

and debt service.³¹ Investment collapses. The resulting downswing, however, ultimately performs a somehow cathartic role. It restores the robustness of the financial system, paving the way for the ensuing recovery.³² In Keynes's economy, the crisis turns the boom's over-optimistic profit expectations into a contrary "error of pessimisms".³³ Investment and income then collapse again. This time, however, there is no cathartic or beneficial effect. Sweeping away even sound and promising economic activities, recessions and depressions cause permanent damage: they belong "to the species of remedy which cures the disease by killing the patient" (Keynes 1936, p. 323).

A last important difference between our two authors concerns the weakest turning point, the one in which the interruption of the cycle is most likely.³⁴ According to Minsky's 'upward instability proposition',³⁵ "stability – or tranquillity – is destabilising" and "the fundamental instability is upward".³⁶ A period of tranquillity (in which profits are systematically greater than inherited debt commitments) fosters greater confidence in the future, giving rise to a wealth re-allocation from money to non-monetary assets. The increase in asset prices (real as well as financial) is associated with an

³¹ This is Minsky's (1982b) definition of the financial crisis.

³² "However, it is worth noting that during the liquidation phase of a deep depression the financial 'stage' is set for a long-wave expansion as debts are reduced, equity assets decline in value, and the stock of ultimate liquidity increases" (Minsky 1964, p. 325)

³³ "But over and above this it is an essential characteristic of the boom that investments which will in fact yield, say, 2 per cent. in conditions of full employment are made in the expectation of a yield of, say, 6 per cent., and are valued accordingly. When the disillusion comes, this expectation is replaced by a contrary 'error of pessimism', with the result that investments, which would in fact yield 2 per cent. in conditions of full employment, are expected to yield less than nothing; and the resulting collapse of new investment then leads to a state of unemployment in which the investments, which would have yielded 2 per cent. in conditions of full employment, in fact yield less than nothing" (Keynes 1936, pp. 321-322):

³⁴ After all, if in Hudson's framework the zero net investment income level ended up close to the peak (or the trough), the local stability of short run equilibrium might become compatible with the steadiness of the capital stock, and the business cycle would break down.

³⁵ Minsky applied this proposition to every "coherent" situation, be it under-employment equilibrium (1975, p. 61, p. 127 and p. 165; 1978, p. 36-7), full-employment equilibrium (1974, p. 268; 1980, p. 26; 1986, p. 177 and p. 183) or steady growth (1974, p. 267).

³⁶ For the two quotations see, respectively, Minsky (1975, p. 127; 1978, p. 37) and Minsky (1974, p. 272; 1975, p. 165). Analogously, in Minsky (1986, p. 219) we read: "Any transitory tranquillity is transformed into an expansion." A similar concept is repeated many times in Minsky (1980).

externally financed increase in investment that stimulates the economy.³⁷ In a word, the lower turning point is not open to question. After the storm comes the calm and tranquillity inevitably leads to recovery. Rather, Minsky's "obsession" is the upper turning point. Why does his vibrant economy turn downwards, instead of embracing a steady growth path?³⁸ As we have seen, Minsky finds his answer in the financial sphere of the economy.

Keynes, in Chapter 22, takes the opposite tack. Here, it is the upper turning point that is unquestionable: the over-optimism of the boom is inevitably destined to clash with reality. Keynes's perplexities focus on the lower turning point.³⁹ He admits that the decline in the capital stock tends to stimulate investment and thus the economy, but he worries that this stimulus may be too weak to spark recovery.⁴⁰ Not by chance, the main message of the first twenty-one chapters of *The General Theory* is that the persistence of the slump is perfectly possible.⁴¹

Let us come to the conclusions. By introducing his upward instability assumption, Minsky came to a different conception of the trade cycle and, specifically, of its weakest turning point. From this viewpoint, he had the indisputable merit of questioning the myth of growth,⁴² which in his view

³⁷ To put it in Minsky's words (1986, p. 183): "[B]ut tranquility diminishes the value of the insurance (liquidity) embodied in the dollar, so that a rise in the absolute and relative prices of capital and financial assets that are valued mainly for income will take place. Tranquility therefore leads to an increase in acceptable debt to equity ratios even as it raises the value of inherited capital assets. The endogenously determined value of liquidity means that each possible equilibrium of the economy contains disequilibrating forces".

³⁸ Thus, we read: "[T]he main emphasis will be on the upper turning point and the possibility of generating steady growth" (Minsky 1957, p.859)... "in this paper the lower turning point is essentially unexplained"(op. cit., p. 867). The same considerations can be found in Minsky (1965).

³⁹ "[T]he substitution of a downward for an upper tendency often takes place suddenly and violently, whereas there is, as a rule, no such sharp turning-point when an upward is substituted for a downward tendency" (Keynes 1936, p. 314)

⁴⁰ We read: "[I]t is not so easy to revive the marginal efficiency of capital, determined, as it is, by the uncontrollable and disobedient psychology of the business world. It is the return of confidence, to speak in ordinary language, which is so insusceptible to control in an economy of individualistic capitalism" (Keynes 1936, p. 317).

⁴¹ Keynes writes: "it is highly improbable that all fluctuations..in investment..will be of a cyclical character" (1936, 314). Recessions and depressions do not always imply recovery.

⁴² "An economy that aims at accelerating growth through devices that induce capital-intensive private investment not only may not grow, but may be increasingly inequitable in its income distribution, inefficient in its choices of techniques, and unstable in its overall performance" (Minsky 1986, p. 292).

does not converge to a uniform and steady rate, but tends to lead to financial fragility and financial crises. At the same time, however, he discarded some important issues in *The General Theory*: the endemic nature of unemployment, the persistent damage of depression and above all the precariousness of recovery.

5. Minskyan and Keynesian aspects of the recent financial crisis

If we consider the subprime crisis in itself, it is probably legitimate to interpret it as a “Minsky moment” followed by a “Minsky meltdown” (Roubini 2007a and 2007b, Whalen 2007, Wray 2007). Many features are actually the same. Our problem, however, goes beyond the single episode in itself: to what extent does the subprime turmoil fit with the ‘core’ of Minsky’s financial instability hypothesis? We refer to the theses i) that the fundamental instability of capitalism is upward and ii) that growth endogenously leads to financial fragility and consequently tends to be shaken by financial crises followed by debt deflations and deep depressions. Both the theses are equally essential to Minsky’s financial instability hypothesis. Let us start with the second one.

According to the financial instability hypothesis, an externally financed rise in investment stimulates income and profits. The consequent improvement in profit expectations and confidence in turn further increases externally financed investment. Over-indebtedness is rooted in this investment-profits-investment upward spiral. It is sustained by the over-optimistic profit expectations of firms associated with the investment boom. The recent Great Moderation does not seem to have followed this script. In the early 2000s, productive investments were suffering a standstill.⁴³ Growth was then reactivated by the debt-financed boom of households’ expenditure on houses and consumption goods, in addition to the increased government deficit. Specifically, the boom that led to the sub-prime crisis concerned households’ investment in houses rather than firms’ productive investment.

⁴³ According to Leijonhufvud (2009), in the 2000s the US business sector issued debt to buy back equities rather than to invest.

The point is that households' over-optimism was sustained by the expected capital gains on houses, not by expected available incomes. If this is true, however, the resulting over-indebtedness is not necessarily interpretable as a by-product of real growth.

According to Krugman (2009), the 2000s were characterized by the Fed's expansionary policy (witnessed by the unprecedented fall in the federal funds rate) and by a powerful wave of financial deregulation and innovation.⁴⁴ The result was a widespread increase in credit availability that stimulated households' demand for houses. This, however, was only the beginning of the story. The externally financed increase in households' housing expenditure fed itself through the expectations of capital gains (rather than of higher disposable incomes). It was this spiral that gave rise to the sub-prime crisis.

In the euphoria of the housing boom, buyers were given loans requiring little or no down payment and with monthly bills that were beyond their ability to pay. After all, it did not matter whether the borrower could actually make the mortgage payments. Given the rising trend of house prices, troubled borrowers could always either refinance or pay off the mortgage by selling the house. In a word, debt commitments were compared with the capital gain on houses, not with the Minskyan cash receipts (profits or disposable incomes) associated with economic activity. The cumulative process on which households' over-indebtedness was rooted had a mainly financial and speculative nature. If this is true, however, households' indebtedness seems to have been the cause – instead than the consequence – of the expansion of the real economy. As a result, the recent American experience does not seem to fit with Minsky's fundamental belief that over-indebtedness and financial crises are the endogenous product of economic growth.

As a second attempt to recover a Minskyan perspective, we may extend our time horizon. To start with, let us interpret the expansionary stance adopted by the Fed as the attempt to counteract the 2000 dot.com crash and then to

⁴⁴ We refer to loan securitization and to the development of a shadow banking system. See Krugman (2009)

keep growth alive. Under this perspective, the recent financial turmoil might be considered as a delayed effect of the stock bubble of the 1990s. As a matter of fact, that bubble did reflect the Minskyan investments-profits-investments upward spiral. The 1990s spiral, however, was the result of the widespread productive application of innovations in the field of information technology that might have had a consistent exogenous component.⁴⁵ If this is true, however, the American experience might belie another keystone of Minsky's theory: the upward instability proposition, according to which a capitalist economy is endogenously prone to growth.

Contrarily to Minsky, Keynes believed that the main tendency of a capitalist economy is towards the exhaustion of investment opportunities and stagnation. It was precisely the fall in the marginal efficiency of capital that halted the 1990s investment boom! The American experience of the past fifteen years or so might be then interpreted as a Keynesian (rather than as a Minskyan) phenomenon. Under this perspective, we might deduce that – despite the 1990s technological innovations and the 2000s Fed support– the American economy has been unable to avoid a new depression. The contribution of Minsky as an interpreter of Keynes would then consist in his highlighting of the crucial role of finance and – specifically - in showing that finance can sustain and prolong growth, but not prevent (indeed, even accentuating) the collapse.

6. Conclusion

According to this work, Minsky is not the faithful interpreter of Keynes that he supposed – and is generally supposed – to be. He applied Keynes's economics to a system whose fundamental instability is upward. The Keynesian tendency towards the exhaustion of investment opportunities and stagnation was consequently replaced by the Minskyan tendency towards over-investment and over-indebtedness. This inevitably led to a different conception of the trade cycle.

⁴⁵ After the invention of the microprocessor in 1971, it took more than twenty years to introduce the new technology in business. See Krugman (2009).

In focusing on his upwards unstable economy, Minsky had the indisputable merit of questioning the myth of growth, which in his view does not converge to a uniform and steady rate, but tends to lead to financial fragility and consequently to be shaken by financial crises, debt deflations and deep depression. At the same time, however, Minsky discarded some important issues in *The General Theory*: the endemic nature of unemployment, the persistent damage of depression and above all the precariousness of recovery.

Considered as a whole, the recent financial turmoil does not seem to fit with the two keystones of Minsky's financial instability hypothesis: the theses i) that capitalism is endogenously prone to growth ii) that growth endogenously leads to financial instability and financial crises. The growth and the over-indebtedness of the US economy were not entirely the spontaneous product of the working of the system. They received a substantial impulse from technological innovations, in the former case, and from monetary policy associated with financial deregulation and innovation in the latter.

The American experience of the last fifteen years might be then interpreted as a Keynesian – rather than as a Minskyan - phenomenon. After all – in spite of the support from technological innovation in the 1990s and from the Fed in the 2000s– the American economy has failed to avoid a new depression. Under this perspective, the contribution of Hyman Minsky would consist in pointing out the crucial role of finance, showing that finance can sustain and prolong growth, but not prevent (indeed, even accentuating) the collapse.

References

- Hudson, H. R. (1957), "A model of the trade cycle", *Economic Record*, 33(66), pp. 378-89.
Kaldor N. (1940), "A model of the trade cycle", *The Economic Journal*, 50(197), pp. 78-92.
Keynes, J. M. (1936), *The General Theory of Employment, Interest and Money*, London: Macmillan.
Krugman, P. (2009), *The Return of Depression Economics and the Crisis of 2008*, New York: Penguin Books.
Leijonhufvud, A. (2000), *Macroeconomic Instability and Coordination*, Cheltenham, UK - Northampton, USA: Edward Elgar.

- Leijonhufvud, A. (2009), "Out of the corridor: Keynes and the crisis", *Cambridge Journal of Economics*, forthcoming.
- Lucas, R. E. Jr. (2003), "My Keynesian education", *Transcription of the Keynote Address at the HOPE Conference: "The IS-LM Model: Its Rise, Fall, and Strange Persistence"*, 26 April, 2003, Duke University, Durham NC, USA.
- Minsky, H. P. (1957), "Monetary systems and accelerator models", *American Economic Review*, 47(6), pp. 859-883.
- Minsky, H. P. (1964), "Longer waves in financial relations: financial factors in the more severe depressions", *The American Economic Review*, 54(3), pp. 325-335.
- Minsky H. P. (1965), "The integration of simple growth and cycle models", in Brennan, M. (ed), *Patterns of Market Behaviour*, Providence: Brown University Press, pp. 175-191.
- Minsky, H. P. (1974), "The modelling of financial instability: an introduction", in Instrument Society of America (ed), *Modelling and Simulation Vol. 5. Proceedings of the 5th Annual Pittsburg Conference*, pp. 267-272.
- Minsky, H. P. (1975), *John Maynard Keynes*, New York: Columbia University Press.
- Minsky, H. P. (1978), "The financial instability hypothesis: a restatement", *Thames Papers in Political Economy, North East London Polytechnic*. Reprinted in Arestis, P. and Skouras, T. (eds), 1985, *Post Keynesian Economic Theory. A Challenge to Neoclassical Economics*, Brighton: Wheatsheaf Books, pp. 24-55.
- Minsky, H. P. (1980), "Capitalist financial processes and the instability of capitalism", *Journal of Economic Issues*, 14(2), pp. 505-22.
- Minsky, H. P. (1982a), *Can 'It' Happen Again? Essays on Instability and Finance*, Armonk, N. Y.: M. E. Sharpe.
- Minsky, H. P. (1982b), "Debt deflation processes in today's institutional environment", *Banca Nazionale del Lavoro—Quarterly Review*, 143(4), pp. 375-95.
- Minsky, H. P. (1986), *Stabilizing an Unstable Economy*, New Haven: Yale University Press.
- Schinasi G.J. (1981), "A nonlinear dynamic model of short run fluctuations", *The Review of Economic Studies*, 48(4), pp. 649-656.
- Roubini, N. (2007a), "Is the recent episode of market turmoil a temporary shock or the beginning of a systemic risk episode?", *RGE Monitor*, August 2. Available online at <http://www.rgemonitor.com/blog/roubini/208728>.
- Roubini, N. (2007b), "Worse than LTCM. Not just a liquidity crisis; rather a credit crisis and crunch", *RGE Monitor*, August 9. Available online at: <http://www.rgemonitor.com/blog/roubini/209779>.
- Velupillai, K.V. (2008), "A perspective on a Hicksian non-linear theory of the trade cycle", in Scazzieri, R., Sen, A. and Zamagni, S. eds (2008), *Markets, Money and Capital. Hicksian Economics for the Twenty First Century*, Cambridge: Cambridge University Press.
- Whalen, C.J. (2007), "The U.S. Credit crunch of 2007. A Minsky moment", *Public Policy Brief N. 92, Jerome Levy Economic Institute of Bard College*, Annandale-on-Hudson.
- Wray, R. (2007), "Lessons from the subprime meltdown", *Working Paper Series N. 522, Jerome Levy Economic Institute of Bard College*, Annandale-on-Hudson.