



UNIVERSITÀ DEGLI STUDI DI TRENTO

DIPARTIMENTO DI ECONOMIA

**Minsky's Upward Instability:
the Not-Too-Keynesian Optimism of a
Financial Cassandra**

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Discussion Paper No. 12, 2008

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Minsky's upward instability: the not-too-Keynesian optimism of a financial Cassandra

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Abstract

According to this work, the 'financial instability hypothesis' is not an interpretation of *The General Theory* as Minsky (1975, 1986) thought. Keynes and Minsky undoubtedly have much in common. Specifically, both of them recognize the limits of individual and collective rationality. Minsky, however, introduced an upward instability that seems totally foreign to *The General Theory*. Living in different historical periods, the two authors focused on different realities. Keynes looked at a depressed economy that, as a consequence of its low profit expectations, is dominated by the downswings (by the excess of saving over investment). Minsky looked at a vibrant economy that, as a consequence of its high profit expectations, is dominated by the upswings (by the excess of investment over saving). As a consequence, while a stagnant economy à la Keynes tends to chronic underinvestment and to high and long-lasting unemployment, a vibrant economy à la Minsky is naturally inclined to over-investment and over-indebtedness. In the last decades, useful examples might be the European economy on the one hand and the U.S.A. and U.K. economies on the other. Under this perspective, Minsky might be considered as an author who has extended the economics of Keynes to a vibrant economy, making it more general and modern. The recent sub prime crisis confirms the validity of Minsky's insights.

JEL Classification: B22, E12, E32, G11

Keywords: Minsky, bounded rationality, business cycles, financial instability

1. Introduction¹

In the period 1954-1996 when Minsky wrote, orthodox macroeconomics rediscovered general equilibrium theory (GET) first as a benchmark and then as a direct representation of reality. Drawing on *The General Theory*, Minsky firmly rejected the assumptions of unbounded rationality on which GET is based. To the perfectly orchestrated neoclassical world, he opposed the view of an unstable economy scanned by recurrent financial crises followed by debt deflations and deep depressions.² Turning to reality, Minsky found many confirmations of his insight that financial crises are systemic and not idiosyncratic. If he had been alive today, he would have added the current sub-prime crisis to his ‘carnet’.

The aim of Minsky’s ‘financial instability hypothesis’ was to reinterpret *The General Theory* in a cyclical perspective. Undoubtedly, the two theoretical frameworks have much in common. First of all, the afore-mentioned rejection of unbounded rationality. There is, however, a crucial difference usually neglected in the literature: Minsky introduced an upward instability that seems totally foreign to *The General Theory*. Taking this into account, the two authors might be considered as faces of the same coin looking in opposite directions. Keynes looked at a depressed economy that, as a consequence of its low profit expectations, is dominated by the downswings. Minsky looked at a vibrant economy that, as a consequence of its high profit expectations, is dominated by the upswings. In the 1990s, useful examples might have been the European economy on the one hand and the U.S.A. and U.K. economies on the other. From this perspective, Minsky might be considered as an author who has extended the economics of Keynes to a vibrant economy, making it more general and modern.

In what follows, section 2 introduces Minsky’s refusal of unbounded rationality. Sections 3 and 4 focus on the limits that he assigns, respectively, to individual and collective rationality. The resulting ‘financial instability hypothesis’ is explained in section 5. Section 6 compares it with the ‘Notes on the business cycle’ contained in chapter 22 of *The General Theory*. Section 7 presents a common cyclical framework. With this background, section 8 highlights the differences between the two authors. Section 9 concludes.

¹ Il presente *Discussion Paper* è in corso di stampa nel volume di S. Zambelli ed. (2009), *Computable, Constructive and Behavioural Economic Dynamics*, London-New York: Routledge.

² By unstable economy Minsky means a disequilibrium economy subject to recurrent financial crises followed by debt deflations and deep depressions.

2. The rejection of the rationality pillars

Over the last seventy years or so, dominant macroeconomic theory has assumed new and more sophisticated facets. Despite these metamorphoses, however, there seems to be a continual thread in its evolution: the constant reference to GET. This referential relationship to GET seems to define the hard core of macroeconomic orthodoxy. Amongst other things, standard GET is based on two fundamental pillars: (i) the assumption of unbounded individual rationality, according to which - at any given price vector- perfectly competitive agents are able to choose the quantities supplied and demanded that maximise their target function; and (ii) the assumption of unbounded collective rationality, according to which prices are able to clear instantaneously and simultaneously all markets.

Seventy years ago, *The General Theory* rejected the individual and collective perfect rationality assumptions.³ First, in Keynes's world the future is totally unknown to the agents. Second, the general equilibrium price vector may not exist. The existence of a positive interest rate level able to align full-employment savings and investments is, for instance, not granted. Moreover, even if the equilibrium price vector did exist, there is no auctioneer able to lead prices instantaneously to their equilibrium level.⁴ The perfect rationality pillars, and with them GET, are totally unrealistic and have to be rejected. In short, this seems to be the core of the Keynesian 'revolution'.

Revolutions, as we know, are usually followed by counter-revolutions. The Keynesian counter-revolution –the Neoclassical Synthesis– starts one year after the publication of *The General Theory*. The result is the rediscovery of GET as a benchmark. With this, GET is re-proposed as a reliable approximation of reality. It is simply necessary to take into account that in the short-run some gears of the adjustment mechanism can jam, giving rise to deviations from general equilibrium. As known, the Neoclassical Synthesis identifies the hindrance in money wage rigidity. In Friedman's Monetarism Mark 1 and Lucas's Monetarism Mark 2, the maladjustment ends up concerning, respectively, inflationary expectations and inter-temporal relative prices. With Real Business Cycle Theory, maladjustments disappear and shocks only determine general equilibrium fluctuations. At this

³ On this rejection, see also Keynes (1937).

⁴For a technical and illuminating critique of general equilibrium, see Velupillai (2005).

point, the rehabilitation of GET is complete.⁵ Minsky witnesses the aforementioned evolution of the dominant theory. All his life, however, he vigorously swims against the stream. In his view, the limits of collective and individual rationality feed each other, generating positive feedbacks that make the economy unstable.

Starting with collective rationality, Minsky (1975, 1982a, 1986) radicalizes Keynes's arguments. If Neoclassical general equilibrium is misleading,⁶ also Keynesian under-employment equilibrium is unsatisfying.⁷ More generally, according to Minsky, it is the concept of equilibrium itself that is inadequate.⁸ Given the interdependency between past, present and future,⁹ advanced capitalist economies cyclically fluctuate in a perennial disequilibrium. The financial structure changes over the cycle. This ever evolving disequilibrium economy hampers the yet limited individual rationality. Memory is short, learning processes are slow and limited. Agents do not succeed in knowing the model and (above all) are conscious of this. As Minsky (1996, p. 2) claims: "The uncertainty that permeates the economics of Keynes and the economics of bounded rationality is due to the

⁵ Our survey of the evolution of orthodox macroeconomic theory draws on Leijonhufvud's (2000, pp. 33-51) Swedish flag.

⁶ According to Minsky, GET is unrealistic since it ignores history, institutions, the crucial role of money and finance, uncertainty and so on. In addition, according to him, the price mechanism is unable to coordinate the system. Let us consider a situation of unemployment. Insofar as wage and price deflation is associated by a fall in profits, it decreases firms' ability to fulfill inherited debt commitments. In this way it jeopardizes the robustness of the financial system, with depressing effects on long-term expectations and investments. In conformity with the experience of 1929-33 and to the 'true' thought of Keynes, the fall in prices can thus depress aggregate demand, accentuating unemployment instead of reabsorbing it. See Minsky (1975; 1978; 1986).

⁷ With regard to the traditional concept of under-employment equilibrium, Minsky (1975, p. 68) claims: "As a result of the effect on behaviour of the need to make decisions under conditions of imperfect knowledge, investment by business can be volatile.....the equilibrium toward which the system tends not only is always changing but can change rapidly. Thus the behaviour of the economy is characterized by equilibrating tendencies rather than by any achieved equilibrium. Keynesian economics as the economics of disequilibrium is the economics of permanent disequilibrium." Analogously, in Minsky (1975, p. 61) we read: "The analogy is that of a moving target, which is never achieved but for a fleeting instant, if at all. Each state, whether it be boom, crisis, debt-deflation, stagnation, or expansion, is transitory. During each short-period equilibrium, in Keynes's view, processes are at work which will 'disequilibrate' the system. Not only is stability an unattainable goal; whenever something approaching stability is achieved, destabilizing processes are set off."

⁸ With regard to the concept of equilibrium itself, Minsky (1986, p. 176) says: "These propositions really missed a critical point of both Keynesian theory and our economy, which is that there are forces for change -which we can call disequilibrating forces- in every particular short-run situation. These disequilibrating forces may be weak at times, but they accumulate and gather strength, so that after a while any ruling equilibrium will be disrupted. The use of the term equilibrium, however, 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."

⁹ With regard to this interdependency, Minsky (1978, p. 39) writes: "An economy with a Wall Street cannot be static. Yesterday's debts and capital asset acquisitions have to be validated by today's cash flows: today's cash flows are largely determined by today's investment; today's investment will or will not be validated depending upon the cash flows that are generated tomorrow."

unsureness about the validity of the model that enters in the decision process”. What matters is not only the expectation about the future, but also the confidence placed in it. Given the ignorance of the future, expectations and confidence are based on the recent past and consequently end up generating positive feedbacks. To quote Minsky (1986, p. 187), “A history of success will tend to diminish the margins of safety that business and bankers require and will thus tend to be associated with increased investment; a history of failure will do the opposite”. Thus, the limits of individual rationality at the same time mirror and hinder the yet bounded collective rationality.

3. The limits of individual rationality

The limits of individual rationality are highlighted by one of the milestones of Minsky’s analysis: that “financial theory of investments”¹⁰ which is often referred to in Post Keynesian literature. As we shall see, this theory relegates the interest rate to the background. At the center of the stage it places finance, expectations and uncertainty.¹¹ Minsky’s starting point is that the basic characteristic of a capitalist economy is the existence of two prices: the market value of capital assets (that mirrors volatile and uncertain profit expectations) and the price of current production. Belonging to both categories, the rate of investment aligns the two prices. By so doing, however, it attracts uncertainty passing it on to the rest of the economy.

The two prices at the basis of Minsky’s analysis are shown by the broken lines in Figure 1, which remind us of Tobin’s “q theory”.¹² The broken horizontal line P_k gives the price of capital assets –that, by analogy, also represents the demand price for investment goods– equal to the present value PV of expected profits Π^e . The rising broken curve P_i gives the supply price of investment goods, coinciding with the price of current production. It is composed of the technologically determined cost (which, given the productive capacity, from a certain point curves upwards)

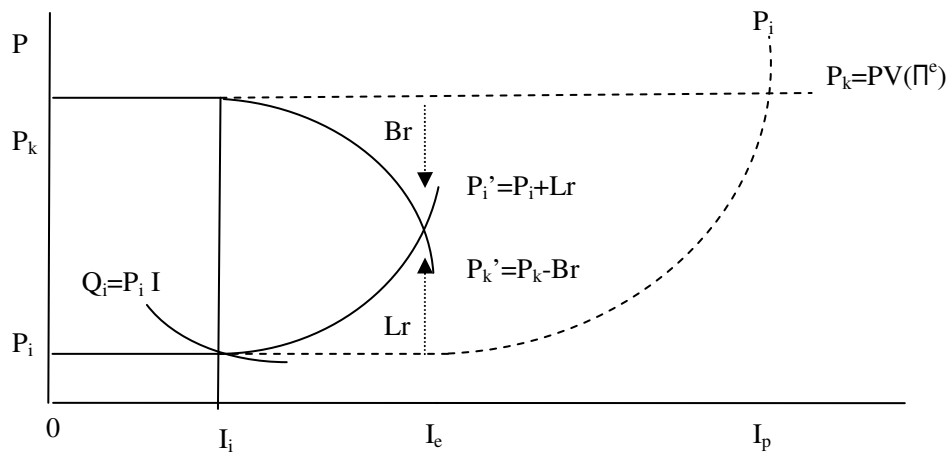
¹⁰Minsky (1978, p. 30; 1986, p. 171) defines his theory as “an investment theory of the business cycle and a financial theory of investment”. From the first point of view, his theory identifies investment as the main cause of income fluctuations. From the second point of view, it focuses on the ways in which investment is financed. About the financial theory of investment, see Minsky (1972; 1975, p. 114; 1978, p. 30; 1980; 1986, pp. 193-4)

¹¹ To quote Tobin’s (1989, p. 107) review of Minsky’s (1986) book: “He is right to stress that monetary and financial institutions and market make a big difference and to reject the Modigliani-Miller theorem that assets and debts which wash out in accounting aggregations wash out in economic effects as well.” As known, the Modigliani-Miller theorem presupposes an unbounded collective and individual rationality world opposite to the one considered by Minsky.

¹² See Brainard and Tobin (1968) and Tobin (1969).

plus the interest on the short-run financing required by the production of investment goods plus the mark-up. The intersection between the broken lines P_k and P_i determines the level of profitable investments I_p in the Figure.

Figure 1. The determination of investment



At this point, firms have to establish how to finance the purchase of new machinery. The solid equilateral hyperbola $Q_i = P_i I$ in Figure 1 gives the combinations of P_i and I compatible with the expected internal funds Q_i (gross profits minus taxes and debt commitments) that firms foresee accumulating during the gestation period of investment. The intersection of the equilateral hyperbola Q_i and the supply price curve P_i gives the level of investment - I_i in Figure 1 – that can be financed with the expected internal funds. For investment levels greater than I_i , firms have to resort to external funds, whose supply by assumption is endogenous. Indebtedness, however, involves the risk - a borrower's risk (Br) for firms and a lender's risk (Lr) for their financiers - that expectations could go wrong and that, once in operation, investment might generate profits less than the debt commitments incurred. This risk obviously increases with indebtedness.

For investment levels exceeding I_i in Figure 1, the demand and supply prices of investment goods have to be adjusted for the increasing risks due to indebtedness. The risk adjusted demand price curve, $P_k' = P_k - Br$, is obtained by subtracting the borrower's risk premium Br from the original demand price P_k .¹³ The risk adjusted

¹³ To quote Minsky (1986, p. 190): "Borrower's risk shows up in a declining demand price for capital assets. It is not reflected in any financing charges; it mirrors the view that increased exposure to default will be worthwhile only if there is a compensating potential capital gain."

supply price curve, $P_i' = P_i + Lr$, is obtained by adding the lender's risk premium Lr to the original supply price P_i .¹⁴ The intersection between the risk adjusted curves P_k' and P_i' determines the effective level of investments, I_e in Figure 1. The excess of effective investments I_e over internally financed investments I_i shows the level of indebtedness. The gap between the original demand price P_k and the original supply price P_i , corresponding to I_e , gives the safety margins required by firms and their financiers in the face of the risks related to indebtedness. If realized profits turn out to be less than those expected, these safety margins will increase firms' capacity to meet debt commitments and will reduce bank losses. If realized profits turn out to be equal to or greater than expected ones, these safety margins will represent a compensation to firms and their financiers in the face of the respective risks.¹⁵

In the presence of a general increase in interest rates, the original (and consequently the adjusted) demand price for capital assets P_k falls as long as long-term interest rates increase, while the original (and consequently the adjusted) supply price of investment P_i rises as short-term interest rates rise. The overall effect is a fall in effective investments. Minsky's analysis thus confirms the usual negative relationship between investments and the interest rate. The latter, however, plays a secondary role. Dominating the scene are the other determinants of investments, represented by profit expectations (Q_i , Π^e) and the confidence in the future fulfillment of debt commitments (Br , Lr). Given the ignorance about the

¹⁴ Minsky (1986, p. 192) writes: "The supply schedule of investment goods rises after some output. However, lender's risk imparts a rising thrust to the supply conditions for capital assets independent of technological-supply conditions. This rising thrust takes a concrete form in the financing conditions that bankers set. In loan and bond contracts, lender's risk is expressed in higher stated interest rates, in terms to maturity, and in covenants and codicils."

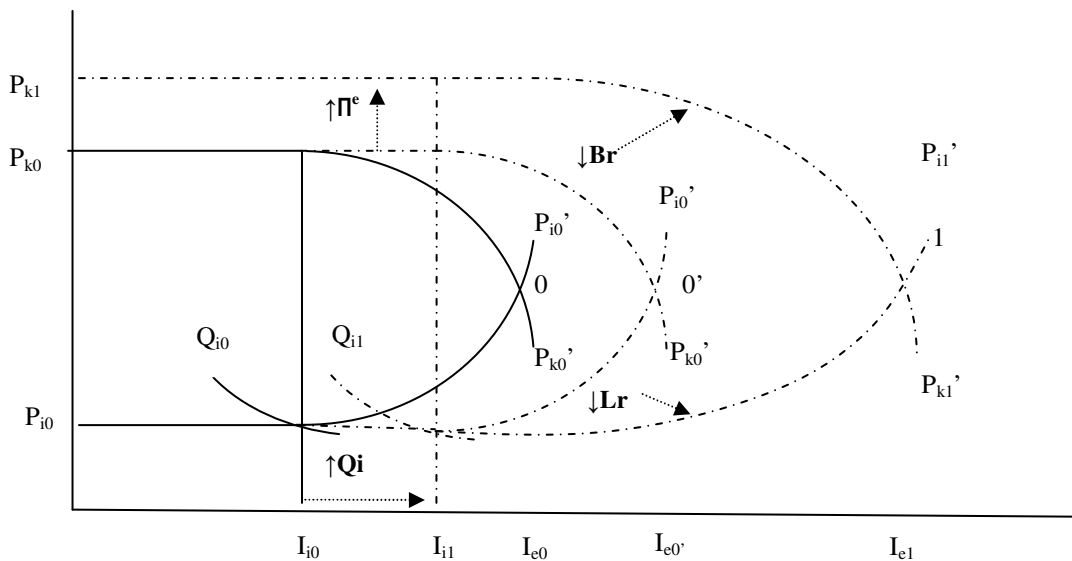
¹⁵ In Minsky's analysis, safety margins have the function of increasing the robustness of the financial system, namely its capability to absorb shocks without incurring financial crises. Mirroring the degree of confidence, in Minsky's view the gap $P_k - P_i$ becomes a proxy of existing safety margins as a whole. From this point of view, a lower gap $P_k - P_i$ may be associated with a lower liquidity and with a worse synchronization between expected cash receipts and debt commitments. Such a synchronization is the basis for the well-known Minskyan (1986, pp. 206-7) distinction between hedge, speculative and ultra-speculative (or Ponzi) finance. In the case of hedge finance, creditors and debtors foresee cash receipts higher than debt commitments in the present as well as in every future period. In the case of non hedge finance, creditors and debtors foresee cash receipts lower than debt commitments for one or more initial periods, confident that a future bonanza will reverse this relationship in subsequent periods. Initially, non hedge finance thus implies the resort to indebtedness in order to fulfill debt commitments. Specifically, the principal is financed by indebtedness in the case of speculative units and also interest payments in the case of the ultra-speculative or Ponzi units. This means that indebtedness is rolled over in the first case and automatically grows in the second. Having to borrow in order to fulfill their debt commitments, speculative and ultra-speculative units become extremely vulnerable to restrictions in the availability and cost of credit. In such a case, the only solution available to them would be to sell assets (if they have assets to sell) with the risk to sell them off. In Minsky's view, the mixture of hedge, speculative and Ponzi units then becomes a measure of the robustness of the financial system.

future, expectations and confidence are myopically based on the recent past. Without much explanation, Minsky relates both of them to current profits. According to Minsky (1986, pp. 193-4), Figure 2 shows the case of an unexpected increase in current profits. The solid lines represent a given initial situation. To start with, the increase in profits gives rise to an increase in the expected internal funds Q_i , thus causing an equivalent rightward shift of the equilateral hyperbola $Q_i = P_i I$, of the level of internally financed investments (from I_{i0} to I_{i1}), and of the borrower's and lender's risks starting from I_i . As shown by point O' , the result is an internally funded increase in effective investments (from I_{e0} to $I_{e0'}$). This, however, is not yet the end of Minsky's story. By increasing profits expected after the installation of the investment goods Π^e , the unexpected rise in current profits has two further effects. First, it increases the original (and consequently the adjusted) demand price for investment goods $P_k = PV(\Pi^e)$. Secondly, it increases the confidence in the future fulfilment of debt commitments, thus reducing the borrowers' and lenders' risks. The result is a further increase in effective investments (from $I_{e0'}$ to I_{e1}) that this time is financed by indebtedness. The link from profits to investments emerging from Figure 2 will perform an important role in what follows. According to this link, an increase in profits stimulates both internally and externally financed investments.¹⁶ The higher indebtedness in its turn is associated with lower safety margins. As investments grow, the financial system becomes more fragile.¹⁷

Figure 2. The effects on investments of an unexpected increase in profits

¹⁶ To quote Minsky (1986, p. 194): "Profits in excess of those anticipated therefore increase the demand for investment by improving the flow of internal funds, raising the (implicit) price of capital assets and increasing borrowers' willingness to finance externally."

¹⁷ By financial fragility we mean the proneness to financial crises in case of shocks. In Minsky's view, a fragile financial system is characterized by a high indebtedness and by low safety margins. In actual fact, a fragile financial system is generally dominated by speculative and ultra-speculative (or Ponzi) units that fulfill their debt commitments by indebtedness. These units are therefore particularly vulnerable to restrictions in the availability and in the cost of credit.

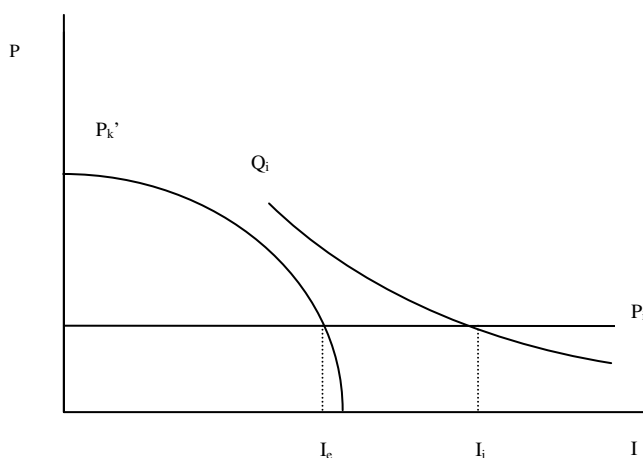


The afore-mentioned results derive, however, on some assumptions that are not granted. To start with, Minsky neglects the fact that investments –being a source of profits– can self-finance themselves. He explicitly assumes that profits tend to be reinvested rather than being used to reduce indebtedness.¹⁸ In addition, his Figure 2 implicitly assumes that the unexpected rise in current profits is perceived as permanent. If it were not so, current profits would not have any effect both on $P_k = PV(\Pi^e)$ and on Br and Lr in Figure 2; they thus would not stimulate externally financed investments. Figure 2, however, presupposes even more subtle implicit assumptions. To start with expectations, Minsky’s firms seem to foresee unlimited outlets for their future production. Not by chance, the original demand price curve $P_k = PV(\Pi^e)$ is an horizontal line. As far as confidence is concerned, Minsky’s firms exclusively take into account the ‘financial’ risks connected to indebtedness. They do not even consider the ‘real’ risk of zero or negative profits, that also concerns

¹⁸ Initially Minsky (1972) takes expected internal funds Q_i as given, reaching the conclusion that higher investments inevitably require higher indebtedness. Subsequently, Minsky (1975, p. 114; 1980; 1986, pp. 193-4) recognizes that –through income expansion– investments are a source of profits and thus of internal funds for firms as a whole (even if not necessarily for investing firms). He thus admits that, at the macroeconomic level, investments generate a rightwards shift in the hyperbola Q_i analogous to the one shown in Figure 2. With regard to this, however, Minsky carefully specifies i) that –since profits have to cover overheads and ancillary expenditures, tax payments, financial commitments and so on– investments can only partially self-finance themselves and thus require indebtedness and ii) that, in any case, unexpected internal funds end up with being reinvested rather than being used to repay the debt or to accumulate financial assets. To put it in Minsky’s (1986, pp. 193-4) words: “If the actual cash flows...exceed the anticipated cash flows..., then the amount of external financing actually required will be smaller than expected. When this occurs, the balance sheet with the newly acquired capital assets will be less encumbered by debt than originally anticipated. Such a better-than-anticipated balance sheet means that both the firms and bankers view the investing units as having unused borrowing power, and the financing conditions for subsequent investments will be more favorable.”

internally financed investments. An alternative situation is shown in Figure 3 where –as a consequence of the expectation of falling profits and/or of the increasing ‘real’ risk attached to them– the adjusted demand price curve P_k' slopes downward from the start. In this case, the effective level of investments (I_e) determined by the intersection between the P_k' and P_i' curves might be less than the level that can be internally financed (I_i). The excess of internal funds over investments is used to reduce indebtedness, to pay dividends or to accumulate financial assets. In this case, the increase in profits does not cause any rise in investments: there is no link from profits to investments. In addition, as profits rise, indebtedness falls instead of increasing. Indeed, Minsky takes into account both the case shown in Figure 3 and the case in which P_k' is less than P_i so that investments collapse to zero.¹⁹ In his (1975, p. 115; 1986, p. 195) opinion, however, these are exceptional situations characterizing the post crisis situations. Under normal conditions, the investment function is the one described in Figures 1 and 2.

Figure 3. Minsky’s post crisis situation



What is then the economy which Minsky implicitly refers to? It seems to be an economy that confidently foresees unlimited productive outlets. In this economy, any increase in profits is not merely reinvested. Being perceived as permanent, it improves profit expectations and confidence thus also stimulating externally financed investment. What limits investments is the ‘financial’ risk of a credit restriction rather than the ‘real’ risk of a fall in profits. All things considered, what

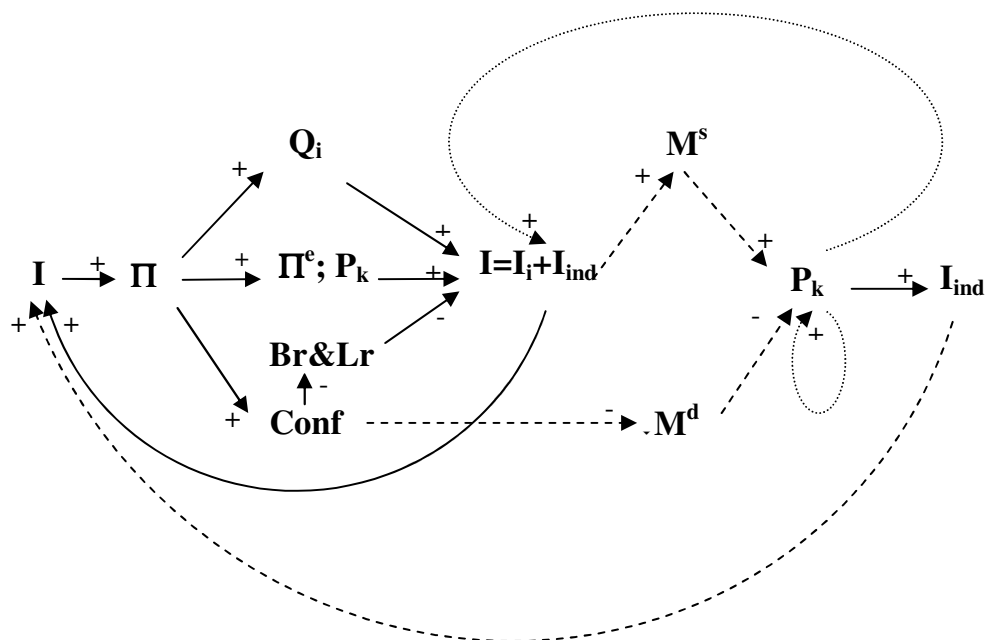
¹⁹ For the two cases see, respectively, Minsky (1975, p. 127) and Minsky (1975, p. 127; 1986, p. 195).

Minsky seems to have *implicitly* in mind is a vibrant economy with unutilized resources. As far as we know, this is an aspect generally neglected in the literature on him.

4. The limits of collective rationality

As we have seen, Minsky rejects the deviation-counteracting price adjustments envisaged by GET. He replaces them with quantity adjustments that, on the opposite, perform a deviation-amplifying role. The ‘keystone’ of Minsky’s deviation-amplifying processes is the interdependence between investments and profits shown by the solid lines in Figure 4,²⁰ that show the consequences of an initial increase in investments.

Figure 4. Minsky’s deviation-amplifying processes



In his works, Minsky adopts a conception à la Levy-Kaleki-Kaldor according to which income distribution mirrors the level and composition of aggregate demand rather than input productivity. In clearing the goods market with the aid of the multiplier, income fluctuations align profits to the sum of investments, government

²⁰ Minsky first introduced the relationship from profits to investments based on his financial theory of investment (Minsky 1972). Then, he added the relationship from investments to profits (Minsky 1975, p. 114). This allowed him to focus on the interdependence between the two variables (Minsky 1980; Minsky 1986).

budget, net exports and capitalists' consumption net of workers' savings.²¹ On this basis, the initial increase in investment generates an equal increase in profits in Figure 4. According to Minsky's investment theory, the increase in profits in its turn has three effects: i) it raises expected internal funds Q_i ; ii) it raises expected profits from investment Π^e and thus their present value $P_k = PV(\Pi^e)$ and lastly iii) it raises the degree of confidence (Conf), thus reducing the borrowers' and lenders' risks Br&Lr. The result is the second –partly internally (I_i) and partly externally (I_{ind}) financed– increase in investments at the center of the Figure, that brings us back to the starting point on the extreme left. The interdependence between investments and profits thus becomes the basis of an upward spiral involving all the variables concerned (with the exception of Br&Lr, which fall).

The aforementioned deviation-amplifying mechanisms are strengthened by their repercussions on the money market, shown by the broken arrows in Figure 4. The first upward sloping broken arrow refers to the supply side of the money market. In Minsky's view, money is endogenously created and affects the demand for non-monetary assets, rather than for consumption goods. Insofar as the increase in indebtedness implies an increase in bank credit, it also entails an increase in money supply M^s that in its turn stimulates the prices of capital (as well as financial) assets. According to Minsky's investment function, this new rise in P_k determines a new (externally financed) increase in investments on the extreme right of Figure 4, which brings us back to the starting point on the extreme left. The dotted arrows describe the contribution of financial markets. According to the dotted arrow below P_k , the increase in capital (as well as financial) asset prices feeds itself by fuelling expectations of capital gains. According to the dotted arrow above P_k , the increase in capital (as well as financial) asset prices -by raising firms' and financial intermediaries' net wealth- has expansionary effects on credit and investment.

The horizontal broken arrow in Figure 4 refers to the demand side of the money market. As a premise, Minsky (1986, p. 180) denies that the main characteristic of money consists in having a fixed price (the prices of goods and assets from which its purchasing power depends is variable) or in being the medium of exchange (in socialist countries money was the medium of exchange but did not have any special role in the economy). According to Minsky, the main characteristic of

²¹ Aggregate saving S is the sum of workers' saving (S_w) and capitalists' saving (S_c), equal to the difference between profits (Π) and capitalists' consumption (C_c). This means that $S = S_w + (\Pi - C_c)$. By substituting into the goods market equilibrium condition $S = I + DF + NX$ and rearranging, we get: $\Pi = I + DF + NX + C_c - S_w$. Profits Π are therefore determined by investments I , government deficit DF , net exports NX plus capitalists' consumption C_c net of workers' saving S_w .

money is that it allows firms to fulfil the payment commitments connected to indebtedness and productive activity. Money is mainly demanded because it offers insurance services (as a safety margin) against bankruptcy. In Figure 4, the greater confidence (Conf) due to the initial rise in profits thus determines a decrease in the demand for money in favour of other assets. This implies an increase in capital (as well as financial) asset prices, that in its turn strengthens the increase in externally financed investments on the extreme right of Figure 4.²²

If we consider Figure 4 as a whole, the initial increase in investments triggers an upward spiral that involves most of the variables concerned. Only the safety margins represented by $Br&Lr$ and M^d fall. The increasing indebtedness is thus associated with decreasing safety margins considered as a whole. As the real sector grows, the financial system becomes more and more fragile.

Before closing this Section, a crucial question remains to be answered. What is the cause of the initial increase in investments on the extreme left of Figure 4? The answer has to be found in Minsky's upward instability proposition, according to which "stability -or tranquillity- is destabilising" and "the fundamental instability is upward".²³ A period of tranquillity (in which profits are systematically greater than debt commitments) increases confidence in the future, giving rise to a wealth re-allocation from money to other assets that raises capital (as well as financial) asset prices. The result is an increase in investment financed with indebtedness that in its turn triggers the aforementioned deviation-amplifying processes.²⁴ Minsky applies his upwards instability proposition to every 'coherent' situation, be it an underemployment equilibrium²⁵, a full-employment equilibrium²⁶ or a situation of

²² The decrease in the demand for money has a pro-cyclical role; it strengthens the rise in asset prices due –among the other things- to the increasing money supply.

²³ For the two quotations, see respectively Minsky (1975, p. 127; 1978, p. 37) and Minsky (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).

²⁴ Minsky (1986, p. 183) writes: "...but 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".

²⁵With regard to Keynes's under-employment equilibrium, Minsky (1978, p. 36-7) claims: "For the economy to sustain a virtual equilibrium of employment in which short-run profit expectations are consistent with financed investments, the profit flows must be sufficient to validate debts..... But such fulfilment of debt commitments will affect the willingness to finance debts by bankers and their customers: the value of the insurance embodied in money decreases as the economy functions in a tranquil way. Stability –or tranquillity– in a world with a cyclical past and capitalist financial institutions is destabilizing." The same idea can be found in Minsky (1975, p. 61, 127, 165)

²⁶With regard to full employment, Minsky (1986, p. 177) claims: "A close look at what goes on when the system achieves such an equilibrium uncovers ongoing processes that tend to make for the breakdown of full employment. The ongoing processes tend to rupture a full-employment equilibrium

tranquil growth. As we shall see, this unlimited confidence in the beneficial effects of tranquillity seems excessive. Again, however, what Minsky seems to have in mind is a vibrant economy with unutilized resources.

5. Minsky's 'financial instability hypothesis'

As we have just seen, Minsky's starting point is that stability is destabilizing. A period of tranquillity (in which the financial system is robust and there are no relevant shocks, so that profits are systematically greater than debt commitments) increases confidence in the future, giving rise to a wealth re-allocation from money to other assets which raises financial and capital asset prices. The result is an increase in investment financed with indebtedness. Thanks to the deviation amplifying mechanisms described in Section 4, expansion turns into a debt-financed investment boom.

At this point, Minsky (1975, 1978, 1982a, 1982b, 1986) focuses on two drawbacks of such a boom. The first one refers to its speculative nature. In the general euphoria, firms' debt commitments increase more rapidly than profits, ending by rising above profits themselves. Given the expectation of a future bonanza, firms start financing the principal by indebtedness (speculative financing) and also interest payments (ultra-speculative or Ponzi financing). Though initially robust, the financial system becomes fragile.²⁷ With regard to the second drawback, the persistence of the boom inevitably ends up creating either bottlenecks in the financial system or inflationary pressures in the goods market that push the central bank in a deflationary direction. In both cases, the result is an increase in the rate of interest.²⁸

The rise in the interest rate ends the boom, turning the investments-profits-investments chain into a downward spiral. The unexpected increase in the cost of funds is thus associated with the unexpected fall in (the yet insufficient) profits. Given the situation of financial fragility, the fulfilment of inherited debt

in an upward direction; that is, once full employment is achieved and sustained the interaction among units tends to generate a more than full-employment speculative boom." An analogous concept can be found in Minsky (1980, p. 26) and in Minsky (1986, p. 183).

²⁷As we have seen in a previous footnote, according to Minsky (1986, pp. 206-207 in particular) a robust financial system is dominated by hedge units, able to fulfil their debt commitments by profits. A fragile financial system is instead dominated by speculative and ultra-speculative (or Ponzi) units, that meet their debt commitments by further indebtedness.

²⁸Minsky (1978) puts it as follows: "However, the internal workings of the banking mechanism or Central Bank action to constrain inflation will result in the supply of finance being less than infinitely elastic leading to a rapid increase in short term interest rates" (p. 45). Such an increase spreads from the short to the long run.

commitments would require an increase in (the already high) indebtedness. This solution, however, is neither desirable nor possible since the confidence underlying indebtedness fades away. We thus come to the financial crisis, defined by Minsky (1982b) as a situation in which firms' debt commitments cannot be fulfilled any more in the normal way, i.e. by profits (hedge finance) or further borrowing (speculative and Ponzi finance).

With the explosion of the crisis, the only solution available to firms becomes the sale of assets, which after the boom are mainly illiquid assets. The resulting fall in the asset prices reduces the net wealth of firms and financial intermediaries. This reinforces the need to squeeze indebtedness by selling assets. Asset prices fall precipitously. The fall of capital asset prices strengthens the fall of investments and profits, and vice versa.²⁹ The financial crisis, thus, turns into a debt deflation, which in Minsky's (1982b) framework implies an asset price as well as a profit deflation. The debt deflation will end by making the fulfilment of debt commitments impossible. The consequence will be a wave of bankruptcies, which in its turn will end in a deep depression.

According to Minsky, however, destruction is creative. Only hedge units (units still able to fulfil debt commitments by profits) survive. Under these circumstances, and according to his upward instability proposition, a new phase of tranquillity will suffice to increase confidence reactivating the sequence just described. Thus, the system will again experience an expansion, a speculative boom, a financial crisis and a debt deflation, along with a deep depression.³⁰

Minsky (1982a, 1986) found empirical confirmation of his analysis. The financial instability of the American economy, which he (1963) had previously foreseen, surfaced in the middle of the sixties giving rise to the crises of 1966, 1970, 1974-5, 1979, and 1982. However, financial instability also had characterized the periods preceding and separating the two world wars. According to Minsky (1991), this confirmed that financial crises are systemic and not idiosyncratic. In his 1982 book, Minsky wondered whether 'It', meaning the Great Depression, could happen again

²⁹ As we have seen, the fall in expected profits implies the decrease in the demand price for investment goods and thus in investments and profits.

³⁰ To quote Minsky (1975, p. 126-7): "A relatively low-income, high-unemployment, stagnant recession of uncertain depth and duration will follow a debt-deflation process. As the subjective repercussions of the debt-deflation wear off, as disinvestment occurs, and as financial positions are rebuilt during the stagnant phase, a recovery and expansion begins. Such a recovery starts with strong memories of the penalty extracted because of exposed liability positions during the debt-deflation and with liability structures that have been purged of debts. However, success breeds daring, and over time the memory of the past disaster is eroded. Stability –even of an expansion– is destabilizing in that more adventuresome financing of investment pays off to the leaders, and other follow. Thus, an expansion will, at an accelerating rate, feed into the boom."

and his answer was affirmative. Starting from these presuppositions, he assigned a crucial role to the institutions of economic policy: “even though all capitalisms are flawed”, he (1986, p. 295) said, “we can develop a capitalism in which the flaws are less evident than they have been since 1967”.

6. Minsky: an interpreter of Keynes?

As we have seen, many objections can be raised against Minsky's ‘financial instability hypothesis’ and its (often implicit) assumptions. Minsky himself might have been conscious of them, since he prefers to speak of a financial instability ‘hypothesis’ rather than of a financial instability ‘theory’. Objections aside, an interesting question is: what is the relationship between Minsky and Keynes?

Minsky's (1975) book on Keynes is often considered as one of the most authentic interpretations of *The General Theory*. Minsky himself presented his ‘financial instability hypothesis’ as an interpretation of Keynes's thought. Keynes lived through the experience of the Great Depression. He thus dwelled upon the particular case of an economy which, as a consequence of a financial crisis followed by a debt deflation, fell into a deep depression. Under these circumstances, the demand price for investment falls below the supply price, resulting in a collapse in investments and profits. According to Minsky, however, Keynes considered the Great Depression only as an extreme case. Even though he did not develop it, he had in mind a cyclical perspective. To quote Minsky (1975, p. 58): “The evidence that it is legitimate to interpret *The General Theory* as dealing with an economy that is cyclical by reason of its essential institutions is spread throughout the volume. References to cyclical phenomena occur not only in chapter 22 of *The General Theory*, “Notes on the Trade Cycle”, which explicitly deals with business cycles, and in the rebuttal to Viner in *The Quarterly Journal of Economics* of February 1937, but throughout his book. When *The General Theory* is read from the perspective that the subject matter is a sophisticated capitalist economy, whose past and whose future entail business cycles, the ratifying references for an interpretation within a cyclical context are everywhere evident.” Minsky's cyclical re-reading clashes, however, with the alternative –often authoritative– interpretations according to which *The General Theory* has an

essentially static nature.³¹ Who is right? Let us to leave the last word to Keynes himself. In his chapter 22 (p. 313), he says: “Since we claim to have shown in the preceding chapters what determines the volume of employment at any time, it follows, if we are right, that our theory must be capable of explaining the phenomena of the Trade Cycle....To develop this thesis would occupy a book rather than a chapter, and would require a close examination of facts. But the following short notes will be sufficient to indicate the line of investigation which our preceding theory suggests”. Keynes is thus telling us that his theory –while not being a business cycle theory- can be extended in that direction. Minsky’s ‘financial instability hypothesis’ has then to be interpreted as an extension -not as an interpretation- of Keynes’s thought.

This, however, opens a new problem: to what extent Minsky’s extension follows the ‘line of investigation’ suggested by the Master? Undoubtedly, the rejection of the rationality pillars represents an important common denominator between the two authors. In our opinion, however, it is the upward instability proposition that – contrary to Minsky’s opinion– seems not only questionable but also foreign to *The General Theory*.³²

Let us consider an after crisis situation where the demand price for investment goods has fallen below the supply price, thus implying the collapse of investments and profits. Following Minsky, let us assume that tranquillity decreases the value of the insurance embodied in money. What Minsky neglects is that, if expected profits were zero, this would not stimulate the demand price for investments goods. Alternatively, the stimulus might not be sufficiently strong to raise the demand price above the supply price. In both the just-mentioned cases, the upward instability proposition would not hold: tranquillity alone would not be sufficient to trigger recovery. Keynes’s main message -the message of the first 21 chapters of *The General Theory*- seems to consist precisely in the possible persistence of the slump. As Velupillai (2004) teaches us, one of the main problems of trade cycle theories was to explain the lower turning point. With his upward instability proposition, Minsky seems to sweep this crucial problem under the carpet.

³¹ Haberler (1958, p. 249), for instance, expressly claims: “Mr. Keynes’s theory has still another characteristic which distinguishes it from all business-cycle theories: it is essentially static.”

³² Minsky (1975, p. 61) himself attributes his upward instability proposition to Keynes: “During each equilibrium, in Keynes’s view, processes are at work which will ‘disequilibrate’ the system. Not only is stability an unattainable goal; whenever something approaching stability is achieved, destabilizing processes are set off.” Analogously, in Minsky (1975, p. 165) we read: “Thus, recent experience is consistent with the interpretation of Keynes’s views that has been put forth here: we are dealing with a system that is inherently unstable, and the fundamental instability is ‘upward’.”

In his chapter 22, Keynes (1936, p. 314) admits that there are reasons why some investments fluctuations ‘should have had cyclical characteristic’. There are thus reasons to believe that depression has in itself the seeds of recovery. In Keynes’s analysis, however, there are no traces of Minsky’s upward instability proposition. With reference to the lower turning point, for instance, Keynes (1936, p. 317) claims: “...it 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”. Keynes’s words show a preoccupation with the rapidity, the intensity –may be even the ineluctability- of recovery that is completely absent in Minsky’s framework. Let us now turn to the upper turning point. As we have seen, Minsky’s upward instability holds even at or above full employment. Metaphorically speaking, it might also lead to a situation where the endowment of houses exceeds potential demand. In Keynes’s (1936, p. 322) case, on the contrary, the economy stops before: “We reach a condition where there is a shortage of houses, but whether nevertheless no one can afford to live in the houses that there are.”³³ Analogous differences can be found in policy prescriptions. While Minsky (1986) highlights the crucial role of the Big Government and of fiscal automatic stabilizers, according to Keynes (1936, p. 322) the best strategy consists “in abolishing slumps and thus keeping us permanently in a quasi-boom”. To sum up, while Minsky refers to an economy whose fundamental instability is upward, what Keynes seems to have in mind is a depressed economy that needs the support of economic policy.

7. A common cyclical framework

In what follows, we shall refer to the graphical representation of the business cycle proposed by Hudson (1957).³⁴ Hudson introduces monetary phenomena into Kaldor’s (1940) model. Belonging to the tradition of Keynes and Minsky, his framework can thus help us to highlight the analogies and differences between the two authors. Hudson’s starting point is the traditional IS-LM model with given

³³ The distinction between the two kind of over-investments is suggested by Keynes himself, according to whom (1936, pp. 320-1): “...the term over-investment is ambiguous. It may refer to investments which are destined to disappoint the expectations which prompted them or for which there is no use in conditions of severe unemployment, or it may indicate a state of affairs where every kind of capital goods is so abundant that there is no new investment which is expected, even in condition of full employment, to earn in the course of its life more than its replacement cost”.

³⁴ Hudson’s (1957) aim was to introduce monetary effects in Kaldor’s (1940) model. We are grateful to Velupillai (2004) for signalling Hudson’s interesting article.

money wages and prices.³⁵ The time derivatives of income and of the interest rate are a positive function, respectively, of the excess of planned investment over saving and of the excess demand for money. As usual, the time derivative of the capital stock is assumed to be zero in the short-run and equal to net investments in the long-run.

As shown in Figure 5, the distinctive feature of Hudson's model is that -while the LM curve is the traditional one- the IS curve has an unconventional shape that in its turn is due to the income elasticity of investment. Starting with the initial U-shaped part of the IS_0 curve, let us assume that Y_0' is the income level that ensures the normal utilization of the given capital stock K_0 . The latter will thus be under-utilized on the left of Y_0' and over-utilized on the right. On this basis, Hudson (op. cit., p. 379) assumes that, for lower (higher) than Y_0' income levels, the income elasticity of investments is so low (high) that it falls (rises) below (above) the income elasticity of saving. Starting from a point of IS_0 on the left (right) of Y_0' , an increase in income thus induces an excess of saving (investments) over investments (saving) whose re-absorption requires a lower (higher) equilibrium interest rate.³⁶ In its initial U-shaped part, the IS_0 curve is then negatively sloped on the left of Y_0' and positively sloped on the right. Hudson (op. cit., p. 383), however, also admits the possibility that, at high levels of investments and income, the income elasticity of investment falls again below the income elasticity of saving as a result of, for instance, a rising supply price of capital. This is the reason why the IS_0 schedule ends up sloping downwards again in the right hand side of Figure 5.

The intersection between the IS_0 and LM_0 curves identifies three short-run equilibrium points in Figure 5. Points A_0 and C_0 represent locally stable equilibria. The reason for this becomes evident if -following Hudson (1957, p. 381)- we assume that the interest rate instantaneously clears the money market while income only gradually clears the goods market. Starting from these premises, on the left (right) of A_0 and C_0 , the prevailing interest rate determined by the LM_0 curve is lower (higher) than the one required by IS_0 . The goods market thus experiences an excess of investments (saving) over saving (investments) -i.e. an excess of aggregate demand (supply)- that stimulates (depresses) income towards the corresponding equilibrium value. Following an analogous line of reasoning, it is

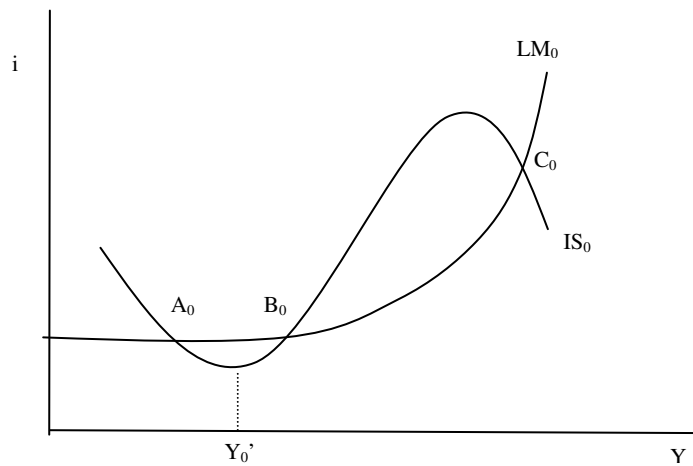
³⁵ Adopting the usual notation, the specification used by Hudson is $S(Y, r)=I(Y, r, K)$ for the IS curve and $M(Y)=L(Y, r)$ for the LM curve. The signs of the partial derivatives are the conventional ones: $S_y>0$, $S_r>0$, $I_y>0$, $I_r<0$, $I_k<0$, $L_y>M_y>0$, $L_r<0$.

³⁶ The slope of the IS curve is given by $dr/dY=(S_y-I_y)/(I_r-S_r)$. Since the denominator is assumed to be negative, such a slope is negative if $S_y>I_y$ and viceversa.

evident that B_0 instead represents a locally unstable equilibrium: income tends to fall on its left and to rise on its right.³⁷

In the short-run, if the system is out of equilibrium, any change in income is therefore away from B_0 and towards either A_0 or C_0 in Figure 5. By assumption, however, the position of zero net investment falls in the neighbourhood of locally unstable equilibrium B_0 . As we shall see, the incompatibility between the short-run local stability of equilibriums and the long-run steadiness of the capital stock originates Hudson's cycle.

Figure 5. Hudson's IS-LM model



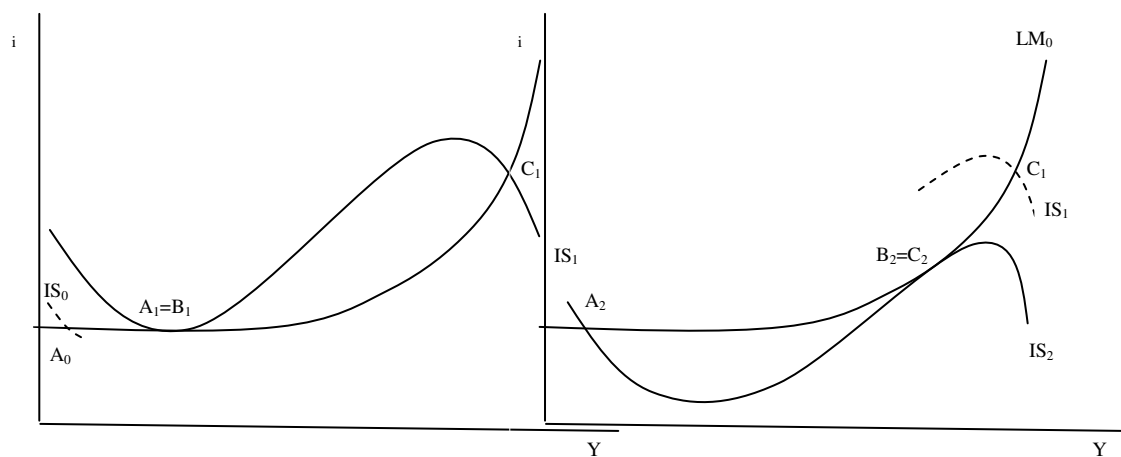
The two panels of Figure 6 show, respectively, the upswing and downswing. Let us start with locally stable short-run equilibrium point A_0 in the left-hand panel. In A_0 , investments are so low that they do not even allow the replacement of the existing capital stock. In the long-run, the progressive fall of the capital stock stimulates investments. The IS curve thus gradually shifts upwards, from IS_0 to IS_1 , expanding the economy from A_0 to the tangency point $A_1=B_1$. In $A_1=B_1$, however, there is upward local instability. The current interest rate given by the LM_0 curve is lower than the rate required by the IS_1 . This denotes an excess of investments over saving that stimulates the economy. *Ceteris paribus*, the rise in income will be proportional to the imbalance of the goods market shown by the vertical distance between the IS_1 and LM_0 curves. Income thus will rise first at an increasing and

³⁷ As shown by Hudson (1957, p. 381), the local stability of the model requires that the slope of the IS curve be lower than the slope of the LM. The model is thus locally stable when the IS curve is negatively sloped (as in A_0 and C_0) and locally unstable when the slope of the IS curve is positive and higher than the slope of the LM (as in B_0).

then at a decreasing rate, finally reaching the new locally stable short-run equilibrium point C_1 .³⁸

Starting from the peak C_1 , the right-hand panel of Figure 6 shows the downswing. This time, the high investment level increases the capital stock. In the long-run, the progressive rise of the capital stock depresses investments. The IS curve thus gradually shifts downwards, from IS_1 to IS_2 , depressing the economy from C_1 to the tangency point $B_2=C_2$. In $B_2=C_2$, however, there is downward local instability. The current interest rate determined by the LM_0 curve is higher than the rate required by the IS_2 . This denotes an excess of saving over investments that depresses the economy. Ceteris paribus, the fall of income will be proportional to the imbalance of the goods market shown by the vertical distance between the LM_0 and IS_2 curves. Income thus will fall first at an increasing and then at a decreasing rate, finally reaching the locally stable short-run equilibrium point A_2 from which the upswing starts again.

Figure 6. Upswing and downswing



Hudson's version of the IS-LM model presents some useful aspects for a comparison between Keynes's and Minsky's views. Specifically, it highlights the following common aspects.

³⁸ According to Hudson (1957, p. 384), point C_1 implies an income level no higher than the full employment one. If it were not so, i.e. if full-employment were achieved in the presence of an ex ante gap of investment over saving, then prices, the nominal demand for money and the rate of interest would rise. The consequent upward shift of the LM curve would move point C_1 to the left, ending by aligning it to full employment income.

- i) Hudson's business cycle is endogenous and does not depend on initial shocks or on a specific constellation of time-lags and parameters values. This aspect seems to be in line with Keynes's (1936) chapter 22 and with Minsky's views.³⁹
- ii) Both in the short- and in the long-run, the model mainly relies on quantity - rather than on price- adjustments. This aspect seems to be crucial both for Keynes and for Minsky.
- iii) to determine the cyclical fluctuations of income are the cyclical fluctuations of investments. Again, this is a crucial aspect both in Keynes's chapter 22 and in Minsky.⁴⁰
- iv) the cyclical behaviour of investments depends on profit expectations. If income has a positive influence on investments along the short-run IS curve, it is because it stimulates current and thus expected profits.⁴¹ If the capital stock has a long-run negative influence on investments and hence on the position of the IS curve, it is because it depresses current and thus expected profits.⁴² The upswing and downswing shown in Figure 6 thus mirror, respectively, increasing and decreasing profit expectations. Hudson's framework seem thus compatible with the waves of optimism and pessimism envisaged both by Keynes's chapter 22 and by Minsky.
- v) The quantity adjustments envisaged by Hudson seem to be in line both with Keynes's and with Minsky's views. Starting with the short-run, the expansionary effect of income on investment strengthens Keynes's multiplier processes. In addition, since income affects investments through profits and is in its turn affected by investments, Hudson's framework seems also compatible with the Minskyan deviation-amplifying link investments-profits-investments. With regard to the long-run effect of the capital stock on investments, such an effect is explicitly recognized both by Keynes's chapter 22 and by Minsky.⁴³

³⁹ 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 seem to hold for Keynes.

⁴⁰ 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". As far as Minsky is concerned, as we have seen he (1978, p. 30) expressly defines his theory as "an investment theory of the business cycle".

⁴¹ To quote Hudson (1957, p.379): "Alternatively, at higher levels of income..., a rise in income implies that the 'normal' reserve capacity of firms must be utilized, and the consequent rise in profits induces entrepreneurs to plan additional investment."

⁴² Hudson (1957, p. 384) writes: "With income stationary, this growth of capital entails the gradual appearance of surplus capacity. 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 investments projects are now less favourable for further investments".

⁴³ With regard to the upper turning point, Keynes (1936, p. 317) writes: "The disillusion comes because doubts suddenly arise concerning the reliability of the prospective yield, perhaps because the

vi) Hudson keeps the LM curve unchanged only in order to simplify the exposition. He (op. cit., p. 382 and 384), however, explicitly recognizes that liquidity preference is affected by expectations and confidence. Thus, the wave of optimism (pessimism) striking the trough (peak) would not only shift the IS curve upwards (downwards) as shown in the left (right) hand panel of Figure 6. It might also move the LM curve downwards (upwards). The money market would thus accentuate the upward (downward) local instability. This destabilizing role of money seems to be in line with Keynes's and Minsky's views.⁴⁴

vii) the upward slope of Hudson's LM curve mirrors the traditional assumption according to which income stimulates the transactions demand for money (more than money supply) and thus requires a higher equilibrium interest rate. We might, however, also re-read the LM curve under a credit perspective. A higher level of investment and income would then imply a higher demand for credit. The latter would be endogenously satisfied by the financial system at a higher interest rate mirroring, for instance, a higher lender's risk. The latter is a concept that Minsky (1975, p. 106) borrows from Keynes (1936, p. 144). In both the cases, the concept highlights the common acknowledgment of the active role performed by finance.

8. Keynes and Minsky: two opposite faces of the same coin?

While in the previous section we have used Hudson's framework to highlight the aspects shared by Minsky and Keynes, in what follows we shall use it to stress the differences between the two authors. A careful reading of their writing suggests that, whilst both of them are at the mercy of waves of optimism and pessimism, Minsky 'fights' against the upswing while Keynes 'fights' against the downswing. With very few exceptions, Minsky's writings focus on the tendency to a

current yield shows signs of falling off, as the stock of newly produced durable goods steadily increases". Analogously, with regard to the lower turning point, Keynes (1936, p. 318) claims that the duration of the slump depends on "the interval of time, which will have to elapse before the shortage of capital trough use, decay and obsolescence causes a sufficiently obvious scarcity to increase the marginal efficiency of capital". As far as Minsky is concerned, he (1975, p. 126) writes: "As the subjective repercussions of the debt-deflation wear off, as disinvestment occurs, and as financial positions are rebuilt during the stagnant phase, a recovery and expansion begins".

⁴⁴ With regard to the upper turning point, Keynes (1936, p. 316) writes: "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. But the essence of the situation is to be found, nevertheless, in the collapse in the marginal efficiency of capital, particularly in the case of those types of capital which have been contributing most to the previous phase of heavy investment." As far as Minsky is concerned, the destabilizing role that he assigns to the money market has already been analyzed in section 4.

speculative boom, taking the consequent disaster and (above all) the subsequent recovery for granted.⁴⁵ To quote Minsky (1986, p. 173) own words: “The spectacular panics, debt deflations, and deep depressions that historically followed a speculative boom as well the recovery from depressions are of lesser importance in the analysis of instability than the developments over a period characterized by sustained growth that leads to the emergence of fragile and unstable financial structures”. On the contrary, chapter 22 of *The General Theory* stresses the precariousness of full employment arising from the depressive effect of accumulation on the marginal efficiency of capital, the chronic inadequacy of the level of investments with respect to the target of full employment, the precariousness of the recovery and the need to support it at all costs.⁴⁶

On this basis, let us come back to Figure 6. As we have seen, Minsky expressly refers to an economy whose fundamental instability is upward. At the extreme, the relevant curves may be IS_1 and LM_0 in the left-hand panel of Figure 6. *Ceteris paribus*, the expected profitability of investments tends to be high with respect to the interest rate determined by the money market. The result is an excess of investments over saving that stimulates the economy to the peak C_1 . In Minsky’s vibrant economy, the upswing is not under discussion. Instead, Minsky’s problem is to justify the downswing in the right-hand panel of Figure 6. Why does his vibrant economy stop growing?⁴⁷ Why does it plunge into the great depression represented by point A_2 ? Minsky’s answer is that the rise in the interest rate, combined with the financial fragility inherited by the boom, triggers the disaster. The dismay associated with the financial crisis and the debt deflation pushes the IS curve downward from IS_1 to IS_2 , leading the economy from the peak C_1 to the tangency point $B_2=C_2$ in the left hand panel of Figure 6. At this point Minsky’s deviation-amplifying mechanisms come into play, leading to the deep-depression represented by point A_2 .

The economy described by chapter 22 of *The General Theory* tends instead to be characterized by a high interest rate and by a low marginal efficiency of capital.⁴⁸

⁴⁵ Only exceptionally Minsky’s writings dwell upon the disaster following the boom. One of the few examples is Minsky (1982b).

⁴⁶ According to our interpretation, it is not by chance that deviation-amplifying mechanisms are referred to the upswing in Minsky and to the downswing in Keynes’s (1936) chapter 22.

⁴⁷ This problem is treated in Minsky (1965). While using a multiplier-accelerator model constrained by a ceiling and a floor, Minsky exclusively focuses on the first of the two constraints. His problem is to explain why the economy stops growing rather than experiencing a self-sustained growth.

⁴⁸ Keynes’s concern for the low marginal efficiency of capital compared with the high level of the interest rate emerges, for instance, from his comment to the under-consumption schools of thought. In Keynes (1936, pp. 324-5) we read: “In existing conditions –or, at least, in the conditions that existed

At the extreme, the relevant curves may then be LM_0 and IS_2 in the right-hand panel of Figure 6. The chronic excess of saving over investments depresses the system to the trough A_2 . Keynes takes this downward instability for granted. His perplexities concern the left-hand panel of Figure 6. Keynes (1936) explicitly agrees with Hudson (1957) that in A_0 the fall in the capital stock tends to stimulate investments and thus the economy. His concern, however, is that the recovery may be slow and, above all, so weak that it is unable to turn into an expansion. After all, the IS curve might shift to an intermediate position between IS_0 and IS_1 rather than to IS_1 . The system would then strand in a locally stable unemployment equilibrium point included between A_0 and $A_1=B_1$.⁴⁹ In such a case, the business cycle would break down in the neighbourhood of its trough. This is the situation to which the first 21 chapters of *The General Theory* seem to be devoted. If there is a ‘fundamental instability’ in Keynes (1936) book considered as a whole, it seems to be downward.

As we have seen, the main phase of the cycle seems to be the upswing in Minsky and the downswing in Keynes. How to explain this difference? A tentative solution is proposed in Figure 7, where the solid lines show an economy à la Minsky where the broken lines show an economy à la Keynes. The basic assumption of the figure is that –ceteris paribus– a vibrant economy à la Minsky (for instance, an economy just emerged from a strong wave of innovations) implies higher profit expectations. It consequently entails a higher IS curve in both the panels. We might, for instance, imagine that in Minsky’s vibrant economy the upswing implies a greater improvement—and the downswing a lower worsening— in profit expectations. A higher IS curve mirrors a greater (lower) excess of investment (saving) over saving (investment) in the left (right) hand panel. An economy à la Minsky then tends to accumulate a higher indebtedness over the cycle. Thus, while Keynes’s preoccupation is the inadequacy of aggregate demand with respect to full employment, Minsky’s preoccupation is the inadequacy of aggregate demand with respect to the fulfilment of debt commitments. Lastly, to stop the upswing is the rise of the interest rate due to real or financial bottlenecks in an economy à la

until lately- where the volume of investment is unplanned and uncontrolled, subject to the vagaries of the marginal efficiency of capital as determined by the private judgment of individual ignorant or speculative, and to a long-term rate of interest which seldom or never falls below a conventional level, these schools of thought are, as guides to practical policy, undoubtedly in the right....If it is impracticable materially to increase investment, obviously there is no means of securing a higher level of employment except by increasing consumption”.

⁴⁹ Such an intermediate equilibrium point would imply a zero net investment and thus the steadiness of the given existing capital stock.

Minsky and the fall in the marginal efficiency of capital in an economy à la Keynes.⁵⁰

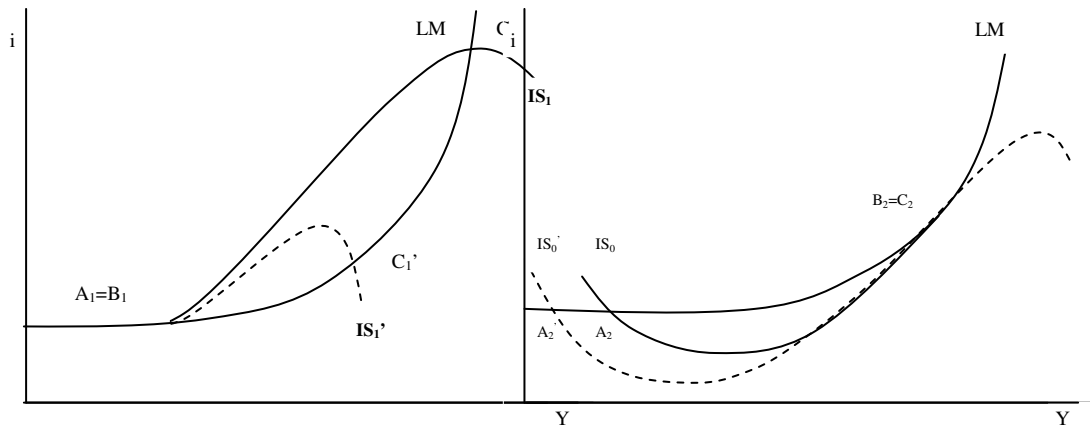
Assuming that the vertical distance between the IS and LM curves shows the intensity of the cycle, the main implications of Figure 7 are two. Firstly, an economy à la Minsky will experience comparatively greater upswings in the first panel and comparatively smaller downswings in the second. Secondly, if we compare the two panels, the prevailing phase in terms of intensity might be the upswing in an economy à la Minsky and the downswing in an economy à la Keynes.⁵¹

According to Hudson (1957), the system does not tend to an independently determined equilibrium growth path. *Ceteris paribus*, “growth should be regarded as a product of the cycle, of the duration and amplitude of the swings of economic activity” (p. 389). An economy dominated by the upswing à la Minsky will thus tend to grow more strongly than an economy dominated by the downswing à la Keynes. This growth gap in its turn might confirm and sustain the different degree of optimism about future profits characterizing the two economies.

Figure 7. Upswing and downswing à la Keynes and à la Minsky

⁵⁰ With regard to the upper turning-point, Minsky (1986, par 8) writes: “Given the limited equity base, internal and external drains of bank reserves, and, in modern times, Central Bank actions to restrain the money supply, the supply of finance from banks eventually becomes less than infinitely elastic.” In Keynes (1936, p. 315), on the contrary, we read: “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”.

⁵¹ This might be the reason why, in the ‘Agenda for Reform’ that closes his famous 1986 book, Minsky takes the compatibility between the fiscal stabilization (p. 297) and support (p. 308) of the economy on the one hand and the constraint of a full-employment government budget balanced or in surplus over the cycle (p. 302) on the other hand for granted.



Let us come to the conclusions. Living in different historical periods, Keynes and Minsky understandably focused on different realities. Keynes looked at a depressed economy that, as a consequence of its low profit expectations, is dominated by the downswings (by the excess of saving over investment). Minsky looked at a vibrant economy that, as a consequence of its high profit expectations, is dominated by the upswings (by the excess of investment over saving). While a stagnant economy à la Keynes tends to chronic underinvestment and thus to high and long-lasting unemployment, a vibrant economy à la Minsky is naturally inclined to overinvestment and over-indebtedness. In the last decades, tentative examples might be the European economy on the one hand and the U.S.A. and U.K. economies on the other. Under this perspective, Minsky might be considered as an author who has extended the economics of Keynes to a vibrant economy, making it even more general and modern.

9. Conclusions

Minsky is not an easy author. He seems definitely more interested in developing the insights inspired by reality than in the clarity and rigour of his writings.⁵² This might be the reason why he seems to be more quoted than read. In trying to shed light on his thought, this work highlights an aspect generally neglected by the literature. We refer to Minsky's upward instability proposition, a proposition that seems not only questionable, but also totally foreign to *The General Theory*. If

⁵² In reviewing Minsky (1986) book, Tobin (1989, p.108) points out that: "Lapses of memory and failures of editing have left in the book repetitions of identical points, references, and language... There are also anomalies of order and organization. For example, the important taxonomy of types of finance first appears in a footnote on page 202 and is used in the text before it is introduced and fully explained beginning on page 206. The index is incomplete". This does not prevent Tobin from recognizing that "Minsky is a fine political economist".

there is a fundamental instability in Keynes, it seems to be downward. Hudson's (1957) cyclical framework belongs to the tradition of Keynes and Minsky. We have thus used it to highlight the analogies and differences between the two authors.

The conclusion is that Keynes and Minsky might be considered as two faces of the same coin looking in opposite directions. Keynes looked at an economy that, as a consequence of its low profit expectations, is dominated by the downswings (by the excess of saving over investment). Minsky looked at a vibrant economy that, as a consequence of its high profit expectations, is dominated by the upswings (by the excess of investment over saving). Thus, while a stagnant economy à la Keynes tends to chronic under-investment and thus to high and long-lasting unemployment, a vibrant economy à la Minsky is naturally inclined to over-investment and over-indebtedness. From this perspective, Minsky might then be considered as an author who has extended the economics of Keynes to a vibrant economy, making it even more general and modern.

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