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If anything goes wrong

Re-reading Minsky after the Great Recession

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SHORT ABSTRACT: The ‘Financial Instability Hypothesis’ of Hyman Philip Minsky interprets the ‘world we live in’ as an intrinsically unbalanced system. This hypothesis worked well enough until the 1980s, but nowadays it must be changed to take into account the capital market inflation and the birth of a ‘new’ capitalism in the USA in the 1990s – two faces of the ‘money manager capitalism’. The aim of this paper is just to redefine Minsky’s original hypothesis by means of a multi-sector analysis, considering explicitly the different evolution of the financial structures of corporate sector, households and financial business.

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Introduction (extended abstract)

The ‘Financial Instability Hypothesis’ of Hyman Philip Minsky interprets the ‘world we live in’ as an intrinsically unbalanced system marked by the alternation of speculative waves and the risk of a debt deflation. The ‘world we live in’ is a capitalist economy with expensive and long-lived capital assets and with a complex financial structure. Minsky’s approach is summarised in section 1 of the paper. In this setting, tranquil growth opens the way to speculative attitudes and structures and these latter, in turn, lead to the global financial vulnerability and then to the open crisis. The financial instability hypothesis worked well enough until the 1980s, but nowadays it must be redefined to better represent current capitalism.

In sections 2 and 3 of the paper we deal with the macro-foundation issue of the financial instability hypothesis and the role of the mismatching ratio. For Minsky the ‘leverage ratio’ must eventually rise during the boom phase of the economic cycle because of non-financial businesses’ investments. Yet, from a macroeconomic point of view, the increase in net profits (that have not been distributed as dividends) during the boom may compensate the higher debt of the non-financial firms. During a period of ‘tranquil growth’, firms tend to finance long-term assets by means of short-term liabilities (so increasing their ‘mismatching ratio’) whenever the spread between long-term and short-term interest rates widens. This may be enough to admit that economic stability is potentially destabilizing, at least if one assumes that it endogenously leads to rising interest rates over time. However, the link between micro and macro framework of Minsky’s hypothesis still remains a very controversial issue.

In sections 4-8 of the paper we deal with the need to redefine the financial instability hypothesis to take into account the capital market inflation since the 1980s and the birth of a ‘new’ capitalism in the USA in the 1990s – two faces of Minsky’s ‘money manager capitalism’. Indeed, if one looks at today’s Anglo-Saxon economies, the main instability factors are represented by the growing debt for households and financial businesses rather than by the increase in non-financial businesses’ leverage. Since the late 1980s, uninterrupted financial innovations along with the flow of savings directed by institutional funds to stock exchange markets gave rise to a huge capital market inflation. This latter, in turn, led to a speculative bubble sustaining US domestic demand, since the ‘wealth effect’ produced thanks to the financial assets revaluation supported households’ indebted consumption (this being a kind of paradoxical ‘asset-bubble driven Keynesianism’).

In a similar way, the US growth after 2003 has been built on the real estate bubble and the hypertrophic growth of the ‘derivatives’ market. All these phenomena have been fed by speculative behaviours of banks, hedge funds and other financial intermediaries, supported by the Federal Reserve injections of money. The ‘new’ capitalism of the last fifteen years is therefore ingrained on the mutual reinforcement of the traumatized workers, manic savers, indebted consumers thanks to capital asset inflation and collateralised lending. It ended with the ‘Minsky moment’ of July 2007 followed by the ‘Minsky meltdown’ of September 2008. At this point the manic savers turned into depressive savers, and deleveraging created anew the condition of a financial decelerator and (debt) deflation. The instability – or rather, unsustainability – of the mechanism turned into open crisis, in the last instance because of the fragility of the banking system and the collapse of final debtors, ignited by the rise of the rate of interest due to inflation targeting by the Fed.

1. Minsky *one*: financial instability and the paradox of tranquillity

As is well-known¹, the basic core of Minsky's economic thought is centred around three interrelated topics: *a*) an interpretation of Keynes' theory focusing on the role of financial markets, the endogeneity and non-neutrality of money, the systematic uncertainty surrounding the decisions made by units (banks, firms and other financial intermediaries); *b*) the financial instability hypothesis, according to which, after a period of 'tranquil' growth and robust finance, units' liability structures tend to shift towards fragility, so that the economic system is prone to financial crises; *c*) the thesis according to which discretionary economic policies can smooth cyclical instability, creating ceilings and floors and constraining the dynamic behaviour of the economy thanks to the intervention of the central bank as a lender of last resort and of the Government's budget deficits.

On these bases, Minsky conjugates Keynes' investment theory of the business cycle, founded in Chapters 12 and 17 of the *General Theory*, with a financial theory of investment. The two pillars of Minsky's thought are the 'two-price model' and the 'theory of increasing risk', both got from Keynes (1936) and, albeit more mediately, from Kalecki (1971)². In particular, Minsky's analysis starts from a financial (re)reading of the *General Theory*, which is considered a draft of fundamental intuitions, but not devoid of contradictions and contaminations of previous doctrines compared to which it wanted to be a break element. On the microeconomic plan, one has to shift from the consideration of the interest rate to that of the price of capital assets (that is the price of existing capital stock) as the key-variable for the investment. Indeed, the price of capital assets points out the changeable profit expectations of the investing firm, making investment a very unstable component of aggregate demand. In short, the higher the market value of capital assets, and the lower the perception of the twin risks linked to investment, the higher will be the (real) investment settled by each single firm, given the supply price of new capital goods³.

Notice that during the periods of 'tranquil growth' the price of capital assets increases, whereas the risk perception decreases, so increasing the level of investment

¹ See Papadimitriou - Wray, 2008; Bellofiore - Ferri, 2001; Dimsky - Pollin, 1994; and Fazzari - Papadimitriou, 1992.

² See Papadimitriou - Wray, 2008, p. xv.

³ The price of capital assets (pointed out in the stock market quotation) is the maximum price that the purchasing firm is willing to pay and depends on the long-term profit expectations (relating to investment), the money supply and the borrower's risk. The supply price of new capital goods, fixed according the cost-plus pricing rule, depends on the variable cost of production, the short-term profit expectations of the producers of capital goods and the lender's risk. The relative dynamic of these prices, which are settled in different markets by different forces, defines the real amount of investment for every firms. A demand price higher than the supply price of new capital goods indicates that the purchaser has convenience to invest, and *vice versa*. Let us note that Minsky (1975; 1982; 1986), like Keynes (1936), distinguishes two different kind of risks, both increasing as real investment increases (at least in the measure in which the purchaser decides to resort to external funds to finance investment). The *borrower's risk* has a subjective nature and is linked to either the reduction of the firm's safety margins (because of the increase in the share of investment which is financed by means of external funds) or the lower portfolio diversification. As the firm recurs to debt, the gross profit (or 'quasi-rent') discount rate grows, generating a *fall* in the price of capital assets. This means that, beyond the self-financing threshold, the price of capital assets shrinks as the real investment increases. Even the *lender's risk* has a subjective nature, since it depends on the expectations of banks, but it *objectifies* in credit agreements in terms of increasing interests (and other financial burdens). Hence the supply price of new capital goods *actually* faced by investing firm (that is, the price plus financial burdens) grows as the debt-financed real investment grows. Obviously, the single firm is willing to push real investment until (modified) demand price curve intersects (modified) supply price curve.

(in real terms). However, for Minsky, sooner or later a growing investment activity will entail an increasing global leverage ratio⁴ and hence an increasing financial fragility of the business sector. The essence of Minsky's financial instability hypothesis is the very idea that stability itself opens the way to speculative attitudes and these latter, in turn, may lead to an open financial crisis. So, for Minsky, on the one hand speculative behaviour is positive, since it allows for a higher long term investment and growth. On the other hand, it makes the whole economic system more and more fragile. The economic boom gradually degenerates into a bubble where units prone to take 'speculative' and 'ultra-speculative' positions tend to prevail⁵. In such a context, an unexpected rise in the short term interest rates, or a fall in assets price, opens the door to the financial crisis. This may result in an economic recession coupled with debt deflation that – if not adequately opposed by an active counter-cyclical economic policy by means of government deficit spending and injections of liquidity⁶ – may lead to a chronic depression. The situation is worsened by the fact that, during the euphoric phase, all units (bankers, entrepreneurs and financial operators) have been reducing their money balances and liquidity. So, when the crisis erupts, the liquidity preference starts rising again. The economic crisis is therefore the natural outcome of the fragility of the financial structure and this fragility, in turn, is the upshot of the 'normal' working of the capitalist economy. It is for this reason that some Post-Keynesian authors label this endogenous process the 'paradox of tranquillity'⁷.

2. Kalecki's macroeconomic profit equations and the paradox of debt

Let us note that, until the analysis remains focused on the behaviour of the single representative firm (as purchaser of capital goods or assets), one can assume that: *i*) investment growth entails an increasing debt, and this latter entails increasing risks which impose an upper limit (ceiling) on investment itself; *ii*) the amount of non-distributed profits (that is, internal funds) is *given* in each period. However, following Kalecki (1971), Minsky brings the macroeconomic source of profits back to the

⁴ Which is the ratio between debt and total funds (namely, debt *plus* capital stock).

⁵ Minsky labelled 'speculative-financing units' those where cash flow earnings allow for the servicing of the interest on debt, but no longer suffice to cover, in every period, the part of the principal which must be given back. Thus, for these units, the refinancing of debt positions becomes necessary, for some periods at least. Speculative units, which multiply with the boom phase, must face up not only the 'economic' risk but also a 'financial' risk due to a possible drop in the assets' value or to a sudden unexpected increase in the short-term interest rate fixed by central bank. In either case, expected profits may turn into actual losses. On the other hand, an ultra-speculative or 'Ponzi' financial structure is occurring when interest payments alone exceed the cash flow earnings for a significant number of periods, so that units must either liquidate part of assets (selling positions) or raise new funds (refinancing). An ultra-speculative position is held if the unit expects some 'bonanza', either exceptional profits or capital gains due to asset price inflation.

⁶ Let us note that, on the one hand, since the New Deal government intervention was committed to prevent that the financial crisis leads to a 'Big Crash', by raising the lower turning point of the cycle. Stabilisation was pursued by means of government's budget deficits, backed by the central bank acting as a lender of last resort: the 'Big Government' and the 'Big Bank'. On the other hand, *laissez faire*, with its myth of a 'small government' and a 'light State', is neither a leftwing or rightwing policy. It is just an illusory policy that will never be carried out again in practice, at least in a durable manner. Ever since the 1970s a formally anti-government bias, which can be named as 'neoconservative', has led to the zeroing of many of the New Deal former reforms. In practice, however, such an ideological attitude has never really turned into the pre-war non-interventionist policies (see Bellofiore - Halevi - Passarella, 2009; and Wray 2008).

⁷ See Lavoie, 1986, p. 6-7.

autonomous component of demand. The aim is to describe the financial fragility as a wholly endogenous process, by linking actual profits to global investment decisions, and these latter, in turn, to expected profits. For this purpose, it is enough to consider the macroeconomic identity (which is always *ex post* validated within a closed economy without government intervention) between the aggregate expenditure for consumption and investment, on the one hand, and the monetary value of distributed incomes (domestic income), on the other hand. In simple algebraic terms:

$$(2.1) \quad \begin{aligned} Y &= C + I \\ P + W &= C + I \end{aligned}$$

where Y is the domestic income, C is the global consumption, I is the investment of firms as a whole, P is the macroeconomic gross profit gained by business sector and W is the total money wage-bill⁸. If one adopts the *Classics'* hypothesis, according to which wage-earners do not save and capital income earners do not consume, then $C = W$ and equation (2.1) turns into:

$$(2.2) \quad P = I$$

where the direction of causality goes from investment to profit, according to the famous Kalecki's expression that 'capitalists may decide to consume and to invest more in a given period than in the preceding one, but they cannot decide to earn more. It is, therefore, their investment and consumption decisions which determine profits, and not vice versa' (Kalecki, 1971, p. 78).

An important consequence of (2.2) is that, whereas it seems reasonable to assume that internal funds (which are expected to be available) are *given* for single firm, this is not justified for firms as a whole. From a macroeconomic point of view, one has to admit that the *ex post* financial leverage for corporate sector can turn out different than that has been expected *ex ante* by each single entrepreneur or manager. Indeed, higher (lower) aggregate investment entails higher (lower) global profits and, hence, higher (lower) potential internal funds. In particular, for Lavoie, during a period of economic expansion 'firms *may* decide to reduce their leverage ratio, but unless they take drastic measures with respect to dividends, they cannot be successful in their attempts' (Lavoie, 1986, p. 12). On the contrary, in the presence of noteworthy ratchet effects⁹, non-accelerating profit expectations and stable interest rates, the economic growth can induce a fall, not a raise, in the leverage ratio. Here comes the paradox of debt, the Kaleckian equivalent of the more known Keynes' paradox of thrift. So the analytical capability of Minsky's hypothesis must be reduced to the case of profit expectations increasing *in accelerate terms* (or, anyhow, increasing more quickly than capital accumulation rate), especially in the presence of increasing interest rates. In order to clarify this point, let us consider the following system of four equations in four unknowns (P_t, A_t, F_t, D_t), all expressed in macro-monetary terms:

⁸ All magnitudes are expressed in aggregate and monetary terms.

⁹ According to which, in the short-run, firms are slow to adapt dividends to higher realized profits.

$$(2.3) \quad \begin{cases} P_t = I_{t-1} \\ A_t = P_t - B_t \\ B_t = iD_t + (1-\theta)P_t \\ D_t = (1+g)I_{t-1} - A_t \end{cases}$$

where A_t are the internal funds (or self-financing), B_t is the amount of bank interests and dividend payments made to households, i is the short-run interest rate, D_t is the global new debt of business sector, θ is the retention ratio (that is, the share of non-distributed profits), g is the growth rate of global investment and I_{t-1} is the investment made in the previous period¹⁰. By solving the system (2.3) for A_t and remembering the formula of (marginal) leverage ratio, we get:

$$(2.4) \quad \ell_t = \frac{D_t}{D_t + A_t} = \frac{1+g-\theta}{(1+g)(1-i)} \quad \text{with } 0 \leq \ell_t < \left(1 + \frac{i}{1-i}\right) \approx 1 \text{ for low values of } i$$

As for the sign of the partial derivatives, it is easy to verify that:

$$\frac{\partial \ell(g)}{\partial g} > 0 \quad \forall g \in \mathbb{Q} \setminus \{-1\}, \quad \frac{\partial \ell(i)}{\partial i} > 0 \quad \forall i \in [0,1) \quad \text{and} \quad \frac{\partial \ell(\theta)}{\partial \theta} < 0 \quad \forall \theta \in [0,1]$$

So the (marginal) leverage ratio depends positively on both investment growth rate (g) and short-run interest rate (i), and hinges negatively on the share of accumulated profits (θ). Leverage ratio grows as investment and hence debt grow in accelerated terms (or, anyhow, more quickly than the retention rate), given the interest rate¹¹. Consequently, Minsky's original formulation of the financial instability hypothesis is not a general theory, but the particular theory of the (investment-led) *boom*. In other words, that of Minsky is the model of an economy where very elastic profit expectations make investment and debt change more and more rapidly.

3. Minsky *two*: mismatching ratio and global financial vulnerability

As has been argued, the original version of the financial instability hypothesis worked well enough until the 1980s, but nowadays it must be redefined to better represent current capitalism¹². A first way to extend the analytical capability of Minsky's theory, although it just focuses on the financial exposure of corporate sector, so disregarding many features of the 'new' capitalism, is that followed by Corbisiero (1998). In his works, he points out that leverage ratio measures only the exposition of firm to gross

¹⁰ Let us note that, following Kalecki (1971), we assume that gross profits always follow investment with a temporal delay (however short).

¹¹ Let us note that, in principle, leverage ratio may take a value > 1 . This happens because of passive interests burden, which can make self-financing negative (if the share of non-distributed profits is close to 0). In order to purify the results of (2.4) from this effect, we can consider pre-interests internal funds. Before a few passages, we get: $\ell' = (1+g-\theta)/(1+g)$. Now, leverage ratio increases as g increases and as θ decreases. Obviously, it achieves its maximum value ($\ell' = 1$) when $\theta = 0$.

¹² Whose features are the increasing households' autonomous consumption and the capital asset inflation generating an hypertrophic financial business sector, not a growing aggregate leverage ratio. See Bellofiore - Halevi, 2008; Bellofiore - Halevi - Passarella, 2009; and Toporowski, 2000.

profit drop risk. On the contrary, such a variable is not a good indicator of the actual financial risk, that is, the sensibility of firm debt structure to a (short-term) interest rate rise. This sensibility depends on the gap between the debt-financed investment duration and the concerning loan temporal extent. Broadly speaking, there is a further threat (financial risk), in addition to that of the increasing ratio between debt and capital stock (economic risk). The more the duration of investment financial requirement compared to that of the bank loan, the more this financial risk. In algebraic terms, the interest rate volatility risk (run by both single firm and business sector as a whole) can be measured accurately by means of a mismatching ratio (τ), that is:

$$(3.1) \quad \tau = \frac{t_k - t_d}{t_k} = 1 - \frac{t_d}{t_k} \quad \text{with } 0 < t_d \leq t_k \text{ and } 0 \leq \tau < 1$$

where t_k is the temporal duration of the financial requirement involved in investment decision and t_d is the temporal length of debt. Obviously, the more τ , the more the firm will be exposed to an interest rate rise, given the leverage ratio.

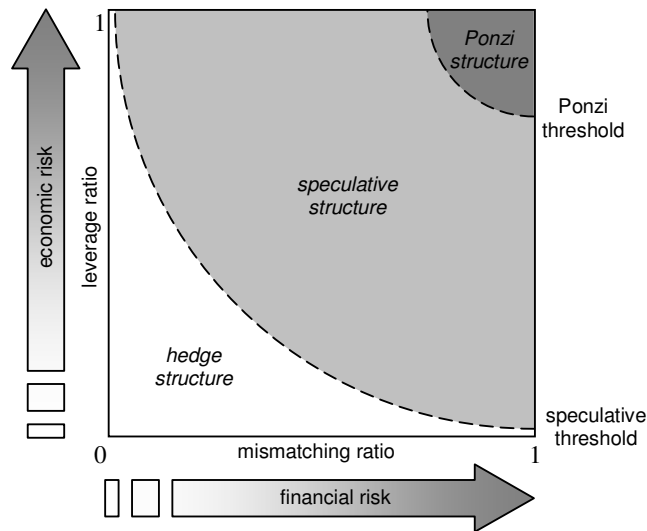


FIG. 1. The partition of firms' financial structure in the light of leverage and mismatching ratios.

The overall financial exposition of the firm (v), called 'vulnerability ratio' by Corbisiero (1998), is measured by the following composed index:

$$(3.2) \quad v = \tau \cdot \ell \quad \text{with } 0 \leq v < 1 \text{ and } \lim_{t_d \rightarrow 0^+} v(t_d) = \ell, \quad \lim_{t_d \rightarrow t_k} v(t_d) = 0$$

The vulnerability ratio is nil either when the bank loan length is equal to the financial requirement length, or when the leverage ratio is nil. On the contrary, this ratio achieves its maximum value (that is, it tends to one) as both the loan length tends to zero and the leverage ratio tends to one. Broadly speaking, an increasing leverage ratio cannot, per se, turn a hedge structure into a speculative structure. For this purpose, it is also necessary that the mismatching ratio is more than zero (see FIG. 1).

A noteworthy consequence is that Minsky's theory of financial instability can hold true even in the case in which corporate sector's leverage ratio does not grow during the upswing, as it is occurred – for instance – during the 1990s. In fact, balance sheets could

become more and more speculative because of the practice to finance investment (that is, long-term assets) by means of short-term liabilities¹³. So during the growth, the interest rates structure itself would prompt firms, households and financial business to behave speculatively. In fact, the larger the gap between long-term and short-term interest rates, the higher should be the propensity to adopt speculative financial structures. This practice involves the periodical subscription of new debt (the so called ‘refinancing of position’) and therefore a growing exposition of the borrowers to the interest rate volatility. A rise, however small, in the interest rate can induce borrowers to sell a part of their assets on the market (that is, ‘making position by selling position’) in order to reduce their debt. This behaviour, if generalized, could give raise to a deflationary process increasing debt in real terms (see Fisher, 1933), and so turning the financial instability into an open crisis.

4. Four still open issues

While the expressed consideration of the mismatching ratio allows to extend the analytical coverage of Minsky’s theory, withal saving and strengthening its internal consistence¹⁴, the actual role of this ratio (with regard to the recent financial crises at least) still has not either verified or measured¹⁵. Anyway, our impression is that what we really need is to redefine the financial instability hypothesis to take into account both the capital market inflation since the 1980s and the birth of a ‘new’ capitalism in the United States of America in the 1990s. In fact, besides the theoretical question of the business’ leverage ratio trend during a boom, Minsky’s hypothesis raises other open issues referring to more empirical conundrums.

Firstly, not only after 2001 the overall leverage ratio of US firms has fallen, but the previous boom of the so called *New Economy* cannot be fully explained referring to the demand for capital goods. Moreover, global private non-financial investment remained almost flat in the post-2003 upswing. So it seems necessary to shift our attention from the level of aggregate investment to another component of the aggregate demand as the key-variable of the economy: that households’ ‘autonomous’ consumption whose level is more and more linked to the financial asset market trend.

Secondly, differently from the past, the recent boom phases have not been marked by an increase in money wages (so the *Phillips curve* turned out to be flat), or in the commodity price level, at least in the old industrial countries. The spike in the price level of commodities – like oil, raw materials, foodstuffs or agricultural goods – resulted from tendencies related to the so called *globalisation*, including world-wide financial speculation and geo-political factors.

Thirdly, the banking system which has emerged from the 1980s and the 1990s reforms is very different from that analyzed by Minsky. Nowadays, banks seek to maximize their fees and commissions by issuing and managing assets in off-balance-sheet affiliate structures. They have instead no interest in credit evaluation (their traditional role, according to Minsky), which is now made by rating agencies. The latter,

¹³ Let us note that, in the presence of a positive mismatching ratio, an increasing short-term interest rate entails also an increasing leverage ratio, because of the growing burden of passive interests.

¹⁴ Indeed, if during the economic boom Central Bank attempts either to keep inflation down (for instance, in order to compensate the worsening of the balance of payments) or to discourage speculative behaviours by increasing the target interest rate, this cannot but lead to a higher aggregate leverage ratio, because of the build-up of passive interests for non-financial sector.

¹⁵ Of course, this could be the subject of future empirical works.

however, have not a direct knowledge of the borrowers, an aspect which no statistical procedure can replace. In effect, the ‘subprime loan crisis’ was announced from the very beginning: its outbreak has simply disclosed the fragility inherent in today’s credit evaluation system. This is due to the circumstance that ‘those who bear the risk are no longer responsible for evaluating the creditworthiness of borrowers and correctly evaluating risk’. On the contrary, ‘rating agency profits are correlated with the overestimation of creditworthiness and the undervaluation of risk’. So the subprime crisis has little to do with the housing market, ‘but rather with the basic structure of a financial system that overestimates creditworthiness and under-prices risk’ (Kregel 2008, p. 5).

Finally, since the 1990s, and even more during the 2000s, the main instability factor has been represented by the growing debt of households and financial businesses, rather than the increase in some corporate sector leverage ratio¹⁶. Let us note that, in principle, the capital asset inflation process allows non-financial firms to easily obtain low-cost capitals in the stock market. So financial innovations and the spreading of the derivative products, along with households’ growing debt, may have a stabilizing (rather than destabilizing) net effect on the industrial sector as a whole. In fact, this is what happened in the US after the 2003 upswing, until the spring 2007 at least. However, it is also a clear further argument against Minsky’s original formulation of the financial instability hypothesis. These very structural changes in the US economic system, requiring the adoption of a multi-sector analysis, will be the subject of the next sections.

5. Capital assets inflation and the non-financial firms’ debt

The building up of the ‘capitalism of pension (and institutional) funds’, corresponding to what Minsky would call ‘money manager capitalism’, has had a direct impact on the balance sheet of corporations, since they have had the possibility to issue shares cheaply. The return on shares is mainly in the form of capital gains, and this was a crucial factor in originating a systematic and disequilibrating capital assets inflation. In fact, during 1990s corporations issued capital in excess of their commercial and industrial needs. So a loop between financial inflation and overcapitalisation became embedded in the system, facilitated by the mere interest of fund managers in financial returns and shareholder value¹⁷. Bank borrowing was substituted by cheaper long term capital and excess capital. This latter was also reinvested in buying short-term financial assets. The merger and takeover mania, along with the balance sheet restructuring, is another part of this story (see Toporowski, 2000). A story which also enlightens why banks were forced to change their nature into fee-related businesses or originate-and-distribute activities, losing large corporations as costumers and then becoming more and more fragile.

As Toporowski (2000) points out, capital market inflation fuelled both the long equity financing boom and the housing market boom. Markets where the prospects of capital gains made disequilibrium feeding up on itself, increased for a long while liquidity, and improved the quality of collateral – that is, Minsky’s margin of safety became endogenously better and better in a self-justifying process. The rise in asset

¹⁶ In fact, the aggregate leverage ratio can be assimilated to the soil gas *radon*, whose anomalies are probably correlated with seismic events, although the presence of this precursor is not either necessary or sufficient condition for having a earthquake.

¹⁷ And also by new techniques of senior management remuneration and of debt management.

values had no roof because there was no automatic readjustment mechanism, no in-built tendency to equilibrium.

The most interesting points are, however, the effects on the non-financial companies' debt and on household debt. The former was reduced, so that 'industrial capital' sector became more stable. On the contrary, household debt not only was increased, but supported consumption against stagnating individual personal incomes for most of wage-earners. The collapse of the saving propensity to consume relative to personal income increased the multiplier and again stabilized the financial position of firms. This mutually reinforcing combination of capital assets inflation and collateralised lending hedged speculative financing structures through capital gains, delaying the onset of the crisis (see again Toporowski, 2000). As long as asset inflation continued, asset markets remained liquid and made possible the building up of collateralised debt. Thus, it was not investments which caused over-indebtedness for non-financial companies. Rather, debt was 'forced' into them. Initially, because of the capital asset inflation process on the rise, and because of the behaviour of financial intermediaries. Later, for the downside effects on the same non-financial companies' cash inflows resulting from the breakdown in capital asset inflation.

6. Minsky *three*: the 'new form' of the capitalistic system

The crisis burst in the summer of 2007 is not the outcome of reckless neoliberalism, as often is wrongly claimed. The crux of the matter is that, as a direct consequence of the neoliberal U-turn of 1979-80, during the 1990s has emerged a 'new form' of capitalism. This new capitalism, which relatively to the 20th century one resurrects some aspects prevailing in the 19th century, is characterized by the three interconnected figures we already named: the traumatized workers, the manic-depressive savers, the indebted consumers. Its functioning is entirely based on the link between financialization and the casualisation of working and employment conditions.

Notice that the traumatized worker¹⁸ is itself the product of the renewed supremacy of finance which had a real effects on the structure of production. This change regarding labour organization go along with a process of centralization without concentration and with an aggressive competition among capitals leading to systemic oversupply (the latter being a precondition for overproduction). Key sectors have gone through massive processes of acquisitions and mergers which required the mobilization of money well above the needs of self-financing. Yet, the centralization of capital through mergers was not accompanied by its productive concentration. There is a hierarchy of firms within the network system and the conditions of the employees depend upon the position of each firm in the value chain hierarchy.

The subsumption of labor by finance occurred in connection with the belief that the economic environment would stay relatively calm thanks to the means used to stave off stagnation. Since the European countries accepted and even nurtured stagnation in order to enforce wage deflation, the measures to fight stagnation came mostly from the United States (and Japan). In the United States the solution to the stagnation tendency was found in the twin process of indebtedness and financialization. The latter became the main factor directing investment in real plant and equipment. Indeed, throughout the 1980s and the 1990s, aside from the military industrial sector, the productive branches servicing the financial sectors grew most and absorbed an increasing share of real

¹⁸ The label is not ours, it is Greenspan's!

investment. Present day financial processes and mechanisms stem from indebtedness which gathered momentum since the late 1970s. Initially it was made mostly by company debts, while becoming in the course of time increasingly determined by households' debt (see Magdoff and Sweezy, 1987; Chesnais 2004).

With the onset of stagnation in the 1970s the political and economic response gravitated towards the transformation of debt into a source of financial rents and of support to effective demand through household indebtedness. In this context, throughout the 1980s and 1990s the required institutional space was created by abolishing the safeguard provisions of the Roosevelt era and by changing pensions' financial flows from funds tied to specific entitlements into funds available for financial markets in which benefits came to depend upon market capitalization. The institutional expansion of the space for debt creation transformed the preoccupation with stagnation into a belief that financial markets would show a systemic tendency validating expectations concerning future capitalization. But this 'confidence' was essentially the by-product of governmental activities centered on injecting liquidity internationally. Such policies began with the Wall Street crash of 1987, were expanded during the 1990s, and acquired unprecedented proportions with the war in Afghanistan and in Iraq after 2001 and 2003. It is this kind of public money that sustained the fireworks of private moneys and the growth of the derivative markets. This ocean of State injected liquidity has had a twofold effect. On one hand it has increased speculation and the volatility that goes with it. On the other hand, however, it seemed to have augmented the capacity to absorb the said volatility. Hence, we witnessed the ingrained belief in the sustainability of an ever growing financialization of the economy.

The 1990s capitalism was anything but stagnationist. Instead, it was an eminently political management of effective demand. Notice that in the new mode of regulation wages are no longer the source of inflation¹⁹. Statistically recorded unemployment can be reduced without a rise in wage level, so the Phillips curve is now tendentially flat²⁰. Indebted consumers are compelled to work more and more intensively thereby unifying an increase in the productive power of labor with longer working hours. The emergence of traumatized workers and indebted consumers has generated a real subsumption of labor by finance which transforms the conditions pertaining to the valorization of production. Capitalism could now head anew towards 'full under-employment' of a precariously employed flexible workforce. A condition that could turn rapidly into mass unemployment of the kind we are witnessing to day.

The new capitalist regulation of the 1990s was predicated upon the Central Bank issuing money and liquidity in amounts large enough to inflate stocks which become the preferred destination of private savings. Traditional monetarism, based on the (wish to) control of the supply of money is ditched in favor of the control of the rate of interest (according to the Taylor rule). The money supply curve too becomes flat: at the rate of interest set by the monetary authorities, the supply of money expands automatically by endogenously responding to demand. But how did this system of regulation guarantee the dynamics of the system, albeit in a marked uneven context? It is here that the two other characters appear on the stage: the saver in her/his manic-depressive state, and the indebted consumer. They appear when asset price inflation becomes a full blown speculative bubble, making greater consumption possible by means of additional credit. Savings out of disposable income fall and even become negative. Consumption is,

¹⁹ This is another difference with the world Minsky had in mind when elaborating on his Financial Instability Hypothesis in the 1970s.

²⁰ In the United States wages have been displaying a long term decline, while in Eurozone they are subjected to competitive deflation

therefore, rendered autonomous from income; it is swelled by the ‘wealth effect’ induced by the rise of stock or real estate prices²¹. Thus the mechanism centered on the nexus between asset price inflation and monetary policies guaranteed for a relative long phase the monetary realization of profits. However, it also doped the system. The indebted consumer has been the main factor pulling the growth rate in the United States, while the latter has acted as the buyer of last resort for the neo-mercantilist economies of Japan, Korea, Germany and – in a big way – China.

7. Brief story of an announced crisis

Today’s money manager capitalism is a deep change in the institutional structure of US economy getting under way during the mid 1970s. Such a transformation process culminates with the birth of investment funds and the spreading of sophisticated financial products²². We have already mentioned that, since the late 1980s, uninterrupted financial innovations, along with the flow of savings directed by institutional funds to stock exchange markets, gave rise to a huge capital market inflation. This latter, in turn, led to a speculative bubble sustaining US domestic demand, since the ‘wealth effect’ produced thanks to the financial assets revaluation supported households’ indebted consumption. This is what happened during the long period of the Clinton’s presidency, when *Nasdaq* index reached 5.132 points²³ giving rise to the so called *dot-com* bubble. This process, pompously called ‘New Economy’ by media, refers not so much to technological factors, but rather to the emergence of a delicate balance between a new monetary policy, a stock exchange affected by irrational euphoria, household increasing debt and higher autonomous consumption demand. In fact, the increase in the leverage was more and more affecting households rather than firms, and consumption rather than investment.

Of course, this process was all but spontaneous. On the one hand, after a period marked by a decreasing trend, in the summer of 1995 the US dollar was pushed up sharply by a joint operation carried out by the central banks of the United States, Japan and (Federal Republic of) Germany, in order to avoid a collapse of the Japanese economy. On the other hand, the centralization of international financial capital in Wall Street based assets has taken advantage of both the prolonged Japanese economic recession and the European stagnation. The outbreak of the Asian financial crisis of 1997-98, as well as the Russian and the Brazilian crisis of 1998, entailed a massive flight of capitals towards the United States. These factors, coupled with the worldwide spreading of pension funds, allowed the United States to sustain a widening external deficit. However, it was clear that financial assets boom tied to New Economy was no longer sustainable (see Godley 1999). So the sudden rise in the benchmark interest rate, decided in 1999 by the then Chairman of the *Fed*, Alan Greenspan, turned the boom

²¹ Let us note that the figure of the indebted consumer does not correspond to a situation of well being, although it embodies a distortion towards opulent consumption skewed towards non essential items. As the United States case shows, in order to keep the same average living standards middle class households had to increasingly depend on the work of two people at least. US households have been spending a declining share of their incomes on consumption goods, thanks in great part to the ‘China price’. The rising part went to medical, education and insurance expenses. These are all sectors with strong financial rent seeking elements. For many households indebtedness has become a necessity and, at least, the only way to maintain an adequate standard of living in the face of falling real weekly earnings (see Warren, 2007).

²² See Toporowski, 2000.

²³ In March, 10th, 2000.

into a slump, which materialized in early 2000. During the two-year period 2001-2003, as Minsky would have expected, the ‘floor’ to debt deflation and recession was once again provided by government deficit spending²⁴ and massive injections of liquidity. Yet, the *dot-com* crisis has been totally overcome only after 2003.

In a similar way, the US growth after 2003 has been built on the real estate bubble and the hypertrophic growth of the ‘derivatives’ market. In fact, the only way to keep the US economy growing after 2004 was to bet on the renewal of a ‘wealth effect’ repeating, in a different context, the miracle of the New (stock-exchange) Economy. So, after the *dot-com* crisis, the *Federal Reserve* flooded the markets with cheap liquidity. The extremely low interest rates fuelled the real estate market, and the rise in house prices, in turn, stimulated household consumption and debt. This time the growing leverage connected with the upswing was almost exclusively to be found in the household sector and in the financial business. The role of the *Federal Reserve*, with its assuaging monetary policy, has been of fundamental importance: it has supported effective demand both by inflating real estate prices and by backing the ‘creative’ activity of financial business. On the one hand, the renegotiation of mortgages with flexible interest rates coupled with rising real estate prices made houses a sort of ‘cash dispensing machine’ for wage-earners. On the other hand, direct banking finance to households’ consumption was nothing but *indirect finance* to business²⁵.

In 2004, when the *Federal Reserve* started to raise the benchmark interest rate, the real estate market was almost immediately affected downward. The only way out of the mess in which commercial banks and financial business got themselves seemed to be dragging poor workers into the subprime loans market. Involving people with a high probability to be insolvent in loans’ business was a necessity dictated by the expanding circuit of capitals. However, when poor households’ revenues became insufficient to meet debt payments, the situation came to a head for the creditors. They could repossess the houses, but this happened in a market where (against their expectations) their prices were falling. The value of collaterals that banks packaged away to other financial operators turned out to be hollow. Through the risk distribution mechanism which was embodied in the derivatives, lenders’ losses traveled quickly through the financial channels all over the world hitting hedge funds, investment banks, conduits and other financial companies, until the burst of the financial and economic crisis at the beginning of the summer of 2007 (see Bellofiore - Halevi - Passarella, 2009).

8. A multi-sector analysis of the financial vulnerability

In the previous sections we have argued that, whether it is true that since 1990s there was been a growing indebtedness, this latter concerned financial business, and lately households, instead of ‘traditional’ corporate sector. This means that the increase in the market value of shares, and hence in the realized capital gain, has systematically beaten the tendential increase in the interest rates, and hence in the debt of the non-financial sector, so keeping corporate leverage ratio down. At this regard, let us remember equation (2.4), defining the corporate marginal leverage ratio. An increase in the market value of shares is equivalent to an increase in the percentage of non-distributed profits, since corporation is able to afford either to issue new shares without increasing dividends payments or to reduce the share of distributed profits, the capital stock being

²⁴ Mainly because of higher military expenditure and tax cuts for the wealthy classes.

²⁵ See Graziani, 2003.

equal. Besides, it stands to reason that, *ceteris paribus*, if the percentage (θ) of non-distributed profits raises than corporate leverage ratio (ℓ) diminishes, that is:

$$(8.1) \quad \boxed{\downarrow \ell} = \frac{1 + \bar{g} - \boxed{\uparrow \theta}}{(1 + \bar{g})(1 - \bar{i})}$$

On the contrary, the global indebtedness of wage-earners and financial business have rocketed in the US during the same period, opening the way to the ‘subprime loan crisis’ (burst at the beginning of the summer of 2007). So a question emerges: is it still possible to measure the financial vulnerability for the whole economy? The question is not trivial, since it is equivalent to wonder if, in principle at least, we can foresee the degree of unsustainability of a given economic system (at a given moment) by considering a small number of macro-variables. For this purpose, a first step could be to divide the economy in three large macro-sectors: corporate sector²⁶ (i); wage-earners or households (h); and financial business (f). The reason is that these sectors have shown different trends in their debt exposure during the past decades²⁷. The second step could be to determine the vulnerability ratio (namely, the mathematical product between leverage ratio and mismatching ratio), for each sector. A sort of hypothetical map (got on the basis of both leverage ratio and mismatching ratio) of the representative points portraying the financial structure of corporate sector, households and financial business, respectively, is depicted in FIG. 2.

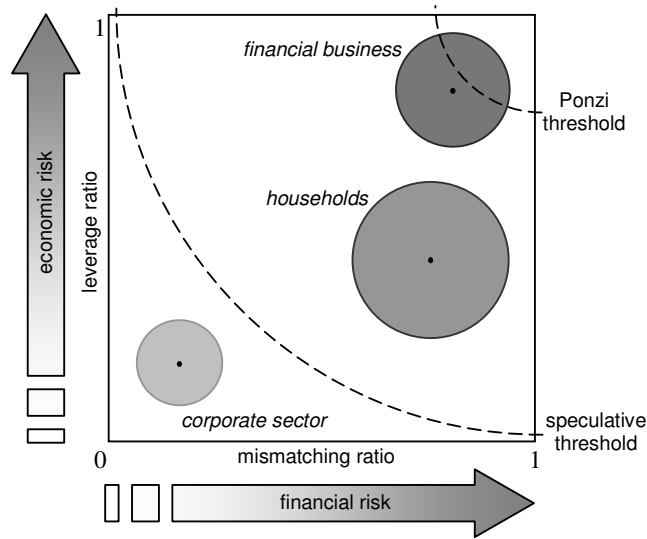


FIG. 2. The financial vulnerability map: circumferences measure the ‘weight’ of each sector.

Now, it could be useful to find a way to aggregate the sector-based ratios. The simplest solution could be to determine the global financial vulnerability as the weighed mean of the vulnerability ratios of each macro-sector:

$$(8.2) \quad V = \alpha v_i + \beta v_h + \gamma v_f \quad \text{with } \alpha + \beta + \gamma = 1 \text{ and } 0 \leq V < 1$$

²⁶ Inclusive of non-financial service sector.

²⁷ See FIG. 3 and TAB. 1 at the end of the paper.

where v_i is the vulnerability ratio for corporate sector, v_h is that of households²⁸ and v_f is the vulnerability ratio for financial business. Obviously, weights (α, β, γ) measure the relative importance of each macro-sector in the considered economy. For example, with regard to US economy, one could define each weight as the share of productive investment, household's consumption and financial investment, respectively, on the whole part of US gross domestic product (GDP) that they have 'generated'.

Let us note that the only aim of this index is that of providing a handy instrument to quickly check the state of the economy. Nevertheless, this approach entails two serious difficulties. Firstly, as we have already stressed in section 4, the actual role of the mismatching ratio still has not been empirically tested. Hence, we should rely just on the sector-based leverage ratios, but these latter are not a good barometer of the financial risk (that is, the sensibility degree of units debt structure to an interest rate rise). Secondly, as Corbisiero (1998) pointed out, financial risk depends first and foremost on the spread between the debt-financed investment time and the concerning temporal covering of debt. This spread, in turn, should reproduce the percentage difference between long-term and short-term interests rates. However, as is known, US long-term interests rates have been quite low for a long time, so it does not appear simple to strictly link the last US crises (only) to the trend of interest rates spread.

At this regard, our impression is that, during the 1990s, and even more during the 2000s, not only financial business' and households' actual leverage has raised, but assets market inflation has made all insensible (momentarily at least) to the interest rate trend, so propelling the use of quickly increasing speculative structures (except for the non-financial firms). Obviously, that configuration was unsustainable since the beginning, as the consumption bubble rested on a giant private debt (of million of precarious wage-earners) bubble which, in turn, rested on a giant real-estate bubble. This latter has been financed by means of a huge credit bubble, blown up by Federal Reserve cherishing the dream to ferry the U.S. economy along an endless growth path. However, capital gain expectations (and hence demand and productivity of the real-estate sector) could not grow indefinitely. The waking up could not be more dramatic.

Conclusions

The financial instability hypothesis has come true. Yet, it happened with a different set of modalities and through a different concatenation of factors compared to Minsky's original formulation. Among the new factors, it is important to stress the role played by households' burgeoning debt to finance consumption, the function held by capital asset inflation as stabilizing factor for the corporate sector balance-sheets, and the increasing sway of merchant banks and financial intermediaries over savers. All these factors have generated a 'new capitalism' where a wage deflation trend cohabits with the increase in the market value of financial assets. It is an explosive mix which is doomed to produce recurrent crisis.

²⁸ Ordinarily, households' vulnerability ratio is the product between their mismatching ratio and their leverage ratio. For the sake of simplicity, we can assume that mismatching ratio for each single household takes value 1 when household gets a variable rate loan, and value 0 when it gets a fixed rate loan. The mismatching ratio for households as a whole can be thought as the weighted mean of every single ratio. As for the leverage, it is calculated as the ratio between households' global debt and their assets.

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Further figures and tables

	GDP	Total debt	Debt by sector			
			Household	Financial firms	Non-financial business	Government (local, state, & federal)
1970	1.0	1.5	0.5	0.1	0.5	0.4
1980	2.7	4.5	1.4	0.6	1.5	1.1
1990	5.8	13.5	3.6	2.6	3.7	3.5
2000	9.8	26.3	7.0	8.1	6.6	4.6
2007	13.8	47.7	13.8	16.0	10.6	7.3

TAB. 1. Debt of US household, financial firms, non financial business and government as a percentage of GDP.

Source: *Financial Times*, September 24th 2008.

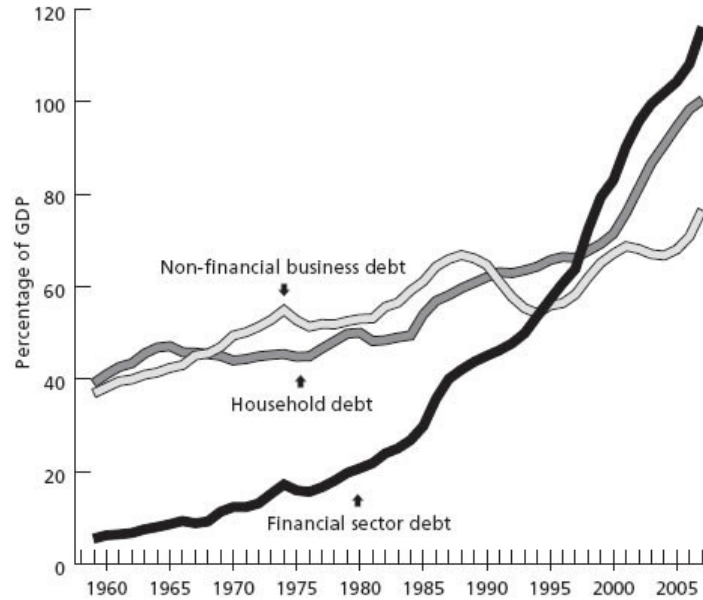


FIG. 3. The explosion of households' and financial sector's debt.

Source: *Financial Times*, September 24th 2008.

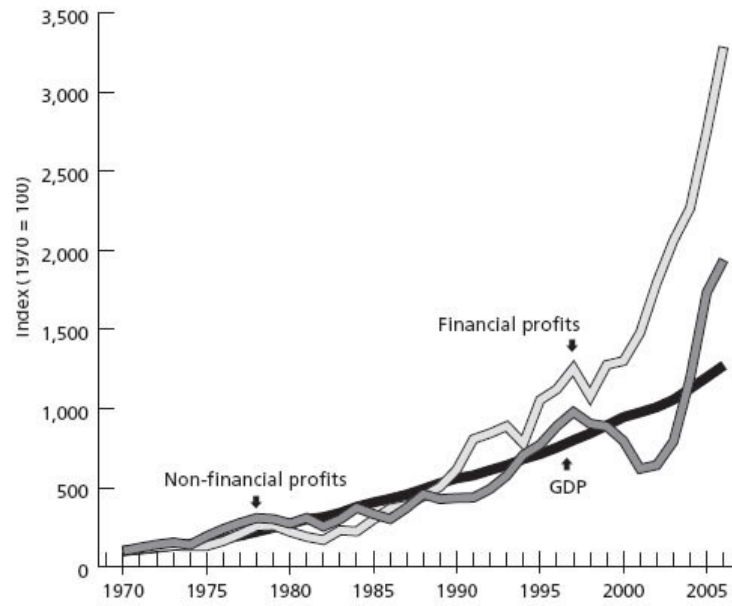


FIG. 4. The boom of financial profits as a percentage of GDP.

Source: *Financial Times*, September 24th 2008.