



# A simplified stock-flow consistent dynamic model of the systemic financial fragility in the ‘New Capitalism’<sup>☆</sup>

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## ABSTRACT

In the last few years, many financial analysts and heterodox economists (but even some ‘dissenters’ among orthodox economists) have referred to the contribution of Hyman P. Minsky as a fundamental reading for understanding the current crisis. However, it is well known that the traditional formulation of Minsky’s ‘financial instability hypothesis’ raises a number of theoretical issues. Furthermore, Minsky’s analysis of capitalism must be updated on the basis of the deep changes which, during the last three decades, have concerned the world economy. In order to address these theoretical and empirical issues, the paper, first, introduces the reader to the ‘mechanics’ of the financial instability theory, according to the formulation of the traditional Minskian literature (Section 2). Second, it shows that Minsky’s theory, in this formulation, cannot be regarded as a general theory of the business cycle (Section 3). Third, the paper attempts to supply a consistent, although simplified, updating of Minsky’s theory by cross-breeding it with inputs coming from the ‘New Cambridge’ theories and the current ‘formal Minskian literature’. The aim of this is to analyse the impact of both capital-asset inflation and consumer credit on the financial ‘soundness’ of the business sector (Sections 4–7). Some concluding remarks are provided in the last part of the paper (Section 8).

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## 1. Introduction

In the last few years, many financial analysts (see first and foremost Magnus, 2007) and a number of heterodox (but even ‘dissenting’ orthodox) economists (see, for instance, Kregel, 1997, 2008; Papadimitriou and Wray, 2008; Tymoigne and Wray, 2008; Vercelli, 2010, 2011; Wray, 2008; see also Passarella, 2010) have referred to the contributions of Hyman P. Minsky as fundamental reading for understanding the tendency of capitalistic economies to fall into recurring crises. In fact, according to many observers, both the ‘dot-com’ crash of 2000–2002 and the burst of the so called ‘subprime mortgage’ crisis at the beginning of the summer of 2007 would confirm many of Minsky’s forecasts: the growing financial fragility of the economic system, as the result of a previous period of ‘tranquil growth’,<sup>1</sup> and the risk of a credit crunch coupled with a widespread debt deflation; the gradual loosening of economic units’ safety-margins and the reduction in the time elapsing between one crisis and another; the bankruptcy of big financial institutions and the ‘forced’ policies of ‘Big Government’ and

<sup>☆</sup> The first few sections of this paper rely largely on an unpublished work with Riccardo Bellofiore, entitled ‘Minsky, the monetary circuit and the current crisis’ and presented at the international conference *Can it happen again? Sustainable policies to mitigate and prevent financial crises*, University of Macerata, Italy, October 1–2, 2010. I would like to thank Antoine Godin, Emiliano Merlin, Alessandro Vercelli and the anonymous referees for their suggestions. I am grateful also to Paul Hudson for his useful comments. Any errors that might still be present are mine.

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<sup>1</sup> The definition is derived by Joan Robinson (see Minsky, 1986: 176, quoted in De Antoni, 2009: 3).

'Big Bank' that have been implemented by governments and central banks in the hope of avoiding a deep depression – in Minsky's words, to prevent 'it' happening again.<sup>2</sup>

As is well known, the traditional representation of Minsky's implicit theoretical model presents some serious internal logical problems, as many authors have convincingly argued (see, first and foremost, Lavoie, 1986; Lavoie and Seccareccia, 2001; Toporowski, 2008; Bellofiore and Halevi, 2009, 2010). The main trouble with the standard interpretation of Minsky's financial instability hypothesis concerns the idea that the leverage ratio for the business sector as a whole must eventually rise during the boom phase of the economic cycle, because of the growing debt-financed investment in fixed capital of non-financial businesses. Yet, from a macroeconomic point of view, the increase in net retained profits (in the form of bank deposits) coming from the higher investment may offset the higher debt (in form of bank loans) of the non-financial firms. This counter-intuitive outcome is known in Post-Keynesian literature as the 'paradox of debt' and can be considered the Kaleckian equivalent of the well-known Keynesian 'paradox of thrift'.

This paper aims to update Minsky's vision by strengthening and cross-breeding his model with inputs from the 'New Cambridge' theories and from the more recent 'formal Minskian literature'. In order to do so, Section 2 introduces the reader to the mechanics of the financial instability theory, according to the 'traditional' formulation. Section 3 shows the limits of Minsky's hypothesis insofar as it is interpreted as a general theory of the business cycle. In Sections 4–6 we develop a simplified dynamic stock-flow consistent model, in the wake of the current dynamic Post-Keynesian literature. This allows us to analyse the impact of both capital-asset inflation (linked to the 'over-capitalization' of firms) and consumer credit on the financial soundness of the non-financial business sector. Section 7 provides some empirical evidence about the sectoral debt ratios, the trend in the share of equity-financed investment and their impact on the financial soundness of business sector. This seems to confirm that households' 'autonomous' consumption and capital-asset inflation may have 'stabilizing', although temporary, effects on the non-financial business sector's balance-sheet. Concluding remarks are provided in the last section.

## 2. The 'mechanics' of the financial instability hypothesis

The 'financial instability hypothesis' (FIH hereafter) of Minsky is grounded on the simple, but powerful, idea that, during periods of tranquil growth, each economic unit (and hence the economy as a whole) endogenously moves towards financial fragility. Although it is not an easy task to find a macroeconomic variable that could describe the fragility of a set of interrelated balance-sheets, the so called 'formal Minskian literature'<sup>3</sup> (FML hereafter), and Minsky himself, have often used the investment 'leverage ratio' of the corporate sector to this purpose.<sup>4</sup> However, as one might expect, the trend of the leverage ratio cannot be (*ex ante*) determined starting from the analysis of the behaviour of the 'representative' investing firm, since it (*ex post*) arises from firms' decisions on the whole. This trouble highlights a possible missing link between micro (or individual) and macro (or systemic) levels in Minsky's theoretical model.<sup>5</sup>

In order to shed light on this point, let us consider – as Minsky, following Kalecki (1971), does in his mature works – the macroeconomic equality between the sum of consumption and investment, on the one hand, and the domestic income, on the other hand. Note that this equality is always *ex post*-validated (namely, it is an *identity*) in an economy in which the government has a balanced budget and in which the trade account is also balanced. Then, by isolating the total profit and assuming that households save anything but their capital incomes (equal to the amount of firms' profits distributed as dividends),<sup>6</sup> one obtains the simplest version of the well-known Kalecki's macroeconomic gross profit equation:

$$P_{Gf} = I + C - W = I + [W + (1 - \theta_f)P_f - S_h] - W = I = p\Delta K \quad (2.1)$$

where  $P_{Gf}$  is the total profit (gross of bank interest-payments) of the business sector,  $I$  is the current investment in fixed capital (labelled  $K$ ),  $p$  is the price of the homogeneous output,  $C$  is the amount of total consumption,  $W$  is the wage-bill,  $\theta_f$  is the share of retained (net) earnings,  $P_f$  is the amount of total net profits and  $S_h$  is the amount of households' saving.

The internal funds which the non-financial business sector has available for it to fund the investment,  $\Delta A_f$ , are the sum of accumulated net profits and the amount of (new) equities issued by firms, that is:

$$\Delta A_f = \theta_f P_{f(-\omega)} + p_{Ef} \Delta E_f \quad (2.2)$$

<sup>2</sup> For an influential but opposite opinion, see Davidson: he argues that the current crisis 'is not a Minsky moment' (Davidson, 2008: 669–670).

<sup>3</sup> The definition is drawn from Dos Santos (2005).

<sup>4</sup> See, for example, Lavoie (1986–87). A more recent work using the product of the leverage ratio and the mis-matching ratio as a better proxy for indicating the degree of financial vulnerability is that of Passarella (2010).

<sup>5</sup> As Toporowski has effectively argued, the point is that 'even if rising investment entails rising indebtedness, it also entails rising liquidity and bank deposits held by companies ... with the asset side [of firms' balance sheets] becoming more, not less, liquid as debt-financed investment proceeds' (Toporowski, 2008: 734).

<sup>6</sup> This restrictive simplifying hypothesis will be relaxed in the next sections.

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