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A few counter-factual hypotheses on the current economic crisis

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The economic and financial problems of the present devastating crisis are terribly practical. Sraffa's little book is highly theoretical. To relate the two we must avoid stopping at Keynes, and include the whole group of economists around him in Cambridge, resuming the discussions that have been pushed into oblivion by the mainstream. The capital theory controversy was not the only one. Here, more relevant is the controversy on growth, income distribution, savings and profits between Samuelson–Modigliani and Kaldor–Pasinetti. As a result, a theorem, associated with Modigliani–Miller, was brought to fame and hailed as 'the core of modern corporate finance'. Its surprisingly wide acceptance is here harshly criticised and indicted of major responsibility for the present crisis. Inevitably, this is argued through counter-factual hypotheses. Yet, even with less sophisticated analytical tools, a framework does exist, much nearer to common sense, implying the needed flexibility and openness of mind for the major restructuring of financial institutions, which today so clearly emerges as the major task to undertake.

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JEL classifications: B25, B51, G01

> It is a peculiar feature of the set of propositions now published that, although they do not enter into any discussion of the marginal theory of value and distribution, they have nevertheless been designed to serve as the basis of a critique of that theory.
>
> Piero Sraffa (1960, p. vi)

1. Introduction

The concise little book that Piero Sraffa wrote 50 years ago is on issues of high theory. The economic problems of the devastating crisis into which government leaders and the

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economic profession at large are immersed today are terribly practical. Is there a way of seeing relations between the two?

Let me begin with some facts.

The sudden, unexpected outbreak of the present economic crisis (originating in the USA, as Paul Samuelson was quick to note) has caused many surprises. One of them is precisely: how could it happen that a well-known economist of the twentieth century, John Maynard Keynes, after being in the last decades of the century set aside, disparaged and even expunged from the major textbooks of mainstream economics, has now been brought back to the centre of our attention? Only a few months have been sufficient, since the beginning of the crisis, to bring him back to the forefront of the discussions on economic issues by experts and government personalities, as well as in the headlines of newspapers and magazines, in numerous articles, seminars, conferences, all hastily organised; while books have been and are being quickly written to draw attention to his recommendations on actual economic policies, or even to recall his prophecies. Within only a few months, Keynes has jumped from oblivion to triumph—a truly impressive event.

However, this has taken place in a very peculiar way.

May I recall, that Keynes when he was near the end of writing his 'heretic' book (*The General Theory of Employment, Interest and Money*), which turned out to be his masterpiece, had anticipated to George Bernard Shaw, in a much quoted letter dated 1st January 1935:

> . . . you have to know that I believe myself to be writing a book on economic theory which will largely revolutionise . . . the way the world thinks about economic problems. (Keynes, 1973, p. 492)

Thus 'revolutionise' and 'revolution' were words immediately and explicitly used by Keynes himself, even before the publication of his famous book. The economists of his generation, his contemporary colleagues, responded coolly and very critically to his claims while keeping their position absolutely unchanged. But something new and unexpected was happening within the younger generation. As is well known, the book caught the imagination of the younger economists with unprecedented enthusiasm. As young James Meade often put it, his generation was 'taken by a spell'. In Paul Samuelson's words '*The General Theory* caught most economists under the age of thirty-five with the unexpected virulence of a disease' (Samuelson, 1964, p. 316).

That was the second half of the 1930s. *The General Theory* immediately emerged as the great novelty in economics of the twentieth century.

The book, however, was not coming from the mind of a single genius working in isolation. The impact of the worst economic depression in advanced countries since the industrial revolution was still strongly felt. Moreover, the book came from an intense work of a well known and established economist who, overwhelmed by actual events, realised and had the courage (at 50!) to state that what he had been teaching up to that point was wrong and abruptly changed his view on economics. He managed to work jointly (an occurrence unprecedented in his earlier experience) with an entire group of younger bright economists whom he was able to gather in Cambridge, while also entertaining a whole series of discussions with economists from all over the world.

The times were critical. World War II was fast approaching and, when it finally broke out, interrupted the discussions. Worst still, in 1937, only one year after the publication of the book, Keynes suffered a heart attack that imposed health impediments on his activity for the rest of his life. His well-known polemical verve was lost forever. Remarkably enough, however, he worked for the British Government during the whole war, and— at the end of it—had a leading role, on behalf of the Government, in setting up, at Bretton Woods, the

most important international monetary institutions of the post-war era (not according to his ideas though; he sadly had to bow to US views). Worst of all, he died on Easter Sunday, 1946.

The Cambridge Group lost its Master all too soon.

For Cambridge, nevertheless, and for the remarkable group of young Keynesian economists, the immediate post-war period was a golden age both on policy and on theoretical work. They became renowned and influential all over the world. Yet, not everything went well: there were peaks and troughs in their popularity within what really became a complex and fascinating drama.

I have recently devoted a book to their vicissitudes, trying to evaluate the scientific results and the human frailties of this Cambridge School of (broadly intended) Classical and Keynesian economics.

My conclusion has been that the 'revolution' that Keynes advocated succeeded only halfway: it had successes, and very promptly so, from an economic policy point of view; it did not succeed at the level of economic theory. The 'revolution on the way in which the world thinks about economic problems', as Keynes intended, did not take place.

This combination of partial successes and failures continues today to be a serious matter. The confused reactions to the present economic events and the sudden rehabilitation of Keynes confirm this diagnosis and should suggest reflections.

They show two features. Keynes's revival is terribly restricted in scope. First, only Keynes is considered. The whole group of economic theorists gathered by him, who had worked with him in the 1930s and then along Classical and 'Keynesian' ideas in the 1950s and 1960s, are not mentioned at all. Second, all references are terribly concentrated on stressing the necessities and applications of the so called 'Keynesian' economic *policies*. It is admitted that the widely cherished free market *laissez-faire* policies have failed miserably. The conviction is also widely recognised that governments should intervene to bail-out firms that have become 'too big to fail', in order to avoid massive unemployment that would turn out to be socially unbearable.

But what kind of Keynesian economics is this?

Curiously enough, one can trace some similarities with the way John K. Galbraith, in early discussions of Keynes's novelty immediately after the war, explained how Keynes came to be accepted in America. Galbraith noted that US businessmen realised that the Keynesian recipe for public expenditure in times of depression was not so upsetting after all. Keynes, unlike Marx, was not a divisive figure; and State intervention could be contained: 'General Motors could still decide what car to produce, what prices to charge, how to advertise and sell them . . . thus Keynes moved in the Anglo-American tradition of compromise which seeks progress by reconciling . . . conflicts of interest' (Galbraith, 1956, pp. 79, 83).

The reader will realise how in fact there is no theory behind such an attitude. Simply, the way has been discovered of finding an otherwise impossible justification for using public money to bail-out otherwise bankrupt corporations.

If one is satisfied with this, as that half of Keynes's *General Theory* that enjoyed success, where is the other half? There is in fact no trace of the other half in the voluminous discussions that are currently taking place. Very few economists are trying to talk in terms of any type of 'Keynesian' theory. In particular, nobody seems to be prepared to talk of a 'Keynesian revolution' any more.

Of course, one may keep on nostalgically talking of the beauty of the general equilibrium model, but who still has the courage of assuming perfect markets? Paul Samuelson was still

in time, and rather quick, to write an article for the general press on 'The seven errors of Liberalism' any more.[1]

I should like to start my suggestions and reflections from here. There certainly was no scarcity of theories in the Cambridge group. But how is it that they could not prevail?

The work of Piero Sraffa is a good point to start from, as he certainly was the most theoretically minded of the whole Cambridge group. He was (carefully) explicit. As we may read in the epigraph reproduced above, his central aim, at least on the critical side, was to prepare 'a critique of the marginal theory of value and distribution'. What has happened thus far?

As we all know, an almost immediate effect of *Production of Commodities by Means of Commodities* was the explosion of a long and heated discussion on Capital Theory.[2] It struck at the correct point. Paul Samuelson initially admitted defeat very candidly ['The Nonswitching theorem is False' was the title of his reply (Levhari and Samuelson, 1966)], but subsequently, especially through his pupils (and the updating of his textbook) he became silent and never accepted the consequences. Axel Leijonhufvud, rather disconcertedly, has summarised it beautifully:

> . . .it is truly remarkable how the mainstream [economics] has managed to resign to oblivion the clear-cut victory of . . . Cambridge in the Capital Controversy . . .. and then to ignore its implications. . . (Leijonhufvud, 2008, p. 530)

The other issue mentioned by Sraffa is income distribution.

In an article in this journal (Pasinetti, 1988), I happened to show how it could be demonstrated that Sraffa's analysis is entirely incompatible with marginal economic theory. Furthermore, one can see that Sraffa closed his system by singling out an economic variable that is left to be determined from outside the analytical framework of his model. To this effect, he chose the rate of profit. This is equivalent to pointing at some institutional mechanisms (and there may be more than one) that must be at work outside his fundamental theoretical framework. On this line, there was indeed a theory of income distribution that cropped up from the Cambridge group. I personally had something to do with it, and I shall take this as my starting point in this essay before arriving at framing some reflections on the present crisis in terms of a few counter-factual hypotheses.

2. The rate of profit on the equilibrium growth path

In a well-known article in the *Review of Economic Studies*, Nicholas Kaldor (1956) presented an overview of the theories of income distribution. He began with the Classical economists (Adam Smith and especially Ricardo), proceeded to Marx, and then arrived to the neoclassical Marginalists (with a considerable synopsis covering Walras/Wicksell/Marshall/Wicksteed). One would have expected the article to end here. But at this point Kaldor added a brief version of the Kaleckian theory, based on the degrees of monopoly; and most of all, he added with unexpected emphasis a 'Keynesian' theory of income distribution. This generated surprise, since in Keynes's *General Theory* (1936) there is no explicit formulation of an income distribution theory. In fact, Kaldor had conceived a (quite legitimately called) 'Keynesian' distribution theory that was, however, new and original. It was a theory of income distribution that combined and linked together the

[1] In Italian, it was published with the title: 'Ecco i Sette Errori del Liberalismo' in *Corriere della Sera*, 20 October, 2008.

[2] One may see Harcourt (1972), or, in more personal terms, Pasinetti (2000, 2003), or else in greater detail Pasinetti and Scazzieri (1987).

Classical concept of 'effectual demand', actually due to Malthus more than to Ricardo, with the conditions necessary for reaching and maintaining full employment, i.e., with themes that had been of central concern to Keynes. Kaldor's argument (presumably influenced by discussions with Sraffa) was quite simple, yet full of radical consequences. He linked the distribution of income between profits and wages to the requirements of implementing those investments, which—by incorporating technical progress and the growth of the working population—are necessary for maintaining full employment within the context of a growing economy. He came in this manner to introduce the distribution of income into a 'Keynesian' theoretical context.

The novelty of Kaldor's theory consisted in starting precisely from Ricardo's original formulation, in which both the landowners' rent and the workers' subsistence wages are taken as the given starting magnitudes of the process of production, while the profits of the capitalists/entrepreneurs are configured as the *surplus* of the economic system—i.e. the *raison d'être* of a capitalist economy. But he proceeded—and here was the novelty—to reverse Ricardo's logical chain of reasoning by immediately moving—after the determination of the rent for the landowner—to the determination of the equilibrium profits. These were defined as those profits, the accumulation of which are necessary to capitalists in order to undertake the needed investments that assure an equilibrium in economic growth (after deducting of course what was necessary for their consumption, which was, however, supposed to be a small quota of the total, due to the capitalists' high propensity to save and accumulate). At this point, Kaldor went on, most surprisingly, to attribute the whole of what remained, i.e. the *surplus* of the entire economic system, to the workers as wages (and *not* to the capitalists' as profits, as Ricardo, Malthus and Marx had done). The novelty was precisely this attribution of the whole surplus of the economic system to the workers, i.e. to wages. Kaldor's arguments were rather clear in their purpose, but their analytical formulations were convoluted. Moreover his original equations (see Kaldor, 1956; Pasinetti, 1962) were rather complicated and inelegant. They turned out to emerge as obvious and immediate only if one assumed that workers' savings is zero (a typically Classical assumption). In such a case, the profit share in the net national product, and the equilibrium rate of profit, respectively, emerge from the extremely simple formulae:

$$P/Y = (1/s_c)(I/Y) \tag{1}$$

$$P/K = (1/s_c)(I/K) \tag{2}$$

where Y = net national product; K = total stock of capital; I = investments required by the economic system in order to expand in dynamic equilibrium; P = total profits in the economic system; s_c = 'capitalist' propensity to save.

More concisely, equation (2) may be written:

$$\pi = (1/s_c)g_n \tag{2a}$$

where π = equilibrium rate of profit and g_n = *natural* rate of growth of the economic system (deriving from the sum of the rate of population growth and the rate of growth in productivity).

In Kaldor's original equations, there was also a workers' propensity to save (s_w), a magnitude that is absent here only because it is supposed to be zero and hence can have no impact on any other variables.

Note that with such an assumption (i.e. with $s_w = 0$), equation (2a), in its simplicity, entails consequences that are crucial in dynamic equilibrium. The rate of profit of the

economic system emerges simply as equal to the natural rate of growth of the whole economy divided by the capitalists' propensity to save. In these extremely simple but suggestive terms, equation (2a) was named the 'Cambridge equation'.

This equation was immediately criticised, not merely because of the convoluted Kaldorian formulae, but more substantially because it was argued that an assumption such as $s_w = 0$, while justified within the arguments set forth by Classical economists (in the early 1800s), had no justification in formulations that referred to our own day.

The objection was valid and reasonable.

But, imagine now the general surprise when, in preparing his PhD dissertation, the present author discovered that the 'Cambridge equation'—equation (2a) above—in fact remains valid not only in the particular case when $s_w = 0$, but in general! This emerges as an asymptotic tendential result of the redistribution of the stocks of capital, which, due to the act of saving, come to be owned not only by the capitalists but also by the workers.[3] The only condition required to obtain this result, in fact by no means restrictive but rather obvious, is that the proportion of the workers' total savings—presumably lent to the capitalists—must be less than (and in any case not more than) the share that would be necessary for financing *all* equilibrium investments (otherwise the economic system would fall into an economic slump due to lack of effective demand!). In other terms, the condition simply is:

$$s_w < I/Y \tag{3}$$

[Obviously, equation (3) can never be inverted, if the system is to remain in full employment equilibrium].

This result had a devastating effect, as is well known, on the discussions concerning growth and income distribution. Its insertion into the ongoing debates was equivalent to formulating a genuinely new 'Keynesian' theory of income distribution, which, if accepted, would supplant the traditional neoclassical theory of income distribution, a theory that had dominated mainstream economics for almost a century.

This result created much discomfort, especially at MIT, in Cambridge, Massachusetts. Paul Samuelson and Franco Modigliani took up the challenge and reacted. Working jointly, they accurately scrutinised the result, found it to be correct, and called it the *Pasinetti theorem*; a too dangerous result, however, for traditional mainstream economic theory. Four years later, Samuelson and Modigliani (1966A) published a joint article, where they presented a mathematical model that appeared to have generalising prerogatives. Samuelson and Modigliani acknowledged on the one side the correctness of the 'primal' theorem (the Pasinetti theorem), and hence the 'Keynesian' elaborations that were derived from it; but at the same time, they also presented another counter-posed theorem, which appeared logically 'dual' and symmetrical to the first, and which they called the Anti-Pasinetti theorem.[4] This theorem, however, would become effective only when the

[3] The result is not easily perceived and in fact slipped through or passed unnoticed in all of the preceding economic literature. The general validity of the 'Cambridge equation' (2a) was a crucial result. It derives from the discovery, and highlighting, of a fundamental relation, which links profits to savings through ownership (direct or indirect) of the stock of capital accumulated through savings. For details see Pasinetti (1962, 1974).

[4] My objection to Samuelson–Modigliani has always been based on the fact that the 'dual' theorem is only formally, and therefore only in appearance, symmetrical to the 'primal' one. In its *substantial* significance, it is not symmetrical at all because it requires an enormous sequel of supplementary assumptions, which are absent in the case of the 'primal' theorem (see Pasinetti, 1966, p. 305, see also Kaldor, 1966). It is significant to note that, at the Lincei Academy's Conference on Modigliani, Samuelson once again was compelled to resume the same attitude, insisting on the (formal) symmetry of the two theorems (see Accademia Nazionale dei Lincei, 2005, p. 9).

share of savings of the workers in total income surged to the point where it provides not merely a part of, but the *entire* amount of savings necessary for the equilibrium growth of the whole economic system. In this case, it was shown that the share of capital owned by the 'capitalists' would decrease, till it tended toward zero. That is to say, the class of 'pure capitalists' was doomed to continuously decrease, until it would asymptotically disappear.

A 'euthanasia' of the capitalists?

It may sound surprising, but this is precisely what Samuelson and Modigliani were forced to argue. They even cited proportions of 'saved' income by workers, which they defined as 'econometrically reasonable' (yet unseemingly high, as they had to cover *all* required savings!). There could be no mixed-class savings in their version of the model; pure capitalists had to be excluded in order to justify their Anti-Pasinetti theorem (Samuelson and Modigliani, 1966B, p. 329).

What had happened? The strange occurrence lies precisely here. Initially, Kaldor had presented his formulation by beginning with the supposition that workers' savings was zero. This was considered to be econometrically *unreasonable*, at least for our times (no matter what justification it may have had in Ricardo's time). Later, it was discovered and highlighted that the above-mentioned relation between savings and profits— the Pasinetti theorem—proved that workers' savings had no effect in determining profits, thereby implying that the much criticised assumption that workers' savings was equal to zero ($s_w = 0$) was unnecessary. At this point, they concocted a formally *dual* theorem that required the extreme and opposite assumption that workers would be able to generate *all* the required savings, while the 'capitalists' were asymptotically doomed to disappear. This assumption, opposite and extreme but favourable to mainstream theory, was at this stage argued to be econometrically reasonable.[5]

In fact, the Samuelson–Modigliani dual theorem (i.e. the Anti-Pasinetti theorem)—apart from original skirmishes (see Meade, 1966)—never attracted serious attention. It has never been considered relevant for *practical* purposes.[6] Its sole function was that of protecting mainstream economics from a debacle, by giving the impression that it could provide an alternative to the Cambridge equation. The purpose was, more substantially, to relegate the entire discussion to oblivion.[7]

The aspect that was really terribly difficult for mainstream economists to accept was precisely what lies at the core of the 'Keynesian' theory proposed by Kaldor. Note that this economic theory is in perfect continuity with Classical economic theory, but it reverses its causal direction by inverting the contrasting roles of the workers and the capitalists. There is an immediate recognition of the 'natural' function, which is performed by the profits.

[5] It may be interesting to recollect this absurd claim in defence of mainstream economics, especially nowadays when, in the USA, the low-income classes have been encouraged to buy their houses entirely through borrowing, i.e. by generating not even zero but *negative* savings, to an extremely unreasonable degree.

[6] Quite different, turned out to be the development that followed the 'primal' theorem (the Pasinetti theorem). The Keynesian approach to the relationship between profits and income, savings and investments, income flows and the distribution of wealth continued to stimulate a proliferation of contributions, which were generally excluded from mainstream journals and textbooks. They found their place in numerous other journals, anthologies and textbooks. Without attempting a summary, which in any case would become too long, one can simply refer to the over 500 references listed in Baranzini and Mari (2010), to realise the richness of the problems considered, the variety of the contributions obtained, the developments stimulated by the theorem (especially with reference to multiple classes of workers' savings, i.e. those whose savings come from their wages as well as from profits), juxtaposed to the compact class of 'pure capitalists', and the possible coexistence of different rates of interest set against a single rate of profit, as well as the possibility of introducing issues regarding income and tax expenditure, etc.

[7] The expedient had already been applied, as mentioned above, to the 'capital theory controversy'.

This function is identified and justified by the provision of the equilibrium investments, i.e. by those investments that are necessary to fulfil the requirements of technical progress and population growth, so as to maintain full employment. That part of national income which then emerges as the 'surplus'—the result of the growth in productivity of the economic system—is meant to be devolved to the whole working population. And this without excluding that both workers and capitalists may participate, with their savings, to the financing of equilibrium investments. This was precisely the gist of the Kaldor–Pasinetti contribution.

The importance of this outcome goes well beyond Kaldor's attempt at applying it to the working of a capitalist economy. The principle of income distribution that emerges from this theory really becomes much more important than Kaldor himself thought, because it belongs to that level of investigation that I have called 'natural' (i.e. normative). At such a basic level of investigation, the Cambridge equation is independent of the institutional set-up of the society that is considered.

Obviously, at this point, the time would come for going into the investigation of its implications for the specific institutional framework that is considered. And this would belong no longer to the 'critique' part of the Sraffian scientific project, but at last to its 'constructive' part. I shall try to come back to these aspects with at least some hints later. For the time being, let me return to the debate between the two Cambridges.

3. The Modigliani–Miller theorem of perfect financial markets

It is a crude fact that, from then onwards, the dominant theory on savings, investment and growth has sharply changed track. The prevailing attention of the economic profession, especially in the USA, was re-addressed, and borne in a radically different direction.[8] To be accurate, this direction had quietly started even before but, from that point on, it began to attract extraordinary attention, spreading from economics departments to business schools. It spread in the form of a set of theorems, which considered all together have become known by the name of the Modigliani–Miller theorem. (They were elaborated by Merton Miller and Franco Modigliani, in part separately and in part jointly but, in the economic literature, they subsequently came to be known jointly as the Modigliani–Miller theorem; see Miller and Modigliani, 1961.) I think that the emphasis and insistence, as well as the thrust with which the Modigliani–Miller theorem was adopted, elaborated and presented in such numerous articles, books and textbooks of mainstream economic theory, contributed to generating a dramatic shift in economic, monetary and financial policies over the past few decades.

To begin with, let me give a statement of the Modigliani–Miller theorem as succinctly as I am able. To this effect, I have thought it significant to reproduce the initial paragraphs

[8] For the sake of completeness, I must mention that there also was another development of the savings theory, due mostly to Franco Modigliani, based on the 'life cycle' (i.e. on the assumption that each individual rationally distributes his/her disposable income along his/her entire life). This hypothesis is interesting. It works in a perfectly logical manner when each individual's wealth is strictly constituted by the flow of income that is received over a lifetime and devoted to consumption, so as to accumulate savings during the active life and to then spend it entirely afterward up to the point of having none of it left at death. This hypothetical behaviour holds less and less, in this inter-temporal distribution, when one also introduces both a stock of wealth inherited from the preceding generation and a planned accumulation of another stock destined to following generations. These aspects have recently been illustrated in detail by Baranzini and Mari (2010).

(each representing a synthesis of the item to which they refer) that appear in the *New Palgrave Dictionary of Economics* (Eatwell *et al.*, 1987) and in the *New Palgrave Dictionary of Money and Finance* (Eatwell *et al.*, 1992): that is, in the texts most widely used for the teaching and diffusion of mainstream economic theories, and given to students whose future will most likely be in the management of corporations, monetary and financial institutions or in holding important academic posts in the economically and financially advanced Western world.

First citation:

In 1961, scientific inquiry into the motives and consequences of corporate dividend policy *shifted dramatically* with the publication of a classic paper by Miller and Modigliani. Perhaps the most significant contribution of the Modigliani–Miller paper was to spell out in careful detail the assumptions under which their analysis was to be conducted. The most important of these include the assumptions that:

i) the firm's investment policy is fixed and known by investors,

ii) there are no taxes on dividends or capital gains,

iii) individuals can costlessly buy and sell securities,

iv) all investors have the same information,

v) investors have the same information as the managers of the firm; and, finally that,

vi) there are no contracting or agency costs associated with stock ownership.

With this set of assumptions, Modigliani and Miller demonstrated that a firm's dividend policy is a matter of indifference to stockholders. That is, the value of the firm is independent of the dividend policy adopted by management.

(The New Palgrave Dictionary of Economics, Vol. 1, p. 896.)

Second citation:

The Modigliani–Miller (MM) Theorem is a collection of results showing, under ideal market assumptions *often taken for granted* by economic theorists, that the financial policy of a corporation is irrelevant. Based on a series of papers by Modigliani and Miller beginning in 1958, this theory has been cited for separate Nobel prizes in Economics awarded to Franco Modigliani and Merton Miller. While it is widely conceded that corporate financial policy is indeed important, the MM theory is nevertheless the core of modern corporate finance since 'showing what *doesn't* matter can also show, by implication, what *does*' (Miller, M., Autumn 1988, "The Modigliani–Miller Propositions after Thirty Years", *Journal of Economic Perspectives*, vol. 2, n. 4, pp. 99–120).

(The New Palgrave Dictionary of Money and Finance, Vol. 2, p. 715.)

Note the particularly long list of assumptions recorded in the first citation, and note, moreover, the last statement in the second citation, which to me seems quite misleading. How can the showing of what *doesn't* matter [italics in original], contain by implication what is important, especially if what is important is not stated? Yet, this phrase of Miller's is widely used as a supposedly persuasive proposition in the ample literature on the Modigliani–Miller theorem (as if it were Gospel truth!). If we want to interpret it benevolently, as suggested by Cozzi at the Conference on Modigliani (Accademia Nazionale dei Lincei, 2005), the sentence may be interpreted as an invitation to accurately consider the importance and realism that the stated assumptions have, in order to evaluate the relevance of the proof of any theorem. If the assumptions are untrue, not even in largely

approximate terms, then the theorem cannot be accepted, even if many economists (and economic agents!) persist in believing it.

But let me try to re-express in simpler words, without the pretence of being complete or exhaustive, the essential content of this famous theorem. One may say that the Modigliani–Miller theorem demonstrates, under certain, specific, ideal conditions (essentially, by making all the necessary assumptions for defining a market of intermediary agents which is absolutely perfect)[9] that the market value of a corporation does not depend on its financial structure: in short, it does not depend on its debts to assets ratio. The theorem has in this way led theorists (and financial operators!) to believe that increasing indebtedness has no counter-indications, without considering that an absolutely necessary assumption for reaching such a conclusion is that corporations must always remain in the same category of risk, which of course is impossible if the corporation's indebtedness increases. In even simpler, immediate and practical words, the theorem has led to the belief that there is no difference between the two traditionally considered alternatives regarding the allocation of each single firm's profits, i.e. (i) that of using them internally by adding them to the existing capital *stock*, or (ii) that of immediately distributing the dividends to the shareholders. However, one must note that for these two alternatives to be equivalent the second option needs the assumptions, 'often taken for granted by economic theorists' (to resume the wording of the second citation quoted above), of perfect freedom for corporation managers on the one side and owner-shareholders on the other to have complete and total freedom to rely, with rational decisions, on supposedly perfect financial markets, in order to obtain externally the necessary financial means to undertake the new investments, or else to use them in any other direction. From still another viewpoint, the investment decisions and the possibilities of financing these decisions are supposed to be entirely separate and independent of each other, whatever their size (which in reality can never be the case).

The adherence to this way of thinking evidently led to a sharp contrast between the 'Classical' way of considering the accumulation of capital, and a new methodology based on the supposedly rational behaviour of economic agents, within the context of ideally perfect markets. The former method (the 'Classical' method—and by implication also the 'Keynesian' one) is considered rough and primitive, while the second method is crowned with analytical beauty and exalted as the *only* possible way of achieving a rational and efficient management of economics and finance.

We can basically say that until the formulation of the Modigliani–Miller theorem, the prevailing view was that the traditional role of the 'capitalists'—deserving praise, in Ricardo's opinion, compelled by history in Marx's—was that of *not* distributing profits, but of keeping them within the firms and adding them to the pre-existing *stock* of capital, thereby generating the process of capital accumulation that characterises our capitalist economies. The Modigliani–Miller theorem came to introduce a sharp break with the whole Classical—and by implication Keynesian—approach. It channelled all economic arguments to a supposedly micro-economic process founded on the rational behaviour of the single economic agents, in the search of efficiency for the corporation's investments, internal or external, in the belief that efficiency was associated, not so

[9] This means in terms of the micro-economic behaviour of the economic agents involved, in terms of the circulation of the necessary information (technical, institutional, legal) and in terms of market competitiveness.

much with the traditional maximisation of profits, since this could generate complications in regimes of uncertainties, but with the maximisation of the corporations' market value (i.e. of the value of the corporations' shares, as evaluated on the stock exchange market).[10] All this of course within a cultural context of supposedly perfect knowledge, perfect communication of information and an institutional framework of perfectly automatic self regulating free markets.

4. Some notes of historical background

But, how could all this have happened? How could one have arrived at such a set of convictions? It seems dutiful to ask but the answer is not easy to give.

One must at least, even if briefly, recall a cumulative intellectual process that has occurred over an entire century in the history of economic thought.

It must be reminded that the dominant economic theory—heir to what was also called the 'marginalist revolution' (at the end of the nineteenth and the beginning of the twentieth centuries)—had elaborated an extremely elegant, logical-mathematical model (the model of general economic equilibrium) founded on a conception of economic analysis that was counter-posed to the one developed by Classical economics. The political economy of Adam Smith and of the Classics, aimed at 'investigating the nature and causes of the wealth of nations', had been set aside and replaced by the economics of Marshall and of the neoclassical economists, who considered economics as a science basically concerned with the optimal allocation of the given available resources. The works to be considered as symbols of this new conception of economics are probably to be indicated in Paul Samuelson's *Foundations of Economic Analysis* (1947) and in Gerard Debreu's *Theory of Value* (1959). These works essentially dealt with prices and *real* physical quantities, within a context of constrained maximisation of microeconomic functions of consumers' utility and of firms' profits. It must perhaps be stressed that behind this approach, there is the conviction that the maximising analytical tool was to be identified as the universal principle of all economic analysis, within a dominant context of methodological individualism.[11] Initially, monetary phenomena were left out of the model. It was then the task of the 'monetarist' economists (among whom, the prominent leadership was taken by Milton Friedman) to introduce them later, thereby closing the only degree of freedom that still had been left in the theoretical model. This logical operation could hold together the logical framework of the model, provided that the

[10] This view reached its apex with a famous paper by Jensen and Meckling (1976), which became the most cited academic article, especially in business schools, claiming that the corporation managers should simply concentrate on maximising the value of the corporations for their shareholders. In practice, the idea was a very simple one, namely that of considering the firm as a commodity, to be bought and sold on the market like any other commodity. On this striking idea see also Putterman (1988). It may be interesting to mention that only after the recent stock exchange colossal crash, have the leading personalities of the business world shown, at last, an inclination to a dramatic turnaround by going back to common sense. One can read in *The Economist* (24 April 2010) 'in a recent article of the *Harvard Business Review*, Roger Martin, dean of the University of Toronto's Rotman School of Management, charts the rise of what he calls the "tragically flawed premise" that firms should focus on maximising shareholder values, and argues that "it is time we abandoned it"'. To mention another case, the former General Manger of General Electric, Jack Welch, in a widely reported interview, after having been in the past a strong supporter of the maximisation of value for the shareholders, has also changed his views by coming to recognise the same 'flaw', and in fact by arriving to define 'the idea of maximising shareholder value as insane' (*Financial Times*, 12 March 2009).

[11] To be accurate, Paul Samuelson, in the course of updating his textbooks, has always shown a reasonably eclectic and flexible attitude. See his last article for the daily press already mentioned in footnote 1 above.

assumption was introduced of a perfect neutrality of money (i.e. the assumption that money acted only as a 'veil' and had no impact on real phenomena). At this point, it was the turn of the Modigliani–Miller theorem to take the further crucial and final logical step. The idea, considered brilliant (and which I personally believe to have been folly), was that of extending the very same theoretical model concerning the optimal allocation of given resources (with the addition of all those numerous assumptions that became necessary) not only to the monetary phenomena, but also (and most of all) to those concerning the whole sphere of finance. The landslide of these types of 'extensions' could be stopped no longer. It moved on to new configurations, with the so-called 'innovative finance', and with the continual invention of new financial instruments and devices of all sorts with absolute freedom and independence from any necessary institutional control: a hyper-liberalism that has lead to a truly new phenomenon—the 'financiarisation' of the economy both nationally and internationally to a degree that could never have been imagined before.

One must admit that this was a true 'revolution' both at the analytical and at the institutional level (or rather, on this latter aspect, a 'counter-revolution'). At the analytical level, the theorists proceeded to accurately scrutinise and specify the numerous assumptions that needed to be made in order to obtain formally unassailable models. But the consequences of non-fulfilment—always possible after all—of the implied necessary conditions were not sufficiently evaluated or, more clearly, they were simply ignored. At the institutional level—and here I come to an aspect that in my view is extremely important—it seems to me that they did not consider the basically relevant fact that introducing assumptions, in a theoretically beautiful but unrealistic model, was equivalent to closing the whole logical framework to any alternative. More specifically, the procedure was leading to a loss of freedom in the choice with reference to which institutional setup to adopt—a crucially important aspect that was inexplicably underestimated. The main concern was that the model should theoretically lead to situations of optimisation, but there was no concern with the fact that this procedure implied a unique institutional configuration on which one was compelled to rely. More specifically, the only admissible institutional setup that the model implied was that of absolutely perfect markets without specifying how these markets could come into being, or rather by simply assuming them to be self-creating and self-regulating. What was performed was basically an act of faith in all those conditions supposed to be automatic that are necessary for the realisation of an ideal (entirely hypothetical) institutional context—a context, by the way, which in my own analysis emerged as characteristic of a historical phase that belonged to the past (see Pasinetti, 2007, pp. 250–5). Most importantly, and essentially, the procedure implied a process of exclusion of any other type of institutional alternative. One had to have perfectly free markets, and, in institutional terms, *laissez-faire* policies, or nothing else. The path of research and examination of alternative solutions was automatically barred. I do not mean, of course, that every single mainstream economist

had reached such an extreme position. Yet the pressure to go in that direction has been very strong.[12] And the consequences have been dramatic.

5. A new form of corporate capitalism?

I should like to draw the attention of the reader (if we recall the first citation above) to the fact that 'with the publication of the Classic paper by Miller and Modigliani . . . the motives and consequences of the corporate dividend policy *shifted dramatically*'; and again (by recalling the second citation) 'the MM theory [has by now become] . . . the core of modern corporate finance'. This is where we have been led.

Leaving aside the 'motives' and trying to concentrate on the consequences, I shall try to list a few of the most evident characteristics that have recently appeared in our economies:

(i) A wild rush toward short term profits and a rapid distribution of dividends. In fact it is the announcement of the level of the corporations' dividends, which immediately affects the stock market share quotations (defined as expressing the community's 'wealth').

(ii) An anxious race by corporations to recruit *managers* with ability in these types of operations (essentially short term), remunerated with fabulous salaries, and further privileges, preferably tax free, such as *bonuses* and *stock-options*, as well as a paraphernalia of benefits of all sorts.

(iii) (On a strictly social level), a decreasing interest in all types of research, either undertaken or stimulated or recommended, on the phenomenon of income distribution, not only with reference to the amount of the income distribution shares at the macroeconomic level, but also, and more importantly, with reference to personal income distribution. It seems generally recognised that the inequalities in the levels of personal income distribution have widened almost everywhere—among categories, among different jobs and tasks, as well as among geographical regions.[13] The disparities are usually justified with meritocratic motivations, but not always are these assertions explicitly demonstrated.

[12] To give an idea of the extreme points at which these convictions had arrived, I may simply refer to Chari and Kehoe's *Modern Macroeconomics in Practice: How Theory is Shaping Policy*, and to the *Comments* and *Response* that followed it in the *Journal of Economic Perspectives* (Chari and Kehoe, 2006, 2008). Very significantly, the major comment was by such an eminent representative of neoclassical economics as Robert Solow. It was very critical, but had no effect. Let me simply cite some of Solow's own words: 'Friends have reminded me that much of the efforts of "modern macro" goes into the incorporation of important deviations from the Panglossian assumptions that underlie the simplistic application of the Ramsey model to positive macroeconomics. Research focuses on the implications of wage and price stickiness, gaps and asymmetries of information, long-term contracts, imperfect competition [. . .]. Every one of the deviations that I just mentioned was being studied by macroeconomists before the "modern" approach took over. That research was dismissed as "lacking microfoundations". My point is precisely that attaching a realistic or behavioural deviation to the Ramsey model does not confirm microfoundational legitimacy on the combination. Quite the contrary: a story loses legitimacy and credibility when it is spliced to a simple extreme, and on the face of it, irrelevant special case. The model still imposes a sort of orderly purposefulness that has never been shown to be there' (Solow, 2008, p. 244). Wise words indeed! Yet Chari and Kehoe had no hesitation in dismissing them. Here are some of their concluding words: 'The attraction of *modern* macroeconomics are similar to the attractions that led Robert Solow to develop the growth model and James Tobin to develop portfolio theory and Paul Samuelson to develop the overlapping generations model. These economists [. . .] were attracted to using what was then the frontier of economic theory in an attempt to shed light on the day's challenging macroeconomic questions' (Chari and Kehoe, 2008, p. 249). Evidently, their claim was that the frontier of knowledge had shifted and it was they that now represented it.

[13] For more detailed explanations refer to the data presented and elaborated in Galbraith and Garcilazo (2004).

(iv) At the same time, over the last few decades, it seems to me that among economists and politicians there has been a decreasing preoccupation over unemployment. According to the authors of the so called 'real business cycle theory'—economists such as Edward Prescott or Robert Lucas, to mention just two Nobel laureates in economic sciences—it is argued that involuntary unemployment in fact does not exist. In other words, it is argued that, if one examines the decisions and motivations of each single individual, one can show that workers rationally choose not to work and thus to remain unemployed. As outlandish as this affirmation may appear, the arguments are elaborated in such a logical manner as to make the workers' choices appear rational, while usually taking as given the institutional framework of perfect markets.

(v) It is in any case generally accepted that there has been a significant increase in the process of financialisation of our economies. According to the US Department of Commerce, the 'financial sector', which in the 40 years from 1950 to 1990 represented on average 10% of corporate profits, went up dramatically in the 1990s by more than doubling to 22%. In the following first five years of the new millennium, total corporate profits went up even further to 34%.[14] It seems to me that it is hard not to see these figures as anything but pathological.

It is more than natural to ask oneself: what are we witnessing? Is this a genetic mutation of capitalism?[15] It seems generally recognised that phenomena of real instability were perceived, even before those of financial instability.[16] But further elements of financial instability, on which Keynes was never tired to insist upon, are entrenched in capitalist market economies. Empirical analysis has confirmed that the history of capitalism abounds with cases of financial instability, even acute ones, also when real economic instability was avoided. Yet, the recent overflow of an abnormally financialised capitalism in our economies appears to me as too evidently pathological. It seems clear and generally accepted from this current crisis that the institutions and structures that must be re-examined and re-structured in depth are precisely, and above all, those in the financial field.

In light of these recent events, I must say my strong impression is that it would be very difficult to accept that all these consequences should bear no relation to the diffusion and the conviction of the actual relevance—probably even much beyond the original intention of the authors themselves—of the Modigliani–Miller theorem. If this is the case, it seems to me just as difficult to think that such statements (as the one in the second citation above), which defines the Modigliani-Miller theorem as 'the core of modern corporate finance' should not cause serious concern or should not generate strong preoccupations or, in any case, should not undergo profound and serious scrutiny, re-examination and revision.[17]

[14] These figures are given by Benjamin M. Friedman in a Book Review on the crisis (Friedman, 2008).
[15] Zygmunt Bauman has recently used the expression of 'parasitic capitalism' (Bauman, 2009).
[16] I have also recently insisted on the origin of this instability (Pasinetti, 2007, pp. 229–31).
[17] Re-examination, however, presupposes openness of mind and readiness to raise questions even on the very basic propositions and on the most entrenched beliefs that we have been taught. There is no doubt that this is not easy. To give an example, it is extraordinary for me to find that, even now, at this stage of the economic crisis, an eminent personality such as Paul Volcker, former Governor of the Federal Reserve and now Chairman of the Economic Recovery Advisory Board to President Obama, after giving an astonishingly dramatic review of the major failures that have emerged in the course of the present crisis—in an article commissioned to him by the *New York Review of Books* by the title 'The Time We Have Is Growing Short'—should be unable to get away from the very basic neoclassical conviction that the exclusive central role of economics is the optimum allocation of resources. He explicitly writes: '[. . .] I suspect we all would support [that] "Economics is fundamentally about efficiently allocating resources so as to maximize the welfare of individuals"' (Volcker, 2010).

6. Requirements and needs of the financial system within the industrial economies

Considering the point from which we started, and the conclusions to which we have arrived at the end of the previous section, the following question naturally comes to mind: are there aspects of the Classical/Keynesian framework of analysis, too hastily set aside, that could provide useful indications for understanding the current economic crisis?

I think that there are many. They need to be carefully scrutinised and examined. I should like to mention here at least one of them, relevant for financial issues, which immediately comes to mind and which is of particular interest, because it highlights how critical the financial issues are versus the real issues, in a production system, precisely because it illustrates the need for a separation on which I recently had the occasion to insist upon (Pasinetti, 2007, pp. 274 and following, 281 and following). I found it useful to refer to an extremely simple model—the 'pure labour model' in which exclusively consumer goods are produced, which are perishable and hence cannot be stored. This serves as an extremely simple yet significant configuration useful to enable us to clearly see the separation between fundamental economic issues and those issues that require analysis of an institutional character.

In a pure labour model, every good or service is hypothetically produced by labour alone. For analytical purposes, let us assume that it must be consumed by the end of each production period. In this logical framework, therefore, there are only consumption goods. There cannot be capital goods, because, according to the hypotheses, they are not necessary for the production process. This means that the whole national product (it does not matter whether net or gross as the two coincide) is consumed at the end of each production period. The reader should not be alarmed: these suppositions are set only as a logical expedient, to highlight in a clear and simple manner certain concepts important for our purposes.[18] Their function is simply to create a net separation between the stocks of real goods and the monetary and financial stocks. Clearly, having supposed that there are no real capital goods, there also are no real stocks in the model. But this does not exclude the fact that there may be monetary and financial stocks. The various economic agents can very well exchange securities with which to undertake credit and debt relations denominated in terms of a conventional unit of buying power. These debt/credit securities can have coordinated dates of expiration, based upon pre-established agreements (with debt and credit contracts) so that the loans can return to those who set the desired deadlines with various agreed inter-temporal configurations. The relevant aspect to underline is that there can be stocks of debts and credits, which can be stipulated for purchasing power in time even if there are no real stocks in nature. The interesting characteristic is precisely that we have hypothesised an economic system in which, though there are no stocks of real physical goods, a variety of financial stocks can be created. Evidently, these financial stocks cancel themselves out overall. They constitute financial wealth for creditors, which is nonetheless cancelled out by the equivalent liability of those who are indebted. Overall, in a pure labour model, net financial wealth does not exist. For the community as a whole, the sum of the credits and debts equals zero. Naturally, there can be multiple justifications (positive and negative) for the existence of such financial stocks. The most obvious and basic one, in the simplified model considered, is that each economic agent can benefit from the flow of positive buying power (typically wages for

[18] A concise version of this pure labour model can be found in Pasinetti (2007, pp. 279–302).

one's work), and from the flows of negative buying power for acquiring consumer goods. Of course, the wage flows may not coincide in time with the desired consumption flows. Therefore, the need arises for money and credit securities of various types to be circulated by monetary and financial institutions, which act as intermediaries, to facilitate smooth inflows of wages and outflows for acquiring consumer goods, so as to create an inter-temporal network that corresponds to the desires and preferences of the economic agents considered.

One can introduce in the model all the complexities one would like on credit and debt securities and on stipulating contracts, which include debtors paying interest to creditors in the most varied and sophisticated ways imaginable.

The relevant characteristic for our purposes is that a simple pure labour economic system in which there are no physical capital goods—in other words, where there are no real stocks—can create debt/credit relations to no end, even if in the whole pure labour model they cancel each other out. In fact, financial stocks can be created without physical limits.

This is precisely the relevant characteristic. Differently from what happens with real capital goods, there are no physical limits for financial operations: the only limits are those that are imposed by the existing institutional frameworks, which are in any case subject to modifications, in ways and forms always open to innovation, invention and whatnot in financial relations. It is interesting to note the radical difference with respect to the case of real stocks.

In any slightly more complex economic system, where production is the outcome of employment of not only labour but also of capital goods, each unit of production is necessarily endowed with specific capital goods that are characterised by a specific size of the productive capacity for the goods produced. It is important to underline that, in this case, real stocks have a physical limit given by their production capacity. They cannot go beyond the productive capacity necessary to absorb the full employment of available labour. If they went beyond that point, they would generate some idle productive capacity, and, therefore, entail inefficiencies of various sorts. In other words, the size of the real stocks of physical capital goods have a physical limit that cannot be surpassed without entailing some inefficiencies in the economic system. This is not the case for financial stocks. They can be created *ad libitum* and, recently, with various financial leverage devices, we have witnessed how far they can be pushed! Even in the case—as occurs in a pure labour model—where absolutely no real stock of capital exists, debts and credits can grow to phenomenal dimensions, even if behind them in *real terms* there is absolutely nothing!

The reader should not miss the importance of these propositions.

They raise the question of what is the ultimate function to be performed by financial operations, and hence of the financial institutions themselves. Clearly, it is only by defining a satisfactory configuration of this function; that is to say, by specifying what may be the type of service that is to be expected from it that we will be able to proceed, in order to judge and evaluate the adequacy of the whole set of financial institutions, and see whether they satisfy the requirements of the post-industrial world in which we live.

It seems to me unlikely that these requirements may be satisfied in the unrealistic setting (to the limit of irresponsibility) where theorems, such as those of Modigliani–Miller, have contributed to drawing and pushing—perhaps quite beyond the intentions of the original authors—the economies of the industrialised world.

What we need is much else and quite different. There seems to be an impelling need to radically reconsider the basic functions, limits and needs for regulations of all the financial institutions at present in use in the industrialised economies.

What appears to me to have emerged in a clear manner, from recent events, is that the essential core of mainstream economics has proven to be sadly inadequate to define such needed functions, if one considers the characteristics that have proliferated with the development of post-industrial economies.

We need to resume, not eliminate, possible alternatives.

7. Classical/Keynesian alternatives?

At this point, the question can no longer be avoided: are there considerations and openings that flow from the Classical/Keynesian approach, cursorily reviewed above, and so unwisely set aside by mainstream economic theory?

Evidently there are.

One realises immediately, to begin with, that in the case we are dealing with, the Classical/Keynesian alternative, with respect to the dominant economic theory, is moving on an entirely different level.

While the economics and economic policies that led to the formulation of the Modigliani–Miller theorem make sense only within an institutional framework strictly founded on free markets, moreover, supposed to be perfect, the Classical/Sraffian/Keynesian theoretical framework is not linked to any specific institutional framework. It is completely open (i.e., if we like, in it there are many degrees of freedom).[19] Due to this characteristic, it does not exclude at all the possibility of taking advantage of the very same market-mechanism institutions (with the exclusion of the absurd suppositions necessary for perfect markets). At the same time, it is perfectly compatible with other institutions, even with those that are at the opposite extreme from an institutional standpoint such as the centralised systems, besides all the other alternative intermediate configurations in their varying methodological shades and degrees.

The contrast with the dominant approach is, therefore, quite sharp, precisely on a sheer methodological plane.

To clearly realise this aspect, it may be useful to briefly consider, at least as an example, one of the alternative configurations, which shows the implications that emerge, thereby giving a more immediate idea of this methodological contrast. To this effect, the most obvious approach is to go to the opposite extreme with respect to the market economies that rely on individualism. In this case too, the reader should not be alarmed; one must remain aware that between the two extremes there are a panoply of intermediate configurations. Furthermore, it is useful to remember that the extreme case is—as a point of reference—the case that minimises the need for making suppositions regarding institutional aspects.

With this objective in mind, I think it useful to consider my original article (Pasinetti, 1962) where I presented the case of a 'socialist economy': certainly not to support such a type of institutional set-up, but only as an example of the simplest dynamic model, which

[19] This is exactly the opposite of what we find in the mainstream approach which provides no freedom whatsoever. In it, in fact, the concept of *methodological individualism* rules. And, there is no way of escaping it. The model of rational, individualistic behaviour leaves no room for escape. It is closed in itself. One is either 'inside' and remains there, or one is 'outside' (see critiques of this mainstream theoretical aspect in Pasinetti, 2007, pp. 263-269). When alternatives are proposed outside the mainstream model, one must be prepared to be submerged by a shower of criticism. As noted above, one can answer critiques in a positive and appropriate manner. What is discouraging and difficult to accept is being forced out of the discussions with the systematic technique of neglect and oblivion.

minimises institutional requirements and suppositions regarding the behavioural relations of individuals and groups.

In the shortest possible way, this case may be presented as follows.[20]

In a 'socialist economy' all the members of the community belong to the category of 'workers'. The responsibility for organising the production process and the direct ownership of the means of production belong to the State. However, the State as such cannot consume: consumption is undertaken only by the individuals. Consequently (disregarding transfers), if any sum of national product is not distributed to the members of the community in the form of wages, or in the form of interest on their loans to the State, that sum becomes *ipso facto* saved. This means that, as an inherent characteristic of this institutional set-up, the parameter s_c becomes unity ($s_c = 1$), so that even the only behavioural parameter that remained in the last formulae disappears.

Equations (1) and (2) presented above, respectively become:

$$P/Y = I/Y \tag{4}$$

$$P/K = I/K \tag{5}$$

with the obvious condition that, in equilibrium, total profits are equal to total investments, and the rate of profit (which, for simplicity, is also made equal to the interest on government bonds) is equal to the economic system's natural growth rate. Consequently, total wages are always equal to total consumption and total profits are always equal to total savings. This does *not* mean, however, that the entire wages are spent, and that the whole of profits are saved! Equations (4) and (5) are obtained without introducing any type of hypothesis on individual choices regarding savings. In dynamic equilibrium, each individual is completely free to decide which portion of his/her income (wages and interests) he/she intends to save, without this decision affecting equations (4) and (5) in any way. This conclusion, for a 'socialist system', is simply equivalent to what was considered the most surprising result of the Pasinetti theorem.

The procedure indicated in Section 2 becomes extremely simple. By placing ($s_c = 1$) in equation (2) an interesting aspect immediately comes forth: in dynamic equilibrium, individual savings from wages are exactly equal to individual consumption from interests, so that total consumption (from wages and interests) is equal to total wages.

An important corollary follows: it is not necessary for a State, with the simple characteristics here considered, to interfere in the decisions regarding individual consumption and savings. There is just one constraint that must be fulfilled (which we already encountered in a capitalist system) expressed by inequality (3). The community as a whole cannot remain in dynamic equilibrium if it insists on saving more than is required by the natural growth rate of the economic system. If it were to persist, the system would slump into a chronic state of under-employment due to a lack of effective demand.[21] If the saving's limit is not surpassed, there is no need to place any restriction on individual savings. The only effect of these savings is to require from the State the issuing of a national debt for a part of the stock of accumulated capital, and the consequent distribution of part of profits (in the form of interest on loans), which will however come back in the form of lent savings.

[20] This paragraph follows the steps taken in Pasinetti (1962, pp. 277–8).

[21] We are naturally referring to a closed system. In an open system, where the State can provide external loans from its sovereign funds, full employment could be maintained also in the case where total savings are more than the required total investments.

To conclude, we can present the results as follows. In an economic system with full employment, where the net income of those who organise the production process are totally saved, there exists a specific rate of profit which I have called natural rate of profit (since it is equal to the natural growth rate) that has the following property: if it is applied both to the price determination process and to the process for interest payments on loans, it generates an economic system, no matter what the savings decisions of the individuals may be, in which the amount of total savings is exactly equal to the amount of investments needed to keep pace with technical progress and population growth.

The usefulness of this example as referred to a 'socialist system' is that it gives us a logical framework (with minimal reference to institutions), as close as possible to that foundational level of an economic system, which in my works I have called natural. There is nothing automatic in it as I have had the occasion to show and stress. Furthermore, the underlying evolving movements in technology and in the consumption patterns are always at work to generate impulses of dynamic instability for which it will always be the task of appropriate institutions to contrast.

Nevertheless, one perceives quite clearly a background of underlying normative characteristics towards which it would appear more than justified to address the necessary work and purpose of our institutions.

8. The temptation of counterfactual hypotheses

At the end of this discourse, one must admit that the temptation becomes strong for some exercises based on counterfactual hypotheses. Especially if we consider the present deep economic crisis, what is more spontaneous than asking ourselves where would we be if, instead of following the neoclassical and Monetarist streams of thought, which have prevailed in the majority of the economic profession and in the economic and monetary policies of the past three or four decades, we had paid greater attention to Classical and Keynesian theories and policies? One must of course be conscious that any answer given to this sort of question, no matter how accurately framed, cannot avoid the accusation of being somewhat fanciful. Even more so in our case where, as has been pointed out, the Classical/Keynesian approach would have been compatible with a multiplicity of institutional setups quite beyond the purely competitive market.

All this being taken for granted, it is nonetheless surprising to note how, in a matter of a few months, the Governments of the Western industrialised nations—with the USA and the UK leading the way—have been compelled by events to intervene with unprecedented colossal bailouts to salvage shaky giant banking, financial and insurance corporations from collapsing; and then have to extend the same measures to industrial corporations of world relevance, whose bankruptcy would have caused unemployment on an appalling scale, which in any case would have been reputed socially unsustainable. One had to go back to Keynes's arguments, not so much to admit failure—which was done only partially—but in order to provide practical justifications for the enormous injections of public money, with financial devices and on a scale that could not be justified by any economic theory or consideration or exception on which the prevalent economic theory could rely since, according to dominant theory, the events that were happening should never have occurred.

Yet, it appears disconcerting at the very least to see that, in practice, massive government nationalisations should be carried out on a large scale, obviously with public indebtedness, i.e. of all the citizens, without any plan whatsoever, except by providing the justification that nothing different could have been done, as if what was happening was a reaction to an

external event, fallen upon us from the sky, not only unexpected but essentially inexplicable, with the sole perspective (also not explained) that it would obviously be a temporary phenomenon, to be speedily overcome, so as then to reprivatise the nationalised firms once the situation of their insolvency had been settled (i.e. paid off by the taxpayers).

Indeed, can we think of a clearer example of what Joseph Stiglitz himself has defined as 'American socialism' (Stiglitz, 2009, p. 39), i.e. consisting of the 'socialization of the losses and the privatization of the profits'?

We are left wondering why on earth public ownership (not necessarily to its full extent, i.e. not essentially *étatiste*, yet substantially under the control of the community, in the efficacious sense of its most variegated organisations) could not have been a little more intelligently anticipated and undertaken. Those nationalisations that were recently made could already have come about in the most natural way, i.e. through the accumulation of profits, so that public ownership would have come into being automatically, thereby avoiding the enormous costs that have now been undertaken and which most probably will continue to be undertaken.

A final aspect, which is no longer counterfactual but terribly relevant, cannot escape attention. It seems to me more reasonable to look with greater favour upon a Classical/Keynesian framework, perhaps with less sophisticated analytical tools than those at the bottom of mainstream economics, and yet much nearer to common sense and more suitable for incorporating that flexibility and openness of views necessary to the processes of reconstruction of such institutions that seem most appropriate to the overall framework of an evolving and globally industrialised world.

Bibliography

Accademia Nazionale dei Lincei. 2005. Conference: Franco Modigliani between Economic Theory and Social Commitment – Proceedings of an International Conference, *BNL Quarterly Review*, vol. LVIII, no. 233–234

Baranzini, M. and Mari, C. 2010. 'The Cantabrigiensis–Italian School of Income and Wealth Distribution', paper presented at the Conference *Gli economisti postkeynesiani di Cambridge e l'Italia,* Lincei Academy, Rome, 14–16 March, 2009

Bauman, Z. 2009. *Capitalismo Parassitario*, Roma-Bari, Editore Laterza

Chari, V. V. and Kehoe, P. J. 2006. Modern macroeconomics in practice: how theory is shaping policy, *Journal of Economic Perspectives*, vol. 20, no. 4, 3–28

Chari, V. V. and Kehoe, P. J. 2008. Response from V.V. Chari and Patrick J. Kehoe, *Journal of Economic Perspectives*, vol. 22, no. 1, 247–9

Debreu, G. 1959. *The Theory of Value. An Axiomatic Analysis of Economic Equilibrium*, New Haven and London, Yale University Press

Eatwell, J., Milgate, M. and Newman, P. (eds) 1987. *The New Palgrave Dictionary of Economics*, London and New York, Palgrave Macmillan

Eatwell, J., Milgate, M. and Newman, P. (eds) 1992. *The New Palgrave Dictionary of Money and Finance*, London and New York, Palgrave Macmillan

Friedman, B. M. 2008. The failure of the economy and economists, *The New York Review of Books*, May 28–June 10

Galbraith, J. K. 1956. *American Capitalism – The Concept of Countervailing Power*, 2nd edn, Boston, Houghton Mifflin Co.

Galbraith, J. K. and Garcilazo, E. 2004. Unemployment, inequality and the policy of Europe: 1984–2000, *BNL Quarterly Review*, no. 228, March, 3–28

Harcourt, G. C. 1972. *Some Cambridge Controversies in the Theory of Capital*, Cambridge, Cambridge University Press

Jensen, M. and Meckling, W. 1976. Theory of the firm managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, vol. 3, 305–60

Kaldor, N. 1956. Alternative theories of distribution, *The Review of Economic Studies*, vol. 23, no. 2, 83–100
Kaldor, N. 1966. Marginal productivity and the macro-economic theories of distribution. Comment on Samuelson and Modiglaini, *The Review of Economic Studies*, vol. 33, no. 4, 309–19
Keynes, J. M. 1936. *The General Theory of Employment, Interest and Money*, London, Macmillan
Keynes, J. M. 1973. *The Collected Writings of John Maynard Keynes, Vol. XIII, The General Theory and After – Part I Preparation*, edited by Donald Moggridge, London, Macmillan and Cambridge, Cambridge University Press
Leijonhufvud, A. 2008. Between Keynes and Sraffa: Pasinetti on the Cambridge School, *The European Journal of the History of Economic Thought*, vol. 15, no. 3, 529–38
Levhari, D. and Samuelson, P. A. 1966. The nonswitching theorem is false, *Quarterly Journal of Economics*, vol. 53, no. 4, 518–19
Meade, J. E. 1966. The outcome of the Pasinetti process, *The Economic Journal*, vol. 76, no. 301, 161–5
Miller, M. H. 1988. The Modigliani–Miller propositions after thirty years, *Journal of Economic Perspectives*, vol. 2, no. 4, 99–120
Miller, M. H. and Modigliani, F. 1961. Dividend policy, growth and the valuation of shares, *The Journal of Business*, vol. 34, no. 4, 411–33
Pasinetti, L. 1962. Rate of profit and income distribution in relation to the rate of economic growth, *The Review of Economic Studies*, vol. 29, 267–79
Pasinetti, L. 1966. New results in an old framework: comment on Samuelson and Modigliani, *The Review of Economic Studies*, vol. 33, no. 4, 303–6
Pasinetti, L. 1974. *Growth and Income Distribution – Essays in Economic Theory*, Cambridge, Cambridge University Press
Pasinetti, L. 1988. Sraffa on income distribution, *Cambridge Journal of Economics*, vol. 12, 135–8
Pasinetti, L. 2000. Critique of the neoclassical theory of growth and distribution, *BNL Quarterly Review*, vol. LIII, no. 215, 383–431
Pasinetti, L. 2003. Comments: Cambridge capital controversies, *Journal of Economic Perspectives*, vol. 17, no. 4, 227–8
Pasinetti, L. 2007. *Keynes and the Cambridge Keynesians: a 'Revolution in Economics' to be Accomplished*, Cambridge, Cambridge University Press
Pasinetti, L. and Scazzieri, R. 1987. Capital theory: paradoxes, pp. 363–8 in Eatwell, J., Milgate M. and Newman, P. (eds), *The New Palgrave Dictionary of Economics*, Vol. I, London, The Macmillan Press Ltd [updated with new title: Capital theory (paradoxes), pp. 675–684 in *The New Palgrave Dictionary of Economics*, Vol. I, 2nd edn, 2008]
Putterman, L. 1988. The firm as association versus the firm as a commodity, *Economics and Philosophy*, vol. 4, 243–68
Samuelson, P. A. 1947. *Foundations of Economic Analysis*, Cambridge, MA, Harvard University Press
Samuelson, P. A. 1964. The General Theory, pp. 315–47 in Leckachman, R. (ed.), *Keynes's General Theory: Report of Three Decades*, London, Macmillan
Samuelson, P. A. and Modigliani, F. 1966A. The Pasinetti paradox in neoclassical and more general models, *The Review of Economic Studies*, vol. 33, no. 4, 269–301
Samuelson, P. A. and Modigliani, F. 1966B. Reply to Pasinetti and Robinson, *The Review of Economic Studies*, vol. 33, no. 4, 321–30
Solow, M. R. 2008. Comments: The state of macroeconomics, *Journal of Economic Perspectives*, vol. 22, no. 1, 243–6
Sraffa, P. 1960. *Production of Commodities by Means of Commodities: Prelude to a Critique of Economic Theory*, Cambridge, Cambridge University Press
Stiglitz, J. E. 2009. We're in a whole new territory (interviewed by Rana Foroohar), *Newsweek*, April 6, 39
Volcker, P. 2010. The time we have is growing short, *The New York Review of Books*, June 24–July 14, 12–14