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Monetary theory and policy: the debate revisited

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Monetary theory and policy: the debate revisited[1]

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Abstract: This paper is aimed at revisiting monetary analysis in order to better understand erroneous choices in the conduct of monetary policy. According to the prevailing consensus, the market economy is intrinsically stable and is upset only by poor behaviour by government or the banking system. We maintain on the contrary that the economy is unstable and that achieving stability requires a discretionary economic policy. This position relies upon an analytical approach in which monetary and financial organisations are devices that help markets to function. In this perspective, which focuses on the heterogeneity of markets and agents, and, consequently, on the role of institutions in determining overall performance, it turns out that nominal rigidities and financial commitment offer the means to achieve economic stability. This is because they prevent successive, unavoidable disequilibria from becoming explosive.

Key words: inflation, market, money, stability.

Codes JEL: E31, E32, E5, E61, E62

1. Introduction

Events stemming from the financial crisis triggered in 2007 reveal a three-fold failure: of a monetary policy that targets only the inflation rate and is unable to cope with the risk of financial instability; of a quantitative easing monetary policy that is incapable of stimulating activity; and of the exploitation of a trade-off between inflation and unemployment for a recovery policy.

Instead of considering this situation as an exceptional episode and limiting the use of so-called unconventional policies over time, it is relevant to examine the validity of the underlying economic analyses, in particular monetary analysis.

There are two ways to analyse the role of money: a classical view that maintains that money is neutral in the long term and should also be in the short term, and the Keynesian view that considers that money has real effects both in the long and short term. The differences between the two crystallize around the phenomenon of inflation. The fact that the latter has been eradicated has favoured the emergence of a consensus supporting the classical analysis. It is however worth to reconsider the debate over the

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very nature of inflation, which it would be wrong to consider closed. The question remains whether we are dealing with a monetary phenomenon in the sense that it is attributable to mistakes in discretionary monetary (and fiscal) policy, or whether it is a phenomenon anchored in disequilibrium adjustments in goods and labour markets. The response to this question depends on the way in which a monetary economy is conceived and, consequently, on the role of the banks and monetary policy. On the one hand the market economy is assumed stable so long as money and finance are neutral. On the other hand, it is considered as unstable and can be stabilized only if money and finance help the working of competitive markets – which is far from certain.

In what follows the monetary consensus in force will be analysed (section 2). The classic and Keynesian theories of inflation will then be presented, illustrating the differences that exist over monetary analysis (sections 3 and 4). It will then be possible to show how the functioning of markets in disequilibrium requires monetary and financial devices (section 5) and how the monetary economy is also a production economy (section 6). Monetary policy rules will be reconsidered (section 7). The relationship between monetary policy and fiscal policy will be reviewed (section 8), before providing an overview of monetary history, including the recent question posed by so-called unconventional measures with respect to the goal of getting out of the recession (section 9) and ending it (section 10).

2. The monetary consensus

The question sometimes put forward in the monetary analysis debate is whether the quantity of money is exogenous (determined by the central bank) or whether it is endogenous (determined by the way the credit demand of households and business behaves). Posing the question this way can however be misleading and conceal the consensus that has arisen among monetarists, neo-Classicals and new Keynesians in the conduct of monetary policy.

The original monetarist position is that deposits make loans, in other words, the amount of money in circulation is a multiple of the monetary base fixed by the central bank. According to Friedman (1968), the central bank must then stick to an intangible rule of growth of this money quantity. The concrete impossibility of referring to a stable monetary aggregate, has, however, led central banks to set an interest rate target.

The alternative position, inspired by Wicksell (1898, 1934), is that loans make deposits, that is, the commercial banks meet in full applications for credit at the interest rate that they set. This position is, more or less explicitly, the one retained in modern macroeconomic models, especially in the DSGE models of new Keynesian economics (Woodford 2003).

Taken literally, this involves constructing a IS-LM model without LM, that is, without the demand or supply of money, but also without a trade-off between money and securities and, finally, without an explicit reference to the functioning of the financial markets and speculation (Romer 2000, Pollin 2003). There is no reference to commercial banks but rather to the central bank, which sets its interest rate with the aim of controlling the inflation rate and coping with the rigidity of nominal prices, which is seen as the main cause of the distortions in consumption that prevent the economy from realizing its growth potential. The typical mechanism established is as follows. Firms anticipating a positive productivity shock will not lower prices as much as they should because of, the existence of the cost incurred to change prices (the menu cost). The general price level will be higher than it should be. As a result, consumption will not increase as much as it should. Production and employment will not increase as much as they could. There is an inflation gap, an output gap and involuntary unemployment. “The delays involved before the next time that prices are reconsidered are here taken to be an institutional fact, just like the available production technology. But the resulting constraints are taken into account of by the decision makers who set them; thus the assumed stickiness of prices implies that when they are reconsidered, they are set in a forward looking manner, on the basis of expectations regarding future demand and cost conditions, and not simply in response to current conditions. As a result, expectations turn out to be a crucial factor in the equilibrium relation between inflation and real activity” (Woodford 2003 p. 7-8).

In these circumstances, it is up to monetary policy to correct distortions attributable to firms’ rational behaviour. This policy involves the central bank following a rule: that the interest rate should be adjusted so as to resolve, in a single act, the inflation gap and the output gap. In this case, faced with an increase in productivity gains, the central bank must raise its interest rate, with the result that the series of individual acts of consumption maximizes the inter-temporal utility of the agents by restoring what would have prevailed with perfectly flexible prices.

The problem posed to the monetary authorities is not to influence the real variables by introducing an element of surprise into the decisions of private agents, but to determine whether the information that the authorities have with respect to price expectations should lead them to adapt their policy (in this case to change the interest rate) in order to affect the real variables and to make their values coincide with the optimal ones.

On the one hand, as changes in employment and output may reflect changes in preferences and technologies, they are not an indicator of market failures. On the other hand, the instability of the general price level appears as an indicator of the inefficiency of the allocation of resources (Woodford 2003). Perfectly flexible prices are never excessively volatile because there is speculation supposed to be invariably stabilizing (one buys low and sells high) and because the fundamentals (technologies and preferences) change slowly. They evolve at the same rate as the index since there is no friction. The variability in the inflation rate, which is detrimental to the allocation of resources, is then presented as the fruit of rigidities or viscosities that are responsible for intermittent and spasmodic adjustments. It is the fruit of these adjustments that creates a gap between the actual level of prices and the natural level of prices. It follows that, provided that wages are perfectly flexible, the goal of monetary policy must be zero inflation. The point is to ensure that the actual demand (and the corresponding supply) are at levels that would be achieved with flexible nominal prices, i.e. with natural prices that are by definition associated with an absence of inflation. Satisfying this objective also guarantees the achievement of a growth target that would reduce the output gap. In the face of a positive and permanent technological shock, while prices viscosity prevents the real rate of interest to coincide with its natural level, the rise in the nominal interest rate, by increasing future consumption, leads to an increase in future output and employment. As it substitutes for the fall in prices that should have occurred it allows the real interest rate to converge to its natural level.

In the presence of nominal prices' rigidities, a single instrument makes it possible to simultaneously satisfy two objectives, which some have called a divine surprise (Blanchard and Gali 2007): there is no need to arbitrate between price stability and growth.

In the presence of real wage rigidities, this arbitrage is again required. Thus, as a result of an increase in the price of oil that induces a sharp decline in the natural product - the

product that prevails in the absence of nominal rigidities - a sharp decline in real wages is required to the extent that workers can not accept a decrease in their real wages only if there is a sharp increase in unemployment and therefore very low production. In this case, it is better to allow, for a time, some inflation and a higher level of production (Blanchard and Gali 2007, Blanchard 2008).

In any case, monetary policy is the preferred instrument for counteracting rigidities deemed inevitably detrimental, reducing the gap to the natural path and making the most of technological advances.

In this context, the monetary authorities don't have to worry about changes in the prices of financial assets because these highly flexible prices are supposed to accurately reflect the fundamentals. "The prices that monetary policy should aim to stabilize are the ones that are infrequently adjusted, and that consequently can be expected to become misaligned in an environment that requires these prices to move in either direction. Large movements in frequently adjusted prices – and stock prices are among the more flexible of prices – can instead be allowed without raising any concerns, and if allowing them to move makes possible greater stability of the sticky prices, such instability of the flexible prices is desirable" (Woodford 2003 p.13) Movements of financial capital, whether internal or external, are considered useful and efficient.

The effectiveness of monetary policy is not linked to the possibility and, therefore, the ability to control credit flows. This type of control, which would result in detrimental distortions in the allocation of resources, is even prohibited. It is in this sense that one must interpret the reference to an interest rate target. "The main way that monetary policy now works – in the US and throughout the industrialized world – is to affect the level of interest rates, rather than through quantitative controls over credit flows" (Woodford 2002 p.3). The idea is that "monetary policy has an advantage of acting relatively uniformly on spending decisions across the economy, allowing policy makers to stabilize inflation pressures without creating undue allocative distortions across sectors of the economy" (ibid. p. 4). Action on the nominal interest rate stems from the choice to keep the absolute level of prices stable. In this way the price structure and the quantities are kept at their optimal level. By taking different paths, the analysis of the New Keynesian Economics shares with the analysis of the New Classic School the principle that monetary policy must be devoted to the stability of the inflation rate.

Financial frictions can be introduced into the models and were before and after the crisis, which further add to the structure of a competitive economy, such as, for instance, having firms' borrowing capacity depend on the value of their net wealth so that the presumed imperfect functioning of the credit market contributes to amplifying and spreading shocks (Bernanke et al. 1999). The effects have long appeared negligible from an empirical point of view and would have been more stringent only after the crisis. The blame for instability is then shifted not onto market processes, but onto the behaviour of uninformed banks, possibly trapped in segmented capital markets, and possibly ill-intentioned or simply reckless (Gertler and Kiyotaki 2015, Gertler et al. 2016). The idea is, then, that this must be overcome through macro-prudential measures governing the behaviour of the banks and by deepening the equities markets, in other words by restoring an institutional framework consistent with the reference general equilibrium model – this was supposed to be implemented by the European Union in particular during the last period. There are small natural (or real) fluctuations that are optimal. Any deviation from this optimum is monetary or financial, and in fact the result of a lack of neutrality attributable to bad institutions, in fact to banks' misconducts, in accordance with the position already taken by Hayek (1933).

3. The classical theory of inflation

The issue of inflation is at the heart of the monetary consensus as it has just been presented. The question remains, however, of knowing whether we are dealing with a monetary phenomenon as understood by monetarists or with the result of adjustments specific to a monetary production economy as stressed by Hicks (1974) or Tobin (1995), following in the footsteps of Keynes.

The qualification of inflation as a monetary phenomenon is based on the belief that the central bank is able to control it closely, either by fixing the growth rate of the money supply or by acting through the interest rate. The issue for the bank is to make room for government errors or market failures that can be attributed to institutional rigidities or to incomplete information.

From the monetarists' point of view, inflation is the result of undesirable economic stimuli by the government by means of public deficits validated by money creation. The inverse relationship between the inflation rate and the unemployment rate – the Phillips curve – is maintained insofar as we continue to hold that a rise in unemployment

constitutes a brake on wage demands and on the rising prices that could ensue. There is also the perfectly legitimate observation that the current rate of inflation rises in line with the anticipated inflation rate (Friedman 1968, Phelps 1967). The rupture comes from the reference to the existence of a long-run equilibrium, which is none other than the situation in which price expectations are confirmed. The unemployment rate corresponding to this is called the natural unemployment rate. Efforts to revive activity by means of the fiscal or monetary policy starting from this position are doomed to failure. An increase in demand weighs on prices and leads to an upward revision of anticipated prices and, consequently, to a rise in wages, i.e. a drop in profitability, which must, sooner or later, result in a return to the initial level of production and therefore of the unemployment rate. Here, wage inflation is the inevitable consequence of an expansionary fiscal policy.

The simultaneous rise in inflation and unemployment in the 1970s validated this approach, marking a veritable revolution in the history of ideas and in the practice of the central banks.[2] The question of inflation was henceforth dissociated from the question of employment. Inflation was seen as a purely monetary phenomenon, following an excess of money creation, and unemployment as a real phenomenon, revealing the demographic situation and the way in which the labour market and the markets for goods and services were functioning. In particular, the belief would be confirmed that the natural unemployment rate would be higher when the institutional protection of employees via the payment of unemployment benefits or severance pay was high, and when corporate profit rates, an expression of their market power, was high. The dichotomy between real and monetary phenomena, at the heart of Walras' general equilibrium theory, was re-established. Structural reforms designed to move towards a state of perfect competition became the sole way of reducing the long-term unemployment rate.

Monetarism, which can be seen to reach a peak of audience towards the end of the 1970s, gave way to the new Classical economics and to the new Keynesian economics, but without any real rupture in analysis and monetary policy. Monetary policy continued

2 This validation is curious in that it comes from the abrupt rise in the price of raw materials and not from a drift in expectations that preceded it and has never been observed. Moreover, a comparison of the medium to long-term average interest rates observed from 1950 to 1973 with those observed from 1980 to 2008, respectively 4% and 6.4%, suggests that inflationary expectations were lower in the first period than in the second (Skidelsky 2009, p. 121).

to be considered the only truly effective way to stabilize the economy. The hypothesis of a natural unemployment rate was retained. Monetary policy could not create a persistent gap with the natural unemployment rate without creating inflationary or deflationary pressures. What was new was the attention paid to price formation mechanisms and to the expectations of the private sector concerning the way the central bank would deal with interest rates. In addition, the inflation expectation in the Phillips relationship was no longer the one used in the past for the current period, but the one expected for the future. Backward-looking behaviour gave way to forward-looking behaviour in a world entirely governed by rational expectations.

According to this doctrine, the central bank has a primary, if not sole, objective, which is to control the rate of inflation by setting the interest rate while taking into account the expectations of the private sector. Insofar as the central bank is independent and has at its head a governor convinced by the new ideas, its monetary decisions escape the pressures of the voter, which are inevitably held to be bad by proponents of the new doctrine. As for the government, it is up to it to ensure that its accounts are balanced. Reducing the budget deficit to restore balanced accounts may, of course, lead initially to a rise in the unemployment rate, which becomes higher than the natural unemployment rate, but the downward revision of wage and price expectations is supposed to ensure that this unemployment is absorbed and that the inflation rate falls. The only trade-off is between, on the one hand, high but quickly resorbed unemployment and, on the other hand, unemployment that is lower but lasting longer. The government needs only to ensure that the markets are functioning properly, i.e. to eliminate rigidities, both those in the labour market and those in the goods markets, whose only effect would be to increase the natural unemployment rate.

The inflation conceived thusly is cumulative and therefore truly harmful only if the government persists in keeping the unemployment rate below its natural level, whereupon price expectations would be systematically denied and revised upwards. When inflation is correctly anticipated, it is stable and only one cost is involved – the one of holding too little cash to cope with the tax of inflation – which is small compared with the cost of reducing it in terms of unemployment (Tobin 1972).

4. The Keynesian theory of inflation

The hegemony of the doctrine stemming from monetarist theses should not hide the fact

that there is an alternative analysis: we find traces of this in an explanation of the stagflation of the 1970s other than that which highlights the drift in price expectations resulting from lax fiscal policies which must ultimately be corrected. This Keynesian-inspired explanation is based on the observation that markets are heterogeneous and in disequilibrium, that this heterogeneity persists due to the effect of innovations, and that firms' responses to the imbalances they perceive on the markets are not symmetrical (Tobin 1972). If we admit that wages and prices are more flexible upwards than downwards, and as a corollary that the quantities and therefore the volumes of employment are more flexible downwards than upwards, then an increased dispersion of excess demand on the goods and labour markets lead to a simultaneous increase in inflation and unemployment. In this case, prices and wages are neither immediately nor even subsequently at their equilibrium values. Adjustments take time, not because of irrational behaviour, but in order to acquire the necessary information. So wages do not fall immediately in the face of an excessive supply of labour unless there is a persistently high level of unemployment. They will increase more easily in the inverse situation if it is a question of filling a labour shortage and attracting workers with the skills needed.

According to this analysis, the unemployment rate, which does not push up inflation, is all the higher when the dispersion of excess demand is greater. This is not a natural unemployment rate. It changes more or less rapidly according to the speed of the changes affecting the dispersion of excess demand and the speed with which prices and wages react (Tobin 1995).

The distinction between markets with flexible prices and markets with fixed prices is in line with the same conceptual approach (Hicks 1974). Flexible-price markets are those in which prices react immediately and strongly to gaps between supply and demand. Examples include the commodity markets and the markets for certain food products. So-called fixed-price markets are those where the prices fixed by the sellers are viscous, reacting more or less quickly and more or less strongly to variations in cost. The extent of this response depends on the extent of the shortages of raw materials or labour, or, more generally, on capacity limitations that affect supply, but also on the length of time required for these shortages and limitations to be overcome. In other words, prices on fixed-price markets do not necessarily react to shortages if they are expected to be temporary. Difficulties also come from the possible existence of cumulative mechanisms at the heart of the phenomenon of inflation, when the rise in the prices of consumer

goods triggers a rise in nominal wages, which in turn has an effect on the prices of consumer goods. The question then arises about the existence of a threshold – the inflationary barrier – beyond which the rate of inflation explodes. This barrier shifts over time under the impact of changes in the supply constraint, which can be exogenous or endogenous. A stronger supply constraint implies a lower growth rate compatible with stable prices and a higher unemployment rate (Hicks 1977). When it hardens, it can result in a simultaneous rise in the inflation rate and unemployment rate.

The problem posed by the existence of supply constraints was particularly acute after the World War II in the European economies (Hicks 1947). Reconstruction required investment, which necessarily took time to carry out. The adjustment process brought with it inflationary pressures (and/or trade deficits in open economies) "because the goods in which the wages (...) will be spent (...) cannot be provided out of the product of the labour which is newly employed, for that is not yet ready" (JR Hicks 1990: 535). Far from being in opposition to strong and regular growth, inflation appears, in this context, as a necessary condition for achieving this, especially since firms can legitimately expect that as the supply of consumer goods increases, the inflation winds up being absorbed. It would be absurd to want to eradicate it *ab ovo*. What is true of an economy that must rebuild a productive capacity following destruction is also true of an economy confronted with large-scale technological impulses, implying a sharp increase in the costs of building new capacity, later compensated by a decrease in the utilisation costs (Hicks 1973, Amendola and Gaffard 1998). Covering this increase and distributing the corresponding wages temporarily fuels inflation, which it would be inappropriate to fight at the same time because it would be detrimental to investment and because it should die out on its own.

These different considerations lead to questioning what ensures the necessary nominal anchoring. According to the monetarist theory of inflation, this is ensured by the presumed control over the money supply. In Wicksell's credit economy, this should be a matter of properly handling the interest rate, which implies the introduction of contingent rate rules by which today we mean a method of adjusting the central bank's key rate in response to changes in the output gap and inflation. It is not certain that this is always the case.

As a matter of fact, relationships between firms and banks (and their management in a

longer or shorter horizon) affect the gap between supply and demand on the markets. Thus nominal anchoring has to be done in a way to ensure that the distribution of credit does not generate permanent and cumulative market imbalances. The avoidance of cumulative processes is reducible neither to the control of the money supply nor to the control of the interest rate and owes much more to the way in which the architecture of the monetary and financial system as a whole affects firms' behaviour in heterogeneous markets in disequilibrium.

For inflation to be moderated (non-cumulative), private agents must have inelastic expectations that come from their cognitive ability to determine the true causes of inflation and the ability of the monetary authorities and banks to be in step with the needs of the economy. Although responding to market imbalances, firms determine prices by projecting themselves into the future. The degree of rigidity or flexibility then depends on the expected implications of monetary and fiscal policy, including the implications for future supply and demand. Relative rigidity in price formation that depends on the monetary and financial conditions is likely to allow expectations to be inelastic rather than to become the source of an inflationary bias. By conveying moderation in inflationary pressures, this guarantees that the economy will follow a quasi-steady state in the future.

In this perspective, the costs of inflation result from the disorder that it creates, beyond a certain threshold, in relative prices, in the distribution of income and wealth and in the temporal structure of productive capacity because it results in preventing market mechanisms from functioning properly. The real problem facing agents is not that they take a change in the general price level for a change in relative prices, but that due to the inflationary process they are unable to correctly interpret the price signals that result from changes in relative prices. As a result, some resources are not reallocated as needed, while others are reallocated that should not be. While low inflation is costly in terms of lost jobs, making the necessary structural adjustments more difficult, high inflation goes hand in hand with a shortening of the time horizon, a fall in investment and destruction that threatens the very viability of the economy (Georgescu-Roegen 1968). While sticky prices provide an anchor that helps stabilize the economy, excessively flexible and erratic prices mean lead to the destruction of inter-temporal stability, possibly creating the conditions for high inflation and a level of flexibility that can be attributed to erratic market imbalances that are themselves dependent on the

dysfunctions of the monetary and financial system (Heymannn and Leijonhufvud 1995, Leijonhufvud 1997).

This inflation is, under any hypothesis, fuelled by credit and money creation. However, there is no automatic causality between the public deficit, the credit distribution, and inflationary pressures. Private credit is likely to fuel inflation in the absence of a public deficit when markets are in a state of surplus demand.[3] Instead of systematically accusing the deficit in the public finances, it is important to consider how private debt and public debt respectively are changing before diagnosing the origin of inflationary (or deflationary) pressures.

5. Money and market

The consensus created around the objectives of monetary policy is questionable insofar as it is based on singularly questionable assumptions about the origin and nature of fluctuations. The market economy is assumed to be stable in essence. The natural movement of the economy is supposed to be that described by the theory of real cycles and owes nothing to monetary or financial conditions. These cycles are driven by necessarily limited stochastic technological shocks and are propagated by the impact of these shocks on the trade-offs between work and leisure by consumers who are both employees and owners of capital. As Leijonhufvud noted (1992/2000 p.41), these are seasonal cycles in the sense that agents decide to work more when the environmental conditions materialized in their productivity are favourable, and vice-versa. Furthermore, the production side systematically adjusts to the demand side, and the firm is absent from the analysis. Technological change is not really analysed. What is analysed is the effect of an anticipated technological shock on demand behaviour. Variations in demand together with nominal rigidities have an effect on the equilibrium quantities produced and sold in the current period as well as on the price index. There are no coordination difficulties. How the market works is not questioned, nor is the role money plays in this (Leijonhufvud 1992/2000). Movements of asset prices on the capital markets do not have a disequilibrating effect on investment flows. These are the characteristics that drive the perception of the means available to monetary policy. “Obtaining a more desirable pattern of responses to random disturbances

3 In the United States in the 2000s, inflation remained low despite both the widening of the budget deficit and growing household indebtedness, because domestic demand for goods was faced with an abundant foreign low-cost supply.

therefore requires commitment to a systematic policy rule and not just a (one time) adjustment of the bank's targets" (Woodford 2001 p. 26).

The reality of the market economy is quite different. The economy is naturally unstable, and money – this being understood to mean the monetary organization of trading – makes the difference in the course of events both for better and worse.

The viscosity of nominal prices and wages in numerous and diversified markets is the hallmark of a monetary economy. Not only " a critical property of a monetary economy is its proclivity to permit trading to take place at prices that do not keep market cleared, false prices as they are usually termed " (Laidler 2010). But more fundamentally, according to Hicks' (1989) formula, "the market makes its money". Transactions are not simultaneous and aren't for cash. Payments have the characteristic of debt swaps of various qualities that must be guaranteed (Hicks 1989). This explains the development of credit, of what Patinkin (1965) called an inside money, of a system of banks and financial markets, and ultimately of an outside money, the money issued by the central bank.

As a result, market imbalances result in nominal price and wage adjustments that take time – prices and wages that deviate from their equilibrium values without this reflecting monetary illusions or irrational behaviour (Tobin 1995).

The markets for goods referred to here are fixed-price markets, not in the sense that prices do not change, but in the sense that there is a tendency towards stabilization by producers or intermediaries for whom it is as much a matter of maintaining the trust of customers as putting oneself in a position to acquire information about market realities. Slow and gradual adjustments are the expression of rational behaviour in the presence of multiple and diversified markets. This slowness and gradualness is what makes for the efficiency of market economies in Hayek's sense.[4] Everything depends, however, on the prevailing monetary conditions of the system of trade, banking and finance, which is consubstantial with these economies. The monetary regime that embodies this system determines the expectations of private agents regarding nominal prices and interest rates and influences their decisions (Heymann and Leijonhufvud 1995). In this case, it is

4 "It is only in a market where adaptation is slow compared to the rate of change that the competitive process operates continuously (...) When the variety of close substitutes is large and rapidly changing, when it takes time to discover the respective merits of the available alternatives, or when the need for an entire class of goods appears discontinuously, at irregular intervals, the adjustment must be slow even if there is strong and active competition" (Hayek 1948 p. 103).

not a question of requiring monetary authorities and banks to be neutral in the face of agents with rational expectations and markets that are always considered in equilibrium. On the contrary, it is important to recognize the essentially monetary nature of a market economy whose evolution is due to the out-of-equilibrium articulation between real and monetary phenomena.[5]

Modern labour markets are also fixed-price (wage) markets. This results, on the one hand, from the organization of workers in unions or workers' mobility,[6] and on the other hand, from the attitude of employers who are reluctant to increase wages simply because of a shortage of labour or, above all, to lower wages because of unemployment at the risk of alienating those they continue to employ. Thus, for Hicks, "this 'rigidity' is not a question of monetary illusion, it is a question of continuity" (Hicks 1974, p. 66). And for Tobin, "the resistance of money wage rates to excess supply is a feature of the adjustment process rather than a symptom of irrationality" (Tobin 1972 p. 4). Furthermore, "rigidities in the path of money wage rates can be explained by workers' preoccupation with relative wages and the absence of any central economy-wide mechanism for altering all money wages together" (Tobin 1972 p. 5).

The rational justification for such rigidities is that market imbalances do not necessarily communicate the right signals at the right time, and that it is better to wait for more information before undertaking price changes that will have effects on investment and costs. In fact, nominal rigidities, far from being the source of imbalances, are a means of preventing these imbalances from becoming cumulative as there is a cost to inappropriate price variations, a cost that is all the more damaging as these variations become stronger.[7]

Viscous prices provide an anchor that helps stabilize the economy, while excessively flexible and erratic prices lead to the destruction of inter-temporal stability, possibly

5 The concept of a monetary regime has been introduced to describe a situation in which the actual behaviour of the authorities must support public expectations. It is, however, only in cases where the public is supposed to have a complete knowledge of the government's political strategy that these expectations are rational and that the monetary regime in question must necessarily be neutral.

6 Hicks (1989) contrasts the respective situations of England and other European countries with that of the United States. In the first case, industrial workers from agriculture could hardly go back and organized themselves into trade unions to defend themselves, whereas in the US they could leave for the frontier and take up agriculture-related jobs.

7 In the terms developed by the re-readings of Keynes initiated by Clower (1965) and Leijonhufvud (1968, 1981, 1992), the sign of excess demand may differ from that of notional (Walrasian) demand. The price or wage changes that would momentarily result would not go in the right direction, and the effects would be all the more damaging when the variations are larger.

creating the conditions for the high inflation that goes hand-in-hand with the inappropriate destruction of capacity, the disappearance of inter-temporal markets and the shortening of agents' time horizon.[8] If we refer to the world of Wicksell, contrary to what the consensual theory assumes, without much friction in price adjustments, any error by the central bank, which fails to set its interest rate at the natural rate (which it does not know), will result in large-scale fluctuations in prices that pose a serious threat to financial stability (Leijonhufvud 2007).

The variable degree of wage and price viscosity (the greater or lesser slowness of adjustments) explains the possible instability of the Phillips curve in both the short and medium term. It has been noted that nominal wages begin to decline only after a long period of unemployment (Tobin 1972). It can also be seen that wages do not rise until full employment has been firmly established or when new jobs are precarious.[9]

6. Money and production

Keynes, in the preparatory work for *The General Theory*, distinguished a real exchange economy, "which uses money but uses it merely as a neutral link between transactions in real things and real assets and does not allow it to enter into motives or decisions", from a monetary economy, "in which money plays a part of its own and affects motives and decisions and is, in short, one of the operative factors in the situation, so that the course of events cannot be predicted, either in the long period or in the short, without a knowledge of the behaviour of money between the first state and the last" (Keynes 1973 p 408-409). He thus calls for the formulation of a monetary theory of production, the purpose of which is to show that "this is not the same thing as to say that the problem of booms and depressions is a purely monetary problem" (ibid., p. 411).

8 This is particularly evident in the case of former communist countries facing very high inflation at the time of transition (see Heymann and Leijonhufvud 1996).

9 It is worth mentioning here a text of Walras that is largely in agreement with the analysis that has just been developed and not much in accordance with the positions of the new classical analysis. "The market is like a lake agitated by the wind, where the water seeks its equilibrium without ever reaching it. There are days, however, when the surface of the lake is almost horizontal; but there are none where the actual supply of services and products is equal to their effective demand, and the selling price of the products is equal to the cost price of the producer services. The diversion of producer services from loss-making enterprises to profitable enterprises takes place through numerous means, with the credit game being one of the principal, but in any case by slow means. (...) The lake is sometimes deeply troubled by the storm, just as the market is sometimes violently agitated by crises, which are sudden and general disorders of the equilibrium" (Walras 1874 p. 580).

This theory takes on its full meaning when it is recognized that it takes time to produce, that a production capacity must be built before it can be used. Distortions that affect the temporal structure of production capacity due to technological change are enough to cause fluctuations in output under the so-called full-performance hypothesis, i.e. in a perfect barter economy (Hicks 1973). Rejecting this hypothesis leads to an examination of the effect of the monetization of trade on the course of events (Amendola and Gaffard 1998). Not only does the access to liquidity required at each stage of this process shape the profile followed, what happens to output, unemployment and inflation, but the banking and financial system, consisting of a dense network of chains of conditional promises, fixes the amount of capital committed and the duration of this commitment, thereby affecting the nature and amount of the investments made.

In this perspective, the preference for liquidity stems not from a one-off choice between substitutable assets (money and securities), but from sequential choices in which firms, in a context of incomplete information, preserve a range of future choices that is as broad as possible (Hicks 1974). This liquidity is the property of financial assets that are neither operating assets nor speculative assets, but reserve assets that can be mobilized in order to make investments in real assets at the right moment and in the desired amount, whether these are liquid assets or a guaranteed capacity to borrow from banks. A firm will be all the more liquid when it has a borrowing capacity, and the bank can allocate the investment much more through this channel, which is part of the contractual relationship, than by varying its interest rate. The complementarity, step by step, between liquidity defined like this and real assets is essential here.

In this case, there is little difference between a credit economy (or an ‘overdraft economy’ in the Hicks’s parlance, 1974) and a financial markets economy (or an ‘auto economy’), since what is ultimately decisive is firms’ ability to leverage funds to meet the need to invest, whether by issuing shares or borrowing from banks (Goodhart 1984, Moore 1988).

The predominance of market financing does not make up for considering the level of shareholder commitment, i.e. both the volume of capital committed and the duration of this commitment, which is not simply reducible to the ability of each shareholder to sell their shares to others who take over without disrupting the firm’s ability to plan for the long term (Mayer 2013).

It is appropriate, then, to distinguish, in the terminology borrowed from Hicks, “outside shareholders” from “inside shareholders”: the former are interested only in the dividend to be collected and in the share price, while the latter are interested in the firm’s future and the dividends they hope to receive in the future; the former want to cash in a dividend that is as high as possible as soon as possible, while it is in the latter's interest to retain the profits in the business (Hicks 1989 p 89). The degree of commitment thus depends on the structure of the shareholding. Dispersed individual ownership of the capital or the concentration of the capital ownership in the hands of a family guarantees a stable commitment. The holding of high volumes of equity by activist investment funds may, in contrast, be a factor favouring assets’ price volatility, making the capacity for commitment unstable.[10]

Under these conditions, the distribution of dividends cannot be considered equivalent to the retention of profits (Mayer 2013). The higher the dividends paid, the more frequently equity issues are used to finance activity, giving the shareholders greater power. The credibility of the shareholders' engagement with the firm’s other stakeholders may be affected. It will be weakened whenever the ownership structure changes and reduces the duration of this commitment by favouring impatient shareholders. The practice of firms’ buying back their own shares, to the detriment of capital expenditure, is part of this development.

This financial commitment is all the more decisive when it commands a real commitment from employees, suppliers and customers. A “solid” (non-fluid) job, stable salary scales and fair wages, which ensure the continuity of the employees' commitment, are the corollary of the patience of the holders of the firm’s capital, whether shareholders or conventional banks (or proximity banks).

7. The rules of monetary policy

Does this mean that the quantity of money is endogenous? While we can consider that entrepreneurs obtain the funds they ask for at the fixed interest rate, the fact remains

10 The problem naturally has a legal dimension. "The fact that company law favours one or the other of these two forms of shareholding obviously has a much greater impact on employment than the more or less protective nature of the right to dismiss employees. Tracing new limits on shareholders' powers, which requires them to take into account the durability of the firm in which they are placing their capital, would be able to restore the ability to undertake the primary role that it should never have lost in the economy" (translated from Supiot 2010 p. 112).

that the conditions for the commitment of the capital holders guide the type of investment chosen and, as a result, the nature and extent of future market disequilibria.

Thus, low interest rates and/or a lengthy financial commitment favour long-term investments, that is to say, requiring a long time to build that are likely to generate a distribution of purchasing power without any immediate compensation in the production of consumer goods, excess demand, and inflationary pressures whose duration risks their becoming cumulative through a price-wage spiral. High interest rates and a short financial commitment favour short-term investments that are associated with moderate inflationary pressures that are unlikely to be cumulative.

In fact, things can be more complicated. It may happen that low interest rates go hand in hand with a short financial commitment, and vice versa. It is not appropriate to increase the interest rate during the economy's recovery phase if this negatively affects the capacity for productive investment. But keeping rates low also runs the risk of existing assets' prices speculative rising, thus with no effect on productive investment. This means that is necessary to separate the effects of interest rate changes from the effects that come from variations in the amount of funding, and that it must be acknowledged that a certain degree of interest rate rigidity is needed. This means that the conditions for the inter-temporal allocation of financial resources or, more precisely, the role that the finance constraint plays over time, should be taken into account (Amendola 1991, Amendola and Gaffard 1998, Pollin 2005). This requirement merely reflects the need to recognize the time needed to produce, implying, moreover, that the current interest rate has little influence on current investment since it is only one link in a chain of successive investments that complement each other, whose abandonment would have a considerable cost (Hicks 1989).

Monetary rules cannot therefore be rigid. As Hicks pointed out, the credit system "must be managed by a central bank, whose operations must be determined by judgement, and cannot be reduced to a mechanical rule" (1967: 164). In other words, "a measure of accommodation by the banking system in response to real cyclical growth is appropriate. But there is no easy criterion for exactly what measure of accommodation is appropriate" (Leijonhufvud 1990, 126). In fact, in a context of structural change, the adoption of rigid rules, implying optimization under the false presumption that the perception of errors about the natural interest rate or the potential growth rate are of

small magnitude, turns out to be costly in terms of inflation and unemployment. The best strategy is not to adopt such rules, but to make adjustments to changes in the rate of inflation and the level of activity, implying a certain degree of inertia (Orphanides and Williams 2002).

The more monetary policy interacts with banking and financial behaviour, the more difficult it is to implement. Monetary authorities have to worry about changes in the prices of financial assets. The valuation of assets in the financial market has a strong influence on available liquidity and, consequently, on investment expenditure and the restructuring of economic activity. It is therefore important to know in what way and how this valuation depends on monetary policy. A restrictive monetary policy may depress the valuation of assets, and hence the financing of investments through financial markets. In contrast, an accommodative monetary policy could result in higher security values and make it easier for firms to achieve their capital accumulation targets. However, higher asset prices can also create distortions in the structure of productive capacity by causing excessive capital accumulation with respect to the increase in demand. Market exuberance can lead to excessive investment in future demand for final goods. The pseudo-natural rate of interest would be overvalued, making a reversal of expectations inevitable. An interest rate that is too high blocks the investment needed. An interest rate that is too low leads to inappropriate investments.

There is another dimension to the problem that concerns not firms' investment behaviour, but the strictly financial behaviour of firms and banks. Profitability required by shareholders (pension funds, for example) leads firms to buy back their own shares, to increase the amount of distributed dividend, and to undertake restructurings of their activities simply to increase their immediate profitability. As a result, funding for long-term investments becomes scarce, that is to say, investments that have a lengthy gestation period and incur costs long before yielding returns. In this case, high asset prices and low interest rates are no guarantee that firms can access the financing needed to innovate. A distortion arises in the structure of investment, to the detriment of long-term investment.

On the other hand, the supply of credit stems to a great extent from the process of increasing or reducing bank indebtedness, which takes place through a complex network of financial links between banks and other financial institutions, meaning there is a tight

interdependence between banks' assets and liabilities and their level of indebtedness (Battiston et al. 2016). Monetary measures of quantitative easing change both banks' liquidity conditions and the prices of financial assets, which influences trends in bank debt and the volume of credit they provide to the real sector.

In this context, it is difficult for the central bank to claim to control its interest rate by referring to changes in the price of financial assets. It makes little sense to introduce asset prices into the rule for setting the interest rate. But it is no less difficult to lose interest in the price of financial assets on the false grounds that the financial markets are efficient. The monetary authorities may take the view that it is preferable to supply liquidity to the economy when a speculative bubble bursts rather than to raise the interest rate with the risk of provoking a recession in economic activity or to enact a policy of quantitative easing when the interest rate is at its lower limit (zero bound). But this does not mean dispensing with regulatory policies and prudential policies that alone can prevent the formation of speculative bubbles – nor with reviewing and taking action on the banking and financial system.

The purpose of this system is to reconcile the supply and demand of goods over time, to reconcile inter-temporal valuations. This reconciliation is necessary simply because of the division of labour between firms that are producing under increasing returns to scale and using intermediate goods produced by other firms that are also producing under increasing returns. Profitability of one firm' investments depends on the scale at which its suppliers and customers but also its competitors are operating (Leijonhufvud 1992/2000, Richardson 1960). This requires the recourse to patient capital that guarantees prior contractual commitments that minimize risks.

In such a perspective, as Keynes (1936) pointed out, there is no natural rate of interest, no equilibrium real rate of interest that would act as a policy anchor. Indeed, "depending on the monetary policy rule, the economy's fragility to boom-bust cycles may be high or low, with significant implications for the long-run evolution of output and real interest rates" (Borio et alii 2018:2).

8. Money and budget

In the world of dynamic stochastic general equilibrium models, if anticipated inflation exceeds the target then the central bank sharply and abruptly raises its interest rate to bring the inflation rate to the required level. In such a world, the government should be

reluctant to pursue an expansionary fiscal policy, as it should anticipate that any increase in aggregate demand driven by higher public spending will be offset by an equivalent reduction due to the action of a central bank whenever it is independent and applies the rules set. Moreover, when monetary policy is restrictive and fiscal policy lax, the lack of monetary financing of the public deficit leads to an increase in the public debt. There comes a time when fiscal solvency is no longer assured. Unless the deficit is drastically reduced, there is no alternative to debt monetization and, subsequently, to intense inflationary pressure (Sargent and Wallace 1981). To escape this unpleasant arithmetic, a fiscal rule is sufficient. In other words, there is really no room for a mix of monetary policy and fiscal policy.

This arithmetic is, however, contradicted when it is recognized that disequilibria are articulated over time, and can be amplified, resorbed or offset, depending on the way the markets function. Thus, an excess supply of goods and unemployment can be followed by an excess of demand and inflationary pressure. Therefore increasing public spending today and correspondingly increasing the public debt will reduce excess supply and unemployment, while taxing incomes later will reduce excess demand and inflationary pressure. In this case, increasing the public debt does not reduce current consumption, whereas the repayment of this debt at a later date will reduce future consumption, to the benefit of the economy over the period as a whole. “The temporal structure of Keynesian policy fits the temporal maldistribution of excess demands left uncorrected by intertemporal price adjustments” (Leijonhufvud 1992/2000 p.37). It is useless, then, to say that the Ricardian equivalence theorem enunciated by Barro (1974) between taxing tomorrow and taxing today (between borrowing and taxation), which argues that the policy of a budget deficit is ineffective, holds only under the assumption that there is a general inter-temporal equilibrium.

Since then, when a budget deficit follows a rise in private savings and a downturn in activity, the real issue is to know how long a budget deficit should be accepted and how big it should be before public spending can be relieved by a recovery in private spending. “The lesson to be drawn from these cases is that effective policies to combat a severe recession have to be conducted by *solvent* governments. A state is solvent, roughly speaking, if (rationally) *expected* future surpluses will balance present deficits. That expectation, in turn, requires the belief that the political consensus needed to carry out such a budget programme over time can be reached and can be maintained”

(Leijonhufvud 2009 p. 752).

When a restrictive monetary policy constrains investment, as was the case in Europe in the 1990s, the profile of the fluctuations changes. The recurring shortfall in investment has the result, cycle by cycle, of reducing the growth rate that is consistent with price stability, as well as the non-accelerating inflation rate of unemployment (NAIRU), which some call the equilibrium unemployment rate, insofar as lower investment *today* means a lower level of production *tomorrow*, and hence an inflationary barrier that is achieved more quickly. A constraint imposed simultaneously on the budget deficit maintains and aggravates the fluctuations. It leads to a fall in public spending during a recession, accentuating the slowdown and contributing to reduce the duration of the subsequent recovery phase by weighing on public investment. It gives free rein to the possibility of lowering taxes without a corresponding cut in public spending during boom periods, creating inflationary pressures that can in turn lead to a tighter monetary policy and a premature turnaround in the cycle. No effective constraint is introduced in the expansionary phases of the cycle, but the recessions are amplified, which should not be interpreted as deviations from a predetermined trend, but rather as a phase in an essentially endogenous change that the budget constraint helps to shape. The rules, which are supposed to escape the unpleasant arithmetic described by Sargent and Wallace (1981), lead to a plunge into a very unpleasant dynamic of disequilibria. In the face of real disequilibria, they can constitute an aggravating factor.

When, as happened in the United States in the 2000s, the inflation rate is contained despite growing household debt, in light of the monetary rule there is no need to raise the interest rate or worry about it falling. The strict application of the monetary rule did not, however, prevent the budget deficit from widening. Faith in the virtues of the rule and misjudging the true causes of price changes masked the unsustainable nature of private debt and blocked the visibility of the outbreak of the financial crisis, which led to a new widening of the budget deficit.

When the budget deficit and the public debt have widened following a fall in activity, and if, as was the case with the sovereign debt crisis in the euro area, the central bank stubbornly insists on stopping a mythical inflation by maintaining or even raising the interest rate, the financial markets become the masters of the game and impose a rise in interest rates, in this case highly differentiated interest rates. It is the markets, and not

the central bank, that, via the interest rate, impose a form of fiscal discipline. This arithmetic is very likely to cause a further downturn in activity and a further widening of the budget deficit.

In all these situations, the unpleasant arithmetic of equilibrium gives way to the no less unpleasant dynamics of an instability-inducing disequilibrium, which calls for a policy mix that takes into account the role of time in the face of the adjustments made necessary by the structural shocks. This means that both inflationary pressures and budget deficits have to be accepted temporarily when they are obvious factors in the coordination of economies that are naturally in disequilibrium.

9. A glimpse at monetary history

“Monetary theory is less abstract that most economic theory; it cannot avoid its relation to reality (…) It belongs to monetary history” (Hicks 1967 p. 156). Leijonhufvud (1990/2000) takes this approach in referring to the monetary regime, the convertibility regime and the monetary control regime. The particularity of an external convertibility regime, as conceived in the context of the Bretton Woods Agreement and as it has actually worked, is that it is a regime with attenuated convertibility that allows the amount of money to be in line with the cyclical needs of the economy. Thus, "if price elasticities of the excess demands for tradables are relatively low and if capital mobility is slight or effectively restricted, the country can exercise some significant policy discretion in the short run and have its price level vary relative to the world price level (also in the short run)" (Leijonhufvud 1990/2000 p.120). A mix between rules and discretionary choice is achieved implicitly. This system no longer holds when these conditions are no longer fulfilled and, in particular, when the key currency country (in this case the U.S.) is, for whatever reason, no longer disciplined in monetary and fiscal matters. Cumulative movements exaggerate the amplitude of the fluctuations and render the nominal anchoring illusory. The effects of discretionary decisions are no longer controlled. This is what actually happened, leading to the abandonment of this monetary regime as it had been codified.

The monetary regime that has emerged after the breakdown of the Bretton Woods Agreement is a regime based on "quantity control", which involves modulating this according to the needs of the economy in terms of means of payments (money stock). All latitude is left to the central banks, which can abuse this especially if they are dependent

on the government. This is why the principle for the application of the rules quickly emerged. The starting rule centres on Friedman's idea of setting a growth rate for a reference monetary aggregate. But it was still necessary to have a stable link between this monetary aggregate and the means of payment actually available – which quickly turned out to be impossible. Financial innovations arose to respond to the attempt to guide the financial system solely by controlling a strictly defined monetary aggregate. A policy targeting the interest rate and not a monetary aggregate was then gradually imposed with the aim of controlling the inflation rate.

An interdependence then appeared between this monetary policy and the evolution of the financing structures, to the detriment of the stability needed, which implied providing the means of payment required at the time required. The financial institutions responded to the new monetary situation by innovating and creating new financial instruments and practices, making credit supply ever easier. In addition, the constraints and regulations from the New Deal era were gradually reduced, allowing commercial banks to change their practices and compete with investment banks. The new financial instruments made it possible to diversify risk in the form of collateral-based securities constituted by pooling loans, seemingly eliminating the advantage held by the banks. The banks then had to orient themselves towards market activities when their share in the overall financing regressed to the benefit of market financing. This allowed the abandonment of the Glass-Steagall Act, which implied the separation of commercial banking from investment banking.

In this new context, the volatility of interest rates could play only a negative role. Rates that were too high favoured financial innovation, while rates that were too low encouraged the formation of speculative bubbles. The result was a disconnect between monetary policy and control over the means of financing, which no longer responded, in either direction, to the needs of the economy.

The goal of limiting, if not reducing, the rate of inflation has not ensured financial stability. Significant sums have indeed been allocated to new (innovative) investments, though these were undoubtedly excessive: sophisticated financial instruments and widespread securitization have created financial facilities that have fuelled excess investment and the formation of speculative bubbles. The combined effects of financial liberalization and a monetary policy that focuses on inflation and fails to constrain credit

growth have resulted either in speculative excesses in asset prices and credit flows, or in excessively restricting real activity.

The 2008 crisis, which led to these monetary and financial missteps, changed the situation when the interest rate hit the zero lower bound. So-called unconventional measures, i.e. quantitative easing, have, no doubt, been effective in curbing the trend towards a cumulative debt crisis. But they have not been sufficient to allow a sustainable recovery.

There are several explanations for the inability of quantitative easing policies to have real effects and they are necessarily inter-related. The first is that firms prefer to continue to deleverage (Koo 2009). The second is that there is no demand for goods and services that would justify a demand for credit and render the supply of credit opportune. The third is that many firms are unable to reliably anticipate future demand, and therefore to undertake long-term investment projects requiring access to patient capital via the banks or financial markets. The economy thus faces inter-temporal shortages of effective demand, meaning that firms cannot or do not want to exchange the revenue expected from future output against the factor services needed to obtain it, or more simply they cannot or do not want to borrow to finance investment. In other words, a low interest rate monetary policy cannot, by itself, respond to the risk of being at the origin of the formation of a new financial bubble (Leijonhufvud 2008). It must not be forgotten that there is an asymmetry between attempts to restrict the volume of credit distributed and attempts to increase this. The former are possible, though unlikely, whereas the latter are doomed to failure.

If the conditions were indeed in place for economic actors to share a long-term vision, that is, if the banks and shareholders were in a position to offer patient capital, the investments made would bring about sustainable growth. Not because the supply of credit drives demand, but because the commitment of the owners of capital provides an opportunity to the other firm's stakeholders to commit.

Such investments would give rise to a distribution of purchasing power (to the payment of wages) and thus to an increase in current demand. There would be no immediate counterpart on the supply side of consumer goods for the simple reason that there is a gestation period before these investments become operational. It is from this excess of demand over the supply of goods, and not from an abundance of liquidity, that would

come the rise in prices so much sought after today by the central banks, after having combatted this so hard.

This inflation, fuelled by credit, would not necessarily be cumulative and long-lasting. First, because prices could prove to be relatively rigid: as firms choose to avoid volatility that is detrimental to their own economic calculation and that of their customers, which would have the effect of shortening their time horizon. In addition, this inflation should be temporary, being the condition for its future extinction, insofar as it supports the construction of a supply of goods and services that would later balance demand. It would be unlikely, then, to see a drift in inflationary expectations or a price-wage spiral. The aim that the European central bank has set itself would thus be achieved, but by means other than what it believes and advocates.

Nevertheless, as long as the demand for credit is sluggish, not only is the monetary policy of quantitative easing inefficient, but fiscal stimuli remain somewhat effective. This is simply because private and public debt are interdependent, and it is advisable, in the circumstances described, to increase the latter when the former decreases, without this necessarily leading to high inflation or a substantial rise in unemployment rates. Public debt offsets private deleveraging, and in fact makes it possible by keeping the economy afloat (Koo 2009, Eggertsson and Krugman 2012). It is not the central bank that decides inflation or deflation understood thus as purely monetary phenomena. It then turns out that "...the aim of monetary policy should surely not be to prevent all fluctuations in the general price-level, but to permit those that are necessary to the establishment of appropriate alterations in output and to repress those which tend to carry the alterations in output beyond the appropriate point" (Robertson 1926, p. 39).

The European Union is currently very far from adhering to this analytical viewpoint. The position adopted by economists close to the European Commission is to attribute difficulties to budgetary and financial causes that are grafted onto market failures that can be reduced to a lack of free competition, in accordance with the classical analysis (Benassy-Quéré et al. 2018). Their recommendations are, then, unsurprising. We must break the vicious circle between bank debt and domestic government debt, enact strict rules to prevent fiscal drift, place governments under stronger independent oversight, integrate the financial markets and allow financial intermediaries to expand beyond national borders. However complex these concrete recommendations are, they are part

of a strictly classical monetary and budgetary analysis. It is best that governments should no longer be able to rely on the banking system to finance their deficits and that the banks become more or less anonymous actors on the financial markets. Public debt is never viewed in relation to corporate or household debt. Beyond a certain threshold it is consistently considered harmful. The discipline imposed by the financial markets must prevail in all circumstances. In fact, it is always a matter of referring to a long-term equilibrium and making sure that things come as close to this as possible. This means, of course, ignoring the existence of the market imbalances that shape the economy in the medium and long term, their monetary and financial consequences, and the need to overcome them through discretionary choices that are by their very nature sequential.

It would be more appropriate to proceed with reforming the organization of the banks and corporate governance than to seek a deepening of the equity markets and more flexibility in the labour markets. Not to reach some uncertain optimum, but to smooth fluctuations and control trends by involving public and private actors in the long term. Hence the need for measures aimed at dissociating lending from bank investment, to promote more stable shareholding, to limit the volatility of capital movements – all elements capable of containing market imbalances over time.

Quantitative easing policies may thus have a future as tools for the determination of credit supply and in avoiding the emergence of financial crises, by changing liquidity conditions of banks and the price of financial assets. It follows that these policies should not be described as 'unconventional', and their role should not only be confined to zero lower bound situations (Gaffard, Napoletano and Battiston 2018). It is not so much a matter of managing expectations, as is the case with standard monetary policy, but of taking into consideration the weight, nature and effect of the debts contracted by the banking institutions. The role of quantities in the transmission channel of monetary policy is thus rehabilitated (Adrian and Shin 2009).

10. Conclusion

The monetary analysis, which still commands a consensus, is based on a belief in the intrinsic stability of market economies that is upset only by an inappropriate monetary policy and banking behaviour that more or less reflect a bias in the control of the money supply or the supply of credit. The alternative monetary analysis is based on the observation of the intrinsic instability of these same market economies, possibly

controlled (or not) by the development of monetary and banking instruments responding to the way the market is functioning.

According to the consensus monetary analysis, the *sine qua non* prerequisite for a sustainable recovery in growth is introducing greater flexibility into the goods and labour markets and deepening the financial markets, through structural reforms. The alternative monetary analysis recognizes that for a lasting recovery to take place firms must benefit from patient capital, which indicates the need for a banking system, the devolution of powers to shareholders and corporate governance that all aim in this direction.

The contrast thus established between the two schools of monetary analysis inevitably affects the choice of models. Dynamic stochastic general equilibrium models can incorporate banking and financial behaviour, but only as potential disrupters of the optimum, heedless of market imbalances and, moreover, of the existence and role of firms as a coalition of interests in the functioning of these markets.

An alternative method of analysis would recognize that multiple pathways can be taken, and that their configuration is the fruit of a sequence of imbalances at the centre of which are the unintentionally accumulated real and financial stocks that are the expression and the vector of its propagation. The path actually taken owes a great deal to the mind-set of the entrepreneurs, or as Keynes would have said, to their animal spirits, and in fact to their attitude to time, to the trade-off they make between productive investment and immediate profit seeking. It depends especially on institutions. However diverse these may be, they must have a core objective: to constrain the paths followed, to smooth fluctuations by recognizing the need for certain forms of rigidity or inertia whose purpose is to enable the different actors to cope with the interplay between uncertainty and irreversibility and to be able to project oneself into a sufficiently distant time. The real challenge is, indeed, not to demonstrate that the economy is unstable – it is in essence – but to identify the factors needed for its viability.

The required modelling must leave space for the heterogeneity of agents; for imbalanced markets in order to study the impact of nominal rigidities; for the limits imposed on the time horizon of the agents; and for the debts contracted by the private sector as well as by the public sector (Haldane and Turrell 2018) – and also in order to establish how these imbalances are articulated over time and the conditions in which the path being

followed is viable. This is how the effects of the aggregate structure on overall performance can be understood, whether this involves the structure of production or consumption, the structure of income or assets, the structure of banking or finance, and the structure of public expenditure or taxes. This is also how the role of institutions can be recognized, starting with the role of financial and banking institutions in determining overall performance.

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