Abstract (150 words)

Monetary policy strategies around the world are increasingly centred on a target rate of inflation, which in a number of countries is now assimilated to price level stability. This paper investigates inflation targeting conceptually. It starts from the generally accepted definition of this strategy given by Mishkin and Schmidt-Hebbel (2002), to assess then it from the perspective of the monetary circuit approach. This analysis shows that the strategy that an increasing number of central banks around the world follow is flawed on conceptual grounds: it notably stems from a symptom-based definition of inflation, which says nothing on the underlying causes. This paper brings forward an alternative approach to inflation, based on money’s nature and its relation to production, exchange, and income distribution. It then concludes that monetary policy has to consider money’s endogeneity in any economic activities, to be able to stop the decline in the purchasing power of money.

JEL Classification Codes: E31, E52, E58, E61

Keywords: endogenous money, inflation targeting, monetary policy, price stability

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Introduction

Inflation targeting has become a fashion. Since the Reserve Bank of New Zealand first adopted this monetary policy strategy in 1990, an increasing number of central banks around the world – first in advanced economies only, later on also in developing and emerging market economies – have been abandoning their monetary or exchange-rate targeting strategy to follow this new fashion. Like many fashions, however, targeting an inflation rate rather than an exchange rate or a growth rate of a monetary aggregate has been adopted without any fully thought-out analytical investigation of a phenomenon as complex and controversial as inflation.

Indeed, it is both undisputed and undisputable today that ‘[e]conomists’ perceptions of inflation rest on measurements of the “general price level” and on rates of change of price indexes’ (Gale, 1981, p. 2). In fact, as several surveys of inflation theories show, neither a satisfactory nor an exact analytical definition of inflation exists as yet in the literature (see Bronfenbrenner and Holzman, 1963, Laidler and Parkin, 1975, Frisch, 1983, Parkin, 1987, McCallum, 1990). This is so much so that, to date, the phenomenon of inflation has been grasped merely by considering its most evident symptoms, to wit, the rise in the relevant consumer price index (or a core inflation index) and the resulting changes in the functional and personal distribution of income, with no further analytical thought on the fundamental causes of these important epiphenomena.

Recent inflation targeting literature epitomises this analytically poor state of the art very well. Indeed, inflation targeting analyses as well as strategies start today merely from a symptom-based definition of inflation, and claim axiomatically that, ‘[s]trictly speaking, inflation is a general rise in all prices, wages, and incomes’ (Bernanke et al., 1999, p. 17). To be true, there are some, although too few, economists who look beyond surface phenomena, and notably point out that ‘[i]nflation is a process of continuously rising prices, or equivalently, of a continuously falling value of money’ (Laidler and Parkin, 1975, p. 741, emphasis added). As this quote shows, however, the direction of causality in the relationship between money and the general price level is not really addressed by these authors. In fact, there is a general consensus among economists that the decline in the domestic value of money is the result of an increase in the general price level, not its cause.

Indeed, according to the quantity-theoretic analysis of inflation – which also provides the intellectual basis for inflation targeting (Hetzel, 2005, pp. 46–7) – the direction of causation goes from an excessive money supply growth (\(\Delta M > \Delta Q\)) to an increase in the general price level (\(\Delta P > 0\)), which, as a result, elicits a decline in the purchasing power of money. The European Central Bank, for instance, follows this monetarist view, and in its monthly-published Statistics Pocket Book goes as far as providing a table entitled ‘The impact of inflation on the purchasing power of money’, indicating the decrease in the purchasing power of money, in percentage points, after various years (from 1 to 30 years) of a given rate of increase in the measured price level (from 1 to 20 per cent). In this view, as Friedman (1987, p. 17) so famously puts it, ‘inflation is always and

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1 See European Central Bank, Statistics Pocket Book, Frankfurt: European Central Bank, Table 5.2 (usually on page 18).
everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output.’

This paper intends to show that a deeper analysis of inflation is required, in order also for an inflation targeting strategy to deliver the result it aims to, without damaging the real economic performance of the countries adopting it, as seems to be the case to date (see Rochon and Rossi, 2006b, 2006c). The structure of the paper is as follows. The next section recalls the theory of inflation targeting briefly. The third section expands on the analysis of inflation. The fourth section elaborates on the structural origin of inflation, in light of the endogenous nature of money. The fifth section concludes.

The theory of inflation targeting

The theory of inflation targeting is a result of the long-lasting ‘rules versus discretion’ debate in monetary policy, which more recently gave rise also to the calls for central bank independence. This debate is at least 200 years old and could be traced back to the controversy between the Currency and Banking schools that broke out at the beginning of the nineteenth century over the constitution of the Bank of England (see, for instance, Ricardo, 1951, and Fetter, 1965). It has also been an issue during the twentieth century, as Keynes’s (1932) and Simons’s (1936) argument testifies well before Kydland and Prescott’s (1977) seminal contribution led to today’s central bank independence as an improved version of the rule-based approach to monetary policy argued, for instance, by Friedman (1968).

In fact, inflation targeting is not a rule, as it does not provide a simple and mechanical framework for the conduct of monetary policy. Quite to the contrary, it requires from monetary policy makers that they use structural models of the economy as well as their own judgement, and consider all available information to design the policy that is more likely to hit the target rate of inflation and be conducive to good economic performance. This indeed allows some discretion to monetary policy makers. Inflation targeting may be defined therefore as ‘a framework for policy within which “constrained discretion” can be exercised’ (Bernanke et al., 1999, p. 22). This makes it a good compromise for both advocates of monetary policy rules and partisans of monetary policy discretion. As Bernanke et al. (1999, p. 6) note, ‘[b]y imposing a conceptual structure and its inherent discipline on the central bank, but without eliminating all flexibility, inflation targeting combines some of the advantages traditionally ascribed to rules with those ascribed to discretion.’

As regards the operational setting, Bernanke et al. (1999, p. 4) summarise the essential characteristics of an inflation targeting regime as follows:

Inflation targeting is a framework for monetary policy characterized by the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and by explicit acknowledgement that low, stable inflation is monetary policy’s primary long-run goal.

Hence, the ultimate objective of inflation-targeting monetary authorities is to achieve a low and stable rate of inflation, measured by some index of the general price level. In
fact, a low and stable inflation rate is a primary goal of any monetary policy strategy, so that one has to distinguish between an inflation target and an inflation targeting regime (Meyer, 2002). The former is tantamount to fixing an explicit numerical target for the inflation rate, often within the context of a so-called ‘dual mandate’, that is to say, an institutional framework where price level stability and full employment are two equally important monetary policy objectives, and whose relative pre-eminence may vary with respect to the phase of the business cycle. By contrast, the latter means that an explicit numerical target for the inflation rate is the principal goal for monetary policy, while an implicit employment target (if any) is subordinated to the achievement of the inflation target and, as a general rule, obtains a lower weight in the central bank’s loss (or policy reaction) function (Svensson, 1999). For instance, numerous economists have recently called for adoption of an inflation targeting regime in the United States, which should thus move from today’s dual mandate to a hierarchical mandate, in order to provide an institutional guarantee of continuity in the monetary policy of the Federal Reserve (see, for instance, Goodfriend, 2005).

Now, the distinction between a country having an explicit inflation target (such as Switzerland as from January 2000) and a country whose monetary policy actually operates under an inflation targeting regime boils down to the definition of a ‘fully-fledged’ inflation targeting strategy, which is characterised by five stylised elements (Mishkin and Schmidt-Hebbel, 2002), namely:

- no other nominal anchor apart from inflation;
- an institutional commitment to price level stability;
- no fiscal dominance on monetary policy;
- central bank’s instrument independence; and
- central bank’s transparency and accountability.

Additionally, and most important, the implementation of an inflation targeting strategy requires elaboration of an inflation forecast by the central bank. As a matter of fact, the long and variable lags by which monetary policy affects the national economy call for a forward-looking analysis and policy design. In this regard, a Taylor-rule based approach could be useful to stylise a central bank’s policy reaction function (Taylor, 1993). Such a rule can be written as follows:

\[
i_t = r^* + \pi_t + \alpha(\pi_T - \pi^*) + \beta[(y_T - y^*)/y^*]
\]

where \(i_t\) is the policy-determined nominal rate of interest at time \(t\), \(r^*\) is the real rate of interest that is said to equilibrate savings and investment in a closed economy, \(\pi_t\) is the inflation rate at time \(t\), \(\pi_T\) is the forecasted inflation rate at the target horizon \(T\), \(\pi^*\) is the targeted inflation rate, \(y_T\) is the forecasted output level at the time horizon \(T\), \(y^*\) is the level of potential output, and \(\alpha\) and \(\beta\) are parameters describing the response of the administered nominal rate of interest to the forecasted inflation and output gaps.

Now, according to the rational expectations hypothesis, which also provides the basis for the rationale of inflation targeting regimes (Hetzel, 2005, p. 47), the policy rule is an important factor that agents consider in forming their expectations. In this respect, the link between the inflation forecast published at regular intervals by the central bank and
the public’s inflation expectations is crucial for the performance of an inflation targeting regime, on condition that the central bank is credible. As Svensson (1997) points out, the inflation forecast can indeed be considered as an intermediate monetary policy target: if according to the inflation forecast the target rate of inflation is hit over the relevant time horizon, then the policy interest rate has to be set at the level used in forecasting inflation at the targeted time horizon. If inflation forecasts and inflation targets differ over the targeted horizon, then the central bank has to intervene and modify its policy rate of interest to make them coincide. Indeed, an inflation targeting strategy induces a symmetric intervention on the policy-administered nominal rate of interest: ‘Inflation above the target dictates higher interest rates to contain inflation, whereas inflation below the target requires lower interest rates to stimulate the economy and increase inflation’ (Arestis and Sawyer, 2003, p. 4).

As Arestis and Sawyer (2003, p. 5) point out, however,

[t]he centrality of inflation forecasts in the conduct of this type of monetary policy represents a major challenge to countries that pursue IT [inflation targeting]. Indeed, there is the question of the ability of a central bank to control inflation. Oil prices, exchange rate gyrations, wages and taxes, can have a large impact on inflation, and a central bank has no control over these factors.

The implementation of inflation targeting is indeed a problematic issue. Owing to the long and variable lags between a monetary policy intervention and its effects on the price level and thereby on measured inflation, many problems arise, independently of the origin of price level increases. First, the low predictability of inflation rates, due to the fact that price level increases can originate from a variety of sources, makes hitting the targeted rate difficult. Secondly, the uncertainty of the inflation outcome can lead to credibility problems for the central bank, and thereby increase both instrument and output volatility. Thirdly, the long and variable lags that affect monetary policy decisions require a pre-emptive policy stance, which could affect a country’s economic performance negatively. In particular, over-estimating inflation rates could lead to setting higher nominal interest rates than what would be required to control the general price level. This could give rise to unnecessary shocks in the economy, with the result of spurring or aggravating a recession.

As Mishkin (1996, p. 29) notes in this respect,

[O]ften when the monetary authorities have raised interest rates to prevent the resurgence of inflation, no inflation will appear down the road. Although this is exactly what policymakers should seek, it leaves them open to the criticism that they should not have raised interest rates because, after all, inflation never appeared and therefore was not a threat.

This is even more so when the increase in the targeted price index is cost-induced and results from a negative supply shock: any inflation forecast and ensuing policy based merely on demand considerations will be ineffective, and might lead to wrong policy actions that damage the economy and aggravate recession (Arestis and Sawyer, 2003, p. 5).

Now, critics of inflation targeting often argue that both the ineffectiveness and the rather weak economic performance of this regime is the direct result of a hierarchical mandate attributed to inflation-targeting central banks (see, notably, Meyer, 2002, and Bernanke,
According to these authors, a dual mandate allows monetary policy to contribute to lowering output variability without putting the price stability goal at stake thereby. In fact, the problem of inflation targeting regimes is not merely institutional, but analytical essentially. To be sure, even with a dual mandate attributing equal footing on output and price level stability, the problem remains that a symptom-based definition of inflation cannot help going to the root of this phenomenon, to get rid of it eventually. Clearly, the problem is not merely that a central bank’s policy success is currently established on its ability to meet inflation targets rather than output growth targets, as Arestis and Sawyer (2003, p. 5) maintain. Even if one were to succeed in changing the political criteria by means of which monetary policy is both designed and assessed, one could still not make sure that the central bank contributes to economic performance according to the social preferences as regards inflation and output outcomes.

Indeed, before any debate on social preferences about policy outcomes might occur in a country, there is the need to define the inflation phenomenon analytically, which means going beyond its symptoms as established by price index analysis. This is the collective task of the economics profession. Let us turn to this issue in the remainder of this paper, in an attempt to contribute to solving the inflation problem.

The analysis of inflation

The analysis of inflation has to depart from surface phenomena if it aims at providing a policy-oriented approach to solving the underlying problem and not just palliating its surface symptoms. In macroeconomics, in fact, phenomena rarely coincide with their factual appearance. Any phenomenon must always be interpreted and its actual results evaluated, which can be done only through a conceptual detour. A rigorous theoretical framework is thus always required in order to understand the empirical givens. Indeed, it makes no doubt that monetary as well as relative prices are surface phenomena. As such, they do not contain enough relevant information to assess whether the underlying relationship between the number of money units and the associated output is suffering from inflation. As Bernanke et al. (1999, p. 17) note in this connection:

> When members of the public talk about inflation . . . they often stress the effects of changes in relative prices (of food or energy, for example) on their standard of living. These are legitimate concerns, of course, but they are largely independent of the rate of inflation per se. Moreover, they are beyond the power of monetary policy to correct.

Indeed, there may be a number of cases where the price level varies without there being inflation, and a number of cases where there can be inflation even if the price level does not vary over time. As the present Governor of the Bank of England notes, ‘changes in indirect taxes or commodity prices often affect the domestic price level, but do not in themselves change the underlying rate of inflation’ (King, 1997, p. 438).

As a matter of fact, an increase in indirect taxes is likely to lead to an increase in the general price level, as the goods and services subject to higher taxation become more expensive on the marketplace. This increase in retail prices and probably also in the consumer price index has definitely a redistributive effect across the economy. Yet, it does not affect the purchasing power existing in the whole economy: if the purchasing
power of a more or less broad group of consumers who make use of the taxed goods (for example fuel, tobacco, and alcohol) is affected negatively by the decision of the state to rise indirect taxes, the general government sector obtains exactly that part of national income lost by the private sector, in a zero-sum process that does not affect the purchasing power of money. Indeed, one has always to distinguish a decline in the purchasing power of money from a loss in the purchasing power of those agents who buy the goods and services whose prices have increased in time. The former decline is the essential definition of inflation, while the latter loss has not to be mixed up with it, and is merely the result of a redistribution of income between different categories of agents, such as the state and the private sector, which amounts to a zero-sum game for the economy as a whole, that is, at the macroeconomic level – where inflation, by way of contrast, hurts all income holders, independently of their socio-economic status and income level, as every unit of money loses the same percentage of value.

An analogous zero-sum process can also be observed within the private sector as such, when firms raise their mark-up in order to increase their share of national income (that is to say, profits). The resulting increase in consumer prices enables firms to raise their profits, ceteris paribus, but this has certainly no inflationary impact on the purchasing power existing in the economy as a whole, because firms obtain a fraction of income that was previously held by some other agents (that is, households). Indeed, what is lost by one group of agents (households) is gained by another group of agents (firms), so that, at the macroeconomic level, each unit of money keeps its original purchasing power – which, nevertheless, is differently distributed among agents.

In fact, inflation is a decline in the purchasing power of money. This decline in money’s value concerns the economy as a whole. It puts an upward pressure on all prices, owing to the lower value of each money unit. As a result, the general price level rises, or does not go down as it should when the purchasing power of a unit of money rises on account of a technical progress leading to an increase in total factor productivity and thereby to a decrease in production costs per unit of output. In the latter case, the stability of the price index would hide the fact that an inflationary pressure impeded the general price level to decrease as a result of technical progress. Hence, the direction of causation goes actually from the decline in money’s purchasing power to an increase in the number of money units needed to purchase any given product, which is the precise reason why consumer prices and the general price level rise as a result of inflation.

Now, the problem of inflation does not end once this phenomenon has been correctly defined. In fact, the problem starts there. As for any problem of the real world, however, the problem of inflation can be solved only once it has been correctly identified. Indeed, if we define inflation as an increase in the general price level, as has been the case up to now with no analytical misgivings, we mix up one of the most evident consequences of inflation with its cause, and are thus led to infer wrong conclusions, in both theory and practice. Now, if wrong theoretical conclusions may be sterile, things are different when wrong policy-oriented conclusions are drawn from a merely symptom-based analysis of inflation. Suffices it to recall here the vast empirical literature on the so-called sacrifice ratio computed after disinflation periods occurred in countries that adopted an inflation targeting strategy (see, for instance, Bernanke et al., 1999, pp. 257–65, and Rossi, 2004, pp. 73–5). If policy makers mistakenly assume that any observed increase in the general
price level is inflationary, then they may be inclined to intervene and tighten monetary policy (that is, raise the nominal rate of interest) although, analytically, there is indeed no inflation in the national economy. No wonder then that any measure of the country’s economic performance is likely to show that the control of the price level occurred at a high cost in terms of output and employment losses – something like the old-fashioned Phillips curve trade-off.

Those countries where there is a very low rate of measured inflation give a prominent example of this cost. As Bernanke et al. (1999, pp. 28–9) point out in this regard:

> a very low rate of inflation might prevent real wages from falling in response to declining labor demand in certain industries or regions, thereby leading to increased unemployment and blocking the re-allocation of labor from declining sectors to expanding sectors.

Indeed, simulations carried out by Akerlof et al. (1996) suggest that rates of measured inflation close to zero increase the long-run or ‘natural’ rate of unemployment. Now, as Bernanke et al. (1999, p. 288) observe, inflation targeting regimes have been introduced often at a time when measured inflation rates had been lowered, and sometimes to very low levels. This is likely to spur high sacrifice ratios and, as a result, provoke dramatic costs to wage earners (see Rochon and Rossi, 2006c, for elaboration on this point).

So, provided that inflation is correctly defined, the analysis of this phenomenon has to consider carefully its principal (in the sense of Ricardo’s *Principles*) origin, if one wants to avoid unnecessary costs to curb inflation. As the theory of money emissions shows, in fact, the ultimate origin of inflation lies in a structural anomaly of the workings of our banking systems, which still do not fully comply with the endogenous nature of money (see Schmitt, 1984, Cencini, 1996, Rossi, 2001, 2006). As such, the origin of inflation is structural and not behavioural, as demand-pull as well as cost-push views of inflation put it. Indeed, neither the demand-pull nor the cost-push view is equipped to understand absolutely the inflationary causes of a rising price level: they both reduce the analysis of inflation to studying the rate of change in some aggregate price levels, neglecting or even ignoring the fact that an increase in the general price level, or in the targeted price index that is a proxy of it, may have several causes, not all of which are inflationary (in the precise sense of being the result of a decline in the purchasing power of money).

**Endogenous money, inflation, and banking systems**

The endogenous nature of money is a fact well recognised today. As the so-called New Consensus Macroeconomics (NCM) puts it, the money supply is today an endogenous variable for both the central bank and the whole banking system: it responds namely to the needs of the economic system to settle debt obligations for banks as well as for non-bank agents. In fact, as Rochon and Rossi (2006a) argue, the endogeneity of money is not model-specific but indeed a feature of the real world, which does not vary with the time horizon considered, and hence must be accounted for in monetary analysis as well as in policy making.

As regards the analysis and control of inflation, then, money’s endogeneity necessarily implies that the decline in money’s purchasing power has to be explained according to
the fact that neither the central bank nor the individual banks or the banking system as a whole can create money independently of the settlement needs of the economy. As a matter of fact, the emission of money is the result of a demand for settlement balances from the banking system (in the form of central bank money) or from non-bank agents (in the form of commercial bank money) (see Rossi, 2004, for analytical elaboration). There can therefore be no excess money supply, leading to an inflationary pressure on the general price level, as a result of (either central or commercial) bank behaviour.

To repeat, the origin of inflation has not to be looked for in the agents’ behaviour, but in the present structure of our banking systems. To put it differently, and to elaborate on it, inflation does not originate in the distribution of income (on the product market) but in the process that actually generates national income (on the factor market). Inflation is a phenomenon affecting our monetary economies of production. It requires therefore a monetary theory of production to be properly understood and solved for good – even though this will not provide for a constant price level, because the latter may vary for other reasons than inflation (see above).

Now, the core of the monetary theory of production is that money and production are the two faces of the same reality, which is therefore monetary as well as real. Money is the numerical form in which output is deposited from the moment it is produced as an economic object until the moment it is sold and thus ceases to exist as such. Clearly the result of both banking and production activities, money income exists as a result of the payment of production costs, and is destroyed by its final expenditure on the goods market (see Rossi, 2001, pp. 109–13, for elaboration on this). As the monetary circuit approach shows, wage earners are thus the first owners of the newly produced output, as the newly formed bank deposits resulting from the payment of the current wage bill by firms through banks give them the necessary and sufficient power to purchase the whole output at factor costs. Of course, owing to the firms’ mark-up of retail prices over the relevant production costs, the initial deposit holders cannot purchase, as a general rule, the whole set of newly produced goods were they to dispose of all their deposits: that part of the current output which is not bought by households, in fact, is bought by firms through expenditure of their income share, namely, profits, which are indeed obtained thanks to the mark-up. Profits are thus formed on the market for produced goods and services, a market in which, of course, firms can act as both sellers and buyers of any produced items (Rossi, 2003, elaborates on this point).

In fact, the firms’ profit can be spent in two ways, which amounts to saying that it can be spent on two markets. If firms spend their profits on the goods market, they indeed consume that part of current output that original income holders, to wit, wage earners, could not obtain owing to the mark-up. If firms do not spend their profits on the goods market, however, they may use them to finance some investment. Let us abstract from financial investment here, as this kind of expenditure can and does not really modify the relation between money and production established by the payment of factor costs. (We leave financial speculation aside here, since ‘at the end’ of any purely speculative chain of transactions there is always consumption.) Consider therefore the investment of firms in the production process. After all, profits are sought by firms in order for them to finance their production activities without the need to reverting to bank credit and thus paying interest charges. To put it very simply, a firm uses its profits to pay for (a part of
its) production costs. Now, this payment is much more complex than it could appear at first sight.

Indeed, at the banking sector level, a firm’s payment of production costs out of profits may take place in two different ways: it may occur through an emission of money as a numerical vehicle of the newly produced output, which gives rise to a newly formed money income in the economy as a whole, or it may occur through an expenditure of an already existing money income (to wit, a profit), which is indeed destroyed by this expenditure although the underlying bank deposit continues to exist and is now owned by the wage earners who are thus remunerated. Let us explore these two avenues in turn (see Cencini, 1996, pp. 51–60, for a more detailed analysis).

In an orderly structured banking system, any expenditure of a firm’s profit on the factor market elicits an emission of money to vehiculate to wage earners a claim on the bank deposit that the firm invests in the production process, and to vehiculate to the firm the newly produced output that this firm physically stores in its inventories (Figure 1).

![Figure 1. The investment of a firm’s profit on the factor market: orderly case](image)

Translated in book-keeping terms, the payment of the wage bill that results from the expenditure of a firm’s profit on the factor market gives rise to the entry recorded in Table 1.

### Table 1. The result of the investment of profit on the factor market: orderly case

<table>
<thead>
<tr>
<th>Bank assets</th>
<th>Bank liabilities</th>
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<tbody>
<tr>
<td>Loan to the firm</td>
<td>+$x</td>
</tr>
<tr>
<td>Deposit of workers</td>
<td>+$x</td>
</tr>
</tbody>
</table>
As Table 1 shows, the firm obtains a loan for $x units of purchasing power, which gives rise to a deposit in the possession of wage earners. A relation of equivalence (in fact, an identity) exists between the claim on a bank deposit ($x) that wage earners own and the newly produced output, physically deposited in the firm, which thus balances its debt to the bank with an identically equivalent stock of newly produced goods ($x). Indeed, this identity leaves no room for an inflationary gap between money and output to exist. The monetary economy of production under scrutiny functions in an orderly way.

Things change when the payment of production costs out of a pre-existent profit, in the form of a bank deposit, occurs in a banking system whose structure is not yet absolutely conform to the endogenous nature of money. In particular, if the bank(s) through which the payment of the wage bill resulting from the investment of a firm’s profit do(es) not issue money in the operation by means of which the firm surrenders a claim on a bank deposit to transform it into newly produced goods, then the order illustrated in Figure 1 does not really exist, and disorder sets in as in Figure 2.

Figure 2. The investment of a firm’s profit on the factor market: disorderly case

In book-keeping terms, the result of the payment of wages in this (disorderly) case is as Table 2 shows.

<table>
<thead>
<tr>
<th>Bank</th>
<th>assets</th>
<th>liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposit of firm</td>
<td>−$x</td>
<td></td>
</tr>
<tr>
<td>Deposit of workers</td>
<td>+$x</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 The result of the investment of profit on the factor market: disorderly case

What distinguishes order from disorder here, as Figures 1 and 2 show, is the existence or non-existence of a bank’s emission of the number of money units that measure the object of the transaction between the firm and its workers, that is, the newly produced output as a result of firm’s investment of (a part of) its profit. In the case illustrated in Figure 2, which represents a structural disorder, the banking system does not intervene to issue the number of money units necessary to measure output in economic terms: it merely acts as a record keeper, transferring to wage earners the claim on a bank deposit
that the firm surrenders on the factor market in order for it to transform this claim into newly produced output deposited with it.

If so, then what? Indeed, the reader might conclude that no problems exist in so far as the firm has actually paid for the labour services it obtained through the investment of profit, and the workers have been remunerated for their services as contractually agreed. The problem in this case, however, is that the expenditure of the firm’s profit actually destroys this profit but not the corresponding bank deposit, which can therefore be lent by the banking system and finally be spent by some agents on the market for produced goods, even though the corresponding output has already been purchased by the firm at the very instant when it invested its profit on the factor market. Now, when an income spent on the factor market (when a firm’s profit is invested) is spent again on the market for produced goods, this gives rise to an inflationary pressure on the general price level, because the second expenditure of the same income increases global demand without an equivalent increase in global supply on the product market. In a nutshell, there is excess demand for goods and services, which elicits an increase in the price level and translates into a rise of the consumer price index.

In fact, it is not the investment of firms’ profits in new production activities that gives rise to inflation. It is the present structure of banks’ accounting that has to be improved, in order for it to take fully into account the endogenous nature of money. In particular, since the bank deposits that correspond to the firms’ invested profits have already been spent by these firms in the payment of wages, they ought not to be available to be spent once again on the product market. Today, in fact, these deposits are recorded as savings in the banking system, which can thus lend the corresponding amount for consumption purposes. If this occurs, however, this operation elicits excess demand on the market for produced goods and services, because it leads to the formation of an income void of any substance, as this substance has already been purchased through the firms’ investment on the factor market. Clearly, the income thus formed is nominal rather than real. Yet, this nominal income absorbs ‘per osmosis’ purchasing power from the existing units of real income, which thus dilutes value among an increased number of money units. ‘As a consequence of inflation, the content of money, unchanged in real terms, acquires a new numerical expression. A greater quantity of money is needed, therefore, to purchase the same product’ (Cencini, 1995, p. 59).

Now, since the appearance of nominal income through the investment of firms’ profits on the factor market is due to the imputation of the wage bill on firms’ deposits by the banks’ book-keeping (see Table 2), the solution of inflation really depends on separating the workers’ remuneration from the investment of firms’ profits as recorded within the banking system. In other words, the solution consists in reforming the structure of the latter system in order to make sure that the capital invested by firms in their production processes is definitively withdrawn from the financial market, where today it can be lent in an inflationary process. In simple terms, to be effective, inflation targeting strategies must aim at guaranteeing that the whole amount of invested profits within the national economy does not add to the financial circulation of yet unspent incomes. Indeed, only in this situation would the production of investment goods elicit a sum of money incomes whose purchasing power is real and not merely nominal.
If our analysis is correct, the problem of inflation is therefore related to the process of capital accumulation in a capitalist economy, which in reality may occur in an orderly or disorderly way. To avoid any possible misunderstandings, let us stress that order and disorder refer here to the manner in which the accumulation of capital, that is to say, the investment of profit, is recorded in the banks’ book-keeping. The agents’ behaviour is not at stake here. Indeed, it is not the behaviour of economic agents that can account, eventually, for the alteration of the relationship between money and output existing in the economy. In fact, the investment of firms’ profits may take place in a book-keeping structure of the banking system that mechanically respects the endogenous nature of money (order), or in an accounting structure that does not (disorder). As Cencini (1995, p. 70) points out in this connection, ‘the relationship between money and output can be pathologically modified by a simple accounting mechanism that does not pay sufficient attention to the banking nature of money and to its functional link with production and circulation.’

**Conclusion**

Inflation targeting regimes have become a fashion today, as the number of central banks adopting them has been increasing since the Reserve Bank of New Zealand introduced an explicit target for the inflation rate in March 1990. This paper shows that an inflation targeting strategy needs to start from an analytical definition of inflation, going beyond its surface phenomenon of a rising price level, which is indeed a result, and not a cause, of the decline in the purchasing power of money. Once inflation is correctly defined, the paper argues that its origin is to be found in the structure of the banking system, which does not yet fully respect the endogenous nature of money. In particular, the investment of firms’ profits has been recorded to date by banks with no emission of money as the means of vehiculating a real income to wage earners. The result of this situation is that a part of the existing bank deposits are actually nominal rather than real incomes, which is the reason why each unit of money loses a part of its power to purchase produced output on sale. Monetary policy strategies, particularly inflation targeting regimes, have first to address this structural anomaly in the banking system, before even beginning to hope to control a phenomenon, inflation, which they now merely observe through its most plain symptoms – price level increases, which incidentally have not all an inflationary origin, and may thus lead to wrong policy conclusions and interventions.

**References**


