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Disinflation And Monetary Policy Arrangements In Romania

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DISINFLATION AND MONETARY POLICY ARRANGEMENTS IN ROMANIA[1]

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Introduction

Disinflation has been pursued successfully in Romania in recent years. Inflation came down from over 40 per cent in 2001 to 14 per cent in 2003 and is expected to get below 10 per cent in 2004; by 2007 it should be around 3%.

The benefits of a low-inflation environment are unquestionable, as price stability is as the ultimate objective of monetary policy. In addition, low inflation is a pre-condition for EU accession. There only remains the other critical question, namely, what is the proper strategy to achieve the ultimate objective. Different central banks have adopted strategies which place different emphasize on the various pieces of information, or elements of their decision-making process or different aspects of their communication policies. Inflation targeting (IT) is one of those strategies.

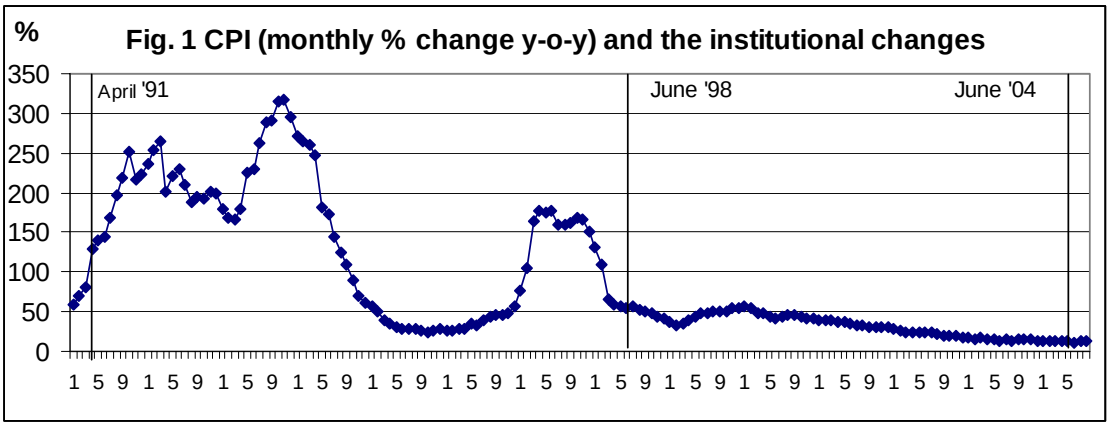
The National Bank of Romania (NBR) plans to introduce IT in 2005. This regime brings a series of benefits to a central bank, including a clear focus on inflation. And the Romanian central bank needs an unburdening of its monetary policy for further disinflation. But three main contradictory pressures are likely to arise in the Romanian economic context. First, the requirements imposed by the achievement of nominal and real convergence in view of accession in European Union in 2007 and later in European Monetary Union push toward a policy mix which is able to ensure growth and further disinflation simultaneously. Second, under inflation targeting the 'divine coincidence' of inflation stabilization and real stabilization objectives can be achieved in specific economic circumstances. Third, the operational requirements of a 'hard' inflation targeting regime are unlikely to exist under the current monetary transmission conditions.

The central question of this paper is under what circumstances inflation targeting can be implemented in Romania. Section one pays attention to the recent history of inflation in Romania. Section two presents the context of disinflation and dilemmas of the monetary policy. Section three reviews distinguishing features of IT monetary policy framework and the experience with IT in various countries. Section four examines challenges posed by IT implementation in Romania. Section five discusses policy choices.

1. Where does Romania's monetary economy come from

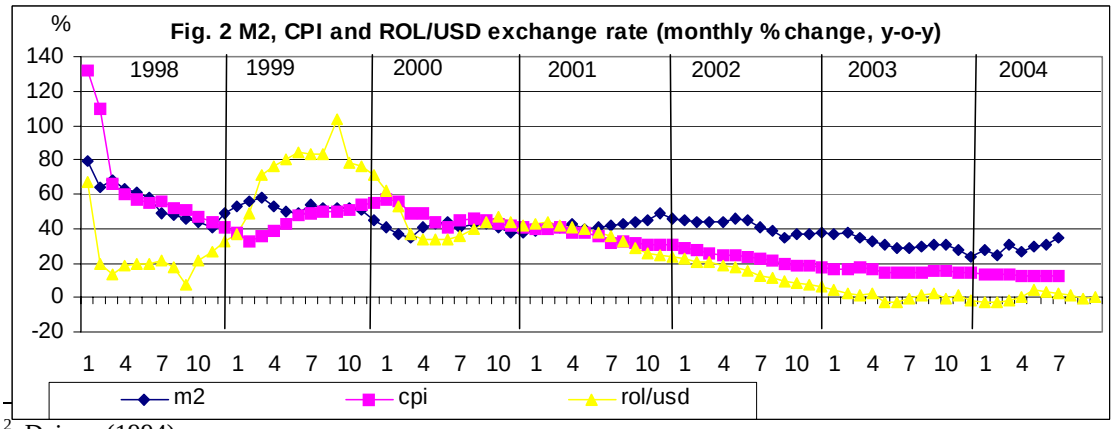
From the beginning of transition monetary policy had to carry the burden of a too slow restructuring of the economy. Price stability, which should have been the prime aim of the monetary policy, was frequently sacrificed and Romania's image as a high inflation country was built up (Figure 1). The dramatically high inflation rates at the beginning of the 1990s were not a choice by central bankers uninterested in the pursuit of price stability, but rather because the only way to finance government expenditures in the absence of a functioning tax system (aside from borrowing) was seignorage. The monetary policy in the 1990s has faced multiple and varying objectives rarely consistent with the achievement of inflation reduction. Therefore the policy choice may appear unsystematic, myopic and even inconsistent with basic principles of what macroeconomic models sometimes suggest is good policy practice. Arguably, structural

features of the economy (including *structural strain*, which is illustrated by arrears[2]) undermined the conduct of monetary policy.



Source: INSSE

Disinflation (figure 2) coincides with the institutional context created by a more independent NBR.[3] In 1998 inflation was 40.6 per cent. The strategy used monetary aggregates as an anchor. Both the exchange rate and interest rates, as instruments of the monetary policy anchor were excluded; the first due to the small amount of foreign reserves and the second due to its unpredictable relationship with inflation. The NBR based its monetary policy on minimum reserves and frequent 'deposit taking' operations for liquidity control. In 1999, owing to the peak of the foreign debt service and the danger of insolvency the current account adjustment became the first aim of monetary policy; consequently, inflation climbed to 54.8 per cent. In 2000 inflation came down 40.7 per cent. The exchange rate was the anchor of monetary policy, but the need of financing the budget deficit and of keeping the current account deficit in reasonable limits prevailed over disinflation.



[2] Daianu (1994)

[3] According to Law 101/1998, which has replaced Law 34/1991, the fundamental objective of NBR was to ensure the stability of domestic currency with a view to maintain price stability. Only the latest Law 312/2004 stipulates the fundamental objective as being the maintenance of price stability.

Source: INSSE

In 2001 the target of 25 per cent was missed, but inflation declined to 30.4 per cent. For the first time NBR succeeded to impose its interest rate policy, helped by declining interest rates on T-bills. NBR avoided a large real appreciation of the domestic currency, but failed again to sterilize the mounting liquidity following the purchases of foreign exchange. In 2002 the target of 22 per cent was outperformed and inflation went down to 17.8 per cent. Parallel with disinflation NBR kept an eye on economic growth and external equilibrium. The control of monetary aggregates (via base money) continued to shape monetary policy. Liquidity was controlled through reverse repos and deposits taking.

In 2003 the inflation target, of 14 per cent, was attained. The traditional conflict between disinflation and mitigation of the external disequilibrium tendency eased, while the euro was adopted as a reference exchange rate. Disinflation has gone further in 2004 and inflation is likely to be slightly below 10 per cent. NBR relied on the stability of the exchange rate as an anchor and the control of liquidity through heavy sterilization operations.[4] Keeping the budget deficit low has helped disinflation.

2. The context of disinflation

In mid-1999 Romania went through a short but serious financial crisis, and avoided default on the external debt by a drastic balance of payments adjustment, which involved a reduction by half of the budget deficit. Prior to the crisis, an overvalued ROL gradually eroded export competitiveness and depleted the NBR foreign exchange reserves. Since 2000, the NBR has pursued several policy goals in a direct way:

(1) to rebuild and consolidate the stock of foreign exchange reserves and to prevent an excessive ROL appreciation (consistent goals);
(2) to achieve gradual disinflation.

Since the goals (1) and (2) are not mutually consistent, the NBR had to gear two instruments. To achieve the goals of recovering reserves and limit the real ROL appreciation so as to support export competitiveness, the NBR bought large amounts of foreign currency after 1999, to the point that its current foreign exchange reserves cover more than four months of imports. This substantial accumulation of reserves contributes to reducing the country specific risk and improving the credit rating of Romania, which could thus borrow in more advantageous terms; in turn, the cheaper access to the international capital came with additional pressure on the NBR to buy foreign currency if it kept fighting the ROL appreciation. When, at the end of the period (2002-2003), the

[4] The exchange rate pass-through between 1997 and 2003 was found large and fast (Gueorguiev, 2003) justifying the choice of exchange rate as basic anchor for disinflation.

NBR slowed down the pace of buying foreign currency, a slight appreciation of ROL against a currency basket happened.[5]

When the NBR bought foreign currency, it also injected liquidity in the economy, and these interventions were never fully sterilized. The monetary base (M0) and the money stock (M2) increased throughout this period and consequences on inflation were almost immediate.[6] Up to 2003 disinflation occurred while the NBR tried to prevent the ROL appreciation against the euro and the dollar. Since then ROL has undergone steady real appreciation against a currency basket[7].

Unlike in industrial countries, where the Central bank is a net creditor of the banking sector,[8] in Romania as well as in the transition countries, which have recently joined EU, the Central bank is a net debtor. In Poland, Hungary and the Czech Republic the monetary management consists in adjusting the monetary base by modifying the volume of borrowed resources from commercial banks (for one or two week period) under a regularly held call for tenders operation. The target instrument is the interest rate that the central bank pays for these credits. Of course, the interest rate the central bank must pay depends on interest rates reported on commercial bank deposits, reserves and private credits. This is an equilibrium price and is driven by market forces.

Since 2001 the NBR has been borrowing resources for a one month period from commercial banks (what it is called 'attracting deposits'). A difference with the former three central banks is that the target seems to be rather quantitative; it appears that the NBR has chosen an objective in terms of the volume of resources it wants to borrow (as a means to control liquidity), than has chosen the interest rate so as to make sure that commercial banks want to lend.

The NBR method of attracting deposits may have been quite effective in dragging liquidity,[9] but is atypical, since most other countries follow the opposite strategy, that is, first choose and announce the interest rate, then see how many resources are attracted; in a third step, adjust the instrument if the target is missed. In the NBR procedure, the interest rate does not seem to have been the key decision variable; thus it may not convey

[5] Since the start of 2004 the basket has been made up of 75 per cent euro and 25per cent USD. In November, 2004 the NBR announced that the basket was to become 100 per cent euro based.

[6] As put forward by Daianu and Vranceanu (2001), a shock to the money stock reached its maximum impact on inflation three months later.

[7] The currency basket was dropped (in favor of the euro) this November.

[8] For instance, the ECB will lend money for a one week period, in a reverse-repo operation. It alters the amount of borrowed reserves by tuning the marginal interest rate required on these resources.

[9] A Granger causality test over the inflation rate (INF) and the NBR liabilities towards commercial banks (LLNBR) (in logarithms) over the period 1998.01-2003.09 shows that the latter has a strong impact on inflation rates (in a six lag model). In a simple regression model (Daianu, Lungu, Vranceanu, 2004a), it comes out that: $INF_t = 5.33 + 0.26INF_{t-1} - 0.41LLNBR_{t-2}$. The negative and statistically significant sign of the LLNBR coefficient suggests that the deposit attracting operations had a stabilizing impact on prices. (R2A=0.50).

high quality information about the monetary policy stance, in particular when some form of rationing occurs in the demand for borrowed resources.

Arguably, the recent years' successful disinflation has brought the interest rate pass-through in Romania closer to other Central European economies (Tieman, 2004). But the heavy net debtor position of the central bank and commercial banks' oligopoly status, as well as still immature financial markets, hinder an effective interest rate policy.

Unsurprisingly, the rapid accumulation of foreign exchange reserves after 1999 and a contained expansion of the monetary base given these sterilization operations led to quite a bizarre monetary structure where, in the early 2003 the monetary base, was covered almost four times by foreign exchange reserves. In other words, the relationship between the monetary base and hard currency reserves has been tighter than in standard currency board agreements, where this ratio is one to one. This does not necessarily imply that Romania has abnormal reserves, but rather points to the underdevelopment of the banking sector and credit activity (low monetisation).

3. Inflation targeting (IT)

NBR announced its intention to introduce inflation targeting, as a new monetary policy regime, during 2005. The rationale would be to help continue disinflation (bring it to around three per cent by 2007) and bolster the central bank's credibility.

3.1 IT as a monetary policy regime

The broadest definition of inflation targeting is a monetary policy framework that accords overriding importance to the maintenance of price stability. The narrower definition says that inflation targeting is a monetary policy framework based on the adoption of a monetary policy rule in which forecasts of future inflation play a central role, either in the form of instrument rules or of target rules. An instrument rule expresses the monetary policy instrument as a simple and usually linear function of deviation of a few key macroeconomic variables from their target level. A target rule expresses the monetary policy instrument as the solution to an optimization problem defined by a loss function describing the costs associated to deviations of specific goal variables from their target levels subject to the constraints imposed by the model of economy's structure.

Since monetary policy works its effect on inflation with a significant delay (at least nine months and up to two years) inflation targeting is in fact an inflation forecast targeting (Svensson, 1997). Inflation forecasts are contingent upon the central bank view on the transmission mechanism, the current state of the economy and a planned path for the instrument. Complex econometric modelling and statistical inference building on high quality data and economic information is needed in order to produce reliable forecasts (a subjective assessment of the inflation path may be included too). All this highlights the logistical challenge linked with IT implementation.

The inflation targeters are explicit about the long run inflation rate that constitutes price stability. The inflation target announcement aims at increasing credibility and anchoring inflation expectations. It is useful in establishing the political legitimacy for an independent central bank, especially when taking unpopular decisions.

3.2 The Economics of Inflation Targeting

The strongest rationale of the inflation targeting regime is that under some reasonable conditions stabilization of prices is equivalent to stabilize the output around its natural level, the level of output that would prevail if there were no nominal rigidities (Blanchard, 2003). The equivalence holds in models with staggered price setting and rational expectations. Achieving the natural level of output though may not maximise welfare if it comes at the cost of large distortions in the composition of output. The class of models for which full price stability is optimal from the point of view of welfare maximisation requires a sum of restrictive assumptions (Woodford, 2004).

One restrictive assumption is that there are assumed to be no shocks that would require the relative price of any good to vary over time in an efficient equilibrium. If, an efficient allocation of resources requires relative price changes, due to asymmetries in the way different prices are affected by shocks, maintaining the stability of a symmetric index of prices is not generally optimal (Aoki, 2001).

The second restrictive assumption is the flexibility of wages. Although this assumption is one common in the sticky price models (Christiano et al., 2001), it might not be validated in practice. If both wages and prices are sticky with price stabilisation the real wage will be frequently misaligned as will be the relative wages of different types of labor if these are not set in perfect synchronization.

The third restrictive assumption is the lack of market power and distorting taxes. In the case when these are present the equilibrium level of economic activity is likely to be too low on average. When this is true, not only is the flexible price equilibrium level of output different from the optimal level, but real disturbances will not shift these two quantities to quite in the same extent. This means that the gap between the level of output associated with a policy that maintains stable prices and the optimum level of output will be varying in time. As a consequence, it will not be possible to simultaneously stabilize inflation and the welfare relevant output gap.

3.3 Experience with inflation targeting worldwide, in transition (emerging) economies

Whether the macroeconomic effects of inflation targeting are better than the effects of any other monetary policy pursuing price stability is controversial. Levin et al. (2004) investigate the experience of inflation targeters and non-targeters since 1994 in a number of OECD countries and emerging countries. They find that inflation is more persistent for non-targeters especially when the focus is on core inflation and not CPI, GDP growth volatility is the same for targeters and non-targeters, but inflation volatility is higher for

inflation targeters. However, they recognise that the extent to which the reduction to inflation can be credited to IT is not obvious. As for emerging markets (including the Czech Republic, Hungary and Poland), the results document that the introduction of the inflation target moves inflation expectations down gradually, the transition is a smooth one and not characterised by a break at the introduction of IT. Again, the question is the extent to which the reduction of inflationary expectations can be due to the introduction of inflation targeting and not due to a whole range of other institutional changes (fiscal consolidation, a greater degree of central bank's independence) which are introduced alongside with inflation targeting.

Bernanke et al. (2001) analyse the macroeconomic effect of inflation targeting using three different tests. First, they use the so-called sacrifice ratio and Philips curve equation in order to decide whether disinflation has been achieved at a lower cost than otherwise expected. The results suggest that the adoption of inflation targeting in New Zealand, Canada, United Kingdom and Sweden did not alter significantly the real economic costs of achieving disinflation. Second, they test whether the private sector inflation expectations inferred from surveys or forecasters and from interest rate differentials have declined after targeting beyond the degree associated with a drop in inflation. The evidence from both the survey data and interest rate differentials suggests that the adoption of inflation targeting does not establish immediate credibility for monetary policy. However, inflation targeting does help to pin down inflation expectations as the new regime becomes established. The third test tries to determine whether the interaction between inflation, monetary policy and real GDP have changed following the adoption of inflation targeting. The result show that the economic performance of non-targeters over the period considered is not appreciably different from that of inflation targeters.

Inflation targeting in transition economies has been a more challenging task than in developed countries. As experience with IT in transition economies shows, the central banks in these countries often missed inflation targets by a sensible amount. Jonas and Mishkin (2003) look at the potential difficulties and evaluate the outcome in the three East European countries, the Czech Republic, Hungary and Poland that claim to use the IT system. They conclude that although the progress with disinflation has been good, the relative high level of uncertainty in these countries makes it relatively difficult to predict inflation over the medium term as required by the inflation targeting framework. These difficulties result in frequent undershooting and overshooting of the inflation target. Undershoots of the inflation targets have resulted in serious economic downturns that has eroded support for the central bank in both Poland and the Czech Republic.

The same conclusion arises from Daianu et al. (2004) study of the performance in the three East European inflation targeters. The central banks in all three countries have had limited success in hitting inflation targets. Moreover the inflation volatility has become larger. They point out several possible explanations. First, the difficulty in these countries to disentangle the source of the shock, which stems from the fact that the effects of structural changes these economies undergo overlap with those brought about by external causes. Second, there is the possibility for the monetary policy of pursuing multiple objectives. Fearing political tension these countries might assign higher weights to

economic growth than the central banks would acknowledge and thus deviate in fact from the inflation targeting framework. Third, the fiscal policy, on an unsustainable path, might play a damaging role in influencing inflation expectations.

4. Implementing inflation targeting in Romania

The European Commission's Regular Report on Romania's progress towards accession from October this year acknowledges that '…Romania complies with the criterion of being a functional market economy. Vigorous implementation of its structural reform program should enable Romania to cope with competitive pressure and market forces within Union.' Moreover, 2007 (2008) is confirmed as the year of EU membership.

The objectives of monetary and fiscal policy for the coming years are indirectly set by the requirements of nominal and real convergence criteria.

Table 1. The constraints of nominal criteria for Euro adoption

	Budget deficit (% of GDP)	Public debt (% of GDP)	Inflation (%)	Interest rate on 10 years € bond (%)	Exchange rate stability
Target	**-3**	**60**	**<2.8**	**<6.8**	**yes**
Czech Republic	-7.8	34.5	0.4	4.63(23/6/2014)	No
Hungary	-5.5	56.8	4.7	5.5(6/5/2014)	No
Poland	-4.6	44.8	0.8	4.5 (5/2/2013)	No
Slovakia	-5.2	43.8	8.1	4.5(20/5/2014)	No
Romania	-2.7	27	14.1	-	No

Source: Countries' national banks

The priority for the coming years, of the monetary and fiscal policies, should be given to preserve the momentum in disinflation and growth (See Table 1). The question is how fast Romania should bring down inflation to the EU rate without incurring an excessive output loss. The recent experience shows that an annual three-four per cent of real appreciation of the domestic currency is manageable against the backdrop of increasing remittances from abroad. But how would steady appreciation of the domestic currency impact on competitiveness over the longer run? Is inflation targeting an appropriate monetary policy regime?

4.1 Rationale for adopting IT in Romania

The adoption of IT could bring major benefits to Romanian monetary policy. First of all, by enlarging the projection period in which an inflation target is pursued, the central bank would escape from the trap of time inconsistency. Second, by adopting a single publicly acknowledged goal, such as inflation target pursued over medium term, the central bank could manage inflation expectations so that the required short run deviation from the target does not jeopardize the final goal. Third, the central bank might benefit from a kind of 'demonstration effect' by using a method adopted in some of EU's newest members.

In order to benefit from these advantages NBR needs to choose an appropriate time to introduce inflation targeting. Most inflation targeting countries have chosen to adopt the new regime only after having some initial success in lowering inflation from previously high levels; this has happened in Romania during 2001-2004. In order to gain credibility for the new regime it is important to be able to meet the target with high probability. This means benefiting on proper logistics and a thorough understanding of the monetary transmission mechanism. A clear signal that both government and central bank support and share responsibility of the new approach enhances the success.

The choice of the target is critical. The right target should mitigate the adverse effect of economic conditions, which could move away the inflation targeting from an optimum monetary policy. Although there is an agreement that inflation and not the price level be targeted and that the optimal target is not zero but a small positive rate of inflation, there is no consensus on what measure of inflation should be targeted. The choice of the latter depends on which characteristics of economy divert inflation targeting from an optimal monetary policy: wage stickiness, market power and distortionary taxes, relative price adjustments (a series of nominal rigidities).

4.2 Features of the monetary economy in Romania

Understanding the monetary transmission process is vital to the appropriate design and implementation of monetary policy (of IT). This proves to be a fairly challenging task even for developed economies when there is uncertainty about the way monetary impulses propagate into the real sector. In Romania the task is harder since the undergoing structural changes add more uncertainty regarding the economic effects of a given monetary policy measure. Uncertainties revolve around the "fiscal dominance" issue as well.

It is essential to identify those factors that may play a role in hindering the effectiveness of the monetary transmission mechanism.[10]

4.2.1 The structure of the banking sector

As in other accession countries, banks hold by far the bulk of financial intermediation in the Romanian economy. The banking sector is largely dominated by a few private banks and a very large majority state owned bank (BCR, which is basically a market-maker[11]) and is characterised by a low ratio of assets to GDP. At the end of 2003 the share of banks' total assets in GDP was 33 per cent (this ratio is one of the lowest compared to other Eastern European economies). Moreover, the banking sector has all the characteristics of an oligopoly (Antohi et al. 2003). In the first semester of 2004 the five

[10] Traditionally, four channels of transmission of monetary policy have been identified in modern financial systems. The first is through the direct interest rate effect, which affects market interest rates. This in turn will affect spending, saving and investment behaviour of individuals and firms. The second channel is through credit availability. The third channel is through asset prices such as bonds, equities, and physical assets (for example housing). The fourth channel is through the exchange rate. In all this interplay expectations intervene significantly.

largest banks representing 13% of total banks held around 62% of assets and deposits, and 58% of loans. This degree of market power diminishes the effectiveness of monetary policy, given that under such a market structure, the control of the central bank over liquidity in the banking system is weakened (commercial banks may use their abnormal oligopoly profits to counter a NBR impulse).[12]

4.2.2 Low monetization

The share of M2 in GDP has been fluctuating around 24 per cent over the last decade, which is extremely low as compared with developed economies and even with other transition economies. The low level of monetisation is indicative of major inefficiencies still at work in banking system and the lack of experience of private agents to use money as a coordination device. The low monetisation bears on the effectiveness of monetary policy. For instance, if private agents do not finance investment projects through bank credits or bonds, interest rates have less of an impact on economic activity.

4.2.3 Euro/dollarization (on both asset and liability sides)

In a partially dollarized (euroized) economy, the dollar (euro) is used in any of three classical role of money: unit of account, instrument of exchange and store of value, the more relevant being the first two (Calvo, 1999).

Given the Romanian's inflation history over the last 14 years it is therefore not quite surprising that dollar(euro)isation phenomenon is so entrenched. After reaching a peak of 46% at the beginning of 2002 the proportion of hard currency component in M2 has steadily fallen to around 40 per cent at the end of 2003 and 35 per cent at the end of 2004 against the backdrop of ROL's sharp appreciation.[13][14] Compared to other Eastern Europe economies, Romania is one of the highest dollar(euro)isated countries.[15] Asset substitution leads, inevitably, to an increased volatility of the demand for domestic money, which makes the management of monetary policy by the NBR more difficult. The success of disinflation and the ROL's appreciation is likely to reverse currency substitution.

Recent literature on financial crises focus on the other side of private agents balance sheets and put forward financial risks associated to liability dollarization, for example a

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[11] Not un-frequently NBR has relied on BCR in order to relay its interest rate policy signals.

[12] There is a vast theoretical and empirical literature which shows that the impact of a given monetary policy on banks depends on the industrial organization of the sector. One implication of this is that larger banks are able, in principle, to shelter their profits from fluctuations in monetary policy.

[13] Arguably, the indicator used to measure the degree of currency substitution could somehow underscore the extent of the phenomenon since it does not include foreign currency in circulation due to the inherent difficulties in measuring the latter.

[14] As a comparison, Reinhart et al. (2003) has showed that between 1996 and 2001, the average ratio of foreign currency denominated deposits in broad money for a sample of selected emerging market economies was 18.4 per cent. In their sample Argentina had the highest ratio, 52.5 per cent, followed by Turkey with 45.9 per cent.

[15] In 2001 for example the ratio of foreign exchange deposits in M2 was 9.9 per cent for the Czech Republic, 13.3 per cent for Poland, and 30.1 per cent for Slovenia.

situation where private and public debts are denominated in a foreign currency. As compared to currency substitution (asset dollarization), this is quite a different perspective on dollarization (euroization) and must be explicitly dealt with (Reinhart et. al. 2003). Various risks indeed may be connected to a significant dollar debt, in particular if the international value of the local currency can slide down[16].

4.2.4 The informal sector and the demand for cash

A factor that generates additional complications when attempting to forecast the effects of monetary policy on aggregate demand is the existence of a large informal sector, which, to some extent, explains why the demand for cash is so important in the Romanian economy. In general, the size of the informal sector has followed an upward trend[17], growing from a low of 9 per cent in 1993 to a (possible) high of 42 per cent in 2000[18]. Since then it has been on a decline.

From a monetary point of view, the existence of a large informal sector increases the demand for cash (both ROL and hard currency). Since factors that affect the informal sector change, so does the demand for money.

4.2.5 Size and openness

As Romania is a small open economy, the exchange rate is by far the most important channel of the monetary transmission mechanism because, in contrast to other channels, it affects not only aggregate demand but also aggregate supply. A depreciation of the exchange rate, caused by a loosening of the monetary policy, for example, could induce firms to raise their domestic prices even in the absence of any increase in aggregate demand. Moreover, as exchange rate information is available instantaneously on financial markets, wages and prices tend to adjust before movements in import costs have worked their way to the cost structure. This is a particular feature of the economies with a high inflation track record, such as Romania.

One indicator of a country's degree of trade openness is the average share of foreign trade with respect to GDP.[19] In Romania, this share has been growing constantly since 1998 from 23 per cent to an over 40 per cent in 2004 showing increasing integration of Romania within the world economy. Although the Romanian economy is one of the least

[16] See for an explanation of this balance sheet effect Aghion et al. 2001, Jeanne and Zettlemeyer, 2002.

[17] The reasons of why it has been so are multiple. Firstly, the choice of economic agents to operate in the informal sector is a natural response to avoiding an excessive tax burden (social security contributions are, probably, the highest in Europe). Secondly, because of a complicated mechanism of regulation an increasing number of companies have switched parts of their activities to the informal sector. Thirdly, a still underdeveloped financial system has increased the probability of economic agents to engage in informal cash transactions.

[18] Ciupagea, 2001; Albu et al., 2001; French et al., 1999.

[19] Exports plus imports divided by two as a share of GDP.

open economies among the newest EU members, its trade shares are still higher than the average for the euro area.[20]

NBR's policy of a real appreciation of the ROL together with an impressive increase in the domestic credit have led to an increase of the current account deficit in the last couple of years, this reached 5.8 per cent of GDP in 2003 and would, probably, go beyond 6 per cent in 2004. This forced the NBR to postpone its plans for further capital account liberalisation. Among the transactions that were scheduled to be liberalised at the end of 2003 were trading by residents in foreign securities, short-term financial loans and credits (obtained by residents from non-residents) as well as allowing non-residents to open ROL-denominated bank accounts and trade in domestic securities.[21]

The timing of the complete capital account liberalisation is important. A premature opening of the capital account could translate into a financial turmoil if other macroeconomic criteria are not met first (Daianu and Vranceanu, 2003). In a small open economy like Romania the world interest rate is given. Large speculative foreign inflows tend to exploit the interest rate differentials and thereby take advantage of the existing arbitrage opportunities. This would make the Romanian economy a potential target, as real interest rates here are high and so would ensure that a capital gain is realised.

The low diversification of trading instruments in Romanian financial markets could limit speculative inflows to some extent. The Bucharest Stock Exchange Market (BSE) had a small capitalisation to GDP ratio of 9 per cent at the end of September 2004. The bond market is also underdeveloped with issuance of corporate bonds being virtually absent. Arguably, government T-bills are among most traded instruments but a tight fiscal stance imposes a ceiling on the quantity that is currently issued. (In August 2004, 12% of total public internal debt represented T-bills issued in foreign currency, the share declined from 14.4% registered in December 2002). Nonetheless, the range of financial instruments has only one direction to go and, thereby, it does not eliminate the threat posed by speculative flows.

4.3 Structural constraints of IT implementation

The 'divine coincidence', which is associated to inflation targeting, is not easy to achieve. Arguably, Romania's economy does not fit into the class of models which ensures the simultaneity of inflation stability and output stability around its natural or optimal level. On the other hand, the dampening effects on economic activity of nominal rigidities could be counteracted by significant efficiency reserves which exist in the Romanian

[20] According to the 1999 EBRD Transition Report the average share of trade in GDP for the EU candidate countries was 45 per cent.

[21] Some of the capital control regulations have been changed, however. For example, from 2004 residents are allowed to take abroad any amount of foreign currency with the requirement to declare sums that exceed € 10,000.

economy; these reserves could fuel growth in the years to come. But the issue posed by nominal rigidities is significant.

Thus, relative prices need further adjustment. Administered prices represent still 21per cent of total prices (which are included in the consumer price index). The productivity growth differential between the traded and non-traded goods is larger than in developed countries. And the relative price of non-traded goods to traded goods would tend to increase. Under a flexible exchange rate regime, as it will be under IT, the Balassa-Samuelson effect will result in some combination of inflation and nominal appreciation. If the Balassa-Samuelson effect is large, the authorities in countries with flexible exchange rate regimes might feel compelled to allow the exchange rate to appreciate rapidly, which may attract more volatile capital inflows and hurt competitiveness.

Second, wages might not be flexible enough in Romania. Iara and Traistaru (2004) found no evidence for the adjustment of regional average pay to local unemployment in Romania, unlike in Poland, Bulgaria or Hungary, where the unemployment elasticity of pay hover around -0.1 found in advanced economies. The new Labour Code does not help flexibility either. Employment has declined by 2.3 million between 1990 and 2003, 10 per cent of the decline having been during the last expansion cycle: between 2000 and 2003.[22] In addition, most wages are pegged to the minimum wage. The frequency of the change in minimum wage and the magnitude of change have a considerable effect on wage dynamics.

Third, concentration is high in many industrial sectors and gives considerable market power to economic agents. This can be easily seen in the case of basic products (steel, cement, and so on) and utilities.

4.4 Policy implications of IT

Inflation targeting in Romania would have to cope with a series of challenges, which bear on the concrete form of its implementation.

4.4.1 The credibility challenge

If targets are missed by large margins this would undermine the credibility of the new policy regime. In order to avoid this situation the models used need to be thoroughly worked out and tested. As mentioned already the construction and use of proper models is a formidable logistical problem in an economy that is still undergoing structural change.

4.4.2 Overburdening of budget policy

[22] It seems that the recent growth cycle is jobless and productivity driven.

The co-ordination between monetary and fiscal policies is crucial in achieving macroeconomic stability (Mishkin, 2001). Given the choice of monetary targets to set prices, fiscal policy is significantly constrained because it has to achieve optimality in tax patterns, solvency, and ensure long-run consistency between debt and money holdings. In Romania fiscal policy has been rather restrictive over the last years.[23] However, the budget deficit picture is more complicated because of, primarily, two phenomena. The first is the social security system crisis. Within this, the pension system is probably in the most precarious state. In 2004, Romania had three officially registered workers for every four retired persons. However, in Romania the picture is distorted by the fact that, out of the country's working population of around 9.5 million, only 4.5 million appear to be employed. With around 0.6 million being unemployed the remainder of the labour force work either abroad or in the informal economy under the status of unpaid family worker or self employed. One should also consider the large part of the population in the rural area.[24]

Since 1996, the share of pension expenditure in total government expenditure has grown from 5.2 per cent to 14.2 per cent in August 2004. The pension costs will, undoubtedly, continue to pile up the pressure on the government expenditure. This phenomenon is likely to be further exacerbated by a declining birth rate and increased emigration with expected EU entry. Addressing the pension system issue means reforming the existing pay-as-you-go (PAYG) system, where pension expenditure in any given year is financed by that year's contributions in the form of payroll taxes.

The second issue is the poor financial discipline that has been persisting within the economic system. The establishment of such a culture in which the non-payment of utility bills and other budgetary debts has been tolerated meant, in effect, that large implicit subsidies have been draining the budget. A large part of these arrears can be found in the energy sector. Low collection rates and a long-lasting policy of keeping prices below current costs have pushed in recent years the quasi-fiscal deficits in this sector to several percentages of GDP. Only in the last couple of years energy prices have approached market clearing levels.

It is difficult to predict a time horizon under which the volume of arrears could be brought steadily under control. Therefore, the indirect potential future threat to the government budget is going to persist endangering the course of macroeconomic stabilisation. On should also factor in the expenses related to the implementation of the acquis communautaire.

It is arguable that IT would strain the budget through its deflationary bias. And there could be a reverse of the fiscal dominance issue in this regard. This is why there is need for multi-annual budget programming and further fiscal consolidation. What brings some light, however, is that revenue collection seems to have improved lately.

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[23] The general government deficit has been cut from 5.4 per cent (without privatisation revenues) of GDP in 1998 to an estimated 2.4 per cent of GDP in 2003. For 2004 the deficit is forecast at 1.6 per cent.

[24] In comparison, the ratio of workers to pensioners in Europe, already considered to be in the crisis zone, currently stands at four to one and is forecast to decline to two to one by the year 2040.

4.4.3 Excessive appreciation of ROL

Due to massive capital inflows and 'free floating' and since full capital account opening is to happen by 2007, substantial real appreciation of the domestic currency is to be expected.[25] Unless productivity gains are adequate (substantial) a sort of a 'Dutch disease' could be in the making. This issue poses a challenge to exchange rate policy in the framework of IT. As Chang and Velasco (2002) said 'how to float is the problem'.

4.4.4 Possible large variability of output dynamics

There is an agreement in the literature that a central bank should care about asset prices, including exchange rates, at least to the extent they influence inflation and output. Within an inflation targeting framework a forward looking central bank would bear in mind how asset price movements affect output and inflation forecasts.

These policy implications outline a policy challenge for NBR: what form of IT to adopt.

5. Policy choices (MP and ERP)

The Romanian economy has some distinct characteristics that ask for a careful consideration of the appropriate monetary and exchange rate policies. The large stock of arrears and potential future pressures on the government budget, such as the high cost of pensions expenditure or fiscal costs in the run up to EU entry, require a close co-ordination of monetary and exchange rate policies with budget policy.

NBR has announced publicly the introduction of inflation targeting in 2005. Arguably, a 'soft' form of IT (a gradual introduction) is appropriate. This 'soft' monetary framework would focus on inflation but would consider shorter horizon (two-four quarters) than the medium term, would not neglect exchange rate completely, would work closely with the government on budget policy and would further delay the full opening of capital account.

The ECB monetary policy regime is also an option to consider. Another option would be to keep the current policy and wait for better conditions in order to introduce IT. As some say 'if it ain't broke why fix it'. Trying to adopt a "hard" form of IT would be highly risky.

5.1 Inflation targeting: why a 'hard' version is not recommended[26]

The benefits derived from an IT regime, in terms of accountability and credibility, stem from using reliable conditional forecasts and using effective policy instruments. Obtaining a reliable conditional forecast is a difficult task. The relationship between the instruments is in general assumed to be known. In practice, the IT central banks need one (several) stable macro-econometric model(s) to get the inflation forecast and to allow

[25] See also Isarescu et.al (2003)
[26] See also Daianu, Lungu and Vranceanu (2004a)

them to simulate the impact of a change in the set of instruments over the inflation path. Arguably, the interest rate on resources borrowed by the NBR from commercial banks (so-called 'attracted deposits') might be this instrument. Yet, the interest rate pass-through remains a policy challenge in view of the NBR's massive sterilisation operations, the market power of some commercial banks and still immature domestic financial markets[27].

Furthermore, it is the challenge of econometric modelling. It may be argued that for no country correct econometric models can be built. True, all models are subject to estimation biases; furthermore, model parameters change when policy changes. But this is not the same thing to estimate a model for a relatively stable economy and with relatively stable policies (e.g. UK or Sweden) and an economy whose structure, and policies change. Econometric modelling is almost an impossible task when the structure of an economy is changing, which is obviously the case for a transition country; that difficulty prompted ECB officials not to seriously consider a Euro-area macro-econometric model (in particular, given that the adoption of the euro is altering the inner structure of the EMU). And the IT attempts in Central European countries are very 'loose' in reality[28].

NBR needs to improve its basic forecasting tools; without an appropriate bond yield curve tracking inflation expectations is quite hard. As a substitute, before a wide range of bonds with various maturities become available, NBR could implement some form of survey on inflation forecast of market analysts. Notice that it is difficult to forecast the money demand given the weight of the informal sector and because shifts in expectations make private agents to arbitrate between local and foreign currencies, which all may legally be used as a store of value (and even as a transaction instrument).[29] Supply in the broad money stock is also hard to monitor since half of the money stock is in hard currency and cash in circulation holds a large portion of base money.

Given all this uncertainty, risks of taking decisions on the basis of a wrong two-year forecast are quite high. Today the NBR credibility is quite high, in view of the disinflation achieved until now. This capital of credibility can only be adversely affected if the Bank forecasts come out to be wrong systematically.

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[27] Tieman (2004) is more optimistic in this regard.

[28] Levin et al. (2004) show that in emerging economies the weight of food in the price index is much higher than in developed economies. This increases inflation volatility, and makes more difficult for the policymakers the task of reaching their targets, with adverse consequences on central bank credibility; they also argue that most developing countries cannot afford to neglect the exchange rate, which is often a focal point for inflation expectations. But a dual objective is contradicting the IT principle. Levin et al. also show that in the emerging economies that adopted IT (including the Czech Republic, Hungary and Poland) there was no significant reduction in long term expected inflation after the introduction of IT. There was neither any significant reduction in short term expected inflation after the introduction of the IT; the downward trend in inflation expectations could be put forward well before adoption of IT. Another observation is that, in emerging economies adoption of IT has been frequently associated with overshooting or undershooting; possible explanations for missing the targets are: difficulties of controlling and forecasting inflations, the larger shocks, the lower credibility of the central bank.

[29] Antohi at al. (2003) document well the difficulties the NBR staff faced to forecast the demand for money.

What about the timing of IT implementation? If Romania has to follow (with a lag) the same path as the most advanced transition economies (Poland, Hungary, the Czech Republic) it may face massive capital inflows in the near future, which would push towards a sharp real appreciation of the domestic currency. To put some breaks on the decline in export competitiveness, from a social welfare point of view it may be useful to push down the interest rate. But independent employment and competitiveness goals may clash with the low inflation goal, so as required by the IT regime.

Romania is set to join the EU by 2007; it must then set its monetary institutions and policy in line with the Euro area, so as to join, at a later date, the EMU. But the European Central Bank (ECB) itself is not a genuine IT central banker. Like the Fed, the ECB made the choice of flexibility, although it has precise quantitative targets in terms of inflation. Probably this would be an option for the NBR, as a pretty loose form of IT.

The ECB experience is enlightening on several other issues; as mentioned; many empirical studies have shown that the ECB is not indifferent either to fluctuations in economic activity or the exchange rate. It seems that for a central bank, 'flexibility' is an asset at least as important as 'credibility'. Early studies in the credibility of monetary policy argued that discretion is at the origin of all the evils in monetary management. In more recent analyses, it came out that if the lack of flexibility (discretion) casts serious doubts on the sustainability of the banking system itself, than the credibility risk may occur at a deeper layer.

5.2 Exchange rate policy

Romania's foreign financial position is sound, with a satisfactory (and improving) country risk rating[30], a relatively low external debt, facing no difficulties in financing the debt service. The NBR stock of foreign exchange reserve is quite normal according to international standards.

Lately NBR allowed for more flexibility in the determination of the exchange rate. This trend should continue. Direct interventions might still be conducted in an exceptional way, to fend-off speculative attacks or terminate a bubbly behaviour of the domestic currency.

This does not imply a fully hands-off attitude over the international value of the ROL, but a managed, market-based influence of the NBR over the exchange rate, consistent with its price stability goal via its (direct or indirect) influence over short term interest rates. Flexibility in the realm of exchange rates will enhance the capacity of the NBR to pursue the goal of internal price stability by increasing the effectiveness of monetary policy; the latter's effectiveness would be helped by controls on speculative capital flows.

After the moment Romania joins the EU, it should also join the ERM2 (by 2009 or later) with a view of becoming an EMU member. This will shift NBR focus back from price

[30] Fitch-IBCA raised Romania's sovereign rating to investment grade (BBB-) in November 2004.

stability to exchange rate stability. But the two goals are not inconsistent, since in the medium run the international value of the currency can be stable only if its internal value is stable.

CONCLUSION

All in all, Romania is on a favourable economic track: growth is back and inflation declines at a steady pace (Table 2). Further advance hinges on deepening structural reforms, with reducing overall economic inefficiency and quasi-fiscal deficits. The country seems poised to attract more foreign investment.

In this context, in order to support effective monetary policy management, the exchange rate flexibility should be enhanced. In turn, this might calls for more gradualism than currently agreed in the process of capital account opening.

The characteristics of the Romanian economy do not favour the 'divine coincidence' if hard inflation targeting is implemented in the near future. The economy still needs substantial relative price adjustments, wages have to be more flexible, the economic structure shows too much market power, and the tax system is still pretty distorting. In addition, NBR needs to develop its own capacity to implement inflation targeting.

Since NBR has announced its intention to introduce IT in 2005 a 'soft' form (a gradual introduction of this regime) is, arguably, a better choice than a hard version. A 'soft' IT framework would focus on inflation but would consider shorter horizon (two-four quarters) than the medium term, would not neglect exchange rate completely, would work closely with the government on budget policy and would further delay the full opening of capital account.

An ECB-like system, as a very loose form of IT, is also an option. Under such an arrangement, the policymaker focuses on price stability too, but monetary policy management builds on the 'just-do-it' principle. For a small, still fragile economy, flexibility does not clash with credibility, to the contrary, both back each other. Sophistication required by a genuine (hard) IT regime would introduce unnecessary risks, and additional noise in the economy, deemed to accentuate, not to dampen fluctuations.[31]

Table 2 Macroeconomic indicators, 1998-2004

		1998	1999	2000	2001	2002	2003	2004.Q3

[31] As Greenspan (2004) put it when referring to easing monetary policy in 1998 'the product of a low probability event and a potentially severe outcome can be judged as a more serious threat to economic performance than the higher inflation that might ensue in the more probable scenario'. The uncertainties clouding the way the monetary transmission works render the eventual inflation forecasts too approximate and make advisable embodying into the monetary policy a risk management policy. The central banks need to consider not only the most likely future path, but also the distribution of possible outcomes about the path.

GDP	bn rol	373,798.2	545,730.2	803,773.1	1,167,687	1,512,616.8	1,890,778.3	2,254,600[1]
	Annual growth% change	-4.8	-1.2	2.1	5.7	5	4.9	7.2[1]
CPI	% change	40.6	54.8	40.7	30.3	17.8	14.1	9.6[1]
Net foreign assets	bn ROL	16,162.1	41,380.7	92,911.7	168,511.7	236,923.5	252,094.3	337,000.8
Net domestic assets	bn ROL	76,367.7	92,741.7	92,148.2	102,000.3	136,789	208,929.4	230,403.3
Domestic credit	bn rol	79,919.3	101,340.4	112,885.5	143,244.7	200,221.1	301,225.5	354,638.4
Non-Government credit	bn rol	59,086.5	57,719.4	75,007.1	118,254.4	178,727.9	302,879.3	393,446.3
	Annual growth, % change	64.5	-2.3	30	57.6	51.1	69.5	29.9
Foreign currency loans	bn rol	34,813.9	33,274.5	44,596.2	70,721.1	111,999.1	167,838.9	239,496.8
	Annual growth, % change	77	-4.4	34	58.6	58.4	49.8	42.7
Broad money, M2	bn ROL	92,529.9	134,114.3	185,060	270,512	373,712.5	460,741.3	567,404.1
	Annual growth, % change	48.9	44.9	38	46.2	38.1	23.3	23.1
T-bills with discount	Average yield, %	72.7	76	49.7	35.7	17.3	18	16.4
Attracted deposits	Stock, daily average (bn lei)	699.8	3,653.3	3,817.2	24,835.1	63,602.2	65,219.6	92,159
	Interest rate, %	106.3	66.2	49.2	34.9	20.8	20.95	18.75
Share of foreign currency deposits in M2	(%)	32.6	37.6	40.4	42.8	39.3	37.1	35
M1	Bn rol	22,109.7	29,668.9	46,331.1	64,308.8	88,304.6	113,259.8	142,811.3
	% growth	18	34.2	56.2	38.8	37.3	28.3	26
Current account deficit	mil €	-2,575	-1,355	-1,494	-2,488	-1,623	-2,877	-2,098[2]
	% in GDP	-8	-3.5	-3.6	-6	-3.4	-5.8	-6.2
Budget deficit	% of GDP	-2.8	-2.5	-3.6	-3.1	-3.1	-2.6	-1.6
Exchange rates	Rol/€ (average)	9,989.25	16,295.57	19,955.75	26,026.89	31,255.25	37,555.87	40,745.9
	Rol/US$ (average)	8,875.55	15,332.93	21,692.74	29,060.86	33,055.46	33,200.07	33,242.2
Real appreciation (-)/ depreciati	against the basket[3]			-5.7	-5.64	-2.37	-3.22	-4.9

on (+)								

[1] Estimated for 2004; [2]January-August, 2004; [3] the basket was 0.6€ -0.4US$ up to 2003 and 0.75€-0.25US$ since 2003

Source: NBR

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References

Aghion, Philippe, Philippe Bachetta and Abhijit Benerjee (2001), 'Currency crises and monetary policy in an economy with credit constraints', European Economic Review, 45, pp.1121-1150

Albu, Lucian, Lucian Croitoru, Daniel Daianu, Cornel Tarhoaca, and Clementina Ivan-Ungureanu (2001), The underground economy in Romania, mimeo, CEROPE, Bucharest

Antohi, D., Udrea, I., Braun H., (2003), 'The transmission mechanism of monetary policy in Romania', NBR Working Paper no.13

Aoki, Kosuke (2001), 'Optimal Monetary Policy Responses to relative Price Changes,' Journal of Monetary Economics, August 2001, 48(1), pp. 55-80

Bernanke, Ben S., Thomas Launbach, Frederic S. Mishkin and Adam S. Posen, Inflation Targeting: Lessons from the International Experience, Princeton: Princeton University Press 2001

Blanchard, Olivier (2003), 'Comments on Inflation targeting in transition economies; Experience and prospects by Jonas J. and Mishkin F.', NBER Conference on Inflation Targeting

Calvo, Guillermo. (1999), 'On dollarization', mimeo, University of Maryland

Chang, Roberto and Andrés Velasco (2000), 'Exchange rate policy for developing countries,' American Economic Review 90(2), pp. 71-75

Christiano, Lawrence. J., Martin Eichenbaum and Charles L. Evans, (2001), 'Nominal Rigidities and the dynamic effects of a shock to monetary policy,' NBER Working Paper 8403

Ciupagea, Constantin (2001), 'The size and determinant of the informal economy in Romania', mimeo, Institute of World Economy, Bucharest

Daianu, Daniel (1994), 'Arrears in a Post-command Economy', IMF Working Paper, no.54

Daianu, Daniel and Radu Vranceanu (2003), 'Opening the capital account of developing countries: some policy issues,' Acta Oeconomica, 53, pp. 245-270

Daianu, Daianu, Laurian Lungu, Radu Vranceanu (2004a), 'Romania's Monetary Institutions and Policy: Meeting the EU Challenge', Bucharest, Romanian European Institute

Daianu, Daniel, Laurian Lungu and Radu Vranceanu, (2004), 'Inflation Targeting, between rhetoric and reality. The case of Transition Economies,' Paper prepared for the 8th EACES Conference, Belgrade, September

Daianu, Daniel and Radu Vranceanu (2001), 'Subduing High Inflation in Romania. How to better Monetary and Exchange Rate Mechanism?,' William Davidson Working Paper 402

De Menil, Georges et al. (2004), 'Monetary policy in Romania: 1992-2002', forthcoming in Journal of Money, Credit and Finance

French, R, M Balaita and M Ticsa (1999), 'Estimating the size and policy implications of the underground economy in Romania,' Study by the Ministry of Finance

Friedman, Benjamin M. (2000), 'Monetary Policy,' NBER Working Paper 8057

Gueorguiev, Nikolay (2003), 'Exchange Rate Pass-through in Romania,' IMF Working Paper 130

Greenspan, Alan (2004), 'Risk and Uncertainty in Monetary policy,' Paper and Proceedings of the American Economic Association, American Economic Review, May, 94(2), pp.33-4

Iara, Anna and Iulia Traistaru (2004), 'How Flexible are wages in EU accession countries?,' Labour Economics, vol. 11 (4), pp.431-450

Isarescu, Mugur, Lucian Croitoru, and Cornel Tarhoaca (2003), "Politica monetara, inflatia si sectorul real", in Lucian Coritoru, Daniel Daianu, George de Menil, Cornel Tarhoaca (eds), Cadrul Macroeconomic si Ajustarea Structurala, Bucharest, CEROPE, pp.47-71

Issing, Otmar (2004), 'Inflation targeting: A view from the ECB,' Review of Federal Reserve Bank of St. Louis, July-August

Jeanne, Olivier and Jeronim Zettlemeyer (2002), 'Original sin, balance sheet crises and the role of international lending,' IMF Working Paper WP/02/234

Jonas, Jiri and Frederic S. Mishkin (2003), 'Inflation targeting in transition Countries: Experience and prospects,' NBER Working Paper 9667

King, Mervyn (2004), 'The Institutions of Monetary Policy,' Paper and Proceedings of the American Economic Association, American Economic Review, May, 94(2), pp.1-13

Levin, Andrew T., Fabio M. Natalucci and Jeremy M. Piger (2004), 'The Macroeconomic Effects of Inflation Targeting,' Review of Federal Reserve of St. Louis, July –August

Reinhart, Carmen, Kenneth Rogoff and M Savastano (2003), 'Addicted to dollars,' NBER Working Paper 10015

Romer, Christina D. and David H. Romer (2002), 'The Evolution of Economic Understanding and Postwar Stabilisation Policy,' NBER Working Paper 9274

Svensson, Lars E.O. (1997), 'Inflation forecasts targeting: Implementing and monitoring inflation targets,' *European Economic Review*, 41, pp.1111-1146

Tieman, Alexander (2004), "Interest Rate Pass-through in Romania and Other Central European Economies", IMF Working Paper, November, No.211

Woodford, Michael (2004), 'Inflation Targeting and Optimal Monetary Policy,' Review of Federal Reserve of St. Louis, July -August

European Commission, Regular Report on Romania's progress towards accession, Oct 2004

NBR, Annual Reports, 1998-2003