Inflation, exchange rates and the role of monetary policy in Albania

by

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Abstract

This paper examines the conduct of monetary policy in Albania during the transition period. We identify various channels through which monetary policy can affect prices and output and we assess their relative importance. Estimates from a vector autoregression model (VAR) of key macroeconomic variables demonstrate the weak link between money supply and inflation up to mid-2000. However, the move during 2000 from direct to indirect instruments of monetary control has helped to strengthen the predictability of the transmission link from money supply to inflation. We conclude by arguing that a move to formal inflation targeting could help promote the transparency and credibility of monetary policy, but that such a move should be introduced only when the country is ready for it.

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1. Introduction

The performance of the Albanian economy throughout the transition period has been a pleasant surprise to many people.[1] Starting from a very low base in 1991/92, Albania quickly entered on a path of high GDP growth and falling inflation, in conjunction with the first moves towards serious market reforms. These achievements were jeopardised but not permanently reversed by a period of turmoil and near-anarchy in early-1997, when several large pyramid schemes, into which much of the population had put their savings, collapsed.[2] Since then, the Albanian economy has again enjoyed high annual growth rates and low inflation. This combination has been achieved in an environment where financial sector development is still at an early stage and informal markets are flourishing. Therefore, the role of monetary policy in influencing inflation and growth is inherently limited. Nevertheless, increasing attention is being paid in Albania to the role of monetary policy, and especially to the costs and benefits of introducing new instruments and of moving to more explicit inflation targeting.

This paper has three main purposes. The first is to assess the conduct of monetary policy in Albania during the transition and the extent to which the familiar transmission mechanisms from nominal to real variables have worked in this period. The second is to examine systematically, using time-series econometric techniques, the interactions between several key variables, and the effect that the shift in recent years towards indirect instruments of monetary control has had on these interactions. Finally, the paper assesses whether a move to inflation targeting in Albania is either feasible or desirable.

Section 2 of the paper examines the relevance of four different channels through which changes in nominal variables can affect the real economy: interest rates; exchange rates; credit rationing; and inflation expectations. The influence of some of these channels on prices and output has been limited. The main reason is that financial institutions in Albania are still at an early stage of development and have not been able to play the role that they do in advanced western economies. Indeed throughout most of the period, there is only a weak correlation, or none at all, between monetary aggregates and either inflation or output. Interestingly however, the correlation between money supply and inflation is much higher from 2000, when the central bank switched from direct to indirect instruments of monetary control. Exchange rate stability and price stability continue to be closely related, suggesting that the exchange rate remains a key indicator for inflationary expectations.

Section 3 explores the correlations among several variables – money supply, inflation, exchange rate, trade balance and migrants' remittances – by estimating a vector autoregression model (VAR). The results point to the stabilising role of remittances on the exchange rate and hence on inflation in Albania.[3] They also help to quantify the extent to which shocks to the money supply can explain the variance in inflation after mid-2000, when monetary policy shifted from direct to indirect instruments.

Section 4 explores the merits of having the monetary authorities adopt formal inflation targeting. We argue that such a move could help promote the transparency and credibility of monetary policy, in an environment where financial institutions are

[1] Aspects of the Albanian economy during transition are discussed in Mançellari et al. (1996), Vaughan-Whitehead (1999) and Clunies-Ross and Sudar (1999, eds.).

[2] The pyramid scheme crisis and its implications for the Albanian economy are discussed in Jarvis (1998) and Kovrilas (1999).

[3] Previous papers that demonstrate this link in Albania are Haderi et al. (1999) and Muço et al. (1999).

becoming more sophisticated. Nevertheless, there are considerable obstacles to the smooth introduction of this policy, not least the lack of reliable statistics and information on current indicators. Section 5 concludes the paper.

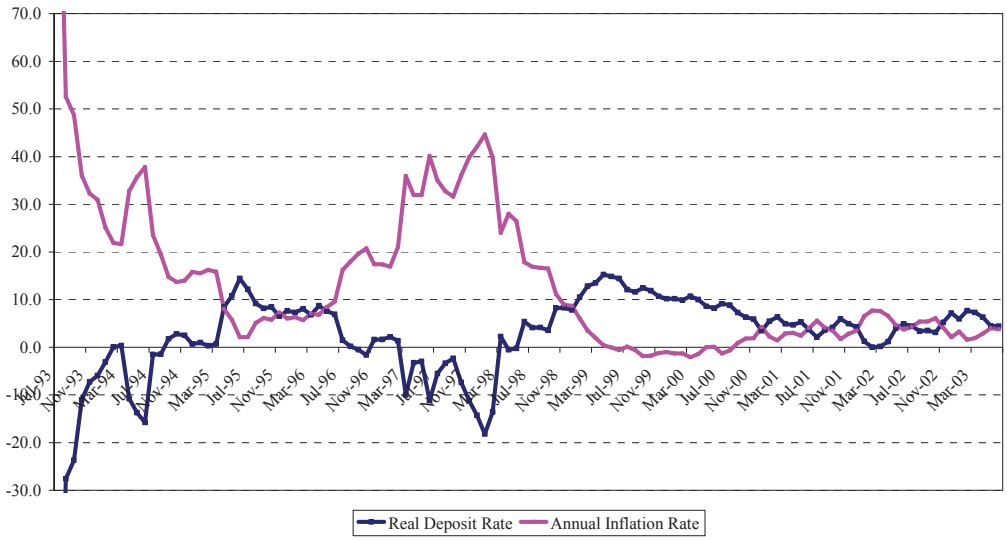
2. Monetary policy in Albania

2.1 Background

The collapse of communism in Albania occurred in late-1990 and early-1991, and was followed by a year of economic collapse, social disorder and widespread emigration. The turnaround began in 1992; stabilisation measures were introduced through a one-year reform programme that started in mid-1992. Under this programme, the reduction of annual inflation, which at one point (in Autumn 1992) was running at over 300 per cent, to below 20 per cent was a key objective. Money growth was designed to be the principal nominal anchor of the programme, supported, first, by a fiscal policy that had as a central objective the elimination of monetary deficit financing by mid-1993, and second, by a tight credit policy. A two-tier banking system was also introduced around this time.

Under this programme, which was supported by the IMF and other international institutions, monetary policy was based on direct instruments of monetary control. This decision was dictated by the poor state of the banking system, the external debt situation and the need to finance the large budget deficit. At the beginning of 1996 some licenses on private banking activity were issued to several foreign banks, paving the way for a real market in that field. It is only recently that the consolidation of the banking system has allowed indirect instruments of monetary control, including the establishment of required reserves, a refinancing window and a liquidity requirement, to replace direct instruments. New private banks have played a key role in encouraging the use of indirect instruments of monetary control and inter-bank competition.

Chart 1: Real deposit rate and annual inflation



Source: Bank of Albania.

The control of interest rates was an important part of Albanian stabilisation policy during the transition. Real interest rates turned positive in the third quarter of 1994 (see chart 1) when inflation declined but they remained under central bank control until the banking system began consolidating and monetary policy moved gradually towards the use of indirect instruments. The Bank of Albania started to eliminate direct control over interest rates at the beginning of 2000. Within a year the three controlled interest rates on 3 months, 6 month and 12 months deposits were removed and replaced with indirect instruments of monetary policy. The effects of these changes are explored in detail below.

2.2 The transmission mechanism

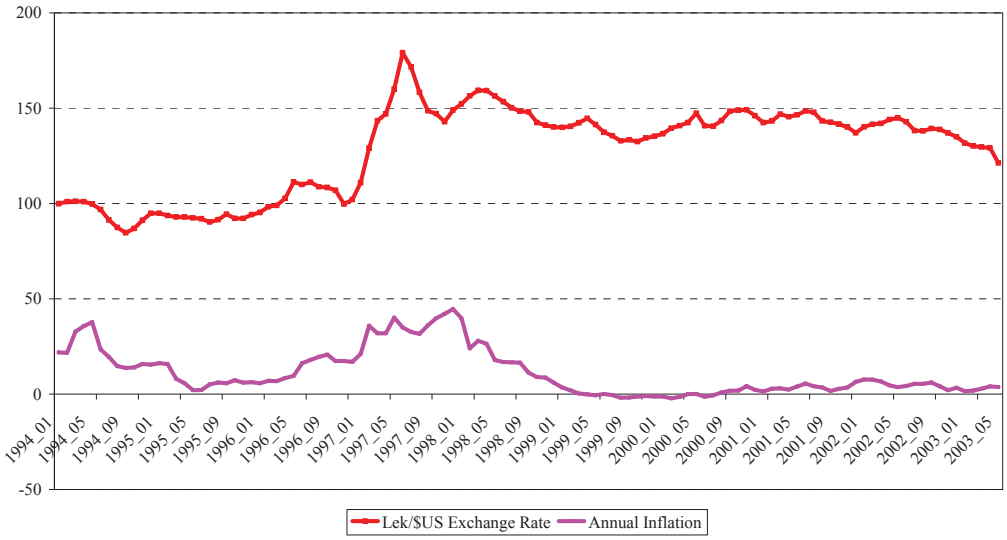
There are a number of ways in which monetary policy can affect the real economy. Four channels that operate in market economies are through: interest rates; credit ceilings; exchange rate; and inflation expectations. The list is far from complete, but in the Albanian case other channels such as equity prices or housing market are less relevant, at least for now. It should also be noted that the effects can overlap to some extent, as explained more fully below.

As noted earlier, interest rates were under the direct control of the central bank until August 2000. An important indirect effect of interest rates on inflation may have occurred through the effect of high deposit rates on the demand for domestic currency deposits, which in turn helped to maintain or even appreciate the value of the domestic currency, thereby reducing import costs and prices. However, even though banks typically had large excess reserves, the main bank in the country, the Savings Bank, was prohibited from new lending throughout this period. Therefore, the amount of new credit issued in the economy was small and the direct influence of interest rates and credit allocation decisions on the real economy was correspondingly negligible.

The exchange rate channel is perhaps the most promising route for explaining inflationary developments in Albania. Exchange rate stability has in turn been aided by the substantial inflows of remittances throughout the transition period.[4] As chart 2 shows, there is a clear and strong link between exchange rate stability and inflation.

[4] See Haderi et al. (1999).

Chart 2: Correlations between annual inflation and Lek/USD exchange rate



Source: Bank of Albania.

This link is seen most clearly during the anarchic period of early 1997, when both the exchange rate and the inflation rate jumped sharply, only to fall rapidly once the security situation was under control. The extent of the correlation is unsurprising in a relatively open economy like Albania where foreign currency circulates widely, both because of high inflow of remittances from Albanian working abroad and from smuggling and contraband. In fact, empirical evidence in Haderi et al. (1999) and Muço et al. (1999) showed that, for the early transition years (1993-96), the exchange rate and remittances explained much more of the variation in inflation than changes in the money supply do. We test below whether this result still holds true.

The stable exchange rate has undoubtedly played a key role in anchoring inflationary expectations, the fourth channel mentioned earlier. Since 1998, the central bank has been announcing at the start of each year a clear quantitative target for annual inflation, usually within a fairly narrow band (e.g. 2-4 per cent). This increased transparency has also helped monetary policy, especially in light of the relatively successful performance to date by the central bank in achieving this target.

Turning to the relation between changes in money supply and inflation, Chart 3 shows the co-movement between the two variables from 1994 to 2003. It is clear that there is virtually no correlation up to 2000; during that time, changes in money supply were driven by demand shifts. Sometimes they move in opposite direction, for example in 1994/95, when money growth was robust while annual inflation was falling rapidly to single-digit levels, or in 1997 when money growth declined while inflation rose sharply in the wake of the pyramid scheme crisis.

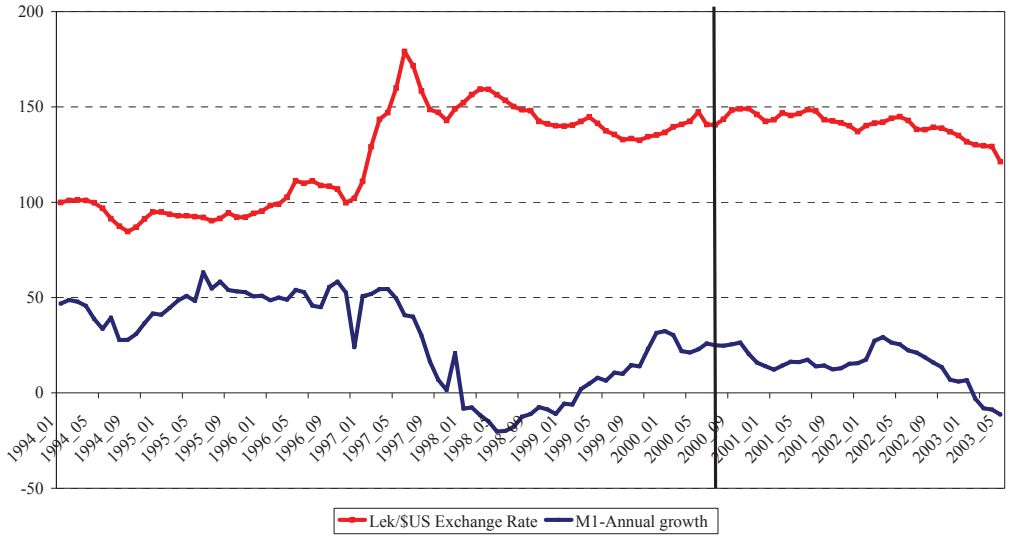
Chart 3: Correlations between M1 annual growth and annual inflation

Note: Vertical line indicates September 2000, the time when the Bank of Albania shifted to the use of indirect instruments of monetary policy.

Source: Bank of Albania.

However, a positive correlation emerges after the introduction of indirect instruments of monetary control in September 2000, as Chart 3 shows clearly. This change, which is associated with the shift from direct to indirect instruments, is brought out by the econometric results below. It is also consistent with Chart 4, which demonstrates that there is a clear correlation between the annual growth of M1 and the Lek/USD exchange rate after the introduction of the indirect instruments of monetary policy.

Chart 4: Correlations between M1 annual growth and Lek/USD exchange rate



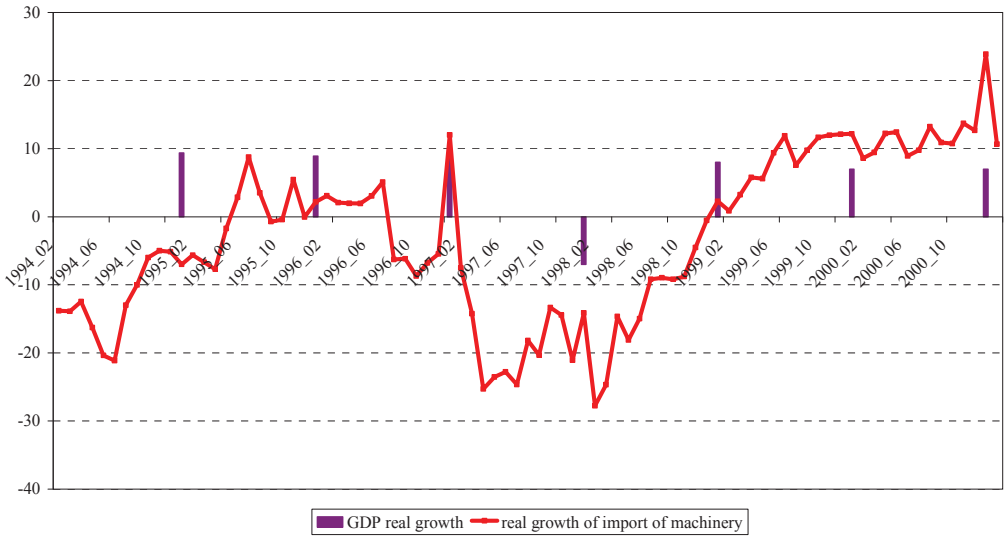
Note: Vertical line indicates September 2000, the time when the Bank of Albania shifted to the use of indirect instruments of monetary policy.

Source: Bank of Albania.

The relation between nominal and real variables in Albania is difficult to assess, because the main measure of economic activity – gross domestic product (GDP) – is estimated with a high degree of inaccuracy. The statistical coverage of the new, emerging private sector is inadequate, and there exists a large informal sector that probably accounts for at least one-third of GDP.[5] In addition, GDP is estimated annually only, whereas monetary aggregates such as inflation and exchange rates are available at greater frequency. For these reasons, it would be useful for policy-makers to have available a good proxy for GDP, so that one could get a better sense of the inter-relations among nominal and real variables.

Charts 5-7 show the correlations between real GDP growth and three variables: import of machinery, energy consumption, and net exports. Because of data limitations we correlate data series of different frequencies: annual data on real GDP growth with monthly data on real growth of import of machinery and net exports, and quarterly data on real growth of energy consumption. Charts 5-6 indicate that there is a fairly close correlation between real growth in both import of machinery and energy consumption, and real GDP growth. [6]

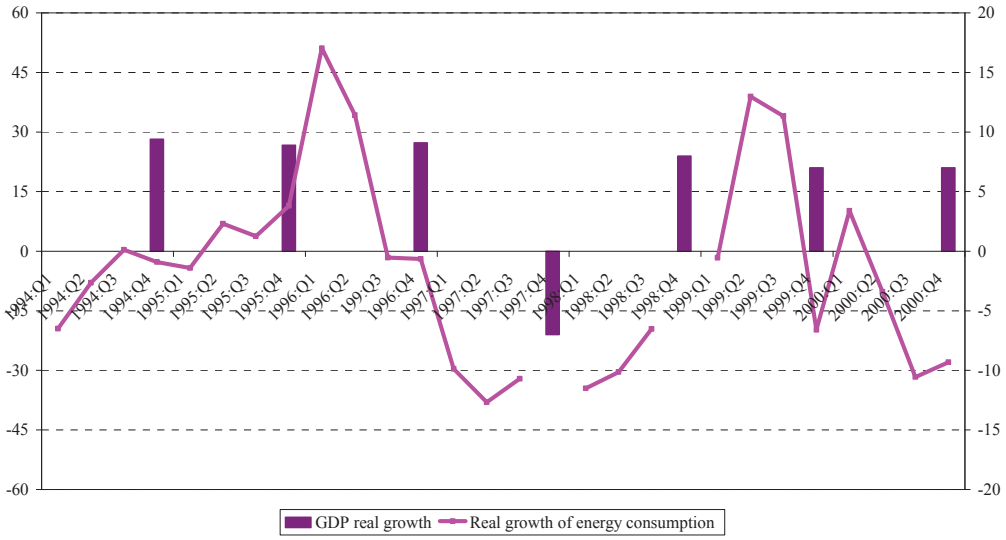
Chart 5: Correlations between GDP real growth and import of machinery



[5] This estimate of informal sector activity in Albania is from IMF (2003), which cautions that it is likely to be an under-estimate.

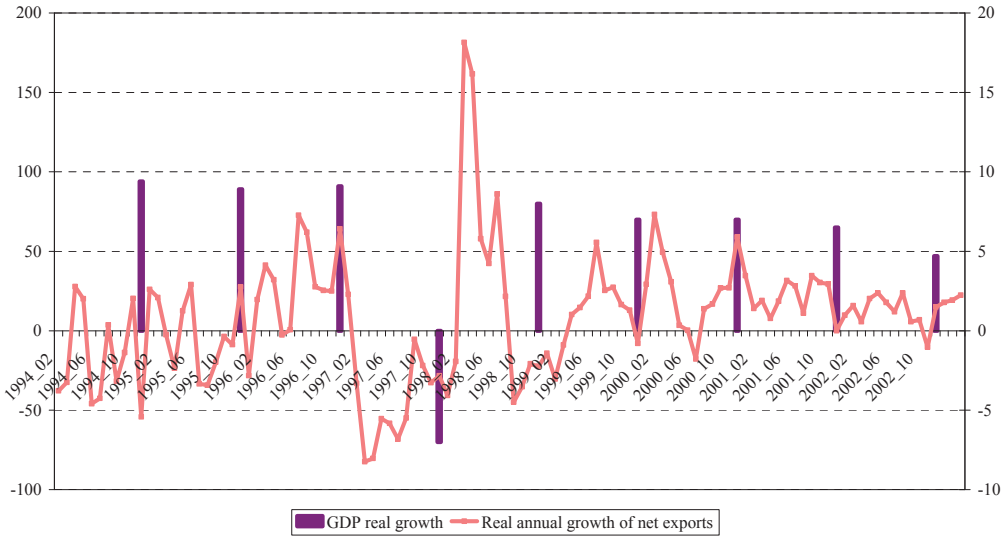
[6] Real growth for all series is calculated using the CPI.

Chart 6: Correlations between GDP real growth and energy consumption



Finally, we examine the correlation of GDP with net exports (see Chart 7). Over the whole period, there appears to be significant co-movement between to two variables. Since, we have a longer data series for net exports compared to import of machinery and energy consumption, and in the absence of a better alternative, we use net exports as a proxy for GDP in our econometric analysis.

Chart 7: Correlations between GDP real growth and net exports



3. Econometric results

While the charts and correlations reported above are useful for highlighting the main trends, one would like to know more about the interactions among key variables in the economy, specifically about how shocks to one variable affect subsequent developments in others, and whether the explanatory power of monetary variables has been increased by the shift to indirect instruments. Few studies have been made in Albania on the correlation between monetary policy decisions and export/import reactions through the exchange rate response.[7] It is also interesting to test whether the exchange rate channel operates in Albania and how the effectiveness of this channel has changed with the introduction of indirect monetary instruments.

To answer these questions, we estimate a vector autoregression (VAR) model among the following variables: money growth, inflation, exchange rate, remittances and the trade balance. VARs are a flexible approach to summarising the interactions among macroeconomic variables without imposing unrealistic exogeneity assumptions. However, they should be seen as a descriptive device only, and their explanatory power is limited, especially when the time series are rather short.

The estimation period is January 1994 through May 2003, for which we use monthly data on all relevant series. To investigate whether the explanatory power of monetary variables has been increased by the shift to indirect instruments in September 2000 we also divide the sample period into two: the period when direct instruments of monetary policy were in place, from January 1994 to August 2000, and the period when indirect instruments of monetary policy were used, from September 2000 to May 2003.

The five variables used are as follows: the monthly rate of growth of M3, monthly inflation, the Lek/USD exchange rate in logarithm form, remittances in US dollars in logarithm form and monthly rate of growth of trade balance. The first three variables – money growth, inflation and exchange rate – are included in order to examine whether the exchange rate channel explains inflationary developments in Albania. However, since exchange rate stability has in turn been aided by the substantial inflows of remittances throughout the period, we include also the remittances in the VAR analysis. Net exports are included to examine the exchange rate channel as a monetary transmission mechanism into the real economy.

Estimation of a VAR requires the imposition of some ordering restrictions. As in Haderi at al. (1999), we argue that the most appropriate ordering is: Remittances -> money growth -> exchange rate -> inflation -> trade balance. Remittances affect directly both the money supply and the exchange rate. Money growth also affects exchange rate and both money growth and exchange rate are expected to affect the rate of inflation. Finally, inflation or the change in relative export import prices associated with a change in exchange rate, which in turn is affected by money growth would affect the trade balance (change in relative demand for export imports). The change in trade balance would then cause a change in output.

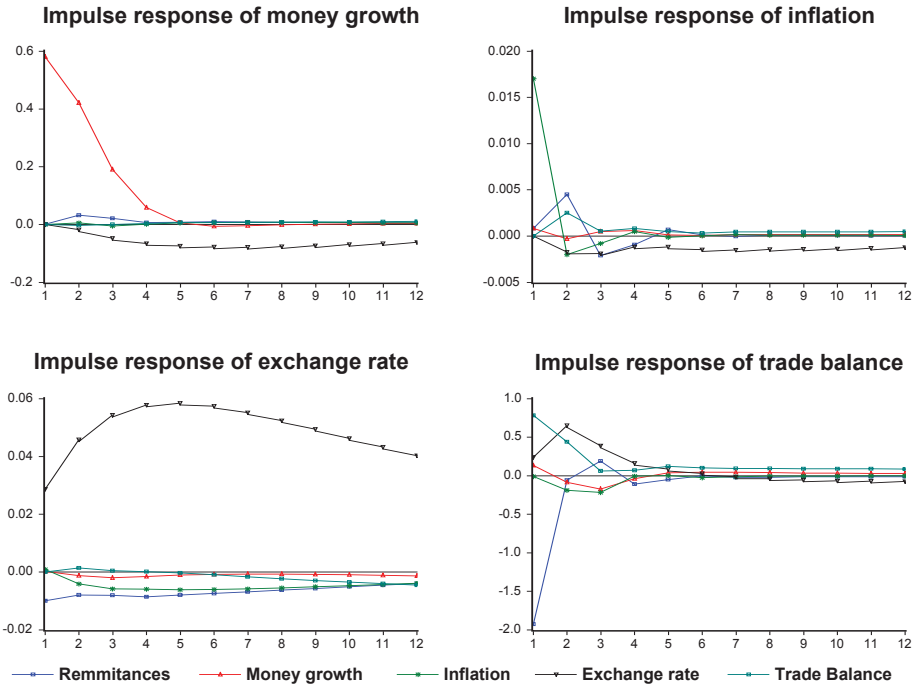
Given the short time series, the system was estimated using just two lags for each variable. Moreover, higher order lags were rejected according to Schwarz-Bayes Information Criterion. Charts 8-9 show the derived impulse response functions of four variables – money growth, inflation, exchange rate and trade balance.[8] Separate

[7] See Kunst and Luniku (1998) and Kalra (1998).
[8] For brevity, we omit the impulse response function of remittances in charts 8 and 9.

impulse response functions were derived for the period of direct instruments of monetary policy and indirect instruments of monetary policy respectively.[9] For each variable, the figures illustrate the response of that variable to a shock to itself and to each of the remaining variables.

We focus first on whether shocks to money growth are associated with the subsequent path of inflation. For the period of direct instruments of monetary policy (up to August 2000) it is clear from the impulse response function that shocks to money supply do not appear to be related to inflation. Remittances and the trade balance have an expected positive effect on inflation that peaks after about two months but the effect dies out quickly after three to four months. The small negative effect of an exchange rate shock on inflation is persistent over a period of 12 months.

Chart 8: VAR analysis for the period of direct instruments of monetary policy (1994:01-2000:08)



Source: Authors' calculations, using data from Bank of Albania.

The initial negative effect (i.e. appreciation) of remittances on the exchange rate is persistent and dies out only gradually after 12 months. The trade balance also does not appear to be affected by money growth. The positive relation between shocks to the exchange rate and the subsequent path of the trade balance peaks after two months and gradually dies out after four or five months. The effect of remittance however, is smaller and dies out after about four months.

[9] We also estimate a VAR for the whole time period. The results, not shown here, are similar to the results of VAR analysis for the period of direct instruments of monetary policy. This is partly explained by the fact that our time period of indirect monetary policy instrument is much shorter than the period of direct instruments of monetary policy.

These results are complemented by the variance decomposition analysis presented in Table 1. For each variable at different time horizons the variance decomposition analysis shows the percentage of forecast error variance caused by shocks to that variable and by shocks to other variables. The table show the variance decomposition for one-, six- and 12-month horizons.

The third block of rows in Table 1 shows that most of the forecast error variance in inflation is explained by its own shocks. Shocks to remittances explain up to 7.9 per cent – and shocks to exchange rate up to 6.4 per cent – of forecast error variance in inflation, indicating that remittances and the exchange rate together play a significant role in determining inflationary expectations. Money growth explains only up to 0.4 per cent of forecast error variance in inflation, confirming that movements in inflation cannot be explained by money supply changes during this period.

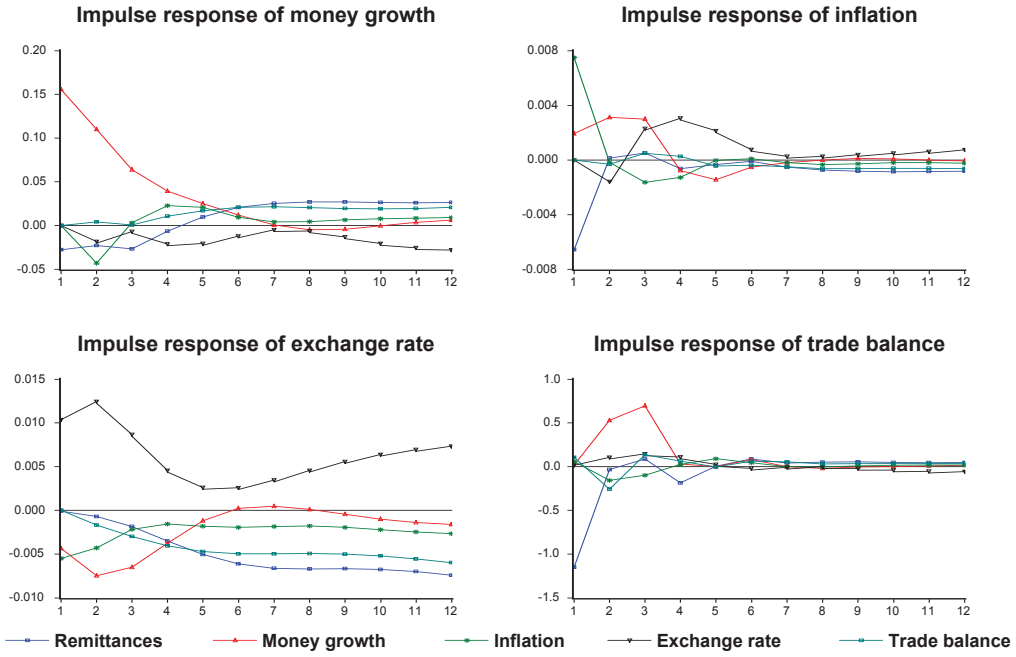
Table 1: Variance Decomposition (VAR 1994:01-2000:08)

	Months	Remittances	M3	Inflation	Exchange rate	Trade Balance
Remittances	1	100	0	0	0	0
	6	36.8	5.8	1.2	24.3	31.8
	12	**23.9**	**5.3**	**1.6**	**33.3**	**36**
Money growth	1	0	100	0	0	0
	6	0.3	96.5	0	3.2	0
	12	**0.3**	**91.5**	**0.1**	**8**	**0.1**
Inflation	1	0.2	0.2	99.5	0	0
	6	7.9	0.4	86.1	3.3	2.3
	12	**7.6**	**0.4**	**83.1**	**6.4**	**2.5**
Exchange rate	1	10.6	0	0.1	89.3	0
	6	2.5	0.1	1	96.4	0
	12	**1.9**	**0**	**1**	**96.8**	**0.2**
Trade balance	1	84.4	0.4	0	1.3	13.9
	6	69.5	1.1	1.5	12.3	15.5
	12	**68.6**	**1.3**	**1.5**	**12.5**	**16.2**

Source: Authors' calculations, using data from Bank of Albania.

The last block of rows in Table 1 shows that most of the forecast error variance in the trade balance is explained by shocks to remittances (nearly 70 per cent at a 12-month horizon). Its own shocks explain up to 16.2 per cent and shocks to exchange rate explain up to 12.5 per cent of forecast error variance in trade balance. Shocks to money supply explain only up to 1.3 per cent.

Chart 9: VAR analysis for the period of indirect instruments of monetary policy (2000:09-2003:05)



Source: Authors' calculations, using data from Bank of Albania.

For the period of indirect instruments of monetary policy, however, the impulse response functions in Chart 9 show that the money growth does have a positive effect on inflation which peaks after three months and gradually subsides after four to five months. This indicates a clear relation between money supply and inflation. The positive effect of the exchange rate is also evident, peaking after about four months and subsiding after six months.

Shocks to money growth explain a significant part of the variance in trade balance as well. The biggest effect occurs after about three months and subsides quickly afterwards. The clear negative effect of money growth in exchange rate is also evident with the largest effect occurring after two months and dies out gradually after four to five months. Shocks to remittances and inflation have a persistent negative effect on subsequent exchange rate movements. This analysis suggests that the explanatory power of monetary variables has been increased by the shift to indirect instruments.

Again, the way shocks to one variable affect subsequent developments in other variables under consideration becomes clearer with a variance decomposition analysis presented in Table 2.

Table 2 : Variance Decomposition (VAR 2000:09-2003:05)

	Period	Remittances	M3	Inflation	Exchange rate	Trade Balance
Remittances	1	100	0	0	0	0
	6	58.9	31.3	2.3	2.8	4.7
	12	**57.6**	**30.1**	**2.4**	**4.5**	**5.3**
Money growth	1	3.1	96.9	0	0	0
	6	5.1	84.6	5.8	2.8	1.7
	12	**11.3**	**71.9**	**5.4**	**5.9**	**5.5**
Inflation	1	41.9	3.6	54.5	0	0
	6	28.8	16.6	39.6	14.6	0.5
	12	**29.6**	**15.8**	**37.9**	**14.7**	**1.9**
Exchange rate	1	0	12.1	19.2	68.7	0
	6	10.9	18.4	8.7	51.6	10.4
	12	**25.6**	**9.8**	**6.4**	**41**	**17.2**
Trade balance	1	98.8	0	0.2	0	0.9
	6	58.6	33	2	1.9	4.5
	12	**58.4**	**32.5**	**2.1**	**2.2**	**4.8**

Source: Authors' calculations, using data from Bank of Albania.

Looking at the variance decomposition for inflation during this period, we see that, after 12 months, shocks to money growth now explain nearly 16 per cent of the forecast error variance in inflation compared to a mere 0.4 percent during the direct monetary instruments period. This suggests that movements in inflation are explained to a much greater extent than before (when direct instruments of monetary control were in force) by money supply changes during this period. Its own shocks still explain the majority of the forecast error variance in inflation. Shocks to remittances explain nearly 30 per cent and shock to exchange rate explain up to 14.7 per cent of forecast error variance in inflation at a 12-month horizon, indicating that remittances and the exchange rate are still a good indicator of inflationary expectations.

Also the variance decomposition for the trade balance shows that money growth explains up to 33 per cent of the forecast error variance in trade balance. Remittances explain nearly 60 per cent of the forecast error variance in trade balance over a 12-month horizon. These results suggest that the exchange rate transmission channel is present during the period of use of the indirect monetary policy instruments.

We also tested the robustness of our results with respect to changes in ordering of the variables used. In particular, we tested if exchange rate anticipates the money growth and remittances, as the Bank of Albania actively monitors exchange rate and takes it into consideration in the monetary projections. That is, we test whether exchange rate should be prior in the VAR. We also test whether the level of remittances is determined by the interest rate, which in turn is affected by the money growth, thus putting remittances after money growth in the VAR. We found that the ordering of

variables is not the crucial determinant of our results, since changing the ordering of variables gave us similar results in terms of impulse response functions.

4. Inflation targeting: an option?

In recent years, the central bank has considered moving from announcing an inflation band within which it intends to operate to explicit inflation targeting.[10] Such a policy allows flexibility when facing real domestic (aggregate demand) and external shocks. In addition, inflation targeting uses a forward-looking approach that allows the central bank to avoid policies that are contrary to the target. Being a forward-looking policy this is likely to have a stabilising effect over financial markets. The Czech Republic was the first transition country that started to adopt this alternative to the monetary policy.[11]

This strategy may also be attractive for Albania. The existing free float exchange rate regime makes easier the replacement of monetary control with targeting of inflation. It may also help strengthen the independence of the central bank. However, there are several reasons why Albania may not yet be ready to fully adopt such a policy.

First, as the analysis above makes clear, the transmission mechanism is not yet well defined in Albania, and therefore the uncertainty about the effects of any change in monetary policy is high. Not only is there a large informal sector, but also securities markets are rudimentary and still need time for monitoring the impacts and effects that they may have on the economy. Indirect instruments of monetary policy are still relatively new and not fully tested.

Second, inflation forecasting techniques are not well-developed in Albania. There is considerable scope for further improvement towards more accuracy. Indeed, the main index used in calculating inflation – the CPI – has been criticised on the grounds that it does not seem to be representative of consumption patterns. Alternative indices are not in place yet and statistics on national accounts are not reliable.

Third, the transparency and accountability of monetary policy decisions are not yet well understood by the public. The Bank of Albania has significantly increased the amount of public education in an effort to influence inflation expectations, but more needs to be done. Furthermore, monetary policy affects real variables sometimes with long and unpredictable lags, making the education process more difficult.

For almost three years the Bank of Albania, on the suggestion of the IMF, has set the annual inflation target as a band of 2-4 per cent. It is not clear that this is the optimal range of inflation in the case of Albania, or indeed whether it should be a band or a point? So far the band has generally been achieved and been a good discipline for the Albanian authorities. Nevertheless, external events such as political instability, elections, and shortages of key goods such as electricity can hinder implementation of the target. Speculative attacks, like the one that caused a liquidity problem in the Albanian banking system in spring 2002, would complicate considerably the introduction of inflation targeting. All of these considerations suggest that the appropriate time for the adoption of inflation targeting in Albania may be some way off.

[10] See for a detailed explanation and comparative experience Blejer at al. (eds.) 2000 and Svensson 2000.
[11] However, several publications show an increasing interest from Poland. See for instance Orlowski, 1998 and Dabrowski, 1999.

5. Conclusion

There are three main conclusions from this analysis of monetary policy in Albania. First, external influences, by contributing to exchange rate stability, have played an important part in keeping inflation low for most of the transition period. Second, the range of instruments of monetary policy available to the authorities has widened in recent years, leading to more stability and predictability concerning the link between changes in money supply and changes in the price level. Also, the introduction of indirect instruments of monetary policy appears to have contributed to the effectiveness of exchange rate transmission mechanism of monetary policy into the real economy. Finally, the policy of aiming at an inflation band has worked quite well so far, but moving to inflation targeting may carry short-term risks and is not something that should be rushed into.

One of the biggest difficulties facing policy-makers in Albania is the poor quality of data on the real sector. As the quality improves, the link between monetary and real variables will become more transparent. While this may ease the task of the Bank of Albania in formulating monetary policy, it is clear that the scope for an activist monetary policy that tries to influence output and employment will remain extremely limited. The Albanian economy has moved over the last 13 years from almost complete isolation to relative openness, and is therefore more and more dependant on developments beyond its borders. However, the Bank of Albania can continue to play a stabilising role in the economy through the continuation of prudent monetary policies and occasional exchange rate management to smooth out shocks. Over time, the introduction of formal inflation targeting should be feasible, and would help contribute to stability in the economy.

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