Vienna Institute for International Economic Studies & World Bank

Project: Long-Term Development in Southeast Europe

Short and Medium–Term Macroeconomic Stabilization – Strategies and Effects

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C O N T E N T

1. Characteristics of the region

Turbulent political developments in the 1990's have made Southeast Europe, as defined in this project, a neuralgic spot in Europe. Under these circumstances, external shocks have become a trademark of the day-to-day functioning of the economies in this region during the last decade. Therefore, it might have been quite a challenge for these countries to choose and then implement appropriate macroeconomic stabilization policies, which would ultimately result in a sustainable macroeconomic stability.

Southern European region, as defined in this project, is consisted of seven countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FR Yugoslavia, Macedonia and Romania. Table 1 shows several general indicators about these countries. GDP per capita at average exchange rate shows that the majority of the countries are within the range of USD 1,000 – 2,000, with Albania (USD 896) and Croatia (USD 4,805) being the only countries out of this range.

Table 1

General indicators, 1998

Country	Area (in km2)	Population (in mill.)	Population (per km2)	GDP** (in USD mill.)	GDP** per capita (in USD)
Albania	28,748	3.4	118.3	3,046.5	896.0
Bosnia and Hercegovina	51,209	4.2	82.0	n.a.	n.a.
Bulgaria	110,994	8.2	73.9	12,259.7	1,495.1
Croatia	56,538	4.5	79.6	21,623.8	4,805.3
FR Yugoslavia***	n.a	10.6	n.a	18,491.0	1,742.0
Macedonia	25,713	2.0	77.8	3,501.4	1,750.7
Romania	238,391	22.5	94.4	41,503.7	1,844.6

*/ Source: EBRD, Transition Report 2000
**/ GDP at average exchange rate
***/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

Common characteristic of the observed countries in Southeast Europe is the process of economic transition through which they have gone in the 1990's. Initial positions of these economies in the transition process, however, were different. Albania, Bulgaria and Romania emerged out of centrally planned economies, with no experience of the functioning of market economy principles. On the other hand, throughout the time former Yugoslav republics, Bosnia and Herzegovina, Croatia, Yugoslavia and Macedonia have experienced at least functional markets of goods and services, which encouraged the development of entrepreneurial spirit of the economic agents in these countries. Hence, regarding the experience of the way in which market economy principles function, at the very early stage of the transition process, former Yugoslav republics had clear advantage over the other countries in Southeast Europe. Unfortunately, these countries faced non-economic challenges, like military actions, either within their own borders or in the neighboring countries.

1.1. Motives for reforms

Table 2 shows GDP changes in real terms by countries in the period 1992-2000. The beginning of 1990's showed the severity of the transition for the observed economies. Loss of the markets, particularly in the case of the former Yugoslav republics, accompanied by low international competitiveness of the domestic enterprises caused by the excessive number of employees and obsolete productive technologies used, inefficient and underdeveloped financial systems, privatization process of the economies at its initial stage, and lack of diversified institutional infrastructure resulted in deep recessions in all of the economies in Southeast Europe.

Table 2

Real GDP developments

(percentage change in real terms)

Country	GDP*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	-7.2	9.6	8.3	13.3	9.1	-7.0	8.0	7.3	7.0
Bosnia and Herzegovina	n.a.	n.a.	n.a.	20.8	69.0	30.0	12.4	10.0	15.0
Bulgaria	-7.3	-1.5	1.8	2.1	-10.9	-6.9	3.5	2.4	4.0
Croatia	-11.7	-8.0	5.9	6.8	6.0	6.5	2.5	-0.3	3.5
FR Yugoslavia**	-11.6	-27.9	-30.8	2.5	6.1	5.9	7.4	2.5	n.a.
Macedonia	-8.0	-9.1	-1.8	-1.2	1.2	1.4	2.9	2.7	5.0
Romania	-8.8	1.5	3.9	7.1	3.9	-6.1	-5.4	-3.2	1.5

*/ Source: EBRD, Transition Report 2000
**/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

Trend of negative real GDP growth ended by 1994 in most of the observed countries, although in some of them it ended in 1995 and 1996 (Yugoslavia and Macedonia, respectively). Severity of recessions varied among the countries, ranging from single digit negative real GDP growth rates to even 30 percent, like the case of FR Yugoslavia.

Table 3

Industrial output

(percentage change in real terms)

Country	Industrial Output*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	-51.2	-10.0	-2.0	6.0	13.6	-5.6	4.1	6.4	n.a.
Bosnia and Herzegovina	n.a.	n.a.	n.a.	33.0	38.1	51.4	18.5	n.a.	n.a.
Bulgaria	-6.4	-6.2	5.9	-5.4	-11.8	-11.3	4.3	-12.5	n.a.
Croatia	-14.6	-6.0	-2.7	0.3	3.1	6.8	3.7	-1.4	n.a.
FR Yugoslavia**	-22.0	-37.3	1.3	3.8	7.6	9.5	3.6	n.a.	n.a.
Macedonia	-16.0	-14.3	-9.7	-8.9	5.0	2.9	4.5	-2.5	n.a.
Romania	-21.9	1.3	3.3	9.5	9.8	-5.6	-17.3	-8.8	n.a.

*/ Source: EBRD, Transition Report 2000
**/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

As shown in Table 3, real GDP decline in the countries of Southeast Europe in the first half of the 1990's coincided primarily with the decline in the industrial output. In some countries, like Albania and FR Yugoslavia, industrial output fell even by 51.2 percent and 37.3 percent, in particular years. It reflected the accumulated problems in the enterprise sector, like the lack of privatization ownership and clear corporate governance, excessive employment, lack of new productive technologies etc. Coping with these inefficiencies, however, caused the decline of the industrial output to slow down gradually over time.

The overall decline in the economic activity in the observed countries was accompanied by high inflation that is shown in Table 5. Thus, they all faced high inflation, and some of them hyperinflation, which exceeded even 1,000 percent in particular years, as it was the case with FR Yugoslavia, Croatia and Macedonia. High inflation was caused not only by the disturbances on the domestic market, but also by liberalization of the prices of many goods, which were previously controlled by the government, and trade liberalization.

High rates of inflation deteriorated the purchasing power of the households and resulted in substantial decline in the standard of living of the population. Accompanied by severe recessions, it created unbearable economic situation in the countries of Southeast Europe. Hence, economic implications from the abandoning of the previous economic system and transition towards market oriented one, created a clear need for implementation of stabilization policies in these countries. They were expected to provide control over inflation and stable macroeconomic environment as a precondition for achieving economic growth sustainable in a long run.

1.2. Stabilization strategies – basic choices

Contrary to the conditions characteristic for the centrally planned economies, where administrative measures were taken to fight inflation, in the substantially modified economic environment the transition countries in Southeast Europe had to rely upon stabilization policies for managing the aggregate demand. These policies are based on three main components, such as sound fiscal policy which reduces and controls fiscal deficits, appropriate monetary policy which provides control over money supply and credit expansion, and income policy which provides maintenance of adequate level of wages, consistent with the overall stabilization objectives. Basically, observed transition countries had to choose among the three types of stabilization strategies: monetary based stabilization program or so-called monetary targeting, exchange rate based stabilization program or so-called exchange rate targeting, interest rate based stabilization program or so-called interest rate targeting, and inflation targeting.

Monetary targeting strategy uses the money supply and credits as nominal anchors in the inflation reduction and stabilization efforts. This strategy requires ability to forecast money velocity, real output and level of prices in order to decide the appropriate target for nominal money growth. In other words, Central bank should exercise tight control over money supply, money demand should be stable and predictable, and money supply and inflation should have relationship that is strong

and predictable. Also, there should be low level of currency substitution. Under these circumstances money supply can be used as an indicator for future inflation.

Aiming at achieving the monetary target clearly makes the money supply exogenous variable, where the exchange rate is not a goal of the monetary policy. It serves as an indicator for the stance of the monetary policy and shows the need for relaxing / tightening of the monetary policy. Therefore, monetary targeting strategy is accompanied with flexible exchange rate. This strategy should result in gradual slowdown in the money growth and inflation.

Exchange rate targeting strategy uses the exchange rate as a nominal anchor in the inflation reduction and stabilization efforts. The exchange rate of the domestic currency is linked with the exchange rate of the anchor country currency and serves as an intermediate target of the monetary policy. It should be pointed out that the national authorities have the choice of adopting irrevocably fixed exchange rate (currency board), fixed but adjustable exchange rate, fluctuating exchange rate within bands or pre-announced crawling peg. In order for this strategy to be successful high degree of economic integration with the anchor currency country is required. Also, a precondition for successful implementation of the exchange rate targeting stabilization strategy is conducting sound fiscal policy, which would provide for tight fiscal control, and having sufficiently high level of foreign reserves. In using this strategy money supply becomes endogenous variable, subordinated to the maintenance of the selected exchange rate. Compared to the previous strategy, exchange rate targeting should provide for a much faster slowdown in the money growth and inflation.

Interest rate targeting uses the interest rates as a nominal anchor in the inflation reduction and stabilization efforts. This strategy requires the interest rates to be determined based on the influence of the market forces. In addition, it requires existence and functioning of diversified financial system. Taking into account the lack of preconditions for using this strategy in the early stage of transition, it was not really an option for the countries in transition in Southeast Europe.

Inflation targeting, is strategy by which the rate of inflation is targeted directly. As it was the case with the interest rate targeting, inflation targeting was also not on the menu of stabilization strategies truly available not even to the most advanced transition countries. The reasons for that are lack of skilled expert able to forecast appropriately the inflation, external shocks and lack of reliable data series. When all these practical problems are overcome, direct inflation targeting becomes a real option for the transition countries, as it was the case with Poland and Czech Republic.

1.3. Stabilization strategies - actual choices made, short-term results and disinflation costs

Observed countries from Southeast Europe opted for different stabilization strategies. Some of them even shifted from one to another stabilization strategy in the analyzed period of the 1990's. Not all the countries, however, were successful in reducing and stabilizing the inflation and output. Those countries that succeeded in

realizing the stabilization objective and managed to achieve price stability also paid different price for the success.

Table 4

Stabilization strategies

Country	Stabilization Strategy								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*
Bosnia and Herzegovina	n.a.	n.a.	n.a.	n.a.	n.a.	c.board**	c.board**	c.board**	c.board**
Bulgaria	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	c.board**	c.board**	c.board**	c.board**
Croatia	mon.targ.*	mon.targ.*	ex.tar.***	ex.tar.***	ex.tar.***	ex.tar.***	ex.tar.***	ex.tar.***	ex.tar.***
FR Yugoslavia**	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*
Macedonia	mon.targ.*	mon.targ.*	mon.targ.*	ex.tar.***	ex.tar.***	ex.tar.***	ex.tar.***	ex.tar.***	ex.tar.***
Romania	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*	mon.targ.*

*/ monetary targeting
**/ currency board
***/ exchange rate targeting

Basically, with regard to the type of stabilization strategy implemented, countries can be divided into two groups. In the first group are countries which adopted monetary targeting stabilization strategy, such as Albania, FR Yugoslavia, Romania, and until mid-1997 Bulgaria. Such a monetary strategy was accompanied by a floating exchange rate regime. Table 5 shows that these countries were not quite successful in achieving price stability. FR Yugoslavia and Romania clearly failed to reduce and control inflation as it has never fell below the double digit level throughout the 1990's.

Such a failure is due to several reasons. One of the main reasons is lack of discipline in managing the macroeconomic policies due to the absence of strict ex ante rule based stabilization policy. Under such circumstances, macroeconomic policies management has high content of discretionary measures, which are not always optimal in a situation when adequate institutional independence is not obtained. For example, throughout the 1990's monetary authorities in Romania and FR Yugoslavia were not able to resist pressures, frequently of political nature, and consequently carried out inconsistent monetary policy. Indirect financing of public deficit through quasi fiscal operations was characteristic for Romania and it was aimed towards subsidizing various sectors of the economy through the commercial banking sector.

In the case of FR Yugoslavia the need for monetization of public deficit was motivated by the increased public expenditures caused by the need to finance the military operations. In addition, inflation in FR Yugoslavia was lower than one should have expected having in mind the expansionary fiscal policy, which was due to the still existing price controls imposed by the government. There is an estimate that the prices of even up to 60 percent of all the goods are controlled directly or indirectly by the government. The case of Romania and FR Yugoslavia points out the importance of the relationship between the monetary and fiscal policy for successful implementation of stabilization policy. In these two countries fiscal policy objectives are realized through the monetary policy.

To some extent Albania may be considered as an exception within this group, although one should wait to assess the sustainability of the reduced inflation in a

longer run. The reason for that is the fact that the inflation in Albania has been reduced once to a single digit level (6.0 percent in 1995), but it has accelerated again and in 1997 reached 42.1 percent. It seems that the implementation of ESAF arrangement concluded with the IMF in 1998 introduced again discipline in managing macroeconomic policies, and inflation has been reduced sharply again.

Choices made with regard to the stabilization strategies had implications on the growth in Romania, Bulgaria (until mid-1997), FR Yugoslavia, and to a lower extent in Albania. Implementation of monetary targeting strategy in most of these countries was associated with lack of control over monetary and fiscal policy, with the monetary authorities not being able to defend their independence and accountability. Hence, GDP movements in these countries showed a lack of evidence that lasting economic recovery was achieved. In Romania, real GDP decline from the beginning of the transition was reversed into positive growth, but it proved unsustainable in a medium run. The recession was renewed in 1997 and lasted for several years. Similar developments were recorded in Bulgaria, where negative real GDP growth rates were recorded in the period 1992-1997, with the exception of 1994 and 1995 when quite modest positive growth rates were realized. In FR Yugoslavia, deep recession from the period 1992-1994 were replaced by positive economic growth, although it was not fast enough to provide sufficient economic recovery.

Table 5

Prices

(percentage change, end-year)

Country	Prices*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	236.6	30.9	15.8	6.0	17.4	42.1	8.7	-1.0	1.7
Bosnia and Herzegovina									
- Federation	n.a.	n.a.	n.a.	n.a.	7.7	13.6	1.8	-1.0	3.0
- Rep. Srpska	n.a.	n.a.	n.a.	n.a.	-17.7	-10.0	5.6	14.0	3.0
Bulgaria	79.2	63.9	121.9	32.9	310.8	578.6	0.9	6.2	5.0
Croatia	938.2	1,149.0	-3.0	3.8	3.4	3.8	5.4	4.4	8.0
FR Yugoslavia**	122.1	8,926.4	n.a.	3.3	78.6	91.5	21.6	29.9	n.a.
Macedonia*	1,935.0	241.8	55.0	9.0	-0.6	2.6	-2.4	2.3	5.5
Romania	199.2	295.5	61.7	27.8	56.9	151.4	40.6	54.8	40.0

*/ Consumer prices, with the exception of Croatia and Macedonia (excl. 2000), where retail prices are presented; Source: EBRD, Transition Report 2000

**/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

Contrary to this group of countries, the remaining transition countries from Southeast Europe (Bosnia and Herzegovina, Bulgaria (after 1997), Croatia and Macedonia) that adopted rule based stabilization policy were very successful in obtaining price stability, and created solid base for long-term growth recovery. They implemented exchange rate targeting stabilization strategy, where money supply growth was subdued to maintaining the exchange rate objective. As a result, inflation rate in these countries was lowered to levels close to those realized in the industrial countries.

In these countries, price stability achieved had positive growth implications, which is consistent with the empirical evidence. After introducing exchange rate targeting stabilization strategy in the last quarter of 1995 Macedonia realized continuous positive real GDP growth rates. Similar economic performance was realized by Croatia. In the case of Bulgaria, after the introduction of the currency board in mid-June 1997, recession was stopped again and continuous positive economic growth was realized.

There are two sub-groups, however, within this group of countries. In the first sub-group are countries (Bosnia and Herzegovina and Bulgaria), which adopted currency boards, i.e. irrevocably fixed exchange rates against the DEM. They obtained price stability but gave up the opportunity to use the exchange rate for adjusting the balance of payment and eliminating the effects from external shocks.

On the other hand, Croatia and Macedonia de facto adopted fixed but adjustable exchange rate, which served as an intermediate target. Therefore, exchange rate can still be used for balance of payment adjustments. In addition, these countries avoided the risk of adopting currency board at exchange rate level, which might not have been fundamental equilibrium exchange rate. Successful implementation of the exchange rate targeting based stabilization policy allowed the central banks in Croatia and Macedonia to gain reputation and credibility for their monetary policy. Exchange rates were de facto pegged against DEM, where in the case of Croatia a fluctuation band was targeted, and in the case of Macedonia specific level was targeted. Basically, monetary authorities in these countries "imported" the credibility of the Bundesbank. Selected stabilization policy resulted in improved discipline of all macroeconomic policies. Among them, one should particularly point out the fiscal policy discipline.

Under such circumstances, growth implications of the stabilization strategy were mostly favorable. In Croatia output recovery was good, while in Macedonia output performance was modest due to the lack of restructuring in the enterprise and financial sectors .

Table 6

Unemployment

(in per cent of labor force)

Country	Unemployment*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	27.9	28.9	19.6	16.9	12.4	14.9	17.8	18.0	n.a.
Bosnia and Herzegovina									
- Federation	n.a.	n.a.	n.a.	n.a.	n.a.	37.0	38.0	40.0	n.a.
- Rep. Srpska	n.a.	n.a.	n.a.	n.a.	n.a.	37.0	38.0	40.0	n.a.
Bulgaria	15.3	16.4	12.8	11.1	12.5	13.7	12.2	16.0	n.a.
Croatia	13.2	14.8	14.5	14.5	10.0	9.9	11.4	13.6	n.a.
FR Yugoslavia**	n.a.	n.a.	n.a.	24.7	26.1	25.5	25.4	n.a.	n.a.
Macedonia	27.8	28.3	31.4	37.7	n.a.	36.0	34.5	32.4	n.a.
Romania	8.2	10.4	10.1	8.2	6.5	7.4	10.4	11.5	n.a.

*/ Source: EBRD, Transition Report 2000

**/ In percent of unemployed plus employment; Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

Realization of the stabilization objective came at a cost for the observed countries from Southeast Europe. Financial discipline of the authorities, strict implementation of the macroeconomic package of prudent fiscal, monetary and wage policy, and structural reforms aimed at enterprise restructuring and financial sector rehabilitation resulted in increase in unemployment. This process was intensified by the cleaning of the banks' balance sheets from bad loans. As a result, the share of unemployed persons in the labor force reached very high levels, especially in Bosnia and Herzegovina and Macedonia (40 percent and 32.4 percent, respectively). In the other observed countries unemployment rate also remained in the region of double digit levels. One may argue that the official unemployment rate is overestimated, because the share of informal sector in the economy is high in these countries. One the other hand, however, one may argue that presented figures are not overestimated, because they do not include those individuals who are officially considered as employed, although they work in loss-making companies whish are to be reconstructed or closed in the future. In all of the analyzed countries unemployment rates in 1999 were higher than at the beginning of the transition. However, this was not the case with the most advanced countries in transition. With the exception of Macedonia and Croatia there was a yo-yo approach in the policy implementation and yo-yo movement of the growth, which resulted in backwardness in a long run.

Table 7

Misery index

(in percent)

Country	Misery index*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	264.5	59.8	35.4	22.9	29.8	57.0	26.5	17.0	n.a.
Bosnia and Hercegovina									
- Federation	n.a.	n.a.	n.a.	n.a.	n.a.	50.6	39.8	39.0	n.a.
- Rep. Srpska	n.a.	n.a.	n.a.	n.a.	n.a.	27.0	43.6	54.0	n.a.
Bulgaria	94.5	80.3	134.7	44.0	323.3	592.3	13.1	22.2	n.a.
Croatia	951.4	1,163.8	11.5	18.3	13.4	13.7	16.8	18.0	n.a.
FR Yugoslavia	n.a.	n.a.	n.a.	28.0	104.7	117.0	47.0	n.a.	n.a.
Macedonia	1,962.8	270.1	86.4	46.7	n.a.	38.6	32.1	34.7	n.a.
Romania	207.4	305.9	71.8	36.0	63.4	158.8	51.0	66.3	n.a.

*/ Sum of inflation and unemployment

Effects of the disinflation efforts may also be viewed through the changes in the misery index. Table 7 shows that misery index registered very high levels in the years prior to the adoption and implementation of stabilization policies. However, misery index remained at relatively high levels even after the price stability was obtained. In 1999 compared to 1998 misery index increased in all observed countries, with the exception of Albania and part of Bosnia and Herzegovina.

1.4. Medium-term sustainability of stabilization effects

Effects of implemented stabilization strategies should also be assessed in a medium run. This requires evaluation of the sustainability of achieved price stability and renewed growth through analysis of the movements of other macroeconomic

variables, such as broad money, lending interest rates, current account deficit, external debt, general government balance and general government expenditure.

Table 8

Broad money

(percentage change)

Country	Broad Money (end - year)*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	152.7	75.0	40.6	51.8	43.8	28.5	20.6	22.3	n.a.
Bosnia and Herzegovina	n.a.	n.a.	n.a.	8.5	96.2	52.0	31.3	33.9	n.a.
Bulgaria	537.0	47.6	78.6	39.6	124.5	359.3	9.6	11.4	n.a.
Croatia	n.a.	n.a.	75.7	39.3	49.1	38.3	13.0	-1.1	n.a.
FR Yugoslavia**	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Macedonia	n.a.	n.a.	8.9	-59.3	0.5	19.6	14.0	30.0	n.a.
Romania	79.6	141.0	138.1	71.6	66.0	104.9	48.9	44.9	n.a.

*/ Source: EBRD, Transition Report 2000

**/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

Table 8 shows that monetary authorities in countries that adopted monetary targeting based stabilization strategy have not managed to put under tight control in a longer-term broad money growth. Thus, in 1999 end-year growth of broad money in Albania and Romania was estimated to equal 22.3 percent and 44.9 percent, respectively. On the other hand, the most of the countries that adopted stabilization strategy based on exchange rate targeting were successful in establishing tight control over money supply growth. Relatively high monetary growth in Macedonia in 1999 is outlier, while in Bosnia and Herzegovina it remained high, although somewhat lower compared to the period before the implementation of the stabilization policy.

Table 9

Lending interest rates

(percentage change)

Country	Lending rate*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	39.0	30.0	20.0	21.0	28.2	43.0	25.0	25.8	n.a.
Bosnia and Herzegovina	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Bulgaria	64.6	83.7	117.8	51.4	480.8	13.9	13.3	14.4	n.a.
Croatia	2,332.9	59.0	15.4	22.3	18.5	14.1	16.1	13.5	n.a.
FR Yugoslavia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Macedonia	1,100.0	367.0	159.8	46.0	21.6	21.4	21.0	20.0	n.a.
Romania	n.a.	86.4	61.8	47.5	53.6	55.6	58.9	62.0	n.a.

*/ Source: EBRD, Transition Report 2000

Behavior of interest rates in the transition countries of Southeast Europe after achieving price stability also draws attention. One can understand that in countries which adopted exchange rate targeting stabilization policy interest rates were high. This was consistent with the intention to realize net capital inflow and to maintain the exchange rate at the targeted level. In this countries, however, interest rates remained

high even after achieving price stability. For example, in 1998 and 1999 interest rates in Bulgaria and Macedonia remained almost unchanged (at around 14 percent and 20 percent, respectively) although inflation was kept well under control at levels close to those in the developed countries. This is compatible with the idea that reduction in interest rates should follow once low inflation is assessed as permanent. However, money markets played the role of shock-absorber in case of external shocks. Thus, as it was the case with Macedonia, when severe external shock (Kosovo crises) hit the economy in the first half of 1999, interest rates on the domestic money market increased twofold at the expense of maintaining exchange rate stable at the targeted level, and creating higher fluctuations in the economic activity.

Table 10

General government expenditures

(in per cent of GDP)

Country	General Government Expenditure*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	46.7	40.4	36.4	33.4	30.3	29.4	30.7	32.6	n.a
Bosnia and Herzegovina	n.a	n.a	n.a	39.3	52.7	40.9	53.3	50.5	n.a
Bulgaria	43.6	48.1	45.7	41.3	42.3	33.5	35.8	40.7	n.a
Croatia	36.1	35.0	40.6	44.9	45.3	44.4	46.4	49.0	n.a
FR Yugoslavia**	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Macedonia	49.1	53.6	45.8	39.0	37.1	35.3	35.8	38.0	n.a
Romania	42.0	34.2	33.9	34.7	33.8	34.3	35.2	36.8	n.a

*/ Source: EBRD, Transition Report 2000

**/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

Important element in assessing the medium-term sustainability of the achieved price stability are developments in the fiscal area. Table 10 shows that relative to the initial stage of the transition (1992), the largest cut in the share of general government expenditures in GDP is realized in Albania (by 14.1 percentage points, reduced to 32.6 percent in 1999), and in Macedonia (by 11.1 percentage points, reduced to 38.0 percent in 1999). In other countries, share of general government expenditures in GDP declined, although at a slower pace, with the exception of Croatia, where the share actually increased.

Table 11

General government balance

(in per cent of GDP)

Country	General Government Balance*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	-23.1	-15.5	-12.6	-10.1	-12.1	-12.6	-10.4	-11.3	-9.5
Bosnia and Herzegovina	n.a.	n.a.	n.a.	-0.3	-4.4	-0.5	-7.4	-5.7	-5.0
Bulgaria	-2.9	-8.7	-3.9	-5.7	-10.4	-2.1	0.9	-0.9	-1.5
Croatia	-3.9	-0.8	1.2	-1.4	-1.0	-1.4	-0.4	-6.2	-6.7
FR Yugoslavia**	n.a.	n.a.	n.a.	n.a.	n.a.	-7.0	-6.1	n.a.	n.a.
Macedonia	-9.8	-13.4	-2.7	-1.0	-1.4	-0.4	-1.8	0.0	1.0
Romania	-4.6	-0.4	-2.2	-2.5	-3.9	-4.6	-5.0	-3.5	-4.0

*/ Source: EBRD, Transition Report 2000

**/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

The picture about the developments in the fiscal area becomes more clear when general government balance as percent of GDP is taken into account. With the exception of Macedonia and Bulgaria, where deficits were maintained at a reasonable level, or even surplus is registered, in other countries general government deficits remained at excessively high levels (Albania being an extreme case, with the deficit being projected to amount to 9.5 percent in 2000), regardless of the type of stabilization strategy implemented. This is very important indication, especially for the countries, which pursued exchange rate targeting, because tight fiscal control is of essential importance for the success of the stabilization in a medium run. Therefore, price stability in Croatia and Albania may prove unsustainable in the future.

Table 12

Current account balance

(in per cent)

Country	Curent Account / GDP*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	-68.5	-30.1	-14.4	-7.2	-9.1	-12.1	-6.1	-8.0	n.a.
Bosnia and Hezcegovina	n.a.	n.a.	-14.1	-10.3	-27.3	-31.0	-28.2	-17.4	n.a.
Bulgaria	-4.2	-10.1	-0.3	-0.2	0.2	4.2	-0.5	-5.5	n.a.
Croatia	3.2	5.6	5.7	-7.7	-5.8	-11.6	-7.1	-7.6	n.a.
FR Yugoslavia**	-5.0	n.a.	n.a.	n.a.	-8.0	-10.1	-6.4	n.a.	n.a.
Macedonia	-0.8	0.6	-5.3	-5.0	-6.5	-7.5	-8.0	-4.0	n.a.
Romania	-8.0	-4.5	-1.4	-6.3	-8.9	-6.8	-7.0	3.8	n.a.

*/ Source: EBRD, Transition Report 2000

**/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

Sustainability of the price stability in a medium term is also dependent on the developments in the external sector. Table 12 shows that the observed countries from Southeast Europe faced challenges in their current accounts during the 1990's. High current account deficit as a percent of GDP, exceeding the 5 percent deficit as a rule of thumb, was a common characteristic for all these countries even in the period after the inflation was brought down and put under control. No rule can be associated with

these countries with regards to the current account deficit. No matter whether the growth accelerates or decelerates, there was a permanent deficit in the current account. This indicates that the deficit was caused mainly by high domestic demand which was not related to investment (mostly for consumption purposes). From a macroeconomic point of view this indicates inefficient use of foreign savings.

In 1999, current account deficit was excessively high in Bosnia and Herzegovina (17.4 percent). To some extent, high current account deficit can be justified in the case of transition economies, due to their need to import foreign savings in order to increase investment as main ingredient for long-term growth. Nevertheless, current account deficits in the observed transition economies are too high, even without considering the structure of imports by their economic use, and may jeopardize the macroeconomic stability. This is particularly the case with Croatia that in the period 1997-1999 had average annual current account deficit of 8.7 percent of GDP.

Table 13

External debt

(in per cent)

Country	External Debt / GDP*								
	1992	1993	1994	1995	1996	1997	1998	1999 est.	2000 proj.
Albania	130.1	78.9	52.4	27.6	27.3	33.1	28.7	26.5	n.a.
Bosnia and Herzegovina	n.a.	n.a.	n.a.	180.0	132.1	119.1	76.5	70.6	n.a.
Bulgaria	160.4	127.7	116.8	77.4	97.7	95.8	83.7	80.5	n.a.
Croatia	26.7	24.2	20.7	20.2	26.7	37.1	44.1	48.4	n.a.
FR Yugoslavia**	n.a.	n.a.	63.0	58.9	54.6	57.9	62.2	n.a.	n.a.
Macedonia	32.7	32.6	24.9	23.8	25.3	30.7	41.0	43.6	n.a.
Romania	16.6	16.1	18.3	24.1	29.5	30.1	24.0	27.1	n.a.

*/ Source: EBRD, Transition Report 2000
**/ Source: WIIW, Statistical Background Data, workshop 'Long-term development in South-East Europe', 2000

Table 13 shows that some of the countries which were very successful in reducing and controlling the inflation in a short run, may have certain vulnerabilities to maintain the price stability in a medium run, which creates variability of output as well. Thus, Croatia and Macedonia, which pursue exchange rate targeting, doubled their external debt to GDP ratio in the period 1995 – 1999. This raises the question about the source of foreign currency inflows that enable the maintenance of the exchange rate at the targeted level and sustainability to do that in a medium run. Although Bulgaria almost halved the external debt to GDP ratio in the period from 1992 to 1999, it was estimated to equal 80.5 percent in 1999, which is excessively high. On the other hand, countries that pursued monetary targeting kept their external debt to GDP ratio almost unchanged.

2. Econometric analysis

In order to quantify the relations between the main macroeconomic variables in transition countries from the group that has been observed, as well as to identify the medium and short term effects of their stabilization policies, an econometric analysis was performed. Unfortunately, this analysis excludes FR Yugoslavia and Bosnia and Herzegovina, due to the lack of enough long series of data. The analyzed period for Croatia, Romania, Bulgaria and Albania is 1991:01 – 2000:12, therefore it refers to the first ten years of transition process. For Macedonia shorter period was analyzed (1992:04 – 2000:12), starting from the monetary independence onwards. The variables which are used for this analysis were following: broad money supply, industrial output (or GDP), exchange rate, lending interest rates and prices.

Due to the unstationarity of the series (absence of the movements around the same mean, same variance and covariance in the first period of transition), the econometric analysis is performed by using the first difference of the original series. In order to have broader approach and to explore different types of relations, different econometric tools have been used:

- Correlation coefficients;
- Regression analysis;
- Variance decomposition and Impulse response function within VAR analysis.

2.1. Correlation coefficients

Correlation coefficient shows the character of relationship between the movements of two variables (positive or negative) and how strong or weak is that relationship. It can take a value in the range –1 to +1, meaning:

a) strong negative relationship if the coefficient is close to –1, indicating that variables don't move in the same direction;
b) strong positive relationship if the coefficient is close to +1, indicating that variables move in the same direction;
c) no correlation between variables if the coefficient is around 0.

$$Corr\ (x, y) = Cov\ (x, y) / SDx\ SDy$$

Corr – correlation coefficient;
Cov – covariance of x and y;
SDx – standard deviation of x;
SDy – standard deviation of y.

The analysis of the correlation coefficients between the main macroeconomic variables is important to see which categories move together in the same direction. What is of great interest for the effects of stabilization policies in transition countries

are the variables which are correlated to the inflation. Namely, in all analyzed countries the price level is positively and, in most of the cases, highly correlated to the exchange rate (Macedonia: 0.41, Croatia: 0.06; Romania: 0.64; Bulgaria: 0.84; Albania: 0.52). This confirms that the changes in the exchange rate are usually followed by the changes in the prices. Therefore, the stable exchange rate level is a precondition for the price stability in the economy.

At the same time, in the analyzed countries the correlation coefficient between the prices and money supply is a small positive or even a negative number which indicates negligible or even no correlation between these two variables (Macedonia: 0.11, Croatia: -0.39; Romania: 0.10; Bulgaria: 0.10; Albania: 0.06). Namely, due to the unstable money demand in all of the transition countries a strong relationship between money supply and prices on a long run could not be found.

2.2. Regression analysis for inflation[1]

Regression analysis is very useful instrument for analyzing, because it can provide a broader view on all or on the most important variables which are related to the analyzed variable (correlation analysis means only dual – relationship). Therefore, it can distinguish the influence of different variables and measure their relative importance for the analyzed variable.

The basic regression equation for inflation, that was estimated for the analyzed countries, has the following form:

$$dp(t) = c + dp(t\text{-}n) + dm(t\text{-}n) + dlir(t\text{-}n) + der(t\text{-}n) + dip(t\text{-}n) + s1 \ldots s12 + d1 \ldots dn$$

p – price index;
m – broad money supply;
lir – lending interest rates;
er – exchange rate;
ip – industrial output;
c – constant term;
d – first difference of the variables;
s1…s12 – seasonal factors;
d1…dn – dummies variables;
t-n – time lags.

For different countries, different levels of time lags have been put in the equations in order to get better result. The estimation of the equations for inflation was done by using the method of Ordinary Least Squares (OLS).

[1] The results from regression analysis (both for inflation and industrial output) were limited by the series of data for macroeconomic variables that were available for this research.

Table 14

Coefficients of elasticity for inflation

Country	Previous inflation	Broad money supply	Lending interest rate	Exchange rate	Industrial output
Macedonia	0.37 (t-1)	0.0003 (t-2)	-0.002 (t-2)	1.02 (t-1)	0.005 (t-2)
Croatia	/	-0.0001 (t-3)	-0.098 (t-2)	0.58 (t-1)	0.03 (t-12)
Romania	0.37 (t-1)	0.0008 (t-1)	/	0.02 (t-1)	/
Bulgaria	0.05 (t-1)	0.13 (t-1)	-0.21 (t-1)	70.7 (t-1)	0.0097 (t-3)
Albania	0.08 (t-1)	-0.13 (t-1)	0.13 (t-3)	0.18 (t-1)	/

This table shows high resistance of the inflation in some of the analyzed countries. Because of this, the countries without strategy against the inflation on permanent basis, have trouble in coping with inflation. It is very obvious in the case of Romania, mainly due to the quasi-fiscal financing. In addition, in all of these countries positive coefficients of elasticity of inflation against the exchange rate were registered.

Macedonia: The regression analysis for inflation in Macedonia shows a strong relevance of the exchange rate for the price movements in the economy. It is typical for a small open economy the exchange rate to have strong influence over the price level, which is clearly shown in Macedonian case. The money supply is not significant for the price developments in this economy. The inflation rate in Macedonia is subject of seasonal influence in January (S1) – usual increase of the prices due to the seasonal fall of domestic supply and October (S10) – due to the usual switch from lower to higher tariff of electricity prices up to 1999. A big explaining power for the prices in Macedonia has the dummy variable for April 2000, when significant increase in the price level was registered due to VAT introduction and the retained higher tariff for electricity prices. The variables included in the regression equation for prices in Macedonia can explain 62% of the variations in prices in this economy.

Croatia: In explaining variations in the price level in Croatian economy through regression analysis, the most significant variable shown to be the industrial output and banks' lending interest rates. It is very important to point out the importance of the exchange rate relative to the one of the money supply. That indicates that price stability in this country is more influenced by the exchange rate developments than by the money supply movements. The seasonal factors for January (S1), July (S7), August (S8) and December (S12) are also shown to be significant. In addition, a dummy variable for June 1995 was included. All these variables explained 64% of the variations in the prices in Croatian economy.

Romania: According to significance level, variations in the prices in Romania, besides their movements in the previous period, are mainly caused by the exchange rate developments. On the contrary, the money supply is not relevant for the inflation in Romanian economy. The only seasonal factor important for explaining price level in this country is October (S10). The mentioned four variables explained 70% of the variations in the inflation in Romanian economy.

Bulgaria: The case of Bulgaria is quite unique compared to the other analyzed countries. Namely, due to the switch from monetary targeting strategy to currency board, the dummy variables for the first months of 1997 are very significant, with extremely high value of coefficients. That means the adoption of the currency board was of great importance for the price developments in Bulgarian economy and the crucial point for bringing down the inflation. Therefore, the exchange rate is very important for the inflation in this economy. Under the currency board, where the money supply is strictly related to the foreign exchange reserves and the fixed exchange rate, money supply is also relevant for the price level. The lending interest rates, as well as the economic activity expressed through GDP, are not of relevance for the inflation, while the seasonal factors for March (S3), May (S5), June (S6) and September (S9) have significant influence. The regression equation for prices in Bulgarian economy has very high R-squared of 98%, but it should be taken with caution, due to specific circumstances in this economy.

Albania: Similar to Bulgaria, in regression equation for the price level in Albania the greatest significance and the biggest coefficient has the dummy variable. In Albanian case, the dummy variable refers to the financial crises in this country in the first quarter of 1997, that had influence over the price developments. Besides this, the biggest influence over the inflation level in Albanian economy has the exchange rate. The money supply and banks' lending interest rates are considered as less or not significant. Also, the seasonal factors for June (S6) and July (S7) are shown to be relevant. In total, 69% of the variations in the price developments in Albanian economy are explained by this regression equation.

2.3. Regression analysis for industrial output

The basic regression equation for industrial output, that was estimated for the analyzed countries, has the following form:

$$dip(t) = c + dip(t\text{-}n) + dm(t\text{-}n) + dlir(t\text{-}n) + der(t\text{-}n) + dp(t\text{-}n) + s1 \ldots s12 + d1 \ldots dn$$

ip – industrial output;
m – broad money supply;
lir – lending interest rates;
er – exchange rate;
p – price index;
c – constant term;
d – first difference of the variables;
s1…s12 – seasonal factors;
d1…dn – dummies variables;
t-n – time lags.

Since the series of industrial output was not found for Bulgaria, Gross Domestic Product – GDP has been used for this country as a measure of the economic activity. Due to the lack of the series for credit expansion in the analyzed countries,

this variable was not put in the equation for the economic activity in these economies, although it is very important. The underline assumption is that the credits will be in line with the money supply growth in the countries. Like in the case of inflation equations, for different countries, different levels of time lags have been taken into consideration in order to get better result. The estimation of the equations for industrial output was done by using the method of Ordinary Least Squares (OLS).

Table 15

Coefficients of elasticity for economic activity

Country	Previous industrial output	Broad money supply	Lending interest rate	Exchange rate	Inflation
Macedonia	-0.67 (t-1)	0.005 (t=0) 0.003 (t-1)	/	/	-1.7 (t-1) 0.89 (t-10)
Croatia	-0.398 (t-1)	-0.001 (t-2)	1.379 (t-2)	4.60 (t-1)	0.25 (t-11)
Romania	-0.30 (t-1)	0.001 (t-2)	/	-0.002 (t-1)	-0.06 (t-10)
Bulgaria	-0.17 (t-1)	-1.57 (t-1)	-0.61 (t-2)	91.78 (t-1)	-0.26 (t-12)
Albania	/	/	/	/	/

The summarized results for the economic activity in the analyzed countries refer to the theory of diminishing returns of capital. Namely, the low level of economic activity (negative coefficients of the industrial output in the previous period) means a basis for high rates of growth in the future. In opposite, while increasing the capital level in the economy, the marginal productivity will go down.

Macedonia: According to the regression equation, the economic activity in Macedonia is influenced by the level of inflation in the economy, which is relevant not only on a short run but also on a longer term (time lag of 10 months). In addition, money supply is very important for supporting economic activity in the country. Seasonality is very strong in explaining economic activity in Macedonia even for five months in a year (February, March, June, September and October). The presented regression equation for the industrial output in Macedonia can explain 72% of the variations in economic activity in this country.

Croatia: The industrial output in Croatia is under great influence of seasonality – even six seasonal factors are significant in the regression equation (for January, March, August, September, October and December). Besides this, the lending interest rates are very significant for the economic activity in this country, referring to the high credit dependence of the economic entities. Between the other variables explaining the industrial output in Croatia, it is important to point out the significance of the price level with a big lag of 11 months, indicating that the price stability in a long run is very important for economic activity. In addition, two dummies are included in the equation: D2 for January 2000 and D3 for July 1995. All included variables explain almost 76% of the total variations in Croatian industrial output.

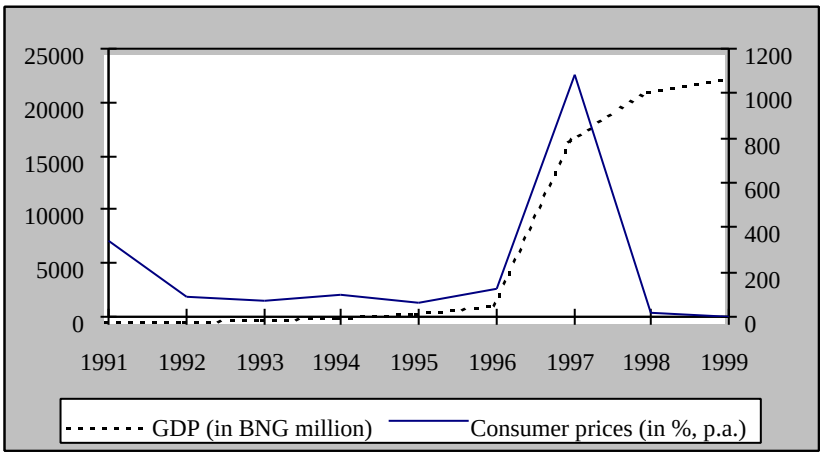
Romania: The economic activity in Romania is caused by the main macroeconomic variables, like money supply, exchange rate and inflation. Similar to the other countries, the price stability on a long run (price level with 10 months lag has been

included) is important for the economic activity in Romania too. Monetary policy is also important for intensifying economic activity in this country. The industrial output in Romanian economy is strongly affected by seasonal factors in January, March, July and December. A dummy variable for November 1997 shown to be significant for the economic activity in this country. In total, 62% of the variations in Romanian industrial output are explained by this equation.

Chart 1

GDP and Inflation developments in Bulgaria

(in BGN million)



Bulgaria: Like in the case of inflation, the regression analysis for economic activity in Bulgaria is quite problematic, due to the big changes in macroeconomic variables in 1997. This has resulted again with a big coefficient of dummy variable for 1997 in the regression equation for Bulgarian GDP, which is also highly significant. In addition, the money supply is also significant for the GDP developments in this country. The importance of the price level on the long run that has proved in other countries, is valid for Bulgaria too (price level is included with a lag of 12 months). The variables included in the regression equation for GDP in Bulgaria can explain 64% of the total variations.

Albania: Series of data for industrial output or GDP of Albania have been not found.

2.4. Impulse response function

Vector Autoregressive model operates with vectors and matrices of coefficients of variables. Each variable in the model is represented as a function of all other variables in the model and their values in the previous periods. The general form of VAR model is the following:

$$Xt = A1Xt\text{-}1 + \ldots + AnXt\text{-}n + BYt + Et$$

X – vector of endogenous variables;
Y – vector of exogenous variables;
A1…An; B – matrices of coefficients;
E – vector of residuals.

In this analysis, VAR has been used as an instrument for analizing the short-term policy effects (12-months period was considered). Within VAR analysis, the Impulse response function is especially important tool for analyzing. According to this function, any change in *Et* will cause some changes in *X* and *Y* variables, which will gradually disappear. Therefore, it gives a dynamic component of the analysis. The impulse response function, within VAR analysis, reveals the reaction of variables in a case of shock in the other variable and therefore it is very important tool for understanding the relations between the main macroeconomic variables.

In this respect, there are several relations, which are common for the analyzed countries:

1. The change in the price level is usually followed by adequate change in the industrial output. Namely, impulse response graphs show that decline in the prices (deflation) is followed by decline in the output, which proves the significance of the price stability for economic development sustainable on a long run;

2. The money supply developments are quite significant for price stability in all analyzed countries, but however the money supply developments are followed by variations in the price developments. That proves that due to the unstable money demand, the targeting of monetary aggregates is not most suitable for maintaining price stability in these economies;

3. The exchange rate developments are of great importance for the price level in the economy. Namely, the decline in the exchange rate level (appreciation of the national currency) in all these countries is followed by appropriate decline in the prices. In addition, the exchange rate has bigger influence over price developments relative to the money supply, which confirms the importance of the exchange rate for the price stability in small open economies.

2.5. Variance decomposition

Additional tool within VAR analysis is variance decomposition. Variance decomposition analysis can give a picture about contribution of different variables in the structure of total variations of one variable (12-months time period is usually observed). Therefore, it will describe the relative importance of different variable for the main macroeconomic variables. The variance decomposition analysis for the analyzed countries reveals the following main conclusions:

1. Variance decomposition of prices in analyzed countries shows that excluding the autonomous variations of the prices, the biggest part of the variations in price level is caused by variations in exchange rate (32.7% in Macedonia; 6.4% in Croatia; 68.9% in Romania; 76.4% in Bulgaria; 29.6% in Albania). The money supply in all of these countries is less important or it has small portion in the total variations (the case of Croatia where money supply is more important then the exchange rate, but causing only 11.5% of the variations in the inflation);

2. Variance decomposition of output (measured through the industrial production or GDP), besides the autonomous factors, is influenced by variations in money supply (13.7% in Macedonia; 11.6% in Croatia; 2.3% in Romania; 14.3% in Bulgaria), which confirms the importance of the monetary policy for the economic activity;

3. The share of the prices in the variance decomposition of output, which significantly vary between the analyzed countries (1.3% in Macedonia; 1.8% in Croatia; 0.4% in Romania; 14.3% in Bulgaria), refers to the importance of the price stability for economic activity in the country.

3. Conclusions

Evaluation of the short-term and medium-term effects of choosing and implementing stabilization strategy in the case of transition economies from Southeast Europe and the econometric analysis that was performed enable drawing of several conclusions. In addition, some recommendation for their future policies can be pointed out.

The stabilization policies in all of these countries were quite effective in bringing down the inflation. However, the countries that implement monetary policy based on exchange rate have been more successful in coping with inflation problem, then those using the money supply as an intermediary target of the monetary policy. In general, in all of these countries the exchange rate movements are very important for the inflation, therefore the stability of the exchange rate is an important precondition for achieving and maintaining the price stability in the country. The unstable money supply in the period of transition, can not be a good indicator for the prices. Finally, the exchange rate is far more transparent indicator for the future developments of the prices relative to the monetary aggregates and consequently the changes in the exchange rate are usually very quickly transferred over the price level.

Due to unstable money demand, money supply growth can not be used as an indicator for the future inflation and therefore monetary based stabilization would be inefficient. It has been proved in the case of Romania and FR Yugoslavia, where the inflation rate remained at two-digit level. At the same time, exchange rate based stabilization strategies in the 10-year transition period were very efficient in bringing down and controlling the inflation. Besides Macedonia and Croatia, a very good example for its efficiency is Bulgaria where the inflation was brought down after adoption of the currency board.

Therefore, the best option for this group of transition countries is monetary strategy based on the exchange rate. In most of the countries it is the exchange rate of the national currency against the Deutsche mark, due to the strong trade relationship with Germany and stability of its currency. At the same time, their currencies are related to the exchange rate against the Euro (taking into account the fixed shares of the Euro-currencies), on which should be the main focus in the future, considering the long term-term orientation of these countries towards European Union membership.

The consequence of the choice of exchange rate regime is the change in the distribution of short-term volatility between the foreign exchange market and the short-term money market. Namely, under exchange rate targeting strategy, the money supply and interest rates are subordinated on the exchange rate stability. As a consequence, the monetary policies based on exchange rate target can produce higher interest rate volatility on the money market. Finally, there would be a situation of lower volatility of inflation, but higher volatility in the economic activity. Under such conditions, the economic growth depends on foreign capital inflow and external financing of the current account deficit, considering low level of domestic saving. Therefore, in the analyzed countries from Southeast Europe the introduction of the exchange rate band is highly recommendable. It can provide a room for monetary policy changes that will prevent high interest rates volatility on the money market and at the same time the exchange rate will be kept within the target band. In addition, this

policy will be successful if the exchange rate targeting is performed under high foreign capital inflow.

One option of the exchange rate targeting is targeting the irrevocably fixed exchange rate in the form of the currency board. It is selected when policy makers are not able to control money supply growth (like in Bulgaria) or in countries being affected by war or other disasters (like in Bosnia and Hercegovina). This policy shown to be very efficient regarding inflation control, interest rates decline and economic growth enhancing. It made a basis for conducting structural reforms, especially in the financial sector. However, there is only short-term experience in implementing this regime, which refers to the period of foreign capital inflow, mainly caused by non-economic factors. The long-term implementation of this regime depends on its ability to enable monetary growth for maintaining economic development on the level of potential growth.

Regarding the economic activity, in all of these countries stability of prices on a long run has shown to be very important for increase of the output. In most of these countries, the positive rates of growth were achieved when inflation was settled down. Basically, the low and predictable rate of inflation is one of the main preconditions for investment and macroeconomic development sustainable on a long run. Therefore, maintaining of the price stability should be of biggest importance in these countries. The long-term price stability will enable a stable output growth, contributing to the overall stability in the economy.

In order to secure sustainability of the stabilization effects in a medium run it is necessary to design consistent package of macroeconomic policies. Clear distinction between the objectives of the monetary policy and fiscal policy is required, and tight fiscal policy is a precondition for success. In addition, external sector policies and wage policies should be consistent with the objectives of the stabilization strategy. Otherwise, as it was shown in the cases of individual countries in transition from Southern Europe (Bulgaria, Croatia and Macedonia – external debt to GDP ratio, Croatia – current account to GDP ratio, Croatia and Albania – general government balance to GDP ratio etc.) stabilization effects can be easily put in jeopardy in a medium run.

Structural and institutional reforms are very important for restoring and enhancing economic growth on a long run in the region. The completing of the legal framework, improvement of the fiscal system and tax collection, development of the banking and financial system, building an adequate social safety system, enterprise restructuring, effective corporate governance and markets development, are the key challenges of this phase of transition and they remain at the top of the agenda for all countries in the region. The implementation of these reforms can be made over a period of time, taking into account their magnitude and complexity. Even more, the effects of these reforms can be expected with bigger time lag, because they refer to changes in expectations, patterns of behavior and practices of economic entities. Therefore, this phase of the transition process is going to be longer and, for the future development of the countries in the region, it is very important to be successfully performed.

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Appendices for econometric results by countries

Symbols:

DP = prices;
DM = money supply;
DER = exchange rate;
DLIR = lending interest rates;
DIP = industrial production;
DGDP = Gross Domestic Product.
(D stands for the first difference of the variable)

S1 = sesonality in January;
S2 = sesonality in February;
S3 = sesonality in March;
S4 = sesonality in April;
S5 = sesonality in May;
S6 = sesonality in June;
S7 = sesonality in July;
S8 = sesonality in August;
S9 = sesonality in September;
S10 = sesonality in October;
S11 = sesonality in November;
S12 = sesonality in December.

D1, D2, D3,… = dummy variables

Appednix 1: Econometric analysis for Macedonia

Correlation matrix

	DER	DM	DP
DER	1	0.161981	0.413583
DM	0.161981	1	0.111277
DP	0.413583	0.111277	1

Regression equation for prices

Dependent Variable: DP
Method: Least Squares

Sample(adjusted): 1993:04 2000:12
Included observations: 93 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.145904	0.186411	-0.782701	0.436
DP(-1)	0.37338	0.079669	4.686658	0
DM(-2)	0.000273	0.000284	0.962297	0.3387
DIP(-2)	0.005038	0.010045	0.501588	0.6173
DLIR(-2)	-0.00166	0.002484	-0.668392	0.5057
DER(-1)	1.024108	0.213132	4.805048	0
S1	2.22671	0.628232	3.544408	0.0006
S10	2.179595	0.543771	4.008292	0.0001
D1	5.284218	1.485954	3.556111	0.0006

R-squared	0.619433	Mean dependent var	0.994624
Adjusted R-squared	0.583189	S.D. dependent var	2.222189
S.E. of regression	1.434665	Akaike info criterion	3.651506
Sum squared resid	172.8942	Schwarz criterion	3.896596
Log likelihood	-160.795	F-statistic	17.09044
Durbin-Watson stat	2.24732	Prob(F-statistic)	0

Regression equation for industrial output

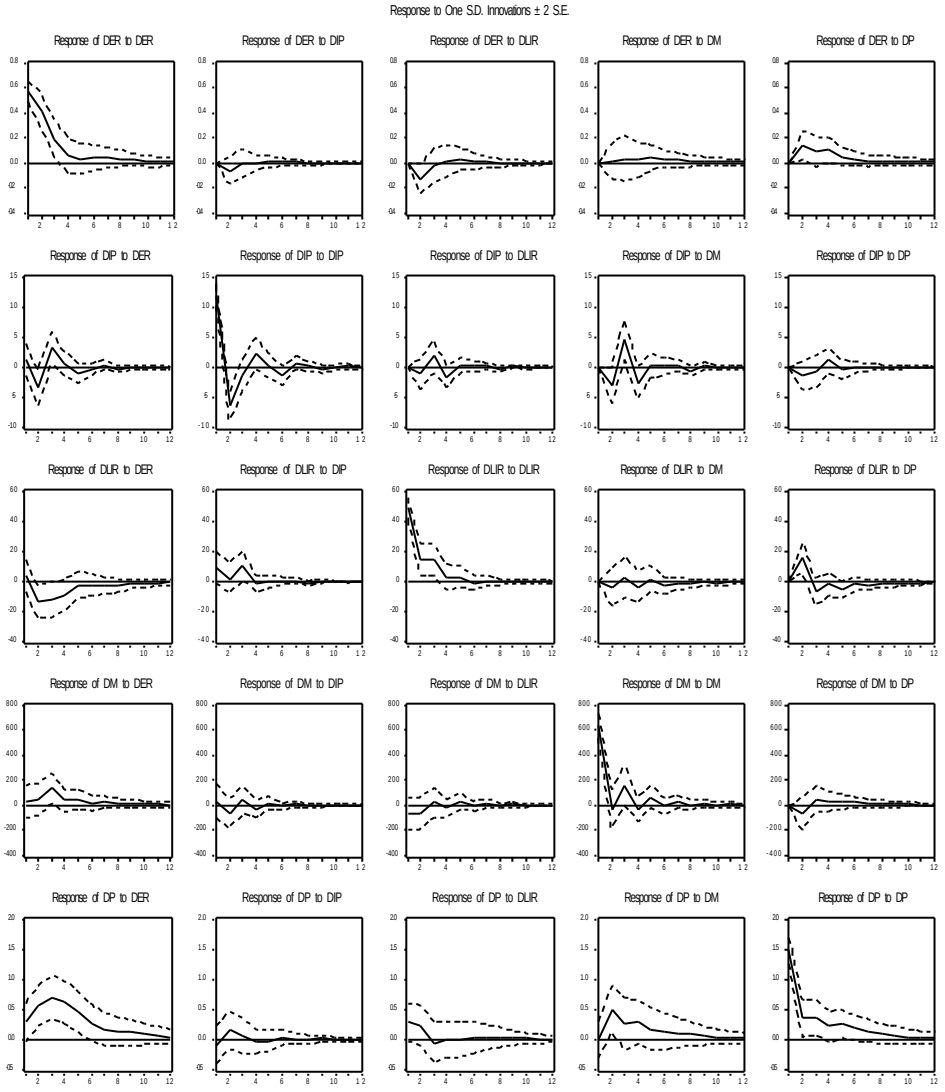
Dependent Variable: DIP
Method: Least Squares

Sample(adjusted): 1993:12 2000:12
Included observations: 85 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-12.05862	1.656963	-7.27754	0
DIP(-1)	-0.672229	0.082033	-8.194587	0
DP(-1)	-1.704276	0.523066	-3.258241	0.0017
DP(-10)	0.89707	0.465318	1.927864	0.0577
DM	0.005012	0.001448	3.461937	0.0009
DM(-1)	0.002665	0.001858	1.434839	0.1555
S2	34.39036	4.402513	7.81153	0
S3	37.26612	4.59528	8.109651	0
S6	17.8644	3.900344	4.580211	0
S9	18.82726	3.793354	4.963224	0
S10	19.7126	3.807816	5.176878	0

R-squared	0.72531	Mean dependent var	0.098824
Adjusted R-squared	0.688189	S.D. dependent var	16.30468
S.E. of regression	9.104536	Akaike info criterion	7.37566
Sum squared resid	6134.051	Schwarz criterion	7.691768
Log likelihood	-302.4656	F-statistic	19.53943
Durbin-Watson stat	2.122877	Prob(F-statistic)	0

Impulse response function



Variance decomposition

Variance Decomposition of DER:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	0.572447	100	0	0	0	0
2	0.735494	92.65256	0.626537	2.962376	0.058696	3.699826
3	0.767339	91.53908	0.578104	2.770367	0.287003	4.825445
4	0.777286	89.77232	0.563518	2.734879	0.389395	6.539887
5	0.782035	88.86647	0.576024	2.897699	0.760494	6.899317
6	0.784752	88.52086	0.58222	2.91348	0.920581	7.062859
7	0.786827	88.37756	0.58311	2.908174	1.041018	7.090139
8	0.78811	88.31238	0.581241	2.899733	1.086546	7.120098
9	0.788839	88.26485	0.580692	2.896549	1.116285	7.141628
10	0.789164	88.23606	0.580603	2.895845	1.12777	7.159722
11	0.789338	88.2174	0.580599	2.896741	1.137187	7.168076
12	0.789434	88.20789	0.580571	2.897045	1.141974	7.172519

Variance Decomposition of DIP:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	12.1537	1.132387	98.86761	0	0	0
2	14.56894	6.366631	88.37827	0.482815	3.963268	0.80902
3	15.79386	9.426229	75.84362	1.765792	12.08192	0.882437
4	16.28742	9.020222	73.31226	2.586237	13.77579	1.305491
5	16.33105	9.361431	72.92908	2.64033	13.71344	1.355718
6	16.39523	9.332052	73.06989	2.636947	13.61566	1.345451
7	16.42538	9.385279	73.02246	2.633015	13.61865	1.340598
8	16.43941	9.394108	72.90742	2.653615	13.70559	1.339269
9	16.44591	9.387881	72.88273	2.661649	13.72197	1.345764
10	16.44639	9.391237	72.87858	2.662068	13.72133	1.346777
11	16.44734	9.390175	72.88115	2.661885	13.72017	1.346624
12	16.44783	9.391938	72.87966	2.661743	13.72009	1.346573

Variance Decomposition of DLIR:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	50.34419	0.64334	3.449417	95.90724	0	0
2	56.77492	6.204351	2.82225	82.45243	0.444709	8.076255
3	61.11905	9.153789	5.676878	76.40176	0.631999	8.135577
4	61.98705	11.02207	5.543186	74.5118	0.913945	8.008995
5	62.35973	11.03936	5.477148	73.86428	1.002494	8.616716
6	62.49514	11.11502	5.461423	73.56242	1.218513	8.642623
7	62.60698	11.27669	5.446668	73.30232	1.245975	8.728346
8	62.69724	11.43132	5.446715	73.09149	1.293869	8.736604
9	62.73362	11.492	5.44237	73.00728	1.299763	8.758586
10	62.76592	11.53875	5.436799	72.93417	1.325652	8.764624
11	62.77994	11.55942	5.434884	72.90168	1.328891	8.775131
12	62.78736	11.56838	5.433947	72.88525	1.333952	8.778469

Variance Decomposition of DM:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	646.2747	0.217569	0.31145	0.932965	98.53802	0
2	657.9133	0.692763	1.252988	1.728824	95.27377	1.051655
3	693.6965	4.557379	1.536217	1.679125	90.71634	1.510941
4	697.2395	4.812355	1.677412	1.776916	90.00726	1.726059
5	703.6501	5.263655	1.720883	1.910975	89.27407	1.830421
6	704.4594	5.311922	1.725674	1.909714	89.0833	1.969388
7	705.8977	5.417645	1.74095	1.945384	88.91243	1.983586
8	706.1638	5.450323	1.742966	1.944267	88.84545	2.016997
9	706.5636	5.494292	1.744901	1.949875	88.78949	2.021443
10	706.6533	5.506706	1.744653	1.949419	88.76707	2.032156
11	706.7483	5.516802	1.744813	1.950972	88.75323	2.034187
12	706.7747	5.520259	1.74471	1.950855	88.74694	2.037239

Variance Decomposition of DP:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	1.548196	3.590742	0.342948	3.543493	0.00194	92.52088
2	1.782008	12.34618	1.036327	4.421563	8.263452	73.93248
3	1.969073	22.80954	0.926133	3.708218	8.538786	64.01732
4	2.097878	29.0017	0.837664	3.267186	9.448187	57.44527
5	2.168881	31.50607	0.791113	3.057009	9.54054	55.10526
6	2.201131	32.22468	0.804375	3.000413	9.701398	54.26913
7	2.215347	32.39508	0.796634	2.998991	9.795242	54.01405
8	2.224632	32.51502	0.792065	3.013326	9.92434	53.75524
9	2.22991	32.62188	0.79223	3.009781	9.965333	53.61078
10	2.232906	32.6872	0.791904	3.007914	9.991672	53.52131
11	2.234559	32.72249	0.790807	3.006869	10.00492	53.47491
12	2.235514	32.74118	0.790624	3.006755	10.01341	53.44803

Ordering: DER DIP DLIR DM DP

Appendix 2: Econometric analysis for Croatia

Correlation matrix

	DER	DM	DP
DER	1	-0.084418	0.060167
DM	-0.084418	1	-0.387318
DP	0.060167	-0.387318	1

Regression equation for prices

Dependent Variable: D(P)
Method: Least Squares

Sample(adjusted): 1994:08 2000:11
Included observations: 74
Excluded observations: 2 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.480257	0.086377	5.560031	0
D(M(-3))	-0.000124	0.000118	-1.045379	0.2998
D(IP(-12))	0.02706	0.01198	2.258807	0.0273
D(LIR(-2))	-0.097782	0.049832	-1.962218	0.0541
D(ER(-1))	0.579566	0.330597	1.753089	0.0844
S1	1.135016	0.254869	4.453336	0
S7	-1.057669	0.232893	-4.541441	0
S8	-0.837313	0.230806	-3.627786	0.0006
S12	0.577391	0.269832	2.139819	0.0362
D1	-2.277052	0.533243	-4.270199	0.0001

R-squared	0.639201	Mean dependent var	0.432432
Adjusted R-squared	0.588463	S.D. dependent var	0.815611
S.E. of regression	0.523224	Akaike info criterion	1.667472
Sum squared resid	17.52082	Schwarz criterion	1.978833
Log likelihood	-51.69648	F-statistic	12.59822
Durbin-Watson stat	2.045262	Prob(F-statistic)	0

Regression equation for industrial output

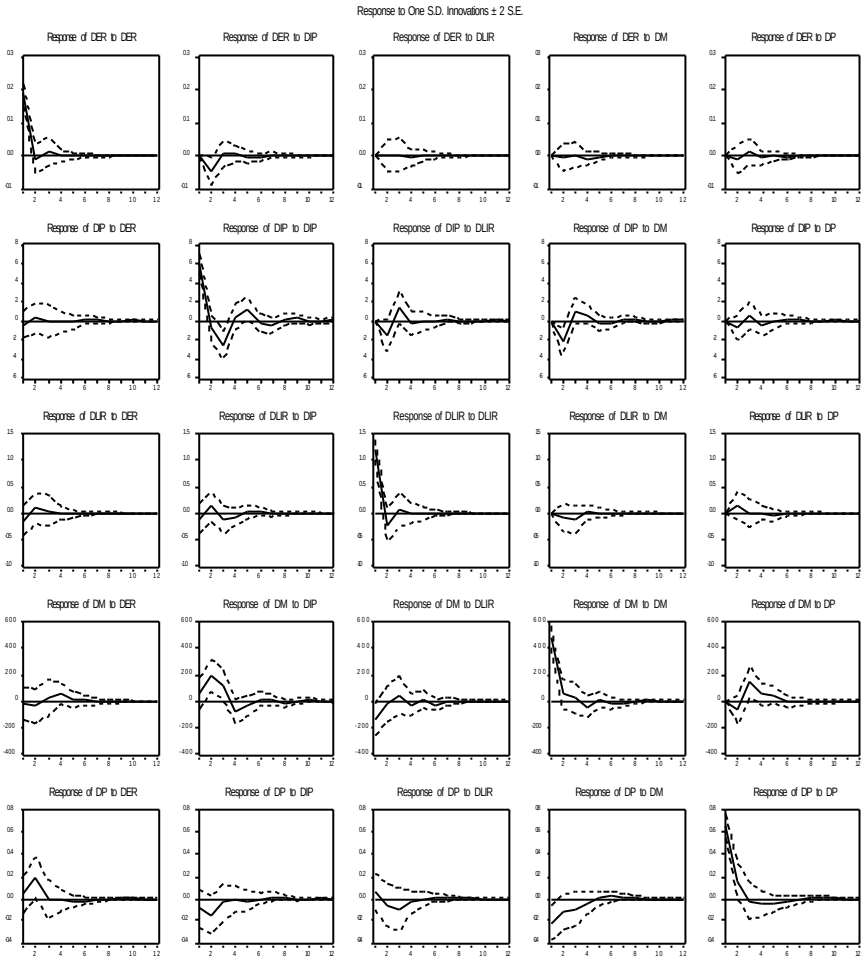
Dependent Variable: DIP
Method: Least Squares

Sample(adjusted): 1994:07 2000:10
Included observations: 73
Excluded observations: 3 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.139797	0.751431	1.516836	0.1346
DIP(-1)	-0.39815	0.087498	-4.550414	0
DLIR(-2)	1.379361	0.47751	2.888656	0.0054
DM(-2)	-0.001201	0.00137	-0.876572	0.3843
DER(-1)	4.605304	2.651271	1.737017	0.0876
DP(-11)	0.246343	0.140974	1.747436	0.0858
S1	-11.7671	2.227593	-5.282429	0
S3	8.53175	2.41011	3.539983	0.0008
S8	-7.41025	1.850292	-4.004908	0.0002
S9	5.115584	2.098254	2.438019	0.0178
S10	9.42976	1.909972	4.93712	0
S12	-10.47565	1.888643	-5.546653	0
D2	-12.18994	4.632992	-2.631117	0.0108
D3	-9.610636	4.260201	-2.255911	0.0278

R-squared	0.759316	Mean dependent var	0.245205
Adjusted R-squared	0.706284	S.D. dependent var	7.640263
S.E. of regression	4.140681	Akaike info criterion	5.850237
Sum squared resid	1011.569	Schwarz criterion	6.289503
Log likelihood	-199.5337	F-statistic	14.31809
Durbin-Watson stat	2.33483	Prob(F-statistic)	0

Impulse response function



Variance decomposition

Variance Decomposition of DER:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	0.186069	100	0	0	0	0
2	0.192092	94.07137	5.629006	0.000138	0.082695	0.216793
3	0.192965	93.60737	5.668549	0.046501	0.091089	0.586489
4	0.1935	93.0905	5.72978	0.205235	0.294577	0.679904
5	0.193564	93.02893	5.769377	0.205193	0.316865	0.679639
6	0.193652	92.94522	5.830756	0.206105	0.325369	0.692549
7	0.193682	92.92055	5.842166	0.206578	0.333115	0.697594
8	0.193699	92.90512	5.856135	0.206978	0.33373	0.698042
9	0.193701	92.90256	5.857854	0.207319	0.33379	0.698473
10	0.193704	92.89995	5.859545	0.207562	0.334353	0.698594
11	0.193705	92.89927	5.860189	0.20757	0.334379	0.69859
12	0.193705	92.89875	5.860463	0.207632	0.334564	0.69859

Variance Decomposition of DIP:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	6.087349	0.474922	99.52508	0	0	0
2	6.794366	0.553442	81.21829	5.795087	11.32876	1.10442
3	7.495404	0.456126	78.6866	8.276377	11.15762	1.423278
4	7.556008	0.480433	77.73215	8.230572	11.71231	1.844534
5	7.670083	0.517788	78.20287	8.009323	11.47597	1.794052
6	7.682452	0.544656	78.06574	7.991836	11.5865	1.811269
7	7.706693	0.543988	78.08303	7.993849	11.56784	1.81129
8	7.709404	0.545161	78.07128	7.988747	11.58127	1.813543
9	7.713943	0.544856	78.07335	7.98674	11.58319	1.811869
10	7.714757	0.545534	78.07152	7.985063	11.58526	1.812619
11	7.715663	0.545438	78.07177	7.984677	11.58589	1.812223
12	7.715874	0.545617	78.07167	7.984278	11.58596	1.812474

Variance Decomposition of DLIR:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	1.21152	1.362657	0.805727	97.83162	0	0
2	1.253933	1.797154	1.723639	94.48733	0.635193	1.356687
3	1.270143	1.841824	2.718616	92.29287	1.812716	1.333973
4	1.272471	1.836521	3.035064	91.96049	1.8326	1.335322
5	1.273991	1.845666	3.038696	91.75763	1.830175	1.527837
6	1.274555	1.862617	3.09659	91.67674	1.828776	1.535276
7	1.274633	1.86243	3.103435	91.66557	1.828578	1.539989
8	1.274753	1.862434	3.106207	91.65464	1.836657	1.540064
9	1.274782	1.862353	3.110327	91.65043	1.836896	1.539993
10	1.274797	1.862347	3.111585	91.64836	1.837363	1.540345
11	1.274806	1.862466	3.112526	91.64704	1.83745	1.540516
12	1.274808	1.862462	3.112807	91.64672	1.837491	1.540516

Variance Decomposition of DM:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	508.6818	0.186768	1.417589	7.600763	90.79488	0
2	549.906	0.506879	12.9577	6.624601	78.66485	1.245969
3	586.5027	0.695403	15.8565	6.452535	69.2923	7.703257
4	598.4889	1.658812	16.76815	6.390017	67.05695	8.126072
5	601.7498	1.697211	16.95263	6.400768	66.36086	8.588536
6	602.9886	1.703232	16.99192	6.572706	66.16773	8.564417
7	603.236	1.703948	16.98736	6.576182	66.17332	8.559196
8	603.4757	1.702641	17.04534	6.571246	66.12094	8.559829
9	603.5587	1.705522	17.04311	6.572554	66.11598	8.562831
10	603.6268	1.706178	17.05819	6.571243	66.10154	8.562849
11	603.6315	1.706151	17.05891	6.571147	66.10102	8.562778
12	603.6421	1.706212	17.06104	6.571173	66.09876	8.562819

Variance Decomposition of DP:

Period	S.E.	DER	DIP	DLIR	DM	DP
1	0.710561	0.286096	1.555101	0.872064	9.348922	87.93782
2	0.782229	6.544793	4.946102	1.320174	10.335	76.85393
3	0.795297	6.341116	4.980017	2.90539	11.36286	74.41062
4	0.79896	6.324828	4.935618	3.063787	11.52402	74.15175
5	0.801295	6.39289	4.986688	3.04954	11.46148	74.10941
6	0.802356	6.429112	4.973564	3.06356	11.51844	74.01533
7	0.802756	6.432077	5.020015	3.066285	11.53015	73.95147
8	0.802808	6.431252	5.027799	3.067909	11.52905	73.94399
9	0.80285	6.432077	5.029552	3.068553	11.52792	73.9419
10	0.80286	6.432489	5.029814	3.06849	11.52764	73.94157
11	0.802865	6.432505	5.030134	3.068686	11.52781	73.94086
12	0.802867	6.432491	5.030117	3.068778	11.52808	73.94053

Ordering: DER DIP DLIR DM DP

Appendix 3: Econometric analysis for Romania

Correlation matrix

	DER	DM	DP
DER	1	-6.93E-05	0.637149
DM	-6.93E-05	1	0.09762
DP	0.637149	0.09762	1

Regresion equation for prices

Dependent Variable: DP
Method: Least Squares

Sample(adjusted): 1991:03 2000:09
Included observations: 94
Excluded observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.27378	1.207311	1.883342	0.0629
D(P(-1))	0.37231	0.076232	4.883928	0
D(M(-1))	0.000844	0.000727	1.160764	0.2488
D(ER(-1))	0.023462	0.003199	7.334078	0
S10	5.244201	3.303393	1.58752	0.1159

R-squared	0.697289	Mean dependent var	13.14021
Adjusted R-squared	0.683685	S.D. dependent var	14.85843
S.E. of regression	8.356666	Akaike info criterion	7.135721
Sum squared resid	6215.215	Schwarz criterion	7.271002
Log likelihood	-330.3789	F-statistic	51.25256
Durbin-Watson stat	2.390075	Prob(F-statistic)	0

Regression equation for industrial output

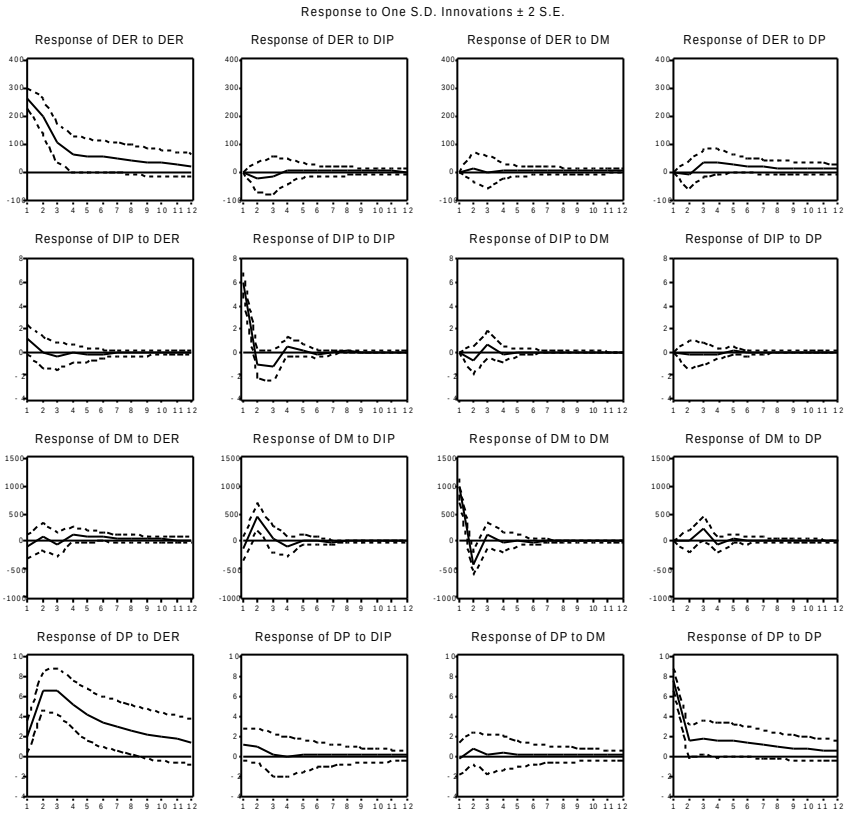
Dependent Variable: DIP
Method: Least Squares

Sample(adjusted): 1991:12 2000:09
Included observations: 85
Excluded observations: 21 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.888649	0.753215	2.50745	0.0143
DIP(-1)	-0.303603	0.093439	-3.249199	0.0017
DER(-1)	-0.002283	0.001363	-1.674966	0.0981
DM(-2)	0.001412	0.000489	2.886391	0.0051
DP(-10)	-0.058922	0.037061	-1.589859	0.1161
S1	-4.859381	1.999334	-2.430499	0.0175
S3	8.759678	2.237721	3.914554	0.0002
S7	-5.730398	1.693324	-3.384112	0.0011
S12	-11.77915	1.626557	-7.241766	0
D1	12.99464	4.369446	2.97398	0.004

R-squared	0.619108	Mean dependent var	0.078941
Adjusted R-squared	0.573401	S.D. dependent var	6.443412
S.E. of regression	4.208487	Akaike info criterion	5.822214
Sum squared resid	1328.352	Schwarz criterion	6.109585
Log likelihood	-237.4441	F-statistic	13.54511
Durbin-Watson stat	1.850816	Prob(F-statistic)	0

Impulse response function



Variance decomposition

Variance Decomposition of DER:

Period	S.E.	DER	DIP	DM	DP
1	261.0181	100	0	0	0
2	330.1675	99.30115	0.40067	0.189494	0.108689
3	347.342	98.40946	0.542577	0.173952	0.874015
4	354.6929	97.40799	0.522068	0.175726	1.894213
5	360.3209	96.8835	0.522976	0.172709	2.420819
6	365.0933	96.61372	0.512588	0.175483	2.698207
7	368.7948	96.46623	0.50267	0.176018	2.855083
8	371.467	96.34734	0.495774	0.176247	2.980634
9	373.3755	96.25771	0.491024	0.176214	3.075047
10	374.7648	96.19101	0.487644	0.176296	3.145054
11	375.7881	96.14334	0.485198	0.176355	3.19511
12	376.5429	96.10873	0.483403	0.1764	3.231466

Variance Decomposition of DIP:

Period	S.E.	DER	DIP	DM	DP
1	6.064008	3.115121	96.88488	0	0
2	6.206468	2.980624	95.56615	1.234402	0.218821
3	6.369005	3.161194	94.35947	2.197543	0.281797
4	6.392821	3.187154	94.17596	2.283508	0.353377
5	6.403346	3.384663	93.9555	2.281996	0.377838
6	6.408648	3.457225	93.85474	2.278739	0.409292
7	6.410091	3.491986	93.81272	2.278111	0.417185
8	6.411327	3.520402	93.77915	2.278178	0.422274
9	6.412339	3.547868	93.74978	2.277499	0.424849
10	6.413071	3.566501	93.72857	2.276987	0.42794
11	6.41358	3.579894	93.71368	2.276664	0.429758
12	6.413962	3.5899	93.70254	2.276424	0.431135

Variance Decomposition of DM:

Period	S.E.	DER	DIP	DM	DP
1	1001.797	0.915452	1.69536	97.38919	0
2	1170.705	1.220279	16.0771	82.70223	0.000385
3	1202.484	1.39169	15.33824	79.15198	4.118094
4	1214.408	2.396331	15.63603	77.60942	4.358221
5	1220.202	3.040821	15.53403	76.9098	4.515351
6	1223.111	3.465205	15.47539	76.55372	4.50568
7	1224.781	3.65591	15.43871	76.34906	4.55632
8	1225.985	3.828318	15.40843	76.19955	4.563708
9	1226.931	3.952175	15.38572	76.08218	4.579918
10	1227.611	4.045469	15.36872	75.99816	4.587645
11	1228.116	4.114127	15.35607	75.93585	4.593953
12	1228.489	4.164939	15.34679	75.88987	4.598402

Variance Decomposition of DP:

Period	S.E.	DER	DIP	DM	DP
1	7.976308	6.23352	1.869494	0.115103	91.78188
2	10.47477	42.14537	2.058129	0.663279	55.13322
3	12.46538	57.0763	1.456349	0.483977	40.98337
4	13.58761	62.4666	1.237969	0.461652	35.83378
5	14.27298	64.80597	1.122424	0.428495	33.64311
6	14.74088	66.11647	1.05766	0.41338	32.41249
7	15.08202	67.05481	1.012488	0.402807	31.52989
8	15.33344	67.72145	0.980663	0.396374	30.90152
9	15.51684	68.19219	0.958452	0.391378	30.45798
10	15.65011	68.52018	0.942768	0.3879	30.14915
11	15.74732	68.75379	0.931574	0.385417	29.92922
12	15.81855	68.92201	0.923522	0.383635	29.77083

Ordering: DER DIP DM DP

Appendix: Econometric analysis for Bulgaria

Correlation matrix

	DER	DM	DP
DER	1	0.092574	0.839654
DM	0.092574	1	0.099741
DP	0.839654	0.099741	1

Regression equation for prices

Dependent Variable: D(P)
Method: Least Squares

Sample(adjusted): 1994:05 2000:09
Included observations: 77 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.78283	4.899141	3.22155	0.002
D(P(-1))	0.05362	0.037523	1.428974	0.1578
D(LIR(-1))	-0.214205	0.147347	-1.453743	0.1508
D(M(-1))	0.130431	0.029045	4.490705	0
D(GDP(-3))	0.009739	0.00847	1.149839	0.2544
D(ER(-1))	70.71744	34.08424	2.074784	0.042
S3	-31.3203	14.89646	-2.102533	0.0394
S5	-24.41452	12.90865	-1.891331	0.063
S6	-25.58061	13.16579	-1.942961	0.0564
S9	28.3455	12.86914	2.202595	0.0312
D1	1630.818	32.3516	50.40919	0
D2	179.4891	32.32679	5.552333	0

R-squared	0.977456	Mean dependent var	45.46182
Adjusted R-squared	0.973641	S.D. dependent var	194.8816
S.E. of regression	31.64011	Akaike info criterion	9.888998
Sum squared resid	65071.27	Schwarz criterion	10.25427
Log likelihood	-368.7264	F-statistic	256.2027
Durbin-Watson stat	1.478225	Prob(F-statistic)	0

Regression equation for industrial output

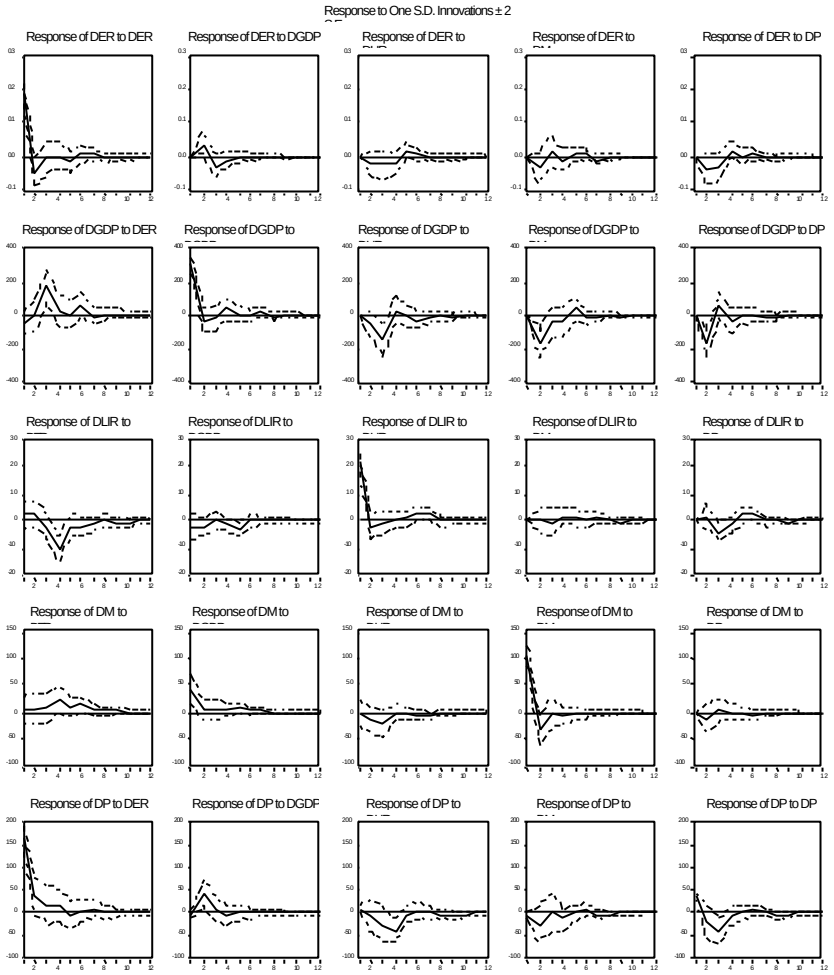
Dependent Variable: DGDP
Method: Least Squares

Sample(adjusted): 1994:03 2000:06
Included observations: 76 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	52.7457	37.51816	1.405871	0.1642
DGDP(-1)	0.170714	0.083327	2.048724	0.0443
DM(-1)	-1.568789	0.312581	-5.018825	0
DP(-12)	-0.258172	0.180624	-1.429332	0.1574
DLIR(-2)	-0.609881	1.528992	-0.398878	0.6912
DER(-1)	91.77714	162.3734	0.565223	0.5738
D3	1802.313	202.4814	8.901128	0

R-squared	0.638571	Mean dependent var	72.66671
Adjusted R-squared	0.607143	S.D. dependent var	470.6687
S.E. of regression	295.0073	Akaike info criterion	14.29946
Sum squared resid	6005022	Schwarz criterion	14.51413
Log likelihood	-536.3795	F-statistic	20.31817
Durbin-Watson stat	2.084404	Prob(F-statistic)	0

Impulse response function



Variance decomposition

Variance Decomposition of DER:

Period	S.E.	DER	DGDP	DLIR	DM	DP
1	0.190743	100	0	0	0	0
2	0.207649	89.32468	4.007347	0.963766	2.317242	3.38697
3	0.213309	84.64832	5.091034	2.057504	2.861881	5.341259
4	0.215623	82.85002	5.097109	2.722834	3.015678	6.314361
5	0.21729	82.0051	5.019991	3.621024	3.129615	6.224272
6	0.217791	81.74507	4.998675	3.676704	3.245487	6.334063
7	0.218028	81.6716	5.007716	3.671642	3.3189	6.330146
8	0.218157	81.61452	5.012144	3.681983	3.315079	6.376278
9	0.218194	81.58788	5.02311	3.698452	3.314893	6.375662
10	0.218203	81.58221	5.023043	3.69831	3.31495	6.381485
11	0.218216	81.57278	5.022475	3.706146	3.317438	6.381164
12	0.218218	81.57251	5.022498	3.706171	3.317399	6.381425

Variance Decomposition of DGDP:

Period	S.E.	DER	DGDP	DLIR	DM	DP
1	306.055	2.178293	97.82171	0	0	0
2	390.9959	1.33494	60.52198	1.854007	18.05021	18.23887
3	461.7493	15.05508	43.51592	13.01687	13.74756	14.66456
4	466.9082	15.02368	43.05842	13.16348	14.02057	14.73386
5	468.3951	14.95927	42.8303	13.08162	14.48401	14.64479
6	474.5691	16.63869	41.72609	13.04047	14.32679	14.26795
7	475.3131	16.64588	41.74853	13.02613	14.29811	14.28135
8	475.5402	16.66443	41.72	13.02331	14.29774	14.29453
9	475.8823	16.70568	41.66029	13.0424	14.29405	14.29758
10	475.9194	16.70311	41.65928	13.04603	14.29196	14.29962
11	475.945	16.70958	41.65513	13.04575	14.29144	14.29811
12	475.983	16.716	41.6487	13.04668	14.29259	14.29603

Variance Decomposition of DLIR:

Period	S.E.	DER	DGDP	DLIR	DM	DP
1	21.50694	0.900504	0.855616	98.24388	0	0
2	21.95903	2.560742	1.932984	95.01377	8.03E-05	0.49242
3	22.45987	3.276773	1.849357	90.93546	0.073317	3.865089
4	24.85168	19.77537	1.868139	74.28143	0.510994	3.564071
5	25.31336	19.496	3.787217	71.69456	0.763413	4.25881
6	25.65141	19.63627	3.688065	70.80374	0.802858	5.069072
7	25.8194	19.65344	3.641774	70.72299	0.978456	5.003338
8	25.82075	19.65159	3.642833	70.71986	0.982106	5.003607
9	25.84007	19.71403	3.638435	70.6183	1.001806	5.027438
10	25.8561	19.7913	3.647152	70.53135	1.008929	5.021269
11	25.86092	19.7877	3.657234	70.51104	1.009615	5.034407
12	25.86452	19.78962	3.656259	70.50577	1.010979	5.037366

Variance Decomposition of DM:

Period	S.E.	DER	DGDP	DLIR	DM	DP
1	114.3388	0.142948	14.34344	0.011347	85.50227	0
2	120.7977	0.457981	13.02751	1.459245	84.17424	0.881022
3	123.3511	1.04292	12.58373	4.652155	80.79074	0.930454
4	125.7406	4.515004	12.22986	4.478199	77.87665	0.900285
5	126.3105	4.946785	12.47771	4.475089	77.20579	0.894627
6	127.3094	6.058029	12.31001	4.591204	76.03747	1.003282
7	127.6251	6.138873	12.30466	4.797493	75.72657	1.032409
8	127.689	6.166572	12.29239	4.827859	75.65199	1.061191
9	127.7353	6.210266	12.28393	4.841719	75.59746	1.066626
10	127.7521	6.231143	12.28406	4.840472	75.57798	1.066349
11	127.7616	6.240455	12.28547	4.84071	75.56682	1.066549
12	127.7718	6.248781	12.28404	4.843476	75.55612	1.067582

Variance Decomposition of DP:

Period	S.E.	DER	DGDP	DLIR	DM	DP
1	170.7946	94.06658	0.027907	0.242397	0.049909	5.613209
2	183.9473	85.54541	6.778199	0.300237	1.724266	5.651892
3	191.1284	80.03505	6.471426	1.853559	1.609658	10.03031
4	196.0117	76.7843	6.207389	5.320596	2.119499	9.568218
5	196.0549	76.77545	6.207421	5.330699	2.122411	9.564021
6	196.4841	76.51496	6.18075	5.391307	2.258707	9.654276
7	196.8818	76.55453	6.180746	5.3747	2.257107	9.63292
8	197.0035	76.4818	6.222411	5.377191	2.260904	9.657694
9	197.0904	76.42624	6.21708	5.414723	2.263781	9.678175
10	197.1194	76.40677	6.215715	5.434669	2.267446	9.675396
11	197.1205	76.40609	6.215648	5.434805	2.267725	9.675728
12	197.1259	76.40501	6.215482	5.435128	2.268103	9.676272

Ordering: DER DGDP DLIR DM DP

Appendix: 5 Econometric analysis for Albania

Correlation matrix

	DER	DM	DP
DER	1	0.262469	0.524331
DM	0.262469	1	0.062736
DP	0.524331	0.062736	1

Regression analysis for prices

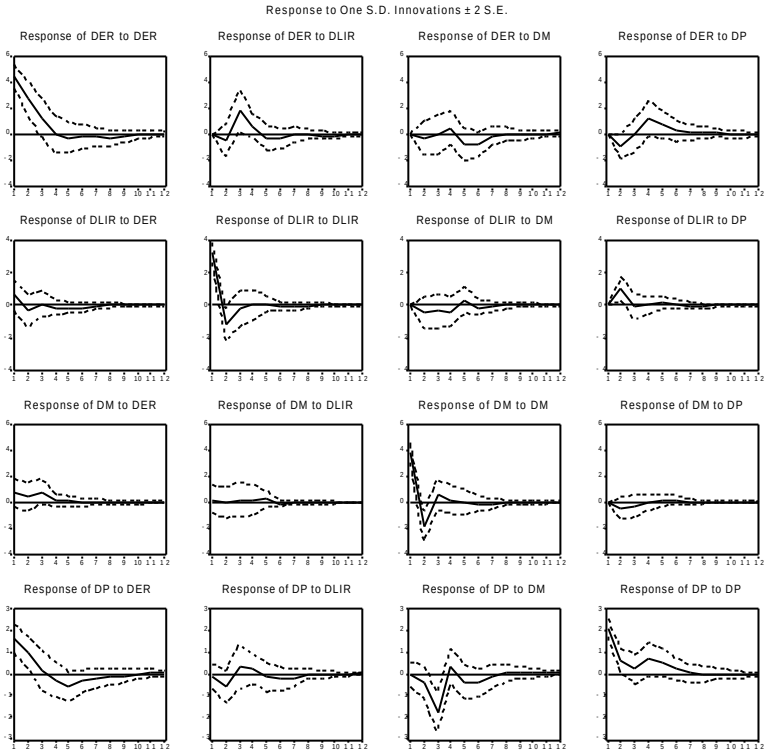
Dependent Variable: D(P)
Method: Least Squares

Sample(adjusted): 1995:02 2000:10
Included observations: 55
Excluded observations: 14 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.536337	0.368326	4.171134	0.0001
D(P(-1))	0.083446	0.089067	0.936891	0.3537
D(M(-1))	-0.133672	0.074168	-1.802282	0.0781
D(LIR(-3))	0.131641	0.080931	1.626583	0.1107
D(ER-1)	0.182359	0.052611	3.466181	0.0012
S4	-1.39835	1.163959	-1.201374	0.2358
S6	-2.49206	1.009251	-2.469219	0.0173
S7	-3.182091	1.059296	-3.003967	0.0043
D1	15.25952	2.617523	5.829756	0

R-squared	0.690252	Mean dependent var	1.406909
Adjusted R-squared	0.636382	S.D. dependent var	3.491319
S.E. of regression	2.10529	Akaike info criterion	4.475364
Sum squared resid	203.8833	Schwarz criterion	4.803837
Log likelihood	-114.0725	F-statistic	12.81346
Durbin-Watson stat	1.502536	Prob(F-statistic)	0

Impulse response function



Variance decomposition

Variance Decomposition of DER:

Period	S.E.	DER	DLIR	DM	DP
1	4.473081	100	0	0	0
2	5.397831	95.88192	0.849092	0.311745	2.957244
3	5.841018	86.44406	10.74169	0.270372	2.543878
4	6.005479	81.77431	11.19287	0.924419	6.108407
5	6.120953	78.91897	11.01227	2.664723	7.404032
6	6.192251	77.19483	11.10465	4.348966	7.351555
7	6.199872	77.17301	11.09575	4.372733	7.358509
8	6.208954	77.18636	11.06361	4.36082	7.389209
9	6.213746	77.16819	11.07214	4.363403	7.396264
10	6.215647	77.13557	11.09671	4.373527	7.394193
11	6.216046	77.12654	11.09642	4.373625	7.403425
12	6.216461	77.11634	11.09605	4.382784	7.404828

Variance Decomposition of DLIR:

Period	S.E.	DER	DLIR	DM	DP
1	3.346498	3.509658	96.49034	0	0
2	3.75518	3.643489	87.20295	1.759752	7.39381
3	3.780212	3.638718	86.24706	2.735271	7.378947
4	3.803006	3.72692	85.21676	3.764031	7.29229
5	3.825376	3.85511	84.27871	4.523218	7.342959
6	3.83359	4.031528	83.9649	4.634458	7.369112
7	3.835526	4.031161	83.929	4.674923	7.364915
8	3.835964	4.030887	83.91576	4.674222	7.379133
9	3.836493	4.030347	83.90045	4.689884	7.379321
10	3.836566	4.03035	83.89736	4.693176	7.379113
11	3.836603	4.030946	83.89634	4.693269	7.379443
12	3.836644	4.031995	83.89455	4.693172	7.380286

Variance Decomposition of DM:

Period	S.E.	DER	DLIR	DM	DP
1	3.882547	3.175535	0.328498	96.49597	0
2	4.349589	3.349281	0.268301	95.26927	1.113147
3	4.47945	6.566753	0.435956	91.53347	1.463825
4	4.491002	6.678912	0.602089	91.26007	1.458924
5	4.501471	6.689514	0.932078	90.83671	1.541698
6	4.505684	6.678043	0.976113	90.71898	1.626861
7	4.507734	6.672277	0.98152	90.71943	1.626769
8	4.508004	6.675962	0.981805	90.71248	1.62975
9	4.508469	6.686562	0.981652	90.69439	1.637398
10	4.508809	6.692103	0.983779	90.68473	1.639387
11	4.50892	6.692872	0.985873	90.68193	1.639329
12	4.508937	6.693136	0.985967	90.68128	1.639616

Variance Decomposition of DP:

Period	S.E.	DER	DLIR	DM	DP
1	2.662423	36.76027	0.232378	0.023469	62.98388
2	2.975024	40.05979	4.139985	1.565509	54.23472
3	3.483716	29.48642	3.775225	26.82842	39.90994
4	3.577594	28.57135	3.870776	26.33907	41.2188
5	3.687777	29.41226	3.839901	25.88613	40.86171
6	3.744409	29.3135	4.218666	26.55602	39.91182
7	3.758861	29.41608	4.496133	26.48221	39.60558
8	3.762325	29.53141	4.489236	26.44029	39.53907
9	3.763985	29.56813	4.486687	26.44089	39.50429
10	3.764388	29.56585	4.495453	26.43676	39.50194
11	3.764776	29.56211	4.495695	26.43197	39.51023
12	3.765192	29.55982	4.496363	26.43504	39.50878

Ordering: DER DLIR DM DP