National Bank of Poland

Monetary Policy Council

INFLATION REPORT 1998

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SYNTHESIS

In 1998 the monetary policy was carried out in new institutional conditions. According to the Constitution and the Act on the National Bank of Poland the Monetary Policy Council was established. The MPC passed *The assumptions of monetary policy for 1998* and decided on adopting a new system of monetary policy execution – the strategy of direct inflationary target, defined as the index of consumer price growth.

The transparency of the monetary policy and convincing the public opinion about the central bank determination in achieving the declared inflation target is a crucial issue within this strategy. *The inflation report* that is the basic analytical document of the Council shall contribute to achieving these objectives. Publication in September 1998 of the document entitled *The medium-term strategy of the monetary policy (1999-2003)* was also intended to reduce the uncertainty in respect to monetary policy. The inflation target – reduction of inflation below 4% by the end of 2003 was defined there.

The first stage of achieving the medium-term target consisted in reducing inflation below the assumed target of 9.5% in 1998. In the period December 1998 to December 1997 inflation fell to the level of 8.6%. Average annual inflation amounted to 11.8% at the forecast of 11%. That meant that compared with 1997 there was a significant decrease of price growth rate – in the case of inflation in the period December-December by 4.6% and for average annual by 3.1%. The inflation pace was also lower measured by the index of industrial sales (from 11.5% in 1997 to 4.8% in 1998) and by the index of building – assembling production prices (from 14.1% in 1997 to 10.6% in 1998). The distribution of prices growth during 1998 was not even. A strong inflation impulse occurred in the first quarter, mainly due to the increase of administered prices, while a clear reduction of price increase rate was noted in the third and fourth quarters of 1998. The increase of non-food products, services and alcohol beverages was faster than the general price index, while food prices rose slower, contributing to reduction of the increase of consumer goods and services prices.

The monetary policy was carried out in 1998 in variable and hardly predictable conditions.

The influence of external factors on the Polish economy was a characteristic phenomenon that occurred in 1998. A quick transmission of impulses from the global economy occurred – via the exchange rate mechanism, via raw materials and fuels prices and sudden changes of the external demand were transferred onto the internal market forcing corporates to react and adapt. The economic situation in Poland is increasingly dependent on the course of economic events at the main economic partners. Hence analysing the monetary policy in 1998 and assessing its effectiveness the effect of perturbations on global markets on economic processes in Poland shall be taken into account.

Achieving the inflation target in 1998 was also conditioned by processes that started in the previous period. An increasing disproportion between the rate of domestic demand increase and the rate of supply increase was the key problem of the monetary policy in the period 1996-1997. As early as at the end of 1996 the NBP has undertaken actions aiming at reducing this disproportion. Results of these actions became visible with some delay at the end of 1997 and at the beginning of 1998. By July 1998 the gap between the rate of demand increase and the rates of supply increase was gradually reduced, accompanied by a decrease of deficit

in the current account of balance of payments. That promoted easing the monetary policy consisting in lowering interest rates by the NBP, accompanied by decreasing the rate of monthly devaluation and in creasing the band of allowed exchange rate fluctuations from the central parity.

Positive trends within the economic balance were disturbed in the second half of the year. Severe perturbations appeared in August 1998 as a result of the financial crisis in Russia and still visible implications of the crisis in Asian countries. The Russian crisis had numerous direct and indirect effects. A reduction of exports of Polish goods was a direct effect. That caused problems with sales in many domestic enterprises. The Russian and Asian crises caused also indirect effects – lowering the rate of growth in developed countries. That in turn reduced the demand for Polish goods and increased the gap in the trade turnover and hence in the current account. As a result the GDP growth rate in the third and fourth quarters of 1998 was reduced. At the same time the reduction of the external demand contributed to slowing the increase of prices in Poland via an increase of supply in the domestic market, primarily in the food market. An increasing again spread between the slowing down but still relatively high rate of domestic demand increase and the rate of supply increase was another side issue.

A sudden increase of budget debt in the banking sector in December as well as an increase of due budget liabilities were the factors that made execution of the monetary policy difficult at the end of the year. The fact of redeeming most of these liabilities by banks has contributed to an increased creation of money in that period.

Financial standing of enterprises was deteriorating during entire 1998; that resulted primarily from barrier for demand felt increasingly stronger (among other things due to the fall of demand for Polish exports) at the competition of imported goods. A limitation of possibilities of full transfer by enterprises of cost increase into final prices promoted the reduction of inflation. The influence of pay rise also exerted a lesser inflation pressure than in previous years.

The Monetary Policy Council has modified instruments of monetary policy – the system of open market operations, the system of mandatory reserve and the way of performing the exchange rate policy. These changes aimed at increasing the effectiveness of monetary policy. The Council decided on limiting the open market operations to issuing 28-day NBP bills. That meant a departure from selling bills of longer maturities and leaving formation of the yield curve to market forces. The minimum rate of open market operation (so-called reference rate) became *de facto* the third NBP basis rate. NBP used it for effective influence on the interbank market rates and through them on bank lending rates. The level of long-term rates depends mainly on inflation expectations and hence the central bank may affect them influencing these expectations.

Increasing flexibility of exchange rate policy via widening the allowed band of zloty (PLN) fluctuations and its actual variability served to increase the scope of autonomy and to strengthen the effectiveness of monetary policy in conditions of a large freedom of capital movement. This modification of the exchange rate policy allowed to increase the exchange risk for short-term overseas portfolio investments. Thereby it allowed for gradual restriction of inflow of short-term portfolio capital, especially visible during initial months of 1998.

In 1998 the central bank had to solve problems similar to those that occurred in previous years, connected primarily with absorbing the overliquidity in the banking sector. Persistence of the structural overliquidity in the banking sector made impossible making a decision on reduction of the mandatory reserves. The mechanism of mandatory reserves calculation in turn encouraged some banks to temporary transfer of funds between accounts that weakened the effectiveness of this instrument. Modifications of the system introduced by the Monetary Policy Council limited the possibility of using these gaps.

The change of the open market operations principles in April 1998 resulted in a significant increase of these operations frequency. Shortening of the time horizon has modified liquidity management in banks making reactions to the demand for credit changes easier. However, the dynamics of lending in 1998 was showing a downward trend (remained stabilised in real terms). On the other hand the interest in borrowing abroad or in foreign exchange denominated loans was visibly maintained. That resulted from expectations of zloty appreciation and from remaining significant differences in interest rates levels.

The exchange rate of zloty and low prices of raw materials in the world markets have contributed to a substantial decrease of inflation. In the exchange rate policy the Council endeavoured to lower inflation expectations by reducing the rate of monthly devaluation and at the same time was widening the allowed band of exchange rate fluctuations to contribute to the increase of uncertainty in respect to the exchange rate of zloty. Moreover, there was a certain reduction of the spread between the domestic and overseas interest rates as a result of decreasing interest rates in conditions of the lack of threats for achieving the inflation target. Together with an increase of investment risk in so-called emerging markets that was an important factor reducing the interest of foreign portfolio investors in the Polish market of government debt securities.

INTRODUCTION

In 1998 the monetary policy was carried out in new institutional conditions. According to the Constitution that became into force on 17 October 1997 and the Act on the National Bank of Poland the Monetary Policy Council was established. The MPC passed *"The assumptions of monetary policy for 1998"* and determined a new direct target of the monetary policy – inflation, defined as the consumer price index.

This *Inflation report* is for the first time presented as a document of the Monetary Policy Council. At the same time this is the first *Report* published while the adopted last year strategy of direct inflationary target is in force.

An effective performance of strategy of direct inflationary target and achieving the most important – medium-term objective of NBP policy – lowering inflation below 4% by 2003 require transparency of the monetary policy. Reliability of the monetary policy depends in a large extent on the level of public awareness of the monetary policy objectives, of their structure, of methods of achieving these objectives by the central bank, of interpretation of the economic conditions, of its reaction to unexpected shocks. This reliability allows then to reduce uncertainty of business and to affect more effectively, at lower macro-economic costs, the behaviour of firms and households, making breaking through inflation expectations easier. The presented *Inflation report* shall contribute to carrying out these important tasks.

The presented *Report* refers to 1998. It was during that period that since the beginning of 80-ies the rate of consumer price increase fell to a one-digit value. That was a substantial achievement of the anti-inflation policy of the NBP. However, other factors that assisted in reducing inflationary phenomena must also be mentioned. The current report presents formation of inflationary processes in Polish economy and their conditions – including phenomena in the global economy that affect the situation in Poland, a country with already open economy. The analysis of factors that were forming the inflationary phenomena in 1998 includes money, elements of its creation and the situation in financial markets, aggregated supply and demand. Elements of transmission mechanism of the monetary policy, the situation in the real area, including trends in the field of costs in enterprises, have also been presented. In the final part of the *Report* the crucial changes of institutional conditions of the monetary policy have also been recalled. The decision made by the Monetary Policy Council in 1998 on changes of parameters of monetary policy instruments have also been presented. The report concludes with presenting the forecast of inflationary phenomena scenario in 1999.

The fall of inflation resulted from an effective anti-inflation policy leading to a permanent reduction of imbalance in the economy. The prices increase was limited by the demand barrier, especially strongly affecting the food market and the non-food products market, especially durable products. The important elements of disinflation included the formation of zloty exchange rate against major currencies in 1998 as well as a decrease of numerous basic raw materials and fuels prices and numerous disorders occurring in the global economy that contributed in 1998 to slowing down the rate of price increase in many countries of the world.

The course of inflationary processes in 1998

Consumer prices

The inflation target for 1998 passed by the Monetary Policy Council, assuming that the level of consumer prices at the end of 1998 compared with the end of 1997 shall not be higher than 9.5%, was carried out by the central bank. Inflation measured December-to-December was on the level of 8.6%. Average annual growth of consumer prices amounted to 11.8% compared with 11.0% assumed in the Assumptions.

Such a significant slowdown of inflation in 1998 creating beneficial conditions for its further reduction in a medium-run was possible thanks to the carried out monetary policy, supported in the first half of last year by a disciplined budget policy.

Last year inflation trends in Polish economy were also significantly affected by external global factors as well as by factors resulting from domestic economic processes. In 1998 a few periods may be distinguished and factors characteristic for them may be identified that especially strongly influence the rate of price growth.

Period January – May 1998: increased pace of inflation

A declining trend of price growth occurring in the final period of 1997 was retarded at the beginning of 1998. In January and February inflation calculated in twelve-month scale clearly accelerated from 13.2% in December 1997 to 13.6% in January and 14.2% in February 1998 (Charts 1 and 2). In January prices rose by 3.1%, in February by 1.7% compared with the previous month (Chart 3), i.e. by 0.2 and 0.6 points higher than a year ago, respectively. At the same time February was the month during which the price growth on twelve-month basis was on the highest level in the entire 1998 (Chart 4).

Administered price increases, directly or indirectly, were the primary inflation impulse in that period (Charts 5, 6 and 7).

Chart 1
Consumer price indices (previous month =100)

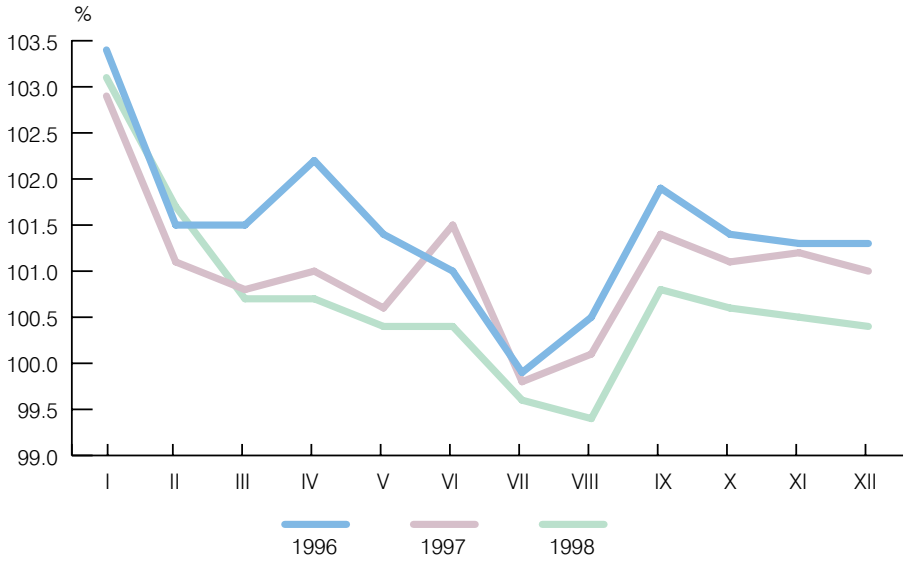
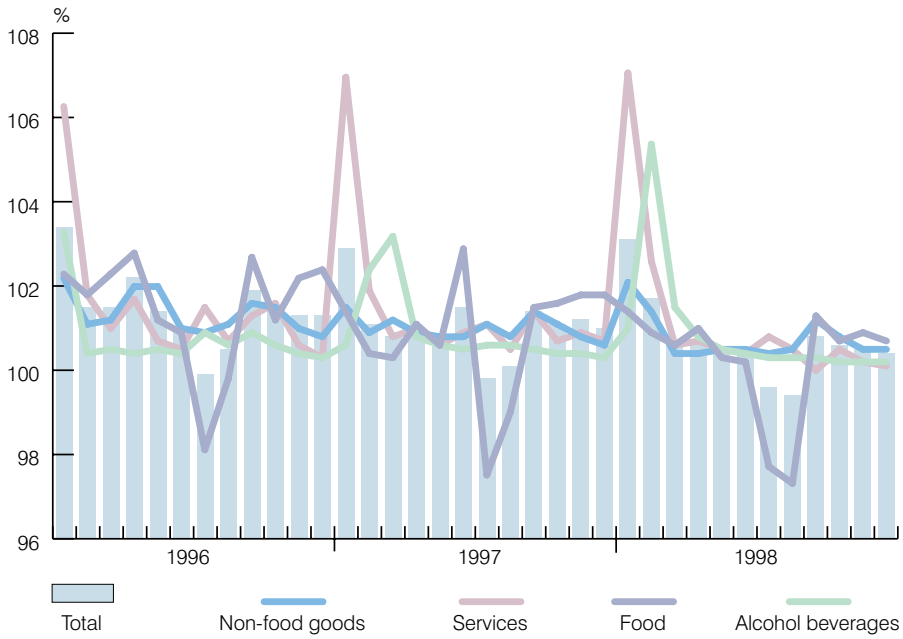


Chart 2
Dynamics of consumer prices (CPI) (previous month = 100)



Most of administered price increases occurred in the first quarter. They included the following prices: electricity, gas and RTV subscription charge, postal and telecommunication services, railway and bus services, rates of excise duty on fuels, tobacco and alcohol products.

Chart 3
Share of prices of basic groups of goods and services in total CPI growth (previous month =100)

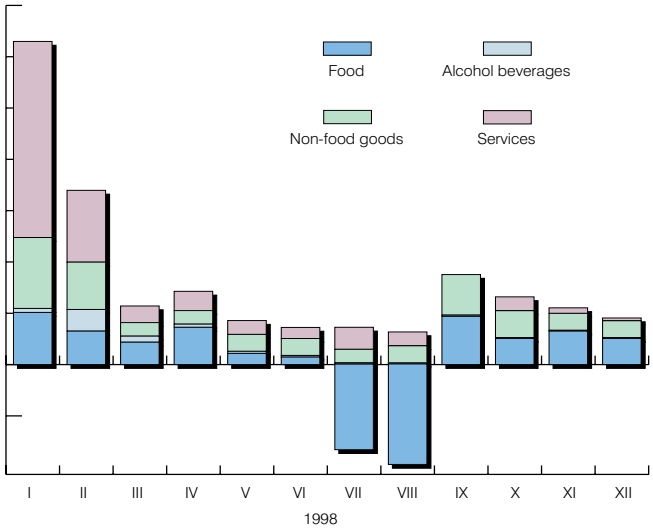


Chart 4
Dynamics of groups of consumer prices (CPI) (analogous period of the previous year = 100)

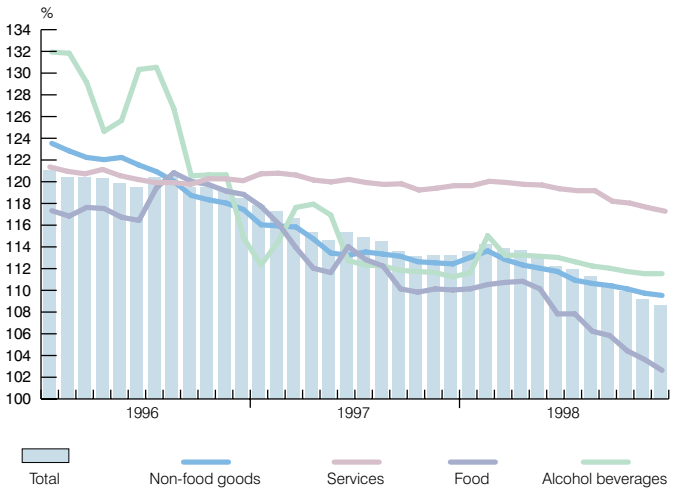


Chart 5
Dynamics of consumer prices (CPI) and administered prices in 1996-1998 (previous month=100)

Chart 6
Dynamics of administered prices in 1997-1998 (December of the previous month = 100)

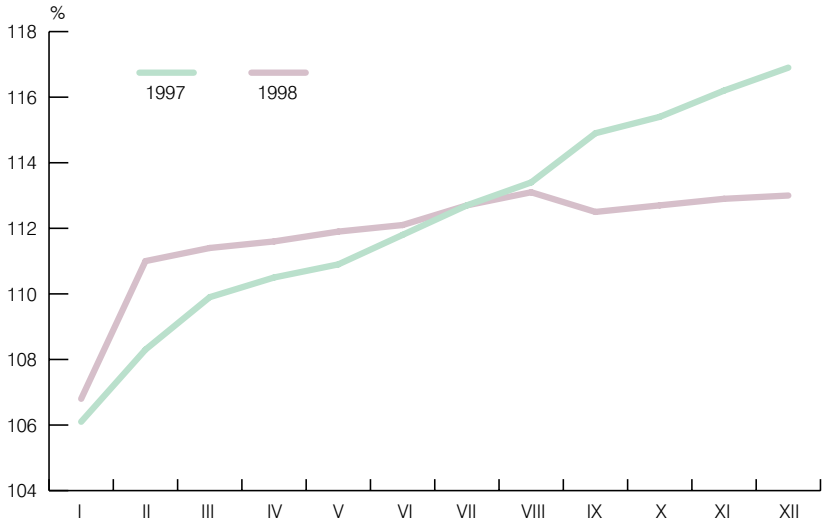
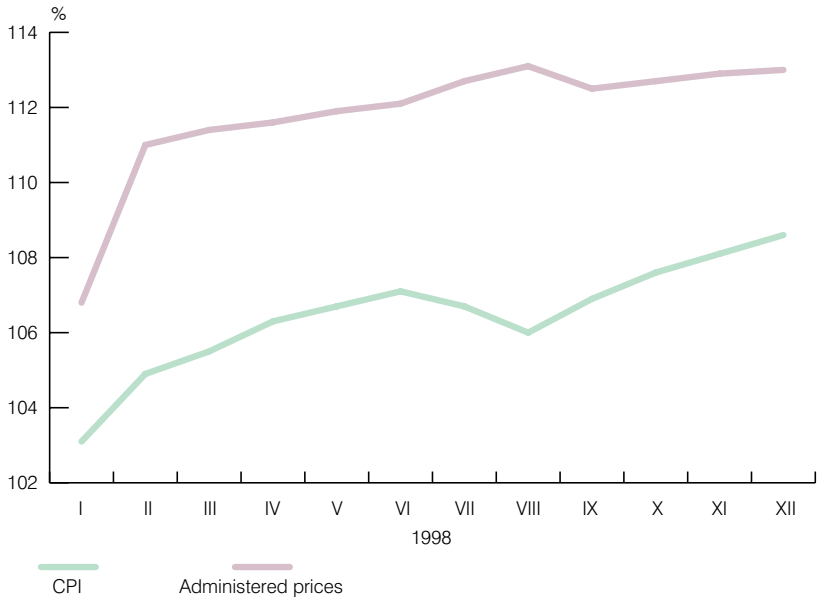


Chart 7
Dynamics of consumer prices (CPI) and administered prices in 1998 (December 1997 = 100)



Administrative regulation of consumer prices is an element of adaptation processes, unavoidable in economy subject to transformation, leading to an adjustment of relative prices and making the level of prices included in administration control and their structure comparable with the world situation. On the other hand, administered price rises transferred onto prices of other goods and services may addi-

tionally contribute to inflation growth. In 1998 direct and indirect effects of the inflationary impulse from the beginning of year that was stronger than in the previous year influenced the rate of price growth as long as by April (Charts 1 and 2).

Rises of administered prices in the largest extent affected growth of service prices. In conditions of little flexibility of demand for many types of services, including these related with maintaining flats, public means of transport, postal and telecommunication services, the administrative regulation of prices sustained inflationary trends. That resulted in accelerating inflation that on a twelve-month basis returned to the level of the end of 1997 not before May (13.3%). Comparing with the end of 1997 the growth of non-food products and services prices was accelerated in this period. Growth of service prices by the end of February was on the level of 18.7 – 19.4% and of non-food goods 12.2% - 13.8%. At the beginning of 1998 food prices were characterised with stronger growth trends than a year ago. Since December 1997 till May 1997 food became dearer by 4.3% against 3.9% in the same period of 1997. In May a twelve-month food price growth was on the level of 10.3%, i.e. was close to that at the end of 1997 – 10.2%.

Since the beginning of March inflation started to decline again but the period of stronger inflation fall started not before May. Monthly price increments from a high level in January and February decreased in further months of the analysed period and the effect of individual price groups on the overall inflation rate was formed in a more uniform way than at the beginning of the year.

Period June - August 1998: substantial fall of inflation

In summer months of 1998 an absolute fall of prices occurred by 0.4% in July and by 0.6% in August. The scale of disinflation was the largest since 1996 and it covered for the first time both summer months as well. A fall of food prices by 2.3% in July and by 2.7% in August was the basic factor affecting so strong inflation decrease. A problem with managing excess agricultural products, originating from

inventories from previous years, high current production and imports, at limited domestic demand and also at gradual increase of problems with food exports occurred. As a result domestic inventories of food started to increase.

Low prices of raw materials in global markets had increasingly strong influence on inflation in the discussed part of the year. Trends of clearer fall of imports transaction prices initiated in June also contributed to a fall of domestic inflation. Strong downward trends of external prices in 1998 had a limiting effect on prices of domestic products. That referred in the strongest way to the fuels market. A deep fall of fuel prices in world markets was reflected in low rate of fuel price growth in the domestic market, at the same time making possible increasing fuels excise rates a few times at a relatively small increase of final prices. Thanks to that prices of derivative products and transport services were also growing relatively slowly.

A real (and sometimes also nominal) strengthening of zloty in the first half of year had also effect on domestic prices growth rate, apart from disinflationary trends in world markets, and contributed to reducing the dynamics of transaction prices in Polish foreign trade promoting damping of inflationary pressure on the domestic market.

Period September – December 1998: effect of strong supply shocks

In the final months of the year the monthly rate of consumer price growth was systematically falling. Since September to December 1998 food became dearer by 3.5% (a year before by 6.8%), services by 0.8% (a year before by 3.7%), non-food products by 3.0% (a year before by 4.1%). Thanks to a strong reduction of price growth rate in this period, in October 1998 inflation for the first time for a dozen or so years was reduced to a one-digit value achieving a growth of 9.9% in a twelve-month scale, to fall down to 8.6% at the end of year (Table 1).

The Russian crisis and consequences of perturbations in financial markets for world economic trend were the factor which in that period contributed to intensification of competition in the domestic mar-

Table 1
Dynamics of basic groups of consumer prices

Specification	Dec 1997	Dec 1998
	Dec previous year = 100	
Total CPI	**113.2**	**108.6**
Total food	**110.2**	**102.8**
- cereal products	106.8	104.8
- potatoes. leguminous. vegetables	118.8	101.4
- fresh meat and poultry	106.7	93.9
- meat products	109.6	99.6
- fish and fish products	114.0	109.8
- vegetable fat	107.3	113.0
- animal fat	111.6	92.7
- eggs	117.7	80.4
- dairy products	111.3	104.8
- sugar. confectionery and honey	97.1	107.1
- stimulants	115.6	111.9
- spices and seasoning	111.8	110.8
Total non-food goods	**112.6**	**109.7**
- tobacco products	119.1	119.7
- ladies clothing	111.7	108.7
- coal. briquettes and coke	108.7	105.1
- medical and pharmaceutical products	113.2	115.6
- washing and cleaning agents	111.5	113.2
- automobiles	107.7	100.5
- fuel	116.1	104.7
Total services	**118.7**	**114.6**
- rents	126.8	123.0
- cold water	125.1	116.6
- central heating	113.9	117.8
- hot water	136.2	141.6
- electricity	116.7	114.0
- gas	115.6	112.6

ket and reducing tendency of firms to raise prices. Manufacturers affected with a sudden breakdown of demand in the Russian market (and in markets of other CIS countries) and a reduction of import demand of economies of Western Europe (including primarily Germany) were forced to seek opportunities for sales in the domestic market. The reduction of demand perceived increasingly stronger in numerous market segments in conditions of stronger and stronger competition (including from outside) result-

ed in retarding tendency to raise prices by domestic firms, despite feeling by them a pressure of increasing costs of manufacturing.

Hence the rate of price growth falling last year in Poland pretty rapidly was partly connected with reduction of price growth rate in the global scale. In the world economy in 1998 the rate of economic growth lessened, centres of economic crises appeared, effects of which affected the world economy in a varied extent. Systematic opening of Polish economy has at the same time increased its vulnerability to changes occurring in the global scale.

Situation in the domestic market in 1998 has clearly lessened trends to increase prices of industrial sales. Existing in previous years the manufacturers tendency to transfer production costs into prices was substantially reduced, despite sustained pressure in many industries caused by an increase of costs. As enterprises were not able to raise prises to sustain assumed profitability of production they were aiming at reducing costs, including pay costs, according to their possibilities. That reduced domestic demand and retarded inflation pressure.

Disinflation was higher than expected by corporates. In a similar way like in previous years inflation expectations during majority of the last year were higher than the assumed inflation target (that is proven among other things by a systematically published review of inflation forecasts by banks prepared by the Reuters). Questioning the reality of inflation target by some government centres has partly contributed to that. It was only in last months of the year that the expectations were revised. That could additionally deteriorate financial standing of companies.

Evolution of inflationary expectations in 1998 leading effectively to their concurrence with official forecasts was an important phenomenon, proving an increase of reliability of anti-inflation policy, promoting execution of medium-term inflationary target.

Alternative measures of inflation

The assessment of inflationary processes in Poland is carried out on the basis of indices of consumer prices growth. However, to determine the limits of

the central bank monetary policy influence on these processes, the NBP performs auxiliary analyses of other inflation measures, including basis inflation indicators.

The analysis of inflation cleaned up of effects of sudden supply shocks as well as free of seasonal effects of changes of some consumer prices – so-called basis inflation – might be especially useful. Such an indicator presents this part of inflation that is in a closer relationship with the monetary area.

Indicators of basis inflation might be a useful analytical tool, helping to notice a permanent, long-term trend of consumer prices in economy. The amount of basis inflation allows also to determine the scope of the actual influence of monetary policy on consumer prices. Indicators of basis inflation are used by numerous central banks worldwide for analytical research and work.

Basis inflation may be calculated in a number of different ways and hence in the National Bank of Poland research is being carried out aiming at selecting the best measure of basis inflation in Polish conditions. So far the following measures of basis inflation have been assessed:

1. index of basis inflation after excluding prices of largest fluctuation;
2. index of basis inflation after excluding administered prices,
3. median of consumer price index,
4. 15% trimmed mean obtained from a disaggregated consumer price index.

Compared with inflation measured by consumer prices the measures of basis inflation are characterised with a more equalised course.

Despite the fact that indicators of basis inflation calculated in various ways are different, certain regularities of their changes may be indicated in respect to formation of consumer price index (CPI). The indicator obtained after excluding administered prices is an exception – as rises of administered prices caused a single shift of the inflation track (CPI) upwards. Seasonal fluctuations of prices and their changes resulting from temporary supply shocks affected the growth of inflation in the first half of year. Instead, since July to August a decrease of spread between CPI and the basis inflation indicators

is visible, confirming the effect of seasonal fall of food prices on inflation. However, starting from September inflation indicators (CPI) were again rising faster than the basis inflation (see Charts 39, 41, 43 and 45, Annex 1).

Prices of industrial sales

The rate of industrial sales prices growth has substantially fallen in 1998. Growth of these prices in the period December 1997 to December 1998 was more than twice smaller then in a similar period of the previous year and was on the level of 4.8% compared with 11.5% a year before.

Chart 8 shows the formation of industrial sales price growth in the period 1997 – 1998.

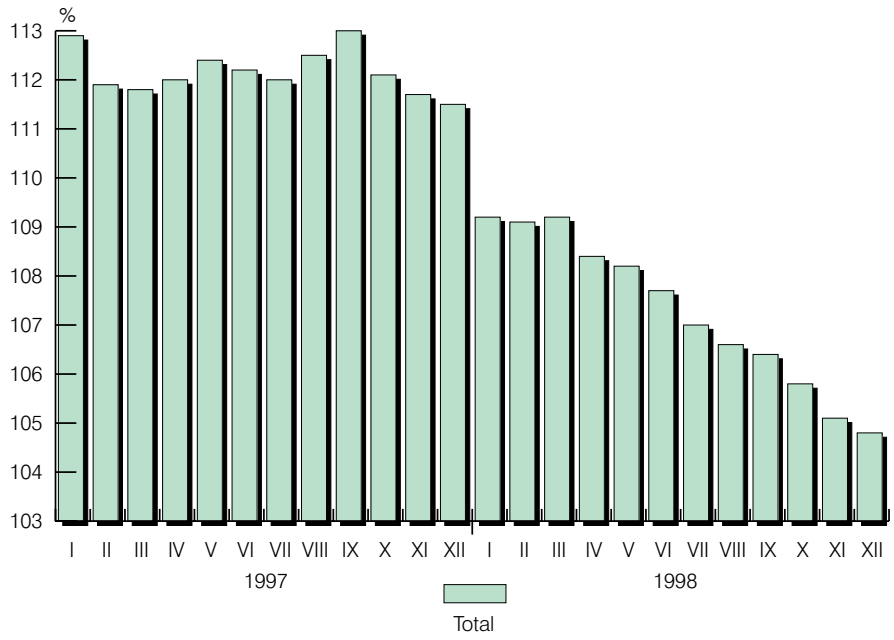
The scale of industrial prices growth in 1998 in general was determined by production costs resulting among other things from price rises of energy sources, costs of outside services. On the other hand, the price growth was retarded by a low dynamics of imported raw materials prices. At the same time a large competition in the domestic market, weakening consumer demand and limited possibilities of exports were retarding a possibility of raising prices by manufacturers.

However, in certain industrial sectors clear growth trends of prices sustained, caused by a strong cost pressure.

The lowest price growth (more than four times smaller than the scale of their growth a year before) was recorded in extractive industry that resulted mainly from the weakening of price dynamics in the hard and brown coal mining and peat mining.

Prices in the sector of manufacturing activity were also growing but at a much slower rate than a year before and also below an average growth of industrial sales prices. In this section of industry production prices of coke, oil products and derivatives fell during 1998, while a year before there was a strong growth of these prices. There was a much smaller than in the previous year, as well as below average dynamics of prices in this section, growth of production prices in pulp and paper, rubber and plastics, machine-building and electric apparatus, furniture industries. On the other hand, the largest growth of

Chart 8
Dynamics of industrial sales prices (PPI) (analogous month of the previous year = 100)



prices occurred in the tobacco industry, as well as clothes and furs, strongly exceeding an average price rise in this sector and a general price growth of industrial sales.

A high level of production prices growth, substantially exceeding an average growth level, occurred in 1998 in the section of electricity, gas and water supplies. The scale of this growth was close to existing in the previous year. It resulted primarily from a substantial price growth in divisions "water intake, treatment and distribution" and "supply with electricity, gas, steam and hot water".

Formation of price growth in three basic sections of industry in 1998 is shown in Chart 9.

Average annual price growth of industrial sales in 1998 is shown in Chart 10 against the background of years 1996-1997.

Chart 9
Dynamics of industrial sales prices (PPI) by basic sections (December 1997 = 100)

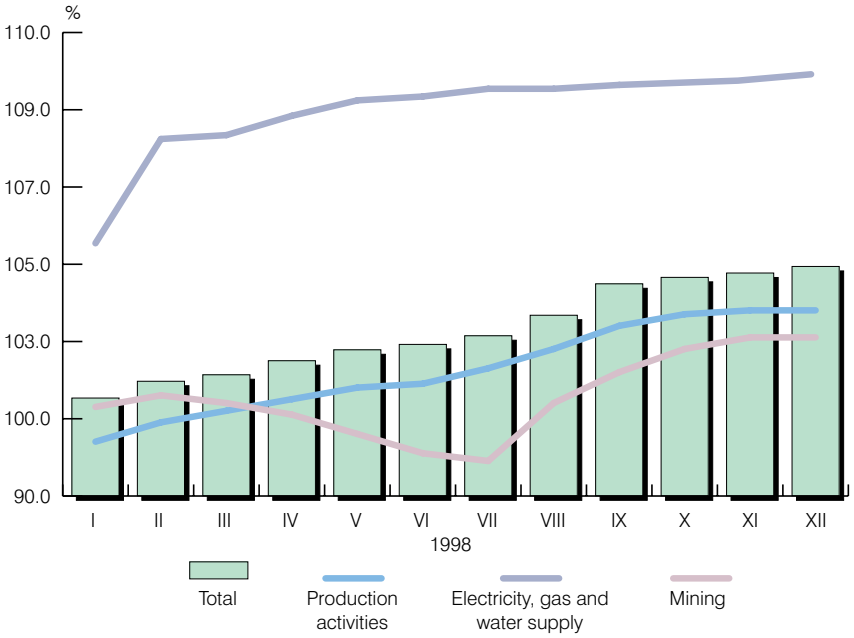
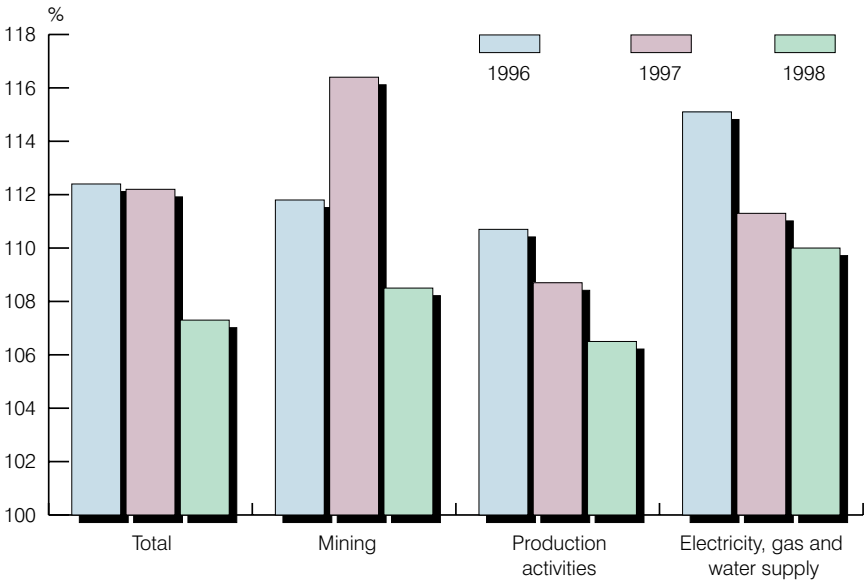


Chart 10
Dynamics of industrial sales prices (PPI) in 1996 – 1998 (previous year = 100)



Factors determining inflationary phenomena in 1998

Money and prices in the financial market

Money supply in 1998

Total money M2 defined as the sum of domestic money and foreign exchange obligations to persons and corporates is the basic monetary aggregate. Domestic money includes notes and coin in circulation (excluding vault cash) and funds in zloty deposited with banks on accounts of corporates and persons. In 1998 the money supply increased by PLN 44.4 bn, i.e. by 25.2% compared with the state as of the end of December 1997, obtaining at the end of year the level of PLN 220.8 bn. In real terms this growth amounted to 15.2%. In 1997 the nominal growth of M2 amounted to 29.1% while the real one to 14.0% (see Table 2).

The most important changes occurred in zloty accounts of non-financial sector. The value of PLN liabilities to corporates and persons achieved as of the end of December 1998 the amount of PLN 156.9 bn. Compared with the state as of the end of 1997

Chart 11
Dynamics of zloty deposits of persons (analogous period of the previous year = 100)

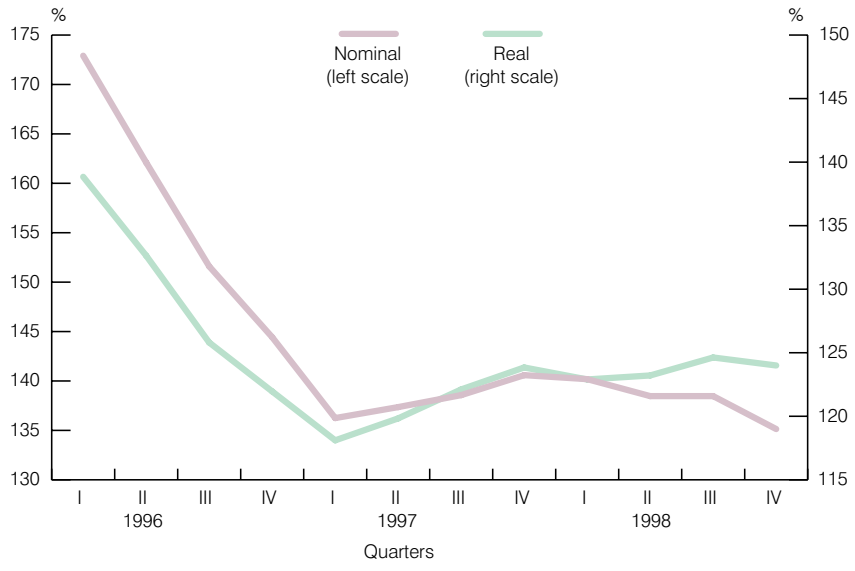


Table 2
Consolidated balance sheet of the banking system

Specification	1997		1998	
ASSETS				
1. Net foreign assets [USD million]	23,539.7	3,944.4		27,484.1
nominal growth		*16.8*		
1. Net foreign assets [PLN million]	82,812.8	1,3491.5		96,304.3
nominal / real growth [%]		*16.3*	*7.1*	
2. Net domestic assets	93,578.9	30,881.5		124,460.4
nominal / real growth [%]		*33.0*	*22.5*	
2.1. Net budget sector debt	55,258.8	6,069.9		61,328.7
nominal / real growth [%]		*11.0*	*2.2*	
2.2. Claims on persons				
and corporates	108,291.1	30,232.0		138,523.1
nominal / real growth [%]		*27.9*	*17.8*	
2.3. Net balance of other items	-69,971.0	-5,420.4		-75,391.4
TOTAL ASSETS	**176,391.7**	**44,373.0**		**220,764.7**
LIABILITIES				
3. Domestic money	145,571.1	41,552.1		187,123.2
nominal / real growth [%]		*28.5*	*18.4*	
3.1. Notes & coin in circulation	27,255.9	2,969.3		30,225.2
nominal / real growth [%]		*10.9*	*2.1*	
3.2. Zloty liabilities	118,315.2	38,582.8		156,898.0
nominal / real growth [%]		*32.6*	*22.1*	
4. Foreign exchange liabilities	30,820.6	2,820.9		33,641.5
nominal / real growth [%]		*9.2*	*0.5*	
Foreign exchange [USD million]	8,760.8	840.1		9,600.9
TOTAL MONEY	**176,391.7**	**44,373.0**		**220,764.7**
nominal / real growth [%]		*25.2*	*15.3*	
EXCHANGE RATE	**3.5180**	**-0.0140**		**3.5040**
CPI [%]		**8.6**		

that meant an increase by PLN 38.6 bn, i.e. by 32.6%.

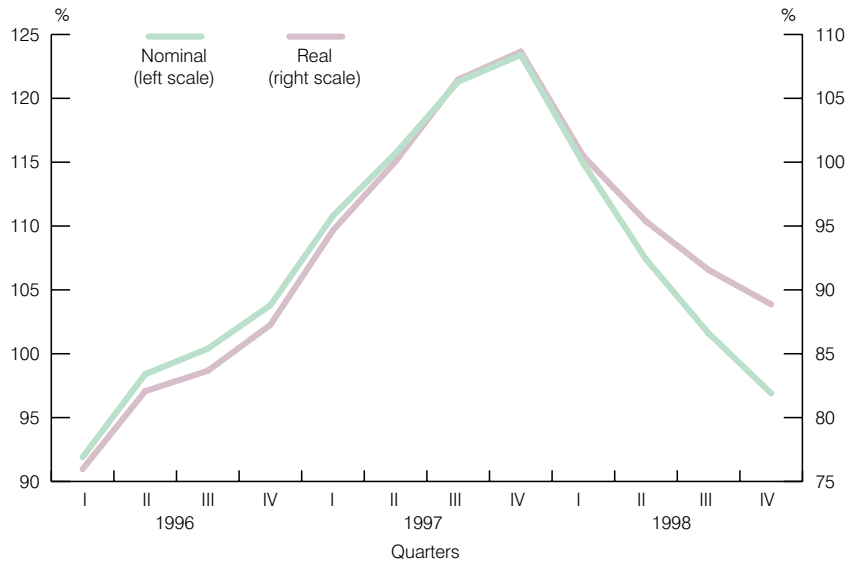
Zloty deposits of persons consisted in 1998 about 74.3% of total deposits while deposits of corporates 25.7%. Nominal increases of both categories amounted to 35.5% and 26.4%, respectively, while in real terms to 24.8% and 16.4% (see Chart 11). This data shows that in 1998, in a similar way as in the previous year, a high rate of growth of persons

deposits was maintained in real terms. A real growth of earnings, a higher yield of PLN than foreign exchange deposits and a weakening of the growth rate of individual consumption were the main factors affecting changes of this monetary aggregate. A high increase of PLN liabilities to persons may prove a rising tendency for saving in the domestic money.

Deposits of corporates substantially increased in real terms compared with 1997 (by about 14 points). Such a high increase of these deposits resulted primarily from their growth by about PLN 6 bn in December 1998 that made about 60% of their annual growth. That resulted from the reduction of production in Q4 of last year at a simultaneous increase of revenue on sales in December. As a result a part of funds was deposited on bank accounts.

Foreign exchange resources of persons and corporates increased in 1998 by USD 840 million achieving the amount of USD 9.6 bn, 72.7% of which consisted of foreign exchange resources of persons. The value of zloty of total foreign exchange liabilities increased in the analysed period by PLN 2.8 bn, i.e. by 9.2%, achieving the amount of PLN 33.6 bn. Foreign exchange deposits of corporates increased in dollar terms by 64.9%, where that was connected mainly with inflow of foreign exchange in December 1998 to the TP SA account on behalf of issuing bonds in overseas markets at the amount of

Chart 12
Dynamics of foreign exchange deposits of persons (analogous period of the previous year = 100)

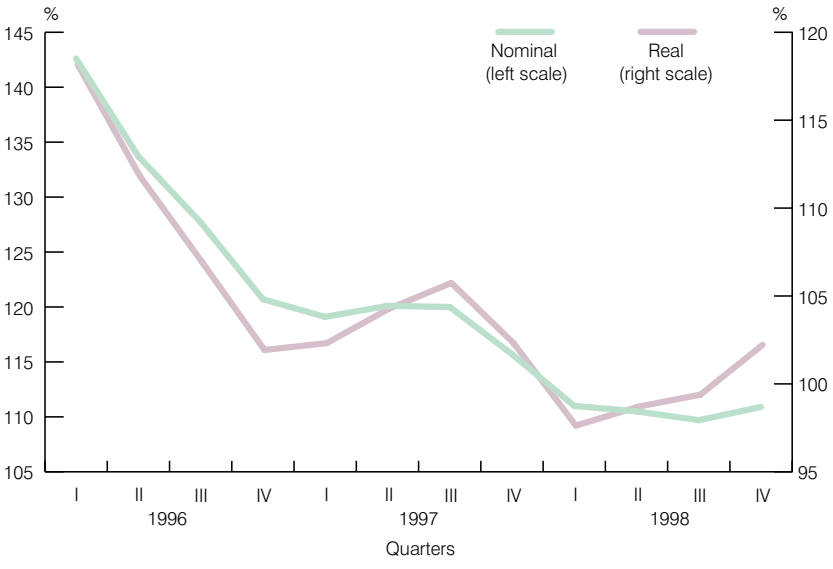


USD 1 billion. Without these funds the foreign exchange deposits of corporates in 1998 would have maintained on the level close to the previous year. On the other hand, foreign exchange resources of persons fell by 3.1% (see Chart 12). These are savings collected generally in the past in the period of the lack of confidence in zloty. Reduction of individuals' interest in holding their money in the form of foreign exchange resulted primarily from a higher yield of PLN than foreign exchange deposits.

Notes and coin in circulation in 1998 increased by almost PLN 3 bn, reaching as of the end of December last year the state of PLN 30.2 bn. Nominal increase in this category amounted to 10.9%, while the real one to 2.1%, whereas in 1997 these indicators amounted to 15.7% and 2.2%, respectively (see Chart 13). Changes of persons and corporates requirements for cash are connected with a fall of inflation and an observed increase of non-cash settlements in the recent years. The range of banking services offered within cheque accounts is being extended, banking cards are being used in a more common way.

Visible changes occurred then in the structure of money supply in 1998 compared with 1997. The share of PLN deposits of persons and corporates in the total money supply increased – from 68% in 1997 to 71.0% in 1998. That resulted from a fall of

Chart 13
Dynamics of cash money (analogous period of the previous year = 100)



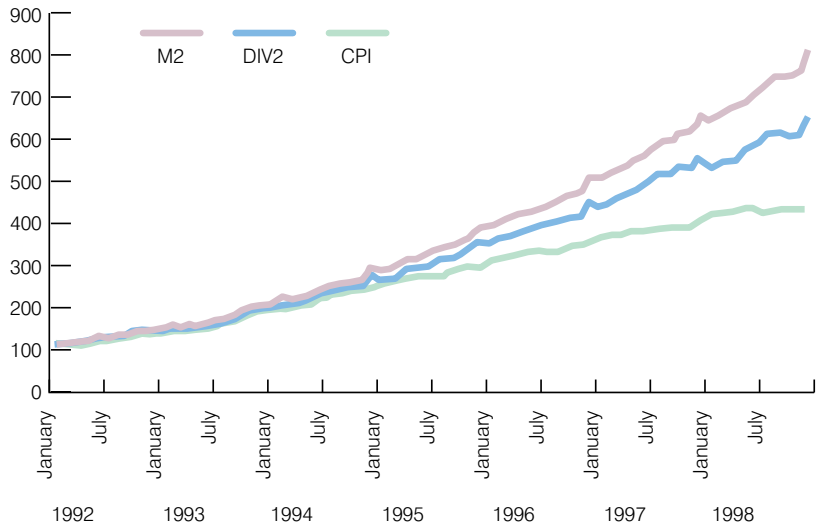
share of foreign exchange and notes and coin in circulation, contribution of which at the end of 1998 amounted to 15.3% and 13.7%, respectively.

It is estimated that in 1998 the relationship of total money (average monthly situation in the year) to GDP amounted to 35.5% compared with 32.4% in 1997. Hence there was an increase of the level of economy monetisation. There was also an increase of monetisation measured by the relationship of domestic money to GDP, from 26.7% to 29.7%. The relationship of total money at the end of 1998 to GDP amounted to 40.1% compared with 37.6% in 1997.

The analysis of relations between inflation (measured by consumer price growth index) and the total money supply shows that in Poland a gradual divergence of both categories dynamics' paths starts to occur increasingly clearer (see Chart 14). That became especially visible in 1998.

An increasing demand for money is one of the main reasons of this phenomenon, confirmed by increasingly larger level of monetisation of the economy, manifesting itself in an increasing share of financial assets, including also financial fixed assets, in portfolios of corporates and households. This is a natural consequence primarily of a falling inflation and of a development of financial markets in Poland, facilitating reasonable formation of the possessed

Chart 14
M2, DIV2 and CPI indices (January 1992 = 100)



assets mix. A share of earning financial assets increased considerably in corporates and households portfolios of assets. However, in fact a large part of money assets does not fulfil a transactional role (means of payment assigned to execute current expenditures), but a role of financial fixed assets hold mainly to earn interest. A change of corporates preferences is observed, that compared to previous years show a relatively higher demand for money, including a tendency to hold a larger proportion of own property (wealth, savings) in the form of liquid funds.

At a lower inflation level short-term deviations from a long-term trend become more important. These deviations are formed primarily by seasonal and short-term shock type factors, mainly caused by non-monetary factors.

Among the most important non-monetary factors that can cause fluctuations of the inflation pace a changing intensity of pressure on pay rise, the magnitude of margins applied by manufactures to costs, a varying degree of monopolisation of individual segments of the domestic market, seasonal fluctuations of food and raw materials prices, the level of using production capacities, changes in the fiscal system, changes of conditions existing in the international markets as well as changes in inflation expectations resulting from uncertainty of the future situation in the economy shall be mentioned. Therefore the stabilisation policy must take into account the importance of these factors in increasingly larger extent.

The aforementioned reasons make that the stability and predictability of the relationship between monetary aggregate M2 and inflation increasingly lessens. However, there is a statistically verifiable long-term relationship connecting CPI with Divisia monetary aggregate, thanks to that one may speak about a long-term price index trend determined by money supply (see Annex No 2).

Money creation factors

The structure of money creation indicated that for a few years **claims on persons and corporates** have been the basic source of money growth in the banking sector. This is illustrated by the table 3.

The concept of *Divisia* index

The *Divisia* index is created on the basis of monetary aggregate M2. To calculate the *Divisia* index a proper weight is assigned to each of components creating aggregate M2. This weight is a measure of share of costs connected with holding a specific component in total costs, incurred to hold money assets for transaction purposes. This share is the larger, the greater is the extent in which a given component is capable of fulfilling a transactional function of money.

The share of costs assigned to individual components may be expressed in the following way:

$$s_{it} = \frac{p_{it} \cdot M_{it}}{\sum_i p_{it} \cdot M_{it}} \qquad (1)$$

where M_{it} defines the amount of money assets held in form i during time t, while p_{it} is a cost of holding money assets in form i. This cost is calculated on the basis of the following formula:

$$p_i = (R - r_i) \qquad (2)$$

where R is a reference rate of return obtained from the least-liquid money asset, available in the market. The magnitude r_i defines the rate of return obtained from money asset i.

The following formula is used to calculate the *Divisia* index:

$$\ln D_t - \ln D_{t-1} = \sum_i n_{it} \cdot (\ln M_{it} - \ln M_{it-1}) \qquad (3)$$

where

ln is a natural logarithm of a variable;

D_t is the Divisia measure in time t;

M_{it} is defined as above;

$$n_{it} = \frac{(s_{it} + s_{it-1})}{2} \qquad (4)$$

s_{it} is defined in formula (1).

As it results from formula (4) the weights used to construct the *Divisia* index are arithmetic means of s_i shares calculated for two periods.

According to observations made for aggregate M2 and the *Divisia* index in Polish conditions, the rate of M2 increase is faster than the rate of *Divisia* index growth. This phenomenon manifested itself at the beginning of 1995 and was getting stronger till the end of 1998.

Prepared on the basis of: *"Divisia Measures of Money"*, Bank of England Quarterly Bulletin, May 1993.

In 1998 the growth of claims on persons and corporates in the banking sector explained 68.1% of total money supply increase[1] (in 1997 68.5%), of which the growth of claims on corporates – 55.7% and on persons – 12.4%.

The total debt resulting from claims on persons and corporates amounted at the end of 1998 to PLN 138.5 bn, of which due but unpaid interests PLN 4.3 bn. In 1998 this debt increased by 27.9%. The rate of corporates and persons debt growth in 1998 lessened compared with 1997, even though it was still high. The increase of debt was determined by a growth of demand for credit in enterprises, private companies and co-operatives. As it results from the analysis of financial situation an increasingly important reason of using credit by enterprises consisted in ascertaining current activity in conditions of deteriorating financial outcomes. Moreover, for a part of them, banking credits (apart from short-term commitments) consisted an important source of income allowing to remain in the market.

The debt resulting from claims on persons and corporates was increasing in an uneven way in individual quarters of the year. The highest growth of claims on persons and corporates was recorded in 1998 Q3, mainly as a result of the effect of zloty depreciation on the value of credits in zloty indexed to foreign currencies.

Of the total amount of claims on persons and corporates at the end of 1998 the zloty claims consisted 79.4% and foreign exchange claims 20.6%. The

[1] The net balance of other items was taken into account while calculating shares of individual factors of money creation.

Table 3
Money creation factors in 1998

Specification	Increase in 1998 (PLN million)	Share in annual increase (%)
Total money supply	44,373.0	100.0
- Net foreign assets	13,491.3	30.4
- Claims on persons and corporates	30,232.0	68.1
- Net general government debt	6,069.9	13.7
- Net balance of other items	-5,420.2	-12.2

share of the latter was increasing that could result from a statistical effect of zloty exchange rate decrease, but also from a greater interest of enterprises in borrowing in foreign exchange.

In 1998 a short-term debt was growing much faster than the long-term one, hence the share of short-term claims up to one year in claims on non-financial sector[2] at the end of 1998 increased, despite the fact that within the structure they constituted less than a half of these claims (41.4%).

The amount of classified assets due from non-financial sector constituted at the end of 1998 10.2% of claims on the non-financial sector. Their nominal increase resulted basically from an increase of doubtful and substandard assets.

Appreciation of zloty influenced in 1998 the growth of Polish firms interest in foreign credits with lower interest rates. Demand for foreign exchange credits has not eased despite a fall of zloty exchange rate during the course of Russian crisis. A fall of zloty exchange rate was a short-term one and then the rate returned to the previous level. At the end of 1998 the total amount of foreign debt of corporates amounted to the equivalent of about PLN 50 bn, of which 40% consisted of credits extended by overseas companies to their subsidiaries in Poland and hence consisting in fact a part of direct investments.

Another factor of money creation consisted in **net foreign assets**[3], that in 1998 increased by USD 3,944 million, reaching at the end of 1998 USD 27,484 million. That was a much higher increase than in 1997, when net foreign assets increased by USD 2,154 million. The share of net foreign assets in the growth of money amounted in 1998 to 30.4% compared with the share of 53.6% in 1997. The largest effect on net foreign assets was exerted by categories of the balance of payments discussed below.

In 1998, in a similar way as in previous years, capital and financial surplus of the balance of payments

[2] Claims on non-financial sector are smaller than claims on persons and corporates by claims on insurers, on other non-bank financial institutions and by the value of debt securities and repos.

[3] Net foreign assets include official gross reserves at the disposal of the NBP, other foreign assets in convertible currencies less short-term bank liabilities and IMF credits as well as other claims on non-residents, such as extended credits, issuing securities, subordinated loans, received credits with original maturity above one year, claims in inconvertible currencies and other illiquid assets.

decided on increase of foreign exchange reserves of the banking system. A surplus obtained in this part of balance of payments balanced the deficit in the current account and made increase of foreign exchange reserves possible. The balance of financial and capital turnover amounted to USD 10,800 million. Direct investments, consisting in contributions provided by foreign investors and loans obtained from overseas shareholders, were the most important item of this part of balance of payments contributing to increase of foreign exchange reserves.

A net inflow of foreign capital in the form of direct investments amounted in 1998 to USD 4,966 million (for comparison in 1997 USD 3,041 million). Such a significant increase of investing in Polish economy by overseas capital resulted on one hand from good macro-economic results (especially in the first half of 1998) and from continuation of the process of privatisation.

A net inflow of foreign capital in the form of portfolio investments amounted in 1998 to USD 1,330 million. This is substantially less than in the previous year, in which the surplus amounted to USD 2,098 million. An outflow of Polish capital invested abroad, primarily in debt securities by the banking sector, contributed to that. Foreign portfolio investments in Poland amounted net to USD 1,511 million that results basically from achieving inflows from partial privatisation of the TP SA and an issue of eurobonds by this company.

An inflow of capital invested in debt securities was promoted by the process of zloty strengthening lasting from November 1997 to April 1998 and expectations of its further appreciation. In the later period of 1998 expectations of decreasing interest rates, creating an opportunity of obtaining profits on purchase and subsequent resale of Polish debt securities, played an important role. The difference of interest rates in Poland and abroad was large enough for foreign investors, despite the fact that it was reduced compared with 1997.

The crisis in Russia caused deterioration of the investment climate in emerging markets and withdrawal of a part of overseas capital placed in Polish debt securities. Foreign investors were aiming at offsetting losses incurred in the Russian market. The

net outflow of capital lasted for three consecutive months and amounted to: in August – USD 637 million[4], in September – USD 413 million, in October – USD 52 million. In total since August till October USD 1.1 bn of foreign capital outflowed, so that was a relatively small loss.

In 1998 long-term credits at the amount of USD 3,235 million were taken and USD 1,506 million repaid. That resulted in net inflow of capital in that item. A significant difference maintaining between the interest rate level in Poland and abroad at a trend for real appreciation of zloty encouraged domestic enterprises to take foreign credits. Long-term credits taken by non-governmental and non-banking sector amounted to USD 1,866 million.

In 1998 the external imbalance in respect to the current account became more profound. Deficit in the current account amounted to USD 6,858 million and was higher by USD 2,546 million compared with the deficit in 1997. The ratio of deficit in the current account to GDP increased from 3.0% in 1997 to 4.4% in 1998.

The revenue from the exports of goods recorded by the statistics of the balance of payments amounted in 1988 to USD 30,122 million, i.e. rose compared with the previous year by 10.6%. At payments for imports amounting to USD 43,842 million (increase by 13.7%) the deficit of goods payments amounted to USD 13,720 million.

A surplus of transfers at the amount of USD 1,942 million resulted both from a positive balance of governmental sector transfers (USD 408 million) and a positive balance of other sectors transfers (USD 1,536 million).

An excess of inflows over outflows in the item unclassified current account that in 1998 amounted to USD 5,996 million was only USD 15 million smaller than in the previous year. The magnitude of this item of the balance of payments consists of cash operations in foreign exchange resulting from frontier trade and also unrecorded export-import operations (primarily with countries of the former USSR), tourism, unrecorded income on work undertaken by

[4] Of which USD 400 million outflowed from Poland due to the Brady bonds redemption – hence an operation not related with a response to the Russian crisis.

Poles abroad, reselling funds drawn from foreign exchange accounts or cash hold in convertible currencies. By August 1998 the surplus of inflows from unclassified current account was higher than in the previous year. Breakdown of frontier trade at the eastern border manifested itself in September and consecutive months. Ultimately in the whole year the surplus was on the level of 1997 that made 43.7% of the deficit in the recorded trade.

The obtained growth of net foreign assets during all the year (and stabilisation of their level in the period September – December) in conditions of deteriorating situation in the international capital markets proves a stable macroeconomic situation in Poland and confidence of overseas markets to the economic policy of state. However, this inflow of foreign currencies was an important problem for anti-inflation monetary policy at a not fully flexible exchange rate. Monetary effects of a large increase of official reserves of the NBP (in 1998 gross official reserves increased by USD 6,712 million to the amount of USD 27,382 million) had to be neutralised by means of expensive operations of selling NBP bills, absorbing an increase of liquid funds in the sector of commercial banks.

Net debt of the budget sector in the domestic banking system rose compared with December of the previous year by PLN 6.1 bn and reached at the end of 1998 the level of PLN 61.3 bn. That means an increase by 11.0%, whereas the share of net debt of the budget sector in creation of total money reduced from 17.7% in 1997 to 13.7% in 1998. The observed trend of lessening role of the budget sector in creation of money results from an increased demand for Treasury securities from non-banking domestic entities and foreign entities, from an increased inflow of funds from privatised national property as well as from a factor that did not appear before 1998, i.e. a constitutional ban on funding the budget deficit by the central bank.

The rate and the direction of changes of net debt of the budget sector in the banking system during 1998 varied. In the periods of high privatisation revenues and also of significant involvement of funds of entities from the non-banking sector (including foreign entities) investing in the domestic market of

Treasury securities, the budget sector was significantly reducing its debt to the banking sector. A substantial outflow of funds allowed not only to satisfy central government requirements but also saving surpluses of budget resources in the form of deposits on accounts with the NBP. These deposits were used to maintain liquidity in the periods of increased borrowing needs of central government. After a deep fall of the net debt of the budget sector in the first half of last year (by PLN 4.6 bn) in Q3 there was its systematic increase, as a result at the end of September an increase of net credit for the budget sector amounted already to PLN 1.6 bn. A repeated reduction of the budget debt in the banking sector was possible thanks to inflow of funds from privatisation of the Telekomunikacja Polska SA, after 11 months the budget sector recorded a fall of its net liabilities by PLN 0.7 bn.

December decided on a rise of net debt of central government sector in 1998. In that month the debt of the budget sector rose by PLN 6.7 bn and its rate of increase amounted to 12.4% and was higher than the rate of increase in the entire 1998. The sudden increase of this category resulted on one hand with high borrowing requirements of central government and on the other hand from a low inflow of funds to cover them, both of the lack of non-banking financing and the lack of expected high inflows resulting from selling shares of the Bank Przemysłowo-Handlowy SA. The debt of the budget sector on the net basis usually shows an increase at the end of year, generally from a fall of budget deposits with the central bank, inter alia due to spending money by budget entities within limits assigned to them and due to transferring funds for payments of salaries and benefits paid "up-front" in the first days of the coming year. At the end of 1998 additional phenomena occurred, however. In connection with commencing on 1 January 1999 the reform of the system of social security, of health protection and the self-government reform central government performed a redistribution of funds for that purpose. Moreover, in December the Ministry of Finance has sold to the NBP USD denominated bonds for anticipated redemption of foreign debt (Brady bonds). It was that operation (of the value of USD 727.8 mil-

lion) that contributed to a step increase of net debt of the budget sector in the NBP. After a fall of net liabilities of the budget to the NBP that was maintaining during 11 months, they increased in December 1998 in an extremely sharp way (by PLN 6.5 bn, i.e. by 18.9%), that in the scale of the entire year caused a rise of net debt of the budget sector to the NBP by PLN 1.2 bn, i.e. by 10%.

In 1998, thanks to a smaller involvement of funds from the banking sector, as well as to ceasing direct funding the budget deficit by the central bank money, the pressure of the budget sector on an increase of money resources was lessened. Despite recording a reduction of the budget deficit the scale of Government requirement for financing its borrowing needs is, however, still too high in the conditions of Polish economy, characterised with a still relatively low level of monetisation.

A significant increase of domestic investors involvement in purchasing Treasury securities observed in 1998 was insufficient to cover the requirement for funds advised by the budget. Foreign funds raised in the form of credits from international institutions or originating from inflow of foreign capital investing in domestic Treasury securities and also through direct sales of national property to foreign investors continued to be a supplementary source of funding. This direct and indirect foreign funding complicates execution of monetary policy in conditions of a not fully floating exchange rate system (a phenomenon observed in particular in the second half of 1998). This makes difficult control of the foreign component of monetary base by the central bank, as it leads to an increase of official gross reserves and at the same time it is one of the sources of overliquidity existing in the Polish banking system. The overliquidity in a large extent limits the effectiveness of applied instruments of monetary policy and increases its costs, reducing in this way payments from the NBP profit that constitute one of the sources of central government revenue. Reduction of overliquidity in commercial banks requires retarding the flow of surplus reserve money supply via reduction of foreign exchange reserves but also net domestic assets in NBP that can be achieved through a proper fiscal

policy directed towards greater reduction of borrowing needs of central government. In these circumstances the issue of long-term liabilities of central government to NBP becomes crucial, that at the end of 1998 were on the level of about PLN 16 bn. Their securitisation and then selling to banks would allow to reduce the Treasury assets of the NBP and to reduce overliquidity of the banking sector.

Functioning of transmission channels in 1998

The central bank affects economy by means of interest rate and exchange rate – hence there are references to functioning of a traditional interest rate channel and an exchange rate channel. The central bank influences also the supply of credit in commercial banks and the supply of credit on real economy. This is so-called credit channel.

The central bank interest rate affects interest rate of short-term deposits in the interbank market which then influences credit and deposit interest rates in commercial banks. Deposit and credit interest rates affect next decisions of households on savings and consumption and decisions of enterprises on investments. That means that interest rate is one of factors that form demand and determine inflation.

The difference of domestic and overseas interest rates is one of factors that determine capital flows and hence exchange rate. When the domestic interest rate, taking into account the existing premium for the country risk and expectations in respect to a change of the domestic currency value, is higher than the foreign one then portfolio investments rise resulting in appreciation of the domestic currency, in a fall of overseas demand and of domestic production dynamics. Hence appreciation may result in deterioration of the balance in the current account. On the other hand, the current and expected inflation is reduced by reduction of imports price dynamics and by increase of competition in the domestic market. So the exchange rate affects inflationary processes in the country both directly and indirectly.

Contrary to the interest rate and exchange rate channel the operation of so-called credit channel of monetary impulses transmission is not carried out

by means of changes of financial instruments prices. The condition of its existence is an influence of the central bank on the credit supply curve of commercial banks and the fact that at least for some of entities the banking credit is the only source of external funding, i.e. they do not have an easy access to the money and/or capital market.

The central bank affects a possibility of credit creation by commercial banks by means of the mandatory reserve rate and open market operations. An increase of mandatory reserve rate and open market operations by absorbing the surplus liquidity reduce a possibility of credit creation by banks. That leads to lessening investment and consumer demand and as a result to reducing pressure on prices.

Interest rate channel

Factors affecting the level of interest rates in economy

Direct influence of the central bank on interest rates is limited to affecting interest of short-term interbank deposits. The interest of interbank deposits affects then all remaining short-term interest rates. On the contrary the value of long-term interest rates depends primarily on inflationary expectations hence the central bank may influence them affecting the inflationary expectations.

In 1998 the NBP was affecting the market interest rates directly – by means of open market operations interest rate and indirectly – by lombard credit rate. They constituted the lower and the upper limit of market rates fluctuations, respectively. The required level of interest rates was maintained by means of open market operations through equalising demand and supply of reserve money. Commercial banks, aiming at minimising disproportions between funds available to them and demand for them, were accepting interest offered by the central bank. In this way the interest of open market operations was determining the marginal yield of banks assets. In conditions of permanent surplus of liquidity of the banking sector (so-called "overliquidity" – see

Overliquidity of commercial banks and its effects for monetary policy

Overliquidity is a phenomenon characterised with existence of net debt of the central bank in the commercial banks sector. Usually central banks are net creditors of this sector that allows them, via central bank rates, defining marginal price of commercial bank liabilities, to influence effectively the policy of commercial banks deposit and credit rates. In the case of a change of interest rates by the central bank, commercial banks guided by the criterion of profit immediately adjust their deposit rates to decrease (when the central bank rates rise) or increase (when these rates are lowered) supply from the central bank. In parallel there occurs a process of adjusting assets interests that results from the microeconomic objective of maximising profit realised in a competitive environment. In the situation of overliquidity the central bank interest rates cease performing the role of marginal rates of raising money, instead, they play the role (open market operations rate) of a marginal investment rate. So they affect the yield of commercial banks assets and not the cost of liabilities. In this role the central bank rates have a lesser effect on price behaviour of commercial banks, because it is connected with the effect of assets substitution (the central bank offers commercial banks a *possibility* of investing at a given rate). In the situation of structural overliquidity maintaining of the intended level of monetary policy restrictiveness by the central bank depends also on attitude of commercial banks and not only on the will of the central bank. So the phenomenon of structural overliquidity makes control of money growth difficult. Theoretically it may also limit central bank abilities for effective defence of domestic currency in the case of a strong pressure on its depreciation (commercial banks not renewing operations with the central bank have an access to funds allowing to purchase funds in speculative purposes from gross official reserves, without being directly exposed to effects of raising interest rates by the central bank).

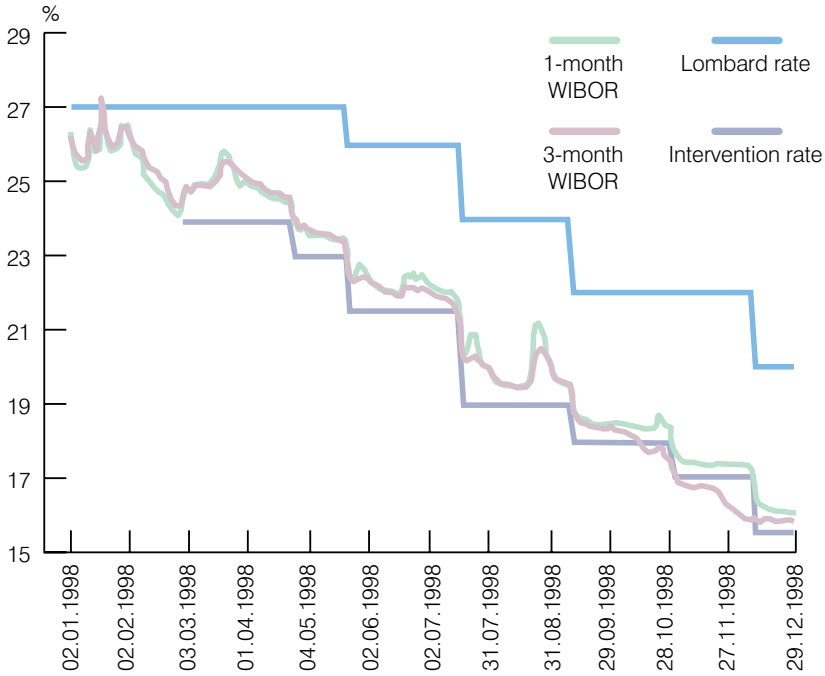
In Poland overliquidity of the commercial banks sector is a permanent phenomenon occurring since 1994. The increase of gross official reserves of the central bank that in the period 1994-98 grew by about USD 23.1 bn was the main source of overliquidity. A large part of reserves increase was connected with factors, on which the NBP did not have a direct influence, such as, e.g. income on state enterprises privatisation, credits taken abroad by the public sector, public transfers, direct investments. The NBP was limiting negative effects of this process selling the entire portfolio of negotiable Treasury securities in absorbing open market operations, then issuing own securities (NBP bills) and performing policy of high rates of mandatory reserves. At the end of 1998 the scale of overliquidity absorbed in open market operations and in mandatory reserve was equal to PLN 47.7 bn that made about 14.2% of the total assets of the commercial banks sector.

The existence of overliquidity makes difficult execution of the process of decreasing rates of mandatory reserve. At a high burden of mandatory reserve domestic banks are in a more difficult competitive situation than foreign banks. The scale of overliquidity, e.g. placed in mandatory reserve, could be lower, if the NBP could use in open market operations the portfolio of hitherto non-negotiable budget obligations. At the end of 1998 the nominal value of these obligations amounted to about PLN 14.2 bn.

the box above), the NBP was performing in 1998 only such operations, that were absorbing it, issuing in that purpose own securities (NBP bills). They were available only to domestic banks and the Banking Guarantee Fund.

The main principle of performing open market operations in 1998 was to maintain the yield of NBP bills on the level not lower than determined by the Monetary Policy Council (MPC) level of reference rate. Since February 1998 the NBP was issuing only bills of 28-days maturity creating for banks a possibility of alternative placement and by

Chart 15
NBP basic rates and WIBOR rates

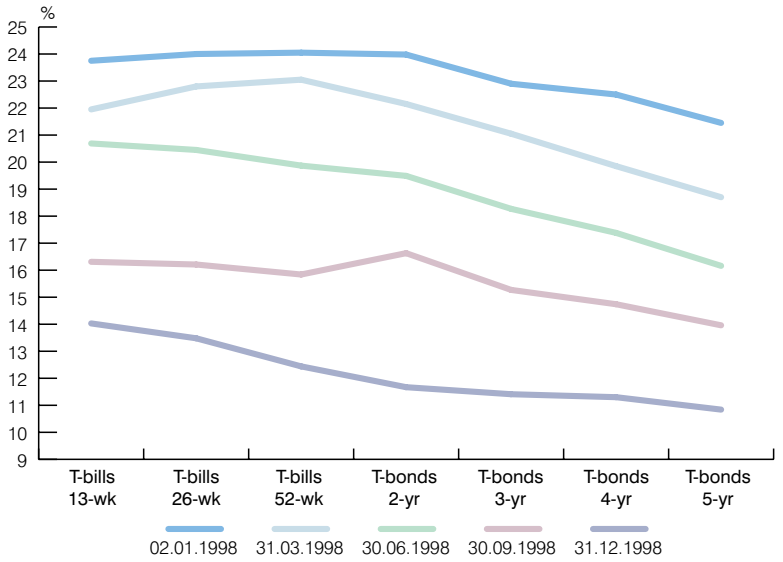


that maintaining one-month WIBOR[5] rate on a level not lower than the accepted yield of open market operations. The NBP influence on interbank deposit interest rates is important, because banks determine the credit interest referring it to WIBOR rates. Chart 15 illustrates the relationship of one-month WIBOR rate with the open market operations interest (with yield rates of 28-days NBP bills). Due to a high overliquidity in the banking sector in 1998 the level of interest rates in the interbank market was closer to the open market operations rate than to the lombard rate.

The longer are the maturities of financial instruments the weaker is the influence of the central bank on their prices and yield rates. Expectations of market participants in respect to future inflation pace and the level of short-term interest rates start to play increasingly important role. Therefore changes of the

[5] Arithmetic mean of interest rates, at which deposits are placed in the interbank market; the acronym WIBOR originates from the name Warsaw Interbank Offered Rate.

Chart 16
Yield course, Treasury securities (Secondary market – 1998)



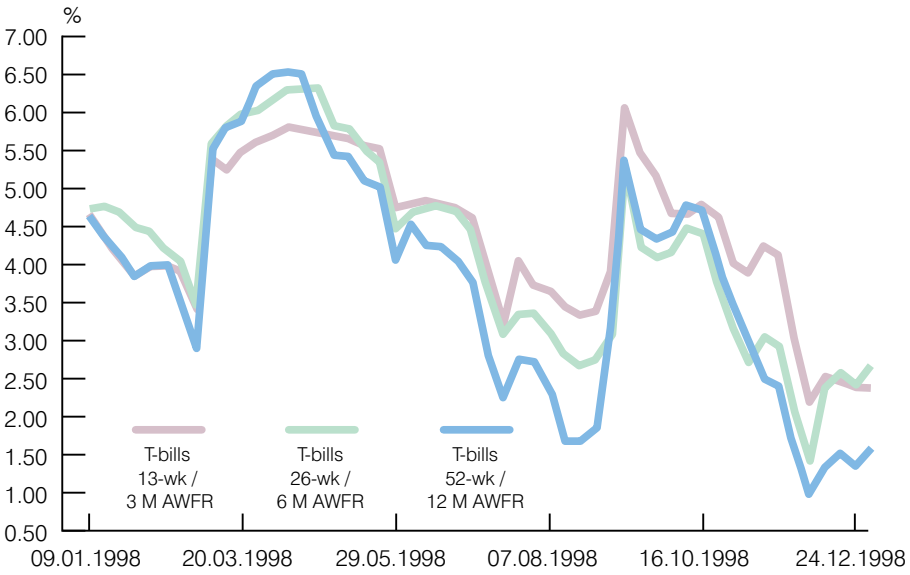
yield curve (presenting changes of securities yield with elongation of their maturities) may be the source of information on changing expectations of the market and also on the reliability of the central bank monetary policy[6]. In 1998 the yield curve in Poland was negative, i.e. the longer was the maturity of Treasury bonds the lower were rates of their yield that reflected market confidence in the effectiveness of anti-inflation policy of the central bank (see Chart 16).

Strong expectations in respect to a fall of interest rates occurred in 1998. That was related to improvement of macroeconomic conditions: slowing down of inflation and retarding in the first half of the year of deficit in the current account. The analysis of interbank deposits quotations and the demand advised for NBP bills within the open market operations also confirmed maintaining expectations of interest rates fall.

The demand of foreign investors was a factor that strongly affected the shape of yield curve. It resulted from three premises:

[6] If the tightening of monetary policy is accompanied by a fall of long-term interest rates that means that the market is confident in the effectiveness of monetary policy. A reverse situation may indicate a lack of such confidence.

Chart 17
Relationship of domestic and foreign rates, 1998



AWFR (Adjusted Weighted Foreign Rate) = PLN Crawling peg devaluation • WFR
WFR (Weighted Foreign Rate) = LIBOR average interest rates of PLN basket currencies

Assessment of Polish economy. In 1998 Poland had an opinion of a politically and economically stable country, performing a proper and predictable economic policy and hence was recognised as a safe country for foreign investments. The conviction of attractiveness of Polish financial instruments was grounded in 1997 and at the beginning of 1998. In that period a portfolio capital was inflowing, attracted by a high yield of Polish Treasury securities and a low volatility of the exchange rate. In the situation of limited foreign exchange risk and a substantial difference of interest rate level the investments in Polish Treasury securities provided high profits.

However, these conditions gradually changed. After a series of basic interest rate cuts a disparity in interest rates expressed by the ratio of Polish Treasury bills yield and 3-month LIBOR rate substantially lessened. The central bank ceased also interventions in the foreign exchange market and widened the fluctuation band of the exchange rate what increased the foreign exchange risk for investors (see Chart 17).

Convergence effect. The expected effect of convergence was also the reason of buying Polish securi-

ties by foreign investors. Investors expected that before joining the UE a fall of inflation and interest rates will occur in Poland that will provide profits from purchased Treasury bonds, in a similar way like it was in the case of Spain and Portugal. Experience of these countries shows that a constant anti-inflation policy leads to a large increase of prices of bonds issued in the pre-accession period. At the beginning of July 1998 the yield of fixed rate PLN bonds with 5-year maturity (2003) amounted to 15.71% while the yield of 10-year securities of countries of relatively high inflation in the past, but nevertheless qualified to the Union – amounted to from 5.06% (Italian securities) to 6.36% (Spanish assets). Hence investing in long-term fixed rate bonds one could expect high capital gains.

Effect of expected introduction of EURO. It was connected with a tendency to diversify asset portfolios after eliminating 11 currencies of countries entering into the EURO area. To reduce the foreign exchange risk investors holding so far assets in these currencies were looking for new placements in currencies, exchange rates of which would not be fully connected with EURO. Polish securities were suitable to fulfil such a role.

All the aforementioned factors caused a large interest in financial instruments of long maturities, hence fixed rate Treasury bonds. The demand from foreign investors promoted occurrence of a strong pressure on bond price rise and resulting from that a fall of long-term interest rates, despite the fact that the bond market was not yet as liquid as the Treasury bills or interbank deposits markets.

At the end of 1998 the slope of the yield curve started to change. The curve was becoming more and more clearly flattened, especially for longer periods (from 1 year to 5 years to maturity). This trend may be explained by extinguishing expectations for and as quick fall of inflation. Achieving a one-digit inflation and adopting by the Monetary Policy Council a medium-term inflation target strengthened expectations of market participants in respect to a limited change of these instruments yield during the nearest 4-5 years.

A fall of interest rates was the prevailing trend in the Polish financial market in 1998. There were only two periods during which interest rates substantially rose,

i.e. the period immediately after raising open market operations rate by the MPC at the end of February and the period of the Russian crisis. The latter case showed to what extent events in the international financial markets can influence the Polish market.

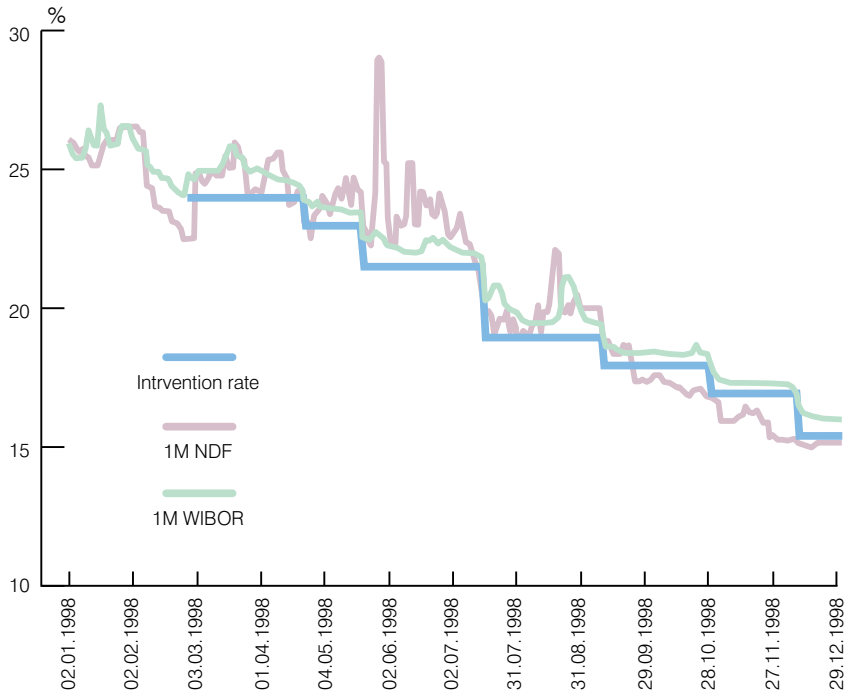
Poland is recognised by foreign institutional investors as one of many "emerging markets". As funds and investment banks frequently do not diversify their portfolios by country and region groups, but by a similar level of investment risk, the breakdown of the Russian financial market changed their attitude towards the whole group of countries belonging to emerging markets. In August 1998 foreign investors withdrew from Central European countries a part of portfolio investments to compensate losses incurred in other markets. Polish assets were considered by investors in 1998 as so-called defensive credit, in other words relatively high yielding assets and relatively insensitive to external incentives. Sudden outflow of portfolio capital was also caused by a short clearing cycle of investment funds (frequent statement of participation unit values).

A temporary character of the Russian crisis effect on the Polish financial market was a proof of positive opinions of foreign investors on the direction of economic policy. In a relatively short time prices of Treasury bills, bonds and other financial instruments rose to the level from the period before the crisis.

In 1998 foreign investors were also active in the foreign exchange derivative instruments market. A substantial increase of turnover in that market was closely connected with the development outside Poland (in London) of a market of forward transactions, including so-called *Non-Deliverable Forwards* (NDF). This market remains under a jurisdiction of Polish authorities and its existence facilitates using yield of instruments denominated in zloty without a necessity of investing directly in instruments issued by Polish entities.

Observation of difference between the yield of NDF-s and WIBOR rates makes possible identification of periods of strong expectations for zloty appreciation. In 1998 there was a few periods of foreign investors speculation on zloty appreciation, primarily in February, July and October. In those

Chart 18
1 M NDF and 1 M WIBOR



periods quotations of 1-month NDF-s in the London market were below 1-month WIBOR rates (see Chart 18).

Response of interest rates in banks to the central bank policy

The NBP research shows that the largest commercial banks usually set deposit interests in relation to the basis rate of the central bank, that is to the lombard rate, although the interest in the interbank market and interest offered by major competitors is also of some importance. Credit interest is formed under the effect of interbank interest rates (mainly 1-month WIBOR). 1M WIBOR rate depends then strongly, as previously mentioned, on the interest rate of 28-days open market operations of the NBP.

In 1998 the credit and deposit interests in commercial banks were decreasing, following consecutive cuts of lombard rate and the yield of open market operations. Two periods can be distinguished from the point of view of speed and extent of adjustments in the past year. In the first, lasting by August, both the deposit and credit interests were

Non-Deliverable Forwards

Non-Deliverable Forwards – these operations consist in making a "bet" on the future price of the underlying instrument, in this case the exchange rate. The parties agree the level of the forward rate that will be the base to settle exchange rate differences. This amount is determined on the basis of the formula:

RK = W • [KT - KKt]

where:

RK - the amount of exchange rate differences to be settled

W - the value of contract, on the basis of which the amount of exchange rate differences is calculated

KT - forward rate accepted by the parties on the deal date

KKt - spot rate on the date of transaction settlement.

As an example, if parties to the transaction will make a contract for USD 100,000 and agree the forward rate at 4 PLN/USD and on the settlement date the rate will amount to 3.5 PLN/USD, then the NDF issuer is obliged to supply the amount of PLN 50,000 [100,000•(4-3.5)] to the buyer. From that it results that an investor expecting appreciation of zloty above the rate resulting from NDF quotation will make such deals (buy NDF). An increased demand for NDF-s leads to a fall of their interest, hence a percentage difference between the current spot rate and that suggested in the transaction forward rate. From the graph it results that in February (most clearly) and in July and October there was a fall of percentage quotations of NDF-s. On the basis of zloty rate investors could draw conclusions encouraging them to such deals. This confirms a substantial increase of the scale of open market operations that sterilise the capital inflow, resulting, inter alia, from hedging transactions of commercial banks issuing NDF-s.

falling slower than NBP rates. In the second, since September till the end of year, the fall of interest rates in banks was stronger than in the NBP.

In the first period the interests of one-year deposits[7] decreased even stronger than deposits of shorter maturities. At that time banks responded to one point cut of the NBP lombard rate by reducing interests on one-year deposits for persons by 0.7 point. Instead, to 1 point cut of the minimum yield rate of 28-days open market operations banks responded by reduction of zloty credits by 0.5 point and the interests for corporates were decreasing stronger than for persons.

In the last four months of year the NBP reduced basic interest rates twice and the yield of open market operations three times. Frequent rate cuts by the NBP resulted in a change of banks behaviour that started responding to NBP interest rate cuts quicker and stronger than before. As a result in the period September – December 1998 banks responded to 1 point cut of the lombard rate by reducing one-year deposit interests of persons also close to 1 point. Like previously, interests for one-year deposit were falling quicker than for deposits of shorter maturities (excluding one-month deposits). Credit interests for corpo-

[7] Data on deposit and credit interests presented in this section relates to the group of 20 largest commercial banks.

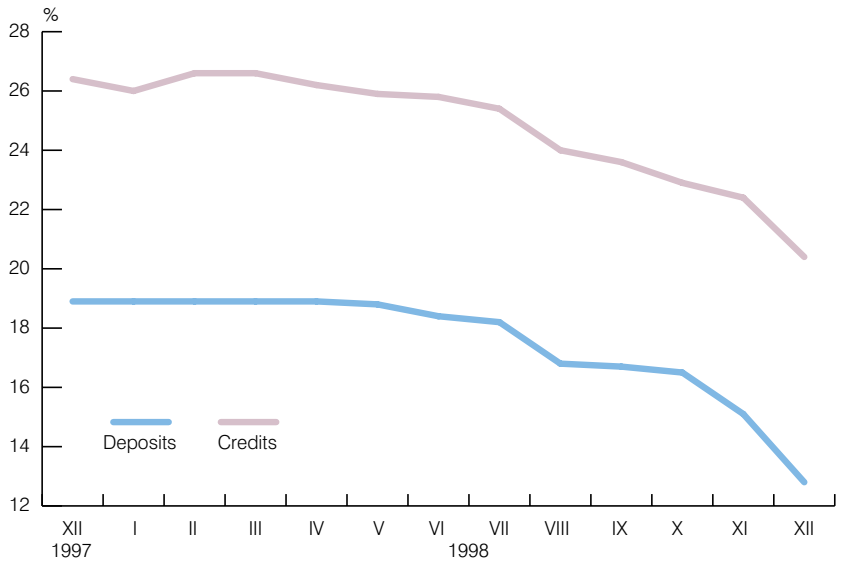
rates decreased in the same extent as the yield of open market operations. The trend existing in the previous period of much quicker decrease of credit interests for corporates than for households was maintained.

During the year interests of household term-deposits decreased much stronger than interests of credits taken by them, while interests of businesses one-year deposits decreased at a scale close to the decrease of credit interests with one-year maturity. The overall difference between interests of credits and term deposits in December 1998 remained the same as in December 1997 (see Chart 19).

Interest rates and demand for credits

The response of demand for credit to the central bank interest rate changes depends on one hand on banks response, on the other hand on borrowers behaviour – corporates and households. Banks response to gradual tightening of monetary policy that started at the end of 1996 was initially weak and slow. That resulted in a large extent from overliquidity of the banking sector and banks competition for shares in the credit market. Instead, a weak response of corporates to credit interests changes resulted, among other things, from a beneficial assessment of long-term market conditions in

Chart 19
Average weighted interest rates of deposits and credits



Poland, still a relatively small role of external supply in the financing activity and a significant concentration of credits in entities that are "large" borrowers. Banks are interested in maintaining with them stable, long-term relationships and therefore these enterprises may obtain better conditions of lending than "small" borrowers. The NBP research shows that in fact the largest changes of used credits amounts referred to small borrowers. Their share in the total credits was falling. Moreover, in conditions of tightened monetary policy the demand for credits from enterprises with deteriorating liquidity ratios may temporarily increase. They are subject to pressure of reaching for additional external sources to finance their current activity. During 1997 the share of credits for businesses with high liquidity was falling and for businesses with low liquidity ratios was increasing.

Then a relatively slow response of households to interest rate rise resulted from a large potential of deferred consumption and a quick – in 1997 – increase of real earnings.

From NBP assessments it results that response of credits to increase of interest rates occurred after about 6-8 months, i.e. in Q3 of 1997. In 1998 the overall demand for credits in real terms, i.e. after elimination of inflation[8], was by 2 points higher than in 1997. The assessment of credits effect on inflation is ambiguous. Because on one hand, among consumer goods the largest dynamics occurred in prices of the group of products that are not purchased on the basis of credit: medical-pharmaceutical, cosmetics, publications, detergents. Instead, the rate of price increase of products, that might be financed with a credit, in the markets where there was a very strong competition (cars, furniture, household equipment, electronic equipment) was smaller. On the other hand, the rate of price increase of building-assembling production was falling slower than for industrial sales or for consumer goods and services. That might be related to a continually high dynamics of investments and in a lesser extent to housing credits.

[8] An average weighted index of industrial sales (PPI) and consumer goods and services index (CPI) were used as deflators.

Credit channel in 1998

As mentioned above, the prevailing role of banks in financial markets is the condition of credit channel existence. Despite a gradual development of capital market in Poland, in 1998 banks continued to be basic financial intermediaries. The corporate bonds market practically did not exist and the commercial paper market was relatively shallow. The capital market was also accessible to a relatively limited group of companies and did not play a key role in raising funds. However, the operation of the credit channel was weakened by a possibility of borrowing abroad by enterprises. They were encouraged to that by a relatively high domestic interest rate and by – up to the Russian crisis – the foreign exchange risk recognised as low. According to preliminary data the foreign debt of enterprises increased during the year by more than USD 4 bn.

The rate of mandatory reserve did not affect the operation of the credit channel in a major way because its level was not changed compared with 1997. Instead, since the beginning of year the principle of mandatory reserve calculation was changed. If in 1997 banks could include 50% of cash in tills to the mandatory reserve, then in 1998 – only 10%. Previously, practically all cash resources in the till (cash reserve) could be included in the reserve. Since 1998, if banks had to hold more cash than they could declare as the mandatory reserve, then by the same amount they had to increase the reserve kept in the account with the NBP. However, it turned out that such a move did not substantially increase banks burdening with the reserve. At the end of December 1998 the average rate of the reserve reached the level of 11.8% and was higher than in 1997 only by 0.1 point. The effective rate of reserve, after deducting cash, amounted at the end of year to 10.6% and was the same as at the end of 1997.

The central bank loses influence on the credit supply and hence the credit channel weakens if in the conditions of restrictive monetary policy banks are able to raise funds alternative to deposits, not charged with the mandatory reserve. Being aware of that since the beginning of the year the system of reserve was made tighter by introduction of a duty of

transferring a reserve on funds raised from abroad for a period shorter than two years.

On the other hand, on the basis of Art. 39, clause 3 of the Act on the NBP of 29 August 1997, banks carrying out rehabilitation procedures could use exemptions from the duty of maintaining the reserve. It was observed that certain commercial banks after taking over entities using this privilege offered on their behalf relatively high deposits interests. Such a behaviour of banks to some extent hindered formation by the NBP of the credit supply curve in a way the NBP required, because cheap funds raised in this way could be assigned to increase lending. However, according to the NBP assessments the scale of this phenomenon was not large.

The effect of open market operations on the operation of the credit channel was complex. Similarly like in the previous year only the operations sterilising the excess liquidity were carried out in 1998. However, certain changes were made in the method of performing operations. Shortening the maturity of open market operations to 28 days definitely made easier a flexible response by banks to unexpected changes in the demand for credits, and even more, exerting pressure on decreasing interest rates for longer terms could encourage banks to increase credits supply.

At the end of 1997, in connection with a limited influence of basic NBP interest rates changes on changes of deposits and credits interests, the central bank started an action of taking deposits from persons. This was an extraordinary instrument supplementing to some extent the influence of open market operations on the banking sector. The interest of these deposits was higher than offered by commercial banks at that time. During three months of this action PLN 3.6 bn were collected. Taking deposits by the NBP has caused a significant fall of the rate of increase of notes & coin and deposits in commercial banks. So banks started the year with a slightly depleted stock of deposits, reducing surely possibilities of credit creation by them at the beginning of 1998. However, this period coincided also with a significant, but temporary fall of demand for credit from households due to entering into force of the Act on pledge by registration and register of pledges.

Deposits were being withdrawn from NBP in the period between March and September. To absorb them the Ministry of Finance issued a bond of relatively high interest at the amount of PLN 4 bn, of which PLN 2 bn were reserved for deposits conversion. The whole bond issue was sold to persons. So probably a small part of funds raised by the NBP at the end of 1997 returned to banks.

Exchange rate

The mechanism of zloty exchange rate fixing did not change in 1998 so the principle of crawling peg devaluation of the central rate continued to be in force. The central rate was at the same time the reference rate for a fixed corridor of allowed market rate deviations. However, the exchange rate policy binding so far was changed. It was subordinated to execution of the direct inflation target by increasing the effect of market indicators on the exchange rate level. Higher flexibility of exchange rate allows to perform a more autonomous monetary policy. In an open economy the variability of exchange rate is a condition for interest rate policy effectiveness.

Decisions taken in 1998 on widening the band of allowed zloty exchange rate fluctuations also promoted increasing the autonomy of the monetary policy; they aimed at making the zloty exchange rate floating. In 1998 the Monetary Policy Council made the decision on widening the fluctuation band of zloty exchange rate twice: as of 26 February this band was widened from 7% to 10% up and down from the central rate, while as of 28 October to 12.5%.

The decision on changing the principles of fixing of December 1998 was also promoting the strengthening of market character of zloty exchange rate formation and the increasing of possibility of official reserves formation. Within the conditions of the foreign exchange law binding in 1998, imposing a duty of purchasing foreign exchange during the fixing on the monetary authority, as well as at the necessity of defending the determined corridor of market exchange rate fluctuations, the NBP had limited possibilities to form banks liquidity and interest rates. Hence a margin (PLN 0.006) between bid and offer rates was introduced in foreign exchange trans-

actions with commercial banks, the time of submitting transaction offers to the NBP was shortened and a limit was determined for their number.

Taking into account the fact that the mechanism of crawling peg devaluation contributes to a rise of inflation, in 1998 the Monetary Policy Council reduced the rate of monthly devaluation of the central rate three times: on 26 February reduced the rate of zloty devaluation from 1% to 0.8%, on 17 July to 0.65% and on 10 September to the level of 0.5% monthly. On one hand, these cuts reflected a falling inflation rate and a trend for zloty market exchange rate strengthening and on the other hand were used to reduce inflation expectations.

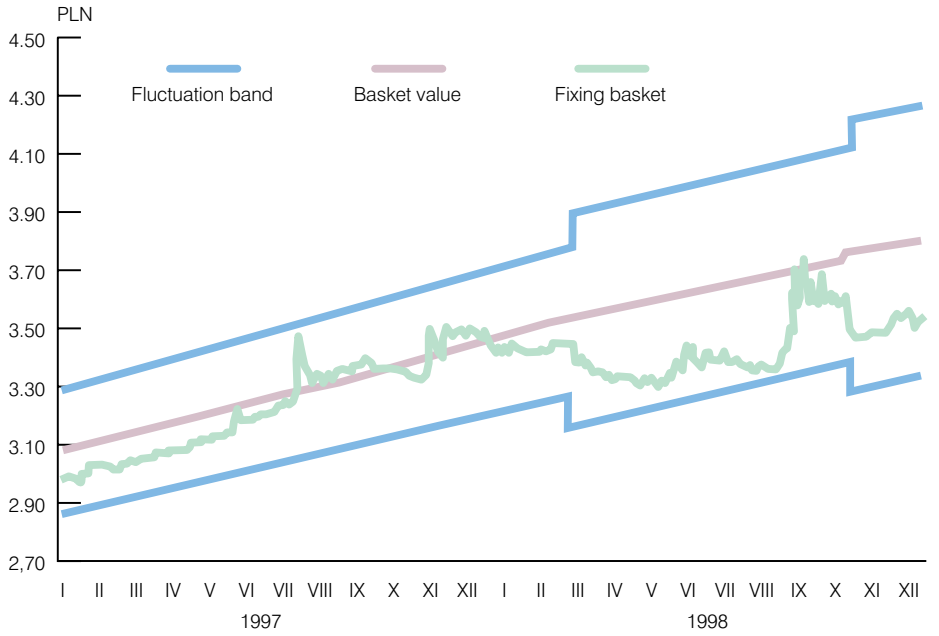
Changes in the exchange rate policy as well as internal conditions beneficial for inflow of foreign capital to Poland resulted in clear zloty appreciation in 1998. Average deviation from the parity towards appreciation amounted to 5.6%, while in 1997 it amounted to 0.9% (see Chart 20). At the same time, facing sustained uncertainty in the global financial market, large fluctuations of zloty exchange rate occurred, like in the previous year.

The trend to zloty appreciation was prevailing practically throughout 1998, apart from the period of the financial crisis in Russia. Zloty was strengthening due to a relatively high activity of foreign investors. A high level of direct foreign investments had a specially great importance for the zloty exchange rate. At the fall of August and September 1998 as a result of the Russian crisis the zloty exchange rate fell to the level of parity rate[9]. A relatively mild response of zloty exchange rate to the Russian crisis resulted primarily from the fact that the scale of foreign portfolio capital outflow relatively small and this outflow was offset by inflow of capital, mainly in the form of direct investments, because in 1998 Poland was recognised as a safe country for foreign investments.

As a result the scale of nominal zloty depreciation was in 1998 smaller than in 1997 (see Chart 21). The nominal zloty exchange rate decreased in 1998 by 3% compared with a fall by 11% in 1997 (count-

[9] During the period 19-21 August the fixing rate fell by 7.05 points and only on 28 August this rate was again on the depreciation side.

Chart 20
Zloty exchange rate against the foreign currencies basket in 1997 - 1998



ing December-to-December); on the average annual basis the scale of effective depreciation amounted to 5.3% in 1998 compared with 9.8% in 1997.

Changes of effective real zloty exchange rate indicate zloty appreciation in 1998 compared with 1997 that occurred particularly clear in the first half of year (see Chart 22). The real zloty exchange rate strengthened in 1998 (counting December-to-December) by 2.3% in the case of index based on production prices in the manufacturing activity and measured by consumer prices by 4.1%, at depreciation in the previous year by about 3.9% and 0.9%, respectively. On the average annual basis the index of real effective zloty exchange rate, taking into account the industrial production price index, strengthened in the manufacturing activity by 1.4% at a real appreciation measured with the consumer price index by 4.5%.

Summing up it shall be stated that in the face of a significant width of exchange rate fluctuation band, changed in 1998 twice, and a decreasing importance of interventions in the foreign exchange market until postponing them in the second half of the year, the zloty exchange rate was formed in

Chart 21
Nominal effective exchange rate; 1995-1998 (monthly data - December 1994 = 100)

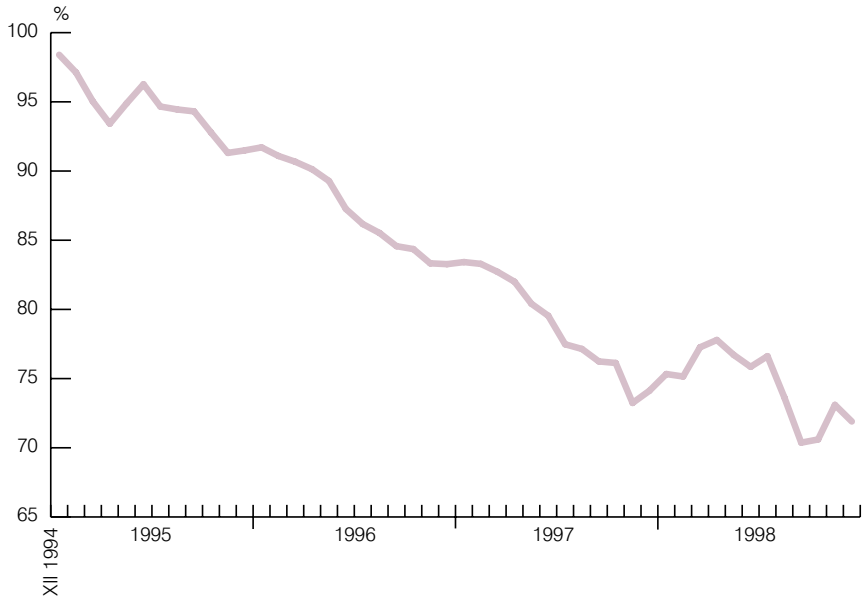
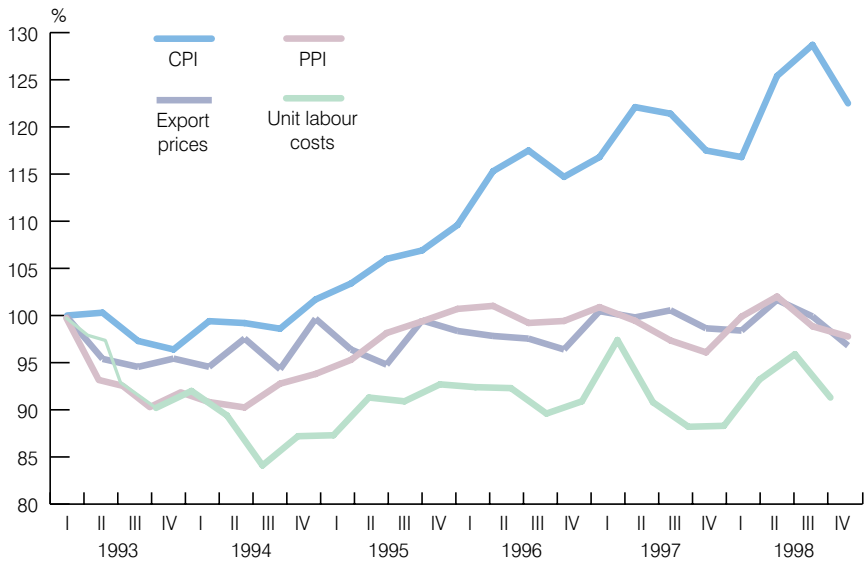


Chart 22
Real effective exchange rate in 1993-1998 (quarterly data – Q1 of 1993 = 100)



a flexible way under influence of market circumstances. Increasing extent of exchange rate flexibility reflected an aspiration to float the rate. It meant also increasing independence of monetary policy, necessary in execution of direct inflation target.

The flexibility of zloty exchange rate allowed to reduce the influence of external shocks on the bal-

International competitiveness

International competitiveness may be defined as a relationship between domestic and foreign prices, expressed in a common currency. If this relationship decreases that means that the competitive situation of a given country improves. A real effective exchange rate is a commonly used indicator, illustrating the competitive situation of a given country. In its classical form it does not allow to asses the absolute level of competitiveness in relation to other countries. Its design makes only possible defining the existing relative changes in the competitive position.

In a nominal form the effective exchange rate is a weighted average of bilateral rates of foreign currencies (included in the index) against the domestic currency. Weights illustrate the importance of each currency in the trade turnover of the given country.

The real effective exchange rate is defined as a nominal effective exchange rate deflated with relative prices or costs. This index – as it includes changes of domestic prices in relation to changes of trade partners and reflects changes in purchasing power of the domestic currency – is also a source of information on changes in the competitive position of economy of the given country in the international market.

Consumer prices and production prices are the most often used deflators in the design of the real effective exchange rate. The basis advantage of indices based on consumer prices consists in the fact that baskets of consumer goods, used in various countries, taken into account in calculations of an index are similar. The frequency of publishing consumer indices is also important. Their disadvantage consists in the fact that they include also goods that even potentially are not traded in the international market. Indices based on consumer prices are burdened also by the fact that consumer prices affect indirect taxes and various charges. Moreover, prices of a part of consumer goods may be determined administratively. Indices based on prices existing in the manufacturing activity are charged with such drawbacks in a much lesser extent. They much better reflect the situation in these sectors of economy that participate in turnover with foreign countries. Therefore we consider that the index constructed on the basis of production prices is the best from the point of view of assessments of competitive position of Poland. The incomparability resulting from taking into account various representatives of production prices in individual countries is a weakness of this measure, as well as using a usually variable system of weights.

ance in the current account and to avoid destabilisation of payment situation of Poland.

The exchange rate affects prices of imported goods, which then according to their designation affect consumer prices directly or indirectly – via production costs (supply materials). Naturally, appreciation of the domestic currency retards the inflationary processes, while depreciation accelerates them. In 1997 the nominal effective exchange rate was depreciated. Then appreciation occurred in the first half of 1998, and in the second half – again depreciation of the exchange rate (see the following Table).

1997 Q1	1997 Q2	1997 Q3	1997 Q4
+0.6%	+3.0%	+4.6%	+3.2%
1998 Q1	**1998 Q2**	**1998 Q3**	**1998 Q4**
-1.9%	-1.2%	+4.2%	+2.3%

According to our estimations an increase of the nominal effective exchange rate by 1% caused, at other conditions unchanged, an increase of consumer

goods and services prices by about 0.2%. Direct effects of appreciation (depreciation) of the domestic currency may be observed relatively quickly – the NBP research shows that consumer price index responds already after about 2 months since the moment, at which an unexpected change of the exchange rate occurred, while the non-food products price index responds with a slightly larger delay and in a lesser extent. So in the second half of 1998 there was some strengthening of inflationary impulses from the zloty exchange rate side. It did not pose a large threat due to a short period of maintaining depreciation trends and a clear weakening of inflation expectations at a lower increase of aggregated demand in the economy.

The degree of economy openness measured by the ratio of imports (exports) to GDP is an important factor defining the strength of exchange rate influence on the dynamics of domestic prices. In 1998 these relationships were similar to the previous year and amounted to 29.6% and 18%, respectively. The structure of imports (data for the period Jan – Dec) was slightly changed compared with 1997. The share of consumer and investment imports increased by 0.9 and 0.6 point, respectively; instead the share of supply imports reduced – due both to a very low price dynamics and to a relatively low dynamics of fuel imports volume. In other words, the share of those goods that in a largest extent affect the current dynamics of consumer prices has lessened insignificantly in the imports. Instead, investment goods may contribute to increase of management effectiveness only in the future.

Results of NBP research show that an appreciation shock – through its influence on exports and imports – temporarily slows down the dynamic of industrial production, including mainly manufacturing industry. The largest fall of production dynamics takes place after two–three quarters since the moment of shock occurrence. Hence the appreciation of the exchange rate that occurred primarily in the first half of 1998 could contribute to the slowdown of production dynamics observed at the end of year. However, it is difficult to assess the effect of demand reduction on inflationary processes. In Poland so far there was no statistically signif-

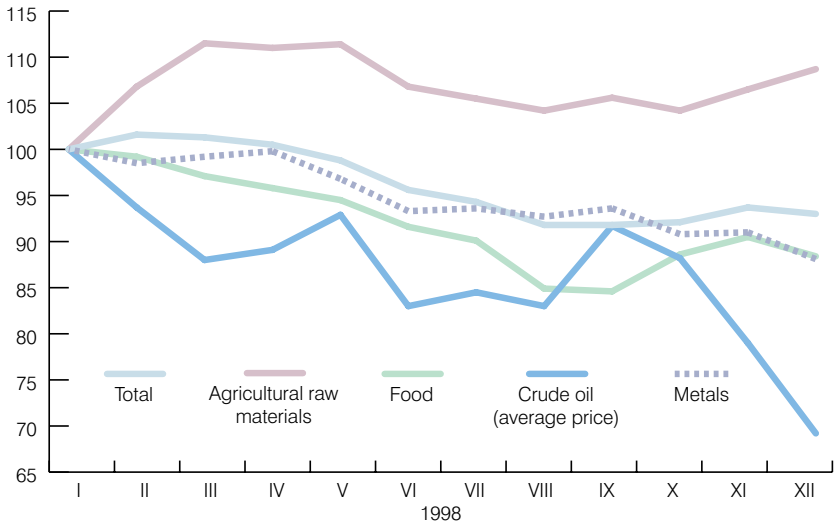
icant relationship between the excess demand and inflation, probably due to serious disturbances of the aggregated supply curve that result from structural transformations to which Polish economy was subject since the beginning of transformation. However, certain conclusions may be drawn comparing current values of consumer price index (CPI) and prices of component goods of this index with values resulting from a trend function. Dynamics of consumer prices from Q2 of 1998 was remaining below the trend, and the difference between the current dynamics and the trend was increasing with the passing time. That was caused, however, primarily by a low dynamics of food prices, while the dynamics of non-food products, that is this group of products that first of all should have responded to the reduction of demand for products of processing industry, was lower than it would result from the trend function only in the second and third quarter of 1998. That means that the exchange rate affected inflation primarily in a direct way – via import prices. Instead, it is difficult to ascertain that it affected inflationary processes – indirectly via demand. However, it is not excluded that the influence of the exchange rate via demand and of the demand on inflation occurs in a longer time horizon and hence it may appear in 1999.

The effect of external prices on inflationary phenomena in 1998

In conditions of global weakening of demand year 1998 has brought a significant deepening of price fall in the global market. That referred in a much larger extent to raw materials compared with a clearly weaker dynamics of processed products prices decrease. While the overall index of raw materials prices (on the dollar basis) decreased in 1998 by 25% compared with 1997 (in relation to a fall by 2% in 1997), then the dollar prices of processed products decreased respectively by about 2.5%[10].

[10] Source: Koniunktura gospodarcza świata i Polski w latach 1997-1999 (Economic market conditions of the world and Poland in the period 1997 - 1999), December 1998, IKC-HZ.

Chart 23
Indices of prices of basic groups of goods in world markets (January 1998 = 100)



Intensification and extension of recession phenomena in the international economy were the primary reasons of such a scale of price breakdown in the world trade, the appreciation of US dollar[11] – in relation to 1997 – affected the fall of dollar prices in a weaker way.

A falling price trend covered in 1998 most of basic raw material groups (see Chart 23). The largest decrease occurred for power raw materials (by 27%), mainly due to a breakdown of oil prices; prices of coal, especially power coal, also decreased. Prices of oil revealed a decreasing trend already since 1997: from 21 USD/barrel in 1997 Q1 to below 10 USD/barrel in December 1998[12]. An average oil price level (expressed as an average price of OECD countries imports) in 1998 amounted to 12.5 USD/barrel compared with as much as 20.6 USD/barrel in 1996. A high level of inventories at good crops contributed to a fall of food prices. Price decrease occurred in all main groups, such as: corn, stimulants, sugar and oil plants.

A clearly weaker appreciation of dollar in the global market compared with 1997 resulted in certain retarding of a decreasing trend of dollar prices, both

[11] US dollar strengthened against DEM in 1998 by about 1%, while the scale of appreciation in 1997 amounted to about 15.4%; in a similar way against the Japanese yen: in 1998 by about 7.3% compared with about 11.3% in 1997.
[12] Source: as in footnote 11.

Chart 24
Cumulative indices of Polish import transaction prices in 1998 (analogous period of the previous year = 100)

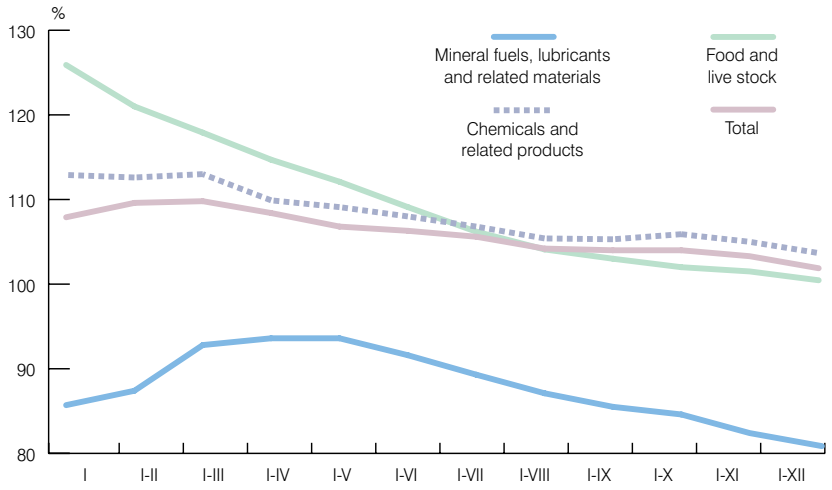
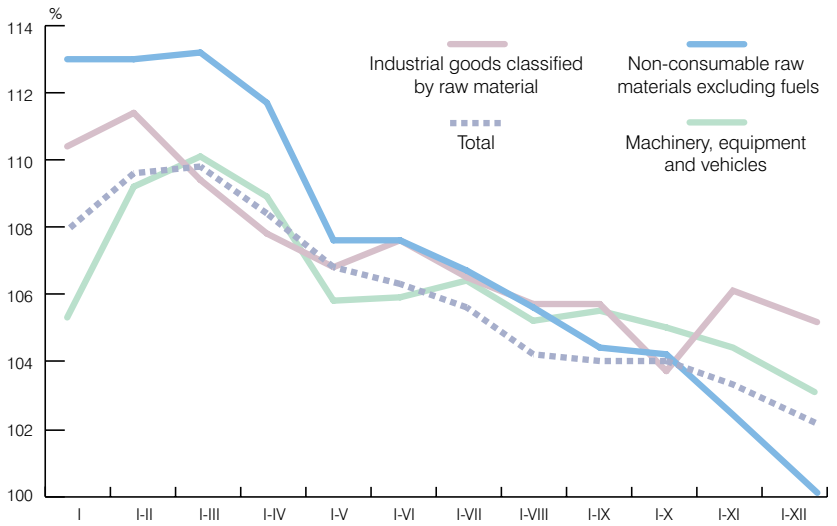


Chart 25
Cumulative indices of Polish import transaction prices in 1998 (analogous period of the previous year = 100)



in Polish imports and exports in 1998. Prices actually paid in Polish imports decreased in the period December 1998 to December 1997 by 3.9%, while in the respective period for 1997 this fall amounted to 7.7%. Prices obtained in Polish exports rose by 6.2% in the studied period after a fall by 8.5% in 1997. However, as a result of a clear strengthening of zloty in 1998 the dynamics of zloty transaction prices in Polish foreign trade clearly reduced compared with 1997. The increase of export prices in the period

December 1998 to December 1997 amounted to 4.7% compared with increase of 13.4% in the analogous period of 1997. On the other hand, zloty import prices fell in the aforementioned period by 5.1%, compared with a respective increase by 14.5% in 1997. Raw material import prices were reduced in the largest extent that resulted from a sharp fall of mineral fuels prices as well as clearly weaker prices of imported food and numerous non-power raw materials of non-agricultural origin (see Chart 24 and 25).

Year 1998 has brought a substantial improvement of terms of trade in Polish foreign trade, this relationship amounted to 104.3 in 1998 compared with 99.4 in 1997.

It shall be stated that both the fall of prices in global markets as well as effects of zloty strengthening that clearly reduced the dynamics of transaction prices in Polish foreign trade contributed to dampening of inflation pressure in the domestic market in 1998. This effect occurred in the field of fuel prices where the deflationary effect of external prices resulted in reducing the rate of domestic prices increase, despite rising charges of the excise duty. In the market of food products the effect of external prices on the process of disinflation was limited due to: import protection and a generally small share of imported food in the supplies to the domestic market.

Chart 26

Cumulative indices of consumer (CPI) and import prices (Q1 of 1993 = 100)

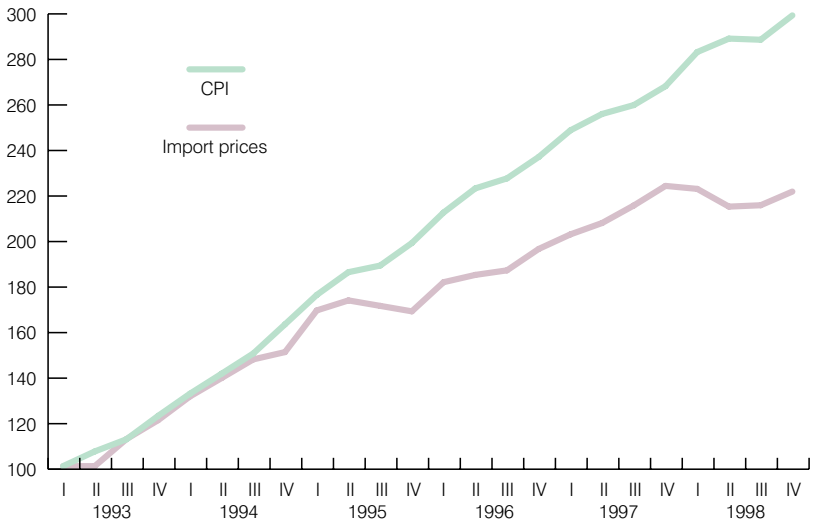
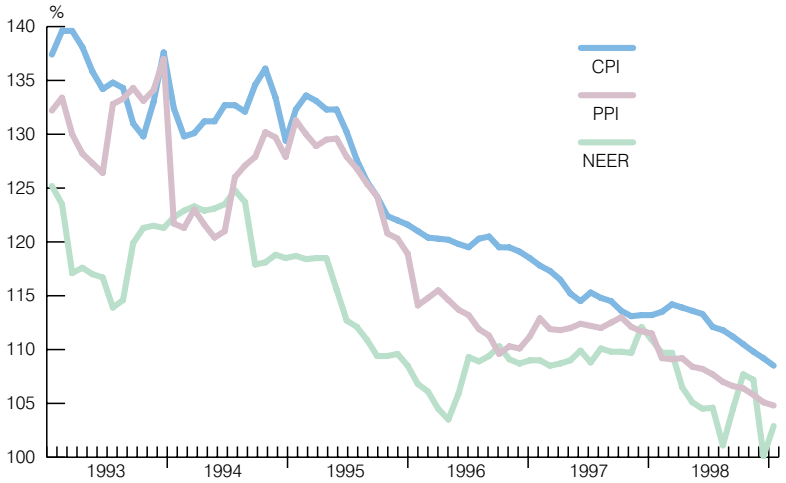


Chart 27
CPI, PPI and NEER indices (analogous month of the previous year = 100)



The effect of external prices of inflation in the domestic market is illustrated in Charts 26 and 27.

Equity prices

The effect of situation on the stock exchange on the general economic situation depends primarily on that, whether an income effect exists in a given country. So that depends on the fact, whether an increase of stock exchange quotations causing an increase of corporates and households assets results in a rise of the amount of expenditures. In the case of Poland the situation on the stock exchange surely somehow affects the economy influencing expectations of the future market conditions, nevertheless the share of equities in portfolios of corporates assets is still too small should the income effect had a significant importance (the share of stock exchange capitalisation in GDP in 1998 amounted to 13.4%).

The situation on the stock exchange may affect the economy also in a situation where rises of equity quotations will involve substantial rises of credits taken to finance purchases of equities. If such a phenomenon becomes sizeable as it happened in 1997 in the South East Asian countries then a sudden fall of equity quotations may cause a deterioration of borrowers financial standing and resulting from that liquidity

crisis in the banking system. Also this dependence in the case of Poland has got no special importance due to a very low stock exchange capitalisation.

Only in the future, when the importance of stock exchange increase, the situation there will strongly affect the general economic situation.

Year 1998 was not a good one for investors in Polish equities. The WIG level fell from 14,886.2 points at the beginning of the year to 12,736.7 at its end at simultaneous large fluctuations during that period. Reasons of those fluctuations resulted both from external (inter alia, Brazilian and Russian crises) and internal factors (forecast changes of GDP increase rate, profits of listed companies). The most spectacular weakening of the market was connected with the Russian financial crisis. Closing by foreign and Polish investors their positions in the Polish market resulted in a WIG drop from 14,907.1 points quoted on 19 August to 10,883.7 on 1 September. That resulted in a reduction of Warsaw stock exchange capitalisation in that period from PLN 56.7 to 45.1 bn. After passing the crisis phase WIG oscillated within limits of 12,000 – 13,000 points.

Aggregated demand and supply

In 1998 an increase of goods and services supply occurred in the domestic market, caused by a rise in production and by imports. Supplies to the internal market were increased by transferring to it that part of production, that due to deterioration of external market conditions could not have been exported. An already relatively strong competition and increased supply at simultaneous weakening of the internal demand were factors retarding the raising prices by manufacturers. Hence an increase of costs, including payroll, was not fully transferred to product prices.

Despite a reduction of domestic demand increase rate the level of balancing the growth of Polish economy has not substantially improved. It happened as a result of a step reduction of external demand in the second half of the year caused by the Russian crisis. That led in Q4 to a fall of industrial production and slowing down the rate of GDP increase compared with 1997 Q4 to 2.9%.

Chart 28
Dynamics of GDP, domestic demand and individual consumption by quarters in 1996-1998 (analogous period of the previous year = 100)

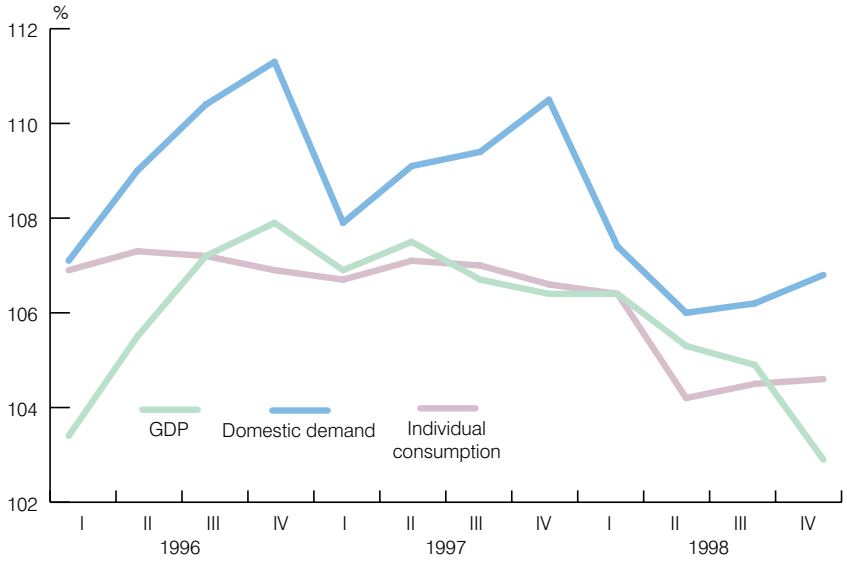


Table 4
Dynamics of GDP and domestic demand in 1994 – 1998

Specification	1994	1995	1996	1997	1998
Total consumption	103.9	103.2	107.2	106.1	104.2
Individual consumption	104.3	103.3	108.3	106.9	104.9
Gross accumulation	109.0	124.1	119.5	120.8	114.1
Capital expenditure	109.2	116.5	119.7	121.7	114.5
Domestic demand	104.7	106.7	109.6	109.3	106.5
Gross domestic demand	105.2	107.0	106.0	106.8	104.8

During first three quarters (at GDP growth by 6.4%, 5.3%, 4.9%, respectively) at a relatively high dynamics of exports the dynamics of domestic demand and domestic supply was observed to become closer and thanks to that the rate of increase of deficit in the current account was retarded (see Chart 28). In this period the rise of individual consumption was below the GDP increase. The increase of domestic demand higher by 0.7 – 1.3 point than the GDP growth resulted from continued high dynamics of investment expenditures, even though it was lower by 5-8 points than in 1997. In Q4 at a similar rate of domestic demand increase to the previously recorded – in relation to a fall of GDP

growth rate connected with the breakdown of exports – the spread between the dynamics of domestic final demand and supply increased again to 3.9 points. That resulted in further increase of negative balance of exports and imports on the basis of national accounts. The ratio of the deficit in the current account of balance of payments to GDP rose to over 4%. During the whole 1998 the difference between the rate of domestic demand increase (growth by 6.5%) and GDP (growth by 4.8%) amounted to 1.7 point (see Table 4).

Internal demand

The global demand in the Polish economy was growing slower in 1998 than in previous years (see Table 4). The weakening of the dynamics of final demand resulted from reducing the increase rate of all its components. In the face of weakening dynamics of business activity the rate of indirect consumption increase has also fallen (consumption of products and services for their manufacturing).

A fall of individual consumption was connected with a slower increase of households income, both as a result of reduction of hired work earnings dynamics and as a result of weakening of production and services growth in small corporates. The opening "price scissors" in agriculture (relationship between price changes of products sold and price changes of products purchased by farmers from the level 101.8% in 1995, 96.0-95.8% in 1996-1997, deteriorated to 92.3% in 1998) resulted, despite favourable production results, in a further fall of nominal income of households connected with agriculture.

The dynamics of capital expenditures was smaller than in previous years even though the rate of their increase was much higher than for other components of the final demand. During the year a gradual weakening of investment activity dynamics was observed as the assessments of future production sales deteriorated. Poor financial results of enterprises, limiting possibilities of investment execution on the basis of own funds, also contributed to that.

The fiscal policy positively influenced reduction of demand in the first half of 1998. The relationships

between the budget deficit and budget expenditures and GDP have fallen, the share of pro-consumption budget expenditures in the structure of expenditures was reduced. Important anti-inflationary changes in the deficit funding structure occurred. A positive effect of fiscal policy on demand reduction was lessened in the second half of year by an increase of government institutions debt.

Individual consumption

In 1998 the rate of individual consumption growth was reduced to 4.8% compared with 6.9% in 1997 and 8.3% in 1996. The rate of individual con-

Chart 29
Dynamics of GDP and individual consumption in real terms in 1991-1998 (previous year = 100)

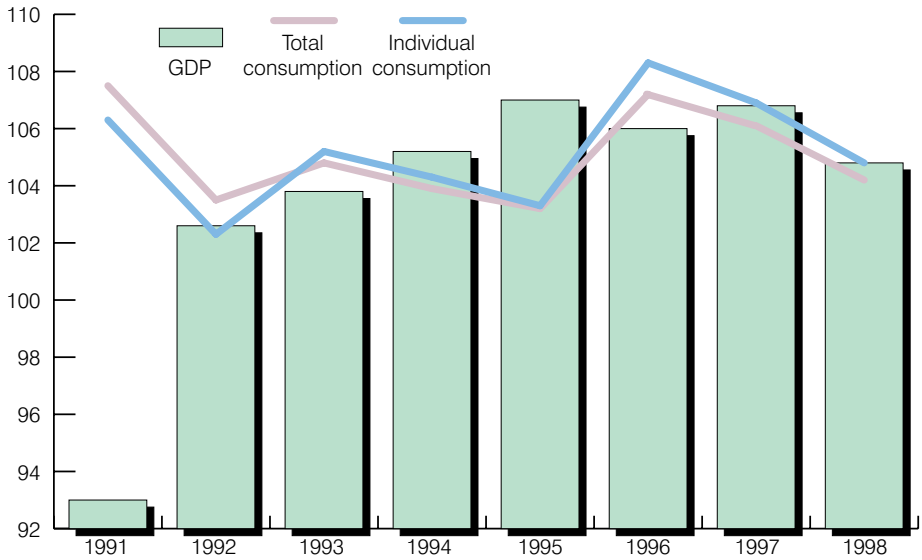


Table 5
Disposable income to households, individual consumption and Gross Domestic Product in 1995-1998

Specification	1995	1996		1997	1998
	PLN bn	previous year = 100			
Disposable income	220.1	106.3	104.2	107.4	•
Individual consumption	184.8	103.3	108.3	106.9	104.9
Gross Domestic Product	306.3	107.0	106.0	106.8	104.8

Source: *Rocznik Statystyczny* (Statistical Yearbook) 1998, Central Statistic Office (GUS), Warsaw, and *Biuletyn Statystyczny* (Statistical Bulletin) No 3, Warsaw, April 1999.

sumption growth in 1998, like in 1997, was close to the GDP growth rate. In 1996 the real growth of individual consumption was clearly ahead of GDP growth (see Chart 29).

A decrease of consumer demand dynamics was connected with reduction of the growth of disposable income to households. As currently estimated by the NBP they were in nominal terms by about 16% higher than in 1997 and their purchasing power rose by about 4% (in 1997 by 23.4% and by over 7%, respectively) – see Table 5.

Reduction of disposable income dynamics resulted mainly from a slower increase of gross primary income of households, especially connected with gross operating margin on business activity. It is estimated that in farming households it was smaller than in 1997, even in nominal terms. In households outside agriculture hence mainly within families of small shops and manufacturing plants owners, in a large extent dependent on bazaar and frontier trade, a fall of income in real terms occurred.

The dynamics of income from hired work, making more than 50% of primary income, despite increase of employment was reduced from over 21% in 1997 to about 17% in 1998. Average earnings in the enterprise sector rose in 1998 by 16.1% and in real terms by 3.8%, compared with 3.2% growth assumed in the Budget Act for 1998. Average earnings in the budget sector (according to the GUS classification) rose in 1998 by 16.9% and in real terms by 4.6%, compared with the assumed growth of 1.8%. The share of government institutions subordinated to local self-governments increased substantially in 1998 and the higher level of pay in those entities vitally affected achieving a higher growth of average earnings in the entire budget sector.

A significant rate of employment increase in the enterprise sector observed by April 1998 (2.4% compared with the analogous period a year before) started to fall since May 1998 by 0.1 point monthly with weakening of business activity. An increase of average employment in the enterprise sector in the period January – October amounted to 1.9% compared with the analogous period of the previous year and the same growth factor maintained by the end of

1998. However, the increase of employment in 1998 in the enterprise sector as well as the increase of employment in the entire economy has not ensured a reduction of the unemployment rate to the level defined in the Budget Act, i.e. to 10.1%. A permanent decrease of unemployment rate was occurring since the beginning of the year and reaching in November the rate of 9.9% indicated that it would not exceed 10% at the end of year. However, in December 207,500 new unemployed were registered and only 119,500 were cancelled from the register and the unemployment rate at the end of 1998 amounted to 10.4%.

It is estimated that the growth of unearned income was higher than in 1997, especially interest and dividend yield, and the growth of benefits and social transfers income (especially pensions and disability pensions payments) and current transfers (in 1998 the balance of insurance compensations and premiums was much smaller than in 1997, when majority of flood related compensations were paid) slower. Pensions and disability pensions, both to employees and farmers, were revalued in 1998 twice (according to the assumptions of the Budget Act) by the same factor of 105.25%. As a result of revaluation an average employees pension and disability pension increased by 13.9% in nominal terms, and by 1.9% in real terms, while farmers by 14.3%, by 2.2% in real terms. The real growth of these pensions was exceeded in an insignificant way (by 0.4 and 0.7 points, respectively). However, despite an insignificant excess of the determined level of real increase of pensions the relationships between average employees pension and disability pension and average earnings in the national economy deteriorated, because in 1998 they constituted 59.1%, while in 1997 60.6%.

An increase of individual consumption was slightly higher than of gross disposable income. That resulted, after an increase in 1997, in a fall of gross savings rate of households. As it is preliminary assessed that resulted from a relatively low growth of financial savings. There was a high increase of zloty deposits, indeed (although smaller than a year before), but the increase of cash money was smaller than in 1997, foreign exchange deposits diminished.

So it may be said, that the weakening of income growth not only reduced the rate of consumption growth, but also resulted in reduction of tendency to savings by households.

There were further changes in the structure of households expenditures. The share of expenditures connected with maintenance of accommodation rose from about 16.5% to almost 19%. The share of expenditures on flat hiring became close to 4%. The share of health expenditures exceeded 4%. Shares of expenditures on food, clothes and shoes decreased. Changes in the expenditure mix were consistent with a generally known regularity of reducing share of primary needs in consumption with increasing income and wealth of households. At the excess of supply of goods satisfying these needs the changes in the structure of consumer demand maintaining in the market promoted a reduction of inflation.

Investments

The dynamics of investment demand fell in 1998. Gross capital expenditures increased in real terms by 14.5% compared with 21.7% in the previous year (see Table 6). A significant investment activity was maintained in enterprises, even though with generally deteriorating economic situation and financial results of enterprises (that for the future may denote a reduction of enterprises capability to accumulate free funds) a fall of investment rate was observed – from over 27% in the first half of year to about 19% in Q3 and about 14% in Q4. Deterioration of enterprises financial results was – apart from poor assess-

Table 6
Dynamics of Gross Domestic Product volume growth and total gross capital expenditure in the economy and investment rate in 1991-1998

Specification	1991	1992	1993	1994	1995	1996	1997	1998
Gross Domestic Product	93.0	102.6	103.8	105.2	107.0	106.0	106.8	104.8
Gross capital expenditure	95.6	102.3	102.9	109.2	116.9	119.7	121.7	114.5
Investment rate (current prices)	21.7	18.7	17.7	18.0	18.7	20.9	23.6	25.0

Source: Rocznik Statystyczny (Statistical Yearbook) 1997 and 1998, Central Statistical Office (GUS), Warsaw and Informacja o Sytuacji społeczno-gospodarczej kraju. Rok 1998 (Information on social and economic situation of the country, Year 1998), GUS, Warsaw 1999-01-28. Own calculations.

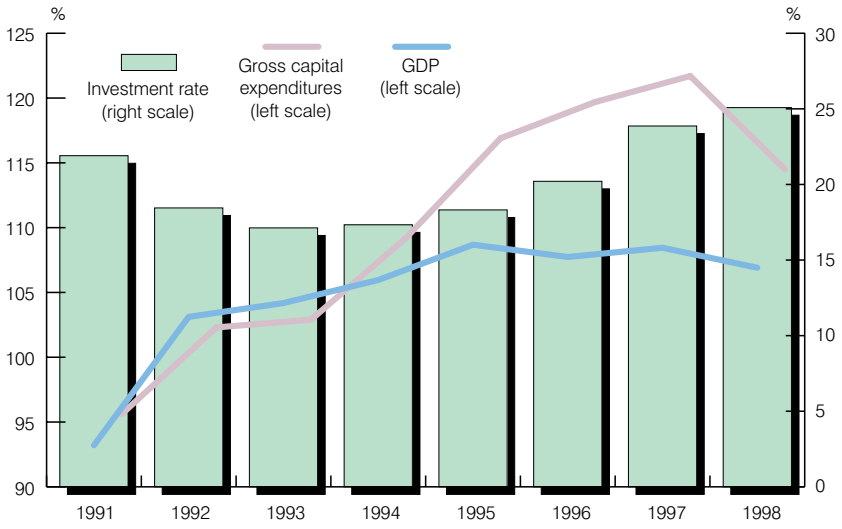
ments of production sales prospects – a factor causing a reduction of starting new investment tasks. In 1998 capital expenditures incurred by large and medium-size[13] enterprises increased in current prices by 30.4% compared with the analogous period of the last year, while in 1997 an increase by almost 40% was recorded. The dynamics of expenditures value on buildings and structures (134.5%) was higher than the value of machinery, technical equipment and tools purchases (131.5%). However, taking into account that the price dynamics of building-assembling production (112.9%) was in 1998 twice higher than the price dynamics of industrial sales in the sector of machinery and equipment production (106.3%) – the volume of purchases rose by about 24% compared with the growth by about 19% of expenditures on buildings and structures.

The dynamics of government institutions expenditures was slightly higher than in 1997. The share of property expenditures in central government expenditures rose from 6.1% in 1997 to 6.8% in 1998.

There was a low dynamics of investments included in national accounts in the households sector. There was no improvement in housing construction.

[13] On the basis of "Biuletyn Statystyczny nr 3" (Statistical Bulletin No 3), GUS, Warsaw, April 1999.

Chart 30
Investment rate in the total economy against the dynamics of GDP and gross capital expenditures – fixed prices; previous year = 100



It is estimated that in connection with limitations in the bazaar and small shops sales that is partly related to a decrease of so-called purchase tourism and with an increase of competition of quickly developing network of large trading organisations (including foreign networks) expenditures incurred by small corporates decreased. There was an especially deep fall in investments in individual farming, connected with another year of income reduction.

Despite weakening of dynamics of gross capital expenditures the trend of investment rate increase – observed since 1994 – was maintained in the whole national economy (see Chart 30).

On the basis of current account and capital transfers balance it may be estimated that in 1998 there was a further growth of investments surplus over domestic savings of the economy, the share of investments covered by foreign savings increased. The increase of savings managed in the households sector reduced. Deterioration of enterprises financial standing resulted in an increase of this sector debt. Favourable changes occurred in the public institutions sector. It may be estimated that there was a further reduction of debt growth in the subsector of government institutions (central government). In the sub-sector of self-government institutions an increase of debt was recorded in 1998 after a few years of savings creation.

Central government

In 1998 the deficit of central government reached PLN 13.2 bn and amounted to 91.6% of the level assumed in the Budget Act for 1998. The ratio of the budget deficit to GDP amounted to about 2.4% compared with 2.7% in 1997 and 3.4% in 1996[14]. Year 1998 featured a further reduction of the scale of domestic product redistribution by central government (see Table 7).

The execution of the budget deficit at such level resulted not only from fiscal policy actions but also from other factors situated outside the scope of this policy influence. The main reasons of non-execution

[14] According to the approach binding since 1998 the privatisation revenue cannot be included in the budget revenue. According to this formula the budget deficit amounted in 1997 to PLN 12.4 bn and in 1996 to PLN 12.9 bn.

Table 7
Basic categories of central government in relation to the Gross National Product (in %)

Specification	1997	1998
Central government revenue	**25.5**	**23.0**
of which:		
- indirect taxes	11.8	11.7
- corporate income tax	2.8	2.7
- private income tax	6.4	6.3
- payments of profit (from the State enterprises)	0.2	0.1
- duty income	1.5	1.1
Central government expenditures	**26.8**	**25.4**
of which:		
- grants and subsidies	9.9	9.3
- current expenditures of central government institutions	1.6	1.7
- public debt service	8.9	8.4
- property expenditures	3,5	3,3

of the assumed revenues of central government consisted of a lower than forecast rate of economic growth, lower inflation, lower than forecast revenue from the excise and custom duty as well as tax arrears. They were on the level of PLN 126.6 bn and were lower than the assumed in the Budget Act by about PLN 2.5 bn, i.e. 1.9%. The expenditures of central government amounted to PLN 139.8 bn, i.e. by PLN 3.7 bn (by 2.6%) less than determined in the Budget Act. The execution of expenditures below the plan resulted mainly from savings in expenditures on costs of domestic and foreign debt service and a lower subsidy to the Labour Fund. Reduction of public debt service costs was obtained as a result of, among other things, lower than assumed basic parameters significant at debt repayment, i.e. foreign exchange rate and interest rates.

In the analysed period the structure of internal demand created by central government was changed. Central government distributed less funds for grants and subsidies (from 37.1% of total expenditures in 1997 to 36.4% in 1998) that are consideration – consumption type expenditures, increasing at the same time the demand by financing expenditures on investment purposes of government institutions (increase of property expenditures from 6.1% in 1997 to 6.8% in total expenditures in 1998).

The consumer demand was reduced by central government not only by reducing the scale of grants for business tasks, but also by reducing the rate of increase of budget sector pay and pension and disability pension considerations, both for employees and farmers.

Fixed expenditures, connected with burdens resulting from public debt service and supplementary payments to social security, continued to play a vital role – although at a smaller scale than a year before – in the structure of budget expenditures. Their share in total expenditures amounted in 1998 to 27.4%, while a year before it constituted 28.8%.

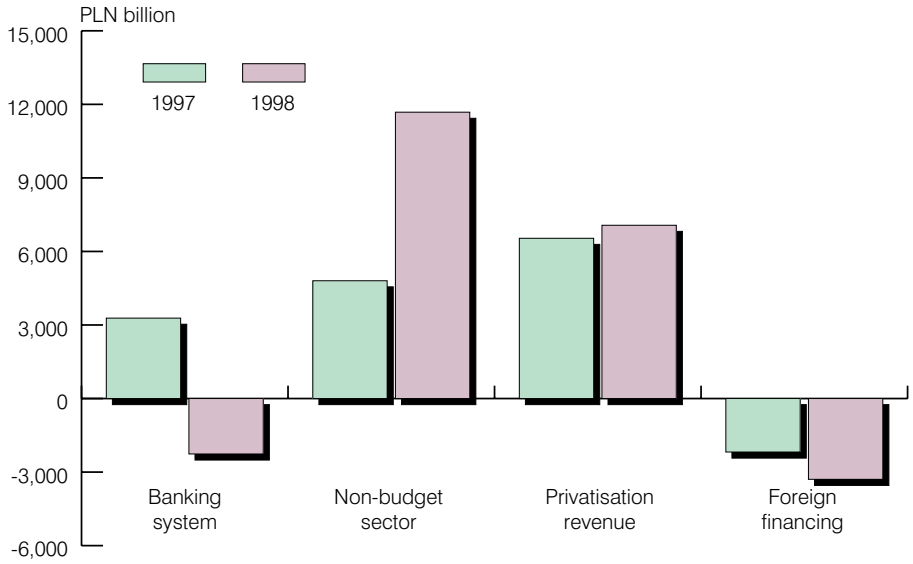
In 1998 the trend of increasing positive primary balance of central government was maintained[15]. The magnitude of the primary balance of central government makes possible carrying out an assessment, to what extent central government may finance the public debt on its own. In 1998 central government obtained a high positive primary balance reaching PLN 4.7 bn and its level was higher by 22.5% than that reached in 1997, that means increasing budget capability to "self-financing".

Year 1998 was another period in which favourable changes in the structure of financing the budget deficit were recorded. There was a clear supremacy of the non-banking sector share. This share amounted in 1998 to about 88.5%, while a year before it constituted 38.6%. That resulted from a substantial growth – by 179.6% more than in the last year – of purchases of Treasury securities by non-banking domestic investors, what is an extremely desirable phenomenon from the stabilisation policy point of view. Borrowing in foreign markets is usually connected with a higher risk level, resulting from foreign exchange rates changes and interest rate fluctuations what at present situation of continued deficit in the current account of balance of payments at a pretty high level is a specially vital issue.

A high, but uneven demand of foreign investors for Treasury securities turned out to be the factor increasing financing in the non-banking sector. An increase of central government debt to foreign

[15] The primary balance is the difference between the revenue and primary expenditures of central government, i.e. expenditures that do not include costs of the public debt service.

Chart 31
Subject structure of budget deficit financing



investors buying Treasury securities in the domestic market does not create, however, a larger threat, because taking into account that they were buying primarily 5-year fixed rate bonds (80% of the entire increase) a short-term approach and a tendency to quick withdrawal from the Polish market cannot be assigned to them.

There was a visible reduction of banking system share in financing the budget deficit. Reduction of this financing in the banking system allowed to reduce the budget role in the creation of money.

According to the constitutional provision in 1998 there was no inflationary budget financing in the NBP through direct sales of Treasury bills. The recorded, however, increase of debt in the central bank resulted from the conversion of a part of foreign debt (Brady bonds) into a bond denominated in dollars, accepted by the NBP. The operation of anticipated redemption of Brady bonds affected also the balance of foreign financing. In 1998 like in the previous year this balance was negative and was on a high level of PLN 3.3 bn.

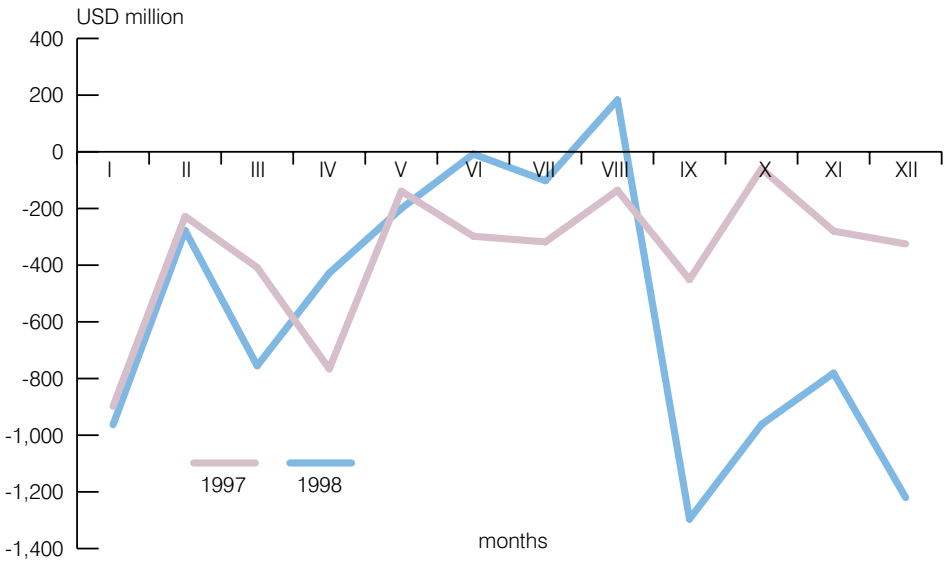
The privatisation revenue had a substantial share in financing the budget deficit (53.8%) in 1998. The realised inflows from the privatised national property amounted to about PLN 7.1 bn and exceeded the

planned value by about PLN 300 million, mainly thanks to selling shares of Telekomunikacja Polska SA and Bank Przemysłowo-Handlowy SA. Compared with the last year the relationship of privatisation revenue to the generated GDP was on a similar level and amounted to 1.3% compared with 1.4% in the previous year.

The subject structure of budget deficit financing is presented in Chart 31.

A favourable effect of demand reduction from central government side, recorded especially in the first half of 1998, was weakened by cumulating in the final months of year liabilities of central government institutions. The due debt of these entities amounted at the end of 1998 to about PLN 6.7 bn, of which PLN 5 bn was the debt assumed in 1998, mainly by the heading "health protection". Increasing the budget deficit reported in 1998 by an increase of due commitments of central government institutions would mean its increase to 3.1% of GDP, so only a symbolic reduction of internal demand created by the budget compared with the previous year (in 1997 this relationship amounted to 3.2% GDP).

Chart 32
Current account balance in 1997-1998



External imbalance and inflationary threats

The excess of internal demand over GDP growth that continued to maintain in 1998 promoted absorption of foreign savings by Polish economy. In 1998 the deficit in the current account of balance of payments became larger, the ratio of negative balance to GDP rose to 4.4% compared with 3.0% in 1997 and 0.95% in 1996. This deterioration of external balance of Polish economy ensued, however, primarily from a breakdown of exports dynamics as a result of external demand shock, what was reflected also in a lower rate of GDP increase.

Average annual rate of exports volume was reduced virtually by a half, from 13.7% in 1997 to 9.4% in 1998, while the relevant import indicators amounted to 22.0% and 14.6%, respectively[16].

Year 1998 featured a variability of trends in the area of balance in the current account formation (see Chart 32) that allows to distinguish two separate periods.

In the first period, lasting by August, there was a quick growth of foreign exchange reserves and a fall of deficit in the current account (in August a surplus

[16] Source: "Handel Zagraniczny" styczeń-grudzień 1998 ("Foreign Trade January – December 1998"), Central Statistical Office (GUS).

Chart 33
Dynamics of exports revenue and imports payments (12-month value moving average 1996-1998)

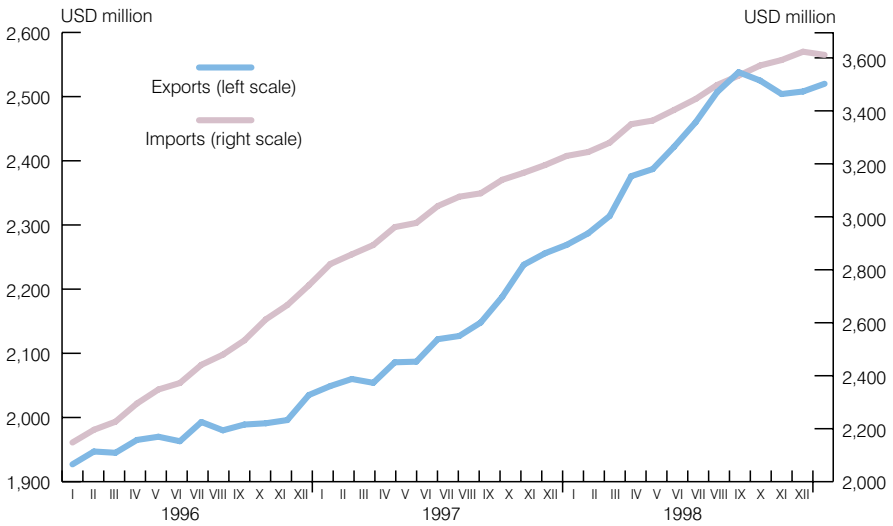


Table 8
Main economic ratios of the top world economies in 1997-1998

Country (group)	GDP	Inflation	Short-term rates	Long-term rates
			(3 months)	(10 years)
Euro zone	2.4 (2.5)	0.8 (2.0)	3.17 (4.01)	4.71 (5.99)
USA	4.3 (3.9)	1.6 (2.3)	5.00 (5.62)	5.33 (6.45)
Japan	-2.8 (0.8)	0.6 (1.7)	0.18 (0.36)	1.30 (2.15)

Data in percentages; in brackets 1997. Source: European Central Bank, Monthly Bulletin, 02.99; The Economist, 20-26.03.99.

appeared at the amount of USD 183 million). The second period, starting from September, is characterised with a substantial deficit in the current account. While in the period January – August 1997 the deficit in the current account amounted to USD 3,184 million then in the same period of 1998 this deficit was reduced to the level of USD 2,583 million. However, during the year the deficit in the current account rose from USD 4,312 million in 1997 to USD 6,858 million in 1998.

A significant deterioration of the foreign trade balance, decisive for the deficit in the current account, resulted primarily from the breakdown of exports dynamics in the second half of 1998 (see Chart 33). In the period January – July 1998 exports were still developing dynamically and showed an increase by over 19%, compared with the analogous period of last year, exceeding the dynamics of imports increase by about 4 points.

External demand factors affected the formed trends in the area of current account in a relatively strongest way. In 1998 the recession trends in the global economy were stronger and wider (see Table 8), what directly – via a fall of import demand and indirectly – via low prices in the international trade – resulted in a very significant reduction of sales by Polish exporters. The index of external market conditions (calculated on the basis of GDP growth indices in real terms of most important recipients of Polish exports, weighted by their share in our exports) was reduced in 1998 to 1.67 from 1.89 in 1997. The first half of 1998 was characterised with a generally good external market conditions, while in the second half of year the intensification of crisis in Russia and a clear deterioration of market condi-

Effect of Russian crisis on deterioration of foreign trade balance in 1998*.

For our calculations we assume that the influence of the crisis started in July 1998. A fall of exports to countries of former USSR by about 14% occurred already in that month.

We have assumed two methods to estimate the effect of the Russian crisis. They are based on a simulation of exports to countries of former USSR in the period July – December 1998. Exports estimated in this way are compared with the actual ones and the difference between the first and the second is denoted as the loss resulting from the Russian crisis.

Both assumed methods differ between themselves in the basis period (recognised as the basis to estimate the notional exports in the period Jul – Dec 1998). The first method is based on comparing exports dynamics Jul-Dec 97/Jan-Jun 97 with dynamics Jul-Dec 98/Jan-Jun 98 (that means that only 1997 is the basis year). The second method is based on comparing dynamics Jan-Jun 97/Jan-Jun 96 and Jul-Dec 97/Jul-Dec 96 with dynamics Jan-Jun 98/Jan-Jun 97 and Jul-Dec 98/Jul-Dec 97 (in this case years 1997 and 1996 constitute the base).

After computations we have estimated that the effect of Russian crisis on our exports was in the range of **USD 1.35 – 2.25 bn.**

These amounts make about PLN 4.7–7.9 bn (assuming 3.4937 as the average PLN/USD exchange rate for 1998), that constitutes correspondingly about 1.3–2.1% of industrial sales for the whole 1998.

The estimated loss resulting from the Russian crisis is in the range of 4.8 – 8% of the whole exports in 1998.

In 1998 exports rose compared with 1997 by about 9.6%. The calculated loss lowers the exports dynamics in 1998 by about 5.2 – 8.7 points, that without the effect of Russian crisis would have been on the level of 14.9 – 18.4%, respectively.

In 1998 the deficit of trade turnover compared with GDP amounted to 8.7%. Eliminating the effect of the Russian crisis on our economy we would have achieved deficit in the foreign trade at the amount of 7.8 – 7.2% GDP.

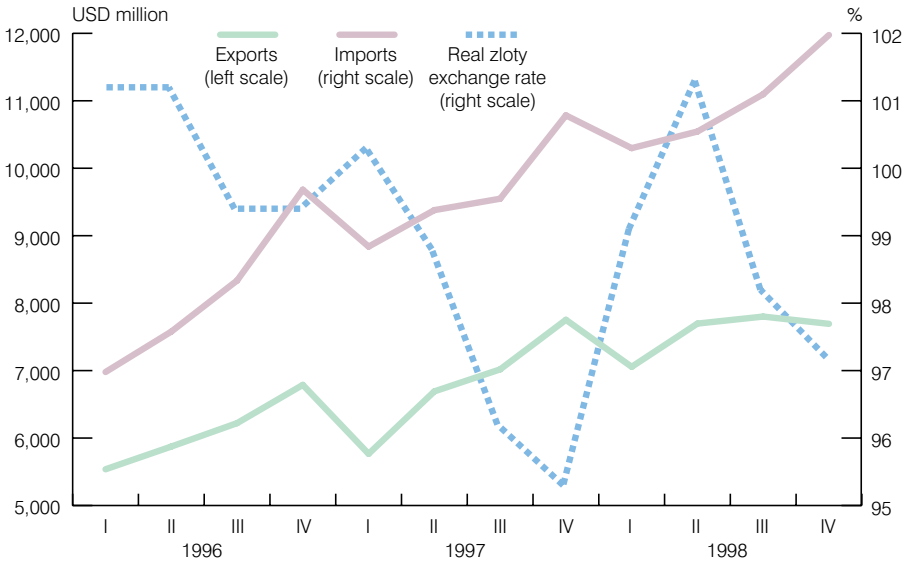
*Research was carried out on the GUS data.

tions in a majority of European Union economies made conditions of sales substantially more difficult in the most important markets for Polish exports. A very clear deterioration of market conditions in the German economy occurred in Q4 of 1998. It was accompanied by a decrease of orders in the processing industry: domestic by 3.9% (compared with 1998 Q3) and foreign respectively by 3.2%. The industrial production fell in the same period by 2.3% and GDP by 0.4%.

Effects of so seriously adverse market conditions in the German economy (comparable to recession in the period 1995-1996) will result in continuation of adverse conditions for Polish exporters sales in the EU market, at least in the first half of 1999.

Changes of the real effective exchange rate also affected the balance of foreign trade and the balance in the current account (see Chart 34). From the statistical analysis it results that the strongest and statistically most significant relationships between the real effective exchange rate and exports are observed after the period of three quarters. So taking into account that the real zloty appreciation took place since November 1997 it may be expected that its

Chart 34
Exports, imports and real effective zloty exchange rate in 1996-1998



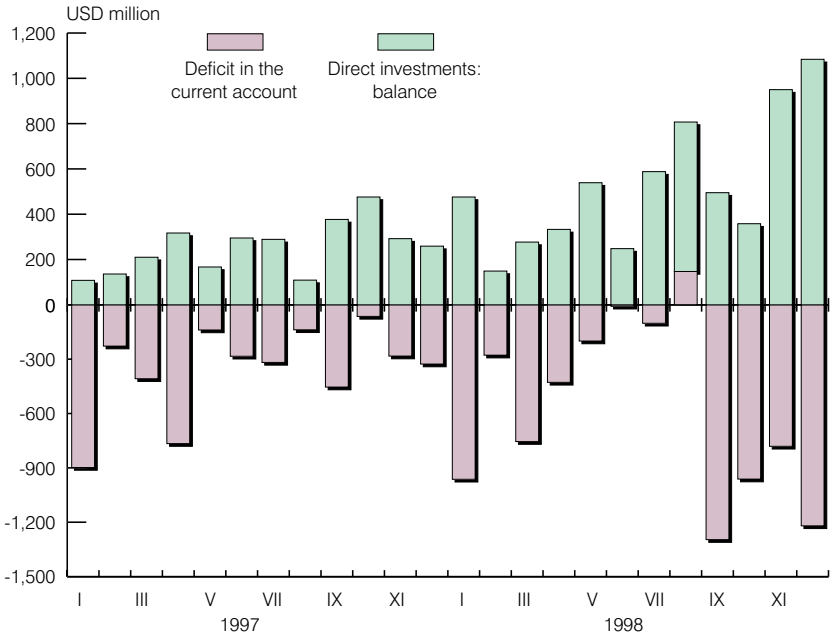
negative effects for exports should have occurred in Q3 of 1998, superimposing on the effects of the Russian crisis and on deterioration of market conditions in other markets. Hence analysing reasons of exports dynamics breakdown it is difficult to separate possible outcomes of zloty appreciation from effects of external demand shock. However, it seems that the latter effect had a decisive role.

In 1998 the imports growth was limited by the macroeconomic policy directed towards retarding the domestic demand and the deficit in the current account, instead, it was stimulated by cost factors, namely: clear strengthening of zloty exchange rate in the first half of year and a sharp fall of prices in global markets.

It shall be stated then that a cautious macroeconomic policy and the weakening of zloty in the second half of year contributed to a relatively mild response to external shocks and allowed to avoid serious destabilisation in the Polish foreign exchange market.

An increase of the deficit in the current account did not result from a demand pressure but from the action of primarily external factors (Russian crisis and deterioration of market conditions in Germany), to some extent also from zloty strengthening in the

Chart 35
Financing the deficit in the current account by direct investments in 1997-1998



fist half of 1998. Threats connected with increasing imbalance in the current account of balance of payments were neutralised in 1998 by maintaining the safety of its financing. The deficit in the current account was covered in 72.4% by inflows from direct investments, compared with about 71% in 1997 (see Chart 35).

Aggregated supply

Substantial changes occurred in 1998 in the structure by nature of the carried out global supply. Global shares of agriculture and building industry increased, the share of industry fell. The share of sections grouped in market services has not changed, even though it may be estimated that at a fall of transport services share, the role of trade and services for business, provided by financial and insurance institutions continued to increase.

The existing since 1995 trend of increasing share of import supplies in the total supply was maintained, although the relationship between imports and the global value calculated in current prices did not rise as quick as in 1996–1997. Supplying the

market with cheap imported goods reduced possibilities of the domestic production growth and resulted in deterioration of domestic manufacturers financial standing as well as contributed to lessening the inflationary processes.

In 1998 the industrial production sales in constant prices was higher than in the previous year by 4.8% (in 1997 it increased by 11.2%). After a high increase in Q1 – by 10.9% in an annual scale, the production rate was gradually slowing down in the following months (in Q2 increase by 6%, in Q3 by 3.9%). In Q4, primarily due to the breakdown of exports to CIS countries markets, the industrial production was smaller by 0.8% than in the analogous period of 1997. During the whole year the production of enterprises from the mining, coke, oil products and derivatives as well as chemicals and chemical products industries was smaller than in 1997. In the second half of year the production of textile and metallurgical industries was below the level of 1997 and in Q4 also of machine-building industry. In the food and furniture industries the rate of increase in the first half of year largely exceeded 10%, while in Q4 it amounted to only 1%.

A fall of domestic demand as well as of foreign demand were the reason of dynamics of industrial sales slowdown. The dynamics of revenue on products and materials sales in the domestic market in current prices fell from 120.7% in 1997 to 110.7%[17]. After an increase at the beginning of 1998 Q1 by more than 10 points compared with December 1997 (indicator amounted to 140%) in the following months a drop of sales abroad dynamics was recorded and as a result in 1998 the revenue of export sales was higher than in 1997 only by 15.5% (in 1997 it increased by 28.9%).

[17] Data on dynamics of revenue and inventories by the end of this section refer to enterprises covered with F-01 survey. Data was computed from values in current prices for consecutive cumulative periods (January, January-February, January-March, etc.) compared to the analogous periods of the previous year. Such a method of dynamics calculation is the only possible because of the methodology of statistical research, in which adjustments referring to data from various previous months are reported in the last period. However, it shall be pointed out, that the longer is the period included in comparison, the smaller is the influence of the last month on the indicator of dynamics. So it may be said, that in individual months of the second half of year a fall of revenue dynamics was stronger than it results from indicators for cumulative periods.

In the section trade and repairs the dynamics of export sales revenue was in 1998 lower than the dynamics of sales in the domestic market. The dynamics of sales revenue in the domestic market in this section was very stable during the whole 1998 and amounted to 130%, but the dynamics of export sales revenue was showing significant fluctuations. At the beginning of 1998 Q3 there was a substantial fall of dynamics that was directly related with the crisis in the Russian market – the dynamics of exports sales revenue in the period January-July 1998 amounted to 134.5% and in the whole 1998 barely to 111.5% and was by 13.7 points lower than the dynamics in 1997.

In the building industry the dynamics of revenue on sales in the domestic market and exports were relatively high and in 1998 they amounted to 129.5% and 115.4%, respectively. However, the dynamics of revenue on sales in the domestic market since the beginning of year was showing a downward trend with the lessening investment demand and from the period January-May 1998 it was lower than in analogous periods of 1997. Instead, the dynamics of export sales revenue was characterised with a pretty strong upward trend and compared with the end of 1997 it increased from 100.4% in 1997 to 115.4% in 1998.

Good production outcomes were obtained in agriculture in 1998. The global agricultural production rose by 6.6%, substantial inventories originating from previous years were also maintained. A high surplus of agricultural products supply in the domestic market originated also from the external situation. Strong trends of food production growth existed in the world markets in 1998 what resulted generally in its high supply. Eventually agricultural products prices in foreign markets were revealing downward trends that become an incentive to intensify actions aiming at placing surpluses of food generated in numerous Western countries in the markets of other countries. A high competitiveness of agricultural products originating from European Union countries, subsidised in a large extent, has contributed to reducing possibilities of Polish food export, resulting in forcing Polish food out of hitherto markets. This situation has also created conditions for relatively profitable imports to Poland, despite

the used barriers of domestic production protection. The Russian crisis was the factor aggravating problems with management of food supply surplus. As a result of this crisis Polish food exports to Russia broken down (inter alia, poultry and live hogs). Eventually the increase of retail prices in 1998 was clearly slower than in previous years. The third year running unfavourable relationships continued between prices of products sold by farmers and prices of material bought by them, in 1998 this relationship amounted to 92.3%. Moreover, farmers assess prospects of farms development in a more pessimistic way than in previous periods. This may be caused by the aforementioned problems with production profitability even of the strongest farms.

Trends in costs and prices in enterprises

After a period of favourable changes on the turn 1996/1997 the financial standing of enterprises was worsening in consecutive months of 1998[18]. The enterprises results obtained in 1998 indicate that they achieved much lower effectiveness than a year before what is proven by an increasing level of costs of sales (especially revenue from sales) and decreasing ratios of gross and net profit margins. The ability of enterprises to discharge their current obligations (liquidity ratios were falling) decreased during the past year. The situation of enterprises from the public sector was especially unfavourable. However, the profitability fell in 1998 also in the public sector, what intensified especially in the second half of year.

The scale of costs influence on production prices of sales may be assessed on the basis of observation of mutual relationship of dynamics of costs and dynamics of revenue in the enterprise sector. This relationship was unfavourable since the beginning of 1998 – costs were rising faster than revenue. The difference of dynamics of sales and costs of manufacture in

[18] On the basis of analysis of economic-financial standing of enterprises covered with monthly reporting in F-01 forms of the Central Statistical Office (GUS). Data refers to entities running books of accounts, in which the number of employees exceeds 50 persons – in the section mining and in the section manufacturing activity – and 20 persons – in the case of remaining sections. Data does not include enterprises in agriculture, hunting, forestry and fishing as well as banks, insurance companies and universities.

Table 9
Dynamics of sales and costs of manufacture in industrial enterprises in 1997-1998 (in %)

Specification	Jan	Jan-Feb	Jan-Mar	Jan-Apr	Jan-May	Jan-Jun	Jan-Jul	Jan-Aug	Jan-Sep	Jan-Oct	Jan-Nov	Jan-Dec
						1997						
Sales	121.3	121.4	118.4	120.4	119.2	120.7	120.4	120.4	121.2	121.1	121.0	121.1
Costs of manufacture	121.2	121.4	119.0	120.7	119.5	120.7	120.3	120.3	120.8	120.8	120.8	121.3
Difference of dynamics												
in points	0.04	0.00	-0.67	-0.34	-0.28	-0.03	0.09	0.05	0.40	0.31	0.21	-0.22
						1998						
Sales	113.9	115.0	118.2	116.1	116.0	115.5	115.0	114.5	113.2	111.9	111.0	110.4
Cost of manufacture	115.1	116.9	120.2	118.8	118.7	118.2	118.0	117.4	116.1	114.9	114.1	113.2
Difference of dynamics												
in points	-1.23	-1.90	-1.98	-2.73	-2.71	-2.68	-3.05	-2.86	-2.82	-2.93	-3.10	-2.80

Source: Unit data from GUS financial statements of enterprises prepared in F-01 forms; aggregation and calculation by the NBP.

industry increased 2.5 times during 1998 and at the end of year amounted to 2.8 points (see Table 9).

The continued increase of costs of obtained revenue indicates that in 1998 there existed conditions encouraging enterprises to raise prices due to costs reasons[19], that may be defined as cost pressure on prices. However, in 1998 this pressure was not directly converted into prices of sales and then into consumer prices. This is proven by a slow but systematic decrease of the index (calculated in a cumulative way) of industrial sales prices growth in consecutive periods of 1998 (see Chart 36). That was related with a barrier of domestic and foreign demand for goods and services, that created natural constraints for price increase.

Costs of outside services[20] and full costs of labour have been for some time the most dynamic element of costs of manufacture. These groups of costs had a large share in the structure of total costs (11.4% and 20.8% of total costs, respectively).

In 1998 the fixed level of pay increase was exceeded another time both in individual sectors and in the entire national economy, despite the fact that there was no

[19] Because it is known that compensation of increasing costs by increasing prices is the method used most eagerly by enterprises to cover financial deficits, both those committed (resulting from the lack of thriftiness) as those not committed (connected with deterioration of market conditions).

[20] That is increase of costs of such outside services as: transport, telecommunication, building, repair and maintenance services, connected among other things with increase of official and administered prices.

Chart 36
Dynamics of revenue and costs in industrial enterprises in January-September 1997 – January-December 1998 and dynamics of the industrial output prices (analogous period of the previous year = 100)

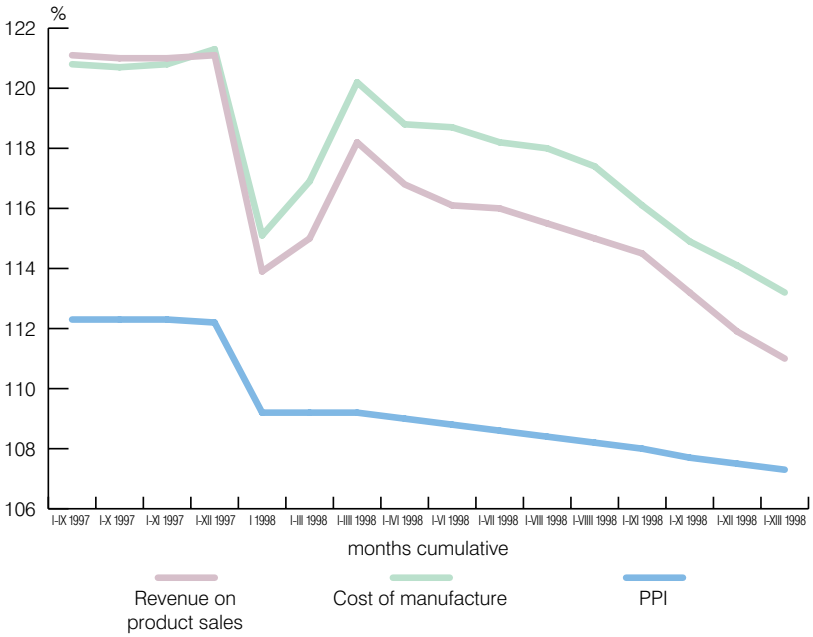
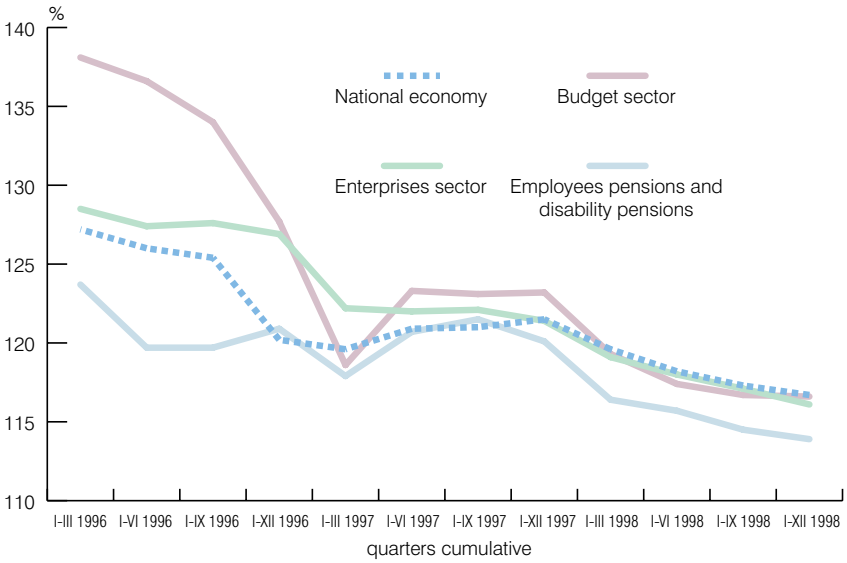


Chart 37
Dynamics of gross earnings (monthly average) including profit and of average pension – disability pensions in 1996-1998 (analogous period of the previous year = 100)



such a strong pressure on pay rise as in previous years (Chart 37). As previously average earnings without profit bonuses were rising faster than total earnings, so there was mainly an increase of earnings included in

Table 10
Cost structure by nature in industry and its three sections in 1997-1998

Specification	Mining		Production Activity		Electricity. gas and water supply		Industry	
	1997	1998	1997	1998	1997	1998	1997	1998
Total costs	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
of which:								
consumption of materials								
and energy	23.2	21.7	58.0	55.6	44.4	41.4	53.4	51.2
outside services	15.9	15.4	9.8	10.7	14.5	14.0	10.8	11.4
taxes and fees	5.5	5.1	8.1	8.3	2.6	2.6	7.3	7.4
full labour costs	46.8	48.1	17.9	18.0	21.9	21.1	21.0	20.8
depreciation	6.5	7.7	3.7	4.2	13.7	18.2	5.0	6.1
other	2.1	2.0	2.6	3.1	2.9	2.6	2.6	3.0

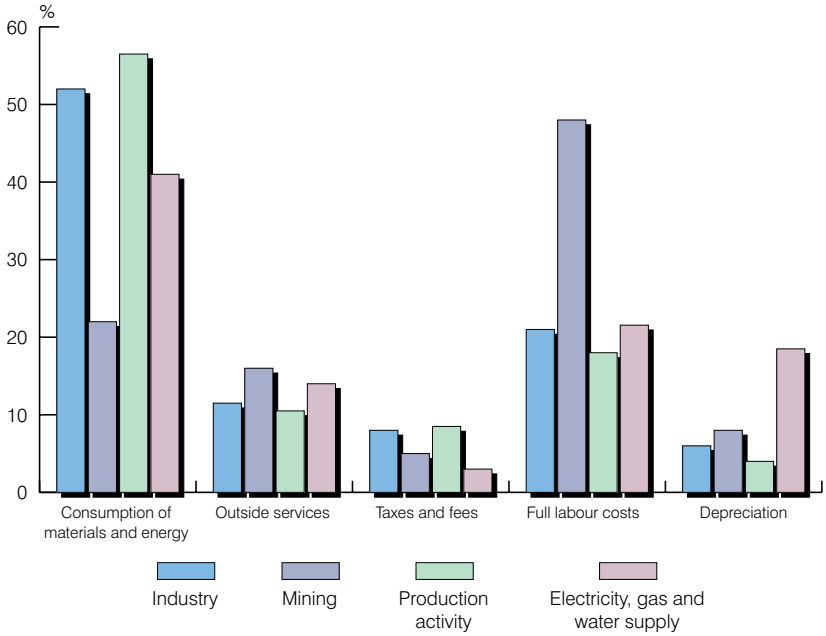
Source: As in table 9.

costs. Nominal average earnings without profit bonuses in the enterprise sector were by 16.4% higher than in 1997 that meant exceeding the factor of permissible increase by 3.9 points. In 1998 for the first time in the period of binding negotiation system of pay determination the exceeding of the set factor occurred already in Q1 by 1.5 points. The share of earnings in the total costs of enterprises (by nature) was slightly higher in 1998 than in 1997, especially in the first quarter. In further quarters of 1998 this share started to increase again and in an annual scale was by 0.1 point higher than in 1997. Despite that, earnings (an primarily their rise) in 1998 were not the factor substantially affecting production costs rise and hence prices of products.

In 1998 costs of accelerated depreciation were rising especially quick that made that this group of costs started affecting increasingly stronger costs of manufacture in enterprises, although its share in costs structure by nature amounted in the discussed period only to 6.1% (see Table 10).

The situation of individual sections and divisions was very diversified, however, overall indicators for industry show that the problem of excessive costs of sales constitutes a serious problem for the entire enterprise sector. However, taking into account different structures of costs of manufacturing in individual component sections of the industry, in each of them other elements of costs caused an increase of total costs of sales indicator (see Chart 38).

Chart 38
Cost structure by nature in industry and its three sections in 1998



Particularly unfavourable situation continued to exist in enterprises of the mining section. The deficit existing there for many years has been substantially reducing results of the entire industry. In this section deflators of all costs elements substantially exceeded indicators of sales prices increase (that refers especially to full costs of earnings, including considerations for employees and depreciation costs) and that means, that enterprises were recording losses. To reduce losses enterprises in this section should increase prices of their sales, however, that is not possible due to the demand barrier.

In the section of electricity, gas and water supply in 1998 in a similar way as in previous years costs have been for years justifying the need to increase prices of sales, which so far were administered prices. Periodical rises of forms of energy and water prices hitherto carried out in an administrative way were not covering increasing costs.

The assessment of situation in the field of dynamics and structure of costs formation in enterprises allows to formulate an opinion that in 1998 enterprises were motivated to rise prices of own sales by costs, however, a limited demand for their production as well as the competition of imported products made performing such rises impossible.

Monetary policy in 1998 and achieving the inflation target

Institutional and systemic conditions of monetary policy

Year 1998 was the first year when NBP carried out the monetary policy in new institutional conditions. The hitherto existing decisional structures of the central bank were changed due to coming into force of the new Constitution of the Republic of Poland on 17 October 1998 and the new Act on the National Bank of Poland on 1 January 1998.

The Constitution of the Republic of Poland brought in some provisions essential for operation of the NBP and for execution of the monetary policy. First of all it increased the scope of decisional and instrumental independence of the central bank, hence it raised the degree of its autonomy. Article 227 of the Constitution, devoted entirely to the central bank, defines generally the goal of NBP activity, declaring that NBP is responsible for the value of Polish currency. It also contains the discussion of basic principles of NBP decision-making bodies operation, i.e. the President of NBP, the Monetary Policy Council and the NBP Management Board, leaving the detail issues to the Act on NBP. An essential new solution contained in Article 220, clause 2 is the ban on funding the budget deficit through incurring liabilities to the central bank. Consequently, the buy-out of the last maturing Treasury bills in the NBP portfolio took place at the end of 1997.

The Act on the National Bank of Poland of 29 August 1997 in Article 3 specified, that the primary target of NBP activities is to maintain a stable price level at simultaneous support for the economic policy of the Government provided, however, that it does not constrain the execution of the primary target of NBP. The Act regulated in details the issues of NBP organisation (in Chapter 2) and defined the competencies of particular NBP bodies.

On 17 February 1998, the Monetary Policy Council constituted itself and two days later the Lower House of the Parliament (Sejm) re-elected

Hanna Gronkiewicz-Waltz as the President of NBP, who is also the Chairman of the Council. The other nine members of the Council were appointed in equal numbers by the President of the Republic of Poland, the Sejm, and the Upper House of the Parliament (Senat). Moreover, according to Article 15 of the Act of NBP the Council of Ministers appointed Mr Jarosław Bauc, the First Deputy Minister of Finance, as its representative to participate in MPC meetings.

Completion of personal changes in the management of NBP allowed to commence the work of strategic nature. As a result the Monetary Policy Council updated on 22 April the existing *Assumptions of monetary policy for 1998* prepared by the NBP Management Board in September 1997 and adopted by the NBP Management Board and the President of NBP in accordance with the provision of the Constitution in October 1997. The updated *Assumptions* maintained the hitherto level of NBP inflation target for 1998, declaring that "Average annual rate of increase of consumer prices should not exceed 11% in 1998 and the level of prices at the end of that year compared with the end of 1997 should not be higher than 9.5%". However, the forecasts concerning the growth of GDP and the formation of

The most important legislative and organisational changes concerning NBP in the second half of 1997 and in 1998 and strategic decisions of Monetary Policy Council in 1998

Date	Event
1997	
17 October	The Constitution of the Republic of Poland came into force.
1998	
1 January	The Act on NBP of 29 August 1997 came into force.
17 February	The Monetary Policy Council constituted itself.
19 February	H. Gronkiewicz-Waltz was re-elected as the President of NBP by the Sejm.
5 March	H. Gronkiewicz-Waltz was sworn in as the President of NBP at the Sejm.
18 March	Vice Presidents of NBP and new members of NBP Management Board were appointed.
22 April	Updated *Assumptions of monetary policy for 1998* were adopted.
4 June	The target of monetary policy for 1999 and medium-term inflationary target were defined.
23 September	*The medium-term strategy of the monetary policy (1999-2003)* was adopted.
29 September	*Assumptions of monetary policy for 1999* were passed.

Source: NBP.

money demand and supply were modified. The Council did not mention the money supply as an intermediate target of monetary policy and put only the forecast of this magnitude growth in the *Assumptions*.

At the meeting in the beginning of June 1998 the Monetary Policy Council defined the target of monetary policy for 1999. It constituted the basis for the work on *Assumptions of monetary policy for 1999*. At the same time the Council determined that in September 1998 the medium-term strategy of the monetary policy for 1999-2003 should be published. It was decided that the main medium-term target of the monetary policy would consist in reduction of annual inflation pace to the level below 4% by the end of 2003. Short-term inflation targets, announced in annual *Assumptions of the monetary policy*, shall be subordinated to this medium-term target. The Council recognised that the formation of instruments of monetary policy subordinate to carrying out the direct inflationary target would be the basic principle of the monetary policy in the period covered by the *Strategy*.

The **strategy of direct inflationary target (DIT)** assumes, as its name suggests, the lack of indirect targets (money supply, exchange rate).

Direct Inflation Target

The central bank pursuing the achievement and maintaining the price stability may use various strategies of the monetary policy. In traditional approaches the intermediate targets of the monetary policy are used. These strategies are based on the control of chosen monetary aggregates, or the exchange rate. It is justified when the quantities assumed as intermediate targets may be sufficiently influenced by the monetary authorities and when there is a stable relationship between the controlled quantity and the inflation.

Execution of the direct inflation targeting by the central bank consists in withdrawal from controlling the particular quantity fulfilling the role of intermediate target in traditional strategies. Instead of focusing on one variable and trying to influence its formation using the monetary policy instruments, the central bank takes into account information concerning formation of many variables affecting the inflation. The appraisal of endangerment for achievement of inflation target, usually defined as a band of allowable prices growth, constitutes the basis for decision on the appropriate adjustment of the monetary policy instruments.

The advantages of the direct inflation control include, inter alia:

- better information transparency that strengthens the reliability of the monetary policy,
- an increase of the reasonability level of the inflation expectations, allowing to minimise economic costs connected with reduction of inflation,
- higher flexibility of using the monetary policy instruments in response for shocks in the economy,
- a possibility to avoid the problems specific for strategies using the intermediate targets, such as, e.g. changes in the rate of money circulation or problems with controlling the money supply or the exchange rate.

Without focusing on a particular indicator, the central bank takes into account every available information about factors increasing or decreasing inflationary pressure and causing a rise or fall of probability of achieving the inflation target assumed in the given period. The basic principle of such a system is that the central bank reacts when the forecast inflation value deviates from the level assumed as the target. To carry out this strategy in an effective way the central bank must have a sufficient recognition of factors affecting the inflation, the strength of their relationships and occurring delays.

The conditions that currently exist in Poland are not perfect for carrying out the monetary policy based upon the principle of the direct inflation target. That aspect was emphasised by the MPC in the *Medium-term strategy of the monetary policy (1999-2003)*. Shortages of the statistical base in Poland (time series of appropriate length) as well as the changes in the economy resulting in changes of factors affecting the inflationary processes make it difficult to analyse the influence of these factors on the level and the dynamics of the index being the target of the National Bank of Poland and, consequently, to forecast the inflation which is the core of the DIT strategy. Because years 1990-1991 constituted the period of relative prices adjustment, the data suitable for use starts practically from 1992. Although it is true that the range of the available statistical data grows every year, however, its statistical quality (as to the possibility of interpretation) grows slower due to continuous changes in the behaviour of corporates and also to the emergence of new institutional solutions. These solutions (e.g. structural reforms) may seriously influence the micro- and macroeconomic relationships in the economy and their impact on the inflationary processes. Therefore within the new strategy the short-term targets are adopted in sufficiently wide bands to increase the probability of execution of these targets even in the case of certain mistakes in appraisal of the strength and direction of development of factors affecting the price index adopted as the target.

Problems connected with the process of transmission of impulses from the monetary policy to the economy constitute another factor hindering the use

of the direct inflation target strategy in Poland. The underdevelopment of the financial markets, the lack of households and businessmen habits to use financial instruments makes it difficult for the central bank to effectively influence the behaviour of the corporates by the central bank. Due to the aforementioned the mechanisms of the monetary policy transmission in our country, such as the interest rate channel or the wealth effect, had a weak impact on the economy. Also the influence through the credit channel is weakened due to the existing systemic conditions. Problems with transmission processes are also connected with the phenomenon of overliquidity of the commercial banks sector described above (box p. 36).

Another condition hindering the execution of the DIT strategy consists in the insufficiently restrictive fiscal policy. Excess demand created by the public sector may lead to worsening the external balance and then – through step exchange rate adjustments – also the inflation. In specified conditions the monetary policy counteracting these pressures may be ineffective.

Despite these difficulties the MPC believes that the DIT strategy is the most appropriate system of the monetary policy execution in the current conditions. Application of other strategies (the strategy of money supply control, or the strategy of exchange rate control) is connected with the same difficulties as in case of the DIT strategy, however, it does not give the possibility of such a flexible reaction to the internal and external shocks that Polish economy is exposed to. On the other hand, the continuation of the hitherto strategy is not optimal due to the growth of costs of the inflation inertia breaking in the one-digit inflation environment. In such circumstances it is more reasonable to apply the strategy of higher transparency – the DIT strategy.

Aiming at increasing the transparency of the principles of conducting the monetary policy and thus increasing its trustworthiness, in the second half of September 1998 the Monetary Policy Council adopted the document *The medium-term strategy of the monetary policy (1999-2003)* which defines the system and the basic directions of the monetary policy in Poland in the period preceding the access of our country to

the European Union. In accordance with the provisions of the *Strategy* Poland, as one of nine countries in the world, adopted in 1998 the direct inflation target strategy as a system within which the monetary policy would be carried out. The *Strategy* mentioned also the issue of the monetary policy instruments and drew the exchange rate policy scenario, which aims at gradual floating of the zloty rate.

At the end of September 1998 the Monetary Policy Council passed the *Assumptions of the monetary policy for 1999*.

Instruments of monetary policy

Changes in monetary policy instruments in 1998

In 1998 there have been essential changes in the construction and the way of using the NBP monetary policy instruments. Changes comprised the system of conducting the open market operations and the mandatory reserve system.

According to resolutions of the Monetary Policy Council, the basic principle of the open market operations consisted in conducting 28-day operations. It meant withdrawal from issuing NBP bills with longer maturity that was conducted by the NBP before the first resolution of MPC of 25 February 1998 came into force. The minimum rate of the 28-day open market operations determined by the Council (so-called NBP reference rate) became *de facto* the third basic NBP rate (apart from the lombard credit interest rate and the bills rediscount rate). The actually applied rate of the open market operations was kept slightly higher than the reference rate in order to prevent the fall of the appropriate money market rates below that rate. Formation of the longer maturity instruments yield was left to the market and it enabled the use of the yield curve analysis to study the market expectations.

Since the beginning of 1998 the NBP also ceased to conduct the conditional operations (reverse repo) with maturity up to 14 days, since in the NBP portfolio there were no Treasury securities which are traded in these operations. Performing conditional operations with 14-day maturity became also unrea-

sonable due to focusing on the one-month interbank market rate. The use of just one instrument also ensured a better liquidity distribution in the banking system. Banks have a possibility to sell the NBP bills before their maturity and an earlier access to the invested funds.

The above decisions resulted in the necessity of absorption of the entire excess liquidity during a month. This required increasing the frequency of conducted operations. The appearance of increased liquidity risk was a potential side effect of the change of the operations system. In the case of a strong pressure on zloty depreciation appearance, banks could then in a short time obtain the access to a very large amount of refinancing from the maturing NBP bills.

In 1998 there have been also changes in the mandatory reserve system. Some of them were introduced by the Regulation No 7/97 of the President of the National Bank of Poland of 16 October 1997 on the mandatory reserve that came into force at the beginning of 1998. According to the new Act on the NBP, the interest-bearing mandatory reserve was cancelled, the interests from which were transferred to the Agriculture Restructuring and Modernisation Agency. At the beginning of 1998 the funds of the interest-bearing mandatory reserve were transferred to the current account and there they were treated as the settlement of the interest-free mandatory reserve. Also since 1 January 1998, the banks were obliged to maintain the mandatory reserve on the funds acquired abroad for the period shorter than two years.

Since 31 December 1997, the share of the declared cash in tills settled as a part of the mandatory reserve was reduced to 10%. Until the end of 1997 banks could keep 50% of their total required reserve as cash in tills, however, in practice they did not use this opportunity fully. Moreover, keeping a part of the reserve in the form of cash in tills was a hindrance in conducting the monetary policy – the information on cash in tills held in banks was available with a delay. As a result, the actual reserve position of banks was not known at the moment when the decision on the open market operation in a given day was taken.

Decision on another change in the mandatory reserve system was made on 7 May 1998. The MPC decided that the average amount of funds on bank accounts included in the reserve, calculated for all calendar days of the month should be the basis for calculation of the mandatory reserve, instead of hitherto average of balances as of the end of the first and second decade and of the end of month. This change was introduced by resolution No 10/98 of the NBP Management Board of 5 June 1998. In order to give the banks time to adjust their systems, provisions of this resolution were applied for the first time to the mandatory reserve calculated in January 1999 and paid on 28 February 1999. Introduction of the new calculation system aims at making the mandatory reserve system tighter. Banks will not have a possibility to manipulate the deposit balances on the days preceding the last day of the decade in order to reduce the calculated mandatory reserve.

Parameters of monetary policy instruments

On 25 February 1998, a few days after the Monetary Policy Council constituted itself, it made first decisions concerning the monetary policy instruments and the principles of using some of them. The Council recognised that the control of the internal demand growth necessary for execution of the inflation target adopted for 1998 continued to be the basic macroeconomic problem. Following these premises the Council decided on maintaining the same level of basic NBP interest rates (i.e. bills rediscount rate at 24.5% and lombard rate at 27%). The Council recognised also that the basic principle of the open market operations is to conduct them with the interest rate not less than 24%. That resulted in an effective increase of short-term interbank market rates by about 0.5 point.

On 25 February 1998, the Council made also two essential decisions concerning the operation of the exchange rate system. Firstly, the monthly rate of zloty depreciation against the basket of foreign currencies was reduced from 1.0% to 0.8%. Secondly, the range of allowed fluctuations of zloty average rate from the central parity was widened from ±7% to ±10%. The decrease of rate of the crawling peg

devaluation of the central exchange rate was thought to create conditions for achieving the inflation target by affecting the inflation expectations. Widening of the range of allowed market rate fluctuations and making this rate actually flexible was intended to overcome the contradiction in hitherto executed monetary policy strategy. In conditions of accelerated integration of Polish financial market with the global market, it became more and more difficult to control the money supply as the intermediate target of the monetary policy in conditions of limited flexibility of the exchange rate. The decision on ceasing the issuance of NBP bills with maturity over 28 days was an important supplement of these actions. Thanks to allowing the market to affect prices of these instruments their yield significantly fell, thus weakening the motivation of inflow of foreign capital that could complicate the execution of the monetary policy.

In the situation when there appeared important signals proving that inflation pace lessened, that inflation expectations were getting stabilised and that fiscal policy was taking over the task of stabilising the economy, in the spring of 1998 the NBP began the process of gradual lowering of the interest rates. On 22 April 1998, the Monetary Policy Council decided on lowering the minimum rate of 28-day open market operations by 1 point.

One month later, on 20 May 1998, all NBP rates were lowered by 1 to 1.5 point. The hitherto restrictive monetary policy and the tighter budget policy which together resulted in the requested demand growth rate and weakened the inflationary trends, as well as the gradual improvement of foreign trade results were premises for lowering the basic NBP interest rates and the money market intervention rate. The Council expected also that a restrictive fiscal policy would be continued, promoting a further decrease of inflation.

On 16 July 1998, the Monetary Policy Council lowered the NBP rates by 2 to 2.5 points, reducing also the monthly rate of zloty crawling peg devaluation against the basket of currencies from 0.8% to 0.65%. These decisions were possible, because positive trends in Polish economy were maintained, especially a fall of inflation pace and related expectations.

The most important decisions of the Monetary Policy Council concerning NBP monetary policy instruments in 1998

Date*	**Decision on:**
25 February	- not lowering the NBP administrative rates (bills rediscount rate: 24.5%, lombard rate: 27%), - yield rate of 28-day open market operations not less than 24% p.a., - lowering the monthly rate of zloty depreciation against the basket of foreign currencies from 1% to 0.8%, - widening the range of zloty exchange rate fluctuations from ±7% to ±10%.
18 March	- recommendation to the NBP Management Board to change the mandatory reserve collection system.
22 April	- lowering the minimum yield rate of 28-day open market operations from 24% to 23% p.a.
20 May	- lowering the lombard credit interest rate from 27% to 26%, - lowering the bills rediscount rate from 24.5% to 23.5%, - lowering the minimum yield rate of 28-day open market operations from 23% to 21.5% p.a.
16 July	- lowering the lombard credit interest rate from 26% to 24%, - lowering the bills rediscount rate from 23.5% do 21.5%, - lowering the minimum yield rate of 28-day open market operations from 21.5% to 19% p.a., - lowering the monthly rate of zloty devaluation against the basket of foreign currencies from 0.8% to 0.65%.
9 September	- lowering the minimum yield rate of 28-day open market operations from 19% to 18% p.a., - lowering the monthly rate of zloty devaluation against the basket of foreign currencies from 0.65% to 0.5%.
28 October	- lowering the lombard credit interest rate from 24% to 22%, - lowering the bills rediscount rate from 21.5% to 20%, - lowering the minimum yield rate of 28-day open market operations from 18% to 17% p.a., - widening the range of zloty exchange rate fluctuations from ±10% to ±12.5%.
9 December	- lowering the lombard credit interest rate from 22% to 20%, - lowering the bills rediscount rate from 20% to 18.25%, - lowering the minimum yield rate of 28-day open market operations from 17% to 15.5% p.a.

*Date of taking the decision.

Source: NBP.

As a result of the fall of prices dynamics, at unchanged nominal interest rates, there was a strong growth of real interest rates which could threaten the investment and production activity and could cause an excessive charge to the enterprises finances by the costs of credit service. A weakening dynamics of lending could be observed as well as a clear weakening of dynamics of activity in the real economy. Therefore the fall of inflation and weakening of the growth rate justified making decision on lowering the interest rates. Deciding on lowering the rates the Council took also into account the disparity in the internal and foreign rates. High domestic interest rates attracted foreign capital that was placed in Polish foreign securities and were the reason of growing Polish banks and enterprises debt abroad. Excessive inflow of capital from abroad that promoted the appreciation of zloty increased the money supply over the requested level and caused the danger of quick outflow, might have a destabilising effect for the economy and for the long-term process of inflation lowering.

Justifying its July decisions, the Monetary Policy Council stated also that there was a favourable situation of central government and the deficit in the current account of the balance of payments was under control. The Council believed that the mechanism of zloty crawling peg devaluation was one of the main inflation drivers. Recognising that the zloty devaluation is to some extent necessary to ensure a sufficient competitiveness of Polish exports and to restrain excessive imports, it was declared that its rate should lower as soon as possible.

The Council reminded that maintaining the positive trends requires a continuation of the restrictive budget policy. It was emphasised that it is necessary to continue lowering the scale of the budget deficit against the GDP as an essential condition of further gradual inflation lowering. The Council indicated that in the case of worsening of the macroeconomic situation or of reducing the degree of the restrictiveness of the budget policy the Monetary Policy Council would be ready to aggravate the monetary policy again.

In the situation of uncertainty in the global financial markets caused by the Russian crisis in August

1998, on 9 September 1998, the Monetary Policy Council took the next decision. The Council stated a continuation of positive trends in Polish economy, including formation of price level changes dynamics in accordance with the executed inflation target, and recognised the continuation of direction of hitherto changes in the monetary policy as reasonable, including exchange rate policy and interest rate policy. The Council lowered the reference rate by 1 point, reducing simultaneously the monthly rate of zloty devaluation against the basket of foreign currencies to 0.5%. This set of decisions did not contribute to worsening of profitability of investments in Polish financial assets for foreign investors, and it was also a clear signal that Polish financial markets and the entire economy are not threatened by the consequences of the financial crisis in Russia.

In the autumn it was becoming more and more probable that the inflation target for 1998 would be achieved. In October 1998 for the first time in 18 years the annual index of consumer prices was lowered to below 10%. Inflation expectations were also significantly falling what proved that assumptions concerning the band of the inflation target for 1999 adopted by the Council were realistic. Therefore there were premises for further cuts of the interest rates.

On 28 October 1998, the Monetary Policy Council reduced interest rates by 1 to 2 points and recommended the NBP Management Board to widen the allowed range of zloty market exchange rate fluctuations from ±10% to ±12.5%. Taking these decisions the Council executed provisions of *The medium-term strategy of the monetary policy (1999-2003)*, and particularly followed the observed positive inflation trends. The council pointed out a decreasing rate of money supply growth and systematic lowering of the credit dynamics, and central government for 1999 adopted by the Council of Ministers, assuming a budget deficit of 2.15% GDP, was positively assessed. It was stated that the deficit growth of the trade turnover of balance of payments observed in September resulted from the fall of external demand and was not stimulated by import dynamics growth.

On 9 December 1998, the Monetary Policy Council decided on lowering the NBP interest rates

by 1.5 to 2 points. It also recommended the NBP Management Board to introduce on 15 December 1998 new principles of fixing sessions, consisting among other things in a differentiation of bid and offer exchange rates for foreign currencies by ±0.003 PLN from the average rate.

The consecutive lowering of the central bank rates by the Council resulted from the forecast that the inflation target for 1998 would be achieved below the assumptions. However, the Council simultaneously indicated that although in the first quarter of 1999 a trend of rapid decrease of consumer prices growth rate could be expected to continue, then in the next quarters of 1999 a substantial retarding of inflation decrease rate might take place due to anticipated changes in indirect taxes, due to a possibility of larger food prices changes and to price rises of fuels, electricity and heat. On the other hand, the trends in the real sector promoted the decision on reduction of the degree of the monetary policy restrictiveness. A fall of average gross real earnings dynamics was maintained, and a decrease of economic activity that was observed particularly strongly since September 1998, caused mainly by the breakdown of the external demand (particularly in the Eastern markets), enabled faster reduction of the degree of the monetary policy restrictiveness without creating a threat for execution of the inflation target. The Council simultaneously emphasised that in conditions of growing deficit in the current account of the balance of payments and reduction of the degree of the monetary policy restrictiveness, the need for deeper reduction of the budget sector deficit becomes particularly significant. Moreover, the Council indicated that it is necessary that Ministry of Finance accelerate the work on securitisation of the government obligations to NBP. That is an indispensable premise of increasing the effectiveness of the monetary policy instruments.

Recommendation to change principles of foreign exchange sale and purchase in NBP (so-called fixing session) made to the NBP Management Board by the Monetary Policy Council aimed at deepening the domestic foreign exchange market and increasing the role of market mechanism in formation of exchange rate. This change - leading to the growth

of exchange rate liquidity degree - was dictated by the need of increasing the effectiveness of control of formation of the official foreign exchange reserves, i.e. the foreign component of the monetary base. It was also caused by the will of counteracting the speculation and the need of foreign exchange transactions development in the interbank market.

Inflation prospects

At the meeting on 24 March 1999, the Monetary Policy Council decided to change the short-term monetary policy target for 1999. The original target of 8 to 8.5% was established in June 1998. The period that passed from this date was characterised by numerous unpredictable shocks that had an essential impact on slower rate of price growth than it had been expected. Faster rate of inflation decrease contributed also reduction of inflation expectations. In this situation, more favourable for execution of medium-term monetary policy target, the determination of 1999 inflation target by the Council as the range 6.6% to 7.8% may create conditions for faster and less expensive achievement of the medium-term monetary policy target – reduction of inflation to less than 4% in 2003.

Experience of the recent months showed also that in view of occurrence of a number of shock nature events difficult to include in the forecast, that are independent from the central bank and that may affect the rate of price growth, it is reasonable to consider the possibility of formulating the short-term inflation target in the form of a wider band than adopted previously for 1999. This direction of changes was already signalled in the document *"The medium-term strategy of the monetary policy (1999-2003)"* issued in September 1998. Since these conditions were maintained also in Q1 of 1999 and there were no grounds for expecting serious changes of this situation in the period by the end of the year, the Monetary Policy Council recognised that adoption of a wider band of the inflation target for 1999 is justified.

Inflation (on the month-to-month basis) in the first months of 1999 fell below 6% and was more than twice lower than a year ago. However, the monthly distribution of price growth in Poland shall be different this year than in previous years. After the period of intensive fall in the second half of 1998 and in the first months of 1999 the price growth rate should stabilise for a short time. The analysis of internal and external conditions of Polish inflation suggests that till the end of the year there would be a moderate temporary inflation growth, however, it shall be in accordance with both the inflation target adopted for this year and with the execution of the medium-term target.

Results of zloty value weakening in the first quarter of 1999 and a possible decrease of supply in the food market, due to relatively low prices of a number of agricultural products, will be the primary factors that may be stimulating inflation in 1999. Reversal of hitherto falling price trends of the most of important raw materials in the global markets, particularly oil prices, would be also unfavourable for the formation of inflation in Poland.

However, the influence of these factors may turn out to be not this strong in 1999. The period of adverse market conditions in large and significant areas of the global economy (Asia, Western Europe) still continues. As a result of relative demand reduction the factory prices of many industrial goods imported to Poland, as well as raw materials, continue to show a falling trend compared with the analogous period of the previous year. This trend – as long as it continues – may constitute the counterweight for possible inflationary influence of zloty market depreciation. In conditions of lower demand growth pace we also observe in the internal market the signs of increased competition regarding a number of goods (e.g. cars) and services. Moreover, in the internal market, in the conditions of lower demand growth rate we observe symptoms if increased competition in respect to a number of products (e.g. cars) and services as well. In these conditions transmission of zloty depreciation into the price growth may be weaker than it is indicated by indices estimated on the basis of data from previous years. Formation of the deficit in the current account of Poland at the level of 5.5% GDP forecast by the Monetary Policy Council, combined with a high level of the official foreign exchange reserves and the fact that this deficit is financed mainly through direct foreign investments and small amounts of short-term capital invested in Poland, does not give rise to fear about maintaining the stronger tendency of Polish currency depreciation in a longer time-horizon. The forecast growth of demand for Polish exports in the second half of 1999 together with intensification of capital inflow to Poland – if only just to bring the planned completing of privatisation projects – should contribute in this period to certain strengthening of Polish currency.

It can be also forecast that a possible acceleration (if any) of food prices growth rate will occur not before the second half of 1999. However, it seems that due to the scale of excess production in the agriculture, the scale of hitherto interventions in this market and competitive prices of foreign food, the growth of these prices might not be significant. It largely depends on the supply factors – the scale of stock production reduction, the level of this year's harvest, behaviour of intermediaries in the food trade and possible government actions conducted to protect the domestic agricultural producers.

Despite the difficulties with accurate forecasting of presented conditions of inflationary processes it can be stated that in1999 inflation shall stay in the range from 6.6% to 7.8%. In case these conditions, especially extramonetary conditions, form a configuration favourable for inflation reduction, it will be possible to achieve in December 1999 the price growth less than 7% compared with December of the previous year. If this configuration turns out to be particularly unfavourable for retarding the price growth rate – the NBP has got instruments allowing to maintain the index of consumer prices in the assumed range.

A reduction of the consumer prices growth rate in 1999 in accordance with the target set by the MPC creates a possibility to reduce the inflation below 6% in 2000. The target of the monetary policy for the following year shall be officially announced in "*The assumptions of the monetary policy for 2000*". Conditions for further inflation reduction in the next year seem to be more difficult than in the current year. Possible improvement of market conditions in the global economy may contribute to finishing the stagnation, or even to a fall of prices of many raw materials and finished goods. Acceleration of the growth rate in the Polish economy may also facilitate the improvement of enterprises financial standing through raising prices. Consequences of supply adjustments in the agriculture shall also probably be more visible. However, at the same time one may notice premises suggesting better conditions for execution of effective monetary policy in the next year. Achievement of the inflationary target for the next time should also contribute to consolidation of expectations favourable for the monetary policy.

ANNEXES

ANNEX No 1

Different inflation measures

The objective of studies on inflation conducted in the National Bank of Poland consists in finding the inflation index cleaned of the influence of the sudden supply shocks and also free from seasonal influence of changes in some consumer prices. Therefore such an inflation index presents that part of inflation that is in a closer relation to the monetary sphere.

Basis inflation

Basis inflation shows a constant long-term component of the consumer price index, i.e. basis inflation illustrates the formation of consumer prices after elimination of seasonal fluctuations and fluctuations resulting from temporary supply shocks. Therefore the basis inflation is better correlated with money aggregates than the consumer price index, although it remains in a close relationship with the general prices growth.

Modelling and forecasting of inflation understood as aggregate index of consumer prices and therefore as a non-monetary phenomenon is very difficult and not accurate. Single incidental supply disturbances specific for certain groups of goods generate the disturbances, that makes the inflation index to some extent unpredictable. It is particularly visible for food prices that are strongly dependent on the market supply. In the case where the weather conditions in a given year were unfavourable or there were other events that might adversely influence the food production its prices would rise responding to the decreasing supply and hence they would contribute to a temporary growth of the value of the general index of consumer prices. It should be noted that in the above example external factors and not for example money supply growth were the reason for the price growth.

Different concepts of the basis inflation will be presented in this part of the "Inflation report". They will be presented as follows:

1. index of basis inflation after excluding prices of largest volatility;

2. index of basis inflation after excluding administered prices,

3. median of consumer price index,

4. 15% trimmed mean obtained from a disaggregated consumer price index.

Formation of basis inflation index on a cumulative basis in 1998 (i.e. December 1997 = 100), calculat-

Chart 39

Basis inflation index in 1998 (excluding prices of the highest volatility; December 1997 = 100)

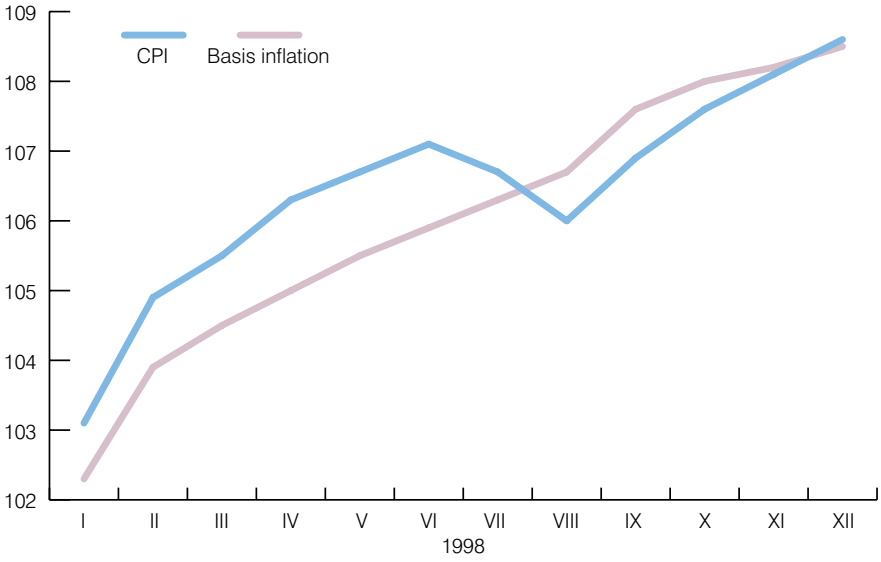
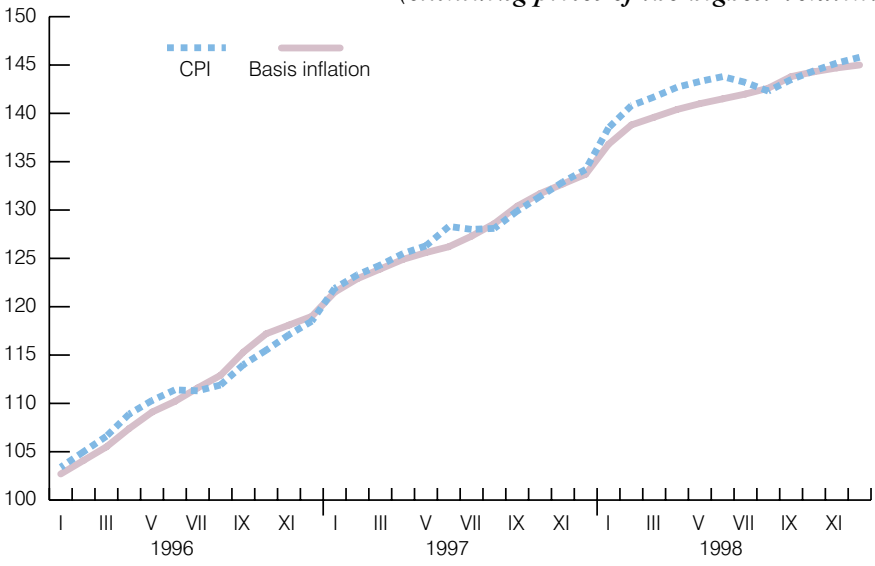


Chart 40

Basis inflation index in the period January 1996 - December 1998 (excluding prices of the highest volatility; December 1995 = 100)



ed by excluding prices of the highest volatility, is shown in Chart 39.

It can be seen in Chart 39 that from December to July 1998 the indices of prices of the highest volatility were the inflationary factor, like in November and December 1998. On the other hand, from August to October consumer goods and services, having prices of the highest volatility, retarded the general price growth.

Chart 40 shows formation of the monthly basis inflation indices calculated by excluding the most volatile prices in the period from January 1996 to December 1998.

Chart 41 illustrates the course of basis inflation calculated by excluding the administered prices on a cumulative basis. It results from Chart 41 that in the entire 1998 the administered prices were the factor that dynamically influenced the consumer price index.

Formation of the monthly indices of basis inflation calculated by excluding the administered prices in the period from January 1996 to December 1998 is shown in Chart 42.

Chart 43 presents another measure of basis inflation – CPI median on a cumulative basis. The curve presenting the median value of consumer price index through the entire 1998 goes lower than the curve reflecting the general price growth.

Chart 41
Basis inflation index in 1998 (excluding administered prices; December 1997 = 100)

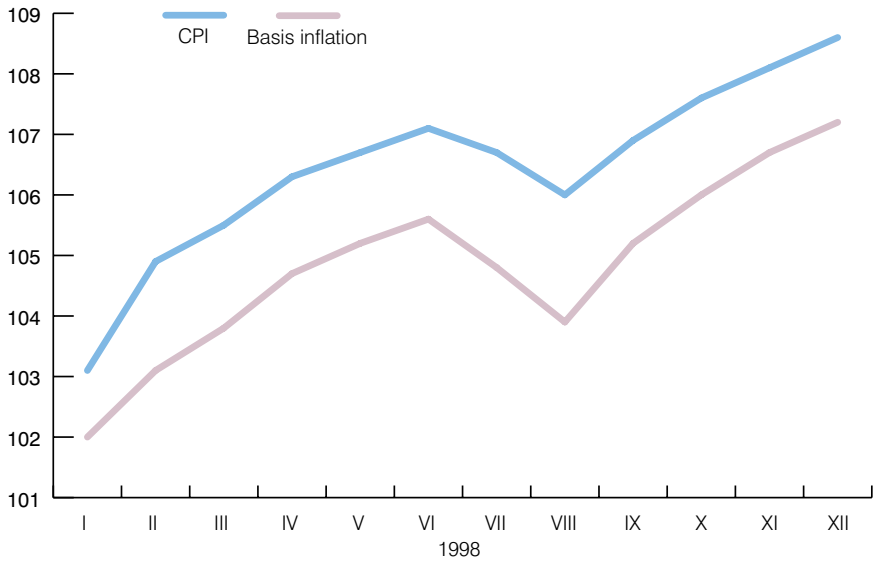


Chart 42

Basis inflation index in 1996 - 1998 (excluding administered prices; December 1995 = 100)

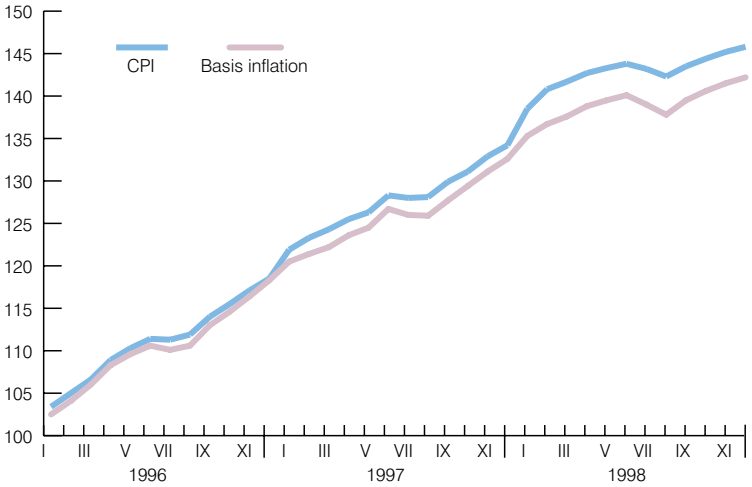


Chart 43

CPI median in 1998 (December 1997 = 100)

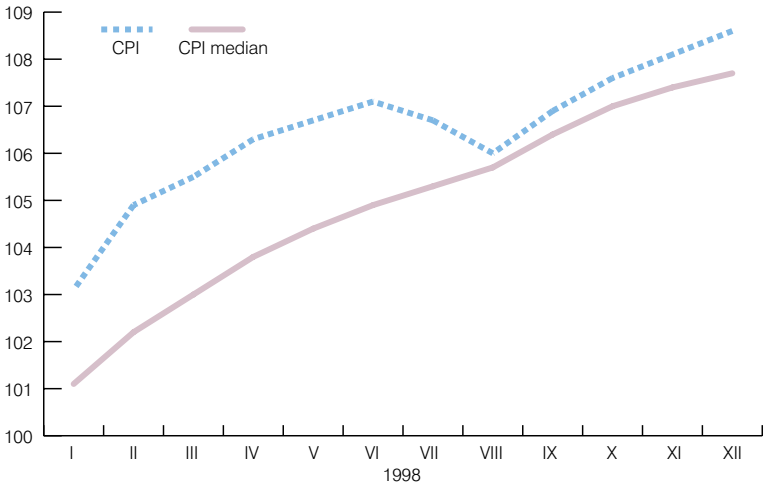
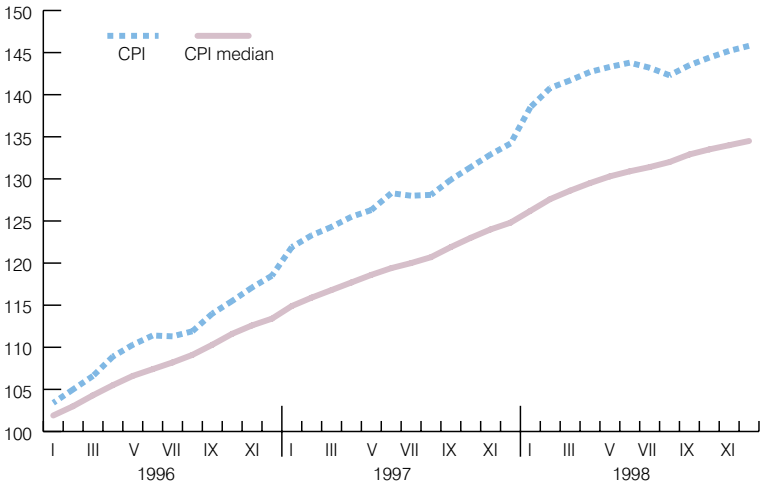


Chart 44

CPI median cumulative from January 1996 – December 1998 (December 1995 - 100)



Monthly changes of CPI median value in the period from January 1996 to December 1998 are presented in Chart 44.

Chart 45 illustrates formation of 15% trimmed mean against the CPI background in 1998 compared with December of the previous year.

The following Chart 46 presents the course of basis inflation expressed by 15% trimmed mean compared with consumer price index in the period from January 1996 to December 1998.

Chart 45
15% trimmed mean CPI in 1998 (December 1997 = 100)

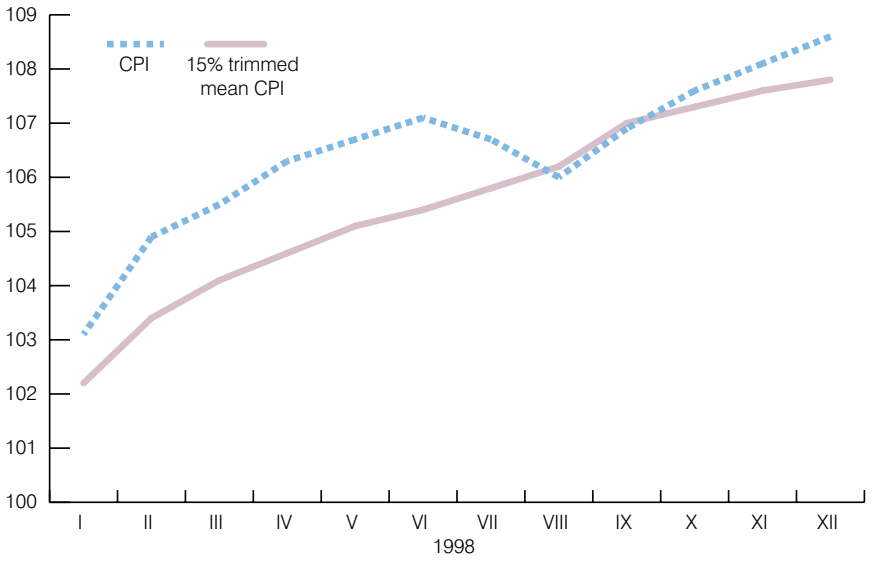
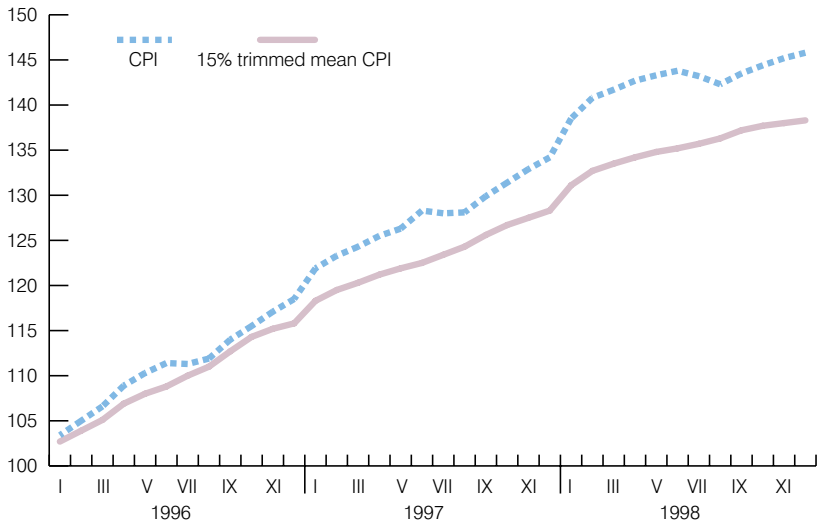


Chart 46
15% trimmed mean CPI in 1996 - 1998 (December 1995 = 100)



Error measures and correlation

An attempt was also made to assess the above described basis inflation measures.

In order to determine which basis inflation index is the best estimator of the consumer price index, two commonly used error measures, i.e. root-mean-square-error (RMSE) and mean absolute error (MAE) were calculated afterwards. All inflation measures were compared to the trend of monthly changes of consumer prices determined using Hodrick-Prescott filter. Results of this study are shown in Table 11.

Data in Table 11 shows that CPI median bears the smallest error. Basis inflation excluding prices of the highest volatility and 15% trimmed mean bear also a relatively small error.

Comparison of parameters of different inflation measures is presented in Table 12. The following parameters were calculated for each index: mean, standard deviation and first-order autocorrelation.

Table 11
Root-mean-square-error (RMSE) and mean absolute error (MAE) for CPI and basis inflation measures in the period January 1995 - December 1998 (in points)

	CPI	Basis inflation excluding prices of the highest volatility	Basis inflation excluding administered prices	CPI Median	15% Trimmed mean
RMSE	0.894	0.483	0.960	0.376	0.510
MAE	0.603	0.371	0.668	0.306	0.421

Source: NBP calculations.

Table 12
Comparison of mean, standard deviation and first-order autocorrelation for different inflation measures

Specification	CPI	Basis inflation excluding prices of the highest volatility	Basis inflation excluding administered prices	CPI Median	15% Trimmed mean
Mean	101.21	101.19	101.17	100.99	101.04
Standard deviation	1.015	0.657	1.081	0.463	0.620
First-order autocorrelation	0.357	0.451	0.397	0.595	0.328

Source: NBP calculations.

Results in Table 13 show that the basis inflation index excluding administered prices is correlated with CPI in the best way. The other basis inflation measures are also well correlated with the consumer price index.

Table 14 presents the correlation of particular inflation measures with the money supply growth rates expressed by the growth of M1 and M2 money aggregates both current and delayed by 1, 2, and 3 periods.

The highest correlation with current money supply changes expressed by monthly changes of M1 money aggregate is shown by the CPI median, while other inflation measures show no substantial correlation with M1. CPI median is also best correlated with M1 delayed by 1 month. For M1 aggregate delayed by 2 months the highest correlation ratios are shown by CPI median and basis inflation excluding administerd prices.

In case of money supply expressed by the current changes of M2 money aggregate neither of inflation measures shows the correlation. The highest correlation ratios are between M2 changes delayed by 1 period and 15% trimmed mean basis inflation excluding prices of the highest volatility and CPI median. The highest correlation with M2 changes delayed by 2 months among all inflation measures is

Table 13
Correlation between different inflation measures

Specification	CPI	Basis inflation excluding prices of the highest volatility	Basis inflation excluding administered prices	CPI Median	15% Trimmed mean
CPI	**1.000**	**0.810**	**0.936**	**0.818**	**0.842**
Basis inflation excluding prices of the highest volatility	0.810	1.000	0.655	0.880	0.978
Basis inflation excluding administered prices	0.936	0.655	1.000	0.761	0.673
CPI Median	0.818	0.880	0.761	1.000	0.899
15% Cut Average	0.842	0.978	0.673	0.899	1.000

Source: NBP calculations.

Table 14
Correlation between various inflation measures and the money supply growth expressed using monthly changes of M1 and M2 money aggregates, both current and delayed

Specification	CPI	Basis inflation excluding prices of the highest volatility	Basis inflation excluding administered prices	CPI Median	15% Trimmed mean
M1 changes	**-0.070**	**-0.022**	**0.011**	**0.122**	**-0.036**
M1 changes 1 month ago	-0.099	0.075	-0.036	0.219	0.055
M1 changes 2 months ago	0.168	0.159	0.235	0.269	0.154
M1 changes 3 months ago	-0.063	0.193	-0.115	0.243	0.175
M2 changes	**-0.310**	**-0.309**	**-0.200**	**-0.231**	**-0.344**
M2 changes 1 month ago	0.346	0.462	0.193	0.401	0.522
M2 changes 2 months ago	0.232	0.276	0.222	0.292	0.225
M2 changes 3 months ago	-0.013	0.076	-0.061	0.112	0.079

Source: NBP calculations.

shown by CPI median and basis inflation excluding prices of the highest volatility.

Results presented above should be treated as preliminary, since the studies on basis inflation are still continued.

ANNEX No 2

The concept of Divisia aggregates

Money aggregates named Divisia were created as a measure that is soundly based upon the theory of economy. Therefore it was considered in many developed countries (USA, Canada, Great Britain and other) that it is necessary to trace these aggregates in line with hitherto aggregates.

Divisia takes into account the fact that various financial assets are to various extent the money. A given set of assets is the more money, the more "money services" it provides (simplifying – the more liquid it is). And so the cash provides the most of these services. As a direct exchange medium it is held to cover unforeseen expenses, to reduce costs of financial resources management, to shorten the time of shopping, etc. On the other hand, the term deposits (which can be converted into transaction money relatively easily) fulfil only the role of value storing medium between a sale of one good and a purchase of another. Therefore it may be expected that they are money to a lesser extent than the cash.

Hitherto used money measures are a simple sum of components. They are therefore based on the assumption that a zloty held in the portfolio is the same money as a zloty placed, e.g. in a three-year savings deposit.

The concept of Divisia aggregate consists in assigning weights reflecting the amount of money services provided by financial assets to particular sets of these assets. These weights are constructed using the yield rates of particular components of the aggregate. This is justified as follows.

Despite differences in yield rates of numerous funds, the population does not maintain only one set of them having the highest interest rate, but a variety. If the population aims at maximising its profit, then there must be a demanded feature of financial assets that grows with the decrease of their yield. This feature is the money services. In other words, a set of financial assets is the more money, the less it yields.

Therefore Divisia aggregate weights are the higher the larger is the difference between the highest

interest rate in the market the interest rate of the given component.

Methodology of Divisia aggregates calculation

Polish Divisia aggregates were calculated upon the monthly data for the period since January 1992 to January 1999. They are in the form of one-base indices, where the base period is January 1992 (then the index assumes the value of 100). Div1 and Div2 indices are equivalents of M1 and M2 measures, i.e. they were calculated on almost the same components. Division into categories is the same as in Table 15. Repurchase operations category was skipped as not substantial in terms of the amount. Moreover, in Div2 aggregate term deposits were divided into following time bands:

1. up to 1 month,
2. up to 3 months,

Table 15
Components of Polish M1 and M2 aggregates

1. Notes & coin in circulation (excluding vault cash)
2. Demand deposits
zloty
persons
corporates
foreign currency
persons
corporates
savings books (sight)
M1 (1+2)
3. Time deposits & deposits on hold
zloty
persons
corporates
foreign currency
persons
corporates
savings certificates and certificates of deposit (non-negotiable)
4. Repurchase transactions
M2 (M1+3+4)

3. up to half a year,
4. up to one year,
5. up to two years,
6. over two years.

Indices Div1 and Div2 were calculated according to the formula:

$$\Delta \ln Div = \sum_{i=1}^{N} \frac{1}{2} \cdot (w_{i,t} + w_{i,t-1}) \cdot (\ln x_{i,t} - \ln x_{i,t-1})$$

where:

$$w_{i,t} = \frac{(R_t - r_{i,t}) \cdot x_{i,t}}{\sum_{n=1}^{N} (R_t - r_{n,t}) \cdot x_{n,t}}$$

where $\Delta \ln Div$ is the percentage increment of Divisia aggregate, $x_{i,t}$ is the value of the i component in month t among all N components, $w_{i,t}$ - the appropriate weight, $r_{i,t}$ - per annum yield of $x_{i,t}$ component (in case of zloty funds it is the interest rate, in case of foreign exchange funds it is the total of annual return on USD or DM and their interest), a R_t is the highest yield in the given month.

Average weighted interest rates of the banking system calculated monthly in the Department of Statistics of the NBP were used in the weights. They are obtained on the basis of the minimum per annum interest rates of various types of deposits in about 20 largest banks. They are weighted by the shares of these banks deposits in the total of deposits of the whole group. Savings books (sight) and savings certificates and certificates of deposit were assigned interest rates: of cheque accounts and 12-month private deposits, respectively. For current accounts of persons the cheque account interest rate was adopted.

Features of Divisia aggregates in Polish conditions

The best visible feature of the new Div1 aggregate is its slower growth than of corresponding M2 aggregate (see Chart 47). The same thing occurs for Div1 and M1 measures. This fact may have serious consequences for studying the inflation phenomena,

the more so that in real terms, with increments, both new aggregates are better correlated with GDP than M1 and M2 (see Table 16).

Results of the preliminary econometric analysis suggest a probability of existence of unit yield flexibility of money demand measured by Div2 index, in accordance with the quantitative theory of money. The classical M2 aggregate does not allow to draw such a conclusion.

The conducted study allows also for a supposition that only Div2 allows for achievement of a stable equation with an error correcting mechanism, binding the relationships between the states of variables and their increments into a coherent entirety. The existence of a correct equation with an error correcting mechanism is a good certificate of economic features of this aggregate and in a large extent makes the obtained statistical results trustworthy.

Table 16
Correlation of logarithm differences between real variables by quarters

	M1	M2	Div1	Div2
GDP	0.6415	0.6482	0.7011	0.7085

Chart 47
M2 and Div2 indices (January 1992=100)