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Poland Before the Euro*

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ABSTRACT

The euro is relevant for decisions that the Polish Central Bank takes about its general rules of monetary policy, goals and decision structures, but it is not, or at least not yet, relevant to the everyday processes of controlling money supply and interest rates. Fighting inflation was a primary target of the central bank prior to applying for entry to the European Union and maintaining a satisfactory external account. However, with the growing openness of the economy, eclectic monetary policy showed a high degree of internal inconsistency. With greater autonomy under a new constitution, the Central Bank adopted direct inflation targeting. The adoption of this measure is consistent with emerging EU policy but was driven by specifically Polish concerns.

1. Introduction

If the major subject of this paper were to be summarized in one short question – Does the euro influence Polish monetary policy? – the answer should probably be: Not very much. However, that short answer simplifies things strongly. More detailed analysis suggests a need to respond to the initial question in a more complicated manner. The major choices for institutions and strategic goals were and are being made with European Union (and then EMU) membership in mind. Usually, activities of this kind, such as shaping the country's institutions, defining the strategic choices for various dimensions of economic policy etc., are not perceived as being part of economic policy. However, there is a different approach in German literature, where the distinction is made between *Ordnungspolitik* and *Prozesspolitik*.[2] The former covers general rules of the monetary system and decision structure, goals and instruments of monetary policy; the latter is limited to the processes directed at controlling money supply and/or interest rates. We may say then

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that the EU neighborhood and the prospects of EU membership have been influencing only *Ordnungspolitik*.

It is difficult to find the same considerations dominating everyday decisions and operations of monetary policy, i.e. the *Prozesspolitik*. Here, domestic economic developments obviously interacted with external conditions, particularly in the late 1990s and the early 2000s. EU member countries became rather early very important trading partners and investors for Poland. That was the major reason for the role their economic developments played among determinants of the Polish policies. However, for the most part of the period we are interested in that influence was of secondary importance because of the initial low degree of openness of the Polish economy and slow economic growth.

The paper attempts to show this relatively modest role of the euro in the past of Polish monetary policy by presenting major changes in its strategy and tactics. There were four distinct stages in its evolution. The first stage began with the regime change in the very beginning of the transformation. Macroeconomic policy in the narrow sense was simply part of the stabilization program. On the other hand, even more important was to create basic market institutions to prepare an environment for the monetary policy dominated by indirect instruments. The second stage, between 1991 and 1995, was from the macroeconomic perspective a period of combining disinflation (based on money supply control and crawling peg regime) with maintaining positive developments in trade balance and foreign exchange reserves. The current account surplus accompanied by the surge in capital inflows in the mid-1990s put too much strain on that strategy. Government managed to control the magnitude of the fiscal deficit but was not able to adjust to the capital inflows by going from deficit into surplus. The only possible reaction of monetary policy when faced with growing sterilization costs was to introduce more flexibility into the exchange rate regime. That marked the beginning of the third stage, disinflation conducted within the framework of money supply control combined with the crawling band regime. The band was introduced in 1995; the end of that stage is more difficult to pinpoint. On one hand, institutional changes within the central bank were responsible for adopting formally the direct inflation targeting in 1998/1999. On the other hand, change in the exchange rate regime, e.g. introduction of pure floating, happened only in early 2000. The current stage is, in a sense, an intermediate period. The medium-term strategy of monetary policy, formally adopted in 1998, envisaged bringing inflation below 4% in 2003. This quantified target was defined with the idea of cutting the inflation gap between Poland and the European Union to such a level as to enable Poland to get smoothly into the ERM II. (Table 1).

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TABLE 1. *Evolution of the exchange rate regime in Poland, 1990–2000*

Date	Nature of the change
January 1, 1990	Exchange rate fixed vs. US dollar, 1 USD = 0.95 PLN
May 16, 1991	Exchange rate fixed vs. currency basket (USD – 45%, DEM – 35%, GBP – 10%, FRF – 5%, CHF – 5%o
	Zloty devalued against US dollar, 1 USD = 1.11 PLN
October 14, 1991	Introduction of the crawling peg with daily devaluation against the basket, monthly rate of devaluation 1.8% per month, central bank's margin ±0.5%
February 26, 1992	Devaluation against the basket by 12.0%
August 27, 1993	Devaluation against the basket by 8.0%
Crawling rate 1.6% per month	
September 13, 1994	Crawling rate 1.5% per month
November 30, 1994	Crawling rate 1.4% per month
February 16, 1995	Crawling rate 1.2% per month
March 6, 1995	Central bank's margin 2.0%
May 16, 1995	Introduction of the crawling band ±7.0% (central bank's commitment to be implemented with market instruments only)
December 22, 1995	Revaluation against the basket by 6.0%
January 8, 1996	Crawling rate 1.0% per month
February 26, 1998	Crawling rate 0.8% per month
Band widened to ±10.0%	
July 17, 1998	Crawling rate 0.65% per month
September 10, 1998	Crawling rate 0.5% per month
October 28, 1998	Band widened to ±12.5%
January 1, 1999	Change of the currency basket: EUR – 55%, USD – 45%
March 25, 1999	Crawling rate 0.3% per month
Band widened to ±15.0%	
June 7, 1999	Abolition of central bank's legal obligation to effect forex transaction with commercial banks during fixing session
April 12, 2000	Floating exchange rate

2. *The beginning of the transformation process – creating basic institutions and stabilizing the economy*

Early in the transformation process Poland signaled clearly her aspirations to "come back to the West". That slogan had not been defined very clearly in the beginning of the 1990s. It covered at that time both economics and politics: "West" meant NATO, OECD, European Union[3] etc. The influence of that tendency on economic policymaking in Poland was, however, very general. First, it meant building a market economy. There were some discussions about "the third way", but they were limited to marginal political groups. From this paper's perspective, the most important part of this story was creating the central bank and the money market.

The modern history of central banking in Poland started in 1989, when in January – as a part of reforms aimed at the creation of the "reformed socialist economy" – new laws established a two-tier banking system in Poland. Later, in December, another legal change remodeled the National Bank of Poland into a modern central bank. Its major

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goal was "strengthening the Polish currency" and it got substantial independence from the executive arm of the government. However, the parliament had the power to define some important parameters of monetary policy (e.g. limits of the direct credit to the government).[4] Other important steps in this area were directed at the creation of major segments of the money market. Interbank deposit market began to operate in March 1989; open market operations started in mid-1990 with the central bank's own bills as the first instrument. T-bills were introduced in May 1991. However, the money market became a major vehicle for monetary policy only in 1992–1993. Earlier, its magnitude was not large enough in 1990 to sterilize the increase in money supply resulting from the trade surplus, so direct instruments (credit ceilings) were also used at that time. The developments described here were a part of structural changes driven by some general concept of a market economy. It would be difficult to argue that European standards played a dominating role in specific arrangements adopted in Poland, though some European central banks (together with the Fed and international financial institutions) formed an important part of the project of modernization of the National Bank of Poland at that time.[5]

Structural changes in the monetary and financial system were not over in 1991, but changes in the second dimension of "coming-back-to-the-West" story defined the end of the first stage. Second dimension meant stabilizing the economy. Inflation in Poland was already high in the 1980s. In 1989 Poland was on the brink of hyperinflation.[6] The initial task of new democratic government, installed in autumn of 1989, was then obviously not only to reform political institutions and to liberalize economic structures, but also to bring down inflation to the tolerable level.

Monetary policy in this period of the transformation process had been defined to a large extent by its role in the stabilization program of 1990. The program's major goals were not only stopping hyperinflation but also reducing the budget deficit in the short run, while allowing for earlier mentioned deep structural changes of the economy in the long run. The program had been initiated and prepared mostly by the Polish authorities, but its macroeconomic component constituted part of the typical IMF stabilization program. Its four stabilizing anchors were the fixed exchange rate[7], the money wage, real money supply and real interest rate. Fixed exchange rate regime usually would be enough to define the monetary policy strategy, but some legal prescriptions suggested strongly that control of the money supply had to be at least an equally binding criterion for defining monetary policy at that time. This approach could become a reason for major internal conflicts within a monetary policy framework of that kind, but control-

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ling exchange rate proved to be unsustainable by 1991 because of other reasons.

Fixed exchange rate and high nominal interest rates initially brought some spectacular successes. At mid-year in 1990 performance criteria of the IMF program were being overfulfilled. At the same time the economy continued to stagnate and inflation appeared to be under control (it went down from 79.6% in January to 3–5% in May and June). Government came under pressure to adopt expansionary measures and decided to relax both monetary and fiscal policy. The negative outcomes of that (wage surge, rising inflation etc.) were already visible in the last quarter of 1990. Government restrictive adjustment in 1991 coupled with the effects of the Comecon collapse put a serious strain on the fixed exchange rate policy. On one hand, by late 1990 an important share of Polish tradables' prices reached the world level, which meant that the exchange rate anchor was beginning to hold. On the other hand, because of the same anchor foreign competition squeezed the profits of Polish enterprises.[8] The problem became even more serious because by 1991 Poland's major trading partners were mostly the EU member countries and their currencies depreciated against the dollar. It was probably unrealistic to expect that Polish exporters could make up for loss of their competitiveness brought by both high domestic inflation and cross-rates changes with increased efficiency. The outflow of international reserves was already prominent in the second quarter of 1991.

All these factors resulted in the first important change in the Polish exchange rate policy.[9] The zloty was not only devalued in May 1991 (by approximately 17%), but also uncoupled from the US dollar and linked to the currency basket. The basket's composition reflected the structure of the Polish trade payments: US dollar took 45% of the basket, Deutschmark 35%, British pound 10%, French franc 5%, and Swiss franc 5%.

The May devaluation did not solve the problem of Polish export competitiveness – the inflation gap was still too large to be compensated for with the higher growth of productivity. So 1991 brought another change in the regime – fixed exchange rate was substituted with the crawling peg. That was a pre-announced crawling peg, so analytically the new regime was equivalent to the fixed exchange rate. Nevertheless, the pre-announced rate of crawl was determined both by disinflation and competitiveness considerations, which suggested quite strongly a different approach to the disinflation strategy. Disinflation remained the major goal, but external balance and the level of foreign exchange reserves increased their importance as policy constraints.

Another important factor explaining these developments was the

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TABLE 2. *General government deficit and its financing by the central bank*

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000[a]
Deficit[b] as % of GDP	2.35	5.01	2.63	2.77	2.59	3.11	2.89	2.60	3.23	2.8
Central bank's direct purchase of T-bills prescribed by the budget law as % of state budget deficit[c]	59.7	60.8	69.1	52.3	68.5	39.3	42.4	–	–	–

a. Estimate
b. Excluding privatization revenues
c. Since 1998 prohibited by the Constitution
Source: Ministry of Finance and National Bank of Poland

shape of fiscal policy and the lack of adequate coordination between monetary and fiscal policy. The latter from the beginning of 1990 was an instrument for macroeconomic control only in the very crude term, i.e. controlling the budget deficit was a means for controlling inflation. Political process at that time gave more priority to the budget than to monetary policy tactical and operational goals. Coordination meant then, especially for the Parliament, subordinating monetary policy to fiscal policy (cf. table 2) – that was another important reason explaining the unsustainability of the fixed exchange rate regime of that period.

3. Monetary policy between 1991 and 1995 – disinflation vs. external balance

Monetary policy in that period was shaped by two different goals. On one hand, maintaining the steady disinflation trend was a natural long-run priority. First, obvious domestic reasons explained the unsustainability of high inflation. Second, geographical reorientation of Polish foreign trade meant that the country's major trading partners had inflation in the lower range of single-digit figures. Higher productivity growth affected positively real effective exchange rate deflated with unit labor costs, but price deflators showed different trends and policymakers perceived that as a major danger for balance-of-payments sustainability.

On the other hand, Poland was at that time in the process of negotiating foreign debt restructuring with London Club and Paris Club debtors. To complete these negotiations successfully Poland had to reach a much higher level of foreign exchange reserves than the one maintained in the beginning of the 1990s. The National Bank of Poland perceived this latter goal as virtually equally important for long run growth and disinflation itself. As a consequence, monetary authority's

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reaction to the complex interactions among exchange rate, inflation, balance of payments and money supply were very cautious. Relatively poor results in the balance of payments in 1991 and 1992 were the reasons for some nominal adjustment in the exchange rate in 1992 and 1993. That did not help current account and official reserves too much, but was partly the cause for much weaker disinflation in that time.

Other potential conflicts between external developments and disinflation started to be clearly visible only in 1994 – the first year of rapid increase of foreign exchange reserves and resulting growth in money supply. Economic growth seemed to be already a permanent phenomenon, the then unique Polish approach to the bad loans problem started to show some positive results, external debt restructuring – all these factors changed substantially the performance and perception of the Polish economy. One outcome of that was a dramatic change in financial inflows. Their main sources were:

- net unclassified current account transactions, caused mostly by huge price differentials between Poland and her neighbors,
- "orthodox" current account surplus, being the result of depreciation of the real exchange rate and growth in productivity (cf. figures 2–4),
- foreign direct investment, induced to large extent by changes in the perceived country risk and domestic market potential, signaled by the growth of the GDP,
- net portfolio inflows, for which price developments on the Polish capital market and its growth were prime incentives (debt inflows were at that time responsible for the bigger share of these inflows, due to the interest rate differential).[10]

Policy responses to these developments were initially rather cautious. One reason for that was the enterprises' perception of real exchange rate changes. The major part of exporters lobbied for more support for exchange rate policy, because they compared the dynamics of the nominal exchange rate with the growth of consumer or producer price index (figures 2 and 3). Economic policymakers were much more influenced by the developments in the real effective exchange rate with unit labor costs as a deflator (figure 4) – the public understanding of the latter was however much weaker.

Several decisions to decrease the monthly rate of crawling peg devaluation and interest rate adjustments (cf. table 1 and graph 6) did not influence reserve accumulation. That – combined with the nature of the exchange rate regime – resulted in the substantial increase in the Polish banking system's liquidity which was the main factor driving up the money supply growth in 1995. An important

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FIGURE 1: *Exchange rate of Zloty EUR (before 1999 against ECU) 1993–2001*

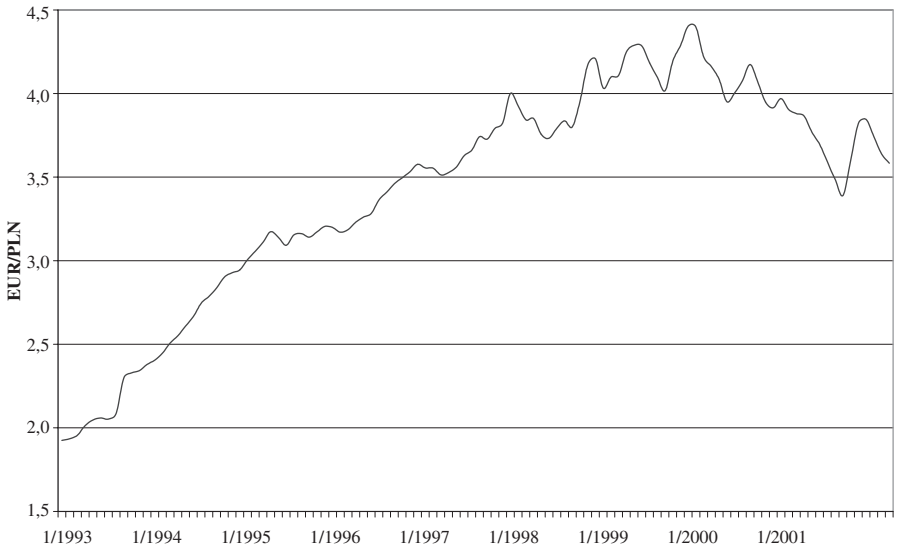
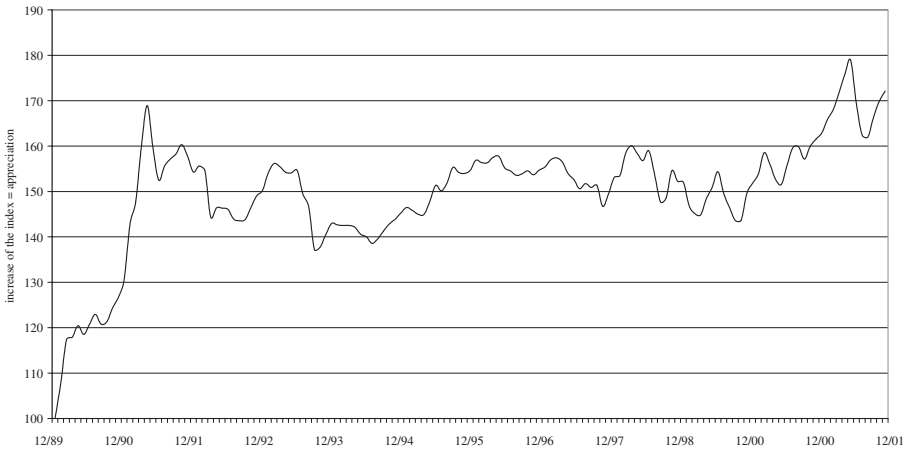


FIGURE 2.: *Real Effective Exchange rate of Zloty; 1990–2001 based on consumer prices; monthly data (XII 1989 = 100)*



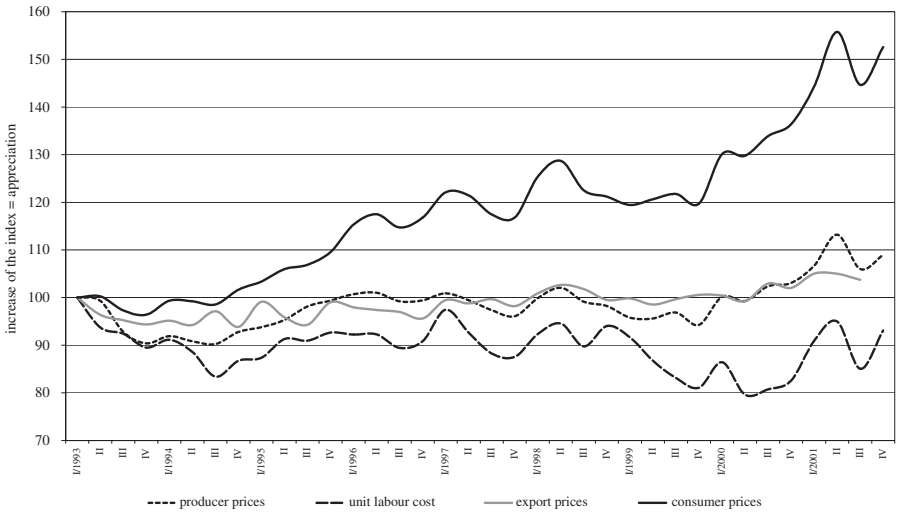
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FIGURE 3: *Real Effective Exchange Rate of Zloty; 1990–2001 based on producer prices in manufacturing; monthly data (XII 1989 = 100)*



part of policy response was the growing scale of sterilized interventions. They involved at first reverse-repo open market operations. Later in 1994 the central bank started the outright sales of Treasury bills, and finally the outright sale of NBP's own bills. The volume

FIGURE 4: *Real Effective Exchange Rates 1993–2001 based on export prices, consumer prices (CPI) producer prices (PPI) and unit labour cost in manufacturing. Quarterly data (I 1993 = 100)*



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FIGURE 5: *Inflation rate (CPI, y/y)*

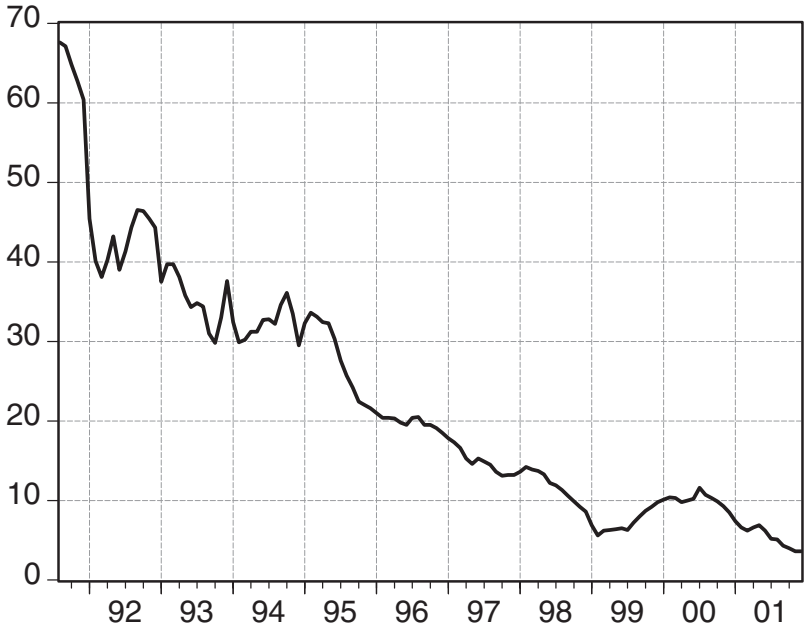
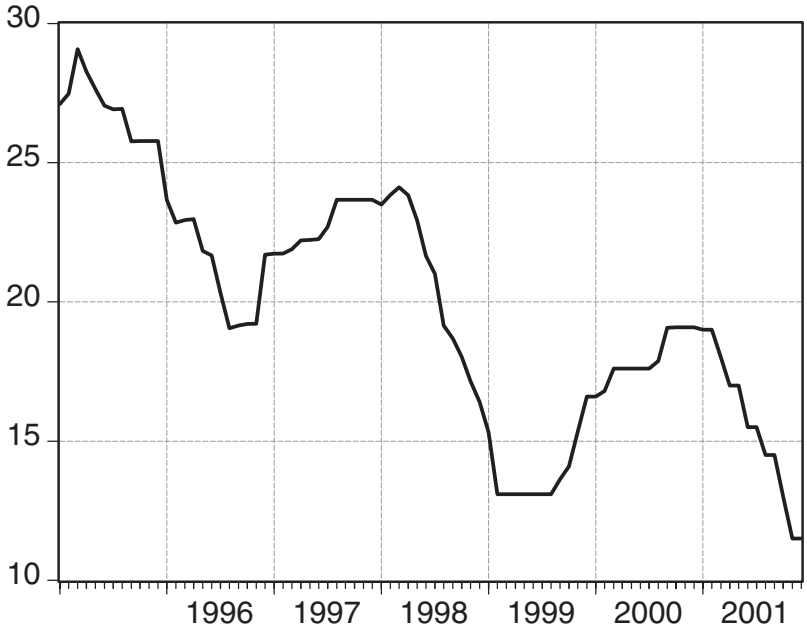


FIGURE 6: *Central Bank intervention rate*



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of sterilizing operations had been almost continuously growing till mid-1996.

These developments coupled with problems in maintaining the previous rate of disinflation were the key factor behind the next major step in the evolution of the exchange rate regime, i.e. the introduction of the crawling band in mid-1995. Another incentive for that, going much beyond the limited success of sterilization, was the monetary authorities' perception of financial inflows as not just a transitory phenomenon after successful completion of negotiations with the London Club creditors in 1995.

Current account surplus suggested in a very plausible way that the zloty was undervalued. However, after having already decided that nominal appreciation is still a better choice than higher inflation there was a further choice to be made: How to accomplish the appreciation of domestic currency? The administrative revaluation of the zloty was thought of as definitely less desirable – instead a market-based approach had been adopted. The first step in making the exchange rate regime more flexible was to widen the spread between the central bank's buy and sell rate in March 1995. Then, in May of the same year, the crawling peg was replaced with the crawling band, with its width set initially at ±7%. The central bank attempted to contain the rate of the zloty's appreciation by intervening in the forex market within the band. That was one of the conditions set by the cabinet for endorsement of the new regime. The idea behind that was to facilitate the adjustment of the real sector to the increased exchange rate flexibility.

4. "Eclectic" monetary policy – parallel control of money supply and exchange rate within more flexible framework

The new regime had an important advantage for monetary policy – more flexibility meant more autonomous interest rate policy and fewer incentives for short-term speculative flows.

The inflow of foreign reserves continued in 1995. Though the growing money supply was not perceived then as a major danger thanks to decreasing inflation, in December 1995 the central bank decided to revalue the zloty. Favorable inflation developments were a strong argument for relaxing interest rate policy, particularly at the beginning of 1996. That influenced beneficially both the appreciation pressures on the zloty and foreign exchange reserves growth with the latter stabilizing at a comfortable level in mid-1996.

That marked the beginning of another period in the monetary policy. Lower interest rates and high liquidity of the banking system

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greatly stimulated lending activities of commercial banks and the growth of domestic demand. Inflation pressures were not so high, but the growth in current account deficit signaled the need for further stabilization. Domestic expansion was also fuelled by the growth in wages and in the budget deficit. On the other hand, important turbulence in the international financial markets increased the potential negative effects of growing current account deficit. Facing the lack of adequate fiscal adjustment, interest rate policy in 1997 reacted very strongly to those developments. However, high liquidity and growing competition in the domestic banking sector made for very weak transmission of central bank's interest rates into domestic demand developments. The National Bank of Poland used an unorthodox instrument (though utilized a couple of decades earlier by the Bundesbank) – households were offered 6 and 9-months deposits, priced in a very competitive manner, directly by the central bank. This move had been perceived as having another advantage – interest rates offered for these deposits were to influence the households' saving behavior without stimulating short-run capital inflows from abroad.

5. The quest for consistent disinflation strategy: direct inflation targeting, 1998 – ?

The story presented earlier suggests very strongly that with the growing openness of the economy eclectic monetary policy strategy showed a very high degree of internal inconsistency. Attempts to control in parallel a money supply growth and the level of exchange rate often pushed policymakers into facing conflicting situations. The need to redefine the strategy of monetary policy became even more visible in the beginning of 1998. Substantial interest rate differential and good economic prospects brought back foreign portfolio inflows – that undermined again the stability of the exchange rate regime. Inflation at that time was definitely too high for the abolition of the credible nominal anchor. The range of possible choices was rather limited – either an intermediate goal of money supply or exchange rate, or adoption of direct inflation targeting[11]. The past tradition and former legal framework were in favor of money supply control. However, financial markets developments, growing openness of the capital account and growing monetization of the economy (influenced by the degree of success in disinflation) undermined very strongly the analytical foundations for this kind of policy. Money demand function became very unstable in late 1990s, and – consequently – any significant statistical relationship between inflation and monetary

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aggregates (including Divisia money) became almost impossible to obtain.

Past problems with maintaining Poland's external balance showed plausibly many important disadvantages of exchange rate control as a monetary policy strategy. Increased capital mobility and further liberalization of Poland's capital account strengthened these disadvantages. Moreover, exchange rate targeting requires also a strong support of fiscal policy, including the latter's ability to respond in a fast and effective manner to both domestic and external shocks.[12]

Another important development influencing the choice of monetary policy strategy was the adoption of the new Polish constitution and as a result of that a new central bank law. They defined unambiguously the final goal of the National Bank of Poland and abolished the parliament's influence on the basic document defining monetary policy targets. Strategic choices in the area of monetary policy became a sole responsibility of the newly established Monetary Policy Council (MPC) and that fact was also an important factor defining both the need for redefining the monetary policy strategy and its final shape. These institutional changes were heavily influenced by the contents of the EU *acquis* related to central banking.

In April 1998 the Monetary Policy Council signaled its initial ideas about the final shape of the new strategy by changing *Monetary Policy Assumptions for 1998*. The major change was specifically in downgrading the money supply figure from an intermediate target into something in between a reference value and a forecast. Later that year, in September the MPC announced its medium-term inflation target and some basic features of the new strategy in a document published under the title *Medium-term Strategy of Monetary Policy, 1999–2003*.[13] According to this text the major reasons justifying adoption of direct inflation targeting[14] were:

- to remove inconsistencies of the eclectic strategy maintained previously,
- to facilitate the better communication between the central bank and the general public,
- to increase the credibility of the central bank and its new interest-rate setting body via the increased transparency required by the new strategy,
- to increase the flexibility of policy response to domestic and external shocks influencing strongly inflation developments and external equilibrium,
- to reduce the macroeconomic costs of disinflation via influencing inflation expectations of economic agents.

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Other features of the strategy adopted in Poland included:

- definition of target in terms of Consumption Price Index (with core inflation being calculated and published as a tool facilitating the communication with the market participants but too sophisticated for the general public),
- target being defined as a rule on a yearly basis, for December year-on-year CPI and the medium-run target for 2003 defined in the *Strategy* –annual horizon for inflation targets being, however, mostly an outcome of some legal considerations,
- target being presented in form of a band.

The Monetary Policy Council strongly believed that to make the new strategy fully consistent any commitment with regard to other nominal variables had to be removed. That meant that the exchange rate band, however wide and with zloty rather far from its ends, could not be maintained in this system. The decision to liberalize fully the exchange rate regime, i.e. to go from pre-announced crawling band into floating, had to be undertaken in Poland jointly by the cabinet and the central bank. This complicated procedure and some uncertainties about the external developments in 1998 were responsible for the relatively long period needed to finalize this step, which happened only in April 2000. This move completed the introduction of internally consistent monetary policy strategy based on direct inflation targeting framework in Poland.

Here again we see the influence of the EU neighborhood in one detail of that strategy only. When quantifying the medium-term inflation target the Polish Monetary Policy Council assumed that in 2003 Poland will be already so close to formal accession that the inflation target for that year had to be close enough to the average inflation within the EU.

Current implementation of that strategy is pretty straightforward. The major instrument is the short-term interest rate (for 28-day reverse-repo operation). Basic factors influencing Council decisions on interest rates are inflation target and inflation forecast. Models used for forecasting inflation apply the orthodox framework, i.e. its output gap, exchange rate and supply-side factors (food and oil prices) explain inflation in the medium-run. Exchange rate forecasts use UIP and macroeconomic risk factors (budget deficit, net exports, foreign direct investment etc.). That shows that the EU neighborhood influences everyday policy decision only indirectly: via interest rate disparity and external demand influencing net exports.

6. Conclusions

There are two distinct lines of reasoning needed to conclude this paper. One is a natural outcome of the story already told. Monetary policy strat-

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egy in Poland faced from the very beginning two, often conflicting, goals: to maintain a steady and predictable trend of disinflation on one hand, and to maintain a safe and sustainable external position on the other. The former was and is such an obvious target for a country like Poland that it does not need any further explanation here. The latter is more country-specific: large foreign debt inherited mostly from the past regime, strong interactions among exchange rate, current account and inflation, and high import intensity of economic growth are among major constraints for macroeconomic policies influencing the balance of payments. In a relatively large and open economy, as Polish history of the 1990s proved effectively, there were too many cases of short-term tradeoffs between inflation and external position to make any intermediate target a viable basis for monetary policy strategy. We argue then that adopting direct inflation targeting in Poland was often an optimal choice, though it does not necessarily meant that the adopted strategy has no drawbacks.

Another conclusion is that the story presented in this paper suggests strongly that the influence of the EU (or euro) on institutional and strategic choices happened to be substantial. However, policy implementation included the EU conditions among its determinants only via the importance of the EU as a major trading partner. Another important argument strengthening that may be the relative importance of the euro in the Polish financial sector. The share of euro as a trade currency fluctuates around 60%, but in the foreign exchange market the respective share is approximately 10%

There is, however, one thought worth mentioning at the end. The current perspective for the monetary policy is the zloty membership in the ERM II. There are very many opinions and ideas how to go there. At one extreme is the well-publicized option of unilateral euroization[15], heavily criticized on legal grounds. Another extreme is the standard way: get nominal (and real) convergence first, and only after that join the ERM II. The major problem here is the incompatibility of arguments used in these discussions. The legal impossibility of unilateral euroization can hardly be compared with economic costs and benefits of that strategy. Whatever choice will be made in future by Poland will only be made when the euro starts to exert its influence on everyday monetary policy in Poland.

NOTES

1. I am grateful for comments of conference participants, particularly Mike Artis, Mario Nuti and Richard Rose. The opinions expressed are those of the author and do not necessarily reflect views of the National Bank of Poland.

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2. Cf. Schaal (1992), chapter 9 and 10.
3. European Union will be used throughout the text, though formally European Communities should be used in some part of the period described here.
4. Cf. Ugolini (1996), Ebrill et al. (1994).
5. Ugolini (1996), p.11–16, describes this project in detail.
6. See Kondratowicz and Okolski (1993) for the comprehensive description of this period.
7. The choice of the anchor currency was determined mostly by the role of the US dollar in the households' behavior. The US currency fulfilled at the end of 1980s not only the role of major financial asset in the Polish household portfolio, but it was also a medium of exchange in a large part of high-value transactions between private-sector agents. The share of the dollar in official trade flows was rather low, though its share in Poland's foreign debt was substantial
8. Most economists agree that the zloty was initially significantly undervalued against the dollar, but already in 1990 foreign currency proceeds from export lost over 70% of their domestic purchasing power.
9. Changes in the exchange rate regime are shown in table 1.
10. More extensive treatment of these developments, their causes and policy responses can be found in Durjasz, Kokoszczyński (1998).
11. This problem is comprehensively presented in many papers, cf. Mishkin (1998).
12. A novel and comprehensive approach to complex interactions between fiscal policy and monetary policy aimed at price stability can be found in Woodford (2001).
13. Both this document and current *Monetary Policy Assumptions* are available at the central bank's website (http://www.nbp.pl).
14. General features of direct inflation targeting as a monetary policy strategy and practical issues arising when introducing and maintaining this approach in industrial and emerging market economies are widely presented in the already vast literature, cf. B.Bernanke et al. (1999), W.Coats (ed.) (1999), Inflation Targeting in Transition Economies: The Case of the Czech Republic, IMF and the Czech National Bank, Prague and Washington.
15. There was a special session devoted to this issue during last National Bank of Poland research conference in October 2001. The problem got probably the most comprehensive treatment in Gomulka (2001).

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