

THE EVOLUTION OF THE MONETARY POLICY TRANSMISSION MECHANISMS OF V4 COUNTRIES

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Introduction

The aim of each central bank is to achieve the fulfilment of previously set goals. Sometimes, this may be problematic as most of the available monetary tools cannot influence selected targets directly, thus this influence must be mediated through different monetary variables.

That is the reason why central banks use operational and intermediate targets. Variables that can be easily influenced are usually referred to as the operational targets. At first, the impact of a particular monetary measure is transmitted from the operational target to the intermediate target, and once the intermediate variable is changed, the last part of the sequence, the final target, is affected. This sequential transmission is referred to as the transmission mechanism of monetary policy.

The following paper tries to describe the evolution of monetary policy strategies of selected countries over the last two decades. It compares basic monetary instruments as well as final targets of V4's monetary policies. It also analyses main factors determining the choice of particular monetary strategy.

1. Transmission Mechanism of Monetary Policy

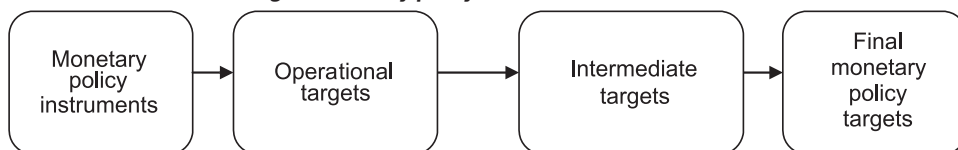
Each central bank can choose from several types of monetary strategies and influence the economy through various channels of so-called transmission mechanism. Gonda associates the conduct of monetary policy with the "quest" for

optimal channel of transmission mechanism, which he defines as the channel enabling transmission of monetary policy measures to real economy. [7, p.14] Jílek speaks about the chain or the sequence of economic variables linked together, that allow the changes in intermediate targets to influence the ultimate target. [9, p. 459] The effects of monetary policy on real economy are thus usually transmitted through several ways, so-called channels. Many authors, e.g. Jílek [459], Ireland [8], Égert and McDonald [5] and Šmidková [25] mention the following transmission channels: credit channel, interest rate channel, asset prices channel (also called expenditures channel by Jílek), and the exchange rate channel. Depending on their effectiveness in given situation some authors do not speak about the "types of transmission channels" but rather "types of transmission mechanisms"; precisely monetarist transmission mechanism, credit transmission mechanism, exchange rate transmission mechanism, etc. (e.g. Revenda [22, p. 82], Kotlebová and Sobek [10, p. 95]).

In reality, central bankers only rarely follow monetary strategies in their pure, unchanged forms. They rather use some modified form of transmission channels, accommodating the conduct of monetary policy to particular economic situation and conditions on domestic markets.

The whole transmission process determines the central bank's success in achieving its goals. The effectiveness of monetary policy depends on the effectiveness, the functioning and the mutual

Fig. 1: Monetary policy transmission mechanism



Source: author's adaptation

interactions of basic transmission channels. Furthermore, the importance and the impact of these channels may change in time. The transmission process usually operates more quickly in open economies than in closed ones as the most important economic variables are also exposed to external factors. That is why in this case, the exchange rate channel and the expectation channel are the most important. (Šmídková [25])

The following simplified scheme illustrates the course of transmitting the influence from the initial monetary policy measure to the final target.

The functioning of the particular channel of transmission mechanism can be viewed as effective only if the operational targets can be directly influenced by the central bank's policy. Furthermore, there must be some kind of indirect control over intermediate targets as well as the tight links between intermediate targets and ultimate goals of monetary policy. Transmission channel, that is chosen properly, and operational targets, that are set correctly, enable central bank to influence and direct the evolution of the final goal only by adjusting the settings of operational targets. [22]

In the case of transition countries, there are also many structural changes that need to be taken into consideration when choosing the channel of transmission within this mechanism; so the long-term use of one particular transmission channel is not possible. As pointed out by Komínková (in Gonda) [7, p.24], the central bank's monetary policy during the transformation process cannot simply follow some standard theory with the explicit and definite monetary anchor. The process of economic convergence requires certain level of liberty in the pursuit of the monetary policy, whether it applies to monetary policy targets, monetary instruments or exchange rate policy. [5]

After economic transformation, many of the transition countries modified their monetary strategies to monetary targeting, or the use of channels of the so-called monetarist transmission mechanism. This regime is based on setting targets for growth of monetary aggregates, but it is usually up to a particular central bank which of the aggregates is chosen or how the final goal would be achieved. [23]

As the catching-up process is usually accompanied with the higher rates of economic growth as well as the higher inflation rates, the focus of

monetary policy is sooner or later shifted to the sole inflation target in order to keep the price level stable. That is why transition countries usually adopt inflation targeting as soon as the monetary or exchange rate target proves to be ineffective.

Inflation targeting as the monetary strategy has thus become very popular among central banks, not only in Europe, but also in other countries of the world. According to International Monetary Fund statistics, of the 24 countries currently pursuing direct inflation targeting regime, 16 are emerging market and developing economies. As explained by Portugal [21], the increasing popularity of this monetary regime is connected to the international integration of goods and financial markets which has been a common factor behind monetary policy regime changes. Many countries have decided that a flexible exchange rate framework is better suited to cushioning domestic economic performance from external disturbances than fixed exchange rates. However, replacing a peg with a flexible exchange rate regime requires identifying benchmarks for monetary policy to establish a clear nominal anchor. Inflation targeting can play this role. [21]

Adoption of inflation targeting requires certain pre-conditions to be met and these might be viewed as rather demanding in the case of some emerging or transition economies. That is the case of the countries deciding to use the regime of inflation targeting while still not being able to subordinate their other objectives to inflation target. This slightly modified regime is often called "inflation targeting lite". Inflation targeting lite countries choose not to adopt a fixed exchange rate because it would leave them vulnerable to speculative attack while a monetary target is not practical owing to instability in money demand. Moreover the fully-fledged inflation targeting is not feasible owing to the lack of a sufficiently strong fiscal position and a fully developed financial sector. ([25], p.1) Once these limitations disappear, central bankers move to "real" and fully-fledged inflation targeting.

2. Transmission Mechanisms of V4 Countries

The four central European countries, Slovak Republic, Czech Republic, Hungary and Poland, are often referred to as the so-called Vysehrad

countries, or briefly V4 countries. When we look closer at their macroeconomic policies and the evolution of their economies over the last two decades, it is possible to find many similar or identical features. Each of these countries had to overcome the so-called transformational depression that had been brought about by the change of their national macroeconomic policies orientation from command economy to market economy. This initial economic situation had been accompanied with the considerably high levels of unemployment and inflation what determined also the choice of the particular transmission mechanism channel.

2.1 Slovak Republic

The independent national monetary policy of Slovak central bank, NBS (Národná banka Slovenska), has gone through several changes since 1993. NBS was one of the legal successors of the SBCS (Štátna banka československá), the central bank of the former Czech and Slovak Federal Republic. After the split-up, two central banks were founded, each of them taking over the original monetary strategy and the whole monetary policy instrumentarium of SBCS. NBS adopted a fixed exchange rate with narrow fluctuation band that served as a nominal anchor, and at the same time opted for the money supply target (aggregate M2); its growth rate serving as the second nominal anchor. The exchange rate was pegged to a currency basket consisting of five currencies (USD 49.06 %; DEM 36.16 %; ATS 8.07 %; CHF 3.79 %; FRF 2.92 %) and its fluctuations were limited by the fluctuation band of ± 0.5 %.

During the period 1993-1998, NBS used mainly the administrative tools of credit and interest rate policy, yet the interest rates could not be viewed as the fundamental monetary policy instrument (with monetary base still in the role of operational target). Their level was much higher than the one of the developed, western European countries which created the positive interest rate differential, and encouraged the inflows of the foreign capital. In the attempt to maintain the fixed parity of the exchange rate, NBS started to widen the fluctuation band gradually. It had been widened from ± 1.5 % in 1994, firstly to ± 3.0 %, than to ± 5.0 % in 1996, and finally to ± 7.0 % in 1997.

Despite these adjustments, the fixed exchange rate regime was becoming less and less suitable nominal anchor as it no longer reflected the real economic situation. This resulted in a change of the exchange rate regime to managed floating in 1998 what brought about other important changes for NBS. Having no particular fluctuation band to follow, NBS started to concentrate on price stability. The evolution of exchange rate was determined by the interaction of supply and demand on the foreign exchange market. Only at the periods of increased exchange rate volatility, NBS resorted to interventions. The interest rates finally started to serve as the operational target.

NBS introduced the regime, very similar to inflation targeting. However, there was no medium-term inflation target, only the short-term targets, set annually. In 2000 NBS started using the implicit inflation targeting (so-called "inflation targeting lite") and announced the short-term annual inflation target for core inflation for the first time. The choice of inflation target was mainly determined by the fact that the development of the headline inflation was still marked by the various administrative prices adjustments.

This type of monetary policy regime had been at force till Slovak crown's admission to the ERM II on 28 November 2005 (the official rate set as 38.4550 SKK/EUR). The monetary policy was defined as the "inflation targeting within ERM II". The sole monetary target of price stability was changed to double objective of price and exchange rate stabilities. The exchange rate parity was pegged to European currency with the considerably wide fluctuation band of ± 15 %. The fluctuation band defined this broadly enables the exchange rate to fluctuate around the central parity and to adjust to the changing environment. The rapid appreciation necessitated two revaluations of the central parity (see table), the second of which later served as the fixed conversion exchange rate.

With the euro adoption, NBS has basically gone back to the sole target monetary policy. It is still inflation oriented, but the inflation target is set by the European Central Bank (ECB). The particular level of inflation target has not been changed. As a result of the gradual harmonisation of the tools and targets of Slovak monetary policy with the ECB's monetary policy, the inflation target of NBS was set at the same level as the ECB's inflation target in 2007.

The summary of the monetary policy strategies, tools, operational and intermediate targets can be seen in the next table.

currency stability. The other goal, money supply growth target, represented the second nominal anchor. CNB regularly announced its objectives

Tab. 1: Monetary strategies of NBS since 1993

Time	Instruments, intermediate and operational targets	Final target
1993-1998	<ul style="list-style-type: none"> - money supply target as intermediate target; monetary base as the operational target - fixed exchange rate pegged to currency basket (5 currencies: USD 49.06 %; DEM 36.16 %; ATS 8.07 %; CHF 3.79 %; FRF 2.92 %), fluctuation band ± 0.5 % - change of currency basket (2 currencies), fluctuation band gradually widened to ± 1.5 % (1994), ± 3.0 % and ± 5.0 % (1996), ± 7.0 % (1997) 	<ul style="list-style-type: none"> - price stability - exchange rate stability
1998-2000	<ul style="list-style-type: none"> - first attempts to target the inflation rates - base interest rate as the operational target - "hybrid" target – inflation prognoses and stable exchange rate - managed floating, with DEM as the reference currency (1998), replaced with euro (1999) 	<ul style="list-style-type: none"> - price stability
2000-2005	<ul style="list-style-type: none"> - implicit inflation targeting - base interest rate as the operational target - announced short-term inflation target for the core inflation - managed floating 	<ul style="list-style-type: none"> - price stability
2005-2009	<ul style="list-style-type: none"> - explicit inflation targeting within EMR II - base interest rate as the operational target - announced short-term inflation target for the core inflation - exchange rate fixed to euro at the official rate of 38.4550 SKK/EUR within the fluctuation band of ± 15 %, two revaluations of the central parity (19 March 2007: the official rate set as 35.4424 SKK/EUR, 29 May 2008: the official rate set as 30.1260 SKK/EUR) 	<ul style="list-style-type: none"> - price stability - exchange rate stability within EMR II
since 2009	<ul style="list-style-type: none"> - adoption of euro (2009) - 2 pillars monetary strategy (economic and monetary analysis) - short-term inflation target defined as the HICP growth below but close to 2.0 % 	<ul style="list-style-type: none"> - price stability

Source: [14], [15], [16]

2.2 Czech Republic

As well as NBS, the Czech central bank, CNB (Česká národní banka), used fixed exchange rate as one of the nominal anchors for its monetary policy. The exchange rate was pegged to a two-currency basket, consisting of USD and DEM. The final target was the maintenance of the

for anticipated development of money supply growth rate and prognoses for the inflation development.

Massive inflows of foreign capital, especially speculative capital, required the gradual widening of the Czech crown's fluctuation band, from initial ± 0.5 % in 1993, to ± 7.5 % in 1996. CNB also started to use the short-term interest rate for repo operations as the main operational target.

The widening of the fluctuation band strengthened the stability of Czech crown, but the effect did not last long, what made CNB change the exchange rate regime to the more “loose” one, namely the managed floating regime. This chan-

rates and the money supply growth, as well as the links between the targeted money supply and the price level growth, seemed to be no longer neither stable nor predictable. The other important factor was the ongoing catching-up process, usually ac-

Tab. 2: Monetary strategies of CNB since 1993

Time	Instruments and intermediate targets	operational targets	Final target
1993-1994	- money supply target as intermediate target (aggregate M2) - fixed exchange rate pegged to currency basket (2 currencies), fluctuation band $\pm 0.5\%$	monetary base	- price stability - exchange rate stability
1994-1996	- money supply target as intermediate target - fluctuation band widened to $\pm 7.5\%$ (1996)	- bank reserves - short-term interest rates (1996)	- price stability - exchange rate stability
1997-2000	- managed floating (1997) - inflation targeting (“net” inflation target) - medium-term inflation target of $4.5 \pm 1\%$ - short-term annual targets for the period 1998-2000	- repo interest rate	- price stability
2000-2001	- inflation targeting (“net” inflation target) - inflation target trajectory defined as the downward continuous band - band 3-5 % (since January 2002) - band 2-4 % (till December 2005)	- repo interest rate	- price stability
since 2001	- inflation targeting (headline inflation target) - inflation target of $3 \pm 1\%$ for the period 2006-2009 - inflation target of $2 \pm 1\%$, with effect since 2010, till the adoption of the euro	- repo interest rate	- price stability

Source: [2], [3], [4], [25]

ge also meant the loss of one of the two monetary policy nominal anchors. Consequently, the Board of the CNB decided to adopt the explicit inflation targeting regime. Czech Republic thus became the first transforming country to introduce the full-fledged inflation targeting.

There were many arguments in favour of this new monetary strategy as the suitable replacement for the formerly used monetarist transmission mechanism. The links between controlled interest

compared with the higher level of inflation rates.

At the very beginning of the inflation targeting use, CNB worked with two time horizons. CNB announced both the short-term annual inflation target, viewed as the informative target and medium-term target. In April 2001 CNB changed this regime to the targeting of the headline inflation and started expressing the inflation target by means of a continuous band. The new band was announced starting in January 2002 at 3-5 % and

ending in December 2005 at 2.4 %. [3] In 2006, this target was replaced by the new one of $3.0 \pm 1\%$, valid since January 2006 till the end of year 2009. The current inflation target, effective since January 2010, is set at $2.0 \pm 1\%$.

The summary of the monetary policy strategies, tools, operational and intermediate targets can be seen in the Tab. 2.

2.3 Poland

The Polish central bank, NBP (Narodowy Bank Polski), resumed its role and functions of the central bank at the beginning of 1990's. At that time, Polish economy was still marked with the

strong dollarisation, with only 25 % of total money supply in national currency and 75 % in foreign currencies.

As well as in the other Central European countries, the monetarist transmission mechanism was used. But similarly to other countries, the NBP's control over the money supply was becoming more and more limited. The monetarist transmission mechanism was not operating as efficiently as before. The exchange rate was pegged to a currency basket consisting of five currencies. But unlike Slovak and Czech crown, the central parity of Polish zloty had been monthly adjusted (crawling peg regime). The exchange rate volatility was also limited by the narrow fluctuation band of

Tab. 3: Monetary strategies of NBP since 1993

Time	Instruments and intermediate targets	operational targets	Final target
1993-1995	<ul style="list-style-type: none"> - money supply target as intermediate target - crawling peg exchange rate regime with the pre-announced monthly devaluation of the parity (1.8% in 1993, lowered to 1.2% in 1995); - fluctuation band widened from $\pm 1\%$ (1993) to $\pm 7\%$ (1996) 	monetary base	<ul style="list-style-type: none"> - price stability - exchange rate stability
1995-1997	<ul style="list-style-type: none"> - money supply target as intermediate target - crawling band - devaluation rate lowered to 1% (1997) 	<ul style="list-style-type: none"> - monetary base - short-term interest rates (1996) 	<ul style="list-style-type: none"> - price stability - exchange rate stability
1997-1999	<ul style="list-style-type: none"> - explicit inflation targeting (headline inflation target) - medium-term inflation target $4.0 \pm 1\%$ - short-term annual targets for the period 1999-2002 - fluctuation band widened to $\pm 12.5\%$ (1998) - devaluation rate lowered to 0.5% (1998) 	<ul style="list-style-type: none"> - repo interest rate 	<ul style="list-style-type: none"> - price stability
1999-2002	<ul style="list-style-type: none"> - explicit inflation target - fluctuation band widened to $\pm 15\%$ (1998) - devaluation rate lowered to 0.3% (1998) - floating exchange rate, not subjected to any restrictions 	<ul style="list-style-type: none"> - repo interest rate 	<ul style="list-style-type: none"> - price stability
Since 2002	<ul style="list-style-type: none"> - explicit inflation targeting - continuous inflation target of $2.5 \pm 1\%$, with effect 2004 - floating exchange rate, not subjected to any restrictions 	<ul style="list-style-type: none"> - repo interest rate 	<ul style="list-style-type: none"> - price stability

Source: [17], [18], [19], [20]

$\pm 1.0\%$, gradually widened to $\pm 7\%$ in 1995. The rate of regular monthly devaluations of Polish zloty was predetermined annually, but there had been a distinct downward trend. Starting at the monthly rate of 1.8% in January 1993, the rate of regular devaluation was brought down to 0.3% in 1999.

To maintain the exchange rate stability, NBP also used the exchange rate interventions. The exchange rate parity and the entire monetary policy settings were not aimed at the sole goal of maintaining of price stability, but rather at the balance of payments equilibrium. The exchange rate parity was set so as to encourage the exports rather than limit the volumes of imported goods. At the same time, NBP adopted the explicit inflation targeting regime and announced its inflation targets for the first time, announcing both the short-term annual target as well as the medium-term three-year target.

In 1999 the currency basket was modified, and narrowed to two currencies (55% EUR and 45% USD). Along with this modification, came also the widening of the fluctuation band to $\pm 15\%$. One year later, the exchange rate regime was changed to the non-intervened floating. As there had been practically no interventions on the foreign exchange markets since 1998, this alternation was not viewed as the significant shock to the Polish economy. The increased exchange rate volatility prior to the change of the exchange rate regime prepared domestic markets for this step. New exchange rate regime helped also to fulfil the inflation target.

After the development of the price level was relatively stabilised, and the disinflation process was completed, NBP announced its long-term inflation target of $2.5\% \pm 1\%$ starting 2003. The short-term end-of year annual targets were no longer followed, but were replaced by the continuous monthly monitoring of the targets.

The summary of the monetary policy strategies, tools, operational and intermediate targets can be seen in the Tab. 3.

2.4 Hungary

Hungarian central bank, MNB (Magyar Nemzeti Bank), started to pursue its independent monetary policy in 1991. The Government's macroeconomic policy adopted the features of market economy and the process of economic convergence began.

The very beginning of this process was marked with various economic changes that limited the actions of MNB. The instability of the money supply demand eliminated the use of monetarist transmission mechanism, used by the central banks of other V4 countries. Instead of money supply targeting, MNB chose exchange rate target. The exchange rate was fixed and pegged to a currency basket, consisting of two currencies (50% USD and 50% ECU, since 1991). The composition of the basket as well as the actual weight of the currencies had been changed several times. This was accompanied with multiple devaluations that were neither regular nor pre-announced. The unpredictable occurrence of the devaluation together with the constantly changing percentage of these parity shifts were slowly becoming less and less in favour of the MNB, and were harming the credibility of monetary policy. The result was the first widening of the fluctuation band from $\pm 0.5\%$ to $\pm 2.5\%$ in 1995 and later on, the adoption of the crawling peg regime. The rate of devaluation became regular and was pre-announced monthly. More predictable and less volatile exchange rate encouraged the disinflation process. In 1999 the exchange rate thus became the most important target of the Hungarian monetary policy, with short-term interest rates as the main operational targets.

In 2001, forint was pegged to euro, and the fluctuation band was widened considerably, from initial $\pm 2.5\%$ to $\pm 15.0\%$. The exchange rate was allowed to fluctuate freely within its fluctuation band. It was a regime very similar to the Maastricht exchange rate criterion. At the same time, MNB set the new inflation target what essentially meant adopting of the inflation targeting regime. This new monetary strategy came with short-term annual targets as well as the medium-term three-year target.

In 2003, the speculative attack on Hungarian forint threatened the stability of adopted exchange rate regime as well as the whole settings of the monetary policy. It also pointed out the unavoidable inconsistency between the price stability and exchange rate stability targets. Prior to the speculative attack, the exchange rate had been appreciating steadily, and the markets anticipated the revaluation of the parity. The speculative attack aimed at the parity shift, and MNB was facing a dilemma. The inconsistency of the two conflictful targets meant "sacrificing" one

of the targets in order to divert the attack and stabilise the markets. While the markets expected MNB to adjust the parity, Hungarian central bank unexpectedly decided to loosen up the monetary policy by decreasing massively the base short-term interest rates. The additional interest rates adjustments followed, and it took several months before the exchange rate was relatively stable again.

In 2003 MNB also announced the medium-term inflation target set as $3.0\% \pm 1\%$, valid since 2007. Contrary to the previous arrangement of end-of-year inflation target, the fulfilment of the newly set target was being monitored on a monthly basis. The next change came in 2008 with the introduction of the managed floating exchange rate regime. This eliminated some of the

persistent potential conflict between the exchange rate policy and inflation targeting.

The summary of the monetary policy strategies, tools, operational and intermediate targets can be seen in the Tab. 4.

2.5 Monetary policy in V4 countries since 1990s

Since the beginning of the 1990s, the macroeconomic policy of V4 countries was primarily oriented on price and exchange rate stability. The central banks of Czech Republic, Slovak Republic and Poland used monetarist transmission mechanism, based on a close monitoring of the money supply target. Hungarian central bank targeted the exchange rate.

Tab. 4: Monetary strategies of MNB since 1993

Time	Instruments and intermediate targets	operational targets	Final target
1993-1998	<ul style="list-style-type: none"> - exchange rate target as intermediate target - fixed exchange rate regime; fluctuation band $\pm 0.5\%$ - crawling peg with the pre-announced monthly devaluation of the parity (1995); fluctuation band $\pm 2.5\%$ 		<ul style="list-style-type: none"> - price stability - exchange rate stability
1999-2001	<ul style="list-style-type: none"> - exchange rate target as intermediate target - fluctuation band widened to $\pm 2.25\%$ (1999) - monthly devaluation lowered to $\pm 1\%$ (1999) 	<ul style="list-style-type: none"> - monetary base - short-term interest rates (1996) 	<ul style="list-style-type: none"> - price stability - exchange rate stability
2001-2003	<ul style="list-style-type: none"> - explicit inflation target (headline inflation target) - crawling band, fluctuation band widened to $\pm 15\%$ (2001) - forint pegged to euro (2001) - short-term annual inflation targets for the period 2002-2003 	<ul style="list-style-type: none"> - short-term two-week interest rate 	<ul style="list-style-type: none"> - price stability
2003-2008	<ul style="list-style-type: none"> - explicit inflation target (headline inflation target) - central parity devaluated by 2.6% (2003) - short-term annual targets for the period 2004-2006 - medium-term three-year inflation target of 3%, valid since 2007 	<ul style="list-style-type: none"> - short-term two-week interest rate 	<ul style="list-style-type: none"> - price stability
Since 2008	<ul style="list-style-type: none"> - managed floating since 2008 	<ul style="list-style-type: none"> - short-term two-week interest rate 	<ul style="list-style-type: none"> - price stability

Source: [11], [12], [13]

The maintenance of the exchange rate stability necessitated the fixing of domestic exchange rates and their pegging to currency baskets, containing the currencies of the most important trade partner countries. This type of regime enables to tie domestic currency to low-level inflation countries, and by these means stabilises rates of inflation growth, and brings them down steadily.

One of the greatest disadvantages of the fixed exchange rate regime is the fact that changes in real economy are not reflected in a central parity level. The fixed exchange rate cannot either prevent the occurrence of real shocks as the exchange rate adjusting process is missing. That is why each of V4 countries replaced their fixed exchange rates with some form of a floating exchange rate. As the exchange rate evolves more naturally, reflecting the ongoing changes in domestic economy along with the external factors, it can serve as better adjustment mechanism than the fixed exchange rate.

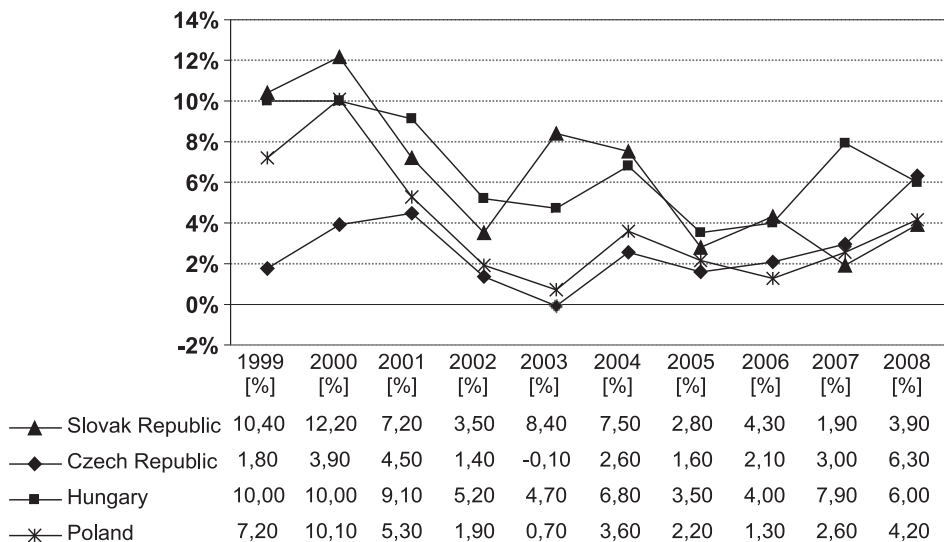
The loosening of the exchange rates meant also the loss of one nominal anchor for monetary policy and brought about the change of monetary policy orientation. The final monetary policy targets were changed either from money supply target or the exchange rate target, to the sole

inflation target. The focus of V4's central banks was shifted exclusively to the price stability.

As mentioned before, the adoption and the pursuit of the fully-fledged explicit inflation targeting requires specific conditions, such as high transparency and coordinated measures of monetary policy, oriented towards the ultimate price stability goal. When adopting this strategy, central banks opted for its so-called "lite" version as the economic situation and available monetary instruments did not allow the use of explicit targeting. Nevertheless this regime contributed to lower inflation rates considerably. This gradual downward trend in the evolution of inflation rates is illustrated by the following figure.

The problems with higher inflation are somehow characteristic for the catching-up countries. While their price level is usually lower than the price level of the more developed EU countries, their growth rates commonly exceed twofold or threefold the average growth rate of EU. With floating exchange rate regime in force, certain part of this catching-up process is "expressed" in the appreciation of the real exchange rate what makes the price level growth less prominent. That is why most of the transition countries prefer more loose exchange rate arrangements. V4's central banks let their exchange rates adapt to changing economic con-

Fig. 2: Inflation development in V4 countries since 1999 (average end-of year inflation rates)



Source: V4's central banks data, author's adaptation

Tab. 5: Nominal exchange rates of the V4 countries against the euro since 1999 (annual averages)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Slovak Republic	44,115	42,589	43,309	42,699	41,491	40,045	38,593	37,248	33,781	31,291
Czech Republic	36,884	35,599	34,068	30,804	31,846	31,891	29,782	28,342	27,766	24,946
Hungary	252,77	260,04	259,59	242,96	253,62	251,66	248,05	264,26	251,35	251,51
Poland	4,2274	4,0082	3,6721	3,8574	4,3996	4,5268	4,0230	3,8959	3,7837	3,5121

Source: V4's central banks data, author's adaptation

ditions, but still monitored their development, and intervened when necessary.

The country that joins the monetary union basically loses the exchange rate channel of convergence process. However, the convergence process itself does not stop at that particular moment; it goes on sans the exchange rate channel. Thus all the changes brought about by the catching-up process are reflected solely in the price level development.

This process could have been seen in Slovenia, the first one of the transition countries to adopt the euro. Directly after the introduction of a new currency in 2007, the price level remained relatively stable in the first months of the year. In 2008 the prices started to pick up continuously. Except for the absent exchange rate channel, there were also other important factors affecting the price development, such as rising commodity prices, or the "expiration" of business agreements (agreements concerning the price developments following the currency changeover).[1] Slovak Republic was the second transition country to adopt the euro; the official conversion rate set as 30.126 SKK/EUR. But the time span of one year is too short to assess the real impact of an absence of the exchange rate channel.

The overall slowdown of the economic activity in Europe (EU's real GDP growth rate dropping from 2.9 % in 2007 to 0.8 % in 2008 and estimated -4.1 % in 2009), as well as in the other parts of the world (e.g. in USA the growth of the real GDP dropped from 2.1 % in 2007, to 0.4 % in 2008 and is expected to decrease even further in 2009), affected also the overall economic climate. The pace of inflation growth in European Uni-

on slowed down as well (EU's average monthly inflation rate dropping from 3.2 % in 2008 to 2.6 % in the first nine months of 2009). [6] Considering the changes caused by the economic recession in most of the countries, it would be very difficult to determine what part of price development is a result of the overall economic slowdown, and what part refers to a currency changeover.

In case of Slovakia, as well as in the case of other V4 countries, there are also some specific factors concerning price development and effectiveness of the transmission mechanisms that need to be taken into consideration. The deterioration of economic situation in most European countries resulted also in a depreciation of their national currencies against the euro (especially Czech Crown, Hungarian Forint and Polish Zloty). The weakened exchange rates, as well as considerably lower VAT levels in Hungary, increased the competitiveness of the exports and paradoxically encouraged the growth of domestic demand. Goods and services in these countries thus became noticeably cheaper in comparison with the prices in Slovakia. This interesting phenomenon was rather prominent in the first months of 2009 when many Slovak consumers started to do their shopping in the neighbouring countries that have yet to adopt the euro. The goods were thus imported to Slovakia, directly by the consumers themselves while corresponding amounts of financial sources were leaving the economy, increasing the money supply of other neighbouring economies. This peculiar trend reversed in the second quarter of 2009 as a result of strengthening of the neighbouring currencies. [26]

This so-called “shopping tourism” can be considered as rather important factor to the development of the overall economic situation, and it may also affect the accuracy of all central banks’ analyses and prognoses. The extent of these transactions cannot be precisely determined as they are not explicitly being monitored. Without the customs controls, the only source of the information would be the bank statistics that follow the bank card payments of Slovak bank clients abroad. However, these statistics do not cover the cash payment transactions that still represent rather important part of the overall number of transaction and their volume can be only estimated.

Conclusion

Monetary policy represents an integral part of the every country’s economic policy, that is to say so-called policy mix. Its ultimate goals or targets, usually the price and exchange rate stability, cannot be reached directly, and that is why central banks also set their operational and intermediate targets. The choice of the particular transmission channel is determined by its efficiency which may vary in time. That is why changing economic conditions usually necessitate the modification of the monetary policy in force.

This articles sums up the evolution of the monetary policy in four Central European countries, namely V4 countries, from the beginning of 1990s that was marked with the important shift in economic policy orientation (from command to market economy). Initial macroeconomic situation of these countries was very similar with many common features including the fall of GDP growth rates, considerable rise of consumer prices and the necessity to stabilise the economy. During the first years of transformation V4’s central bankers opted for traditional monetary or exchange rate targets as the main monetary anchors. However, liberalised markets together with liberalised capital flows and strong foreign trade links between countries have reduced the efficiency of traditional transmission channels considerably. This caused the shift of monetary policy to “new strategies” based on direct or indirect targeting of the inflation rates. Increased capital mobility and gradually improving macroeconomic situation of these four countries also led to modification of exchange rate regimes; from

some form of pegged regime to less strict ones, such as the managed floating.

The constantly changing environment, together with the ever-growing volumes of foreign capital inflows, either in the form of the long-term foreign direct investment or the short-term speculative capital, are weakening, or even eliminating the impacts of adopted monetary policy measures. Thus monetary policy makers need to monitor and take into consideration not only domestic but also the foreign factors. Especially in small open economies, the impact of foreign factors can be even more important than the domestic factors what reduces the autonomy of national monetary policy considerably.

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ABSTRACT

THE EVOLUTION OF THE MONETARY POLICY TRANSMISSION MECHANISMS OF V4 COUNTRIES**Ludmila Bartóková**

Monetary policy measures cannot directly affect the economy. Their impact is usually indirect and mediated through various channels of monetary transmission. The choice of particular transmission mechanism is determined by several factors that include the specific conditions of each economy, the range of monetary tools that can be used by central bank as well as the various external factors.

The paper explains the functioning of a monetary transmission in general, and then focuses on the particular types of transmission channels used by each of the central banks, chosen for analysis. The paper outlines the evolution of monetary policy transmission mechanisms in V4 countries from the beginning of the transformation process till present days. It compares the operational targets of V4's monetary policies, their ultimate goals and the tools applied to achieve these goals. It also compares the common and distinct features of their respective monetary policies.

As can be seen, these countries were mainly focusing on the maintaining of price and exchange rate stability at the beginning of the transformation process. Usually the double monetary objectives were used, and served as the nominal anchors to monetary policy. NBS, CNB, NBP used fixed exchange rates in order to establish the currency stability, and had been monitoring the evolution of the money supply for the price stability. MNB however could not apply this type of monetary strategy as a consequence of slightly different initial economic conditions. MNB therefore chose the exchange rate target as the primary target, and had been closely monitoring its evolution in the narrow fluctuation band.

The gradual change of economic situation, brought about by the ongoing transformation process, resulted in the abandonment of the fixed exchange rate regime and the transition to more liberal regimes. This change was closely followed by the alternation of ultimate monetary policy goals that became solely oriented on the price stability. All of the analysed central banks adopted the regime of inflation targeting whether it was in its "pure" form as the explicit inflation targeting or in the form of so-called "inflation targeting lite".

Key Words: monetary policy transmission mechanism, exchange rate, interest rates, inflation targeting.

JEL Classification: E42, E52, E58.