70 Years of the forint:

Road from hyperinflation to price stability

September 2016

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Foreword

Low inflation is one of the most important elements of economic dialogues and reflections on monetary policy. In the last seventy-five years of the history of economics, we could face, as Hungarian citizens, the significance thereof over and over again. Since the end of World War II, starting from the highest hyperinflationary period of history, we could observe a number of periods characterised by persistently high inflation. Up to the recent years the deterioration of the purchasing power of money became part of our everyday life.

However, persistently low inflation has clear social and economic benefits. In a high inflation environment prices deliver less information. The uncertainty resulting from the volatility of prices makes it more difficult to reach optimal decisions, thereby hindering the longer-term investment and savings decisions essential for the development of the economy. Accordingly, the low inflation environment and the stable currency capable of preserving its purchasing power, are the core building blocks of economic development and social trust.

In Hungary the duty of the Magyar Nemzeti Bank and its corresponding primary mandate laid down in the central bank act is to achieve and maintain price stability. In addition, without prejudice to its primary objective, the MNB also supports the maintenance of the stability of the financial intermediary system, the enhancement of its resilience and its sustainable contribution to economic growth; furthermore, the MNB supports the economic policy of the government using the instruments at its disposal. Bearing this in mind, in recent years the MNB has undertaken an active and successful role, within the framework of a flexible inflation targeting strategy, relying on traditional and untraditional instruments with a view to fulfilling its mandates laid down in the central bank act.

The everyday role and importance of inflation also justify the birth of this publication. The anniversary of the introduction of forint on 1 August 1946 offers a proper opportunity to draw the conclusions from the inflation in Hungary. The 2008/2009 crisis launched fundamental changes in economics, just like in many other areas of life. The axioms formerly regarded as eternal truth are questioned and proven wrong, while newer and newer systems emerge for the analysis of the changed economic environment by combining the

knowledge of several disciplines. However, before elaborating new theories, it is important to have an accurate and systematised knowledge of the historic events. With this volume of studies we wish to contribute to this knowledge in an easy-to-understand form.

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I. Introduction

Inflation is one of the most important indicators of the economy's sustainable operation and social welfare. Numerous historic examples showed that the debts that became unmanageable or the structural problems of the economy sooner or later led to the development of inflation problems accompanied by severe – occasionally tragic – circumstances. It was not different in Hungary's history of almost seventy five years since World War II. The purpose of our volume of studies is to review and present in an easy-to-understand form the inflation history of the Hungarian forint since its introduction on 1 August 1946.

The circumstances that surrounded the birth of forint were far from being conventional. After World War II a devastating hyperinflation swept through the Hungarian economy, i.e. the pengő, the currency of the time, fully depreciated. If you had ten pengős in your pocket at dawn, it was only worth five by late evening. This means that the value of money was halved roughly every 15 hours or, in other words, it took that long for the prices to double. It is not an exaggeration to refer to this period as a monetary disaster. The introduction of the new currency, i.e. the forint, was an important step of the stabilisation. Following the introduction of forint, the population's trust in the currency returned. The introduction of the new currency, i.e. of the forint, also formed part of the reconstruction of the country.

After this, in the last 70 years the forint – spanning through political and economic regimes – became part of our everyday life. It is an important question how the forint fulfilled the fundamental functions and tasks of money. I would like to focus particularly on one of these, namely the store of value function. The reason for this is that the primary, statutory duty of the Magyar Nemzeti Bank is the support precisely of this function through achieving and maintaining price stability.

The fast increase in prices, i.e. high inflation, has severe welfare costs. These include in part the transaction costs related to the repricing of products and services, and in part those attributable to the change in the holding of monetary assets. In addition, high inflation distorts relative prices in the economy and leads to the unwanted redistribution of incomes, thereby also deteriorating the operational efficiency of the economic system.

Inflation is often also a symptom, signalling the sway of the economic equilibrium. The absence of demand and supply balance, the high budget deficit or the persistent balance of payments deficit leads to fast increase in prices, i.e. inflationary effect, which may often be incited by the government itself. For this very reason the basis of a credible and well-founded anti-inflation policy is the creation of the economy's external and internal balance. Accordingly, the stabilisation of inflation at a low level reduces not only the direct, welfare costs of the price increase, but also contributes to reaching and maintaining the balance and growth in the economy simultaneously.

When examining the 70 years of forint in terms of inflation, first we get alarming results: compared to 1946 the price level increased 131-fold, i.e. on an annual average the rate of devaluation was 7.7 per cent in Hungary. However, the devaluation of the currency was not steady during this period. In the first years of the forint we registered a two-digit rise in prices; however, this looked small beside the awesome devaluation of the pengő. The socialist era was initially characterised by low, but gradually accelerating devaluation, followed by surging inflation during the transition to market economy. As a result of the shock-like transformation, the increase in consumer prices exceeded even 30 per cent in some years. Thereafter, as a result of the crawling peg scheme and the disinflation strategy of the inflation targeting, the annual devaluation of the currency stabilised around 5 per cent. However, this still persistently exceeded both the average of the regional countries and the national inflation target.

The past years brought radical changes in the economic policy: as a result of the fiscal reform that commenced in 2010 the budget deficit fell to a persistently low level, while the current account showed a substantial surplus. The reform measures affecting the labour market generally improved the economy's growth capacity. The government debt has also set on a declining path, thus the situation of the economy improved on a historic scale. The economic equilibrium and growth, as the two basic conditions of successful economic convergence, were achieved for the first time after many years.

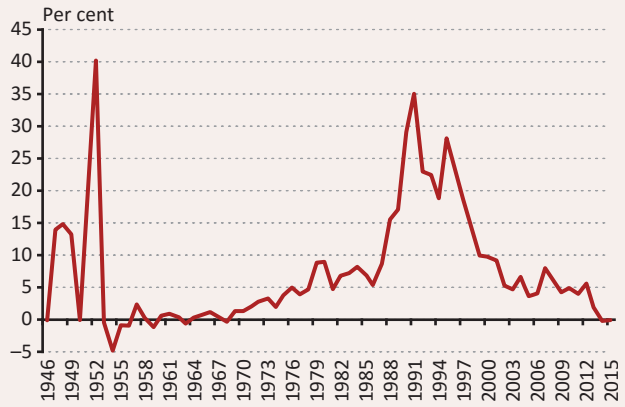
The fiscal turn also facilitated a change in the fight against persisting inflation in 2013. We managed to break the inflation inertia that characterised the Hungarian economy for years or even for decades. Prices in 2014 and 2015 hardly changed or did not change at all, i.e. by achieving price stability the

forint became more valuable for us than ever in the past decades. These days the forint can fulfil its store of value function more successfully than ever, thereby contributing to the rise in the purchasing power of incomes, the prosperity of the economy, the smoother settlement of transactions and to the fulfilment of the prices' coordination role as efficiently as possible.

Naturally, the road from hyperinflation to price stability was long and rough, the knowledge of which may be enlightening for all of our readers.

Barnabás Virág
Editor

Chart 1
Year-on-year inflation in Hungary



Source: MNB.

II. Post-war inflation and the introduction of forint (1946-1949)

Zoltán Eperjesi, Zoltán Horváth, Kitti Vajda

This essay deals with the political and economic context of the post-war inflation and the introduction of forint.

POLITICAL AND ECONOMIC CONTEXT OF THE INTRODUCTION OF FORINT

Political context of the introduction of forint

In terms of political history it can be stated that in the half-decade that followed World War II there were two comprehensive political transitions in Hungary: in the first period (1945-1946) the political fights were aimed at the development of a multi-party parliamentary regime, while the second political transition (1947-1949) gradually eliminated the social and political division that was about to take shape after World War II. The primary economic goals of the Provisional National Government, and then of the governments lead by Tildy and Ferenc Nagy, included fast reconstruction, the implementation of the land reform (March 1945), the stopping of the rapid inflation of the pengő as soon as possible, as well as the reorganisation of the shaken Hungarian economy. Eventually, the democratic processes were stopped by the one-party communist dictatorship created in 1949. The new dominating forces commenced the implementation of the specified political and economic duties through the powerful intervention and control of the developing national institutions.

The organisation of the comprehensive reconstruction after World War II (1945-1947) was not an easy task in Hungary. The Provisional National

Assembly convened on 22 December 1944 and elected Hungary's Provisional National Government, the duties of which included: temporary armistice agreement and declaration of war on Germany; development of the institutional system of a democratic state; formation of a democratic army and police; organisation of the land reform; clearing away the ruins of war; organisation of transport and public supply. Meanwhile, the land reform could no longer be postponed and the draft land reform of 14 January 1945 was adopted on 17 March, and the decree on the termination of the system of large estates and the distribution of land to the agrarian population was promulgated. The land of 5.6 million cadastral acres used for the purpose of the land reform accounted for roughly 35 per cent of the country's area usable for agricultural purposes, and finally of the 730,000 land claimants it was distributed to over 642,000 to rightful claimants. The small scale farms created as a result of the land distribution faced severe shortage of horsepower. Under such circumstances, the new farmers could not exhibit the same results as those produced by the pre-war agriculture, despite their vast efforts.

The countries of the Soviet-controlled region, including Hungary, could not benefit from the European reconstruction programme of the American Marshall Plan, due to the prohibition and the military presence of the Soviet Union, and the maintenance of a western-style market economy was not feasible either. The Hungarian Communist Party (MKP) – with Soviet support – gradually seized the most important political and economic power positions; meanwhile the reorganisation of the Hungarian economy on the Soviet model, i.e. the liquidation of private ownership, also commenced. The financial stabilisation was preceded by the nationalisation of the key industries (mines, power stations, banks, foreign interests, companies with more than 100 employees), which commenced in 1946-47. The announced changeover of the economic system was implemented and prepared on the occasion of the nationalisation and three-year plan, announcing the reconstruction, adopted by the Dinnyés government (from August 1947). Although the central planning directive-based economic governance was introduced in Hungary in a divergent and gradual manner, it can be established that it manifested itself through the socialist industrialisation and forced cooperative ownership. The cold war military conflict of the Great Powers, as an international factor, played an important role in this. The primary economy policy objectives of MKP included the liquidation of private enterprises, the introduction of cooperative ownership of agriculture and the implementation of the plan-directed economy. The large-scale nationalisation processes, affecting the industry, trade and services, peaked by December 1949. This impacted all

companies employing more than 10, or in certain cases more than 5, workers, as well as the foreign-owned companies. With this, the operation of the private sector became marginal in industry and trade. The stock exchange was also closed down. In the spirit of the communist ideology, the new leadership gradually liquidated the very last elements of the market economy.

Economic context of the introduction of forint

Due to the destruction from the war, the decline and change in the population, the Soviet military occupation and the reparations obligations, Hungary's economy was in an extremely severe situation. After almost of a half-decade of war economy, accompanied by huge losses of life and financial resources suffered in 1944-1945, the efficiency of the Hungarian economy in 1945-1946 once again fell to the low level seen after World War I. The direct war loss of life of Hungary was almost 860,000. Due to the huge labour shortage and the drastic fall in livestock, the average yields in 1945 reached about two-thirds of the averages of the 1930s, while the crop volumes were roughly one-third or half of it. Due to the shortage of base materials, energy and labour, industrial production hardly reached 30 per cent of the pre-war level in May 1945. The harsh conditions did not change materially in 1946 either; quite the opposite – in the case of the yield of several basic crops, such as maize, potato and fodder beet, the situation further deteriorated. When examining the material-type war losses it can be established that the war loss of the Hungarian economy amounted to roughly 22 billion pengős[1].

The machinery, textile, food and chemical industries were hit the hardest. For example, the war losses of the manufacturing industry alone exceeded 2.1 billion pengős. The problems were further exacerbated by the huge devastation suffered by Hungary's transport infrastructure. Transport became almost fully paralysed. After the world war almost 40 per cent of the rail network was fully destroyed, the carriage and engine pool suffered huge damages, and the total loss of transport exceeded 3.7 billion pengős. The government tried to mitigate the general shortage of goods and food by maintaining the subsistence economy (Jurcsek system) introduced during the war, and by even tightening the conditions. The essence of the Jurcsek system was that in addition to the compulsory delivery of part of the various crops – for which the small-scale producers received only insignificant compensation

[1] Hereinafter pengő is to be understood at its 1938, i.e. the last year of peace, value.

– other means were also used to get access to the farmers' reserves that were scarce anyway. For example, one-quarter of the crop yield when milling the bread-grain, and roughly one-tenth of the crop upon grinding the barley and maize had to be surrendered to the state as tax, while agricultural producers were required to pay tithe in the form of fat of slaughtered pigs.

The damages that hit the agricultural sector also reached roughly 3.7 billion pengős while the granaries and livestock of the large estates were emptied and stolen first by the Germans, and then by the Soviet army. The already serious public supply disorders were further exacerbated by the reparation obligations prescribed by the temporary armistice agreement[2] signed on 20 January 1945, which was later ratified by the Peace Treaty of 1947. Pursuant to the armistice agreement, Hungary was required to pay compensation as a partial reimbursement of the damages caused: the aggregate value of the logistic and catering supply for the Soviet troops and ACC (Allied Control Commission), the German assets in Hungary acquired by the Soviets, and the reparations paid to the Soviet Union, Czechoslovakia and Yugoslavia was well above USD 500 million. In fact, Hungary bore major economic and financial burdens, discharged and paid reparations to Moscow as early as from 1945. Moreover, the agreement also required the Hungarian party to supply the Soviet occupying army (armed forces initially comprising of 1.5 million persons, but even in summer 1946 half-million persons) with cash, food and other goods and assets. At the same time, the supply of the army with fuel – and when necessary – free of charge transportation also burdened the Hungarian people. Meanwhile, the Hungarian party was granted a delivery deadline allowance and thus the Soviet Union, in lieu of surrendering the Petrosani Coal Mining Ltd., reduced the payable amount by USD 12 million. Finally, the debt of USD 30 million due to the Germans, also had to be paid to Moscow, while the Germans' claim against Hungary in the amount of almost USD 289 million was also collected by the Soviets. The companies still in German ownership, that were located in Hungary – including the various industrial properties – were also acquired by the Soviet Union. Based on certain estimates, these burdens represented roughly 10 per cent of the post-war national income, and – until 1948 – about 30-40 per cent of the total public expenditure. On the whole, the payment of the compensations used a substantial part – e.g. in 1945 about 80 per cent – of the contracted industrial capacity, while the compensation of the reparation

[2] Source: Act V of 1945. The Provisional National Government promulgated the armistice agreement signed on 20 January 1945 in Moscow on 9 February 1945, and thereafter the National Assembly codified it in Act V on 16 September 1946.

requirements also absorbed a significant part of the scarce food supply. In April 1946, Stalin approved the Hungarian party's forbearance request during the negotiation of the Hungarian government's delegation held in Moscow, thus Hungary had to fulfil the prescribed reparation deliveries within eight years instead of six years. Later on Hungary was granted further easing, thus e.g. in summer 1946 the Soviets waived Hungary's accumulated default interest of about USD 6 million, and later on also part of the debt. Finally, of the prescribed 200 million, "officially", Hungary had to pay only 131 million to Moscow, but in practice a much higher value was paid.

Table 1

Amount of reparations imposed on the countries defeated in World War II, USD million

Country	Reparations (USD million)
Italy	360
to the Soviet Union	100
to Yugoslavia	125
to Greece	105
to Ethiopia	25
to Albania	5
Romania	300
to the Soviet Union	300
Finland	300
to the Soviet Union	300
Hungary	300
to the Soviet Union	200
to Yugoslavia	70
to Czechoslovakia	30
Bulgaria	70
to Greece	45
to Yugoslavia	2

Note: The fulfilment of the reparations obligations in respect of Germany was much more complicated, as a substantial part thereof was performed by means other than cash. According to the western estimates the total value of the reparations paid to the Soviet Union exceeded USD 15 billion.
Source: Péter Gábor: Reparation and change of foreign trade orientation in Hungary 1945-1949/51 (PhD thesis, Pécs, 2013, pp. 57-308).

Meanwhile, due to the unfortunate imbalance of the goods supply and demand and the shrinking tax revenues, the banknote issuance covering public expenditures led to a large-scale devaluation. On the other hand, the Soviet army also attempted to offset its various expenditures partly by self-issued Hungarian currency. This hidden form of looting further diluted the cash in circulation. Almost 5 billion war pengős was put into circulation in such a way until their withdrawal on 28 February 1946. Street fights in Budapest took place between Christmas 1944 and mid-February 1945. When in February people ventured out of the shelters they suddenly faced a huge price increase: prices were immediately determined by pure demand and supply conditions. Although in theory the rationing for the most important foodstuffs remained in place, in practice supply did not work during the fights. We can learn from the war diary of Klára Szebeny, published in 2015, that people were shocked by the prices. While a few months earlier, in November 1944, one kilo of sugar cost (at controlled price) 2 pengős and 8 fillérs, at the end of March it cost 450 pengős. The price for a kilo of flour was around 65-80 pengős, while the retail price in September was merely 1.34 pengős. The price of cooking butter increased from 9.50 to 550 pengős, that of bread from 60 fillérs to 60-80 pengős, and that of egg from 30 fillérs to 5-8 pengős. The almost 100-200-fold increase in food prices consumed cash savings in a matter of seconds. As it is graphically described by the author of the diary, her upper-middle class family, which saved before the war a small fortune of 8,000 pengős, lost all their savings in a few months. They cherished the false hope that after the war they would have the means to start a new life, but this hope swiftly vanished: the cash had to be spent in a matter of weeks to avoid starving to death and to support the children. Although in May 1945 prices temporarily decreased (roughly halved), when an increasing number of people could deliver food from the countryside to the capital, this price decrease did not last long. An unstoppable rise in prices commenced in July, which raged in the whole economy for 13 months and finally resulted in a negative inflation world record.

It followed from the disrupted economy and the contraction of production that the privations that hit the population were far from stopping with the end of the military actions. In 1945-1946 masses of people lived under extremely adverse conditions. Meanwhile the general government deficit increased at an accelerating rate, while banknotes were issued in an increasing volume. The government tried to mitigate the devaluation by various measures: in December 1945 it introduced a levy on assets at 75 per cent; meanwhile it withdrew 383

billion pengős from circulation; the tax pengő (adópengő) was introduced from January 1946, which accelerated the inflation processes even more. However, the artificially generated dilution of the currency finally became uncontrollable, and the full restructuring of the general government, the currency stabilisation and the introduction of a new currency became unavoidable. The Soviet Union supported the government's stabilisation policy by various loans, while the USA did so by returning the MNB's seized gold reserves taken to the West (6 August 1946). The most important measures covered primarily the following areas: new currency and credit policy, regulation of the agricultural production, industry, commerce, trade in goods, transportation, consumption, income, regulation of prices and wages, tax policy and settlement of the general government's deficit. In relation to the average daily inflation of pengő several studies use the contemporary works of István Varga[3], economist, economic policymaker and teacher. Varga's proposal with regard to the resolution of the price and currency problems related to the stabilisation, can be regarded as an authentic summary, as the authors dealing with the 1946 inflation and stabilisation still rely on the notes of Varga as a reference.

It should be noted, as background information related to István Varga, that in the years after World War II the academic economics started to operate under completely new conditions, on new (political) ideological basis, setting new targets. The political elite in power gradually ousted the various middle-class trends from scientific life. Thus, the non-Marxist theories gradually disappeared from the official platforms. The organisational frameworks of the middle-class oriented conventional institutions were also disintegrated. The socialist ideological trend left its mark on the economic argumentations as well, and most of the intellectual topics could be approached only from this aspect. István Varga also belonged to the group of those leading generation of scientists, which were pushed into the background after World War II. Below we go through the circumstances that surrounded the introduction of the forint and the economic stabilisation based on his thoughts.

[3] István Varga was one of the outstanding economists of the last century. The personality of Varga combined the philosopher, the scientist-economist, outstanding teacher and excellent economic policymaker. During his career he worked and taught at several domestic central institutions, offices, committees and universities. He left behind an outstanding oeuvre, comprising of more than 870 writings. The recognition of his work abroad is also evidenced by the large number of his publications in foreign languages, that is the fact that several foreign scientific associations invited him as a member, such as e.g. the International Association for Research into Income and Wealth (from 1946), the Econometric Society, and the ESOMAR (from 1961).

After World War II, Hungary's general economic and financial situation appeared to be problematic in all respects. The severity of the decline in economic development is clearly highlighted by the various estimates, according to which in 1945-46 national income amounted only to 45 per cent of that in 1938-39. Lending during the war fully stalled, and only a small portion of the tax revenues was paid to the treasury. Due to this, the public sector was in an extremely critical financial situation and according to the contemporary statistics the entrepreneurs, and generally the entire private sector, had to face even more several financial problems. "On 31 December 1945, on the 'asset' side of the largest banks' balance sheets the loans extended to the state and to the private sector accounted for 88.5 per cent and 5.9 per cent, respectively. Only 4.7 per cent of the latter one was financed from the deposits placed with them, while the rest of them was financed from the National Bank's funds (banknote issue)."[4] In addition, the country's external liabilities, i.e. the amount of the outstanding debts payable in foreign currency and in pengő, also accumulated at a fast pace. In fact, the failure of the "controlled economy", developed during the world war, also fully consumed the real value of the official currency, i.e. of the pengő. Inflation continuously rose, "at the end of June 1945 the note circulation amounted to only 14,500 million pengős, while on the last day of the year... about fifty-fold thereof, i.e. 765,400 million pengős." – wrote István Varga.[5]

Table 2
The largest hyperinflations in world history

Country	Currency name	Month with highest inflation rate	Highest monthly inflation rate	Equivalent daily inflation rate	Time required for prices to double
Hungary	Hungarian pengő	July 1946	4.19 × 1016 %	207.19%	15 hours
Zimbabwe	Zimbabwe dollar	November 2008	7.96 × 1010 %	98.01%	24.7 hours
Yugoslavia	Yugoslav dinar	January 1994	3.13 × 108 %	64.63%	1.4 days
Germany (Weimar Republic)	German Papiermark	October 1923	29,50%	20.87%	3.7 days
Greece	Greek drachma	October 1944	13,80%	17.84%	4.3 days

Source: "World Hyperinflations | Steve H. Hanke and Nicholas Krus | Cato Institute: Working Paper". Cato.org. 15 August 2012.

[4] Ausch, 1958, p. 84 and for the explanation of the background see also pp. 85-86.
[5] Varga, 1964, p. 103.

Hungary experienced the most severe devaluation ever registered in its economic history; however, the competent curbing of the inflation as soon as possible was an essential precondition for the start of a normally operating economic growth. In this sense, the introduction of the credit pengő (hitelpengő) in autumn 1945 can be regarded as a relatively early attempt, which István Varga did not deem to be a feasible way. He summarised his opinion in a memorandum on 27 October 1945[6], and submitted it to several decision-makers. In addition to describing the disadvantages of the general indexation, he also expressed his concerns related to the draft decree. However, later on the proposal related to the introduction of the credit pengő was taken off the agenda for good. The next attempt was made on 19 December 1945; then a more peculiar method was used for the withdrawal of the pengő in circulation: this was the stamping. "So therefore, if somebody had four banknotes, each with a nominal value of 1,000 pengős, he had to buy 3 pieces of stamps and glue them on the fourth banknote. Thus, he was left with 1,000 pengős from 4,000 pengős".[7] However, this method brought only a momentary relief, as it was far from being suitable for stopping the inflation process, as no adjustment whatsoever was performed on the income side, i.e. those remained unchanged. Meanwhile, substantially higher wages emerged than the volume of goods available in the market. The price rises introduced to compensate this disproportion were followed all the time by a series of wage raises. However, the wage-price spiral further exacerbated inflation.

The introduction of the tax pengő was a new experiment on 1 January 1946. All this applied solely to the discharge of public taxes, public utility fees and the consideration for other services levied in tax pengő and it was valid within strict maturity deadlines. Initially, the tax pengő did not get into money market circulation, as that was settled by ordinary pengő (simapengő). The value of the tax pengő was related to the retail price index. Varga, in his memorandum entitled *Notes to the developments in the exchange rate of the tax pengő* also recorded the composition of the price index: "Agricultural (food) part with weight of 50 per cent, industrial goods part calculated at controlled prices with 20 per cent weight, and industrial goods calculated at

[6] Source: National Archives of Hungary: Z/51. 32. cs. item 430, p. 67-70 (Opinion of István Varga on the plan to introduce the credit pengő and on the disadvantages of general indexation).
[7] Varga, 1964, p. 103.

market prices with 30 per cent weight".[8] Varga submitted this memorandum to the competent minister's secretariat on 5 March 1946, with the intention to call the attention to the fact that no ultimate success can be achieved in the manipulation of the inflation process even through the restructuring of the tax pengő index. Varga discussed the reasons for this in his memorandum within three topics:

– How does the tax pengő index number relate to the rise in other index numbers?

– What is the probable reason for the rise?

– Is it possible to influence the role of the tax pengő in inflation by changing the method of calculating the underlying index number?

Varga provided the following explanations for the questions asked:

– In the period under review the index number of the tax pengő was the lowest compared to the index numbers of the other indicators.

– Examining the additional reasons for the rise in the exchange rate of the tax pengő, Varga also pointed out that since the introduction of the tax pengő, no major restructuring had taken place on the goods side while there had been a number of changes on the monetary side.

– Finally, the expert did not regard the changing of the formula related to the composition of the tax pengő index number as a possible option for the inflation either, since this direction may shatter the trust in tax pengő completely as a consequence.

Following Varga's train of thoughts, specific improvement would have occurred only, "if the volume of food distributed in the rationing system is increased", as "in the case of all such increases the free market prices would

[8] Source: Archives of the Institute of Political History custodial unit 283/f/32/57, pp. 4-17 (István Varga: Memorandum with regard to the development in the exchange rate of the tax pengő. Budapest, 28 February 1946 (p. 8).

be replaced by the substantially lower controlled prices".[9] The tax pengő also fully devaluated within a matter of months, i.e. from mid-April 1946 until the end of July. The process of devaluation continued to accelerate further and the average citizen was no longer able to follow the rapid increase in inflation. Customers could recognise the banknotes only by their colour, as it was impossible to follow the par value of the banknotes expressed in several millions. Due to the hyperinflation, by summer 1946 the pengő lost all of its former functions as currency and finally, in fact, it was fully taken out of circulation. Instead, people calculated in gold, foreign currency or ordinary commodities. At the turn of 1945-1946, for example 1 quintal of first class coal could be exchanged for 30 kg potato, 1.5 kg pork or poultry or 1 litre of cooking oil.

Similarly, to the period after World War I, all this once again led to substantial black market trading and profiteering. The degree of the devaluation in 1946 exceeded not only the Hungarian or German inflation seen after World War I, but also all other inflations experienced before. The Hungarian hyperinflation broke the world record on 10 July 1946, as on that date a devaluation of 348.46 per cent was registered, as the prices almost doubled within 11 hours. It was only the level of devaluation in Zimbabwe in 2008 that has moved close to this sad record ever since; and thus, the 1945-46 hyperinflation in Hungary became the textbook case of economic collapse. The data presented below provide a good illustration of the galloping hyperinflation.

[9] Varga, 1946 (February) p. 17 (Source: Archives of the Institute of Political History, custodial unit 283/f/32/57, pp. 4-17).

Table 3
Price increase in Budapest between December 1944 and June 1945

Index of household expenditures calculated at free market and private sakes prices in pengő

			December 1944		30.04.1945		31.05.1945		15.06.1945	
Product	Unit/ quantity	Weekly base necessities	Prices (pengő)	Price of weekly base necessities (pengő)	Prices (pengő)	Price of weekly base necessities (pengő)	Prices (pengő)	Price of weekly base necessities (pengő)	Prices (pengő)	Price of weekly base necessities (pengő)
Bread	kg	15 kg	3	45	36	540	60	900	42-46	660
Cooking flour	kg	2 kg	7	14	40	80	52-60	112	52	104
Beans	kg	1.5 kg	2-4	4.3	28	42	18,2	35	16	24
Peas	kg	1.5 kg	2-4	4.3	16	24	20	30	10	15
Sugar	kg	0.4 kg	80-120	40	400	160	600-700	260	640	256
Pork fat	kg	0.4 kg	65	26	380-400	156	560-600	232	620	248
Oil	l	0.5 liter	12.5	6.25	120	60	280	140	300	150
Bacon	kg	0.25 kg	40-50	11.25	380-400	98	580-600	148	540-620	145
Butter	kg	0.15 kg	60	9	540	81	520-646	87	550-580	85
Eggs	1 pcs.	10 units	2.5	25	8	80	12-13	125	10	100
Chicken	kg	1 kg	45-50	47.5	200	200	300	300	225	225
Potato	kg	10 kg	1.4-2	17	20	200	11-16	135	12-14	130
Lettuce	head	5 units	0.8	4	15	75	14-20	85	8	40
Onion	kg	1 kg	4	4	12	12	10	10	3-6	5
Salt	kg	1.25 kg	0.5	0.12	20	5	20	5	36-40	10
Paprika	kg	0.03 kg	42,7	1.28	400.03	12	400	12	400	12
Price of one-week necessities				259		1 825		2 616		2 209
Price of one-week necessities compared to prices before the siege				1		7.05		10.1		8.5

Source: National Archives of Hungary – MNB Z12.

INTRODUCTION OF THE FORINT AND THE STABILISATION PROGRAMME

On the occasion of the stabilisation implemented on 1 August 1946 within the framework of the annual stabilisation programme, 400,000 quadrillion ordinary pengős equalled 200 million tax pengős, which then became equivalent to 1 new forint. "Until now such numbers were only used in astronomy." – this was how István Varga commented the drastic development of the pengő, in his article entitled *The Hungarian currency miracle* in October 1946.[10] Such a large degree of devaluation was indeed unprecedented in history, as upon the stabilisation of the Greek inflation after World War II, 50,000 million drachma became equivalent to 1 drachma issued in 1938. The large-scale German inflation after World War I was far behind the degree registered in Hungary, as one trillion (i.e. one million times one million) mark was equivalent to 1 pre-inflation mark, i.e. the mark in circulation in 1914. However, the devaluation of the pengő exceeded both examples, particularly if we consider that until 1939 it had lost almost 35 per cent of its 1927 value. Thus, in July 1946 the real value of 1 original gold pengő was equivalent to 1 quintillion (10^{30}) ordinary pengős.[11]

Altough the stabilisation was accompanied by the full replacement of the currency, or more precisely, the new introduction and its name alone gave rise to fierce disputes. The korona, which preceded the pengő and which also devalued, was out of the question. Meanwhile, the "tallér" (thaler) name also arose based on the proposal of Endre Horváth, and even a banknote specimen with the lettering "tallér" was prepared but the idea was dismissed due to the resemblance the name bore to the dollar. The name "máriás" (after the colloquial name of old Hungarian coins depicting Mary, Patrona Hungariae, i.e. patroness of Hungary) was also considered, but due to the rich religious image it carried this proposal did not appeal to the decision-makers. In the end the final choice was the name of the former Hungarian gold currency, i.e. forint, which was first introduced in Hungary by Charles I in the 1320s, modelled after the Italian "fiorino d'oro". However, the name of the coins remained fillér, just like in the case of pengő and the earlier korona. The forint and pengő rate of exchange was determined in a way that it made the exchange of the pengő absolutely useless: thus, the costly process of the replacement of the currency did not happen this time. For example, on

[10] Varga, October 1946, p. 1.
[11] Varga, 1964, pp. 115-117.

1 September, i.e. exactly one month after the introduction of the new currency the volume of cash in circulation amounted to 355.6 million forints. Based on the measure aimed at strengthening the trust of the population, the 5 forint silver coin with the portrait of Kossuth was also introduced, albeit in a very limited number of copies. Denomination of the series of coins: 5, 2, 1 forint, 20,10 and 2 fillérs. However, the series of banknotes comprised of only two denominations, i.e. the green 10 forint and the blue 100 forint banknote. The new banknotes had to be produced quickly despite the fact that the proper base material was not always available. This explains why the first banknotes wore out very fast and the members of the first series were replaced by new types within a relatively short time, and gradually new denominations were also introduced.

With a view to balancing the purchasing power and the existing commodity stocks, the predetermined volume of currency was released to circulation gradually. Initially, in the absence of special paper, only 10 and 100 forint offset printed banknotes were issued, which wore out fast and had to be replaced. The 10, 20 and 50 fillér and the one forint coins were made of aluminium, which is produced from bauxite, i.e. the only ore that Hungary had ample stocks. The introduction of the new currency finally helped stabilise the economy. In order to acquire part of the foreign currency and precious metal stocks held by the households, in fact in the first months after the stabilisation the government consciously generated cash shortage. Thus the per capita banknote turnover hardly exceeded 100 forint until the end of the year. However, the basic idea was successful anyway, as finally the value of the forint became stable.

In fact, already at the start of the inflation process it was absolutely clear that in order to curb the fast rate of inflation, it was essential to develop an efficient, harmonised action plan at government level. The establishment of the Ministry of Reconstruction around mid-1945 can be regarded as an early step made by the government to this direction, which should have functioned as an economic “super” ministry. In the period after the world war, with a view to implementing the central planning system, the fundaments of the institutional structures and practical methods of the planning had to be laid down. Thus the Supreme Council of Economy and the National Planning Board were set up as early as 1947, while the central planning of corporate business management was controlled by the Financial Committee.

The availability of proper volume of stock was one of the elementary consequences of the successful preparation of the planned stabilisation programme. In order to guarantee this, from the beginning of May 1946 considerable stockpiling measures were put in force. The fast stockpiling of consumer goods by the state was also facilitated by the fact that meanwhile the rationing was extended to consumer goods as well, since it was known from previous experiences that the abundant selection of goods may facilitate trust in the new currency. Since the deadline and scheduling of the reparations to the Soviet Union, well exceeding Hungary's load-bearing capacity, could be extended, a certain part of the merchandise produced by the manufacturing industry was released and thus it could be put in the domestic market. The next essential condition of the stabilisation was the restoration of the general government balance, which was immensely helped by the fact that the Magyar Nemzeti Bank's seized gold stock was returned from the West to Hungary.[12] The Hungarian political decision-makers of that time deemed the financing of the stabilisation feasible only from own funds and they believed that any form of external borrowing in fact would increase inflation, primarily due to the high burdens of interest payment. The majority of the independent experts were of a completely opposite opinion and pressed for foreign borrowing, citing former international examples. For example, Sándor Ausch cites the opinion of József Büky, representative of the Smallholders Party, according to which "at present we are unable to restore the balance of our goods market, which is one of the most important conditions of stabilising our currency, from own funds." Further on, he also cites the position of Lipót Baranyai on the need of foreign borrowing: "... efforts should be made to achieve that country's balance of payments once again contains capital imports to a similar degree as in the periods of 1904-1913 and 1924-1930."[13] Those arguing for borrowing often mentioned as a precedent that the successful German and Greek stabilisations were achieved with the assistance of foreign loans, albeit the rate of inflation in the countries quoted as an example has not even approximated the Hungarian inflation rate. Nevertheless, they believed that a stabilisation implemented purely relying on own funds would clearly generate inflation once again. Today it is clear that the disputes around foreign borrowing were essentially attributable to political reasons. In Hungary the new forint was introduced without foreign borrowing, which proved to be a successful solution for overcoming hyperinflation, which is unique in the world. Moreover, other components of the Hungarian stabilisation strategy

[12] We talk about an ore stock worth roughly USD 40 million.

[13] Ausch, 1958, p. 146, and for additional background information see also pp. 147-150.

are also unique. In fact, the experts had already departed from the classic economic principles during the elaboration of the new price and wage system. The draft, as described by Varga: "it does not connect with the real income distribution situation that evolved during the inflation, but rather establishes entirely new price and income distribution relations and thus it represents the most daring planned economy experiment in the world to date".[14] The essence of this is that attempts were made to control each tiny detail centrally, thereby not leaving any substantial loophole and room for manoeuvre for the free operation of the market processes. The novelty of the Hungarian stabilisation programme soon raised international interest as well. According to this, in his essay written in October 1946 on the inflation and stabilisation process in Hungary, Nicholas Kaldor emphasised the unusual method used for addressing this crisis situation.[15] The outstanding expert, who is Hungarian by birth, shared Varga's opinion that the manner of pegging the price and wage systems elaborated in the new currency before the introduction of the new currency can be regarded as a completely new method. Later several international studies appeared, where the authors emphasised the uniqueness and success of the Hungarian stabilisation programme.[16] As a summary it can be established that the preparation of stabilisation, which closed the largest inflation ever in world history, essentially took place in three main areas: – providing sufficient volume of stock; – efficient and central development of the general government's restructuring programme; – creating the new price and wage system.

István Varga developed a method, within a clear theoretical framework, for the revision of domestic prices and wages, which provided realistic foundation to overcome the truly serious 1945-46 hyperinflation crisis in Hungary effectively. The expert created a theoretical sample that had been fully unknown before in the area of stabilisation doctrines and he did not use any contemporary principles in his plan, i.e. he built his stabilisation work plan on new foundations in all respects. If we compare Varga's proposal with regard to the solution of price and currency problems related to stabilisation with the MKP's restructuring programme based on the thesis of Krisztina Majoros[17],

[14] Varga, October 1946, p. 5.
[15] Kaldor, 1946.
[16] Examples of these include the studies of W. A. Bomberger–G. E. Makinen published in June 1980, or of T. J. Sargent published in 1982.
[17] Krisztina Majoros studied at the Faculty of Economics at the University of Miskolc as a state scholarship holder, and earned a degree in economics in 1995, In 2001 she earned her PhD and was appointed as assistant professor in the University of Miskolc.

it can be established that the sequence of developing the Hungarian prices, price level and the forint exchange rate is identical in the draft submitted by Varga as a memo and in the MKP's programme. In Varga's draft the setting of wheat price is point one and that of the agricultural price level is point two. In the MKP's document these are also the first points. The only difference in the two documents is the price of wheat, regarded as the base product of the price system. Varga sets this to HUF 30/quintal[18], while the Party specifies it in the amount of HUF 400/ton, i.e. HUF 40/quintal.[19]

Table 4
Index numbers of wheat and other agricultural products
(the index numbers are based on the 1938/39 pengő prices)

Product	Multiplier	Product	Multiplier
Wheat	2.1	linseed	2.35
Rye	2.43	sunflower seeds	3.3
Feed Barley	2.24	rapeseed	3.08
Oat	2.04	onion	2.14
Millet	2.99	garlic	2.76
Maize	2.16	milk, raw	4
Potato	3.62	goose	4.59
Sugar beet (regulated prices)	10.6	duck	4.48
Sugar beet (free market prices)	15.9	chicken	3.13
Beans, white, standard	2.58	egg	3.86
Peas, yellow or green	3.17	ox II. class	6
Lentil, medium-grained	2.22	pork fat, 150 kg	4.29

Source: phd.lib.uni-miskolc.hu/JaDoX_Portlets/displayContent?docId=5669&secId=934

Varga believed that as a third step, i.e. after setting the wheat prices and agricultural price level, the elaboration of the agricultural wages may follow. Here he supported the strategy of modest price hike, and for this he took the pre-war wages as a benchmark, as he believed that the overly high agricultural real wages would have jeopardised the stabilisation programme. However, in the MKP's proposed plan the setting of the wheat and agricultural price level is followed by the determination of railway carriage charge, which is follows later in Varga's programme, namely before the development of the industrial goods prices. Varga believed and that without determining the railway and other

[18] Varga, October 1946, p. 5.
[19] Varga, June 1946, p. 63.

transport tariffs the "industrial goods prices" cannot be set more precisely. The setting of the rents is one of the first items both in Varga's and the MKP's draft plan, i.e. right after the development of the agricultural price level and right before the setting of the prices of industrial goods. The determination of industrial wages was the next item in both programmes. Varga here relied on the following idea: "the plan to pay 50 per cent of the pre-war wages for 70-75 per cent of the pre-war performance appears to be feasible".[20]

The same principal was expressed in the plan of the communist party, as: "they decided that the worker who reaches 75 per cent of the pre-war performance, may lay claim to 50 per cent of the pre-war real wages and this is what may be regarded as... normal performance".[21] However, Varga clarified his idea, mentioning that care should be taken when awarding a bonus to workers exceeding the 70-75 per cent average performance, as the major part of the extra performance appears in the industries related to the reparation and reconstruction, while the employees who receive a bonus would like to spend a large part of their remuneration on consumer goods, the selection of which is very limited. Varga also adds in respect of the reparation and reconstruction industries that at that time "more than half of the 180,000 industrial workers are employed in the reparation and investment industries (thus only in the iron, metal and machinery industries 85,000 workers), thus they will not enlarge the goods coverage available for the wages.".[22] The MKP in its own plan clearly specified the percentage of the basic performance that can be paid as bonus. "This bonus equals 2.5 per cent of the basic price wage for each extra per cent of the normal performance. The basic price wage is earned by the worker who fails to reach 50 per cent of the normal performance."[23] After setting the industrial wages in point five, the development of the railway and other transport tariffs slips to the sixth place in Varga's programme. He believed that the consideration for the industrial goods had to be determined after those. This phase in the communists' work plan is the fifth item, right after the elaboration of the industrial wage level. Varga believed that the setting of the industrial goods prices required more time than the previous six steps together. In the preparation phase a number of theoretical issues had to be agreed on as well, for example, to what extent the dual price system, i.e. controlled and uncontrolled prices, can be maintained realistically. "I am

[20] Varga, June 1946, p. 63.
[21] Varga, October 1946, p. 6.
[22] Varga, June 1946, p. 64.
[23] Varga, October 1946, p. 6.

an advocate for establishing full control due the reasons outlined in many other memoranda"[24] – thus Varga argued for the controlled prices to be applied as widely as possible. When setting the industrial prices, the MKP's plan was also dominated by the above tendency: "The industrial prices are in part the fixed prices set by the Price Control Office, and in part they develop based on calculation formula. Only the price of luxury article develops."[25] The next important momentum in the setting of the prices of industrial goods is the integration of the security reserves in the price calculation. Varga recommended a 10 per cent surplus price for a half-year transitional period, so that it can serve as coverage for the price adjustment necessary for certain products. In the absence of a security reserve the price of the respective articles should be increased, which would substantially jeopardise the success of the stabilisation: "adjustment in such case is essential, but it would be risky to raise the prices shortly after the stabilisation, as it would also shake the consumers' trust in the stabilisation. The price increase also has spill-over effects, the disabling of which appears to be particularly important".[26] The idea of a security reserve also appeared in the MKP's draft: "when setting the industrial prices, certain reserve was considered and this difference necessitated the raising of the prices".[27] In the end, the reserve integrated during the adjustment of the industrial price level proved to be an immense help. In the proposed plan of the communist party, the next phase is related to the setting of the foreign exchange rate, which resulted in the dollar exchange rate calculated in forint. Varga also believed that the pegging of the domestic price level to the dollar could be more appropriate than tying it to the price level of the European countries. After the world war the price rise in the European states was much higher than in the USA, and the gap thus created had to narrow sooner or later. "If this happens as a result of a rise in the US price level, the price rises could generate a boom in Hungary as well, while if the price level of the European countries falls, in Hungary we could avoid a crisis occurring in relation to the price falls"[28] – was his opinion on the topic. Varga did not regard the setting of the price leg, i.e. the relation of the gold and forint value, as an urgent task. The MKP determined primarily the gold/forint ratio in its draft: 1 kg fine gold = HUF 13,210, and they adjusted the dollar/forint exchange rate to this, i.e. 1 dollar = 11.74 forint.[29] Varga believed

[24] Varga, June 1946, p. 64.
[25] Varga, October 1946, p. 7.
[26] Varga, June 1946, p. 64.
[27] Varga, October 1946, p. 7.
[28] Varga, June 1946, p. 64.
[29] Varga, October 1946, p. 9.

that the setting of the value of the new currency in relation to other currencies in this direction generated major difficulties for the price developments. In the last, i.e. ninth point, of his work plan, Varga briefly summerises the tasks to be solved and also allocates to each item the number of days necessary for their implementation. The necessary preparatory works were completed by 31 July, and next day, i.e. on 1 August 1946 the new forint was introduced.[30] On 27 July 1946 the forint conversion rate was also announced, which basically had put an end to the hyperinflation that had lasted for one year. Then 1 forint equalled 200 million tax pengős or 10^{29} ordinary pengős.

In her discussion paper and PhD thesis entitled *Outstanding Hungarian economist from the last century: István Varga (1897-1962);* Krisztina Majoros summarises the documents compared by her above as follows: "When comparing the two programmes, it is strikingly apparent that the MKP's stabilisation programme related to the revision of prices and wages, found – in terms of its key principles and steps – a number of similar solutions as István Varga. Despite the lengthy research of the archives, I was unable to identify clearly to whom the stabilisation program's price and wage system-related part, running under the control of MKP, can be linked."[31]

EARLY EXPERIENCES RELATED TO THE INTRODUCTION OF THE FORINT[32]

The new price system broke away from the world market prices,[33] while the agricultural prices were set to a lower, and the industrial prices to a higher level. The new Hungarian currency system created in 1946 could not be classified as the then wide-spread recurrent currency accessions as meant by Knapp, since earlier, based on the theory of the international expert, the ratio of the recurrent accession had to be determined in any case to ensure that the transition from the old currency system to the new one is feasible

[30] The main source of the chapter above is the discussion paper by Krisztina Majoros, entitled: *Outstanding Hungarian economist from the last century: István Varga (1897-1962);* source: http://econ.core.hu/doc/dp/dp/mtdp0309.pdf.

[31] http://econ.core.hu/doc/dp/dp/mtdp0309.pdf (p. 38).

[32] See the sources used in the chapter, also for the purpose of comparison: Botos, 2006, 81-203; *Statistical Yearbook of Budapest 1944-1946*, Vol. XXXIII, Statistical Office of Budapest, 1948, pp. 140-180; National Archives of Hungary, Z12 MNB boxes; *Statistical Pocketbook of Hungary* 1946, Vol. XIII, HCSO Budapest, 1946; *Statistical Pocketbook of Hungary* 1947, Vol. XIV, HCSO Budapest, 1947; and Leányfalusi Nagy, 2006, pp.. 9-47, Szebeny, 2015, pp. 9-63.

[33] For example, Varga defines the notion of recurrent accession as follows: the introduction of a new currency unit in such a way that the state sets the relation of the new and old currency unit to each other. The notion of recurrent accession originates from Knapp. See: Varga, 1964, pp. 207-209.

also by applying the appropriate index numbers.[34] This process is described by Varga as follows: "during the former currency reforms this transition was always carried out such that the bank money was converted by identical index numbers in the appropriate proportions and the same index number was used for all types of contractual legal relationships".[35] In fact the special nature of the Hungarian currency reform was represented by the fact that, all things considered, the importance of recurrent accession was removed from the list of priorities, since the conversion formula affected only the smaller value cash and monetary debts. On the other hand, the incomes and prices were determined independently of their former level; moreover, the interest items and taxes were also fully revamped. Essentially, these series of decisions can be attributed to the economic balance equilibrium concept, according to which the real national income in the 1946/47 financial year would be roughly 60 per cent of that of 1938/39. In addition, by now it is also clear that the producer and consumer price systems and price levels were determined primarily within theoretical frameworks. In this process the experts built on several hypotheses. Among others, for example, they could rely on only certain assumptions with regard to the growth rate of the national income, but in parallel with this they precisely determined all index numbers and parameters in advance, thus in fact there was no room for any spontaneous process that could have jeopardised the stabilisation programme. Thus the new Hungarian price system initially fully broke away from the world market trends as well. For example, Varga referred to the fact that the "trend of world market prices differs from that in Hungary" already in October 1946. "According to the first one, the price of agricultural products rose to a much greater degree than that of industrial products, most probably because during the war years the industry registered an enormous technical development, which the Hungarian industry could not keep up with."[36] However, in Hungary an opposite ambition could be felt, because as a result of retail-farm price spread, the agricultural prices fell short of the industrial price by roughly 50 per cent. Varga referred to the price structure, deemed risky by him, on several occasions, while he all the time hoped for the subsequent adjustment of the processes: "there are major differences between the domestic and the foreign price structure, and it is not clear yet how the necessary levelling process will take place. In spite of this we may

[34] Varga does refer to the theory of the internationally recognised expert. For more detailed information see: Georg Knapp: Die staatliche Theorie des Geldes. Zweite Auflage. 1918, München-Leipzig.

[35] Varga, October 1964, p. 136.

[36] Varga, October 1946, p. 9.

hope that the currency stabilisation and the restructuring of the general government will be successful and in the wake of this, after a not very long and deep restructuring crisis, the Hungarian economy starts a new, albeit – due to many reasons – modest, recovery."[37] Furthermore, as regards the industry, Varga warned about another shortcoming as well: "The Hungarian industry in its present structure, with no export activity, is oversized."[38] However, for a profitable export activity it would have been necessary to improve the technical quality of the industry through proper investments, but in the absence of credits this remained unfeasible.

After the stabilisation, traditional lending did not recover; instead an extremely rigid policy was implemented that restricted lending. The further banknote issue was used almost in full to cover the general government's fiscal deficit. At the same time the distribution of the negligible credit facility that could be extended to the private sector was supervised by strict, centralised methods, and the credit applications were always checked by the Supreme Council of Economy. "The lending policy is one of the most difficult questions." – believed István Varga as well.[39] The "banks could extend credits the individual amount of which exceeded HUF 20,000 only subject to the approval of a state committee. The chairman of the committee was the chairman of the National Material and Price Control Office...".[40] In fact, with this the official financing policy of the state, which massively controlled the various loan applications of the private entrepreneurs, wanted to achieve the mobilisation of the hidden reserves. The opinion of Sándor Ausch on this was that the state "facilitated the utilisation of the free capital, gold and currency stock and commodity reserves, available in the economy and suitable for speculation, in the production and turnover"[41], but Varga deemed the rigour of the credit restriction policy exaggerated. For example, in September 1946 he argued in one of his presentations as follows: "In order to make the Hungarian economy efficient once again, it would be necessary to rationalise work to a large degree and work with better machinery. In the absence of foreign loans this may only be achieved by a more accommodating lending policy"[42]. In parallel with this, in order to reduce the general government's

[37] Varga, October 1946. p. 13, For the details see also pp. 9-13.
[38] Varga, October 1946, p. 9.
[39] Varga, October 1946, p. 9.
[40] Varga, 1964, p. 132.
[41] Ausch, 1958, p. 165.
[42] Source: Excerpt from the presentation of István Varga made at the meeting of SZDP's (Socialist Democratic Party) economic policy department; PIL. 253/1–103.

fiscal deficit, the various taxes were also raised, among others the employers' burdens, primarily the social burdens.[43] While in 1938, according to the contemporary calculations of the Hungarian Economic Research Institute, the companies' social expenditures were less than 10 per cent of the wages paid, as they could prove only 9.7 per cent based on their calculations, the calculations completed by the Institute by 1946-47 already showed that these types of expenditures were close to 50 per cent of the wages paid.[44] However, these burdens deteriorated the corporate profits just when the reserves should have been used for even more investments.

Although during the implementation of the restructuring programme, several disadvantageous measures were also taken, the success of the process could not be disputed even despite these errors. This was further reinforced by the trust in the new currency, achieved successfully, which was regarded by Varga as a particularly important factor.[45] Later on it became clear that the key basic condition of creating trust in the new currency was that after the stabilisation the supply of goods in the markets had to be as abundant as possible compared to the reduced incomes. Before the stabilisation, in the final stage of the inflationary period, the authorities managed to achieve through lending strategies that the companies did not glut the market with their stocks; however, after the stabilisation it switched to a credit restriction policy, thereby stimulating them to release their products to the markets.

In relation to the inflationary and financial stabilisation events in 1946 it may be established that in fact István Varga gave a new meaning to the concepts of currency reform, currency stabilisation and restructuring. The precise definition of these notions is also important for ensuring that the key objectives of the respective process and the parts of the economy directly influenced by the implemented measures can be unambiguously identified. Varga defined the stabilisation that took place in 1946 as a restructuring, as he believed that the notion of restructuring can be used in several senses. Thus it can be applied in connection with the settlement of the monetary relations, monetary condition or the general government and the entire chaotic economic situation. "We can talk about restructuring only, if in the previous situation the imbalance was extremely large and the situation was

[43] Data on the Hungarian manufacturing industry...1947 p. 16.
[44] Data on the Hungarian manufacturing industry...1947 pp. 16-17.
[45] Citing István Varga: "The trust in the new currency played an extremely important role in the successful implementation of the restructuring." – Varga, 1964, p. 125.

rather chaotic" – wrote Varga.[46] This was exactly the case – in his opinion – in Hungary in 1946. The expert believed that the fact that the term "stabilisation" was used in relation to the process also contributed, among others, to the inaccurate economic survey of the 1946 events. "In the wake of the measures enacted on 27 July 1946...the order was restored both in the general government and in the economy, and the previous economic and monetary chaos came to end. Thus the restructuring materialised then."[47] – noted the expert. Varga believes that the notion of currency reform is the least clarified term, which usually "means the introduction of a new currency"[48], hence he does not regard the appearance of a currency that merely has a new name and form, as a currency reform. Accordingly, he is of the opinion that we can only talk about currency reform if there were significant changes in the circumstances related to money creation and circulation. Currency reforms may occur rather often, as in this sense all currency devaluations and "depreciation" count as currency reform, the content of which is defined by Varga as follows: "devaluation means the reduction of a monetary unit's gold value by legislative or government measures, while depreciation means the reduction of the same as result of spontaneous market forces".[49] Moreover, if we follow Varga's train of thoughts, the currency stabilisation may also be interpreted as a notion of multiple meanings. Accordingly, it may mean the fixing of the correlations between the currency unit and gold or currency unit with gold value; the fixing of the connection between the currency unit and some sort of currency with non-fixed gold value; or the financial measures aimed at the fixing of the domestic price level. For example, when the Hungarian korona was pegged to the pound sterling in 1924, the second currency stabilisation mentioned took place; this is how Varga illustrated the shades of difference between the interpretations. Although the currency reform, the currency stabilisation and the restructuring are in fact merging steps in the given cases, as the currency stabilisations may be also regarded as currency reforms at the same time, and the currency reforms were usually also accompanied by restructuring, it is essential – emphasised Varga – to have a clear idea about the differences. For example, in December 1945, when the method of stamping was used to curb inflation, it was also a currency reform, and as it stopped the process of price hike only momentarily, we cannot talk about currency stabilisation or

[46] Varga, 1964, p. 120.
[47] Varga, March 1958, p. 100.
[48] Varga, March 1958, p. 99.
[49] Varga, November 1936.

currency restructuring. By contract, on 27 July 1946 we saw a simultaneous currency reform, currency stabilisation and restructuring.[50] Varga attached great importance to the introduction of forint and economic measures taken in parallel with this, together with the restructuring process. "27 July 1946 is a milestone in the Hungarian history of money" – he wrote, and those who do not deem this significant event exceptional, he continued, "failed to recognise the significance and novelty, in the context of the economic theory and economic policy, of the creation of the forint."[51] Some of the illustrious Hungarian economists did not share Varga's opinion: for example, Béla Csikós Nagy believed that the 1946 measures could not be interpreted as currency stabilisation,[52] as the price levels continued to move for quite a while thereafter. However, based on Varga's position, the fact that after the stabilisation several price adjustments were performed, does not weaken the significance of the event. Varga explained the price hikes that occurred in 1946-47 with the combination of several factors: in the new price and wage system introduced in 1946, the average level or growth rate of the industrial goods, agricultural products and wages in fact were much higher than originally planned; at the same time the dollar exchange rate was set too low; meanwhile there were significant price increases in the world market; thus, naturally, wage increases, originally not planned, took place; during the preliminary calculations a severe theoretical error was also committed: in the preliminary calculations work productivity surplus arising during the year was expected only in the consumer goods industries, and it was fully left out from the calculations in the investment industries.[53]

However, on the whole it can be stated that the restructuring programme implemented in 1946 was extremely successful. In terms of the history of money Hungary experienced extraordinary events. Among those, it also passed through an exceptional hyperinflation process, for the stopping of which it used an array of unusual elements. Since, at theoretical level, Varga attached outstanding significance to the inflation and stabilisation process, he separated and defined the notions of currency reform, currency stabilisation and restructuring based on the features of the Hungarian events. His scientific credit here manifested itself in the fact that he realised the

[50] Varga, March 1958, p. 100.
[51] Varga, March 1958, p. 100.
[52] Source: Közgazdasági Szemle (Economic Review) Vol. 1957 See the summary of debate on PhD thesis of Sándor Ausch. http://adtplus.arcanum.hu/hu/collection/KozgazdasagiSzemle/.
[53] Varga, March 1958, p. 103.

significance of the inflation events that took place in the Hungarian monetary history also in terms of the theory of money. As he wrote, "it happens not for the first time that economic theory lags behind economic practice; we may even say that this is normal".[54] Varga was cautious not to categorise the said different financial events within a single conceptual class; quite the contrary, his goal was to differentiate them correctly. Due to this, on the one hand, he searched for independent definitions for the three notions of the theory of money, and on the other hand, he once again emphasised the method of restructuring applied to the Hungarian hyperinflation situation, which was novel by international standards as well. Varga was well aware of the importance of realistic time, thus he knew that the volume of money in circulation would reach its saturation point and it would be possible to judge the actual results of the stabilisation realistically only thereafter; however, the expert emphasised the time factor in relation to the success of specific measures: "we may talk about currency stabilisation or reorganisation only upon certain material success and a kind of lastingness thereof".[55]

Based on the aforementioned facts and thoughts it is clear that the new currency was preceded by great expectations, as the world's largest inflation to date occurred in summer 1946. The economic and political leaders of that time wanted to make a success of the new currency by any means. They also used the propaganda as a means, thus the newspapers, the radio and the posters reported on the advantages of the new, stable currency everywhere. In the end, the introduction of the forint indeed became a success. The government was not afraid of withholding and accumulating stocks in the country, which suffered from shortage of goods, to ensure that after 1 August those could be put in the shop windows all at once. Thus the introduction of the forint took place in August, after the accumulation of major commodity stocks and after the harvest, and the government implemented the stabilisation packages relying on solely internal resources and by a major cut in the pre-war wage level. The incomes were reduced on average by 50 per cent of the level registered in 1938. The controlled wage cuts in fact represent a levelling operation, which meant that the remuneration of the formerly highly paid classes was lowered by 60-70 per cent, while that of the workers was reduced only by 30-40 per cent. The most drastic income cut was experienced by the teachers, as their wage was set to 20 per cent of the 1938 level. They were followed by the employees in

[54] Varga, 1964, p. 141.
[55] Varga, March 1958, p. 100.

public administration, who received only 31 per cent of their former wage, while the public administration pensioners also paid a high price for the reform, with their pension lowered to 41 per cent. The trust in forint was also strengthened by the fact that the 25 per cent gold cover ratio was already around 33.8 per cent in December 1946. At the time of its introduction one forint equalled 0.07575 g fine gold, while the German mark, the US dollar, the British pound and the Austrian schilling were officially quoted at 0.12, 11.74, 29.35 and 0.17 forint, respectively. Another special feature of the Hungarian financial stabilisation was the apparent overshadowing of the agricultural sector to the detriment of the other sectors of the economy, i.e. the artificial widening of retail-farm price spread took place. While for the calculation of the new prices of the industrial goods an average index of 4.97 was used compared to 1938, the pre-war prices of the agricultural products registered only a 3.2-fold rise on average. Thus the rise in the agricultural prices lagged behind that of the industrial prices by roughly 40-50 per cent, i.e. for one unit of industrial goods the farmers had to produce and sell goods in double volume. Hence it can be stated that the financial stabilisation was implemented to the detriment of the agricultural workers, who were already burdened by the compulsory delivery.[56] All this substantially complicated the fast recovery of the agriculture, which struggled with difficulties already, due to the land reform.

CLOSING THOUGHTS

In 1946 47.4 quadrillion pengő was in circulation, the value of which, when the forint was introduced, was 0.01 fillér, i.e. the introduction of the forint became necessary as result of the pengő's hyperinflation.[57] As a result of the introduction of forint the population's trust in the currency returned. The introduction of the new currency, i.e. the forint, also formed part of the reconstruction of the country. It is also due to the population's enthusiastic efforts and diligence that until the end of 1946, i.e. within hardly 20 months, almost half of the 28 bridges over the rivers Tisza and Danube, exploded during the war, were fully reconstructed and 100 of the 114 railway bridges were put into operation. By March 1947 the vehicle pool already approximated the level registered a decade before. By then almost 500 steam engines operated in the railway transport and predictability slowly returned

[56] For the above paragraph see: Romsics, 2010, pp. 8- 92; pp. 100-189; pp. 201-342; pp. 350-492; pp. 501-629.
[57] Büky, In György Markos (editor), 1947, pp. 321-330.

to the everyday life. Contrary to the financial stabilisation of 1924, this time the Hungarian government did not rely on material foreign funds.[58]

The first three-year plan commenced on the first anniversary of the introduction of forint, i.e. on 1 August 1947 and in fact it finished within two and a half years, i.e. by the end of 1949. Initially the central planning directive-based proposals included that after the reconstruction and reorganisation works, i.e. more precisely by the end of the planning period, agricultural productions should approximate the standards of the last peace year, while the manufacturing industry's production should outstrip the previous ratios by at least 27 per cent.[59] Due to the deepening of the conflicts between the Soviet Union and the USA, the original targets were modified to the extent that, in the spirit of preparing for a potential state of war, more emphasis was placed on the improvement of the industry and particularly of the heavy industry. For this reason the support of agriculture became even less important. This was shown, among others, also by the fact that ratio of 30 per cent, originally allocated to agriculture of the total investments, meanwhile shrank to 18 per cent, despite the fact that even after that agriculture generated more than 40 per cent of the national income, e.g. 42 per cent in 1949. On the other hand, industry – which also contributed 42 per cent to the national income in 1949 – in fact could run its business 35 per cent of the investments.

The three-year plan initially expected that the population's living standards would rise by at least 80 per cent between 1947 and 1949, thereby reaching the pre-war level. It can be established that due to the unfeasible objectives of the planning and the continuous adjustment of the plan priorities the aforementioned ratio could not be achieved. While the 1949 official report mentioned a growth of 37 per cent, the subsequent statistics usually reported a 10-20 per cent increase in the living standards, which means that pre-war level was not only not exceeded, it was not reached either. One reason of this was the high – 18 per cent in 1949 –investment ratio burdening consumption. Within the average performance of the years between 1928 and 1937 this hardly reached 4 per cent. One sign of the modest living standards was that

[58] As it was mentioned before, the success of the stabilisation was also facilitated by the fact that by the rescheduling of the Soviet reparations deliveries the government managed to reduce its expenditures substantially (industry). It was also a great help that the US government returned to Hungary the gold reserves of the Magyar Nemzeti Bank.

[59] See Pető-Szakács, 1985, pp. 94-140.

the food consumption per capita exceeded substantially the 1938 value within the most important articles only in sugar, egg and wine, while the per capita meat, fat and milk consumption was still far – i.e. by 10-20 per cent – behind thereof. Nevertheless, compared to the disastrous situation seen in 1945, still a substantial improvement could be perceived and the consumers indeed felt like that at those times. According to the results of a contemporary public opinion poll, the respondents believed that they lived by 42 per cent better in 1948 than in 1945.[60] The public wage and social policy, just like the financial stabilisation, was also controlled centrally, and the government strived to eliminate the former larger differences through the levelling. It did succeed in this. The middle and upper classes, accounting for 9-10 per cent of the country's population, received almost 40 per cent of the part of the national income allocated to personal consumption in 1938-1939, while 90 per cent of the population could enjoy only 60 per cent thereof. By 1949 this distribution was altered such that the share of the upper and middles classes shrank to 10-12 per cent, while that of the lower class, mainly blue-collar workers, rose to 80-90 per cent. Despite the political change that took place later, the financial reform by the Nagy government finally managed to overcome the highest inflation of history by introducing a new currency, i.e. the forint, and ensured and it has been ensuring for already 70 years the existence of a stable means of payment fulfilling the functions of money, hence it can be deservedly mentioned among the successes of the history of Hungarian economy.

[60] http://epa.oszk.hu/02200/02288/00013/pdf/Evkonyv56_13_2005_146-175.pdf.

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III. History of the Hungarian inflation in 1949-1989

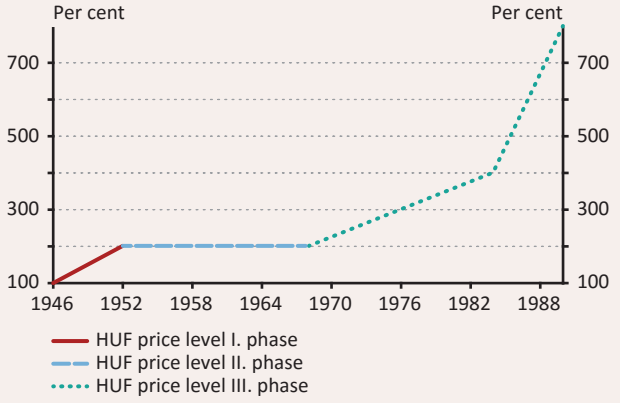
Péter Csillik

We present the socialist period of the forint in several phases: a) as a first step, we analyse the four-decade developments in consumer prices, b) then we present the history of producer prices, c) examine how the changes in consumer prices can be explained by the investment/consumption and export/import ratios, and d) we revew how the contemporary economists saw situation and finally, e) what happened to the prices in other socialist and non-socialist countries.

CHANGES IN CONSUMER PRICES (1946-1990)

The price increase in the period of 1946-90 can essentially be divided into 3 phases: a) in 1946-1952 the price level doubled under an annual price

Chart 2
Conventional development of the forint price level



Source: Own calculation based on HCSO (1957(and Marton (2012/1 and 2).

increase of 12 per cent, b) in 1952-1968 the price level hardly changed at all under a 0 per cent average price increase, c) price increase of the "New Economic Mechanism": c1) in 1968-1984 the price level doubled within 16 years under an annual price hike of 4.5 per cent. c2) Finally in 1984-1990 the price level once again doubled under an average annual price increase of 12 per cent. The subchapter substantially relies on the works of Marton (2012/1 and /2).

The 1950-68 and the 1960-90 data together permit an order of magnitude estimate for the major part of the socialist era. Inflation in the 40 years between 1950-1989 was 4.55 per cent on average; within that the increase in the price level before the economic reform (2.54 per cent) was less than half of the price increase that followed in the next two decades (6.28 per cent).

Table 5
Forint price indices in 1950-2015

	Consumer price index all items	Food	Energy	All items non-food, non-energy	Services
1950-1968	2.54%	3.44%	1.67%	1.63%	1.61%
1968-1989	6.28%	6.36%	5.29%	6.72%	6.36%
1950-1989	4.55%	5.01%	3.62%	4.37%	4.17%
1990-2000	18.13%	16.55%	25.95%	19.70%	19.98%
2000-2015	3.87%	4.61%	4.99%	3.04%	4.28%
1990-2015	9.57%	9.39%	13.37%	9.70%	10.56%
1950-2015	6.51%	6.72%	7.43%	6.45%	6.66%

Source: Own calculation based on HCSO (1957) (and Marton (2012/1 and 2).

The early price developments of the central planning directive-based period were characterised by a rollercoaster effect followed by an almost complete standstill. The price level soared in 1951, fell between 1952 and 1956, followed by a repeated rise from 1957 onwards. The average price index of the employees' consumption rose slightly faster than that of the agricultural workers. The main reason for the rise in the consumer price level was the price adjustment and the raising of the administered prices in 1951. After the subsequent price decreases the price level was the lowest in 1956. Thereafter it reached the 1952 price level only in 1967. With smaller stagnations and declines the free market prices substantially increased, which was followed by the administered prices of the market products. The larger part of the price increase was hidden (e.g. through diminishing quality).

Table 6
Developments in the consumer price level by classes of society; 1950-1968

	Workers and employees				Agricultural workers			
	1952 (1950=100)	1956 (1952=100)	1968 (1952=100)	1968 (1956=100)	1952 (1950=100)	1956 (1952=100)	1968 (1952=100)	1968 (1956=100)
food	195	92	104	113	156	98	110	112
clothing	157	93	88	95	166	92	86	94
miscellaneous manufactured goods	143	93	90	97	150	91	90	99
energy	109	117	122	104	120	122	110	98
services	112	101	115	114	130	98	112	114
all items	**169**	**93**	**100**	**107**	**154**	**95**	**98**	**103**

Source: Own edit based on the living standards (1969).

By converting the table, we can gain information on the entirety of the central planning directive-based era. Surprisingly, the consumer price level of the industrial workers and employees rose faster than that of the agricultural workers. This, if examined by main product groups, shows that food prices of the agricultural workers rose slightly slower than those of the industrial workers and employees, while in all other main product groups the rise in consumer prices of the agricultural workers was higher. ("Those who produce it can pay less for the consumption thereof.")

Table 7
Consumer price level and developments in the annual average rate of the price indices in 1968/1950

	Workers and employees	Agricultural workers	Workers, agricultural workers, employees	
	1968/1950	1968/1950	1968/1950	
food	2.03	1.71	1.90	3.44%
clothing	1.39	1.44	1.41	1.81%
energy	1.33	1.43	1.37	1.67%
services	1.29	1.45	1.35	1.61%
miscellaneous manufactured goods	1.29	1.35	1.31	1.45%
all items	**1.68**	**1.51**	**1.61**	**2.54%**

Source: Own edit based on the living standard s (1969).

The change in the relative prices between 1950-1968 was characterised, among others, by the fact that **food prices rose** the fastest. Taking 1950 as 100, the price level in 1952 was 195, which essentially did not change in the next 16 years, and in 1968 it was merely 204. (In the period of 1950-68 the price of the Hungarian beef and pork, bread and milk was relatively low, while sugar butter, coffee and clothing were expensive. Food prices also preferred simple workers to agricultural workers and the middle-class.) The Hungarian food prices differed from those of many other countries in terms of the fact that the doubling of the prices in 1952 was followed by two decades of price stagnation. How did food prices rise between 1950 and 1968 in other countries? In Austria the situation was similar in terms of the annual average rate; food prices rose from 1950=100 to 1968=202. The rise in food prices was higher than that between 1950 and 1968 in Sweden (249) and Denmark (228), but much lower in the United Kingdom (114) and the USA (131). In many countries (Canada, FRG, the Netherlands, Belgium, France, Italy and Greece) the price level of food rose to 140-180 between 1950 and 1968. As regards the food prices of the socialist countries the picture is quite mixed: in the GDR, the "shop-window" country, the food prices of 1950 were halved by 1965; the Polish food prices doubled in 1953, and continued to rise thereafter as well, albeit more slowly. On the other hand, there was no big jump in prices in Czechoslovakia, and Bulgarian prices also rose only slowly and steadily. In the case of the other product groups no typical Hungarian pattern can be detected in this period.

PERIOD BETWEEN 31 AUGUST 1949 AND 1952

In order to ensure the supply of staple foods, a rationing system was in force between 1 August 1946 and 31 August 1949. By 1948-1949 the national income reached the 1938 level. The first five-year plan started on 1 January 1950; in 1951 the appropriations were raised, which resulted in the fast deterioration of household consumption and the living standards. Funds were taken away from agriculture, compulsory delivery was prescribed at low (and usually declining) administered procurement price. Due to the shortage of goods, the rationing system was re-introduced in early 1951. In 1950-51 retail prices rose by 27 per cent in total. Stabilisation was achieved by raising the prices and cutting real wages. On 2 December 1951 a general price and wage reform was introduced, and the rationing system was cancelled. A standard, national administered retail price system was elaborated. Vegetables, fruits and eggs remained articles sold at seasonal prices, which

could change depending on the weather and success of production. The fixed administered prices did not always reflect the production costs, as they were diverted by the value added tax. Almost all products had individual tax rate. The preferential price system differentiated basic and luxury needs, and gave preference to the social, health and child welfare areas. Prices were planned and set by products. In December 1951, after the administrative price measures, prices and wages rose by 40 and 20 per cent, respectively. In 1952 prices rose by 38 per cent.

Table 8
Consumer price index of industrial workers and employees
(1949=100)

	1949	1950	1951	1952	1953	1954	1955
Food	100	112.9	148.3	220.0	219.2	209.7	203.9
Clothing	100	103.6	116.0	162.4	161.3	155.5	156.2
Miscellaneous manufactured goods	100	98.3	99.3	140.8	137.3	133.3	133.3
Energy	100	101.3	107.3	110.3	124.2	128.7	128.7
Services	100	102.6	104.5	114.8	115.7	115.5	115.6
All items	**100**	**105.7**	**127.7**	**179.1**	**178.3**	**169.6**	**168.2**

Source: HCSO (1957).

The producer and consumer prices were not linked; due to the financial bridges and differential sales taxes, the change in the administered producer prices had no effect on the consumer prices. The production and the supply were adjusted to the administered prices and the financial regulators – writes Marton. (Marton (2012/1)). Presumably the logic was the opposite; first they planned the desirable economic growth, and the ratio of consumption and accumulation was derived from that, along with the planning of the working population for the industries that manufacture the means of production and the consumer goods. If the rate of accumulation is raised by x per cent, then roughly x per cent must be directed from the consumer goods manufacturing sector to the sectors manufacturing means of production. The prices may provide assistance for this: by raising the consumer price by x per cent, the effective demand may also decrease, and the decline in consumption may be realised without a rise in the deficit intensity. The diversion of labour force from the agricultural sector was realised by the reduction of procurement prices, while the diversion of the labour force from the companies manufacturing consumer goods can be achieved if the heavy

industry companies (including mines and foundries) are permitted to raise wages to a higher degree. Thus both the agricultural and the manufacturing workers inevitably looked for jobs in the heavy industry.

Thereafter, the internal structure of prices may have followed educational goals. As a fictive narrative: “reduce the ratio of individual consumption and increase that of public consumption, live an ascetic life, and in turn we help you raise children with preferential child’s wear prices and set your mind to new values with cheap culture.” Thus the prices may have contributed to ensuring that the population worked at the places and to the degree desirable by the state, and to avoiding too long queues in front of the shops, as well as that they spend their money in such a structure (beyond the mandatory subscription of the peace loan bonds) that direct the members of the society to a modest consumption structure, thereby also facilitating the better monitoring of the dangerous autonomous individuals. Prices had no role in the organisation of production and the allocation of resources (this was performed on the basis of the public ownership in a chain of planning, during a multi-round plan aggregation – plan breakdown), but they played an important role in the allocation of workforce, the development of the degree and structure of consumption, and the curbing of the deficit level.

Prices became the soft slaps of the power, delivering the message that “work a lot where I want and consume little as I want.” Prices had a minimal role in the relationship of the companies. According to Béla Csikós-Nagy, price in socialism is regarded as part of settlement, planning and statistics; consumer and producer prices are separated to ensure that the objectives of consumer prices, differing from the producer price policy, are feasible. (Marton (2012/1.))

It may be mentioned as an example that the price of beef (and pork) in 1951-52 contained extremely high sales tax. The consumer price of beef in 1952 was HUF 21/kg (HUF 8.4/kg in 1949), while its procurement price in 1952 was HUF 2.93/kg (HUF 3.18/kg in 1949). The decreasing procurement price was accompanied by increasing consumer prices; presumably they wanted to distribute the small volume of beef resulting from the declining procurement stock at high prices, ensuring smaller deficit intensity. The consumer price of pork in 1952 was HUF 28.90/kg (1951: HUF 16/kg and 1949: HUF 11..90 kg), while its procurement price in 1952 was HUF 8.95/kg (1951: HUF 13/kg and 1949: HUF 7.4 kg).

Let us try to explain the strange Marshallian Cross of beef: supply declines under decreasing procurement prices (HUF 3.18/kg => HUF 2.93/kg) and the decreasing supply is offset by declining demand under higher consumer prices (HUF 8.4/kg => HUF 21/kg). The "headquarter" may have set the goal that the agricultural workers should stop cattle-breeding and rather work as miners or metalworkers. If the procurement price of beef is reduced, most probably more farmers will give up stock breeding and join the heavy industry. On the other hand, declining supply would result in longer queues in front of the butcher's and people would be disgruntled. The queue may be shortened by raising the consumer prices. Accordingly, the central logic was that the price system had to satisfy two goals: a) divert the agricultural workforce to the heavy industry, b) shorten, through high prices, the queues that became long due to the shortage of meat.

The price ratios (of the years of 1949 and 1952) show that there was no room for reducing procurement prices more (some beef was needed anyway, and nobody would pursue fully loss-making breeding), but there was plenty of opportunity to raise the price of the end product. From this point of view it is more difficult to understand why procurement prices rose substantially in 1951 compared to 1949. Even in 1952 (after a major cut from the rise in 1951) it was higher than in 1949. Perhaps the queue for pork was too long. Thus, with a view to addressing political tension, procurement prices were nearly doubled in 1951. However, this would have made production profitable and prevent agricultural workers from going to work in foundries and mines; this may have been the reason that the procurement price was reduced by 1952, although with this step the shortage also slightly increased.

There was a turn after 1952 (presumably the death of Stalin and the subsequent fight for power – and the domestic consequences of this: fight between Imre Nagy and Rákosi – may have contributed to this). Until 1956 Hungarian consumer prices fell, while procurement prices rose. The domestic prices of imported goods were set by proportioning. There was a dual foreign exchange rate system: the commercial (tourist) exchange rate was almost two and a half times higher than the official exchange rate. Change in real income: a) at wage earners: 1950:+1.8 per cent, 1951: -11 per cent, 1952: -7.4 per cent b) at agricultural workers: 1950: +12.3 per cent, 1951: +4.5 per cent, 1952: -16.5 per cent. According to the document entitled Changes in living standards in Hungary 1969, used for internal purposes (see p. 28) this slump in real income was extremely bad even by socialist standards. The average

growth rate of the real wage per wage earner in 1951-1955 in the socialist countries was as follows: => GDR: 17.9 per cent, Bulgaria: 13.3 per cent (1953-56), Soviet Union: 6.8 per cent, Roumania: 4.6 per cent, Czechoslovakia and Poland: 1.9 per cent, Hungary: 0.9 per cent.

Consumer price changes in 1952-56

In this period (with the exception of the seasonally priced goods) consumer prices were stable. The administered prices changed rarely; in the period of 1951-57 the administrative measures that effected retail turnover were price cuts, thereby improving the living standards. The price of household fuel ad services increased, the price of food, clothing and consumer durable goods declined, and these latter three main groups had such a high weight that they typically determined the average price of all goods.

Table 9
Consumer price indices by main groups of goods

	Food	Clothing	Energy	Durable household goods	Services	All items
1952	100	100	100	100	100	100
1953	99.5	99.3	112.6	97.6	100.8	99.6
1954	95.2	95.7	116.6	94.7	100.6	94.7
1955	92.6	96.2	116.6	94.7	100.7	93.9
1956	92.5	92.3	116.7	92.2	100.7	93
1957	95.4	94.2	117.4	93.2	101.4	95.2
1958	95.2	95.2	117.7	94.4	102.8	95.5
1959	93.1	94.1	115.5	94.4	104.8	94.3
1960	94.3	93.6	114.7	94.4	105.5	94.9

Source: HCSO (1957) and Marton (2012/1).

Wide-scale price cuts were implemented in September 1953, March 1954 and May 1956. It is easier to understand this if we outline a few events of the life of Imre Nagy in the period of 1953-56:

- On 13-16 June 1953 the Hungarian party leaders were summoned to Moscow. The Presidency of the Central Committee of the Communist Party of the Soviet Union criticised Rákosi's economic policy (excessive industrialisation) and they called upon Rákosi to transfer the prime

minister's position to Imre Nagy, who was supposed to implement the adjustment. Two weeks later at the (closed) meeting of the party's leadership Imre Nagy declared that the party left the fundaments of the Marxism-Leninism, the state became a police state, while the government became a shadow government. Another two weeks later, Imre Nagy was appointed as prime minister, and he announced the start of a new era: his government programme abandoned the economic policy based on the forced development of industry, he promised to reinstate the rule of law, reconsider the agricultural policy (easing the burden of the agricultural workers, possibility to leave the cooperative farms, cancellation of the compulsory delivery arrears) and to raise the living standards. On 31 July and on 6 September the price of food and some consumer goods was reduced, respectively. At the October meeting of the governing body the key numbers of the 1954 plan were modified, and national income's ratio used for supplying the population was increased by 12 per cent.

- In January – April 1954 there were political disputes in the management of the Hungarian Workers' Party (MDP) on the current steps of the new phase; Imre Nagy proposed to introduce a popular front quasi multi-party system. In May Imre Nagy and Rákosi were admonished in Moscow for being too critical and for hindering reforms, respectively. In August Ernő Gerő once again supported the plan to reduce the living standards, while the supporters of the new phase managed to rebut this in October. In December, Rákosi returned from Moscow – after 2 months – and managed to obtain the support of the party leaders.

- In January 1955 Imre Nagy was criticised by the Central Committee of the Communist Party of the Soviet Union for his right-wing deviation; he resigned in March as prime minister and member of the Party Committee; the central management expelled him from the leadership, made him return his parliamentary mandate, and also withdrew his Academy membership and university lecturer position. In summer 1955 Imre Nagy wrote political polemical essays and the core of the party opposition started to formulate. The state security authority started its investigation against the former prime minister. In December Imre Nagy was expelled from the party. In spring 1956 he became the central figure of the widening party opposition, but he did not participate in any action. On his 60th birthday almost one hundred public figures, writers, journalist, artists and scientists visited him at home to congratulate. By summer the "Imre Nagy circle" formulated

around him. In mid-October he was taken back to the party. The revolution broke out on 23 October.

It is important to note that amidst the political tug-of-war they did not raise the prices even when their power position would have permitted to do so.

Consumer price changes in 1956-68

After 1956 consumer prices were also affected by a number of changes, both in terms of the intents and the facts. In 1957-67 the elaboration of the principles of the New Economic Mechanism generated a lot of hopes and illusions also in respect of the application of prices. The idea of controlled market economy, under almost full public ownership, later on clearly proved to be erroneous, but the participants of the era passionately believed in it. (Marton 2012/1.)

Prices reached their lowest point – compared to 1952 – in 1956, and thereafter, until 1968 they rose by roughly 0.4 per cent per annum. The 1952 price level fell by 7 per cent until 1956, then it rose by 5 per cent between 1956 and 1968, i.e. the 1968 price level was below that of 1952 by 2 per cent.

Table 10
Consumer price indices by main groups of goods

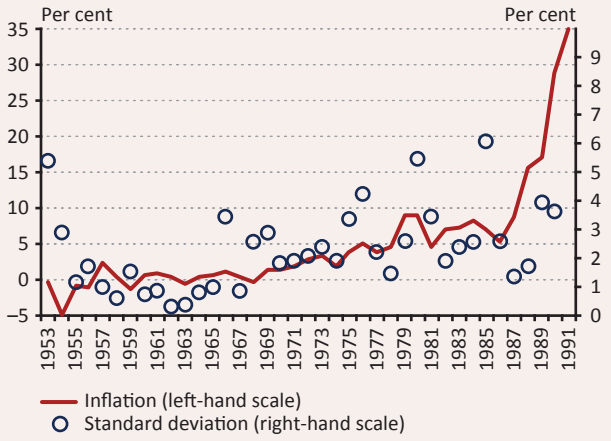
	Food	Alcoholic beverages, tobacco	Clothing	Energy	Durable household goods	Others, fuels	Services	All items
1960	100	100	100	100	100	100	100	100
1961	100.9	102.9	100.0	99.8	99.8	100.0	102.0	100.9
1962	100.4	108.7	100.0	99.2	99.7	99.9	102.1	101.4
1963	99.7	108.7	99.5	98.8	98.4	98.8	102.0	100.8
1964	101.2	107.9	99.3	98.2	97.6	98.8	102.0	101.2
1965	102.9	110.9	98.3	97.2	97.3	98.9	102.6	101.9
1966	107.7	113.1	94.4	104.5	97.3	97.4	103.7	103.1
1967	108.5	114.1	93.8	106.9	97.3	97.3	104.9	103.5
1968	108.0	115.8	93.4	105.7	95.9	93.9	108.8	103.2

Source: HCSO (1957) and Marton (2012/1).

It is necessary to examine the relative variance of the main groups; in 1952-56 relative variance increased under declining price level, while in 1956-

60 relative variance decreased under increasing price level, and finally, in the period of 1960-68, the typically higher inflation was accompanied by increasing relative variance, which remained typical thereafter as well.

Chart 3
Inflation and standard deviation of price level changes by item groups in planned economy



Source: MNB calculations based on data of HCSO (1957) and Marton (2012/1 and 2).

The phenomenon could be also observed in the price change of the main product groups. The farther is inflation from a certain level (roughly 2 per cent), the higher variance characterised their price changes.

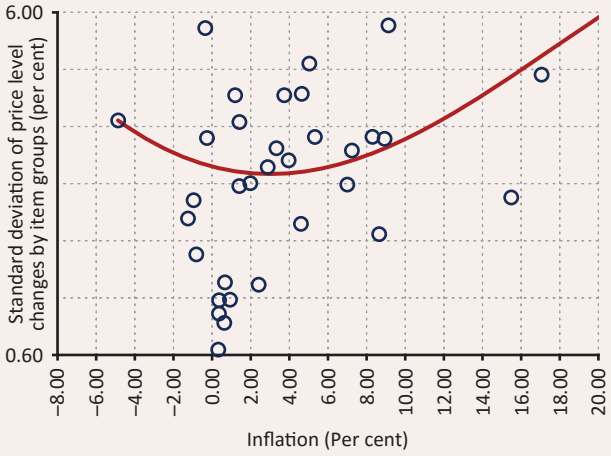
The first half of the fifties was also characterised by hidden price rises. The hidden price hikes (same price, inferior quality) between 1952 and 1956 can be estimated as 3-4 per cent, which increased by further 1.1 per cent in 1957 and decreased by 0.4 per cent in 1958.

Table 11
Impact of the hidden price changes

	1957	1958
Food	99.6	99.2
Catering	102.3	99.3
Clothing	101.7	101.9
Miscellaneous manufactured goods	101.5	102
All items	101.1	100.7

Source: Marton (2012/1).

Chart 4
Inflation and variance of the main product groups' price change in the centrally planned economy



Source: Own calculation based on HCSO (1957(and Marton (2012/1 and 2).

At the end of 1961 the price of tropical fruits, coffee, cacao, pepper and confectionary products was reduced, while the price of excise goods was raised. The price of seasonal price goods rose both in 1964 and 1965. In addition, the price of canned food, spirits, petrol and telephone also increased. In 1966, in line with the preparation for the new economic governance system, the price level was raised by 1.2 per cent, and within that the price of subsidised meat by 33 per cent, butter by 18 per cent, while dairy product prices were increased to a slightly smaller degree, and fuel prices went up by roughly one-quarter. The price of excise goods was raised, while clothing prices declined. There was no price change in 1967. An interesting table is available on the price of the seasonal price goods.

Table 12
Price developments of seasonal price products

	Poultry	Eggs	Potato	Vegetables	Fruits	All
1952	100	100	100	100	100	100
1956	104	112	89	88	91	95
1960	106	111	106	98	111	103
1965	106	120	162	130	136	131
1968	117	121	180	160	127	138

Source: Marton (2012/1).

The increase in the price of the seasonal price products by 38 per cent between 1952 and 1968 is rather interesting, if we examine the basket of goods consumed by the industrial workers and employees vs. the agricultural households. While the non-seasonal price food prices more or less stagnated for 16 years, the prices of seasonal price food rose by roughly 2 per cent annually.

Table 13
Forint price level in 1968

	Workers and Employees	Agricultural workers
Food	104	110
Clothing	88	86
Miscellaneous	90	90
Energy	122	110
Services	115	112
All items	**100**	**98**

Source: Marton (2012/1).

Consumer price changes in 1968-88

In the New Economic Mechanism efforts were made to make consumer prices cost-based; preferences survived in a narrower circle. The National Material and Price Control Office regulated in a directive which products and services should be of a) fixed price, b) maximised price, c) free price within an administrative limit. The calculation of product prices was regulated by methodological directives. Even in the case of more liberal prices it was determined by behavioural guidelines how retail companies may raise prices. In this case the prices were determined by the state-owned companies and cooperative societies considering the production and import costs, and the taxes. The bottom line shows that households spent roughly every sixth forint for fixed priced products, almost every third forint on maximised price products, i.e. every second forint of the households were spent on these two product groups. In the case of the more liberal price group, roughly every fourth forint was spent on products the prices of which developed within the administrative limits; a little bit more than that was spent on products belonging to the fully free-price category.

Table 14
Distribution of household consumption by price types in 1969

	Items at fixed price	Items at imposed price ceiling	Items at government controlled price	Items at free price	All
Food	30	35	22	13	100
Clothing		6	55	39	100
Home appliance		55	16	29	100
Fuels		100			100
Chemicals and fossil fuel	20	44		36	100
Wood and paper products		25	39	36	100
Building materials	11	55		34	100
Glass products and chinawares		15		85	100
Retail items	17	34	25	24	100
Sevices	17	21	22	40	100
Handcraft products			10	90	100
All items	16	31	24	29	100

Source: Marton (2012/2).

Examining this issue from a different aspect: based on the aforementioned degree of freedom of the price type, we weighted the products (the administered price products were deemed to have 0 degree of freedom, that of the maximised price 1/3, the limited ones 2/3 and the fully free price ones 1), thereby calculating the full freedom content of the products, and then sorted the table based on this dimension. It is not surprising that a) the prices of small industry products are very liberal, b) followed by the light industry products, c) while the product of the heavy industry (machinery, construction material, mining) are at the end. The system regarded food as strategic articles, the price of which should better be controlled. Services at that time was a delicate area. The state supported the low-income large family households via the sales taxes, to ensure that they get important products (subsistence, cultural and health products) cheap. The initially several tens of thousands of tax rates were reduced with time to a few hundred; the tax rate of similar products became identical, and welfare policy gradually started to use non-price measures (wage, other benefits, family allowance, childcare allowance).

Table 15
"Weighted freedom" of products (1969), in per cent

Items	Weighted freedom
Handcraft products	97
Glass products and chinawares	90
Clothing	77
Wood and paper products	70
Sevices	61
Home appliance	58
Building materials	52
Retail items	52
Chemicals and fossil fuel	51
Food	39
Fuels	33

Source: Own calculation based on Marton (2012/2).

The average sales tax rate until 1958 was roughly 35-40 per cent, which fell to 13.5 per cent, 3-4 per cent and 2-3 per cent in 1959, 1968 and 1972, respectively, with large differences in the individual product groups.

Table 16
Developments in the Hungarian sales tax rates

	1958	1968	1971
Food and beverages	19.4	4.6	4.9
Tobacco	64.0	50.0	50.0
Housing	0.0	0.0	0.0
Electricity and heating energy	-42.8	-32.9	35.6
Household equipment	-0.7	6.6	3.9
Clothing	18.4	22.5	18.4
Cleaning	22.9	18.2	16.6
Health	49.0	52.3	52.3
Education, culture, recreation	16.0	12.6	5.0
Transport	-71.8	-52.9	-62.4

Source: Marton (2012/2).

The 1970s and 1980s

Inflation accelerated year by year; average inflation in 1968-69 was 1.39 per cent, while in 1979-80 it was 9.01 per cent. The world market price explosion in 1973-74 first passed through to the domestic prices moderately, followed by a more intense pass-through. The second world market oil price explosion occurred in 1987.

Table 17
Consumer price indices between 1968 and 1980

	Food	Alcoholic beverages, tobacco	Clothing	Durable industrial goods	Household energy	Other miscellaneous goods, fuels	Services	All items
1968	100	100	100	100	100	100	100	100
1969	100.8	99.8	103.0	101.9	95.9	103.0	102.9	101.4
1970	101.8	100.3	105.4	101.8	94.2	106.4	104.9	102.8
1971	103.8	101.6	107.9	103.0	93.4	108.2	109.6	104.8
1972	104.9	108.7	112.2	105.5	91.4	110.6	113.4	107.8
1973	109.8	117.1	114.2	107.4	89.6	111.5	115.9	111.4
1974	110.4	119.8	116.5	110.0	94.6	113.8	118.0	113.4
1975	111.7	124.1	121.9	115.1	102.0	124.1	120.6	117.7
1976	123.1	124.7	128.3	118.5	101.0	132.4	123.4	123.6
1977	129.8	130.9	134.0	121.3	100.4	135.3	127.4	128.4
1978	134.4	142.9	140.8	125.0	100.7	139.7	132.4	134.3
1979	148.1	160.6	153.4	135.5	109.6	150.9	136.9	146.3
1980	168.0	163.4	161.1	153.3	133.0	165.3	146.4	159.6
Specific item group/All items (1980)	**1.05**	**1.02**	**1.01**	**0.96**	**0.83**	**1.04**	**0.92**	**1.00**

Source: Marton (2012/2).

The HCSO also examined the components of the consumer price developments, and allocated the causes of the price increase to 3 categories: a) measures of the central price control authority, b) impact of the price changes of seasonal food products, c) other market impacts, generated by the companies, the price change in import goods or central intervention.

Table 18
Components of the consumer price developments, in per cent

		1971-75	1976-80	1976	1977	1978	1979	1980
Growth of consumption price level		2.8	6.3	5	3.9	4.6	8.9	9.1
of which:	prices imposed by government	1.2	4.3	2.7	2.5	2.6	7	6.7
of which:	seasonal food prices	0.2	0.3	0.8	–0.2	0.3	0.2	0.6
of which:	other	1.4	1.7	1.5	1.6	1.7	1.7	1.8

Source: Marton (2012/2).

Table 19
Consumer price indices between 1980 and 1989

	Food	Alcoholic beverages, tobacco	Clothing	Durable industrial goods	Household energy	Other miscellaneous goods, fuels	Services	All items
1980	100	100	100	100	100	100	100	100
1981	103.4	102.6	106.0	101.1	99.8	109.0	106.5	104.6
1982	108.4	116.0	111.8	103.2	109.7	116.0	114.2	111.8
1983	113.9	123.8	118.9	111.2	115.0	126.7	125.7	120.0
1984	127.7	130.0	132.0	117.3	120.8	136.0	135.8	129.9
1985	135.7	132.2	146.3	123.5	146.0	144.1	148.4	139.0
1986	138.4	139.1	160.1	131.3	151.1	151.2	161.6	146.4
1987	151.1	157.9	175.6	134.3	160.9	160.6	176.1	159.0
1988	175.0	180.5	210.7	145.4	181.5	186.8	206.9	183.6
1989	206.0	200.5	249.0	171.1	202.2	228.6	241.2	214.9
Specific item group/All items (1989)	**0.96**	**0.93**	**1.16**	**0.80**	**0.94**	**1.06**	**1.12**	**1.00**

Source: Marton (2012/2).

The Hungarian consumer price level rose 3.43-fold between 1969 and 1989. At the same time, there was no inflation in the GDR, while in Czechoslovakia and Poland the price level increased 1.13-fold and 52-fold, respectively, and it roughly doubled in Austria, the FRG, Switzerland and France.

Consumer price indices of thirty years: industrial workers, agricultural workers and pensioners (1960-89)

The price increases affected the various social classes differently. The data series applicable to industrial workers and agricultural workers was available in full for the period of 1960-1987, while in the period of 1960-89 only in the total category. If we examine the total product category in 1987, the industrial workers suffered a price level increase, compared to 1960, of 20 percentage points higher (265.5 vs. 246.3) than the agricultural workers. (The gap in 1989 broadens to 28 percentage points compared to 1960: 363 vs. 335). Within the 1960-1987 data series the largest difference was measured, to the detriment of the industrial workers, in the food (44 percentage points), heating and household energy (25 percentage points) and excise products (18 percentage points), product groups. By contrast, the industrial workers suffered negligible or negative price disadvantage, compared to the agricultural workers, in the case of consumer durable goods (5 percentage points), clothing (2 percentage points) and other manufactured goods (0 percentage point), while the effect is the opposite effect in the case of services (- 12 percentage points). As regards the period of 1970-87, the pensioners came off worse (compared to the industrial and agricultural works) in the case of heating, household energy and service prices in 1987.

Table 20
Developments in the consumer price level by classes of society; 1960-1989

	Food	Alcoholic beverages, tobacco	Clothing	Durable industrial goods	Household energy	Other miscellaneous goods, fuels	Services	All items
Workers								
1960	100	100	100	100	100	100	100	100
1965	103.8	111.7	98.2	97.3	97.3	98.9	102.3	102.6
1970	111.8	117.1	98.2	99.9	97.6	99.9	112.9	107.5
1975	122.6	145.6	114	108.8	110.1	115.4	129.9	123.4
1980	184.4	191.9	151	142.7	148.8	153.4	157.2	167.4
1987	279.4	304.6	266.3	231.1	200.4	245.8	272.2	265.6
1988								308.5
1989								363.1
Agricultural workers								
1960	100	100	100	100	100	100	100	100
1965	97.2	110	98.2	96.4	97.3	99.3	103.4	100.3
1970	98.3	114.8	99.1	98.5	95.9	99.3	115.7	101.7
1975	105.9	128.8	113.7	103.1	107.3	117.7	132.8	116
1980	157.8	183.2	150.3	131.8	143.2	159	165.6	156.5
1987	235.5	286.5	264.5	206.8	194.9	254.6	283.5	246.3
1988								286.2
1989								334.6
Pensionaries								
1970	100	100	100	100	100	100	100	100
1975	112.8	122.9	115.8	112.5	113.9	109.9	119.5	115
1980	167.6	162.5	155.9	147.8	147.8	138.2	144.5	156.3
1985	225.2	213.2	225.4	221.2	174.9	194.3	216.1	217.2
1987	250.1	253.6	265.6	243.8	193.3	214.2	258.6	246.9
1988								281.5
1989								329.9

Source: Marton (2012/2).

CHANGES IN PRODUCER PRICES (1946-1990)

Antal Stark (1985) believed that according to the contemporary economic ideology the purpose of the producer prices was to increase the efficiency of the economy. The Hungarian price mechanism developed after the hyperinflation, together with the forint, which was introduced in 1946. Producer prices in 1946 were characterised by depressed agricultural price level, an industrial price level that encouraged development, low service and high product price level. The Soviet military success in World War II may have given the idea that if there is general literacy and fast industrialisation in twenty years (1921-41) it is possible to reach a level sufficient to conquer the German army that represented a state-of-the-art technical level. The military achievements also "justified" the methods, while the source of the industrialisation implemented from a single centre was found in agriculture (tapping the human resources and income) and wearing off the existing services away (non-productive sectors). Prices had their own role in this process. In the socialist economies the economic development strategy and the price system was also substantially influenced by the preparation by the Soviet military and political leadership for world war three.

In 1951 the price of consumer goods was raised, while that of the capital goods was left at a low level. However, after 1956 the domestic political leadership reconsidered a few things. One of these was that the decrease in living standards in several subsequent years may give rise to serious political tensions. In 1959 the price level of capital goods was raised, the technical development fund and the obligation to accumulate guarantee fund were introduced. The assumption that public ownership and central control may substantially facilitate technical development was present throughout the period. In 1964, an asset allocation contribution was introduced as a new form of skimming net income. (This in terms of prices reflected that the economic leadership recognised not only the technical development, but also the principle of rational capital utilisation as a useful element, and looked for a place for it within the price model.) In 1968 the rigid calculation models were eased, the former almost exclusive central price setting was replaced by partial free prices, and prices moving within administrative limits. The import and asset prices moved closer to the world market price system, and foreign exchange multipliers were introduced for the foreign trade prices. Producer prices were raised since 1975 (1979: consumer prices) as a result of the changes in the world market situation.

There was a price reform in 1980, resulting in a system differentiated by sectors. In the case of producer prices the price setting was aligned with the export prices: the domestic prices of the most important raw materials and semi-finished products were determined by the export prices. The profit content of the manufactured goods was made dependent on the dollar export profitability, if the share of export to capitalist countries exceeded 5 per cent. It was still possible to enforce all domestic expenditures in the prices. In the non-competitive sector the prices were set by way of product identification or based on unit cost + average profit. The range of consensual free prices broadened, subject to increased price control and mandatory prior notification of price increases. Construction industry became freely priced, with the exception of home construction. In the agricultural sector the producer prices provided cover not only for the replacement of assets, but also for personal income and the necessary accumulation; state aids were granted for the improvement of cooperative farms with unfavourable endowments. The sales margin was determined – by main product groups – centrally on statutory or rate basis. Shipping and transport tariffs were set centrally. Railway track maintenance was integrated in the cost, while in the case of public roads it was covered by the government budget. Consumer prices were built on the producer prices, including the statutory and rate-based sales taxes (which could also be negative: it had price subsidy, living standards policy and consumption regulation function). The price of basic commodities was set centrally, while the price of wide range of articles was determined by the manufacturing and distribution organisations. According to Antal the logic of the competitive price mechanism is: that a company is not allowed to improve its profitability in the domestic market independently of the developments in export competitiveness. The intention was to make companies calculate with world market prices. The companies were made interested in not to allow their suppliers to enforce higher prices. It had to be documented that the price does not exceed the import price plus customs duty. (Antal (1985))

History of theories: disputes about producer prices (1953-1963)

The disputes related to producer prices are described in the book of Iván T. Berend (Berend (1983)). It was noticed in 1953-56 that there were problems with the price scheme introduced in 1950; the fixed price scheme did not facilitate the tracking of changes in labour expenses. The prices of fuels and commodities were set well below the production costs, which encouraged higher fuel and material consumption. The key feature of the 1951 fixed price

scheme was that it was based on restricted unit cost; the price had to be recovered only when it moved to the range of consumer goods, where it was recovered from the sales tax. According to one of the positions, the producer and consumer prices had to move together (in the case of abundant stock there is no need for administered prices). Others believe that administered prices are necessary, but it should be a basic principle that the costs are integrated in the price. There was also a proposal that the producer price should be obtained by deducting the sales margin from the consumer price. Others wanted to add wage-proportionate net income to the price. Others believed that the prices should be adjusted to the global market price ratios rather than to the domestic cost relations. The Economic Committee (GB) decided on the 1958 general price adjustment in July 1957: the removed technical development had to be put back, and a profit of 3-8 per cent, instead of 1 per cent, had to be integrated in the prices. A GB resolution declared that fixed prices should continue to prevail, and the producer and consumer prices should remain strictly isolated from each other. The 1959 producer prices rose to the level of the unit production cost. Earlier the coal mining prices, iron metallurgy, wool sector and meat industry received 85, 22, 27 and 16 per cent subsidy, respectively. The price of industrial coal, electricity and foundry coke trebled, bauxite, manganese and lead prices rose 2.5-fold, wool and pine lumber prices doubled, while wheat, rye and sugar beet prices increased 1.5 times. This was meant to prevent the wasting of materials. With a view to increasing depreciation, the estimated price of superstructures was raised by 70 per cent. The technical development contribution (1 per cent in construction, 3.5 per cent in the pharmaceutical industry and 8.5 per cent for light-current machinery) and a guarantee contribution was also integrated in the costs. The producer price level of the industry rose by 53.8 per cent. The production cost structure was transformed: wage cost fell from 23.9 to 18.2 per cent, profit rose to 9.3 per cent, and the share of material costs and depreciation also rose by 3.6 and 1.9 percentage points, respectively. Béla Csikós Nagy proposed that in the future, instead of every 5-6 years, the producer prices exposed to swiftly changing value relations should be adjusted at least every two years. The separation of consumer and producer prices was maintained. In 1963 Tibor Liska spoke up for the global market price-based domestic price systems, and he wanted to convert the price of importable products at a standard exchange rate, regarding it as the domestic price base. From autumn 1962 (in addition to the merging of companies) the industry boards were eliminated from the direction chain. In 1964 the asset using fee (5%) was integrated in the prices, as one of the ideas from 1957.

SOCIALIST PRICE HISTORY OF THE HUNGARIAN ECONOMY IN THEORETICAL FRAMEWORKS

First we try to identify the variables that may help explain the Hungarian inflation path in the socialist regime. The export (X), import (M), investment (I) and consumption (C) are not only the components of GDP (Y) (Y=C+I+X – M), but they may also explain – perhaps surprisingly – the inflation (p). If we take the investment- and export-driven economic policy as investment/consumption and export/import rates, they may also serve as a basis for the inflation developments. We expect of the p =f{I/C; X/M) correlation that it returns a different path for the constant production structure of the planned economy and for the market economy following the price ratios.

Table 21
Consumption, accumulation formation, import, export, consumer price level

	Import (M)	Export (X)	X/M	I/C	Inflation	Consumer price indices	Consumption (C)	Investment (I)
1960	100	100	1.00	1.00		100	100	100
1961	108	118	1.09	1.02	0.90	100.9	102	104
1962	124	130	1.05	1.04	0.50	101.4	108	112
1963	142	139	0.98	1.12	-0.59	100.8	113	126
1964	159	154	0.97	1.14	0.40	101.2	119	136
1965	158	170	1.08	1.08	0.69	101.9	120	129
1966	168	186	1.11	1.12	1.18	103.1	126	141
1967	197	202	1.03	1.29	0.39	103.5	133	172
1968	203	216	1.06	1.24	-0.29	103.2	140	174
1969	215	248	1.15	1.18	1.36	104.6	147	174
1970	274	266	0.97	1.26	1.34	106.0	159	201
1971	326	289	0.89	1.46	1.98	108.1	168	245
1972	309	348	1.13	1.24	2.87	111.2	173	215
1973	318	394	1.24	1.19	3.33	114.9	180	215
1974	374	404	1.08	1.38	1.83	117.0	192	265
1975	398	427	1.07	1.45	3.76	121.4	201	292
1976	406	455	1.12	1.45	5.02	127.5	205	298
1977	447	519	1.16	1.53	3.92	132.5	214	327
1978	503	524	1.04	1.73	4.60	138.6	223	385
1979	481	586	1.22	1.44	8.87	150.9	230	331
1980	473	588	1.24	1.37	9.08	164.6	232	318
1981	479	612	1.28	1.31	4.62	172.2	238	312

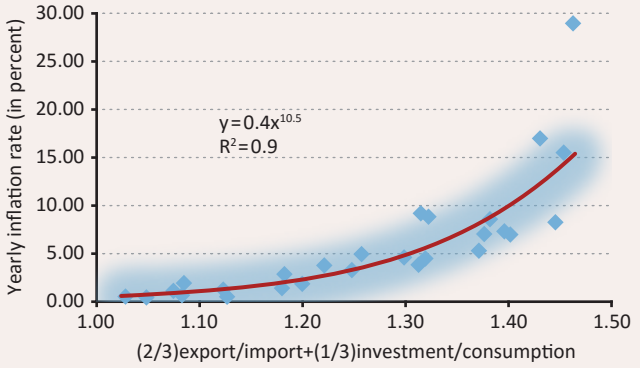
Table 21
Consumption, accumulation formation, import, export, consumer price level

	Import (M)	Export (X)	X/M	I/C	Inflation	Consumer price indices	Consumption (C)	Investment (I)
1982	463	642	1.39	1.25	6.91	184.1	241	301
1983	468	684	1.46	1.15	7.28	197.5	242	278
1984	473	732	1.55	1.11	8.30	213.9	245	272
1985	508	770	1.52	1.05	7.01	228.9	249	262
1986	521	753	1.45	1.12	5.33	241.1	255	285
1987	533	778	1.46	1.11	8.63	261.9	264	294
1988	532	830	1.56	1.11	15.50	302.5	256	284
1989	546	834	1.53	1.11	16.99	353.9	259	288
1990	505	800	1.58	1.09	28.88	456.1	252	275
1991	607	760	1.25	0.91	35.01	615.8	239	217
1992	502	768	1.53	0.72	22.98	757.3	240	173
1993	608	666	1.10	0.91	22.50	927.7	253	229
1994	695	777	1.12	1.11	18.81	1102.2	247	274
1995	668	842	1.26	1.28	28.15	1412.5	231	296
1996	704	881	1.25	1.38	23.60	1745.9	225	310
1997	890	1144	1.29	1.52	18.30	2065.4	228	346
1998	1112	1401	1.26	1.74	14.30	2360.8	236	410
1999	1271	1625	1.28	1.68	10.00	2596.8	248	416
2000	1535	1978	1.29	1.74	9.80	2851.3	255	444
2001	1597	2132	1.34	1.60	9.20	3113.6	266	425
2002	1678	2258	1.35	1.55	5.30	3278.7	285	441
2003	1848	2464	1.33	1.46	4.70	3432.8	306	446
2004	2131	2916	1.37	1.64	6.80	3666.2	312	511
2005	2262	3250	1.44	1.55	3.60	3798.2	322	499
2006	2587	3832	1.48	1.56	3.90	3946.3	326	510
2007	2898	4438	1.53	1.58	8.00	4262.0	322	509
2008	3024	4623	1.53	1.59	6.10	4522.0	322	511
2009	2508	4035	1.61	1.26	4.20	4711.9	308	389
2010	2888	4719	1.63	1.36	4.90	4942.8	301	409
2011	3083	5184	1.68	1.30	3.92	5136.6	303	395
2012	3080	5215	1.69	1.24	5.67	5427.8	297	367
2013	3237	5438	1.68	1.27	1.73	5521.7	300	381
2014	3520	5812	1.65	1.39	-0.22	5509.6	306	424
2015	3763	6269	1.67	1.33	-0.07	5505.7	321	427

Source: Own edit from HCSO data.

In the planned economy, in the case of fixed capacity, if investments are increased, the wage outflow is projected on smaller consumer goods stock, which raises consumer prices, i.e. the higher the I/C is, the larger p will be. Similarly, if the consumer goods are not used in Hungary, but they are imported, there is a trend of consumer price increase under a wage bill projected on decreasing stock. In short, in a planned economy we can expect that prices will increase under increasing accumulation/consumption and growing export/import. p=f{a×X/M+b×I/C} Approximately the p=f{a×X/M+b×I/C} correlation under weights of a=2/3 and b=1/3 return a surprisingly good match between 1961 and 1990.

Chart 5
Relation of consumption, accumulation, import, export and consumer price index



Source: Own edit from HCSO data.

The strong correlation (R^2=0,9) can be understood intuitively as well. If we compare the paid wages with the stock of consumer goods produced in Hungary and not exported, then clearly the share of consumption will be lower under a higher share of accumulation, and the larger part of the imported goods are imported not with the aim to please the consumers, but to procure machinery for the investments. Of course, in logical terms it is possible to connect these two dimensions in a different way, i.e. the planned economy exports machinery and imports consumer goods; however, there would have been no buyer for the domestic investment goods paying in hard currency, and the Central Planning Office had no intention to use the scarce foreign currency revenues for "indulging" the households. (In the case of market economies, there is no reason for this logic to prevail. In addition to the export- and investment-oriented economic policy fitting into

the international division of labour, it is either able to produce more goods, or raises consumer price to a lesser degree.)

The higher export rate of the planned economy increases inflation. If an economy has to obtain a specific volume of foreign currency due to any reason, in the case of deteriorating terms of trade it increases its exports and reduces its imports, thereby depleting the stock of domestic consumer goods and increasing the wage bill of the exporting companies, whereas in a market economy it would raise export production as and where it has the opportunity to earn higher income for one unit of expenditure and under a given consumption demand it can import more for cheaper.

CAUSES OF THE SOCIALIST INFLATION IN THE CONTEMPORARY LITERATURE

The staff of the Financial Research Institute undertook in the years preceding the political transition to explore the reasons of the Hungarian socialist inflation and they fulfilled the mandate with a volume comprising of several studies (Asztalos – Balogh – Hagelmayer – Polgár – Riecke (1987); edited by: Hagelmayer, hereinafter: Hagelmayer (1978)). We regard these papers as one of the summary works of the contemporary knowledge on the subject (consumer price inflation of the socialist economy). In this part of the chapter we describe the key thoughts of the authors with our comments.

István Hagelmayer: Causes of inflation and possibilities of reducing it

Prices in Hungary increased when there was a surplus in imports, financed by loans, and also when we managed to achieve export surplus. (see p. 32 of the work). Hagelmayer's statement may be qualified by saying that export or import surplus alone has no explanatory power, but it may have a role in the inflation model. In 1974-78 the growth rate of nominal wages exceeded the real GDP growth rate every year, which results in price increase under constant consumption/GDP. Demands are further raised by the two-digit growth rates of the cash social benefits. In 1979, with many years of delay, attempts were made to adjust the errors of former years; the recovery of the external balance became the key goal in addition to preserving the living standards. The growth rate was slowed down, hoping for a transformation of the production structure meanwhile. The latter was not achieved. Hagelmayer correctly points out that the rigid production structure was maintained in

the socialist economy. This explains that the state-owned companies do not respond to price in a flexible way and their business is not driven by profit expectations. While at the level of economic governance the need to export and the responsibility for supply, formulated as expectation, often compete with each other, the objective of the company is to obtain more resources, whether it is in the form of investment, import budget or higher wage; the companies' rent seeking strategy proved to be successful. The raising of wages faster than production was a conscious governance measure, to ensure differentiation even under downwardly rigid wages. Wages rose, however this was not accompanied by a differentiation between good and bad companies. The price level would not change, if the wages rose in proportion to the productivity (not to mention the cash social benefits). It should be noted that Hagelmayer's logical model either includes a closed economy, where all companies manufacture both capital goods and consumer goods, or it assumes fixed capital formation ratio, with fixed export and import ratios. In any case, it does not appear simple to reproduce this logical model. The rate of accumulation rose in 1973-78, followed by a decline. If the budget deficit exceeds the savings of others, it increases the inflation. However, it is not proven that the devaluation stimulates export, but it certainly increases the prices. The export was influenced by wage preferences, i.e. the bonus of company directors, rather than by the devaluation. In summary, in his view the main causes of inflation were as follows: A) the economic policy pursued in 1973-78, which increased outstanding debt; B) the wage outflow and cash social expenditures, which exceeded domestic supply after 1979; C) failure to reform the production structure, corporate liquidity shortage and insensitivity to expenses, and the absence of corporate cash savings. Hagelmayer looks for the cause of the socialist inflation by gaunt logical argumentation. For the readers of today it is not clear what he meant under the absence of corporate cash savings; perhaps that they made no attempts to invest from the sales revenues of the goods, but rather used it for wage increase. If the increase of export is not feasible, the export surplus may also be achieved import restrictions. The decreasing import budget, determined in the National Planning Office, was accompanied by restraining the production rate, which also resulted in the reduction of investments. This was the period, when the state made all efforts to meet the repayment obligations arising from the external indebtedness (the degree of which was concealed until 1989) and it had no free resources for the management of inflation. Meanwhile the inflation did not disturb the insight of the producers, as they had no such ambitions.

Riecke: Interactions of exchange rate movements and inflation in Hungary.

Riecke created a mathematical model. Let us suppose that M supply of money is the sum of R and D; M=R+D=P×f(y,i), where R is the foreign currency reserve and D is the domestic loan, which equals the cash demand in a balanced situation, has a positive relation with P price level and y production and negative relation with i interest rate. Let us suppose that r=R/M, and the growth elasticity of y is 1, while the growth elasticity of i is 0 . Let us reduce the equation by price increase: $g_P = [(1-r)g_D]-g_Y+r\times g_R$, i.e. if the growth in outstanding borrowing exceeds the growth in money demand justified by the economic growth, then only the inflation or external indebtedness reinstate the balance.

Table 22
Inflation factors, per cent

	Impact of economic growth	Impact of indebtedness	Estimated impact of money creation by making loans	GDP deflator		
1973	–6.9	9.5	0.1	2.7		
1974	–5.9	–9.3	14.0	–1.2		
1975	–6.2	–15.7	23.1	1.2		
1976	–3.6	–8.5	17.9	5.8		
1977	–7.6	–9.5	19.3	2.2		
1978	–4.4	–19.5	27.5	3.6		
	Impact of economic growth	**Impact of indebtedness**	**Estimated impact of money creation by making loans**	**GDP deflator**	**Change in the velocity of circulation**	**Calculated GDP deflator**
1979	–2.7	–7.0	15.7	5.5	–0.5	5.5
1980	–0.2	–0.5	11.1	5.4	–4.9	5.5
1981	–2.9	–3.7	11.7	5.1	0.0	5.1
1982	–2.8	–3.4	10.1	5.7	2.1	6.0
1983	–2.8	–8.4	12.1	4.7	1.9	4.9
1984	–2.7	–3.3	8.5	6.3	3.6	6.1
1985	0.3	–10.7	20.5	6.0	–4.2	5.9

Source: Own edit based on Hagelmayer (1987) pages 81 and 89.

In 1973-78 the large growth in the outstanding borrowing was combined with appreciating exchange rate policy, which mostly resulted in the growth of outstanding debt. The objective after 1979 was to stop the growth in the outstanding debt, while after 1982 to reduce it; to this end the domestic outstanding borrowing was restrained. Had this been accompanied by an increase in production, it would have reduced inflation; however, this would have required the transformation of the production structure. Since neither the fiscal, nor the monetary restriction worked, inflations remained in place. Riecke was one of the first who tried to apply a monetary model for the nominal processes of the socialist economy. If the credit growth exceeds the rate of production, the surplus cash gives rise inflation or indebtedness. If indebtedness is to be stopped or reduced, then credit growth must be restrained. Riecke's paper is a good supplement to Hagelmayer's study. He assumed that the Hungarian economic governance regarded the curbing of inflation as a priority (like, e.g. under Volcker in the USA). However, this remained unproved; it may as well be the case that the key objective was the preserve jobs and the country's international solvency, while the inflation could develop as it was justified by the use of the instruments supporting the primary goals.

Polgár: Wage policy and inflation; Social public spending – inflation effects

The role of wages in the inflation process During the entire period of 1973-85 household consumption rose at the same rate as the national income (137.6 vs. 137.4). Between 1973 and 1978 the national income exceeded consumption by about 10 percentage points; investments may have been the "source" of inflation; between 1979 and 1985 consumption exceeded the growth rate of national income by roughly 4 percentage points. The 3 sources of real income developed as follows:

Table 23
Changes in real income per capita

	Wages and salaries	Social benefits in cash	Social benefits in kind
1973	100	100	100
1978	115.1	151.6	128.6
	Wages and salaries	**Social benefits in cash**	**Social benefits in kind**
1978	100	100	100
1985	101.0	128.6	122.5

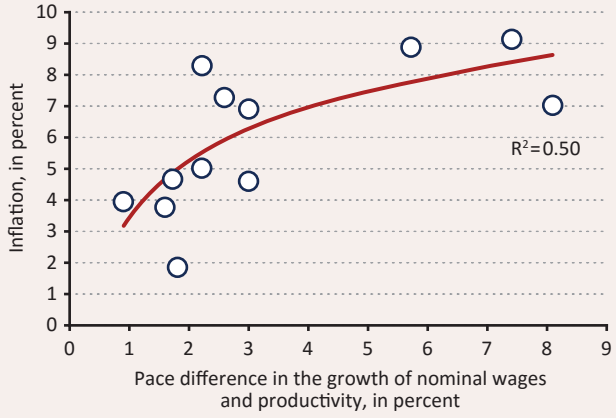
Source: Hagelmayer (1987). Own edit based on pages 97 and 99.

Table 24
Changes in nominal wage and productivity

	Nominal wages	Productivity	Difference
1974	107.4	105.6	1.8
1975	107.6	106.0	1.6
1976	105.2	103.0	2.2
1977	107.8	106.9	0.9
1978	107.8	104.8	3.0
1979	107.0	101.3	5.7
1980	107.6	100.2	7.4
1981	105.8	104.1	1.7
1982	106.1	103.1	3.0
1983	103.9	101.3	2.6
1984	105.5	103.3	2.2
1985	108.3	100.2	8.1

Source: Hagelmayer (1987). Own edit based on pages 97 and 99.

Chart 6
Inflation and nominal wage increase in excess of productivity in 1974-85



Source: Hagelmayer (1987). Own edit based on pages 97 and 99.

Consumption growth was mostly determined by the increase in incomes. Nevertheless, it is still important to consider the part of the wage growth that exceeded productivity. Instead of explaining the not too strong relation, it makes more sense to present how wage control contributed (instead of wage

differentiation by wage levelling) to the relative increase of wages. Although the bottom line's corporate efficiency was 5-6-fold (25 vs. 5), the wage level was higher only by 3 per cent.

Table 25
Increase in corporate efficiency and the wage level

Corporate performance (%)	growth of wages	
(1983-1985)	1984/1983	1985/1984
0	113.6	108.0
0-5	112.6	110.7
5-10	113.6	108.0
10-15	114.6	111.2
15-20	114.8	109.6
20-25	114.8	111.1
25-	115.9	111.3

Note: 1983=100; corporate efficiency = net production value/weighted average of allocated assets and wage costs.
Source: Hagelmayer (1987). Own edit based on p. 101.

There was no room for wage differentiation, as the difference between the consumption base and the poverty line was too small. It should be added, that under equal efficiency giant companies (with employees over 5,000) could raise wages by more than 10 per cent than small companies with employees fewer than 300. The increase in public sector spending (accounting for a good one-third of the budget) typically exceeded that of the internal use of national income, almost every year, by 9 percentage points on average. Meanwhile, the share of social insurance in public spending rose by roughly 7 per cent. The institution maintenance expenditures in 1981-85 fell short of the inflation rate every year. 70 per cent of the social insurance was pension and 15.9 per cent thereof was family allowance in 1985. The real value of pension in 1980-85 typically fell by one-quarter. 35 per cent of the paid pensions was covered by the received pension contribution, while the rest of it was supplemented from the budget.

Table 26
Social public spending and real growth in the internal absorption of the national income

	Social public expenditures	Share of institutions	Share of social security	Final consumption expenditures of GDP
1974	112.2	67.5	32.5	112.4
1975	113.3	66.2	33.8	106.4
1976	107.2	65.0	35.0	101.2
1977	104.9	62.6	37.4	105.9
1978	112.0	64.2	35.8	109.2
1979	109.3	65.4	34.6	94.2
1980	116.5	63.2	36.8	98.5
1981	122.0	60.6	39.4	100.7
1982	108.8	62.4	37.6	98.9
1983	106.8	61.7	38.3	97.3
1984	108.7	60.5	39.5	99.3
1985	111.4	61.2	38.8	99.3

Source: Hagelmayer (1987). Own edit based on pages 247 and 248.

Two studies of Polgár introduced new aspects; under the 5-6-fold difference in the companies' efficiency, the growth rate of wages differed from each other only by 3-4 percentage points; the wage at a very efficient company is roughly the same as that at a very bad company. Thus the efficient labour force does not look for the efficient company; presumably the rational decision of the employees was just the opposite: in the case of an inefficient company they presumably had to work making less effort for roughly the same wage. The sectoral breakdown of the companies is not clear from the table, thus we only know that there was no material wage differentiation, as the wage was small and a good part of the income was not related to employment anyway. Even if the correlation between inflation and the increase of wages exceeding productivity is weak, the effect exists anyway.

Réthy: Budget and inflation

The sustenance of companies with financial deficit by subsidies may generate inflationary pressure, as: 1) it is not only that the wrong company receives funds from the budget, 2) but it also deprives efficient companies of funds, thus the taken funds do not facilitate the balance of the budget. The export of worsening efficiency required increasing support, which necessitated the

absorption of domestic income to an increasing degree, which resulted in a price hike. The forced import substitution also proved to be expensive. Surprisingly, the higher budget deficit was accompanied by lower inflation in 1973-85. According to other calculation, there was a positive relation between government demand generation and inflation, but after 1980 this relation wore out. The fiscal demand control of operative nature did not prove to be an appropriate anti-inflation instrument: it did not manage to keep demand at the desired level, nor could it create harmony between demand and supply.

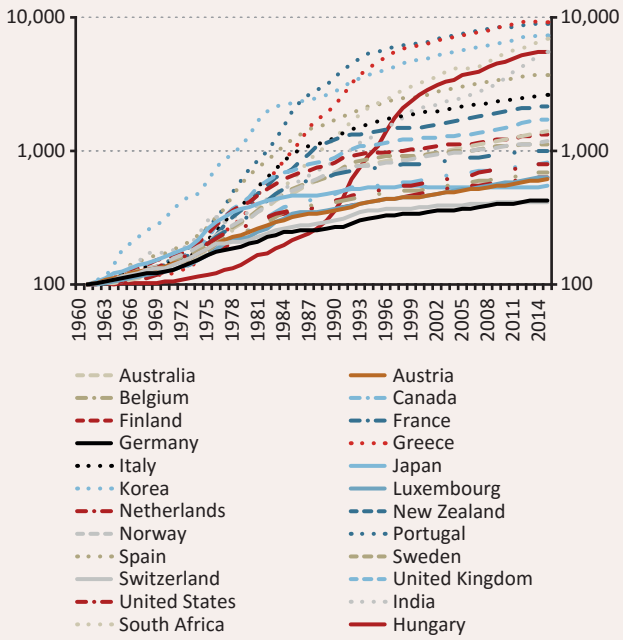
Asztalos: Savings and inflation

The companies' cash and deposit holding in 1975-81 was about 16 per cent of the GDP, which fell to 11 per cent by 1985; roughly two-thirds of this was voluntary holding (i.e. based on own decision). In 1980 interest on one-year corporate deposits was paid at 5 per cent, which rose, more or less steadily, to 9 per cent by 1985 in nominal terms, while real interest rate rose from -9 per cent to +4.5 per cent by 1985. Loans rose from the base of 1975=100 to 249 by 1985 (together with the corporate investment and working capital loans, and the state investment loans). Loan interest rates exceeded deposit rates by roughly 4 percentage points. Companies were insensitive to interest rates, but they were sensitive to obtaining various state preferences, which they could acquire as a proportion of their relative size and political support. It should be noted that the fiscal demand control was inefficient (Réthy), and monetary regulation also missed the target (Riecke). Wage control was not a good instrument either (Polgár), as the original problem was the rigidness of the production structure (Hagelmayer), which was also reflected in the companies' insensitivity to interest (Asztalos). All this (absence of profit incentives, multi-purpose of state ownership, low efficiency of planned economy, insensitivity to prices, etc.) is discussed in detail in the summary work of historical importance by János Kornai (1993).

HUNGARIAN INFLATION IN THE LIGHT OF OTHER COUNTRIES' PRICE DATA

The chart shows – from OECD source – the 1960-2015 price indices of the certain market economies. OECD data for Hungary are available only from a later date in the table used, thus we added the Hungarian data from the HCSO database (indicated by continuous red line).

Chart 7
Consumer price levels
(1960=100)



Source: Own edit from HCSO and IMF data.

In the field of 24 countries, Hungary was in the vanguard with its 55-fold inflation in 56 years; countries with higher inflation than Hungary included: 1) Portugal, 2) Greece, 3) Korea, 4) South-Africa, 5) India. Countries where the devaluation of the currency was smaller than in Hungary, but it was at least 10-fold, in descending order: 1) Spain, 2) Italy, 3) New-Zealand, 4) United Kingdom, 5) Australia, 6) Finland, 7) Norway, 8) Sweden, 9) France. Countries with the least devaluing currencies (the most stable ones are at the end of the list): 1) Canada, 2) USA, 3) Belgium, 4) the Netherlands, 5) Luxembourg, 6) Austria, 7) Japan, 8) Germany, 9) Switzerland. Until 1987 Hungary had the slowest inflation, while between 1988 and 2000 its currency depreciated 10-fold (beating the record in this respect), but in the next 15 years the inflation rate substantially decelerated.

Consumer price level of some socialist countries between 1949 and 1990: Subsistence costs index (1949=100): GDR_{1995}=62, $Hungary_{1955}$=168.2, $Poland_{1954}$=180.5. Food prices: (1950=100) GDR_{1965}=65, $Czechoslovakia_{1967}$=118, $Bulgaria_{1965}$=141, $Hungary_{1968}$=204, $Poland_{1967}$=234. Consumer price (1968=100) GDR_{1989}=100 $Czechoslovakia_{1989}$=112.8, $Hungary_{1989}$=343, $Poland_{1989}$=5,200.

Table 27
Inflation rates

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Bulgaria		0.0	2.8	2.8	2.8	2.8	2.7	2.7	2.5	6.4	23.9
Hungary	9.3	4.5	7.0	6.4	8.7	7.0	5.3	8.7	15.8	17.0	29.0
Poland	9.4	21.2	100.8	22.1	75.6	15.1	17.8	25.2	60.2	251.1	585.8
Roumania	1.5	2.2	16.9	4.7	-0.3	-0.2	0.7	1.1	2.6	0.9	127.9

Sources: Own edit from IMF data.

In brief:

- The GDR palliated all prices, compared to 1949 its prices fell by one-third by 1989.
- Prices in Czechoslovakia rose, compared to 1949 its prices rose by one-third by 1989.
- Partial information on Bulgarian prices: 1949-65, 1980-89 prices rose by roughly 80 per cent in total.
- Prices in Roumania: rose by 150 per cent between 1980 and 1990.
- Hungary's prices rose fast between 1949 and 1989, by roughly 540 per cent.
- The fastest rise in prices was registered by Poland (compared to 1949 they rose by 5,400 per cent by 1989).

In 1960-1990 Poland would have been in the top price increase range of the countries analysed, while Hungary would have been in the bottom thereof, but (presumably) would have preceded Roumania, Bulgaria, Czechoslovakia and the GDR. It is not efficient to compare the price increase in socialist

countries directly with price increase of market economies, not only due to the heavy manipulation of the statistical data from time to time, but also because if there was a shortage of any product, the political leadership rather assumed responsibility for the shortage than trying to reduce the demand-supply gap by price increases. In this sense the higher price increases by the Hungarian economy may be regarded as a step toward market simulation. Inflation sometimes is compared to fever, but there are patients who never have high temperature, although there is an inflammation in their bodies.

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IV. Development of inflation and monetary policy since the change in regime until the introduction of inflation targeting

Dániel Plósz, Árpád Vadkerti

1990-95: THE SURGE IN INFLATION WAS CONCOMITANT OF THE ECONOMIC RESTRUCTURING AFTER THE CHANGE IN REGIME

Switching over to market economy occurred with significant inflation in Hungary as well. The fundamental structural and proprietorial transformation of the economy; the reduction of the previous production and consumption subsidies; the elimination of the distortions of the administrative price system[61]; the significant transformation of the price formation role of the price structure, the taxes and subsidies; and the drastic transformation of the price mechanism inevitably went together with the – temporary – acceleration of the growth rate of the price level. **Between 1990 and 1994 the consumer price level increased by the same rate as it did between the previous 16 years in total.** The gap between producer and consumer prices opened, at the expense of the latter (Table 28).

[61] The two-level price system was discontinued in 1988.

Table 28
Development of producer and consumer prices between 1990-1994, previous year=100

Year	Producer prices	Consumer prices
1990	122.0	128.9
1991	132.6	135.0
1992	112.3	123.0
1993	110.8	122.5
1994	111.0	118.8
1994/1989	223.4	311.5

Source: Cinkotai [1996], MNB table.

The subsectors affected by the withdrawal of subsidies (energy sector), and the price increases in the sphere of subsidised value added tax and in connection with the increases in the VAT have a special role in the increase in consumer prices via inflation expectations. An example for this is 1994 when the central measures affected the above mentioned segments less, thereby, as an effect of the market price increases, the total consumer price level decreased by a larger extent – compared to the previous year – that what would have been justified by the effect of the various measures (Cinkotai [1996]).

Examining the period between 1990-1994, it can be stated that **the measures of the authorities and the market price changes resulted in the change of consumer prices in a ratio of approximately fifty-fifty per cent** (Table 29). Starting from 1992, as the price changes of the measures of the authorities decreased, the dynamics of the consumer price level started to slow down as well. In connection with producer prices, after the price liberalisation, the Gulf crisis and the drastic producer energy price increase at the end of 1990, the growth rate of the price level stabilised at around 20-23 per cent from 1992, whereas consumer prices stabilised at around 20 per cent.

Table 29
Components of growth of consumer price level between 1990-1994
(percentage point contribution)

Year	Official measures	Market price changes	Total
1990	15.4	13.5	28.9
1991	13.7	21.3	35.0
1992	5.3	17.7	23.0
1993	5.8	16.7	22.5
1994	4.1	14.7	18.8

Source: Cinkotai [1996], MNB table.

In the decades before the change in regime the energy prices did not reflect the market price level. Switching over to the market economy resulted in changes in this area, too. The consumer price of coal products, propane-butane gas and household fuel oil was reclassified to free price form. The fees of district heating were determined by the local governments. Central pricing remained in the case of electric energy, natural gas and heat generation.

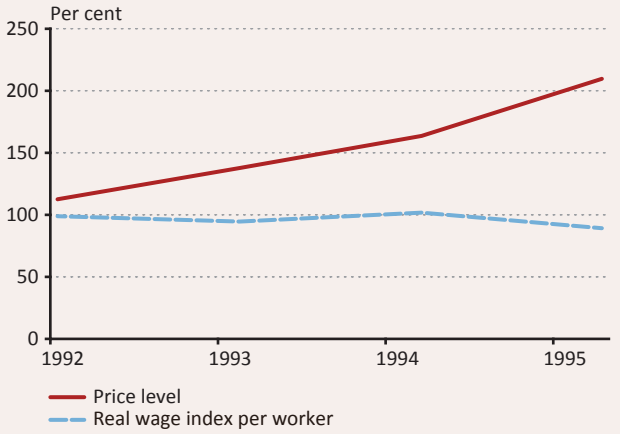
In the examined period, the producer prices of energy increased drastically in November 1990, after the Gulf crisis. Among the freely priced products, the prices changed in line with the world market trends. In the case of consumer tariffs, there was a significant increase in prices, which can be explained by the termination of considerable price subsidies between 1990 and 1992 and by making these products subject to VAT (Cinkotai [1996]).

The increase in wage costs was also a significant factor in the change of the price level. The increase in gross incomes could exert pressure from the side of production costs. However, a role was also played in the stabilisation of the inflation by the fact that wages did not detach significantly from the performance of the economy.

The high inflation expectations led to a price-wage spiral. The transformation involved a prolonged and high inflation, which basically caused the devaluation of wages. Compared to December 1991, nominal wages increased by more than twofold by the end of 1995, however, the change in the price level exceeded the increase in wages, i.e. the real value of wages decreased gradually by 1995 compared to the previous years (Chart 8). According to some people, a radical restraining of the increase in wages would have been

necessary in order to decrease inflation, however, that would have met with significant resistance of the society (Cinkotai [1996]).

Chart 8
Development of wages and inflation, 1991=100%



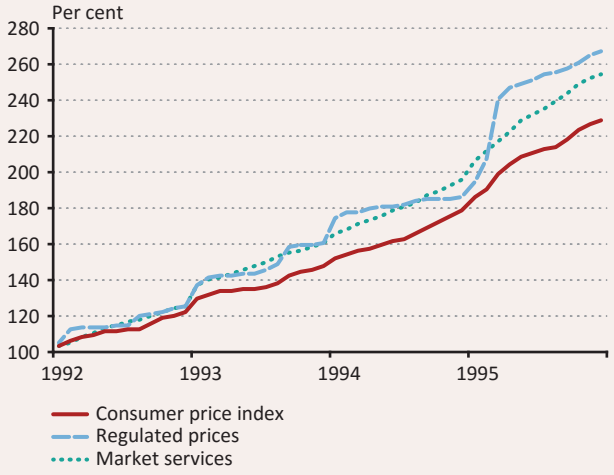
Source: HCSO, MNB.

Inflation expectations were also of major importance in terms of the changes in inflation. Approximately half of the inflation was caused by the effects in connection with the switch over to the market economy, whereas the other half was clearly caused by inflation expectations (Cinkotai [1996]). After 1990-1991, with the end of the large inflation shock, economic policy started to bring down the inflation building in to the expectations of the market. However, the uncertainties related to the transformation had an effect on the following years as well, the strong inflation expectations remained in 1992-1993, too. By 1994 it became clear that the decrease in the extent of inflation cannot be maintained. The market became mistrustful, and the exchange rate became not the breaker of inflation, but the accelerator. Inflation gained momentum, in 1995 it reached its newer peak, when the prices of products and services increased by 28.2 per cent compared to the previous year.

On the basis of a breakdown by product groups, inflation was accelerated by the price dynamics of market services and regulated prices in the second half of the 1990s (Chart 9). Regulated prices included products (e.g.

textbooks) and services (e.g. waste collection, water and sewer fees, piped gas) determined in legal regulations by the state and the local governments. Local governments had a rather wide opportunity to form regulated prices, the high price index of the product group can be explained by the price increase justified the market, moreover, the increasing budget fund demand and decreasing state subsidy of the municipalities.

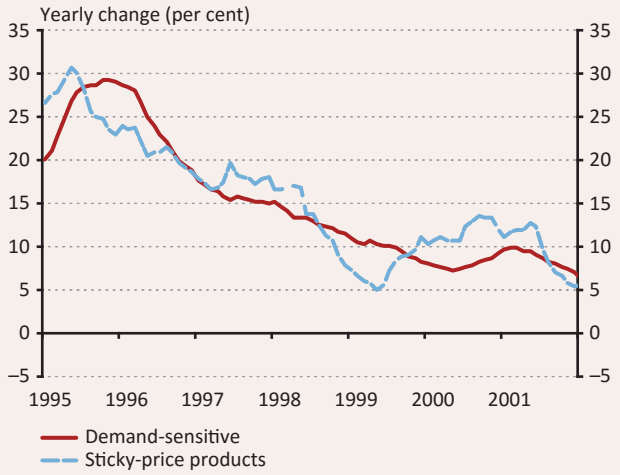
Chart 9
Price level between 1992-1995, 1992=100%



Source: HCSO, MNB.

The various measures of the government also had an effect on inflation developments. Central measures resulting in the total consumer price level increase of twice the level (14-15 per cent) as in the years of the tax reforms in the 1980s were performed in 1990-1991. From 1992 all this brought a major turn in terms of wage demands and inflation expectations. After this, the effect of measures related to the switch and the difference between the inflation rate and the inflation indicators capturing the basic processes (Chart 10) decreased in vain, the price change of product groups affected by the central price increases kept inflation expectations at a high level (Cinkotai [1996]).

Chart 10
Development of indicators of the underlying inflation processes



Source: MNB.

In this period monetary policy was characterised by a series of one-off exchange rate adjustments (system of adjustable exchange rate pegging – adjustable peg). The devaluation of the exchange rate could take place only this way, since the exchange rate of the forint was pegged to an extremely narrow band (±2,25 per cent). In the course of the adjustable peg, the exchange rate of the Hungarian currency was pegged to a currency basket determined beforehand, but of changing composition later on, compared to which the exchange rate of the forint was devalued at dates not announced beforehand. In the beginning the exchange rate band contributed to the stability of the exchange rate, however, if a significant economic policy objective required it for the central bank at the time, it adjusted the exchange rate. The series of devaluation steps primarily served the competitiveness of exports, however, keeping inflation under control also appeared as an objective. Approaching the end of the period, the central bank was forced to adjust the exchange rate more frequently in order to achieve its goals. The all in all significant, more than 80 per cent exchange rate devaluation until 1995 – which was a result of 22 individual devaluation steps – contributed to high inflation, thus, the credibility of the monetary policy was also in danger. In addition to the unpredictability caused by the devaluations, the uncertainty was also increased by the lack of stated objectives. By 1995 it became clear that exchange rate policy balancing between two internal goals is not suitable

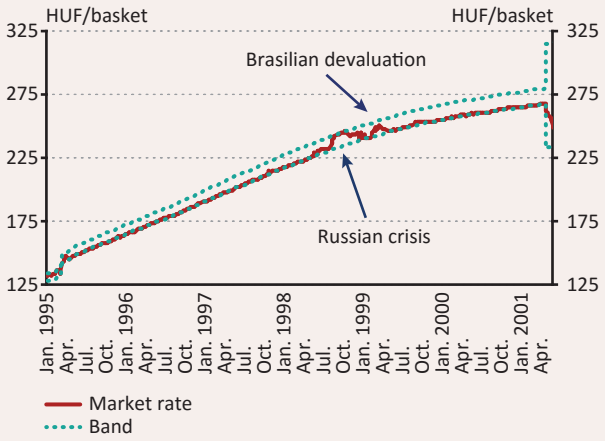
for implementing the objectives of the central bank. At that time inflation in Hungary (28.2 per cent) was higher than in the trading partner countries, thus, the real exchange rate was under appreciation pressure, which could not be offset by the exchange rate policy, taking into consideration the increasing imported inflation because of exchange rate devaluation, with nominal devaluation steps, since those facilitated the growth of inflation as well. In order to decrease the suddenly surging inflation and the deficit of the current account balance, the MNB intended to affect with both exchange rate policy steps and the tools of interest rate policy, therefore, it increased the interest rate of the main policy instrument to 28 per cent, a historically high level, between 1993-1995 (Madarász – Novák [2016]).

1995-2001: PERIOD OF THE CRAWLING PEG

By the mid-90s, the financial resources of the country were exhausted as a result of the economic transformation. After the prolonged recession, growth started only slowly, and the situation of the state budget did not make it possible to stimulate the economy from the fiscal side. Public debt was increased continuously by the simultaneous deficit of the budget and the current account balance. Markets were willing to finance the expenses of the budget more and more expensively, which, ceteris paribus, increased the public debt in and of itself as well. Transformation was necessary in order to restore the credibility of economic policy. In addition to the market participants, the IMF also expected this from Hungary. The economic policy leadership thought that this can be assured by a restriction package including the rapid cutback of the deficit on the expense side, by the reduction of social expenditures, the restriction of the sphere of people entitled to family allowance, freezing and withdrawal of consumer price subsidies, and freezing the wages of civil servants. They made an effort to increase the income side with various tax and allowance increases, of which the increase in excise duty and the introduction of the import surcharge were among the major elements. They intended to achieve the decrease in debt by accelerating privatisation. Despite significant growth sacrifices, the measures caused an improvement of the equilibrium situation of the economy, although the Constitutional Court subsequently terminated several elements of the so-called “Bokros-package” (named after the then-Minister of Finance Lajos Bokros). In the short term, the Bokros-package decreased the living standards of the population considerably.

The change of the exchange rate system was also a part of the Bokros-package, in which the so-called crawling peg system was introduced. The crawling peg was built on the devaluation of the exchange rate in a pre-announced rate, adjusted to the extent of the expected inflation, and on the predictable nominal exchange rate as an anchor. Upon the introduction of the crawling peg, the exchange rate of the forint was devalued by 9 per cent as a one-off step on 13 March 1995 (Szapáry – Jakab [1998]), then the exchange rate of the forint was devalued by 1.9 per cent until June 1995 and by 1.3 per cent between July and December 1995, at rates announced beforehand in all the cases. The rate of devaluation was determined by the central bank and the government all the way until the change to the fluctuation band exchange rate system and inflation targeting in 2001. The rate of devaluation decreased until the end of the period of crawling peg. Based on the principle of interest rate parity, the pre-announced exchange rate path determined the short-term money market interest rate level expected by investors. In order to increase the room for manoeuvre of interest rate policy, starting from the beginning of 1996, the central bank did not announce the period of validity of the current devaluation rate and the date of the next devaluation. In the system of the crawling peg, the exchange rate of the forint could move freely in the designated ±2.25 per cent band, the MNB did not intervene in the case of movements within the band, only at the two edges, if it was necessary. An example for this was the Russian crisis in 1998, during which the exchange rate of the rouble was devalued significantly, which put a considerable devaluation pressure on the regional currencies. In favour of the credibility of the exchange rate band, the MNB first resorted to verbal intervention, however, later on – at the end of September 1998 – raising the base rate became unavoidable ([MNB, 1998]). The central bank handled the outflow of capital as a result of the Russian crisis with the reduction of the sterilisation portfolio accumulated previously, thus, currency market intervention took place after the outflow of capital. Namely, the increasing foreign currency demand of the Hungarian banking system caused the weakening of the forint at that time. In 1999 the forint moved away from the strong band edge again for a longer period of time, however, except for this, there were only small movements until the widening of the exchange rate band (Chart 11). Thus the emerging volatility of the forint within the band made it possible that the interest rate policy could flexibly handle the premium expectations of foreign investors vis-à-vis the forint, that is, the short-term forint interest rates did not have to be changed immediately (MNB, [2000a]).

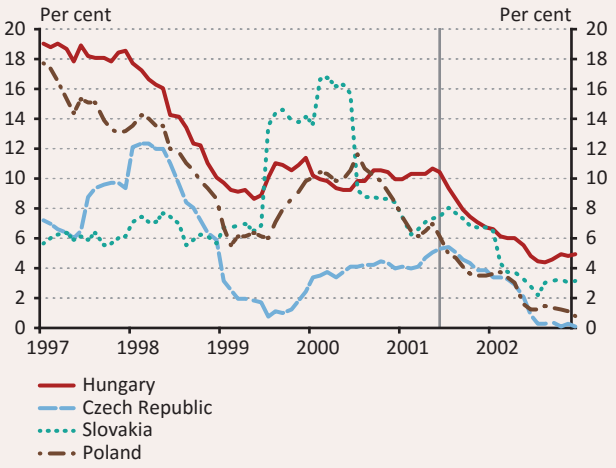
Chart 11
Exchange rate of the forint during the crawling peg



Source: MNB.

The tightening measures of the Bokros-package contributed to the improvement of the equilibrium position, however, this was reached with a surge in inflation: it temporarily increased to almost 30 per cent, then it gradually decreased by 20 percentage points to the level of 10 per cent in 1999. The disinflation process came to a standstill at this level and inflation was around 9-11 per cent for almost two years. This was caused mainly by the rapid increase in the prices of energy and food products stemming as external factors for monetary policy, however, the inflation expectations of market participants did not decrease either (MNB [2001]). It became clear that although the inflation surging as a result of the adjustment measures decreased mainly thanks to the crawling peg, however, it was no longer suitable for the further reduction of that. Because of the halt of the disinflation process, inflation was highest in Hungary among the countries of the region, it could decrease further only after the introduction of inflation targeting in 2001 (Chart 12). It is worth mentioning, however, that, of the economic policy objectives of that time, the restoration of the external balance of the country was more important than inflation policy. In order to further decrease inflation, the monetary policy regime was transformed again, in the framework of which the system of Inflation targeting was introduced in mid-2001.

Chart 12
The disinflation process stopped in Hungary in 1999



Remark: in the chart we indicated the introduction of inflation targeting in Hungary with a vertical line.
Source: Eurostat.

The picture about the anti-inflation economic policy characterising the period between 1995-2001 is mixed. The price changes in 1996 were favourably affected by the 15.6 per cent price decrease of seasonal price products. This change itself decreased the year/year type price index by 0.5 percentage points. In addition to the weather, the prices in agriculture could have also been influenced by the speculative, artificial change of production based on income expectations, indicating signs of cyclicality. The price changes in 1996 were not yet the consequences of the start of the anti-inflation process, the inflation indicator capturing the basic processes declined only slightly from 1995 to 1996 (from 1.4-1.5 per cent to 1.2 per cent) (Cinkotai [2001]).

In 1997, despite the fact that several unplanned government measures resulting in a decrease in the price level took place (and the unexpected decrease of seasonal prices), the annual change in the consumer price index was 18.3 per cent. All this shows that the development of prices in 1997 was not yet the year of the start of the anti-inflation process, however, in 1997 the pass through effect was smaller in the price index (6.0 per cent) than in 1996 (9.6 per cent) (Cinkotai [2001]).

After the change in regime, one of the important periods of Hungarian price history closed with the end of 1997. The enormous price ratio rearrangement

process, behind which there were the inevitable measures of the switch to the market economy, in essence ended.

In 1998, not only did costs diminish already in the pricing of products and services, but inflation expectations also decreased noticeably, for the first time after the change in regime (Chart 13). This trend stopped by the turn of the millennium, the inflation expectations moved in the range of 10-15 per cent, whereas inflation stabilised at the 10 per cent level.

By December 1998, the annual inflation rate decreased to 10.3 per cent, which is an improvement of 8.1 percentage point compared to the rate of 18.4 per cent in December 1997. The rate of price increase decreased in the case of all the components of the consumer basket. The price increase of gasoline and foodstuffs was significantly lower than the core inflation (which reflects the trend of the inflation process). “The highest price increase occurred in the case of market services not disciplined by the nominal price and the regulated prices” (MNB, 1999). The changes in imported inflation also played an important role in decreasing consumer prices. In addition to the changes in prices abroad, the nominal devaluation of the forint also had an effect on the changes in imported inflation, and all these pointed to decreasing inflation in Hungary.

In the years 1999-2000, the growth rate of the price level stabilised at the level of around 10 per cent. The period of relative price changes ended and the effect of inflation expectations decreased, too. Maintaining the low level of inflation was a consequence of an external factor, the moderate price dynamics of oil, natural gas, grain and meat industry products.

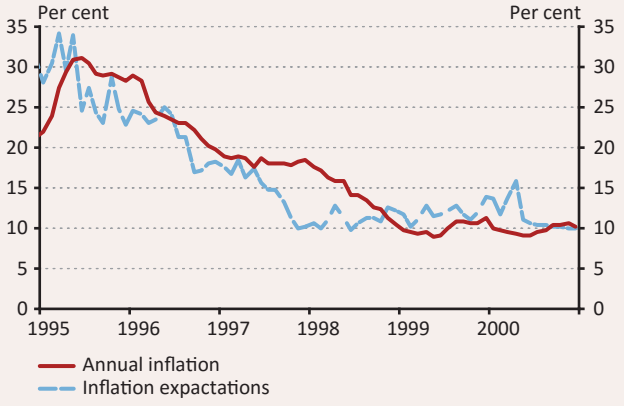
In the first half of 1999 the rate of price increase was lower, for the first time after 12 years, inflation was in the single digit range. However, in the second half of 1999, the consumer price index again increased to the double digit range, this temporary change was again reduced to single digit level after February 2000. As a result of one-off effects, the 1999 inflation was higher than the expectations, however, monetary policy had no influence on these factors.

The core inflation indicator indicated the gradual decrease in the inflation rate, from 10.7 per cent at the end of 1998 it decreased to 7.54 per cent by March 2000 (MNB, 2000a). In parallel with the decrease in inflation, the nominal growth rate of wages was lower, too.

The changes in regulated prices played a major role in the changes of the consumer price index. Of the 11.2 per cent of the inflation in December 1999, a price change of 2.8 per cent was the result of the price increase that can be observed in the product group of regulated prices (MNB, 2000a). The change of the medicine price subsidy system increased the rate of annual inflation by approximately 1 per cent (ibid.). Moreover, the price of other regulated price services also increased by a rate exceeding the inflation. The high extent of the price increase of household phone and medicine was the consequence of measures serving the termination of anomalies in the system of subsidies.

The rate of increase of consumer prices in 2000 was essentially identical with the price dynamics of 1999. Prices increased by 9.8 per cent, whereas the December 12-month price index indicated price dynamics of 10.1 per cent (MNB, 2001). The change in inflation was influenced to a large extent by the global energy prices, which were unfavourable from the beginning of 1999. "As a result of this, the price of energy sources determined by market processes increased continuously, at a rate of approximately 30 per cent at the annual level" (ibid.). On the other hand, as a result of the Russian crisis, the price changes of domestic foodstuffs also raised the rate of price increase of the consumer basket. In order to offset this, the government pursued anti-inflation policy in the case of product ranges under regulated price control.

Chart 13
Development of inflation and inflation expectations



Source: MNB, European Commission.

The effect of the measures related to the switch to the market economy influencing the total consumer price level was insignificant in the price changes of the turn of the millennium. Inflation was significantly influenced not by the effects stemming from the economic transformation already, but by the decreasing inflation expectations. The improving situation is indicated by the fact that the effect of the so-called market price changes influencing the aggregate price level decreased gradually.

Examining producer prices, it can be stated that this price index increased faster than the consumer price index in 1996, 1997 and 2000 as well. One reason for this is that the weight of energetics is more or less three times as much within domestic sales of the industry as is the weight of household energy within purchased consumption, moreover, the changes in energy prices appear in the industrial price statistics in an accumulated way in the aggregate index (Cinkotai [2001)].

The Bokros-package confirmed the expectation of the population that fiscal tightening entails the increase in inflation in Hungary. With the start of the budget restriction, the median of the inflation expectations of the population started to increase and it rose to the level of 35 per cent, meanwhile the actual inflation rate in 1995 was slightly below 30 per cent (28.2 per cent). With the gradual termination of the effects of the package of measures, by 1998 inflation expectations were successfully anchored to approximately 10 per cent, the level of the actual inflation. The decrease in inflation expectations can be explained by changes in monetary policy.

The rate of inflation decreased gradually between 1995 and 1999, from 28.2 per cent to 23.6 per cent in 1996, to 18.3 per cent in 1997, to 14.2 per cent in 1998 and below 10 per cent in 1999. In the years of the 2000s, inflation permanently stabilised at the single-digit level. At the end of the 1990s, mainly the low price dynamics of industrial products contributed to the decrease in the rate of inflation.

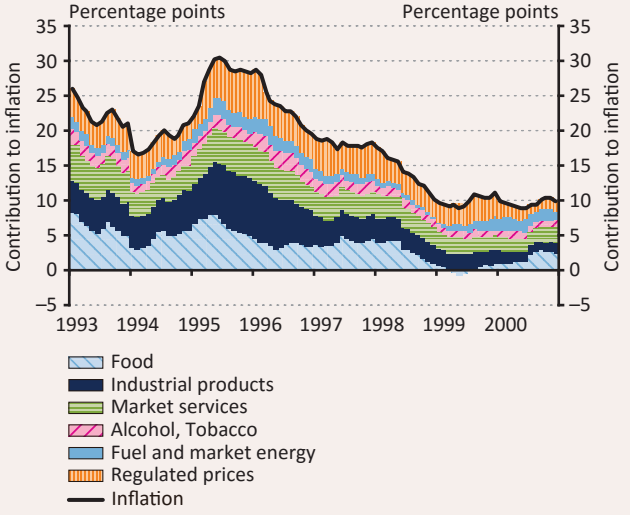
In general, high price dynamics could be observed in the years of the millennium, however, the spread of the third oil price wave also played a role in this (Botos [2003]). As a result of the increase in oil prices, the annual price index of fuel prices increased to 18.7 per cent in 1999 and to 28.1 per cent in 2000, which exceeded the annual average price changes significantly (1999: 10 per cent, 2000: 9.8 per cent). In addition to fuel prices, the annual consumer price index was increased by regulated prices in 1999 and by market energy prices in 2000 (Botos [2003]).

Box 1
Factors determining the changes in inflation

As a point of interest, we examined how the individual items influenced the changes in the price level in Hungary. As it can be seen in Chart 14, the product group of regulated prices was critical throughout the examined period (between 1993 and 2001) in terms of the changes in inflation, although it lost some of its importance by the beginning of the new millennium. In addition to regulated prices, durable and non-durable consumer goods were critical, although their contribution to inflation decreased gradually during the years.

The weight of foodstuffs, market services, alcoholic drinks and tobacco products, and gasoline and market energy increased within contribution to inflation. The increasing role of market services can be explained by the importance of the sector, the switch to market economy and the strengthening of the economic role of the sector. The changes in the prices of foodstuffs are extremely volatile, since crop results are greatly determined by the weather. As regards the price changes of alcoholic drinks and tobacco products and gasoline, the various changes in excise duties and the VAT are of major importance.

Chart 14
Decomposition of inflation



Source: MNB.

Box 2
Development of prices of individual products and services

As a point of interest, we examined how the prices of products and services used most frequently during everyday life and perhaps best capturing the interest of people changed after the change in regime, until the start of the period of inflation targeting. We obtained the data for this from the database of the Hungarian National Bank including the price level, where we can find the values related to the individual goods in a monthly breakdown starting from January 1992 until today. The values related to the individual inflation main groups and the aggregate inflation are compiled from these individual price indices.

Between 1992 and 1995, of the examined products (Table 30), the price of potato increased by the greatest extent (by 206 per cent), whereas the price level of fuels increased by a smaller extent (by 57 per cent). The price of regulated price products increased by 80-134 per cent in the first half of the 90s, whereas the price of cultural services increased by 122.6-146.7 per cent on average. Between 1995 and 2001, potato was the only among the examined products whose price level was essentially unchanged (it increased by 0.55 per cent), whereas municipality rents increased by 217.2 per cent in 6 years. Taking into account the entire period between 1992 and 2001, the prices of cultural services, such as theatre and cinema, increased by the most. The former became 657 per cent more expensive, whereas the latter went up by 579 per cent. The price of potato increased by almost threefold (it increased by 208 per cent) in the period examined.

Table 30
Development of prices of some basic foodstuffs and public utility services
(per cent)

	Price changes 1992–1995	Price changes 1995–2001	Price changes 1992–2001
Flour	159.25	210.33	334.95
Bread	194.12	220.05	427.16
Sugar	172.72	208.88	360.78
Potatoe	306.02	100.55	307.72
Tobaccos	174.59	276.19	482.22
Electricity	206.88	274.40	567.67
Piped gas	180.19	252.59	455.14
Fuel	157.09	239.59	376.35
Waste removal	174.25	325.68	567.50
Water	196.29	257.82	506.08
Channel charge	234.29	289.92	679.23
Local public transport	182.32	279.23	509.08
Taxi	206.37	262.15	541.02
Theatre	246.74	306.97	757.43
Cinema	222.61	276.75	616.07
Television	183.96	163.54	300.84
Municipial rent	185.14	317.24	587.32

Source: MNB.

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V. Monetary policy and development of inflation from the introduction of inflation targeting until today

Balázs Spéder, Árpád Vadkerti

2001-2008: FROM THE INTRODUCTION OF INFLATION TARGETING UNTIL THE 2008 ECONOMIC CRISIS

In the first decade after the change in regime, the switch to the market economy occurred with significant inflation in Hungary as well. The fundamental structural and proprietorial transformation of the economy, and the elimination of the inherited distortions of the price system necessarily had a huge inflationary pressure in the first decade of democracy. Moreover, the increase in prices were significantly driven by the transformation of the price structure; the reduction of the production and consumption subsidies; the strengthening of the price formation role of taxes; the appearance of capital incomes and capital costs in the price calculations; the liberalisation of imports; and the switch to distribution of insurance principle in the case of the large provision systems.

In the first decade of the market economy, the economic operators became accustomed to the high inflation of the transformation affecting the enterprises day-to-day, however, by the end of the 90s, after the running out of the one-off measures related to the economic switch, it became foreseeable that inflation will decrease by itself as well. After the structural changes, in parallel with the consolidation of the economic structure, the annual rate of inflation decreased from 30 per cent in mid-1995 to 10 per cent in the beginning of 1999, a decrease of almost 20 percentage points.

A considerable role was played in this by the extremely favourable external cost environment, for example the significant decrease in oil prices, at the end of the 1990s.

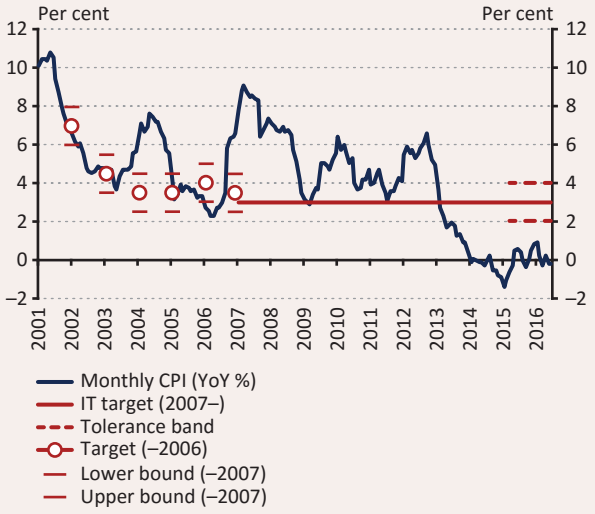
However, at the turn of the millennium, the disinflation process based on the crawling devaluation of the exchange rate stopped, thus, inflation fluctuated at around 10 per cent until 2001, which significantly exceeded the extent of inflation considered as price stability by the central bank. The following played a role in the unfavourable process: series of negative inflation shocks occurring at the beginning of the 2000s; the higher imported inflation; but an increasingly greater danger was represented by the stuck of inflation expectations; and the strengthening of the inertial components of inflation as well. This reflected that the efficiency of monetary policy building on the crawling peg decreases, since in this regime the central bank considered disinflation – based on the co-ordination of expectations – as its primary objective. The interest rate policy of the central bank had to be subordinated to the external processes completely, the freedom of the central bank and the government was actually limited only to the extent and timing of the decrease in the devaluation of the exchange rate announced beforehand.

The further reduction of inflation was significantly hindered by the processes of changes in oil prices and food product prices. The global oil price increased again from 2000 and it approached the value experienced at the beginning of the decade. In the case of fuels, the world market price of oil in 2000, exceeding all the expectations, doubled inflation in the majority of the European countries. Although the emerging recession of the world economy resulted in an increase of the price level of decreasing pace at the end of the year, yet, the acceleration had a considerable positive effect in the average of the year even this way. The prices of foodstuffs increased in both 2000 and 2001 as a result of the changes in food cycles, which was primarily driven by the price changes in meat products, cereals and dairy products. The increase in domestic food prices was significantly increased by the decreasing domestic supply as a result of the faster increase in exports as well. As an effect of the rise in prices, the decrease in inflation expectations stopped, too, which was further strengthened by the fact that the government's inflation forecasts were not fulfilled either.

In order to make the central bank operation more efficient, thus, for the significant support of the domestic economy, i.e. the further reduction of

the inflation, in 2001 the central bank introduced a new monetary policy regime and it switched from following the exchange rate target to the regime of *inflation targeting*. The primary objective of a central bank operating in the system of inflation targeting is to achieve and maintain price stability, which it endeavours to implement by achieving an inflation target announced publicly. Monetary policy supports the increase in economic welfare via this, by promoting a predictable economic environment. The central bank endeavours to achieve this objective primarily by changing the base rate, which influences the changes in inflation, on the one hand, via the force of the exchange rate disciplining direct price increases, on the other hand, via effect of the real exchange rate and the real interest rates on aggregate demand.

Chart 15
Development of inflation in Hungary in the system of inflation targeting



Source: MNB.

However, in light of the domestic inflation processes it is important to see that upon the introduction of the inflation targeting, the primary mandate of the MNB was the further reduction of inflation and reaching a single-digit inflation, i.e. achieving and maintaining price stability seemed like a distant future. In the first years, therefore, the central bank did not endeavour to quantify the inflation level corresponding to price stability, instead it announced the year-end goals 1.5-2 years in advance, thus designating the

disinflation path. The MNB determined the first target in December 2001, then it revised that each year until 2006 along the ± 1 percentage point ex post tolerance band (Chart 15).

Maintaining and widening the exchange rate band initially constituted a part of the early system of inflation targeting in Hungary, however, later on this made reaching the inflation target more difficult. Since the exchange rate channel is one of the most important channels of monetary transmission in small, open economies, thus, in Hungary as well, the central bank made a recommendation for the establishment of an exchange rate system assuring greater independence, for the purpose of implementing a faster and more efficient anti-inflation policy. The narrow exchange rate band, applied during the previous, crawling peg, was replaced by a ±15 per cent fluctuation band. With this step, the government and the Magyar Nemzeti Bank (MNB) introduced a floating exchange rate system with bands. After this, the exchange rate of the forint typically fluctuated in a narrow range – apart from some temporary swings –, approaching the strong band edge several times (Chart 16).

Chart 16
Development of the exchange rate of the forint

Source: MNB.

From 2000 the preparation of the accession to the European Union and the goal of successful accession got to the centre of interest of domestic politics and economic policy. Starting from 2001, the effect of measures related to the switch to market economy influencing inflation became negligible, which explained in a considerable part the significant decrease in inflation. Until the official accession to the EU, which occurred in 2004, the domestic consumer price index was around 6-8 per cent, occasionally, in the first half of 2003, decreasing to almost 4 per cent. From 2001 to 2003, the exchange rate of the forint to euro was extremely stable, which was not even shaken by the recession of the world economy, thus, the permanently strong forint exhibited significant anti-inflation effect (Chart 16). During 2003-2004, inflation accelerated primarily as an effect of measures of the authorities, but this did not have a direct effect either on market price changes or, thus, on the expectations. In the second half of the year, the strengthening forint could unambiguously offset the effect of measures of the authorities. During 2004 the weak dollar neutralised the inflation increasing effect of the rising oil prices as well.

The enforcement of the significant world market price increase of energy and other industrial raw materials in the final consumer prices in Western Europe was prevented by the major advances of emerging economies, within this especially China and India, in the world economy. As a result of this, at our most important foreign trade partners the growth rate of the consumer price level was far below the industrial producer prices, however, in Hungary the favourable effect of this was simply “built into the prices” by the corporate sector. This effect was increased by the weak dollar, the strengthening of the euro versus the dollar, and the stable forint exchange rate as well. A significant factor behind the decrease in the rise of the price level was that the connection between real wages and productivity improved significantly at the beginning of the 2000s, and market competition intensified significantly, too. As an effect of the decreasing index, the role of inflation expectations also decreased all in all.

After the introduction of the inflation targeting framework, inflation decreased gradually until 2006 (except for 2003-2004, when inflation jumped as a result of the increases in VAT), i.e. the previously stalled disinflation process continued. Inflation approached the year-end targets designated by the monetary authority, but in most cases it did not reach those. The Magyar Nemzeti Bank was compelled to change the base rate significantly, several

times during 2003. In January speculative capital flew aimed at forcing the release or widening of the strong edge of the exchange rate band, which was handled by the central bank with the decrease of the governing base rate by 200 base points and with the widening of the overnight interest rate corridor. As an effect of the steps, the appreciation pressure on the exchange rate of the forint eased: at first, the exchange rate weakened by 4 per cent, then it stabilised (MNB, [2006]). In the middle of the year the central bank moved the exchange rate band, approving the request of the government, whereby it surprised the markets, thus, the confidence in the credibility of the monetary policy goals faltered (MNB, [2006]). The step resulted in capital outflow, devaluation of the exchange rate and the increase in risk premium, therefore, the decision makers of the central bank increased the base rate by 300 base points.

Before the increase of the VAT rate in 2004, fiscal discipline became loose in and after 2003, which entailed the devaluation of the exchange rate of the forint, because of the slowdown of the nominal convergence processes compared with the eurozone. Despite the relatively wide exchange rate band, the MNB was compelled to increase the interest rate of the main policy instrument by another 300 base points in order to stabilise the weakening exchange rate, thus, during the year it increased that by a total of 600 base points (Madarász – Novák [2015]). In terms of decreasing inflation, the year 2004 turned out to be an exception in this period, when a one-off factor, exogenous for monetary policy – the increase of the value added tax rate to 15 per cent from 12 per cent – temporarily increased inflation by approximately 4 percentage points. Interestingly, however, the acceleration was caused not by the switch to the market economy, and not by the accession to the European Union, but by the fiscal balance improving measures (tax increases) of the government, which increased inflation, thus the real value of wages, raised earlier, decreased.

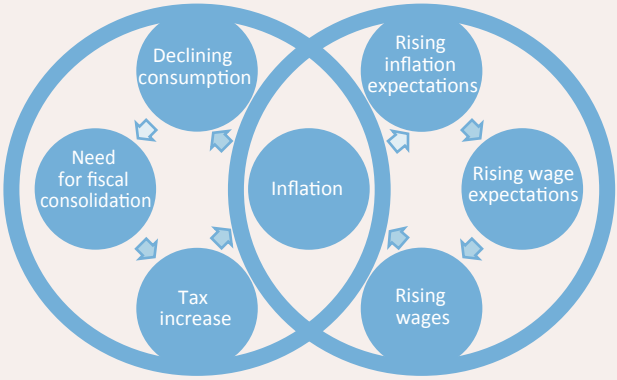
In the period from the introduction of inflation targeting until the first year of the world economy crisis, there was no harmony between fiscal and monetary policy, the two main branches of economic policy, in Hungary. The loose fiscal policy represented a continuous adjustment constraint for the income side of the budget, which was corrected by the government primarily with increasing indirect taxes. Inflation increased as an effect of the tax increases,[62]

[62] The inflation raised by ad hoc measures from the side of the budget was also aimed at decreasing the real value of the deficit of state budget.

which, however, made further adjustment necessary via the decrease in consumption and, thus, via the fall in tax incomes (Chart 17). In harmony with this, the rise in inflation can be driven by nominal processes as well. The rising inflation expectations influence wage expectations in a positive direction. In time the increasing wage expectations represent higher wages paid, which may lead to an increase in inflation.

The expansive fiscal policy could be implemented by the sustainability criteria being pushed into the background, thus, the long-term balance of the budget was turned over. Economic policy was characterised by fiscal dominance[63], to which monetary policy can react in two ways, generally: it gives up its price stability objective in whole or in part, thereby risking its credibility and allowing high inflation, or it continues to aim the achievement of that objective. In the former case, it does not do its utmost in order to achieve its inflation target, whereas in the latter case it acts actively, i.e. it increases its policy interest rate, thus it develops increasingly tightening monetary conditions, however, the balance of the consolidated state budget turns over. Matolcsy and Palotai [2016] show that the deficit of state budget was, on average, 6.4 per cent between 2002 and 2010, i.e. the orientation of fiscal policy was extremely lax. In the same period, inflation in Hungary was

Chart 17
System of connections of fiscal and monetary policy



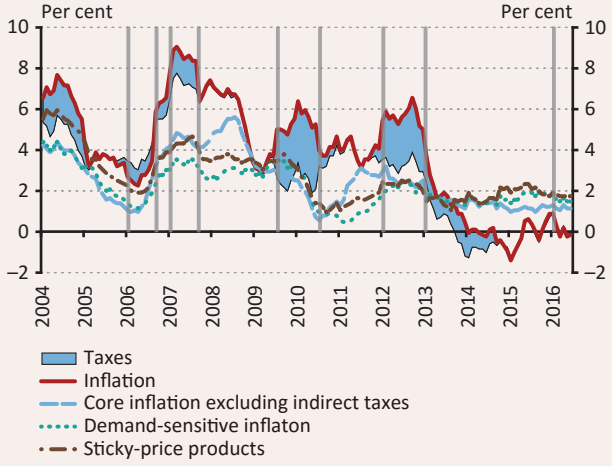
Source: Own edit.

[63] The expression originates from the model described by Leeper (1991), which was presented in their analysis by Matolcsy and Palotai [2016] as well, however, here we disregard this, we only present the connection of monetary and fiscal policy.

around 2.5 percentage points higher than the average of the Polish, Czech and Slovakian economies (V3), which substantiates the fact of the permanently high domestic inflation as well. In order to fulfil its primary mandate, the MNB reacted to the permanently high inflation actively, with a permanently high base rate. Despite this, it failed to bring down inflation. (Later on, the dichotomy was practically terminated as a result of the harmonisation of the fiscal and monetary policy, from the beginning of 2013: from 2013, the previous average difference of 2.5 percentage points decreased to 0.3 percentage points.)

In January 2006, the government decreased the general VAT rate to 20 per cent and kept the VAT of basic foodstuffs at 15 per cent, which unambiguously favoured political considerations primarily, instead of economic goals, because of the forthcoming elections and the increasingly worsening macroeconomic indicators, the continually higher budget deficit and the increasing government debt. In harmony with this, in the autumn of 2006, the government announced a substantial budgetary restriction package, in the framework of this the VAT of foodstuffs, certain market services and public utility services was increased from 15 to 20 per cent in September, and further regulated price increases took place in addition to this. These measures increased inflation, rising because of macroeconomic imbalances, even higher, consumer prices rose from 6 per cent to around 9 per cent. The

Chart 18
Development of inflation basic indicators and the changes in VAT in Hungary



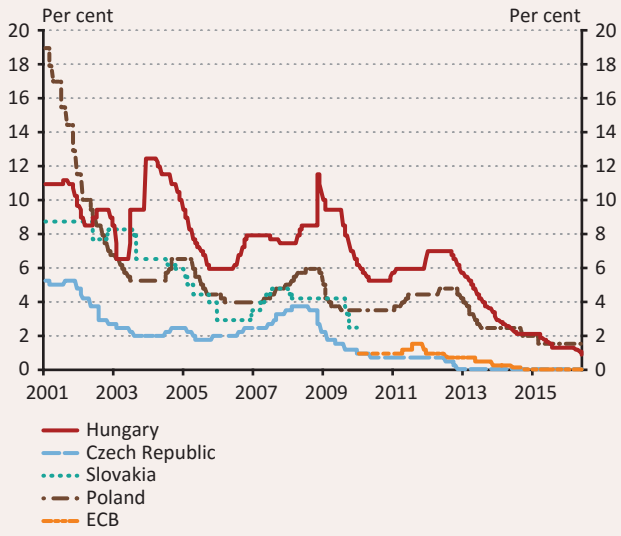
Source: MNB.

persistence of the high inflation level was also caused by the fact that the prices of foodstuffs rose and the regulated prices increased significantly as well in the first half of 2007. The decisions made by the local governments and the government about the transformation of price subsidies also played a role in the latter (Chart 18).

Starting from 2007, the central bank changed over to pursue a continuous inflation target, thus, since then inflation had to be in line with the target not in the average of the given year or at a special date, but in each and every month of the year. The central bank identified the inflation target consistent with price stability and the seamless operation of the economy with a 3 per cent annual growth of the consumer price index. Announcing the continuous inflation target and the commitment of the central bank to achieving that assures a predictable environment for the economic participants, it assists in anchoring the inflation expectations, and it contributes to keeping the inflation permanently at a low level, corresponding to price stability.

In the second half of the 2000s it became increasingly evident that the exchange rate band makes it more difficult to achieve the inflation target. Monetary policy could not for a long time elaborate its full effect because of the edge of the band via the restricted exchange rate channel because of the exchange rate band, which significantly weakened the authenticity of the central bank, too, thus it made the operation of monetary policy more difficult both indirectly and with a delay as well. In this period, the exchange rate of the forint against the euro was more stable compared with the exchange rate of the regional currencies, thus, the exchange rate band provided the illusion of stability, therefore households could take foreign currency loans more courageously. During this period, thus, a significant foreign currency loan portfolio was accumulated, which, from the side of the monetary policy, was also supported by the forint interest rates held high in order to decrease the high inflation and the stability of the exchange rate. While in the years before the crisis the efficiency of the exchange rate channel of the monetary transmission was restricted by the exchange rate band, the efficiency of the interest rate channel was primarily restricted by the run-up of the foreign currency loans. The efficiency of monetary policy decreased by the period before crisis: the central bank endeavoured to decrease the inflation, which stabilised at a high level, with a high base rate. However, the central bank base rate, higher compared with the other countries of the region, was unable to push down inflation (Chart 19).

Chart 19
Developments in the central bank base rates in the region



Source: Magyar Nemzeti Bank, central banks' websites.

Above the exchange rate band, the effect of the higher base rate via influencing loan interest rates was weakened by the increase in the ratio of foreign currency loans within the total loan portfolio. At the beginning of 2008, the MNB and the government abolished the exchange rate band, since that obstructed the achievement of the inflation target, what is more it made the anchoring of expectations around the target significantly more difficult, too. After this, Hungarian monetary policy changed to the freely floating exchange rate system, which assisted in resolving the internal logical contradiction in the regime of inflation targeting. Thus, the exchange rate does not restrict monetary policy in achieving the inflation target as a further target to be achieved, instead, quite the contrary, the floating exchange rate assists in the adjustment of the economy to shocks. Thanks to this step, the central bank now uses its governing instrument solely for the advancement of achieving the inflation target. During 2008 inflation decreased steeply, from 7 per cent to around 3 per cent, which was the result of the following factors: the stronger euro-forint exchange rate stemming from the termination of the exchange rate band of the forint; the decrease in price shocks following from fiscal policy; the significant decrease in the world market oil prices; and

the correction of the performance of agriculture which was globally weak in the previous year.

Meanwhile, however, considerable financial imbalances were created on the one hand because of the appearance and spreading of foreign currency loans (primarily among households, although companies also took significant amounts of loans in foreign currencies), on the other hand via the extreme overspending by fiscal policy. Monetary policy could not operate efficiently in the years before the crisis. Significant differences appeared in regional comparison as well, in which an important role was played by both the build-up of the household and corporate loan portfolio in Swiss franc and the government debt increasing because of the loose fiscal policy.

2008-2013: FROM THE START OF THE CRISIS UNTIL 2013

The financial crisis, which erupted at the end of 2008, found Hungary in a vulnerable situation, thus,it affected the country especially sensitively. The economy was faced with foreign currency lending and a twin deficit, and by 2007 growth stopped as well, because of the fiscal consolidation in 2006. As a result of this, GDP growth, and, within this, the dynamics of consumption and investment, slowed down considerably already before the outbreak of the crisis, and unemployment increased. The outbreak of the crisis aggravated these processes further. In addition to the collapsing external market demand, the significant decrease in lending also contributed to the decline of the economy. The initial fast devaluation of the forint increased the value of uncovered foreign currency debt of households and companies expressed in forint, which increased the ratio of non-performing loans on the one hand, thus, it had a negative effect on the lending capability and propensity of the banking system. On the other hand, the increase in the value of debts and the decrease in lending started the debt reduction of the private sector, which decreased consumption and investment activity, further worsening the crisis.

Serious financial stability risks appeared with the global financial crisis, and these had a considerable effect on the course of monetary policy. In October 2008, the decision makers increased the base rate by 300 basis points, referring to the maintenance of operability of the banking system, while in this period the central banks of the developed countries started monetary easing of extent unprecedented earlier. Since they felt that the effect of a permanent and significant exchange rate weakening would be a strong

risk in terms of the capital adequacy and liquidity of the banking system, the Hungarian central bank decision makers did not intend to disregard the development of the exchange rate despite the freely floating exchange rate system, introduced at the beginning of the year, since, in the case of the fall of the lending capability of the banks, the considerable devaluation of the exchange rate could have had a contraction effect, restricting the economy. In such a situation it is very likely that the exchange rate would not have behaved as a channel of adjustment, but as a source of shocks, just as it was shown by the examples of other emerging economies. Barely one month later, in November 2008, the improvement of investors' sentiment made it possible for the central bank decision makers to gradually decrease the governing interest rate, thus, the MNB started an interest rate reduction cycle (Chart 19). By the end of the easing cycle, the governing interest rate decreased to 5.25 per cent (Madarász -Novák [2015]).

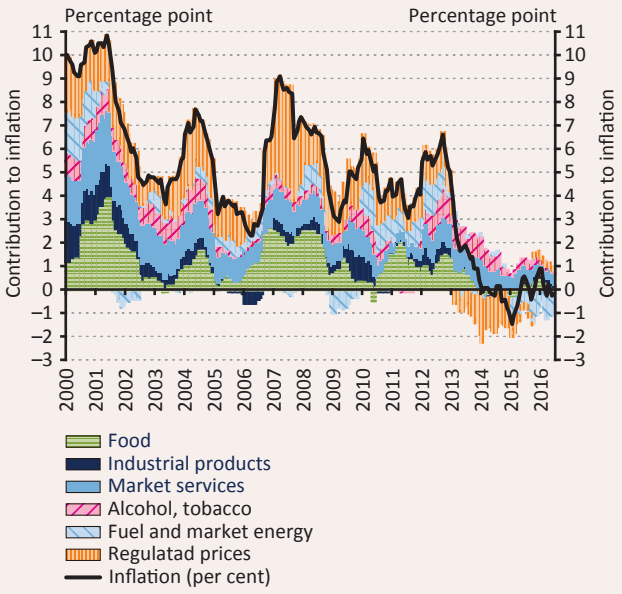
The crisis significantly influenced the development of inflation as well. Internal demand, decreasing as an economic effect of the crisis, would have justified fast disinflation, however, the pass-through of the devaluation of the forint to the domestic prices – although that was of smaller extent than was customary before the crisis –, the again rising raw material prices, and the increase of the VAT rates twice offset this. Inflation fluctuated at around 4-5 per cent until 2013, although during 2009 the increase in indirect taxes in June – in the course of which the general VAT rate went up from 20 per cent to 25 per cent – resulted in a temporary rise of the inflation to around 6 per cent.

During 2010 and 2011, after the termination of the base effect of the previous VAT increase, inflation fluctuated steadily at around 4-5 per cent, which was caused by the gradually improving external economic situation, the rise in the prices of raw materials, and the global food price shock, which occurred in the second half of the year. The price index did not rise back to the high levels customary earlier. On the one hand, this was the result of the global disinflation environment which continued to be present after the crisis, on the other hand, domestic factors also contributed to it significantly. The consumption of the private sector fell compared with the period before the crisis as an effect of the prolonged balance adjustment of households, the low lending activity of the banking system, and the strengthening of the exchange rate of the Swiss franc. The pass-through of increasing raw material costs to consumer prices was significantly alleviated by the falling consumption

of households, thus, for example between 2010-2012 the price increase of gasoline and market energy contributed to the development of the annual inflation rate by 1.4-1.6 percentage points, yet it did not result in the increase in inflation (Chart 20). Despite this, consumer prices exceeded the central bank target, and the decision makers increased the base rate to 7 per cent at the end of 2011 because of the increasing inflation outlooks.

In January 2012, in addition to raising several excise duties, the government increased the highest VAT rate to 27 per cent from 25 per cent, which increased domestic inflation together with food prices increasing because of the globally weak agricultural crop results. From January 2013, as a result of the decrease in regulated energy prices, the utility tariff cuts announced for further rounds, and the run-out of the VAT increase of the previous year, inflation fell radically, which was also reduced by the low imported inflation. The decrease in regulated prices contributed to the reduction of inflation by approximately -1 percentage point during 2013, whereas during 2014 this was 1.5 percentage points (Chart 20). Thus, with the disappearance of the shocks increasing costs, the disinflation effect of the weak domestic demand

Chart 20
Decomposition of inflation
contribution of individual items to the development of consumer prices

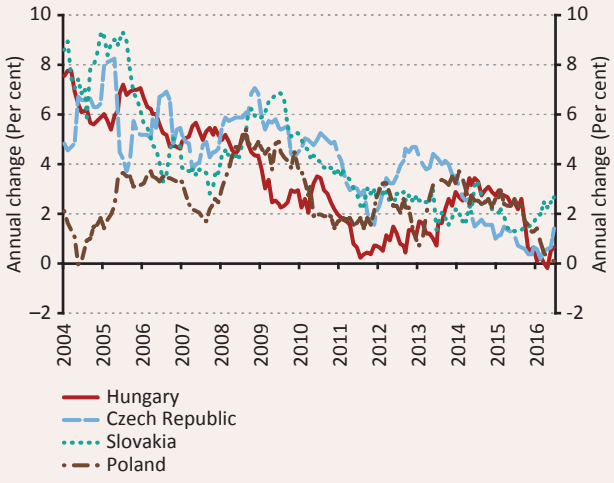


Source: MNB.

prevailed. As a result of these processes, inflation was detached from the core inflation indicator, although the latter could remain at high levels because of subsector-specific special taxes (e.g. the windfall tax of financial organisations, tax of the telecom sector, transaction taxes) as well.

From the second half of 2014, there was a drastic fall in the world market price of oil, which represented a decline of around 50 per cent by June 2015 compared with June 2014. The supply side factors contributing to the decrease of world market oil prices to a historically low level were the shale oil revolution in the US, and the OPEC production increasing with the return of Iran to the oil market, which resulted in a record level of oversupply on the world markets. On the other hand, the growth of China, the world's largest emerging economy, slowed down significantly during the recent years, which also decreased its demand for oil considerably. The decrease in global oil prices intensified the low growth that can be experienced globally since the crisis, and the moderate cost environment, which "stabilised" the inflation of the developed European countries at around 0 per cent in the long term as well. The development of the price of gasoline and market energy, in and of itself, reduces the annual inflation rate by around 1.2-1.4 percentage points, which offsets almost completely the price dynamics of

Chart 21
Development of the difference between the inflation of industrial products and market services



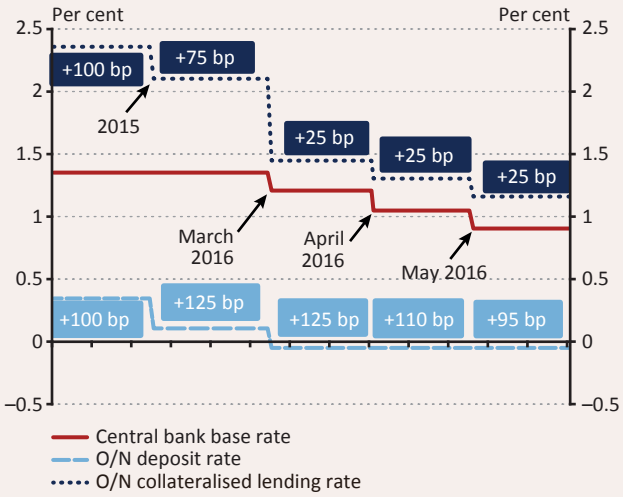
Note: For the sake of comparison, we used HICP data.
Source: Eurostat.

all the other main groups pointing at the direction of price increase (Chart 20). The difference between the inflation of industrial products and market services fell significantly after the crisis, which was driven primarily by the decrease in inflation of market services. Since 2014 the difference between the inflation of industrial products and services of the V4 countries converged in one direction, and it decreases further steadily, with the exception of some outliers (Chart 21). As a result of international and domestic impacts, thus, inflation in Hungary since the crisis has been permanently around zero per cent, occasionally below that.

REACTION OF MONETARY POLICY IN THE PERIOD OF GLOBALLY LOW INFLATION

Taking into account the turn of the budget and the fiscal policy becoming permanently disciplined, the improving financial risks, and the decreasing inflation expectations as well, the MNB started a long-term, continuous interest rate reduction cycle in 2012. The first interest rate reduction cycle lasted until July 2014, which was restarted by the central bank decision makers on two occasions, taking into account the real economy and inflation outlooks. Reacting to the strong disinflation processes, the Monetary Council decreased the base rate from 7 per cent to 2.1 per cent, i.e. by 490 base points, during the first phase of the interest rate reduction cycle. The opening of the second interest rate reduction cycle in March 2015 was necessary in order to prevent the prevalence of strengthening secondary channel effects, pointing downward, entailing inflation and real economy risks. Because of this, the Monetary Council decreased the governing interest rate to 1.35 per cent with several steps until July 2015. In spring 2016 the Monetary Council considered it necessary to decrease the base rate further in order to achieve the inflation target in a sustainable way, because of the low cost-side inflation pressure and the historically low level of inflation expectations, thus, it decreased the base rate by a further 45 base points in three steps between March and May 2016. However, in this phase of the easing cycle, the decision makers judged that a comprehensive easing of the monetary conditions was necessary, therefore, they also modified the edges of the interest rate corridor around the interest rate of the governing instrument (MNB [2016b]). As a result of the multi-step, asymmetric modification, the one-day deposit rate, functioning as the low edge of the interest rate corridor, decreased to negative range, to -0.05 per cent, whereas the interest rate of the one-day central bank covered loan decreased to 1.15 per cent (Chart 22).

Chart 22
Chronological development of the central bank interest rate corridor

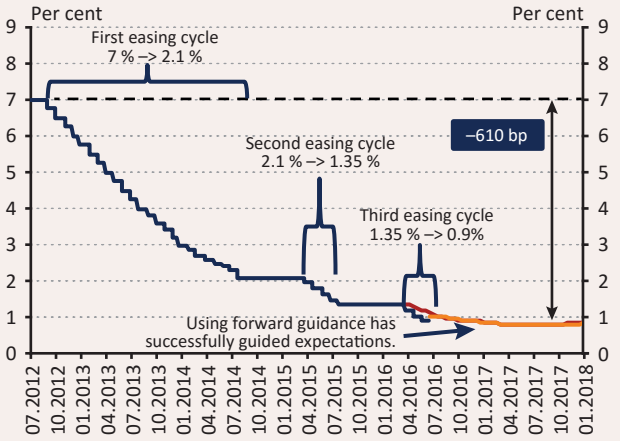


Source: MNB.

Thus, the MNB decreased the governing interest rate by all in all 610 base points since March 2012, thereby achieving a historically low level of 0.9 per cent: there was not such a low governing interest rate in Hungary since the change in regime. On the basis of the guidance of looking ahead provided by the Monetary Council of the Magyar Nemzeti Bank provided after closing the last phase of the interest rate reduction cycle "with the fulfilment of the conditions of the central bank's forecasts, the current level of the base rate and maintaining loose monetary conditions for an extended period are consistent with the medium-term achievement of the inflation target and a corresponding degree of stimulus to the economy". (MNB, [2016c]). The indications provided in the guidance of looking ahead by the Monetary Council during the interest rate reduction cycle and upon closing that – see for example the above quote – oriented the interest rate expectations of the analysts and the markets successfully, thereby also contributing to the success of the interest rate reduction cycles (Chart 23). The decrease of the central bank base rate reduced the extent of undershooting of the inflation target. Moreover, on the basis of model estimates, the inflation rate in 2014 would have been approximately 1 percentage point lower and in 2015 it would have been 1.6 per cent lower without monetary easing. Thus, without the easing steps inflation would have fallen to significantly and permanently

negative range, which would have entailed the risk of starting a deflationary spiral (Felcser et al, 2015). Therefore, the easing cycle of the MNB alleviated the decrease in inflation rate, it mitigated the chance of development of a deflationary period and looking ahead it supports the achievement of the inflation target.

Chart 23
Development of interest rate expectations upon closing the interest rate reduction cycle



Remark: the expectations were stipulated on the basis of the days of interest rate decisions on 22 March and 21 June.
Source: MNB.

During this period the central bank changed its governing instrument: first, from August 2014 the place of the two-week MNB-bond was taken by the two-week MNB-deposit, applied already earlier, then it prolonged the expiration of the two-week deposit, thus, from 23 September 2015 the fixed-rate three-month deposit became the governing instrument (MNB, [2015]). The step was taken in the framework of the Self-Financing Programme, started by the central bank, however, it did not have an effect on the course of the monetary policy. The goal of the programme was to divert the commercial bank forint liquidity to government securities. The financing cost and rollover risk of government debt declined and a far more stable public debt financing practice emerged, which reduced Hungary's external vulnerability and improved its international perception. Although the programme did not influence the monetary policy steps, yet the balance sheet of the MNB

tightened. Total sterilisation assets decreased to less than HUF 4,000 billion from the HUF 5,100 billion at the end of 2013, while the portfolio of the foreign exchange reserves of the central bank decreased.[64] The sterilisation costs paid after banks' funds held in the sterilisation instrument exceed the yields that can be realised on the foreign exchange reserves, thus, the shrinking of the central bank's balance sheet generated savings for the MNB and for the entire national economy (MNB [2016]).

Moreover, after the scheduled review of the inflation target, in March 2015 the Monetary Council of the Magyar Nemzeti Bank decided to improve the flexibility of the inflation targeting regime. According to the review, it designated a ±1 percentage point ex ante tolerance band, which is in harmony with the best international practice of the central banks, in addition to maintaining the inflation target determined at a 3 per cent change in the consumer price index. Namely, it is one of the lessons of the financial crisis that the shocks affecting the economy can be greater and more permanent than assumed earlier, thus, it is expected that the monetary policy will meet with obstacles in the future as well. Under the inflation targeting regime, central banks moved towards greater flexibility and reformed their monetary policy instruments. After the review of the target, the central bank continues to aim at achieving 3 per cent inflation; however, the ±1 percentage point tolerance band recognises that inflation may fluctuate around this level as a result of shocks sustained by the economy. While maintaining the primary objective of price stability, flexible inflation targeting provides a framework where the central bank not only focuses on inflation in the short run, but it also takes into account other (real economic and financial stability) factors. Real economy considerations may affect decision making primarily when the central bank is willing to tolerate deviations of consumer prices from the inflation target temporarily in order to avoid the excessive volatility of real variables, and this may also be reflected in the use of the tolerance band (MNB [2016]).

Since the outbreak of the financial crisis there have been several advances in the framework of inflation targeting which may contribute to assisting the monetary policy in being more successful than observed until now in the creation of a low inflation environment that can be correlated with price stability. One such measure was the foreign currency loan conversion

[64] In 2014 and 2015, the conversion of foreign currency household loans to forint also reduced the MNB's foreign exchange reserves substantially, while its reserve adequacy was maintained continuously.

performed jointly and in agreement with the government and the Hungarian Banking Association, in the course of which the household loans denominated in foreign currency were converted to forint-based loans. With the conversion of the household foreign currency loans, the relative role of the interest rate channel of the monetary transmission mechanism – in which the central bank monetary policy steps have their effect via the change of loan interest rates of commercial banks following the changes in the governing interest rate – could strengthen, since the foreign currency based debt was succeeded by forint based debt, for which the Hungarian monetary policy has a direct effect. The expansion of and strengthening the macroprudential jurisdiction of the central bank contributes to the creation of stability of the financial system, since it provides new instruments for the central bank in order to achieve financial stability: proceeding with its macroprudential jurisdiction, the Magyar Nemzeti Bank introduced new regulations (e.g. loan coverage indicators, instalment proportional to income), which were destined for preventing the excessive indebtedness of the households. Moreover, the integration of the Hungarian Financial Supervisory Authority (PSZÁF) to the MNB strengthened the efficiency of efforts made by the MNB for the stability of the financial system. With the fulfilment of the roles of regulator and supervisor, the monetary policy can concentrate on achieving its primary objective, keeping in view the principle of one goal, one tool.

As one of the after-effects of the crisis, lending declined especially in the small and medium sized enterprise sector in Hungary. In this period (2009-2013) corporate loan portfolio decreased by approximately 4-5 per cent on an annual basis, which was a high ratio in international comparison as well (MNB [2016]). The central bank started its lending incentive programmes for supporting lending activity and increasing the funding supplies of Hungarian companies. Although the interest rate reduction cycles contributed to the decrease in loan costs, however, this was not able to alleviate the lack of funds of the SME sector, since that was not destined and able to handle the sector-specific factors, e.g. open exchange rate position and more difficult availability of longer term loans (Endrész et al [2014]). Therefore, the central bank endeavoured to increase lending activity in several phases via the Funding for Growth Scheme: the programme made it possible to borrow with conditions more favourable than market conditions and with lower costs, moreover, it made it possible to replace loans taken earlier (denominated in foreign currency or forint). The programme successfully stopped the decline in the SME loan portfolio, thus, it also contributed to the restoration of the

monetary transmission mechanism damaged significantly during the crisis. At the beginning of 2016, the central bank started the third, phase-out section of the Funding for Growth Scheme as part of the Growth Supporting Programme, promoting the switchover of the banks to market lending. In the phase-out section, it is possible to conclude solely loan contracts financing investments. These direct lending incentive programmes stabilised the SME loan portfolio, thanks to this there was already growth in 2015.

The clear conditions of inflation targeting can develop with the settlement of foreign currency lending and exchange rate exposure. The external financing capability has been high for years, the vulnerability of the country has decreased considerably since the outbreak of the crisis, whose continuation is also supported by the self-financing programme of the central bank. Thanks to the macroprudential policy, monetary policy can concentrate on its primary objective, i.e. the maintenance of price stability, more efficiently. Thus, such a monetary policy practice is developed in which the interest rate policy reacts only to the significant and permanent movements of the exchange rate, jeopardising the achievement of the inflation target, but not to temporary movements. All of these contributed to the normalisation of the monetary policy until now as well, and it will provide clearer frames for achieving the inflation target in the future, too.

Box 3
Development of domestic inflation expectations

One of the key elements of inflation targeting is the publicly announced, numerical inflation target, which also serves as a nominal anchor at the same time. The nominal anchor is an economic variable that is capable of stabilising, or "anchoring", the expectations of the economic participants related to future inflation. In the case of an authentic anchor, the economic participants are confident that the monetary authority can fulfil its objective, hence they develop their inflation expectations in accordance with the anchor.

Expectations have a prominent role via the expectation channel of monetary policy decisions. With an authentic and transparent central bank and a committed monetary policy, the expectations can strengthen the effect of individual monetary policy measures, and hence those can entail smaller real economy costs. The lack of

these, however, decreases the efficiency of monetary policy decisions and increases the costs of those that can be measured in real economy sacrifice. In the case of well anchored expectations, the central banks – with their present decisions – contribute to avoiding the acceleration of the rate of increase of prices. Thereby the growth sacrifice of monetary policy decreases, i.e. the mitigation of inflation entails smaller real economy cost. The situation is exactly the opposite in the case of unanchored expectations. Then the monetary policy steps have two costs at the same time: the real economy sacrifice stemming from increasing the interest rate and the cost of further austerity measures necessary because of the additional inflation stemming from the increased expectations.

Since the change in regime, only approximately half of the inflation in Hungary can be deduced with arguments rational in terms of economics as well. Examples for these are measures in connection with the economic transformation, and external market effects, since it is an open economy. The other half is clearly related to inflation expectations. Consequently it is reasonable to examine what are the reasons of the development of inflation psychosis and what are the characteristics of that.

Inflation expectations are influenced by both subjective and objective factors. A subjective factor is the development of the relationship of confidence among the government, the central bank and the market participants. If the economic policy is predictable and authentic, the market participants accept this and they build it to their decisions. In this case the development of the price level can be deduced only to reasons that can be quantified in terms of economics as well. However, if confidence is shaken about economic policy, the behaviour of the participants also becomes irrational, since the main role behind the changes in prices is played not by real cost changes, but by psychological factors. Economic transformation may increase the inflation psychosis in and of itself as well, which may be increased further by the unfulfilled inflation promises of the government and the central bank. The interpretation of inflation data by the media can also intensify the unwanted decrease or increase of inflation expectations.

According to the experiences, the population perceives the changes affecting it depending on whether those are favourable or unfavourable with respect to it. It does not recognise favourable changes, while it experiences unfavourable changes in a reinforced way. The latter may have a significant inflation effect as well. It is worth examining the objective factors primarily in the case of the inflation expectations of the

population. There are some products and services, inelastic in terms of consumption, whose price hike influences inflation expectations in and of themselves as well. These primarily include the prices of energy, infrastructure-related services and, in part, some food products.

The study of Gábriel et al (2014) compares and assesses the inflation expectations of households, companies and market analysts. Based on this, the long-term (five- and ten-year) inflation expectations of the analysts typically ranged around the target in our period of analysis, which may in and of itself indicate the authenticity of the monetary policy regime. The medium-term analyst expectations – in which the current inflation shocks did not have to be reflected already significantly necessarily – were around 3 per cent on average looking at a longer period (2003-2013) as well. The volatility of short-term expectations was high, which, however, could refer to frequent and unexpected positive inflation shocks. Examining the connection between analyst and central bank forecasts, they established that the central bank forecasts orient the analyst expectations significantly.

The difference between the inflation target and the expectations of the households can be observed in several countries, but the difference in Hungary is high in international comparison as well. The inflation perceptions and expectations of domestic households exceed the inflation target of the central bank considerably. This phenomenon can be explained by the above mentioned reasons: the inflation perception of the households react sensitively to the changes in prices of products typically indicating the growth of prices (food products, fuels, regulated price energy), observed more frequently and in a longer term. Household expectations correlate closely with actual inflation and inflation perception, which refers the strong retrospective nature of household expectations. In the case of short-term (one-year) and long-term (five-year) expectations, the distortion and high dispersion of expectations appear almost identically as well.

The pricing behaviour of companies is in harmony with a Philips curve-like behaviour in the case of both pricing and wage setting. The expected development of own prices is influenced by the expectations related to the economic situation, wages, prices of competitors and the aggregate price index. Corporate expectations related to the consumer price index continuously and significantly exceeded the inflation target, however, it does not have significant information looking ahead.

Box 4
Development of the prices of individual products

As a point of interest, we present the development of the price of some basic foodstuffs and other products present during day-to-day life. In addition to the aggregated price index statistics, the Hungarian Central Statistical Office (HCSO) also presents the annual average prices of some especially important products mostly used in everyday life. With the frequent observation of the development of prices of individual products, the HCSO compiles the development of the inflation index of the individual main product groups and the aggregate inflation index. However, the time series of the individual representatives are available only for 1996-2015, thus, in what follows we present this (Table 31).

When examining the development of the prices, however, we should not forget that wages in the past period increased extremely as well, thus the comparison shown here can be considered solely as a point of interest, and it does not provide any information about whether the population lives better or worse compared to its situation two decades earlier.

It is especially interesting to examine the development of the prices of basic foodstuffs consumed most frequently by the population. The price of ham and Trappist cheese increased by approximately 130-140 percentage points between 1996 and 2015. The price of refined sugar and all-purpose flour produced a similar, 100-130 percentage point growth in the past two decades, while the price increase of bread exceeded 200 percentage points. The price of vegetables increased significantly, as is shown by the development of the price of potato and tomato as well, these produced an increase of 300 and 500 percentage points, respectively. The price level of beer increased similarly, too.

Public utility and energy fees, perceived similarly at the everyday level, rose extremely as well. The price of electric energy increased by more than 200 percentage points, whereas the price of piped gas increased by 400 percentage points. Of the prices of fuels used in transport, the per litre price of gasoline 95 and diesel oil increased by almost 200 percentage points. The price hike was the largest in the case of water rate (300 per cent) and sewer fee (570 percentage points).

Table 31
Development of the prices of some basic foodstuffs, public utility services and energy sources

	1996	2001	2015	Consumer price indices between 1996 and 2015
Sliced ham, kg	904	1590	2090	131,19
Trappist cheese, kg	654	1280	1580	141,59
Flour, all-purpose flour, kg	58	78	135	132,76
Bread, white, kg	86	144	270	213,95
Refined sugar, kg	104	179	197	89,42
Potato, kg	35	67	142	305,71
Tomato, kg	98	339	579	490,82
Beer, lager, 0.5 litre	56	99	191	241,07
Electric energy, general, 10 kWh	111	234	366	229,73
Piped gas, 1 m3	20	36,4	101	405,00
Gasoline, 95, unleaded, litre	120	226	358	198,33
Diesel oil, litre	108	211	360	233,33
Water rate, m3	74	152	296	300,00
Sewer fee, m3	54	122	363	572,22

Source: MNB.

Box 5
Inflation impact of state measures in Hungary, the Visegrád (V3) region and the eurozone

In this box writing we present what role state measures (regulated prices and indirect taxes) played in the strong disinflation of the past years in international comparison. Inflation rates indicated strong decrease not directly after the crisis, but with a delay of several years. In accordance with this, in the course of the analysis we divide the past somewhat more than a decade to two parts: to the years directly preceding the crisis and the years of the crisis (2004-2012), and to the period of globally low inflation (2013-2015).

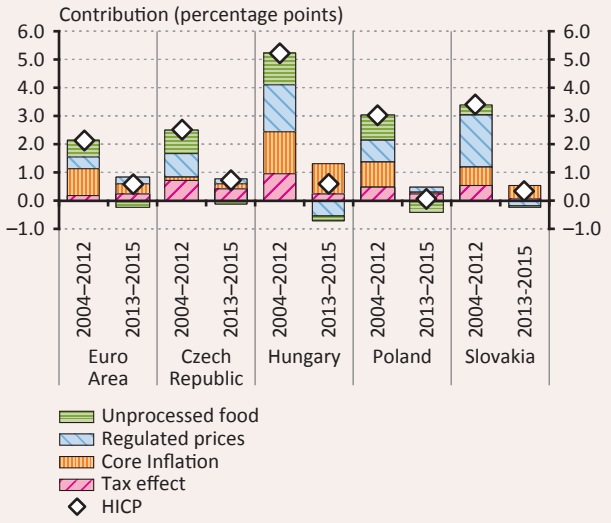
After 2012 the annual average inflation rates decreased considerably and were generally close to 0 per cent (Chart 10). Within the examined group, the strongest disinflation was produced by Hungary. The reduction of the price index is explained to a significant extent by the strong disinflation effect experienced by the world market

environment in the past years. The inflation of product groups especially sensitive to world market price changes (unprocessed foodstuffs, fuel, energy) fell to negative territory. Half of the decrease in inflation was produced by these effects in the eurozone, while in the V3 region this was approximately one-third.

Following the world market energy prices, the inflation of regulated prices decreased as well, and it contributed significantly to the disinflation after the crisis. Thanks to the decreases of the regulated energy prices of the past years, the impact was especially strong in Hungary. The changes in indirect taxes did not have an effect on the reduction of the inflation in the eurozone, while in the V3 region this caused an average inflation decrease of 0.3-0.7 percentage points. The largest impact was produced in Hungary in this as well. As an effect of the permanently subdued demand environment and the spread of cost shocks, the general inflation environment decreased as well, thus, core inflation also fell generally.

Based on international experiences, all in all mostly the change in the world market cost environment contributed to the strong disinflation of the past years. Governments

Chart 24
Contribution of individual items to the development of the harmonised index of consumer prices (HICP)



Source: Eurostat.

contributed to the reduction of inflation mostly via regulated prices, which are also closely linked to the world market raw material prices in the longer term. In Hungary, the government measures in the period between 2013-2015 caused especially significant disinflation in international comparison as well. A major role in this was played by the considerable decrease in household energy prices, and then the significant reduction of the inflation impact of indirect taxes after the stabilisation of the position of the budget and the closure of the reforms affecting the tax system.

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VI. Development of inflation and monetary policy in the central and eastern european region during the period after the change in regime

Mihály Hajnal, Laura Komlóssy

INTRODUCTION

In this chapter we present the inflation processes and monetary policy in the Central and Eastern European region after the change in regime. In addition to Hungary, the countries examined in this chapter are: the Czech Republic, Poland, Slovakia and Romania. The analysis of the regional countries assists in placing the Hungarian inflation processes to an international frame, pointing out also the differences between the countries with similar historical inheritance. We also endeavour to present the possible causes of Hungarian inflation that can be considered as high for a long time in the regional comparison. We also examine price convergence, closely related to inflation, and relative prices comparable internationally. Finally, the chapter deals in detail with the different monetary policy of the individual regional countries and the development of those in time, moreover, with the connection of monetary policies and inflation.

DEVELOPMENT OF INFLATION OF THE REGION SINCE THE CHANGE IN REGIME

In the period after the change in regime, the significant decrease in the price index (disinflation) is a trend that can be observed throughout the region. From the values that can be called as definitely high in the initial years,

inflation decreased to almost 0 per cent in the recent months in general, in accordance with the global and European trends. The main factors behind the decrease are: the switch to the market economy and economic liberalisation; the reduction of the inflation expectations of the population, the measures of the central bank taken for decreasing inflation; and the favourable cost environment of the end of the 90s. Naturally, there are a lot of differences in the speed (extent) of the decrease among the countries as well. The most important factors underlying these are as follows:

- Differences observable in the breakdown of inflation rates according to main groups.

- Different dynamics of the inflation expectations of the population: as a result of the high inflation rates of the past, the household expectations can develop at high levels, which may generate higher price dynamics via several factors looking ahead as well.

- The direction and extent of the changes in nominal exchange rates: since these are small, open countries, the exchange rate may have a greater effect on the price level of the given economy via imported inflation.

- Relative price level compared to the level of development: it is a generally observed phenomenon that in more developed countries, with higher income, the comparable price level (measured in the same currency) is higher, thus the converging countries have to have higher price dynamics in the temporary period.

- Price increasing effect of government measures (VAT increases, regulated prices) taken for the budget deficit after the change in regime: in the course of the switch to the market economy, governments endeavoured to decrease the rising budget deficit with tax increases – within this: with VAT increases – in many cases. As a direct impact of this, an immediate price increase was generated, while it could indirectly build in to the expectations of the person in the street as well, thus generating higher price indices looking ahead.

Table 32
Development of the consumer price index and the budget deficit in the region
(in per cent)

		1998-2001	2002-2005	2006-2009	2010–
Hungary	Inflation	10.8	5.0	5.5	2.0
	Budget deficit	–4.2	–4.6	–2.7	–2.5
Czech Republic	Inflation	6.7	1.4	3.0	1.4
	Budget deficit	–4.9	–7.6	–5.7	–2.9
Poland	Inflation	8.6	2.1	3.0	1.6
	Budget deficit	–3.6	–5.0	–4.1	–3.7
Romania	Inflation	59.9	14.8	6.3	3.0
	Budget deficit	–4.0	–1.5	–5.0	–2.6
Slovakia	Inflation	9.2	5.6	2.8	1.5
	Budget deficit	–7.7	–4.0	–3.9	–3.4

Source: Eurostat.

BREAKDOWN OF INFLATION RATES ACCORDING TO MAIN PRODUCT GROUPS

Based on the breakdown of the consumer price index according to the main groups, the high price index of all the main groups is behind the price dynamics of Hungary, which is higher than the region as a whole.

In the case of core inflation, which produces approximately two-thirds of the price index, the Hungarian price dynamics is the second largest in the region (3.4 per cent) behind the Romanian average value (5.8 per cent), taking into account the past 15 years. These statements are true for industrial products, market services, processed foodstuffs, and alcoholic drinks and tobacco products as well. The high price index can be explained by the exchange rate showing larger devaluation at the examined countries, the household inflation expectations of high dynamics, and the unit labour costs that can be considered as high at the regional level.

Similar processes can be observed in the case of items outside core inflation as well. Since energy prices (fuels, regulated energy prices) can be influenced by similar factors throughout the region, no great differences can be observed in the price dynamics of those either. It is worth mentioning, however, that there is a difference between Hungary and the other countries of the region

because of the household energy price reductions carried out in recent years. Whereas a negative average price index has developed in Hungary in the past 5 years – which, naturally, modified the 15-year average significantly downwards as well –, the examined indicator remained in positive territory in the neighbouring countries. Compared to the regional average, we can experience a significant difference mostly in the product group of non-processed foodstuffs.

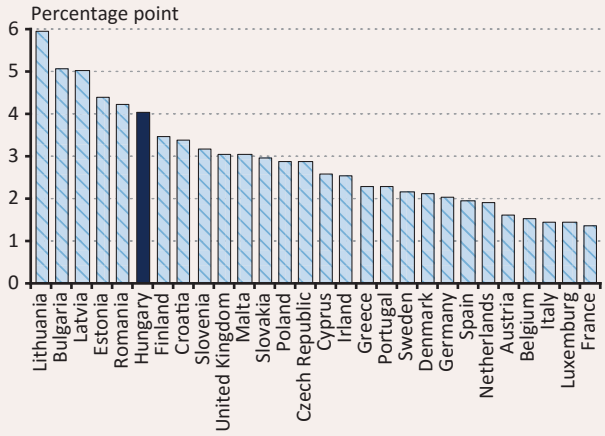
Table 33
Average price indices of individual main inflation items in the region

		Hungary	Czech Republic	Poland	Romania*	Slovakia
HICP	Average of last 15 years	4.0	1.8	2.1	6.0	2.9
	Average of last 5 years	1.4	1.1	0.6	1.5	0.8
Core inflation	Average of last 15 years	3.4	1.0	1.5	5.8	2.1
	Average of last 5 years	2.6	1.0	0.7	1.4	1.1
Traded	Average of last 15 years	1.0	–1.5	0.1	3.4	–0.2
	Average of last 5 years	0.9	–0.5	–0.5	1.2	0.3
Non-traded	Average of last 15 years	5.2	3.0	2.7	7.7	4.3
	Average of last 5 years	3.5	1.8	1.8	3.1	2.4
Processed food	Average of last 15 years	4.3	2.7	2.8	5.2	2.9
	Average of last 5 years	0.1	1.3	0.4	–1.4	0.7
Non-processed food	Average of last 15 years	5.2	1.5	2.9	3.8	1.6
	Average of last 5 years	3.7	3.8	0.7	0.6	1.8
Regulated prices	Average of last 15 years	5.9	4.3	4.1	8.5	6.0
	Average of last 5 years	–1.1	2.0	2.1	3.2	0.3

Note: In the case of Romania, data are available from 2003.
Calculations last from May 2002 to April 2016.
Source: Eurostat.

In terms of our analysis, the changes in the prices of foodstuffs may deserve separate attention. Hungarian agricultural production is one of the most volatile in Europe, which can be explained by several factors (decrease in the size of irrigable arable land, fragmented land structure, backwardness in R+D), but perhaps the most important factor is the significant ratio of plant cultivation. These processes appear at the level of the prices, too, since the Hungarian price index is one of the most fluctuating indices among the EU countries.

Chart 25
Standard deviation of inflation of non-processed foodstuffs between 2003 and 2015

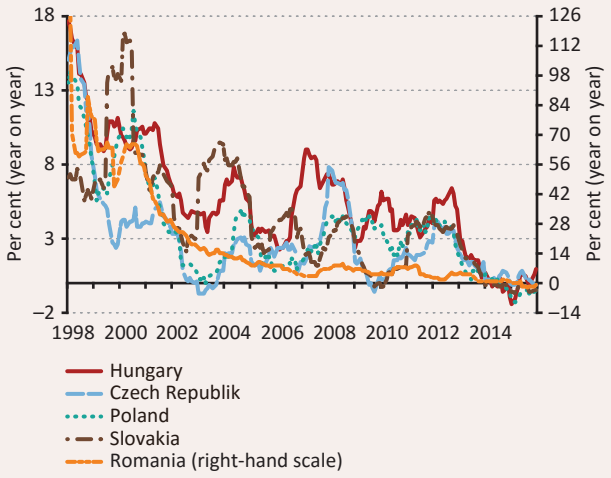


Source: Eurostat.

DIFFERENCES IN INFLATION IN THE COUNTRIES OF THE REGION

In the period after the change in regime, the inflation rate of the countries of the region moved on a wide scale and showed differences in terms of its dynamics from period to period. By way of introduction it can be stated that the producer price index showed high dynamics at the beginning of the period in the examined countries, then in the past period it decreased to close to 0 per cent, in accordance with the global and European trends.

Chart 26
Development of inflation in the region



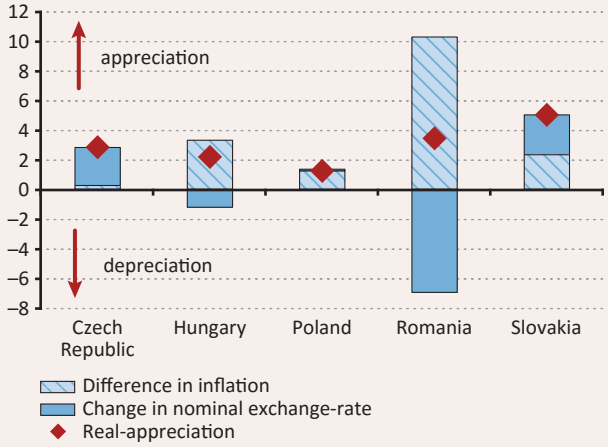
Source: Eurostat.

Several factors may be behind the higher inflation rates of the beginning of the period, however, it is worth mentioning by all means that the price convergence to the level of the more developed countries played a large role as well. According to the experiences, the comparable price level (expressed in a common currency) of the more developed countries of higher income is higher. Thus, improving levels of development in emerging countries entails real appreciation. This means that, as measured in the common currency, the price level gradually approaches the price levels of more developed countries. The detailed analyses are included in the study of Bauer (2015), yet it has to be underlined that, on the basis of the results, the convergence of countries otherwise showing great similarities in terms of the structural characteristics and historical inheritances of the economy were influenced to a different extent by the differences experienced in the inflation rates and the nominal exchange rates[65]. In the region, the appreciation of the nominal exchange rate in the review period contributed to the appreciation of the

[65] Indeed, provided that prices expressed in the domestic currency remain unchanged, the appreciation of the nominal exchange rate increases the price level expressed in the common currency. On the other hand, with the nominal exchange rate level unchanged, a faster increase in domestic prices relative to the reference country (i.e. excess inflation) also raises the relative price level. At the same time, changes in the nominal exchange rate and domestic prices are obviously not independent of one another; for instance, a nominal appreciation will be reflected in domestic prices over time, exerting a downward pressure on inflation.

real exchange rate in the case of the Czech Republic and Slovakia. By contrast, most of the real appreciation observed in Hungary, Poland and Romania was attributable to higher inflation relative to the EU15. For instance, the annual 2 per cent real appreciation was recorded in Hungary in the context of excess inflation of nearly 3 per cent, and an annual 1 per cent nominal exchange rate depreciation.

Chart 27
Breakdown of real revaluation of the regional countries
(1999-2013, annual average percentage changes relative to the EU15)



Source: Bauer (2015).

Examining the inflation rates of the region it turns out that, on the basis of the available data, the average index was one of the highest in Hungary (almost identical with Romania) in the period after the change in regime. Several factors could contribute to all of this:

- higher dynamics of households' inflation expectations
- considerable weakening of the nominal exchange rate
- price level is still lower compared to our level of development

Development of the households' inflation expectations

Inflation expectations are decisive in several regards for inflation targeting central banks. They carry information for macroeconomic forecasts on one hand, and for central bank credibility on the other hand. When expectations

are anchored, agents believe that monetary policy will offset the inflationary effect of economic shocks. Thus expectations do not rise in the wake of shocks, thus preventing inflation from accelerating in the future. Therefore monetary action comes at a lower real economic cost, and shocks peter out faster. Monetary policy may therefore disregard provisional, one-off price level increasing shocks without jeopardising the medium-term inflation target, and demand shocks require smaller monetary policy reactions to achieve medium-term inflation targets.

Household expectations are reflected directly in wage negotiations and consumption and savings decisions:

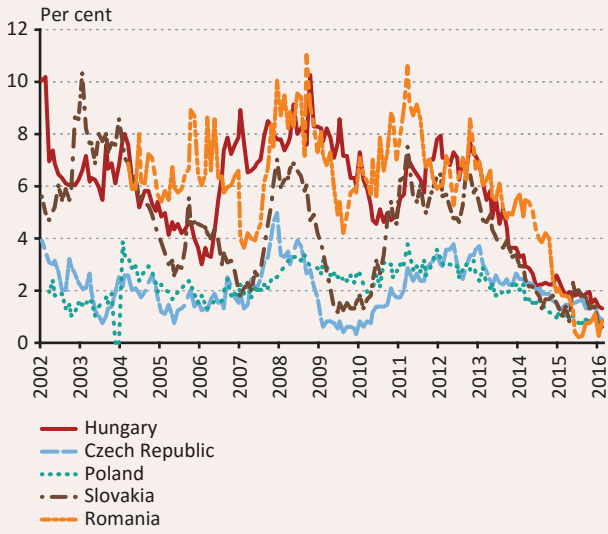
- They strive to attain higher nominal wages at wage negotiations if expectations are higher.

- If expectations are higher, households bring forward their consumption, which may push prices up by boosting demand.

- In case of higher expectations, consumers exhibit greater tolerance for price increases (making less of an effort to seek out cheaper products), which also reinforces inflationary pressure.

Inflation expectations in Hungary were higher compared with our regional competitors in the entire period. Based on the study of Gábriel (2010), expectations move closely together with actual inflation, and certain product groups – such as foods and administered prices – are monitored more closely by households. As a result, if the price index of these items changes, it has a greater impact on expectations. Thus, a sort of self-fulfilling process emerged, since as a result of the high inflation rates of the past, household expectations can develop at high levels, which may generate higher price dynamics via several factors looking ahead as well.

Chart 28
Household inflation expectations in the region



Source: MNB calculations based on a survey of the European Commission.

Development of the nominal exchange rate

Since the countries examined by us are small, open economies, the movement of the exchange rate can influence both real economy processes and the price dynamics. Changes in the exchange rate can influence consumer prices through various channels, therefore, examining the effect of the exchange rate on inflation is an important issue in terms of monetary policy:

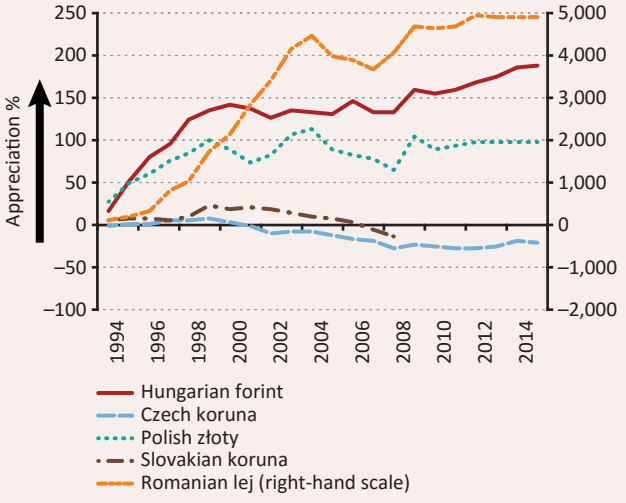
- The weakening of the exchange rate of the forint directly increases the price index of imported products,

- but it also has an indirect effect on domestic prices. The weaker exchange rate increases the cost level of companies via the price changes of imported factors of production, which may lead to an increase in consumer prices.

- Finally, there may be secondary channel effects as well. The depreciating exchange rate can increase the households' inflation expectations, which may lead to the increase in labour costs of companies via the increasing wage requirements.

Based on the analysis of the data, except for the Czech Republic, the regional foreign currencies were in general devalued vis-à-vis the eurozone, their main foreign trade partners. In the case of Hungary, however, this devaluation was more considerable and it thus had a much greater inflation effect, which contributed significantly to the price dynamics higher than the regional average. Moreover, the results of the estimates also verify that the changes in exchange rates indeed have an inflation consequence, although of smaller extent than before the crisis. Based on the latest estimates, currently a 1 per cent, permanent exchange rate devaluation can increase inflation by 0.1-0.2 per cent after 2 years, compared to the value of 0.3 per cent observed before the crisis (Hajnal et al, 2015), and these results are in harmony with the values estimated for the regional economies. Both the Czech central bank (Kucharčuková, 2013) and the Polish central bank (Arratibel et al. 2013) identified a value of approximately 0.1 per cent in models of parameters changing in time. In comparison, the values estimated for the eurozone are between 0.02 per cent (Faruqee, 2006) and 0.08 per cent (Hahn, 2003).

Chart 29
Development of nominal exchange rates in the region compared to the euro
*(cumulative per cent change)**

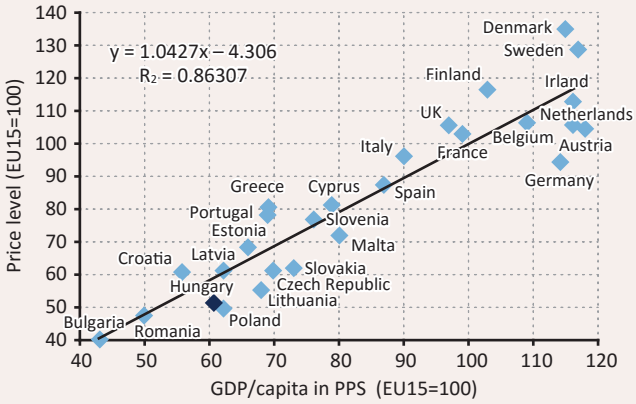


**Note: Slovakia has been a member of the eurozone since 1 January 2009.*
Source: Eurostat.

Price level is still lower compared to our level of development

According to the purchasing power parity hypothesis, measured in the same currency, the price of consumer baskets is the same in all countries; in other words, the value of the real exchange rate (i.e. the relative price of a consumer basket expressed in the consumer basket of another country) is 1. It is a generally recognised phenomenon that in more developed countries with higher-income households comparable price levels (i.e. as expressed in the same currency) tend to be higher. The relationship between economic development and comparable price levels in EU member states for 2013 (both values relative to the EU15) is shown on Chart 30. Thus, similarly to other regional countries, the position of Hungary was somewhat below the regression line that captures the relationship between economic development and price levels, which means that the country's price level was slightly lower than warranted by its level of development.

Chart 30
Development of nominal exchange rates in the region compared to the euro
(cumulative per cent change)



Source: Bauer (2015), Eurostat.

ACTUAL DEVELOPMENT OF INFLATION

In the past period, the consumer price indices decreased significantly in most countries of the world, which is a true statement for the countries of the region as well. Currently in all the countries examined by us statistical offices measure actual inflation of around 0 per cent, well below the inflation target of the central banks. The disinflation trend, observable in recent months, can be explained with several factors:

- Global raw material prices fell considerably and these are still at very moderate levels currently as well. Brent oil price, expressed in dollars, decreased by almost 60 per cent compared to its peak in mid-2014, whereas metals, a major raw material of industrial production, became more than 50 per cent cheaper since 2011.

- The inflation expectations of households have decreased in the region since 2012, in harmony with the reduction of actual inflation, which raises the possibility of development of secondary channel effects.

- The inflation rate of the eurozone, the main foreign trade partner of the region, continues to be at extremely low levels, well below the medium-term target of the European Central Bank, at near 0 per cent. Since this process can significantly influence the price level of the examined countries as well via the imported factors of production, it contributes to the low price dynamics of the regional countries.

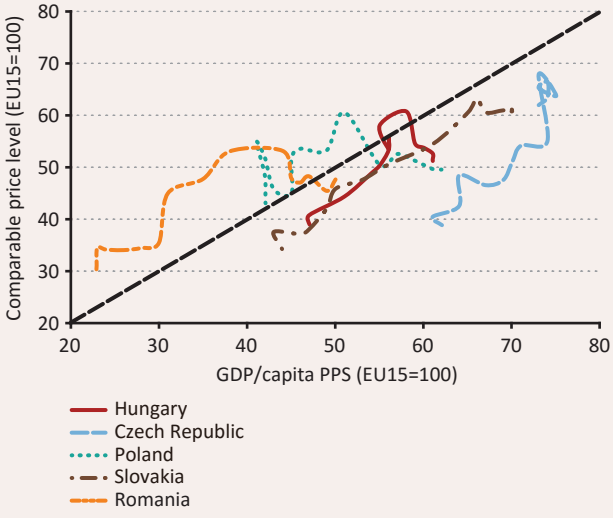
However, it can be stated in all of the examined countries that core inflation is at a higher level (at around 1 per cent, except for Poland) than the total consumer price index. This can be related to several factors. On the one hand, global factors can have an indirect effect on price dynamics, but they have a smaller direct effect on the price dynamics of these product ranges. Moreover, it is the products classified to core inflation for which the easing measures of the central banks of the neighbouring countries – naturally, counting the Hungarian central bank as well – could have had the greatest effect on. What's more, household consumption, which fell radically as a result of the crisis, has started to increase in recent quarters, which is observed by companies as well and they gradually start to reprice the products that are most sensitive to demand.

PRICE CONVERGENCE

Price convergence of the consumer basket of the regional countries

Above we examined the inflation differences and the reasons of these in the case of the regional countries. Below we examine the relative changes of the consumer price level of the individual countries compared to the developed countries (EU15), which is closely related to inflation, since, as we could see earlier, this can be broken down to the inflation difference and the change in nominal exchange rate. Since relative price levels are connected to relative economic development (according to the so-called Balassa-Samuelson effect), we indicated the convergence of relative prices as a function of per-capita relative GDP calculated at purchasing power parity. Based on Bauer (2015), we performed the analysis for the period between 1999-2013 (Chart 31). Economic convergence had been largely continuous in each country in the region up until the outbreak of the crisis in 2008. Real convergence entailed an increase in relative price levels. The crisis triggered a turnaround in this regard: on the one hand, real convergence slowed in 2009; on the other hand, partly reflecting the depreciation of the nominal exchange rate, price

Chart 31
Price convergence of regional countries as a function of economic development, 1999–2013
(compared to the EU15)



Source: Bauer (2015).

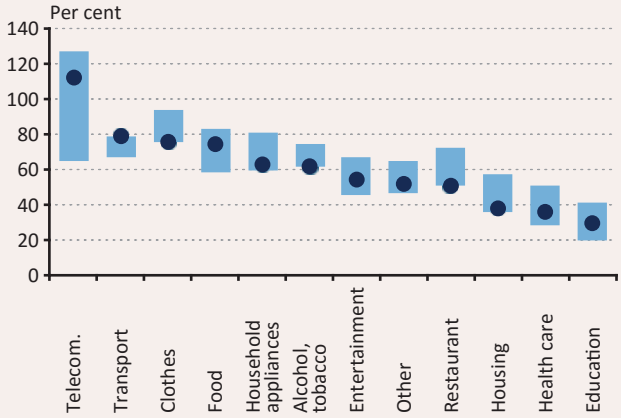
level convergence reversed. Namely, in as much as it is not immediately and completely incorporated into domestic prices, the depreciation of the nominal exchange rate reduces relative price levels. This is supported by the observation that, of the countries under review, Slovakia recorded the smallest decline in price level, due to Slovakia's accession to the euro area, there had been no exchange rate depreciation compared to the euro since 2009.

Price convergence of certain product groups of the consumer basket

In this part we examine the price convergence of the 12 main groups of the consumer basket according to the COICOP classification. Before analysing the link between prices and level of development, we examine the relative price level of each product group in Hungary compared to the EU15 (Chart 32). The chart shows maximum and minimum CEE values as well. Our first observation is that Hungarian prices for most product groups are among those considered relatively cheap in the region. Moreover, it can be stated in general that the price levels of the rather traded products (traded in international trade) are closer to those prevailing in developed countries compared to the price levels of products that can be classified as non-traded products (less traded in international trade). This indicates that the Balassa-Samuelson effect might be at work at some level as, according to the theory, development lags are reflected precisely in cheaper non-traded prices. It should be stressed that these figures also include the imputed prices of non-purchased consumption as well. We should note that, in addition to transportation services, the "transport" group also includes the price indices of fuels and motor vehicles – and thus contains a significant traded component –, while communications also cover communication devices and equipment in addition to the service itself. That notwithstanding, the fact that communications are more expensive than the EU15 average can be mainly attributed to market structure and the regulatory environment. This may also be supported by the fact that, in this product group, the price levels of CEE countries are far more widely dispersed than for the rest of the products.

Chart 32
Price level of the 12 main groups of the consumer basket in Hungary and in the region, in 2013

(white circle: Hungary, column: regional maximum and minimum, in per cent of EU15)



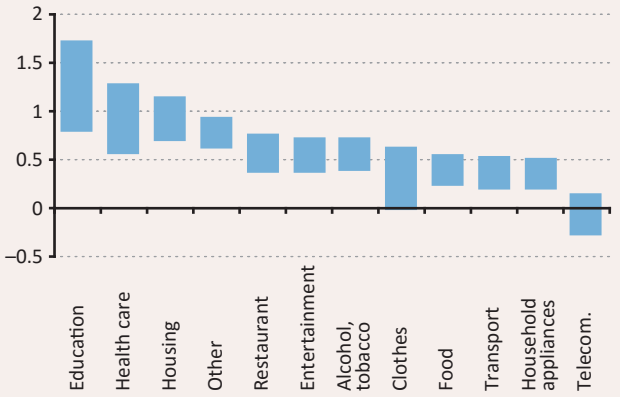
Source: Bauer (2015).

In his study, Bauer (2015) examined the connection of price level and the level of development with panel regression. In his analysis, he looked for an answer to how the development of countries influences the comparable prices of the individual product groups. Based on the results of the estimate, the sensitivity of prices to development level varies significantly for each product group. This may be because the degree to which individual product groups can be considered non-traded is different and, based on the logic of the Balassa-Samuelson effect, the prices of mostly non-traded products tend to be more sensitive to level of development. Indeed, as we examine the estimation results, we find that services are mainly located on the left side of the chart with higher estimated coefficients, while the right side shows mainly industrial goods.

Accordingly, it is the price level of education, health and housing that grows more consistently with the improvement in development, and these product groups can be rather clearly classified as being non-traded, although in many countries they are partly subject to administrative regulations. By contrast, the smallest estimated coefficients were received for the groups of clothing, household equipment and food. Except for foodstuffs, these products are clearly classified as traded, although even foods are partly considered as

traded goods. As we have mentioned above, the transport group also includes fuels and motor vehicles, with the latter representing a large weight among traded goods. As regards fuels, their price convergence is mainly driven by tax content rather than level of development, as will be shown in a sub-section below. Once again, the group of communications is somewhat set apart from the rest of the products, even though we are aware that it also includes the traded category of communication devices. Examining the development of the relative price level of telecommunication in the regional countries, we find that some regional countries have already exceeded the average of the EU15 after a period of continuous appreciation, while prices have declined in Poland and Romania since the early 2000s and are still far below the level of the EU15. Divergence among these countries explains, on the one hand, why the estimated coefficient is close to zero and, on the other hand, suggests that differences in market structure and legislative environment have a fundamental impact on price developments.

Chart 33
Sensitivity of the prices of the consumer basket at the main group level to the level of development
*(minimum and maximum values of estimated coefficients)**



**The values of the coefficients indicate by how many percent the relative price level of the given group is increased by a 1 per cent increase in the level of development.*
Source: Bauer (2015).

The disaggregated analyses underpin, therefore, that – albeit not entirely in its theoretical form, yet – the Balassa-Samuelson effect, which explains the connection between the level of development and the price level, may

contribute to price convergence if we acknowledge that some products cannot be clearly classified into either the traded or the non-traded category.

DEVELOPMENT OF MONETARY POLICY OF THE REGION FROM THE 1990S UNTIL TODAY

Poland

Period of the crawling peg (1991-1998)

The development of the market economy started in Poland after 1989 and, after the transformation depression, economic growth and the decrease in inflation started in the country from 1992. The establishment of the most important institutions of the market economy, the sectoral transformation of the economy and the process of privatisation took place in this period. The system-level reforms accelerated from 1998, these were aimed at the decentralisation of the system of administration, and the transformation of the public finances, the pension system and the health care system. Concurrently with these upsides, however, there were unfavourable processes as well, such as for example the excessively fast increase of internal demand compared to the GDP in the period of 1995-96, in the background of which there were the dynamic increase of real wages, the expansion of lending and fiscal spending. As a result of this, the trade deficit and the current account deficit increased, and so increased the external imbalances.

In order to offset these processes, the central bank implemented a strict monetary policy, in the spirit of this it raised the interest rates and the reserve requirement starting from the end of 1996. However, fiscal policy did not react to the emerged economic policy situation with appropriate measures[66], which undermined the economic policy of stabilisation. As a response, **the institutional transformation of monetary policy was started with the birth of the new constitution and the central bank act in 1998**, a nine-person central bank decision making body was established (Monetary Policy Council), which made decisions of critical importance for the foundation of the new monetary policy guideline:

[66] Between 1995 and 1998 the government operated with a budget deficit exceeding -4 per cent.

- The exchange rate band of the zloty was widened, thus, the development of the exchange rate was increasingly determined by market factors, and the exchange rate could develop more flexibly than before, which contributed to the increase in efficiency of monetary policy.
- The extent of crawling devaluation of the exchange rate of the zloty decreased, which supported the disinflation process.
- Interest rates increasingly became the instruments of influencing money supply, instead of the monetary basis.
- The regime of implementation of open market operations changed, in the spirit of this the interest rate of the 28-day open market instrument became governing (maturity decreased to 28 days from the previous 270 days).

The restrictive monetary policy was supported by the fiscal policy of contraction, which together succeeded in decreasing the rate of growth of internal demand and the expansion of the deficit of the current account balance, while the expansion of the economy and disinflation continued further. Starting from this, the most important economic policy challenge was to assure the continuation of the favourable processes, to which **monetary policy could contribute by announcing the creation of price stability as the primary target**. The strategy of inflation targeting indirectly assumes a stable connection between an intermediate target and the final target (inflation targeting). This intermediate target may be the **maintenance of stable exchange rate** between the domestic currency and the currency of a country with low inflation, or **influencing the growth of money supply**. Since both strategies have advantages and restrictions, the Polish central bank endeavoured to combine these two strategies until 1998 (Table 34). In the spirit of this, the intermediate target was the increase in money supply, with the crawling peg of the zloty; although the complete fulfilment of the intermediate targets was not achieved in the framework of the strategy, but it made it possible to decrease inflation (National Bank of Poland, 1998).

Table 34
Monetary policy regime between 1990 and 1999
(Poland)

	Intermediate target	Final target
1990	M2 growth	Fixed exchange rate
1991		Crawling peg regime with the monthly rate of crawl 1.8% which was gradually reduced
1995		Crawling band regime with the fluctuating band ±7.0%
1997		Crawling band regime with a 1.0% monthly rate of crawl and with the fluctuating band ±7.0%
1998		Crawling band regime with a 0.8% monthly rate of crawl reduced to 0.5% , the fluctuating band was gradually widened to ±12.5%
1999	NA	Official CPI & Crawling band regime with a 0.5% monthly rate of crawl reduced to 0.3% ; the fluctuating band was widened from ±12.5% to ±15.0%

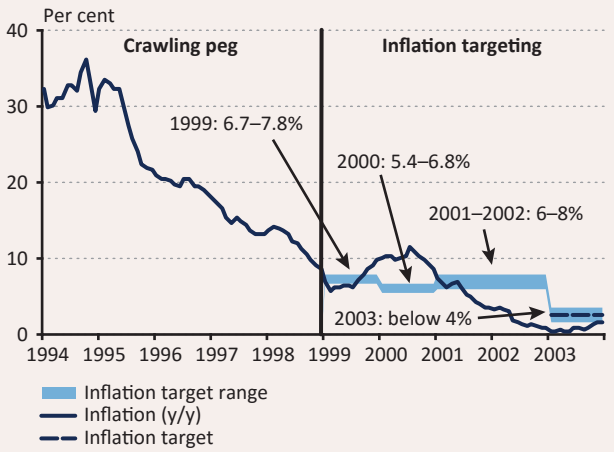
Source: Horská (2001:5).

Introduction of direct inflation targeting (1999 – 2003)

By the turn of the millennium, the intensifying integration of the Polish economy to the global processes strengthened, however, the decision makers of the central bank recognised that the obstacles of further decreasing inflation were the inflation expectations that remained high. In this economic situation in September 1998 the central bank announced a new monetary policy strategy, **the regime of direct inflation targeting, and it set a target for the period between 1999 and 2003 in accordance with this.** In the new regime a medium-term inflation target was determined, which was formulated in such a way that the increase in the consumer price index had to decrease below 4 per cent until 2003 (Chart 34) In the regime of inflation targeting, the primary objective of the central bank is to achieve and maintain price stability, moreover, to support the economic policy of the government if it does not endanger the achievement of the primary objective. In this regime the decision making body of the central bank[67] determines the inflation target, and this body decides about the base rate in such a way that inflation should be in line with the inflation target in the medium term.

[67] The Monetary Council consists of 10 people, a chairperson and 9 external members, whose mandate is for 6 years. In the majority of the cases, the Council has a meeting twice a month, of this one is a two-day meeting, where they decide about the policy rates.

Chart 34
Monetary policy regime between 1999 and 2003
(Poland)



Source: National Bank of Poland.

According to the assessment of the decision makers of the central bank, direct inflation targeting is the best regime for an economy like Poland. In the background of this is that amid the increasing economic openness, the increasingly integrated money markets and the deterioration of the external balance, this strategy is the best for contributing to the decrease in inflation. In order to implement this, there was a move towards the **implementation of the floating exchange rate system and determining short-term inflation targets**. The establishment of the floating exchange rate system is important because it assures the cohesion of the regime, while it facilitates the reduction of excess liquidity in the banking system. Meanwhile, the determination of annual inflation targets assists in orienting inflation expectations, and supports disinflation and the achievement of the medium-term inflation target.

In summary, the period between 1999 and 2002 passed in the spirit of implementation of direct inflation targeting. In 1999 the devaluation of the zloty[68], started in February 1998, continued and the exchange rate band was widened from 12.5 per cent to 15 per cent, then **starting from April 2000**

[68] The rate of devaluation decreased from 0.5 per cent per month to 0.3 per cent.

a freely floating exchange rate system is applied. Starting from this, the development of the exchange rate is influenced by market forces; however, the central bank can intervene in the development of the exchange rate, if it assesses that it may endanger the achievement of the inflation target. By the end of 2002 inflation reached such a low level that it could be assumed on the basis of this that the target set for 1999-2003 would be fulfilled. Monetary policy greatly contributed to moderating the excessively rapidly increasing domestic demand, and the build-up of external imbalances, and to decreasing the risk of an exchange rate crisis. **The credibility of monetary policy improved significantly** in the examined period, despite the fact that short-term inflation targets were dismissed several times in the beginning. As a result of these, annual average inflation decreased from 11.8 per cent in 1998 to 1.9 per cent by 2002, which was in line with the values observed in the developed countries (National Bank of Poland, 1998).

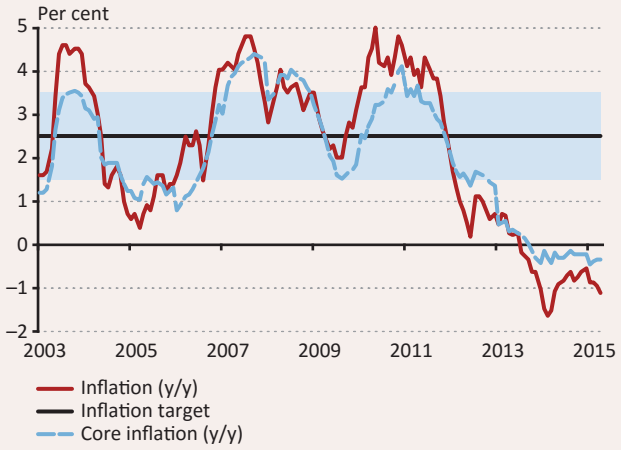
Period of stabilisation (2004 – 2008)

After successfully achieving the target set for the period between 1999 and 2003, the **new challenge for monetary policy was to maintain the low inflation environment**. From that time, as a result of the moderate inflation expectations and the already low inflation environment, it became possible for the central bank to implement a less strict policy than in the previous, disinflation period. Moreover, for this period the greatest challenge for Polish economic policy was the accession to the European Union in 2004[69]. However, the efficiency of direct inflation targeting was supported by the floating exchange rate system, since the management of the exchange rate would have moved the interest rate to such a direction that is not consistent with the inflation target set.

Since the target in this period was already not the achievement of low inflation, but the stabilisation of that at a low level, thus, the determination of the target was modified as well, instead of the determination of the previous year-end targets a continuous target was defined. In the spirit of this, from 2003 a continuous 2.5 per cent inflation target was determined with a tolerance band of ±1 percentage points (Chart 35) (National Bank of Poland, 2003).

[69] Stabilising the inflation at a level that is consistent with the future possible accession of Poland to the eurozone;
creation of possibility of accession to the ERM2; fulfilment of nominal convergence criteria.

Chart 35
Development of inflation in Poland

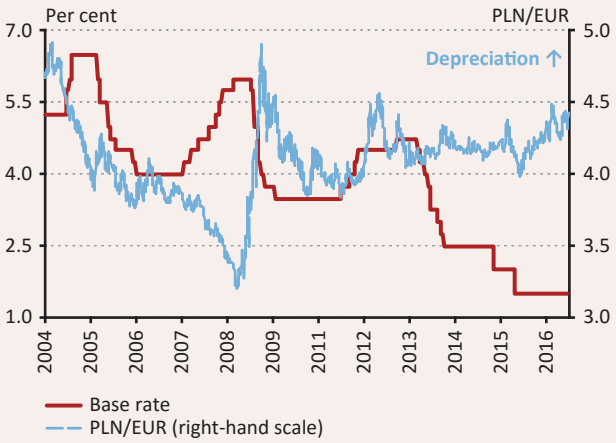


Source: National Bank of Poland.

Development of monetary policy in light of the financial crisis (2008 – until today)

There was dynamic economic growth in Poland before the onset of the global financial crisis and there was no recession even after the start of the financial crisis. Before the crisis, seeing the deteriorating inflation outlooks, the central bank started an interest rate increasing cycle, which lasted until summer 2008. **After the onset of the crisis, the central bank started an easing cycle (Chart 36)**. The interest rate conditions did not change during the period of recovering from the crisis (2009-2011), while inflation was in line with the target, and there was dynamic growth in regional comparison. After this, the deteriorating inflation outlooks led to the tightening of monetary conditions. During the crisis, in order to diminish money market tensions, the Polish central bank provided foreign currency liquidity (foreign currency swap) and it decided to temporarily decrease the reserve requirement, whereas it reduced the excessive volatility of the exchange rate with foreign exchange intervention.

Chart 36
Development of base rate (%) and exchange rate (EUR/PLN) (Poland)



Source: National Bank of Poland.

Referring to the weak real economy situation and the forecast of inflation decreasing below the target with unchanged monetary policy, the Polish central bank **started an interest rate reduction cycle in November 2012**. **As an effect of the intensifying disinflation processes, the central bank base rate decreased to 1.5 per cent by March 2015.** During the one and a half years passed since then, the decision making body of the central bank did not change the base rate, since according to them the current level of the base rate assures sustainable economic growth and macroeconomic balance.

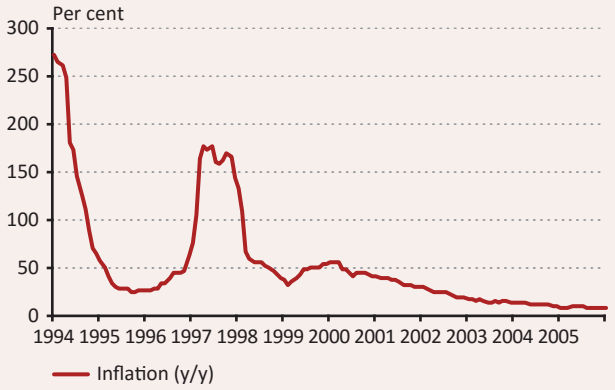
Romania

Period of restricted monetary policy (1994 – 2005)

Officially the primary objective of Romanian monetary policy was the achievement of price stability already at the beginning of the 1990s. Later on it became important because of the EU accession as well that the economic policy and the monetary policy of the central bank can assure the low inflation environment. In the 1990s, during the development of the market economy, inflation was extremely high in lack of significant measures of stabilisation, in a considerable part of the decade there was hyperinflation in Romania (Chart 37). The main reason for hyperinflation was that it was

the only way (except for taking loans) to solve the financing problems of government expenditures and government debt, in lack of an efficiently operating tax system (tax evasion was large and tax income was low). **In the 1990s monetary policy often had to face several and changing objectives, which were rarely consistent with achieving the reduction of inflation**. Thus, the unfavourable structural characteristics of the economy considerably undermined the appropriate operation of monetary policy.

Chart 37
Development of inflation in Romania
(1994-2005)



Source: National Bank of Romania.

The period of disinflation started from the end of the 1990s. A new central bank act was passed in 1998 (which replaced the act of 1991), according to which the central bank had to assure the stability of the exchange rate, while maintaining price stability. With the more independent monetary policy, inflation was decreased to 40.6 per cent in December 1998 from the value above 150 per cent of the previous year. **The central bank used the monetary aggregates as anchor** and the money supply played the role of the operative target. However, neither the exchange rate, nor the interest rates could be applied appropriately as instruments of monetary policy, the former because of the low level of foreign exchange reserves, while the latter because the central bank could not have an appropriate effect on the development of inflation with the interest rates, because of the weak transmission mechanism of that time. Thus, the central bank influenced the liquidity of the banking system primarily by determining the minimum reserve rate.

In 1999, as a result of the surge of external debt service, **the adjustment of the current account balance became the primary monetary policy consideration** (the inflation target was raised as well)**, as a result of which inflation rose above 50 per cent again**. The competitiveness of exports decreased as a consequence of the overvalued exchange rate, whereas the level of foreign exchange reserves of the central bank was low as well. In mid-1999 Romania went through a short, but relatively grave financial crisis (bank crisis and a major exchange rate devaluation). However, thanks to a current account balance adjustment of significant extent, the country escaped national bankruptcy.

In 2000 the central bank set the objective of increasing the level of foreign exchange reserves, moreover, preventing the excessive appreciation of the exchange rate of the leu. Furthermore, gradual disinflation was also among the objectives of the central bank. As a result of this, inflation decreased again, when the exchange rate played the role of the monetary policy anchor. However, holding back appreciation and the requirement of financing the budget deficit, and keeping the deficit of the current account balance among appropriate limits were of primary importance versus the disinflation objective. In order to increase the foreign exchange reserves and to achieve a weaker exchange rate (because of competitiveness criteria), the central bank purchased a significant amount of foreign currency, which contributed to the decrease in country-specific risks and the improvement of the credit rating of Romania.

In 2001 the central bank intended to achieve inflation of 25 per cent. It was unsuccessful, however, inflation decreased to 30.3 per cent by the end of the year. In fact, this was the first time when the central bank could successfully apply its interest rate policy, which was helped by decreasing treasury bill yields as well. Moreover, the central bank avoided the substantial real appreciation of the domestic currency, however, it did not succeed in sterilising the liquidity increased significantly as a result of the purchase of foreign exchange.

In 2002 the central bank set the inflation target of 22 per cent, by the end of the year inflation fell to a lower level than this, to 17.8 per cent. **In addition to decreasing inflation, however, the central bank continued to take economic growth and the development of external balance into account**. Moreover, they again intended to implement monetary policy primarily via influencing

monetary aggregates. In 2002-2003 the central bank started to decrease the extent of its purchases of foreign exchange, as a result of this the exchange rate started to strengthen again slightly. As a result of the purchases of foreign exchange, significant extent of liquidity was added to the economy, however, they still could not sterilise it completely. The monetary base (M0) and the money supply in the economy (M2) increased significantly during this period.

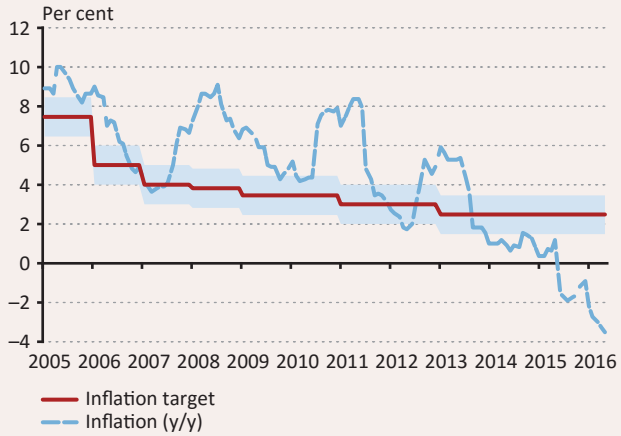
In 2003 the central bank again was successful in achieving its target of decreasing inflation below 14 per cent. The previous conflict between disinflation and the decrease in external imbalance eased. In 2004 disinflation continued and inflation fell below 10 per cent. The central bank again considered the stability of the exchange rate as an anchor, moreover, control over liquidity was maintained with sterilisation operations, while keeping the budget deficit at a low level assisted in disinflation (Daianu et al, 2004).

Introduction of inflation targeting (2005)

Since August 2005, the National Bank of Romania (NBR) attempts to achieve and maintain its primary objective, i.e. price stability, with the regime of inflation targeting. In 2005 the inflation target was determined in the band of 7.5 per cent ± 1 percentage point. The determination of the mid-target within the target band serves the purpose of more appropriate anchoring of inflation expectations. The year-end targets were decreased gradually, thus, these were determined in 3.5 per cent (±1 percentage point) for 2009-2010; then in 3 per cent (±1 percentage point) from 2011; finally, from 2013, in the tolerance band of 2.5 per cent (±1 percentage point) (Chart 38).

In the case of Romania, basically two different phases of the types of inflation targets can be differentiated. The **phase of decreasing inflation targets was between 2005 and 2012**, when the central bank targeted the year-end inflation on a 2-year horizon, whose purpose was the strengthening of the disinflation process and the achievement of the annual inflation rate that can be sustained in the medium term. After this, starting from 2013, an inflation target related to several years was introduced, which is consistent with the definition of medium-term price stability of the Romanian economy. This is an intermediate phase for achieving the long-term, continuous inflation targeting (in line with the quantitative price stability definition of the ECB).

Chart 38
Development of inflation in Romania



Source: National Bank of Romania.

Similarly to the inflation targeting central banks, the Romanian central bank also **operates in the regime of flexible inflation targeting**. In contrast to the other regional central banks, however, a managed (controlled) floating exchange rate regime is applied, i.e. when reaching certain (undisclosed) interval limits, the central bank intervenes in order to restore the exchange rate to the level intended. Its main decision making body is the nine-member Board of Directors, whose members are the chairperson, three deputy chairpersons and five external members. The minister of finance and an undersecretary of the Ministry of Finance can also participate at the meetings, without the right to vote (Gabor, 2009).

Development of monetary policy in light of the financial crisis (2008 – until today)

At the time of the onset of the global financial crisis, the vulnerability of the Romanian banking system and the risks related to the sustainability of the state budget increased significantly[70]. The banking system was primarily made up by the subsidiary banks of foreign banks or foreign-held banks. In the years before the crisis, the expansion of lending was significant, and, within that, the increase in consumption purpose loans was extremely high.

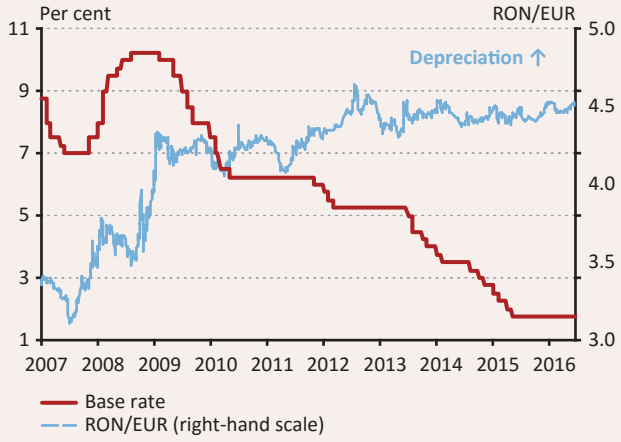
[70] Cerna, Silviu (2009): The crisis and central bank reaction.

Although the banking system did not have complex, structured products, the liquidity of the banks decreased because of the foreign exposure, as a result of the measures of the parent banks and the more expensive interbank financing. The ratio of foreign currency loans was considerable in both the household and the corporate segments. The ratio of non-performing loans increased quickly during the crisis and it rose above 18 per cent by the end of 2012. The monetary policy could not significantly hinder the overheating of the Romanian economy before the crisis, thus, high inflation and interest rate level characterised the country in 2008. The deficit of the state budget and the level of government debt were relatively low in Romania during the crisis. In 2008 (elections were held in November), however, such welfare measures were taken (pension increase, wage increase in the public sector) which impaired the longer term sustainability of the state budget. The external exposure of the private sector was significant, and by the beginning of 2009 the chance of collapse of lending to the private sector increased. The real economy effects of this and the welfare measures considerably impaired the position of the budget already in the short term.

Because of the situation of the Romanian economy, the central bank had to make its conditions stricter already before the crisis. Between 2005 and 2007 the central bank was faced with the dilemma that the increased interest rates, with the damaged transmission mechanism (in which foreign currency lending played a considerable role), could not significantly slow down the increase in inflation, however, high interest rates led to a considerable inflow of foreign capital and the unsustainable appreciation of the leu. Finally, by the beginning of 2007 they succeeded in bringing down inflation, but it increased again from the middle of the year, which can be attributed to the overheating of the economy, the increase of consumption, the rise in energy prices, and the weakening of the leu lasting since August 2007. The Romanian central bank was compelled, already before the crisis, to perform currency market intervention, what is more, it started an interest rate increasing cycle from the end of 2007, which lasted until the end of 2008, in the course of which the central bank base rate was increased to 10.5 per cent (Chart 39). The significant decrease in economic activity and the rapid adjustment of consumption decreased inflation expectations from the beginning of the crisis. Partly because of the decrease in demand-side inflation pressure, and partly because of regaining external credibility thanks to the agreement with the IMF, and, via this, the stabilisation of the exchange rate, the central bank could start an interest rate reduction cycle in 2009, thus, the base rate

decreased to 6.25 per cent from 2009 by spring 2010. In the first phase of the crisis, the central bank attempted to continuously maintain the leu-euro exchange rate at around 4.1-4.3 because of the significant ratio of foreign currency loans and the increasing inflation risks as a result of the stronger depreciation. Differently from the regional central banks, the Romanian central bank applied less liquidity expansion tools during the crisis. The decrease in the reserve requirement (for liabilities denominated in leu: from 20% to 15%) was the only measure of the central bank that intended to increase the liquidity of commercial banks (Sâmbotin, 2012).

Chart 39
Development of base rate and exchange rate in Romania



Source: National Bank of Romania.

At its meeting at the end of June 2010, the decision making body of the National Bank of Romania gave up the interest rate reduction cycle started at the beginning of the year. During the cycle it decreased the level of base rate by a total of 175 basis points. The decision was motivated mainly by the inflation likely to increase because of the rise in VAT and the requirement of anchoring expectations, in order to avoid the appearance of second-round effects in consumer prices. After this, inflation remained above the target, at around 8 per cent, and despite the price decreasing effect of weak demand, the fear from second-round effects remained, and the base rate was not changed any more during 2010. The first-round effect of the VAT increase ran out after one year, thus, inflation decreased to a level around the target (3.5%) by September 2011.

In November 2011 the central bank started another interest rate reduction cycle, in the course of which the base rate decreased from 6.25 per cent in November 2011 to 5.25 per cent by April 2012. After this the decision making body did not change the extent of the base rate, which they justified by stating that inflation will remain close to the target on the forecast horizon, but it is surrounded by upside risks. The political uncertainty related to the elections in 2012 was, inter alia, behind this, which led to the greater volatility of the flow of capital, risk aversion of investors and a weaker exchange rate. After the elections, uncertainty fell and the exchange rate of the leu strengthened. Despite this, inflation outlooks could not improve significantly, in the background of this there are mainly factors beyond the scope of monetary policy (development of regulated prices, and the prices of foodstuffs, fuels, alcoholic drinks and tobacco products), thus, the base rate was kept at the same level.

In Romania **the value of the base rate did not reach the lower limit of zero after the crisis**, in addition to its interest rate policy the central bank did not apply other, non-conventional tools for easing. The last time the central bank started an easing cycle was in July 2013 and the base rate was reduced to 1.75 per cent by May 2015. In the period since then, the decision making body of the central bank did not modify the interest rate.

Czech Republic

Economic transformation in the fixed exchange rate system (1991 – 1995)

After the collapse of the former, centrally planned system and the disintegration of the Council for Mutual Economic Assistance (CMEA, a.k.a. Comecon), economic reforms started in Czechoslovakia in 1991. The initial reforms included, inter alia, the following: the devaluation of the Czech crown in several steps; its fixing to a basket of five currencies (the currencies of the main trading partners: Germany, USA, Austria, Switzerland and the United Kingdom); the introduction of the so-called internal convertibility of the crown; and the liberalisation of prices and foreign trade. In the initial phase of the economic transformation, the central bank formed monetary policy with direct tools, however, these tools were gradually phased out and were replaced by indirect tools.

Similarly to the other countries of the region, output dropped in the first years of the economic transition, which was followed by gradual recovery afterwards. In this period, a privatisation process started with the aim of overhauling proprietary rights, whereas in 1992 a general tax reform introduced a market-conforming tax structure. With the split of Czechoslovakia, the Czech Republic was established on 1 January 1993, and the Czech crown was introduced in February.

At first sight, the Czech economy seemed healthy in the mid-1990s, economic growth reached almost 7 per cent, unemployment was 4 per cent, whereas inflation was around 9 per cent. The fixed exchange rate system suggested excessive stability, thus, the overall economic outlooks were also promising. Examining from closer, however, several factors were indicative of the overheating of the economy. Growth in real wages exceeded productivity growth, and the gap between the two indicators reached 12 percentage points in 1995, and it remained significant in the next year as well. Moreover, the rapid increase of wages contributed to the rise in internal demand, and the loans to the private sector expanded robustly. The mismatch between demand and supply led to external imbalance, the deficit of the current account balance increased to above 6 per cent of the GDP in the mid-1990s, which exceeded the generally considered critical value (5 per cent of GDP). At the same time, macroeconomic policy did not respond to the increasing imbalances, since they considered that the overheating was the correction of the previous economic decline, and that the processes reflect the strengthening of the newly formed market economy. Overall, decision makers did not assess appropriately the risks related to the fixed exchange rate, whose consequences became obvious when significant capital inflow started into the economy.

The establishment of the internal convertibility of the crown started at the beginning of 1991. As a part of the process, domestic companies were granted free access to converting the currencies used for trade transactions, but it was obligatory to convert the incomes from exports, whereas the access of households to foreign currency was restricted. The measure was made necessary by the fact that the central bank had very low foreign exchange reserves at the time of the economic transformation, and internal convertibility was the only way to maintain the currency peg, which it tied to a basket of currencies (in 65 per cent to the German mark and in 35 per

cent to the American dollar), and it applied a fluctuation band of ±0.5 per cent around the exchange rate peg.

Whereas the current account balance transactions were relatively liberal, the capital balance transactions were strongly restricted, especially on the outflow side. The reason for the latter was to stimulate foreign direct investment (FDI) to support the restructuring and privatisation of the state-owned sector and to satisfy the requirements of the increasing economy. Although the restrictions remained unchanged for years, the legal environment and everyday practice developed towards stronger capital mobility. The new foreign exchange act, adopted in 1995, represented a significant progress towards the liberalisation of the capital account, and external convertibility was finished, in addition to the internal convertibility of the crown.

The completion of capital account liberalisation and the maintenance of the fixed exchange rate led to the emergence of the impossible trinity (Mundell-trilemma: free capital flows, independent monetary policy, fixed exchange rate)[71]. With the convertibility of the Czech crown, as an effect of the higher interest rate differential, the increasing cross-border mobility of capital, the fixed exchange rate system and a relatively liquid foreign exchange market, a significant capital inflow started, which also contributed to the overheating of the economy. In order to maintain the currency peg, the central bank had to intervene, which led to the increase in the monetary base and the monetary aggregates. The central bank sterilisation contributed to the continuous increase in the foreign exchange reserves and the further increase in domestic interest rates, however, it was not sufficient for holding back economic overheating (Niedermayer et al, 2008).

Widening, then abolishing the fluctuation band (1996 – 1997)

At the end of 1995, both monetary and fiscal policy turned out to be unsustainable: the economy was overheated, the current account was in deficit and deteriorated rapidly, and the cost of maintaining the currency peg increased gradually.

In lack of appropriate fiscal measures, the Czech central bank implemented restrictive monetary policy, however, the interest rate steps of the central

[71] One economy can perform only two of the three critical factors at the same time.

bank were not sufficient for eliminating the macroeconomic imbalances. Although the central bank raised interest rate several times during 1996, overall monetary tightening was limited. In order to curb the significant inflow of capital, at the end of February 1996 the central bank widened the fluctuation band of the crown from the previous 0.5 per cent to 7.5 per cent. In and of itself widening the band increased the uncertainty of foreign investors and it stopped the rise in foreign exchange reserves, however, overall the stabilisation impact was partial. As an effect of the widening of the fluctuation band, strong appreciation started, which contributed to the deterioration of competitiveness and the balance of trade. Although the strengthening of the crown decreased inflation temporarily, the vulnerability of the economy increased.

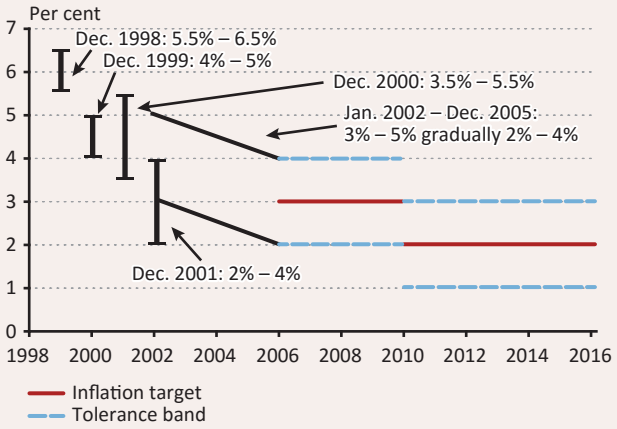
In early spring 1997, foreign exchange market sentiment reversed and the previous strengthening of the exchange rate was replaced by depreciation. The exchange rate came under pressure due to problems in Asian foreign exchange markets and it was exposed to a considerable speculative attack. The exchange rate system was not sustained, despite sizeable foreign exchange reserves and money market interventions, thus on 27 May the central bank abandoned the currency peg and switched to a floating exchange rate system. In June the exchange rate depreciated by almost 12 per cent against the former central parity. To stabilise the economy, the central bank increased the interest rates radically for a short period, which, although, stopped the depreciation of the crown, however, it contributed to the deterioration of economic performance. The fiscal and monetary restriction, in parallel with the restructuring of the banking sector, was rather robust and it was inevitable that the economy fell into recession in the following two years (Niedermayer et al, 2008).

Introduction of inflation targeting (1998 – 2008)

After the abolition of the currency peg, the Czech central bank switched to inflation targeting in 1998. Inflation targeting improved the transparency of the central bank and it gradually contributed to the strengthening of the credibility of the crown. However, the abolition of the currency peg and the macroeconomic stabilisation after the recession led to an increase in exchange rate and, indirectly, increased the volatility of inflation, complicating the stabilisation of inflation expectations and the monetary policy based on inflation targeting (Niedermayer et al, 2008).

After the decreasing year-end targets and target bands set in the initial years, a continuous 3 per cent target was introduced from 2006, with a tolerance band of ±1 per cent (Chart 40)[72].

Chart 40
Inflation targets and target bands (1998-2016)
(Czech Republic)



Source: Czech National Bank.

Similarly to other inflation targeting central banks, the Czech central bank also operates within the so-called flexible inflation targeting regime, recognising that in certain cases (e.g. the change in indirect taxes) the deviation from the inflation target is admissible in order to avoid excess volatility in the real economy. This means that the central bank does not react to the first-round effect of shocks, instead it tolerates the temporary deviation of inflation from the target. In March 2007, the decision makers of the central bank decided about comprehensive changes in terms of the target and communication. On the one hand, they determined the inflation target in 2 per cent from 2010. On the other hand, whereas earlier the "interest rate path consistent with the forecast" appeared only in text, from 2008 the interest rate path of the forecast is represented numerical form – as a fan chart – in the inflation report. The purpose of the step was to make the decisions of the central bank more understandable for the participants of the economy. Moreover, the votes of the interest rate decision appear by name, whereas earlier

[72] https://www.cnb.cz/en/monetary_policy/inflation_targeting.html

only the ratio appeared in the minutes. Finally, the number of interest rate setting meetings was reduced from monthly frequency to eight times a year. According to the explanation, the Czech economy and inflation stabilised, the inflation expectations were anchored, thus, it is not necessary to change the base rate with such frequency as in the early phase of inflation targeting. From the beginning of 2009, the exchange rate forecast is also published in the form of a fan chart, which further increases the transparency of the forecast. With these changes, the CNB rose to the most transparent central banks (Czech National Bank, 2007).

Development of monetary policy in light of the financial crisis (2008 – until today)

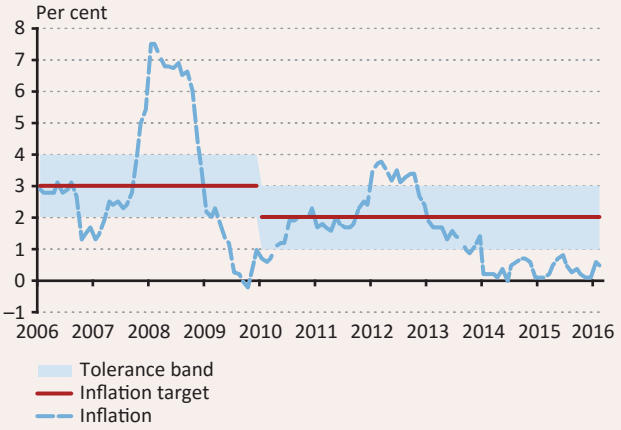
At the time of the onset of the global financial crisis, the Czech banking system had strong resistance, thus there was no significant financial crisis in the Czech Republic. However, even so an unfavourable interaction developed between the real economy and the financial sector: lending slowed down, lending conditions tightened in several segments, and the ratio of non-performing loans increased as a result of the weak economic situation.

The macroeconomic environment resulted in a rapid interest rate reduction by the central bank. As a result of the significant openness of the Czech economy and its dependence on external demand, the decline in exports resulted in a sharp decline of economic activity at the beginning of 2009[73]. The rise in unemployment rate held back consumption. Inflation decreased below the target, and annual inflation fell to negative territory for a short time (Chart 41).

The forecasts of the central bank prognosticated slow recovery and gradually accelerating inflation to the target. Taking the emerging macroeconomic situation, the CNB reduced the interest rate to 1 per cent by the end of 2009 from 3.75 per cent. The interest rate reduction was supplemented by central bank's communication as well. Verbal intervention took place several times during 2008-2009: in July 2008, the chairman of the central bank spoke in fear about a strengthening "bubble", whereas in February 2009 one of the deputy chairmen intervened at the time of the weakening of the Czech crown.

[73] Monetary policy and the evaluation of macroeconomic processes rely on the annual reports of the Czech central bank between 2009-2011.

Chart 41
Development of inflation in the Czech Republic



Source: Czech National Bank.

The floating exchange rate also assisted in the adjustment of the economy by partly alleviating the effect of the fall in external demand.

Monetary easing was supplemented with other instruments, such as providing liquidity, as well. In 2008 the CNB was worried about international contagion, seeing the decreasing activity of the bond markets and the increasing premiums, thus, in October it started to provide liquidity to Czech banks in the framework of two-week and three-month refinancing operations (the latter: until the end of 2010), in exchange for the sphere of coverage customary for open market operation. The latter also meant that they accepted Czech government bonds as collateral. Moreover, the central bank provided liquidity in the framework of FX-swap transactions, too. These measures improved the operation of the money markets, although – partly as a result of the relatively strict conditions – the utilisation of these instruments by commercial banks was low. The control of the financial system was increased with further measure by regular data requests and *ad hoc* data requests about toxic assets after special events (e.g. the Icelandic bank collapse). The exchange of information among the central bank and the financial organisations (e.g. the Czech banking association) became more intensive as well.

According to the 2010 forecast, the recovery in Germany had a favourable effect on the Czech growth outlooks, while inflation fluctuated at around the

target in 2011. Overall, they evaluated the inflation risks as balanced. In May the decision makers reduced the base rate by further 25 basis points (0.75%), however, the base rate did not change any more during 2010 and 2011.

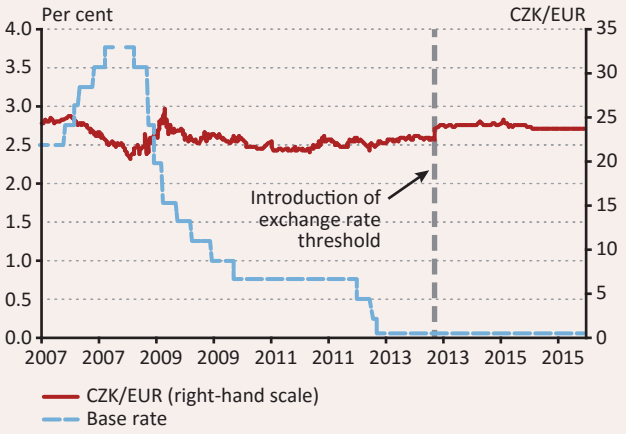
After the post-crisis, gradual recovery, the Czech Republic fell into recession again during 2012 and 2013. Inflation started to decrease in 2012 and reached the low edge of the tolerance band in 2013, and the indicator filtered with the effect of indirect taxes fell close to zero. In response, the central bank decreased the base rate to – technically – zero, and indicated in its forward guidance that the low interest rate level can remain until a significant strengthening of the inflation pressure. In spring 2013 it became clear that the economy would emerge from the recession only slowly, the further expected decrease in inflation pointed towards monetary easing. The forecast at the end of 2013 justified a negative interest rate, which could not be implemented because of economic and legal considerations.

The central bank earlier utilised the opportunities inherent in interest rate reduction and forward guidance, whereas quantitative easing did not seem to be a suitable tool because of the liquidity surplus of the banking sector and the low government bond yields. In contrast, however, in a small and open economy, the weakening of the exchange rate can be an efficient tool of increasing the domestic price level and influencing inflation expectations, especially with interest rate level of zero (Franta et al, 2014).

Such a forecast path was selected for determining the exchange rate level, in line with the achievement of the inflation target, which fulfilled the required criteria to the greatest extent. These included the fulfilment of the inflation target and its speed, the temporary overshooting of the target to avoid the risk of deflation, a sufficiently large exchange rate change to influence expectations, and that the commitment should not have to be changed in the near future. According to the unilateral commitment of the central bank to the level of 27 CZK/EUR, the central bank will intervene – to the extent that and until the time as long as it is necessary – in order to avoid the strengthening of the Czech crown, whereas on the weak side of the limit they allow floating of the exchange rate. After the decision of November 2013, the Czech crown weakened until the announced level of 27 CZK/EUR (Chart 42). The central bank's intervention of approximately 7.5 billion euro was

behind this[74]. On the basis of the latest communication of the central bank, the exchange rate peg can remain until mid-2017.

Chart 42
Development of base rate and exchange rate in the Czech Republic



Source: Czech National Bank.

Slovakia

The practice of independent monetary policy (1993 – 1999)

With the breakup of Czechoslovakia, independent monetary policy was established in Slovakia in 1993, which managed the regulation of M2 monetary aggregate via influencing money supply. Monetary policy set as its objective the stability of the currency by keeping inflation low and by maintaining a fixed exchange rate within a fluctuation band of ± 0.5 per cent. In order to maintain exchange rate stability, exchange rate was pegged to a basket consisting of the American dollar (40%) and the German mark (60%) served as a nominal anchor. The central bank applied direct and indirect monetary tools (credit limits, open market operations, reserve requirement, discount rate, lombard rate, function of lender of last resort) as well in order to achieve the target set, while the importance of standard, direct instruments gradually increased. In 1995 the Slovakian crown became convertible with respect to the current account balance.

[74] https://www.cnb.cz/miranda2/export/sites/www.cnb.cz/en/public/media_service/conferences/speeches/download/singer_20150512_zurich.pdf.

In the following year the development of financial markets forced the Slovakian central bank to develop the monetary conditions increasingly with operations backed by securities and with open market operations, instead of lending limits. The banking system was characterised by significant excess liquidity, thus the central bank used sterilizing instruments for the first time and issued its own treasury bills. The expansive fiscal policy of the 1990s, promoting economic growth, contributed to the increase in the budget deficit, moreover, the expansion of lending – especially the rise in foreign currency loans – increased the money supply and the sensitivity of the economic agents to exchange rate volatility. The central bank responded to the increasing deficit of the state budget with restrictions: in July 1996, it raised the lombard rate to 15 per cent and the reserve requirement to 9 per cent and, more and more often, it applied sterilisation instruments. Moreover, it introduced various measures – e.g. it prescribed the reserve requirement for foreign banks as well – in order to control the credit expansion in foreign currency, and it widened the fluctuation band of the crown to 5 per cent with the aim of discouraging the short-term speculative capital.

In 1997 and 1998 open market operations (repo tenders) became the main tools of monetary policy. The objective of the central bank was the creation of external stability of the currency and the support of disinflation processes, in parallel with the decrease in foreign trade imbalances. In January 1998, the central bank widened the fluctuation band for the SKK exchange rate to 7 per cent. The Asian and Russian financial crisis contributed to the deterioration of the credit rating of the country, as significant macroeconomic imbalances were built and growth was not sustainable in the long-term. The double (fiscal and trade) deficit became extreme, the deficit and the current account deficit rose above 10 per cent of the GDP, which led to economic destabilisation. The fixed exchange rate system became unsustainable as an effect of the increase in inflation and the currency market speculation, thus, the central bank on 2 October 1998 switched to managed floating exchange rate system, which was maintained until 2005, the entry to the ERM2. After giving up the fluctuation band, the exchange rate of the crown was determined by the demand and supply in the foreign exchange market. Moreover, the central bank declared to intervene in the foreign exchange market in the case of excessive volatility of the exchange rate.

The year 1999 was characterised by stabilisation, repo tenders continued to remain the main instruments of monetary policy. The reduction in trade deficit and budget deficit contributed to the macroeconomic stabilisation[75].

Implicit inflation targeting (2000 – 2004)

In 2000 there was a significant change in the monetary policy of the Slovakian central bank, achieving and maintaining price stability became the primary objective of monetary policy. The central bank gave up the application of obsolete, indirect instruments, and it lowered the reserve requirement by one percentage point every year. Interest rates became the primary instruments of the central bank and the decision making body of the central bank was established. The switch to interest rate policy was motivated by the fact that the years between 1993 and 1999 were characterised by extreme fluctuations of interest rates, however, suitable conditions arrived only after the removal of the main risk of such a step, after the reduction of exchange rate volatility. The commitment of monetary policy for low inflation was strengthened by the fact that inflation targeting was included in the amended central bank act in 2001, which specified price stability as the primary objective of monetary policy.

After the transformation, the development of monetary conditions was implemented primarily with open market operations. The central bank used two key interest rates, the two-week standard repo tender rate and the sterilisation interest rate for one-day open market operations. The decision making body of the central bank regularly decided about interest rates, taking the current economic and monetary developments into account.

In July 2003, the Slovakian government discussed and approved the common material of the Ministry of Finance and the central bank about the introduction of the euro, and committed itself to the successful implementation reforms, and the introduction of the euro between 2008 and 2009. The strategy of euro introduction was specified in 2004 and 1 January 2009 was stated as the date of accession[76].

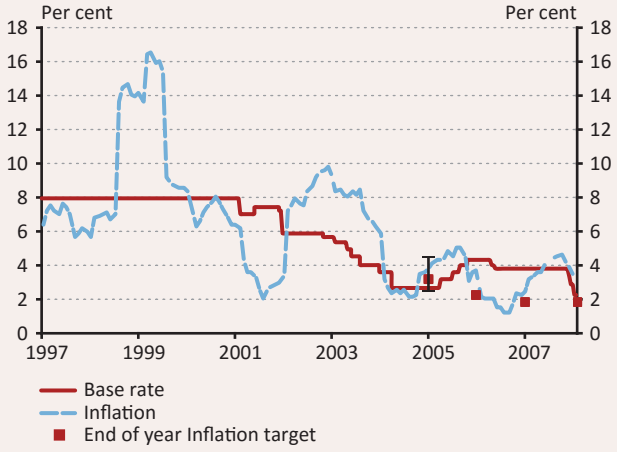
[75] http://www.nbs.sk/en/monetary-policy/nbs-monetary-policy-up-to-2008/1993-1999-independent-mp-of-the-nbs.

[76] http://www.nbs.sk/en/monetary-policy/nbs-monetary-policy-up-to-2008/2000-2004-implicit-inflation-targeting.

Inflation targeting under ERM2 system (2005 – 2008)

The Slovakian government and the central bank set the objective of fulfilling the euro (Maastricht) convergence criteria. In order to create the conditions of introducing the euro, the central bank announced explicit inflation targets in the ERM2. The inflation target (measured by HICP) was determined in 2.5 per cent by December 2006, in 2 per cent by December 2007, and in an average of 2 per cent in 2008. In 2005 the inflation target was set at 3.5 ± 0.5 per cent.

Chart 43
Development of base rate and inflation in Slovakia



Note: From 1 January 2003, the base rate is the interest rate of the two-week repo tender, before that it was the discount rate. From 2005, inflation shows inflation measured in HICP.
Source: National Bank of Slovakia.

Coordination between fiscal and monetary policy was a crucial prerequisite for achieving the inflation targets. In accordance with this, the announced budget consolidation and the introduction of addition administrative measures, and changes in indirect taxes assisted in the commitment of the central bank to decreasing inflation.

In November 2005 Slovakia became a member of the European Exchange Rate Mechanism (ERM2), and the crown could float in a 15 per cent band around the central exchange rate of 38.4550 SKK/EUR, determined upon entry. The ERM2 membership and the central parity contributed to the stabilisation of

the exchange rate and nominal convergence. In March 2007, at the request of Slovakia, the central exchange rate was changed to 35.442 SKK/EUR.

In May 2008 the convergence report concluded that Slovakia met the criteria necessary for adopting the euro. The central exchange rate of the crown was revalued and the new parity was modified to 30.126 crowns. On 1 January 2009 Slovakia became a member of the monetary union, whereby the independent monetary policy of the Slovakian central bank was discontinued[77].

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