Adrien Szücs: The 200 forint denomination will be a coin

On 23 June 2008 the Monetary Council of the Magyar Nemzeti Bank decided to reissue the 200 forint coin in the first half of 2009. In this study, we shall summarise the social and technical aspects considered during the preparatory phase of the decision. The case is justified by the difference between the 'economy' of small denomination banknotes and large denomination coins. In the case of small denomination banknotes, expenditures are incurred continuously, since – due to their fast wear and tear – significant reproduction costs can be calculated. Wear and tear in the case of larger denomination coins is negligible, therefore expenses are primarily incurred from the one-off manufacturing of the initial stock, which are only supplemented by meeting the demand arising from eventual turnover expansion. Switching to coins – as a function of the year of switching over to the euro – can generate savings of 8%-13% of the cash production costs incurred until then. Since Hungarians use 200 forint banknotes as change, they are quickly damaged and the resulting high reproduction costs increase state budget expenditures, i.e. the taxpayers' burden. Coins – replacing the easily damaged small denomination banknotes – are more durable, their handling is safer and their use is more practical in numerous cash payment situations. Another consideration was to approximate the denomination series of the forint to that of the euro, thereby accustoming the population to the larger denomination coins and converting them into conscious users. Following transition to the euro, the purchasing power of the coins will be higher than in the forint period, thus the introduction of the 200 forint coin may be considered as preparation for the euro.

INTRODUCTION: ANTECEDENTS AND THE CURRENT SITUATION

The Magyar Nemzeti Bank already issued 200 forint circulation coins in 1992; however, they did not have the characteristics of circulation coins. The coin was made of one of the base materials of commemorative coins, silver; its extreme size made it odd and it took up a lot of space in wallets. The population treated it as a collector coin and accumulated it rather than using it in circulation. This unsuccessful circulation coin was therefore withdrawn in 1998.

In 1996 an internal proposal was made concerning the next form of appearance of the 200 forint denomination. The initiators of the proposal came to the conclusion that, although the 200 forint denomination in the form of a simple metal coin would allow substantial savings (HUF 100-200 million annually on average), the income and consumption circumstances of households did not provide enough reason for the 500 forint to be the smallest banknote denomination.

Demand for 200 forint banknotes has been continuously increasing since their issue in 1998. The annual unfit rate of this denomination had already reached 50% of the volume in circulation by 2007, the replacement of which generates HUF 0.5-1 billion expenses annually for the central bank, and thus the state. In addition, the processing of banknotes is more expensive than that of coins, because the authenticity and fitness sorting requires more technical and human resources.

Table 1 illustrates that in the case of banknotes a large volume of new notes must be manufactured every year in order to replace the volume of banknotes destroyed due to wear and tear. The manufacturing cost of 200 forint banknotes represents 17% of total banknote production costs.

Table 1

Production and scrapping figures pertaining to 200 forint banknotes between 2001 and 2007

Year of manufacture	2001	2002	2003	2004	2005	2006	2007
Quantity produced (million)	38	20	21	19	27	20	25
Unfit rate (%)*	44	42	39	38	45	46	50
Manufacturing cost (gross, million	850	620	600	530	670	550	810

** In relation to the quantity of banknotes delivered to and processed by the MNB.*

Source: MNB.

Later, we shall describe the business case type analysis of replacing the 200 forint denomination by coins. In the first part of the analysis, we shall deal with the public sector's aspects, i.e. the costs and savings realised by the MNB. The second sub-section will examine the private sector, describing the outcomes affecting it in connection with the replacement of the 200 forint denomination, based on available information and that revealed in the course of technical and social consultations.

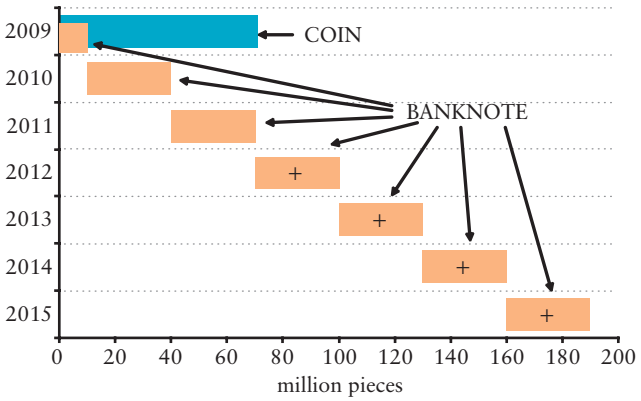
COST-BENEFIT ANALYSIS

Community sector

In Charts 1 and 2, we illustrate our forecast concerning the volume of banknotes and coins to be manufactured and the total cumulated costs thereof as a function of several potential dates of transition to the euro – since the exact date of the euro's introduction is not yet known. Accordingly, in the case of 200 forint banknotes, the volume to be manufactured each year varies based on the date of the planned introduction of the euro. In our simulation – for the sake of simplicity – we work with the same volume of banknote replacement each year. In case of the 200 forint coin, unfit replacement was not taken into account, because of the limited lifespan of coins' usage in circulation.

Chart 1

Planned volume of the 200 forint denomination to be manufactured between 2009 and 2015*



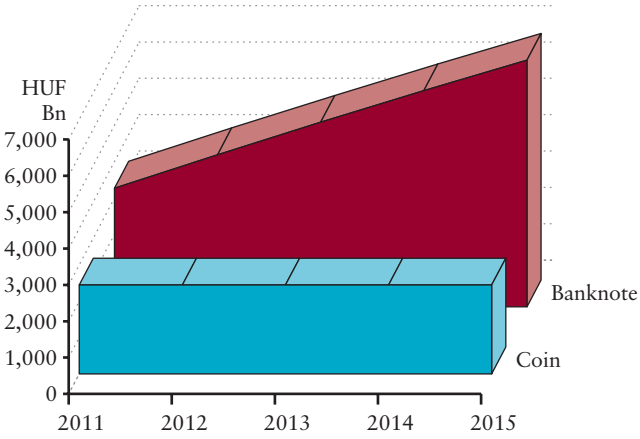
** Assuming transition to the euro on 1 January of the year concerned.*
Source: MNB.

Chart 1 clearly illustrates the surplus of banknotes to be manufactured annually due to increased wear and tear affecting the cash in circulation. According to the chart, the volume of banknotes to be replaced every two years corresponds to the volume of coin stock estimated to be sufficient for 6 years (over 70 million pieces).

Chart 2 illustrates a comparison as a function of the previous volume figures and the current prices. We compared the manufacturing costs of the 200 forint banknotes and coins for the 2008-2015 period based on a preliminary price calculation agreed with Magyar Pénzverő Zrt. (Hungarian Mint Ltd.). In the case of banknotes and coins, costs are almost identical to small denomination banknotes and the coins of corresponding denomination can be produced at more or less the same cost. The relatively accurate price estimation of coins is possible due to the fact that Magyar Pénzverő Zrt. plans to manufacture a volume sufficient to meet almost six years' demand in a single phase (in 2009). When planning the volume of coins to be produced, we have set out from the fact that the relevant expert opinions consider 2014-2015 as the earliest date of transition to the euro. An additional advantage is that a somewhat lower production price can thus be planned, due to the volume to be produced. In our analysis we assumed constant raw material prices, exchange rates and settlements with Pénzverő Zrt. at current levels.

Chart 2

Total production cost of the 200 forint denomination calculated at present value* subject to introduction of the euro between 2011 and 2015**

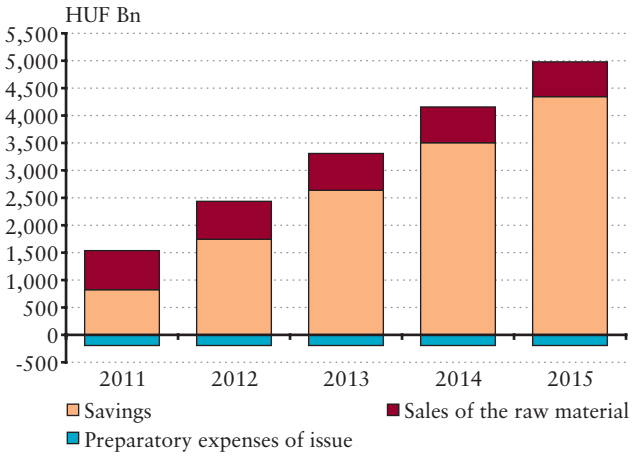


** Calculating with 3% as the medium-term inflation target of the MNB*
*** Assuming transition to the euro on 1 January of the year concerned*
Source: The author's calculation.

The considerable increase of expenses derives from the extra volume of banknote production and is also reflected in the cumulated costs illustrated in Chart 2. According to this, the presence of banknotes in circulation – as opposed to coins – increases proportionately to the shift in time of euro introduction. In our simulation, we considered 2015 the latest possible date of switching to the euro. The maximum 7

Chart 3

Savings achievable upon the production the 200 forint coins compared to that of banknotes, calculated at present value* subject to introduction of the euro between 2011 and 2015**



** Calculating with 3% as the medium-term inflation target of the MNB.*

*** Assuming transition to the euro on 1 January of the year concerned.*

Source: The author's calculation.

years represent a very short period compared to the lifespan of coins, which is 20-30 years on average, as opposed to that of small denomination banknotes, which is only 2-3 years.

In addition to the savings on manufacturing costs, it should also be taken into account that upon withdrawal of the coins, we may later also count on revenue from the sale of raw materials (around 70%-80% of the then prevailing value of the raw material). On the other hand, costs are increased by the previously mentioned preparatory expenses of issue. The impact of these three factors is illustrated in Chart 3.

Summarising the above, in a standard situation the switchover to coins is cost-effective even if the euro is introduced as early as 2011, and the savings at present value increase in each subsequent year by over HUF 800 million. We examined the extent of savings, represented by the absolute volume of savings, in the light of the estimated total circulation cash production cost (banknote + coins under today's structure) incurred until the introduction of the euro. Taking the scenario farthest away in time as a basis, the estimated total cumulated manufacturing costs – calculated at present value – until the introduction of the euro will be around gross HUF 40 billion. (With the introduction of the 200 forint coin we may save over HUF 3 billion compared to that HUF 40 billion, assuming the euro is introduced in 2013, and about HUF 5 billion assuming it is introduced in 2015).

The current banknote and coin prices may change in the future, and the cost calculated on the basis of those could also fluctuate. However, the risk arising from the price of the coins' raw material can be significantly reduced, since, as already mentioned, Magyar Pénzverő Zrt. would produce the total volume of coins presumably required until the introduction of the euro in one, thus the metal price risk can be minimised, and the price advantage stemming from the larger production volume can be taken advantage of as well.

We estimated the volume of 200 forint coins to be manufactured based on the volume of banknotes in circulation. It may occur that demand will be lower, as part of the 200 forint banknotes already in circulation for 10 years have probably been lost or taken abroad. At the same time, other factors may increase demand for this denomination (e.g. the demand for the 100 forint denomination may drop as a result of the substitution impact and the demand for the 200 forint coin may increase due to the spread of vending machines).

It should be noted that we did not consider specifically social costs, based on the presumption that the introduction and continuous use of the 200 forint coin will not generate significantly different circumstances from those of banknotes for the private sector. Later, we shall examine the possible considerations of the private sector.

Private sector

The issue of banknote versus coin should also be examined in terms of the other potential impacts – apart from the savings appearing in the community sector – generated by switching from banknotes to coins.

The MNB decided – in accordance with its corporate social responsibility (CSR) strategy approved in 2008, which highlights the importance of equal dialogue with all relevant parties – to initiate a large-scale process of social and professional consultation in relation to the introduction of the 200 forint coin. As part of this consultation process, the MNB wanted to discuss matters related to the decision with the most important stakeholders concerned.

The dialogue focused on two large target groups. On the one hand, the central bank was interested in the general opinion of the public, and on the other it wished to know the standpoint of professionals involved in cash usage, processing and transport.

As part of the social/population impact analysis of the 200 forint replacement, the MNB conducted a multi-step comprehensive poll using a variety of methods.

According to the representative survey conducted among the Hungarian population, the ratio of respondents who deemed the replacement of the 200 forint banknotes by coins a good idea was the same as that of those who thought it not so good, while one-fifth of respondents were uncertain. The main advantage perceived was the durability of coins, while the weight of coins was mentioned as the biggest drawback. With the fall of the forint's purchasing power, the majority of respondents deemed it reasonable to introduce coins for the 200 forint denomination. However, based on the qualitative results, on the whole the majority of respondents did not reject the idea. Less supportive, sceptical opinions were expressed only by members of the older generation. Other age-groups can generally be convinced by rational arguments and/or they are neutral or receptive concerning the introduction of the 200 forint coin. At the end of the consultation process, two-thirds of the participants supported the introduction of the 200 forint coin.

In order to discover the opinion of professionals, the MNB initiated consultations in multiple forms, similarly to the survey of the population. On the one hand, it conducted personal interviews and discussions with representatives of authorities, government organisations and interest representatives (e.g. National Trade Association, Trade Union of Commercial Employees, Hungarian Chamber of Commerce and Industry, National Consumer Protection Union, Hungarian Society of the Blind and Partially-sighted, etc.). On the other hand, it organised special trade forums with the focus – apart from consultation – of mapping and identifying the risks deriving from the changeover. This forum was attended by representatives of the Banking Association, financial organisations, cash processing providers and – in particular – companies operating, distributing and servicing vending machines.

One of the largest trade groups concerned comprises operators of food, beverage, tobacco, etc. vending machines. According to our calculations, although refitting the machines would generate significant, albeit one-off costs for all actors of the vending machine market, an increase in turnover may be achieved with the appearance of the 200 forint coins. Cost savings would be achieved in the case of vending machines also accepting banknotes, since – as experience shows – the banknote accepting units crease and tear the 200 forint banknotes, thus upon the introduction of the new coin, regular and extremely expensive troubleshooting could be eliminated. At the same time, it would be necessary to empty the vending machines less frequently, an area where cost reduction may also be expected. Taking all this into consideration we can reasonably assume that the vending machine operators – in their own interest – will facilitate the use of higher domination coins in their vending machines (in legal terms the usage of the 200 forint coin will be optional and not mandatory, since the currently used coins will stay in circulation).

In order to discuss the opinion of credit institutions, the Banking Association, the Hungarian Post and the three largest cash processing companies, the MNB organised a Cash Forum with the participation of these organisations. It was revealed during the consultation that the sector fears that its costs will increase. Furthermore, the Hungarian Post also mentioned that the replacement of the banknote turnover by coins will result – in terms of cash management – in a weight increase of several tens of tons. The MNB reviewed this opinion and considered it in its preparations for making a decision.

PROCESS OF DEVELOPING THE EXTERIOR OF THE COIN

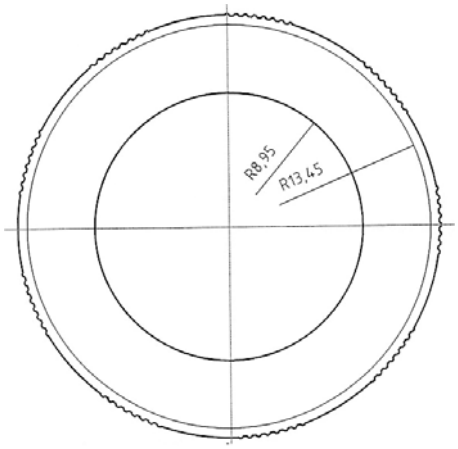
On 23 June 2008 the Monetary Council of the MNB – having considered all points of view – decided to introduce the 200 forint coin. Following this, consultations continued in professional circles concerning the development of the technical parameters (raw material, shape, size, edge-ring) of the new coin.

MNB experts considered all options when developing the coin. They studied the present circulation coins of various countries, as well as other, unique coins, contacted the experts of other central banks working in the same domain, as well as foreign mints in order to share know-how efficiently. In the form of a preliminary questionnaire-based survey, they initiated a review among domestic cash processing organisations, operators of various vending machines, processing companies and vending machine maintenance companies, as well as with the Hungarian Association of the Blind and Partially-sighted, in order to assess the options concerning the technical aspects of the new coin. Trade consultations continued after processing of the questionnaires.

The composition of the base material plays a pivotal role in terms of identification by the public and by vending machines. However, commercially available alloys cannot be used (mainly due to the risk of counterfeiting), or only in case of smaller denominations. Thus, having involved the professional players concerned, consensus was reached in the choice of the base material from a large number of base

Chart 4

Technical drawing of the new HUF 200



materials, which is essentially copper-based and in specially alloyed form, complying with the strict requirements of large denomination coins.

This was followed by determining the shape of the coin. A wide range of ideas was presented in this area as well, from the simplest round form to a polygon. As an optimal combination of feasibility and usability, the round form was selected. This coin shape is the one that meets the largest number of requirements of processing by machine and usability, and – last but not least -the refitting cost of vending machines using coins will be the lowest in this case.

After reaching agreement concerning the raw material and shape, the next step was to determine the exact size. Unfortunately, a rather narrow choice in relation to diameter was available in terms of feasibility. On the one hand, there is the current denomination series and the sizes thereof, while on the other the requirement of sufficient deviation from the coins of neighbouring countries presented itself as a further restrictive factor. Hence the only feasible solution was a coin size larger than the present 50 forint coin. However, the range of available options for the edge was wider. Accordingly, several feasible opportunities presented themselves. The reverse side of the new coin will differ from that of the present circulation coin series. The MNB wished to consider the blind and partially-sighted, thus so-called longitudinal streaks are used on the coin, and the edge (milling) will also be unique – an intermittently milled surface where the smooth and milled sections are of identical length, thereby facilitating tactile recognition.

Having incorporated the opinions expressed during the meetings and discussions and studied international experiences, the parameters meeting commercial expectations in all aspects were finally defined. Thus on 9 September 2008 the MNB decided that the new 200 forint will be a bimetal coin (bicolour, made of two different metal alloys), while in its appearance it will be the inverse image of the current 100 forint coin, round in shape with a diagonal of 28.3 mm, an edge height of 2.0 mm and a weight of 9 grams. Thus it will be easily and safely distinguishable from other coins by all parties, and with its parameters being sufficiently different from those of the present circulation coins it will not hinder cash usage.

The MNB wished to provide the public with a further opportunity to express its opinion concerning the image on the 200 forint coin; therefore in October 2008 it launched a two-week public voting campaign conducted over the Internet and by phone. There were several reasons for this. On the one hand, in the case of cash subjective acceptance

Chart 5

The reverse and front side of the new 200 forint coin

plays an important role and involvement and the ability to choose facilitates later acceptance. On the other, the MNB can demonstrate its efforts to reach social consensus and make the population gradually aware that the new coin will appear soon; thus upon its issue the coin, familiar to all and – more importantly – selected by the majority, will have a positive reception. The final front side could be selected from the following six image designs during the voting: a white stork, a woodpecker, a bear's ear, draba lasiocarpa, the Chain Bridge or the new Megyer Bridge. Based on the choice of more than half of the almost 200,000 voters, the front side of the new 200 forint coin will display the Chain Bridge.

We consider it very important to emphasise that for the first time a coin will be created based on consensus, where the final coin image was selected by active users – i.e. the population – and which will be made with technical parameters which, in the opinion of the professional sector, are suitable in all aspects. This broad consultation process was exemplary according to the unanimous opinion of participants, and also strengthened understanding and cooperation between the central bank, the general public and professional organisations.

INTERNATIONAL AND DOMESTIC EXPERIENCES IN BANKNOTE-COIN REPLACEMENT

In order to ensure the successful introduction of the 200 forint coin next year, the MNB examined several benchmarks and integrated the findings into its plans. The experiences of countries that have made (successful or failed) attempts to replace an existing banknote by coin were analysed.

Experiences with the 1 dollar coin (USA)

In the United States, the 1 dollar coin has been in existence – in addition to the traditional 1 dollar banknote – since the 1970s. During the last 25 years, even two 1 dollar coins – with different designs – were issued in the US, but neither of them could fulfil their role successfully in cash circulation. On the other hand, banknote-coin replacements of similar value, or even of values over 3 dollars, were implemented successfully in other countries (Canada, Japan, Great-Britain). American experts initiated a broad survey in 1990 to discover why the introduction of the coin had not been successful. In their research comparisons were made with the participation of several countries' experts to identify the necessary conditions for the successful implementation of a large denomination coin. The following countries were reviewed (the date of replacement in brackets): Canada (1987), France (1970, 1975), The Netherlands (1988), Norway (1964, 1984), Spain (1982, 1986, 1988), Switzerland, Great-Britain (1983) and the Federal Republic of Germany. In the survey, interviewees mentioned the following factors as the key to successful implementation (in order of importance, the number of states/number of states inspected in brackets):

- banknotes must be withdrawn and destroyed (6/8)
- the public must be informed of the change (5/8)
- the negative attitude of a part of the population must be taken into consideration; enough lead time must be allowed for the exchange of the banknotes (4/8)
- the required volume of coins must be available (4/8)
- the parties concerned and professional representatives must be consulted in advance (3/8)
- the new coins should be accepted by the various vending machines (2/8)
- the population must be informed that the reason for replacement of the denomination is cost saving (2/8)
- the coins should be neither too big, nor too small (2/8)
- the coin should represent a national symbol (1/8)
- the coins should not be mistakable for coins of neighbouring countries (1/8)

Why is it essential to withdraw banknotes?

The Cleveland study entitled The Fate of One-Dollar Coins in the U.S. provides a comprehensive answer to this question. It was demonstrated in the case of the 1 dollar that switching from banknote to coin would bring significant national economy advantages overall. However, even the extremely convincing figures were not sufficient to make those using cash the most often to prefer banknotes less than coins of the same denomination. Thus one of the most important criteria of successful replacement is to make a decision on the withdrawal of the same denomination banknotes. The length of the so-called parallel period – when banknotes and coins of the same denomination are in circulation simultaneously – varied as a function of several factors. On the one hand, sufficient time must be provided to the parties for transition and familiarisation. On the other, the handling of double denominations burdens economic agents with extra work; therefore this period should be sufficient, but suitably short. According to international experience, a period from 3

months to 2 years is the maximum that still meets the expectations, obviously also depending on the size of the economy concerned. However, in the case of the 1 dollar coin, the deadline for withdrawing the banknotes was not set on either occasion, thus the issue failed.

Experiences of European countries

We are aware that several European countries (Lithuania, Estonia, Slovenia, the Czech Republic, Bulgaria, Sweden, Cyprus) were dealing with the issue, or have already replaced their low denomination banknotes by coins.

For example, successful replacement took place in 1988 in The Netherlands (5 gulden), in 1991 in Cyprus (1 pound) and in Sweden (10 crowns), where the banknotes of these denominations were replaced by coins. In 2003 Slovenia (merely 4 years before the introduction of the euro) issued two new coins that already existed in a banknote version (20 and 50 tolar). On 31 August 2008 the Czech Republic withdrew banknotes of 20 crown denomination – which denomination existed in the form of banknotes and coins – and since then only the coin is in circulation.

Domestic experiences

In Hungary, there have been several examples of a well-tested banknote denomination being issued by the MNB in the form of a coin. In the past, 10, 20, 500 and 100 forint banknotes also existed, but when replacement became necessary (the 10 and 20 forint banknotes were in circulation until 1992, the 50 forint notes until 1995, and the 100 forint notes until 1998), they were replaced by coins. The replacements usually met a lack of public confidence, since generally people prefer banknotes to coins.

The finding that coins with identical denominations as banknotes could only spread in circulation and fulfil their tasks if the date of withdrawal of the banknotes was set in a foreseeable future, and the available banknotes started to run low proved to be true in Hungary as well. This is why the 100 forint coin issued in 1993 could not operate successfully, since the banknotes remained in circulation and due to parallel distribution, only a negligible volume of coins left the central bank.

Another important argument against parallel distribution is the significant extra workload generated by the parallel handling of banknotes and coins. This requires economic agents to keep double records and provide extra room and inventory management. It is therefore understandable that for the sake of simplicity, only the more convenient form of the denomination is used.

For these reasons, the introduction of the present bicolour 100 forint coin was already a successful replacement, as after the co-existence of banknotes and coins for a little over one year the banknotes were withdrawn. Ever since the 100 forint coins have been one of the most popular coins in payment circulation.

SUMMARY

One of the primary tasks of the Magyar Nemzeti Bank is to regularly provide the population with high-quality, safe cash of appropriate denomination breakdown. Accordingly, the central bank continuously reviews its distribution activity and adjusts it to the needs of the population and the national economy. Demonstrating an exemplary attitude by a public institution, the MNB initiated broad consultation aimed at the utmost possible satisfaction of these needs.

The MNB – as a responsible institution – must bear in mind the efficient utilisation of public funds in the course of its operation and business management. The lifespan of coins compared to that of small denomination banknotes could be up to tenfold, since their mutilation is negligible. Creased, torn and damaged banknotes, unfit for payment, must be destroyed by the MNB and new ones must be manufactured. With coins such damage cannot occur, thus their replacement requirement is minimal. The 200 forint coin can allow the country to save billions of forints.

An advantage for the private sector is that vending machines take coins more easily than creased banknotes. The population does not have to make extra visits to the post office or commercial banks with the torn banknotes, since coins are more durable and do not get torn or creased. A practical aspect is that the coin to be issued will be well-distinguishable from other coins due to its size and unique appearance. When parking or purchasing from vending machines, people can pay higher amounts and as a result – with the joint impact of the former withdrawal of 1 and 2 forint coins – will overall presumably need to carry fewer coins than in the past. The new coin is not expected to generate extra costs for merchants, as space was freed in the cash-box compartments with the withdrawal of the 1-2 forint coins, thus there will be room for the new coins.

A smooth transition will be ensured by a temporary period during which the 200 forint banknotes will stay in circulation for a short while. The new coins will presumably be issued in the second quarter of 2009, while the 200 forint banknote will remain legal tender until the end of 2009. The planned parallel period of around seven months will generate an extra burden for economic agents for a short period only, while

providing sufficient time for safe transition and familiarisation with the new coin.

Last but not least, a further consideration of the MNB was that currently the 1 and 2 euro coins are worth approximately HUF 250-500. The new denomination structure, including the 200 forint coin, may facilitate transition to the euro, since it corresponds to that of the euro area.

REFERENCES

UNITED STATES GENERAL ACCOUNTING OFFICE: National Coinage Proposals, Limited Public Demand for New Dollar Coin or Elimination of Pennies, May 1990, GAO/GDD-90-88.

SEBASTIEN LOTZ–GUILLAUME ROCHETEAU: The Fate of One-Dollar Coins in the U.S., Fed of Cleveland, 10.15, 2004.

DARREL PARKE–MAY LIU (2003): Sample Design and Estimation of Lifespans of Federal Reserve Notes, Communication at the Annual Meeting of the American Statistical Association.