



# Change in the methodology of currency in circulation reporting and its effects on monetary aggregate M3

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*On Slovakia's entry into the euro area, there has been a change in the methodology of the preparation of monetary aggregates and counterparts of monetary aggregate M3. Since 1 January 2009, they have assumed the nature of a national contribution on the part of Slovakia to the aggregate data for the entire euro area, published by the European Central Bank. The change has occurred mainly in the approach to the calculation of the currency in circulation item, which includes the share in euro banknotes issued by the Eurosystem.*

## ISSUE OF BANKNOTES IN THE EUROSISTEM

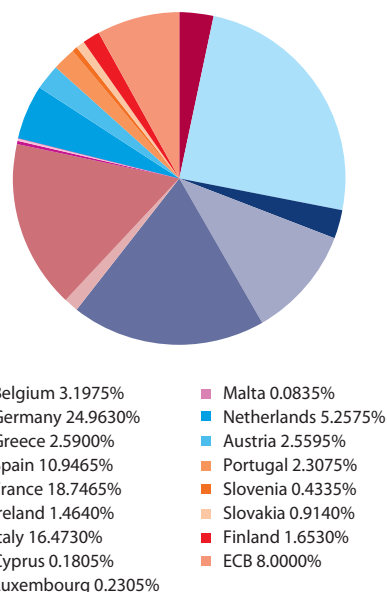
Euro banknotes<sup>1</sup> represent a legal tender in all the participating member states; freely circulating within the euro area; they are reissued by members of the Eurosystem and also held or used outside the euro area. Liabilities arising out of the issue of the total value of euro banknotes in circulation are therefore divided among Eurosystem members in accordance with an objective criterion. A suitable criterion is the share of each national central bank in the capital of the ECB. The ECB's capital comes from the national central banks of all EU member states and, as of 1 January 2009, it represented €5,760,652.58. The national central bank's shares in the capital are determined on the basis of a key for the subscription of capital (*subscribed capital key*), which follows from the particular countries shares in the total population and gross domestic product of the EU (pursuant to Article 29 of the Protocol on the Statute of the European System of Central Banks<sup>2</sup> and European Central Bank). These weighted shares are adjusted (updated) based on information from the European Commission every five years and at each entry of a new member country into the EU and the entry of its national bank into the ESCB. Contributions in the ECB's capital, transfers of foreign reserve assets of national central banks into the ECB, redistribution of monetary incomes of the national central banks and redistribution of profits and sharing of losses of the ECB are governed by them. The amount of the increase is determined by multiplying the current amount of the ECB's subscribed capital and rate of the weight of the acceding national central banks to the weight of the national central banks that are already members of the ESCB, within the framework of an extended subscribed capital key. The adjusted key is used from the first day of the following year. Since the beginning of

the third stage of the economic and monetary union on 1 January 1999, the subscribed capital key has been adjusted four times. The five-year adjustments were made on 1 January 2004 and 1 January 2009. Other adjustments were made on 1 May 2004 (on the entry of Cyprus, the Czech Republic, Estonia, Lithuania, Latvia, Hungary, Malta, Poland, Slovakia and Slovenia into the EU) and on 1 January 2007 (on the entry of Bulgaria and Romania into the EU). The national central banks of the Eurosystem are obliged to repay their share in the subscribed capital in full. National central banks which do not belong to the euro area must

<sup>1</sup> The minting of euro coins falls under the competence of particular countries, however, the ECB is responsible for the approval of the number of euro coins in circulation.

<sup>2</sup> The European System of Central Banks (ESCB) consists of the European Central Bank (ECB) and national central banks (NCB) of all EU member states, regardless of whether or not they have adopted the Euro.

Chart 1 Percentage shares of euro banknotes for particular euro area countries



Source: ECB.



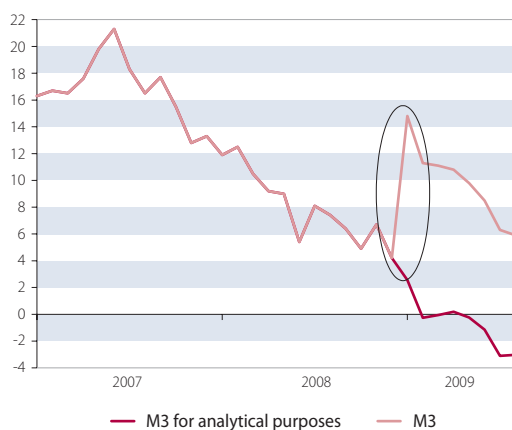
**Table 1 Currency in circulation<sup>1</sup> in ECB methodology (as of 30 Sept. 2009)**

Germany	193,069,662,535
France	143,463,116,715
Italy	126,029,066,395
Spain	82,803,668,735
ECB	61,401,120,000
Netherlands	40,179,954,215
Belgium	25,090,992,245
Greece	19,508,207,305
Austria	19,225,884,290
Portugal	17,279,017,965
Finland	12,752,657,040
Ireland	11,487,232,440
Slovakia	7,145,292,300
Slovenia	3,320,110,550
Luxembourg	2,415,956,210
Cyprus	1,370,423,175
Malta	639,785,145
Eurosystem	767,182,147,260

Source: National central banks, ECB.

1) According to the ECB methodology, currency in circulation includes euro banknotes only.

**Chart 2 Monetary aggregate M3 (annual growth in %)**



Source: NBS.

repay a certain minimum percentage (currently, 7%) of their share in the subscribed capital of the ECB as a contribution to cover the operational costs of the ECB.

Euro banknotes are issued by the ECB and the 16 national central banks of the euro area countries forming the Eurosystem, based on the Decision of the ECB dated 6 December 2001 (ECB/2001/15). The total value of euro banknotes in circulation is distributed among the central banks on the last business day of each month on the basis of a banknote allocation key, which represents the percentage shares arising out of taking the ECB's share<sup>3</sup> in the total issue of euro banknotes and the application of the subscribed capital key to the share of the national central banks in this total issue.

The currency in circulation item of monetary aggregates therefore includes, in addition to the real issue of euro banknotes, also the receivable/payable<sup>4</sup> towards the ECB in the amount corresponding to the issue of euro banknotes by the national central bank below or above the volume which is determined each month based on the reallocation key for the issue of banknotes by the ECB. In addition, it also includes the liability arising to each country after taking into account the 8-percent share of the ECB in the total capital of the euro area (i.e. each country of the euro area is obliged to contribute, by the level of share determined, to the 8% of euro banknotes which have been allocated from the total volume of euro banknotes in the Eurosystem to the ECB. The ECB therefore has receivables within the Eurosystem towards the national central banks for the value equal to the value of euro banknotes being issued by it).

### EFFECTS OF THE CHANGE IN METHODOLOGY OF CURRENCY IN CIRCULATION REPORTING ON MONETARY AGGREGATE M3

In accordance with the banknote allocation key, a volume of currency in circulation higher than the actual cumulated issue accrues to Slovakia, by which, upon the transition to the new reporting methodology, there has been an increase in the volume of the monetary aggregate M1 as well as the monetary aggregate M3 as a whole. As of 31 December 2008, Slovak cash in the value of SKK 77.8 billion (€2,579.6 million) was in circulation, of which Slovak banknotes made up the value of SKK 75.5 billion (€2,505.2 million). As of 2 January 2009, the currency in circulation item showed the value of €6,980.5 million, of which the accumulated issue of banknotes formed €3,440.5 million only (€2,333.2 million Slovak banknotes; €1,107.3 million euro banknotes).

Since the quantification of the currency in circulation by the ECB methodology does not reflect the actual volume of cash in circulation, there is a significant distortion of the monetary aggregate M3 as a whole, especially in the first year of functioning within the euro area. Therefore, the NBS decided from January 2009 to prepare the so-called M3 for analytical purposes, where the currency in circulation item covers only the net accumulated issue of euro and Slovak

banknotes and euro and Slovak coins outside the cash desks of banks (i.e. on a similar basis as up to the end of 2008).<sup>5</sup> In this manner, it is still possible to retain the continuity of the M3 time sequence according to the methodology applicable up to the end of 2008.

### CASH CIRCULATION IN SLOVAKIA IN 2008 AND AFTER THE INTRODUCTION OF EURO

The gradual withdrawal of the Slovak cash from circulation in relation to the expected entry into the euro area was visible from the beginning of 2008. The currency in circulation volume began to be more significantly reduced in the second

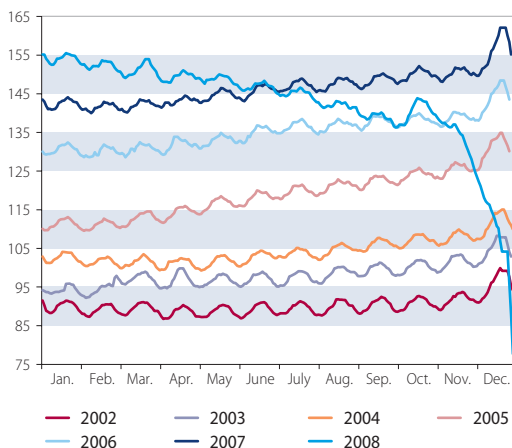
3 The ECB has been allocated by the Executive Council 8% of the total value of euro banknotes in circulation.

4 Interest is charged on a quarterly basis at the reference rate. In the case of the NBS, the real issue of euro banknotes is lower than the issue determined according to the banknote allocation key; therefore, the NBS has a receivable in the amount of this difference towards the Eurosystem. National central banks issuing above the level determined by the banknote allocation key have a payable towards the Eurosystem.

5 The M3 aggregate for analytical purposes = M3 by the ECB methodology – currency in circulation by the ECB methodology + cumulated net issue of euro and Slovak banknotes (unreturned from circulation) and euro and Slovak coins (unreturned from circulation) – banknotes and coins in the cash desks of banks. The Slovak cash will be a part of the currency in circulation item of monetary aggregates up to the end of 2009.

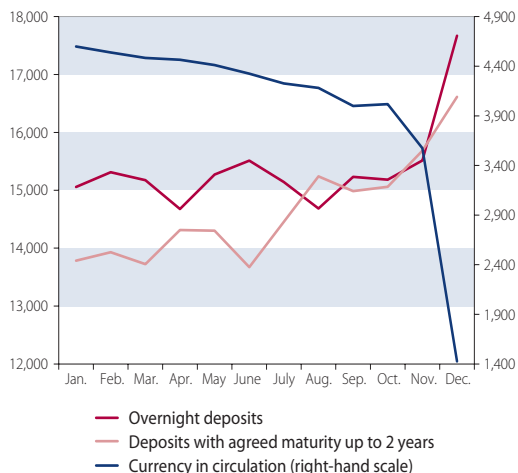


**Chart 3 Currency in circulation development (SKK billions)**



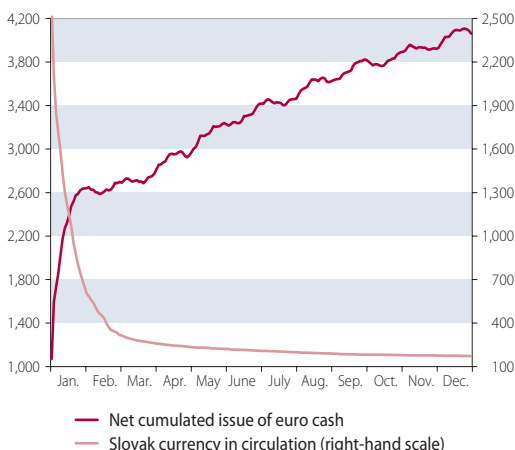
Source: NBS.

**Chart 4 Development of currency in circulation and private sector's deposits in 2008 (EUR billions)**



Source: NBS.

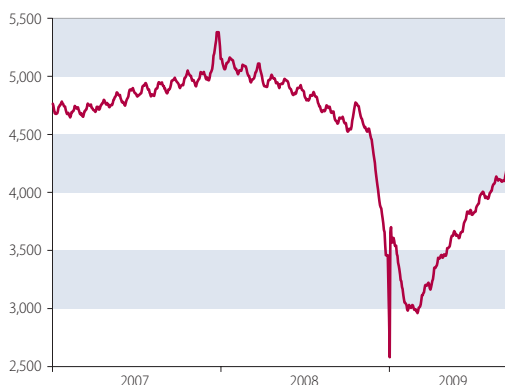
**Chart 5 Currency in circulation development in EUR millions (banknotes and coins)**



Source: NBS.

Notes: The issue of the euro currency as of 1 January 2009 corresponds to the frontloaded cash. The Slovak currency in circulation represents Slovak banknotes and coins unreturned from circulation.

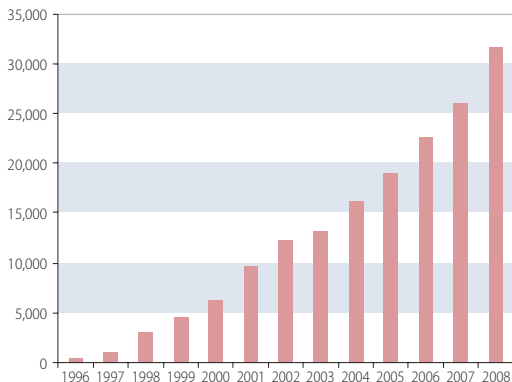
**Chart 6 Cumulated net issue of euro and Slovak cash in circulation (banknotes and coins)**



Source: NBS

Notes: The issue of the euro currency as of 1 January 2009 corresponds to the frontloaded cash. The Slovak currency in circulation represents Slovak banknotes and coins unreturned from circulation.

**Chart 7 Number of payment terminals**



Source: Bank Card Association of the SR ([www.zbk.sk](http://www.zbk.sk)).

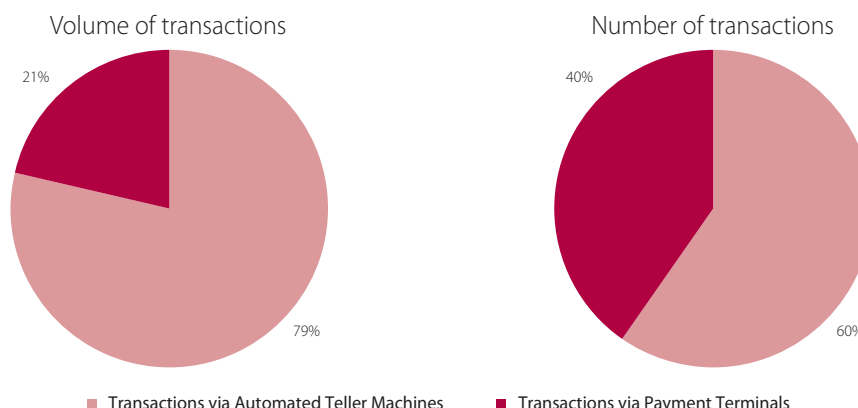
Note: The statistical data are aggregated for all banks being members of the BCA of the SR and banks not being members of the BCA of the SR.

half of 2008 following the decision of the ECOFIN Council from 8 July 2008 on the Adoption of Euro in Slovakia as of 1 January 2009. In November 2008, the average monthly value of currency in circulation was approximately at the level of June 2006 and in December, when the largest volume of Slovak cash was withdrawn from circulation, the average monthly cash circulation was at the level of December 2004.

By the July decision of the ECOFIN Council on the adoption of the euro, the National Bank of Slovakia at the same time obtained the authorisation, within the framework of preparations for the introduction of the new currency, to borrow banknotes from the Eurosystem to cover the demand for banknotes in 2009 (196.2 million euro banknotes in a total value of €8.3 billion were borrowed). The initial reserve of euro coins (499 million



Chart 9 Volume and number of transactions via Automated Teller Machines and POS Terminals as of 31 December 2009



Source: Bank Card Association of the SR ([www.zbk.sk](http://www.zbk.sk)).

Note: The statistical information is aggregated for all banks being members of the BCA of the SR and banks not being members of the BCA of the SR.

coins in the total value of €165.2 million) have been stamped in the Mint of Kremnica, š. p.

In September and October, the process of the frontloading of financial institutions and enterprises with euro cash began; in November, frontloading of enterprises commenced. In addition, at the beginning of December, the National Bank of Slovakia, banks and post offices began to distribute euro coins starter kits to the public. The total value of the euro cash frontloading as of 1 January 2009 attained €1,070.8 million.

However, in terms of the impact on the monetary aggregate M3, significant surpluses of the

currency in circulation in the second half of 2008 were, to a significant extent, compensated by an increase in deposits, where an increased deposition of funds in banks was recorded from the private sector due to the simplification of the Slovak currency conversion to euro.

Upon the gradual withdrawal of the Slovak cash from circulation prior to entry into the euro area, the current development of the issue is distinguished by the relatively high month-on-month increases in euro cash, which are related to the replacement of Slovak banknotes and coins in circulation. In the first nine months of 2009, the

Table 2 Net cumulated issue of Slovak cash unreturned from circulation as of 30 September 2009 and euro cash

Nominal Value	Number in PS	Value in SKK	Nominal Value	Number in PS	Value in EUR
5,000 Sk	225,150.50	1,125,752,500.00	500 EUR	2,369,277	1,184,638,500
1 000 Sk	1,335,865.50	1,335,865,500.00	200 EUR	988,386	197,677,200
500 Sk	615,761.75	307,880,875.00	100 EUR	11,232,791	1,123,279,100
200 Sk	1,175,820.25	235,164,050.00	50 EUR	21,962,108	1,098,105,400
100 Sk	3,855,471.50	385,547,150.00	20 EUR	12,373,584	247,471,680
50 Sk	3,482,362.00	174,118,100.00	10 EUR	9,732,316	97,323,160
20 Sk	10,725,653.25	214,513,065.00	5 EUR	6,478,372	32,391,860
<b>Total banknotes</b>	<b>21,416,084.75</b>	<b>3,778,841,240.00</b>	<b>Total banknotes</b>	<b>65,136,834</b>	<b>3,980,886,900</b>
10 Sk	25,866,967.00	258,669,670.00	2 EUR <sup>1)</sup>	19,463,032	38,926,064
5 Sk	31,427,877.00	157,139,385.00	1 EUR	19,466,377	19,466,377
2 Sk	65,547,788.00	131,095,576.00	50 cents	21,043,927	10,521,964
1 Sk	103,550,963.00	103,550,963.00	20 cents	27,636,668	5,527,334
50 hell.	46,384,839.00	23,192,419.50	10 cents	30,893,511	3,089,351
50 hell. II.	124,389,562.00	62,194,781.00	5 cents	34,320,683	1,716,034
20 hell.	0.00	0.00	2 cents	58,894,280	1,177,886
10 hell.	0.00	0.00	1 cent	55,076,732	550,767
<b>Total coins in circulation</b>	<b>397,167,996.00</b>	<b>735,842,794.50</b>	<b>Total coins</b>	<b>266,795,210</b>	<b>80,975,776</b>
Commemorative coins	935,129.00	699,487,170.00	Collector coins	45,492	676,970
<b>Total</b>	<b>419,519,209.75</b>	<b>5,214,171,204.50</b>	<b>Total</b>	<b>331,977,536</b>	<b>4,062,539,646</b>

Source: NBS.

1) Including two euro commemorative coins.



volume of the net cumulated issue of euro cash increased by almost four times and, as of the end of the third quarter of 2009, almost 97% of the value of the currency in circulation as of 31 December 2007 was returned from circulation, i.e. almost SKK150 billion.

In recent years, a gradual growth in the number of POS terminals has been observed, which confirms the widening use of non-cash payment systems by payment cards. However, despite the fact that, in 2008, the number of POS terminals increased by more than 21% on the previous year, citizens still, to a large extent, prefer to hold cash and prefer payments by cash over non-cash payments by payment cards.

The value of the net cumulated issue of euro cash in Slovakia currently corresponds to the cash circulation from approximately mid-2006 (detailed information in Table 2). This fact, together with relatively low interest rates, leading to the preference for holding cash over deposits, as well as the preference for cash transactions by citizens, indicates that, in the coming months, the issue of euro banknotes may also significantly increase; however, a gradual reduction and subsequent stabilisation of its month-on-month additions is expected. Since Slovakia currently fulfils the banknote allocation key for approximately 57%, the NBS does not anticipate any exceeding of the determined volume of banknotes, which would lead to the creation of an obligation towards the ECB.

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