7. Monetary Trends and Policy

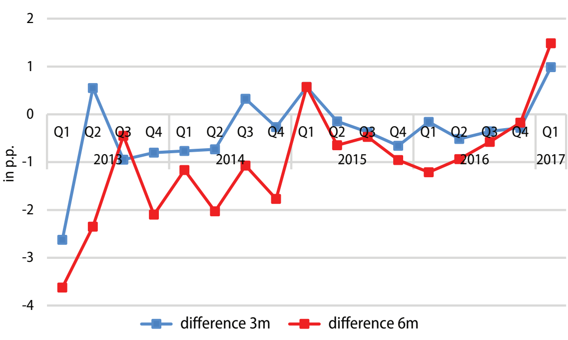
The y-o-y Inflation rate speeded up its growth through first four months only to drop to 3.5% in May. Inflation at the start of the year was within the target band which stood at 3±1,5% at the start of 2017. Since the rise in inflation was caused mainly by once-off elements, the National Bank of Serbia (NBS) kept its key policy rate unchanged to the end of the quarter. NBS interventions in Q1 were oriented at the Inter-banking foreign exchange (FX) market which was dominated up to April by depreciation pressure only for appreciation pressure to appear after that. In order to prevent excessive daily depreciation of the Dinar, the NBS sold 345 million Euro in Q1 and then in April and May it was net buyer with 160 million Euro. The sale of foreign exchange in Q1 had a negative effect on the level of NBS net own reserves which dropped by 270 million Euro. This also had a negative effect on the drop in primary money in Q1 to 441 million which was caused in part by increased bank investments in REPO bonds of 207 million Euro. The net lending of banks in Q1 were based on REPO operations and loans to the households while the trend of debt repayment of the enterprises continued. A part of the debt repayment by the enterprises is owed to the writing off and sale of debts to non-banking entities but when this is excluded, the net lending to the enterprises in Q1 were negative once again by about 50 million Euro. The lack of a greater debt repayment by the enterprises on the basis of cross-border loans and the rise in net lending to the households by 180 million caused at the end of Q1 the overall amount of the net lending to the private sector from both domestic and foreign sources in the first three months to stand at a positive 58 million Euro. Following an evident drop in the participation of NPLs in the previous quarter, minimal changes in this segment were noted from the start of the year. The overall participation of NPLs is practically unchanged compared to the end of the previous year with a slight rise in NPLs to corporate segment, but that was compensated by a drop in the other two segments. The somewhat higher inflation rate in Q1 caused a speedier reduction of real interest rates on Dinar loans for current assets and investments. At the same time, interest rates on indexed loans remained at the same level as at the end of last year except in the case of loans for current assets which were additionally reduced.

Central Bank: Balance and Monetary Policy

Price rise at year's end bring inflation into target band

Following a slight rise in the y-o-y rise in prices at the end of 2016, a speeding up of inflation which stood at 4% in April was recorded in Q1 and in May it went back down to 3.5% and closer to the target level. Since the rise in inflation was caused mainly by once-off factors, the NBS kept its key policy rate unchanged to the end of the quarter. We see that NBS policy as correct because base inflation which reflects the systematic component of inflation in the entire period was below the middle of the target corridor. Bearing in mind the somewhat higher level of inflation since the start of the year and unchanged key policy rate, the profitability of the placement in REPO bonds dropped significantly but the drop in REPO stock came in April after an increase in March (Table T7-2). The speeding up of inflation was not completely expected by the NBS and that is shown by the deviation of the planned from the real inflation NBS at the level of 1-1.5 percentage points three to six months in advance (Graph T7-1). Bearing in mind, the fact that the level of inflation is the consequence of once-off changes we expect a reduction in the deviation in coming quarters.

Graph T7-1. Deviation from predicted inflation 3 to 6 months in advance of the real 2013-2017



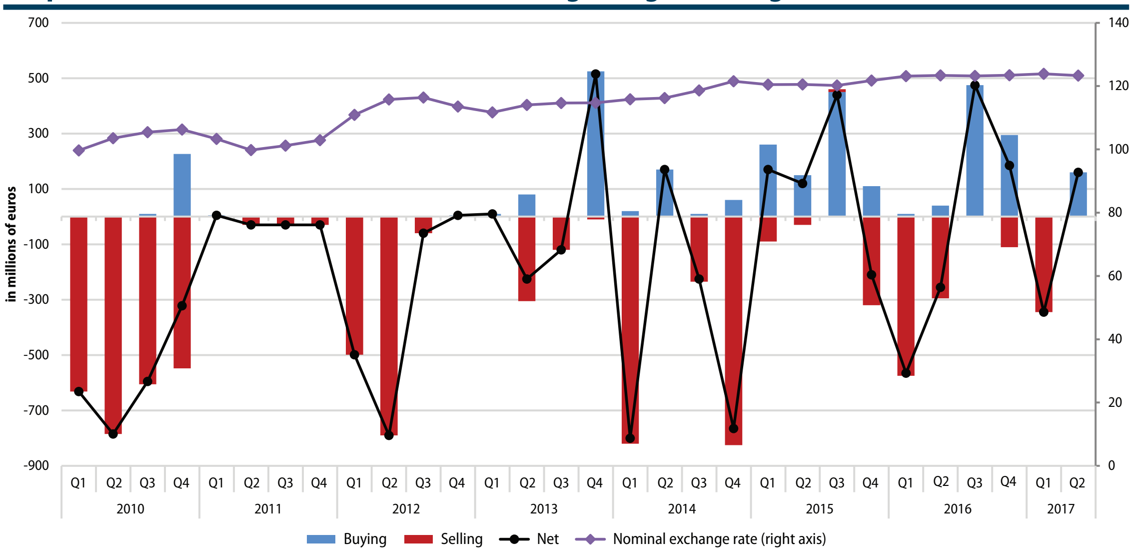
Source: NBS

Table T7-2. NBS interventions and foreign exchange reserves 2015-2017

	2015				2016				2017
	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar
Repo stock (in milions of euros)	2.85	168.72	508.19	253.24	246.50	239.12	325.82	279.23	480.53
NBS interest rate	7.50	6.00	5.00	4.50	4.25	4.25	4.00	4.00	4.00
NBS interest rate	-1.13	3.08	5.00	6.66	2.60	1.78	3.17	1.94	-5.11
NBS interest rate	11.33	5.70	6.29	-0.76	-0.34	3.35	4.57	3.37	4.48
NBS interventions on FX market (in milions of euros)	170.00	290.00	730.00	520.00	-555.00	-820.00	-345.00	-160.00	-345.00
INCREASE	**in millions of euros, cumulative from the beginning of the year**								
NBS own resreves[2)]	607.7	638.6	1022.9	1163.0	-469.43	-785.86	-346.46	-163.03	-269.73
NDA	-515.6	-460.4	-956.2	-783.4	45.62	395.60	-99.67	94.92	-171.42
Government, dinar deposits[3)]	-151.9	-13.7	-308.7	-217.4	41.52	275.36	35.00	195.73	-41.59
Repo transactions[4)]	68.0	-97.4	-413.3	-166.4	5.09	19.53	-279.20	-25.66	-207.38
Other items , net[5)]	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
H	92.1	178.3	66.7	379.6	-423.81	-390.27	-446.13	-68.11	-441.15
o/w: currency in circulation	-133.7	-95.5	-39.9	76.8	-68.06	-20.21	40.74	157.26	-104.02
o/w: excess liquidity	210.3	229.5	104.1	408.0	-284.91	-319.01	-465.39	-241.74	-351.17
	in millions of euros, cumulative from the beginning of the year								
NBS, net	676.36	561.44	762.45	667.97	-865.84	-1061.63	-784.51	-137.62	-464.59
Gross foreign reserves	638.67	440.86	613.29	508.46	-880.04	-1080.32	-807.49	-153.76	-469.25
Foreign liabilities	37.69	120.58	149.16	159.52	14.21	18.69	22.97	16.14	4.66
IMF	39.37	106.55	129.87	141.97	8.10	15.09	16.00	14.12	-0.04
Other liabilities	-1.67	14.04	19.29	17.54	6.10	3.59	6.98	2.02	4.69
NBS, NET RESERVES-STRUCTURE									
1. NBS, net	676.36	561.44	762.45	667.97	-865.84	-1061.63	-784.51	-137.62	-464.59
1.1 Commercial banks deposits	-20.68	-29.93	65.59	100.98	331.11	302.75	339.40	90.80	144.67
1.2 Government deposits	-47.99	107.13	194.81	393.89	65.30	-26.98	98.65	-116.22	50.18
1.3 **NBS own reserves** (1.3 = 1 - 1.1 - 1.2)	607.70	638.64	1022.85	1162.84	-469.43	-785.86	-346.46	-163.03	-269.73

Source: NBS.
1) "Initial M2" designates the state of the primary money at the start of the current or end of previous year.
2) Definition of net own reserves NBS is given in section 8 „Monetary trends and policy", Frame 4, QM no. 5.
3) State includes all levels of government: republic and local government level.
4) This category includes NBS treasury bonds and repo operations.
5) Other domestic assets net include: domestic loans (net bank debts, including treasury bonds and repo transactions; net enterprises debts) together with other assets (capital and reserves; and items in the balance: other assets) and corrected by exchange rate differentials.

Graph T7-3. NBS interventions on Inter-banking foreign exchange (FX) market 2010-2017



Source: NBS

In order to ease depreciation pressure in Q1 the NBS sold foreign exchange ...

Depreciation pressure at the end of the year continued in Q1 which caused the NBS to intervene on the Inter-banking foreign exchange (FX) market. In order to prevent a greater depreciation of the Dinar the NBS sold 345 million Euro in Q1 (Graph T7-3). In April and May, pressure appeared on the FX market to strengthen the Dinar after which the NBS intervened buying 160 million Euro which partly eased the appreciation pressure. The sale of foreign exchange led to a reduction of NBS net own reserves in Q1 by 270 million Euro (in Q4 2016 the value of net own reserves increased by 183 million Euro, Table T7-2) which had an indirect effect on the level of primary money. The reduction of the NBS net own reserves led to a drop of 441 million Euro

… appreciation pressure grew stronger as of April and the NBS bought foreign exchange

in primary money in Q1 from the start of the year. The drop in primary money was also caused by the negative effect of a reduction of net domestic assets by 171 million Euro. In Q1, the net own reserves were reduced because of increased investments by business banks in REPO for 207 million Euro and an increase in state Dinar deposits by 42 million Euro while on the positive side an increase in other net assets of 86 million Euro was recorded.

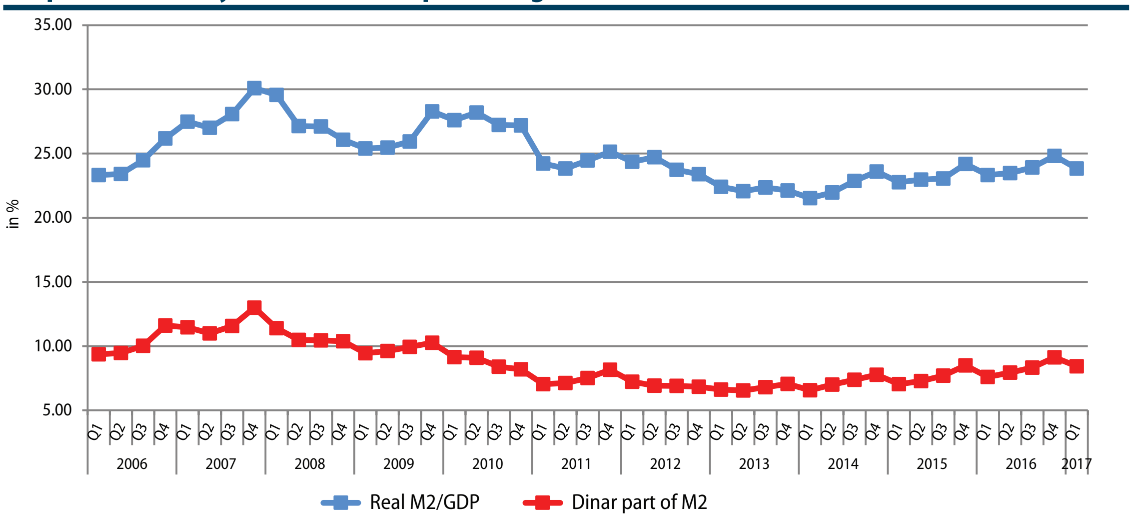
Monetary System: Structure and Trends of Money Mass

A slowing down of the y-o-y real growth of M2 was registered in Q1 …

… while loans to the non-government sector recorded a somewhat higher rate of growth in real terms

In the first three months, the money mass M2[1] continued its trend of growth carried over from previous quarters and recorded an increase of 10.3% y-o-y (in Q4 2016 the money mass grew by 9.9% y-o-y, Table T7-5). Compared to the values at the end of December 2016, the money mass was reduced by 0.6% which is the consequence of the combined effect of the increased Dinar part of the M2 and the drop recorded on the net foreign assets. The net domestic assets contributed to the quarterly rise of the M2 with 1 percentage point (p.p.) but the reduction on the foreign currency side of the net foreign assets of -1.6 p.p. caused the M2 to record a drop at the end of Q1 compared to the start of the year. Compared to the same period of the previous year and following corrections by the inflation rate, the growth of the money mass in real terms in Q1 stood at 6.4% y-o-y, which continues the slowing down of growth since the middle of last year. In Q1, the real growth of loans to the non-government sector continued at 2.1% y-o-y within which various trends were recorded linked to loans to the households and the enterprises. The households segment with a real rate of 8.8% y-o-y was speeding up the growth of credit activity (in Q4 2016, the y-o-y real growth of loans to the households stood at 7.5%). On the other hand, the enterprises segment recorded a real drop in Q1 of -2.3% y-o-y which is the consequence of the continued debt repayments to domestic and foreign banks.

Graph T7-4. Money mass trends as percentage of GDP, 2005-2017



Source: *QM* calculation

1 Monetary aggregate M2 in section Monetary Trends and Policy includes the narrow aggregate M1, savings and timed deposits as well as foreign currency deposits in business banks. Because of that the aggregate M2 which we are observing is equal to the monetary aggregate M3 in NBS reports

Trends

Table T7-5. Growth of money and contributing aggregates, 2015–2017

	2015				2016				2017
	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar
	y-o-y, in %								
M2[1)]	8.5	7.8	4.1	7.2	7.9	7.8	10.2	9.9	10.3
Credit to the non-government sector[2)]	5.8	4.2	2.2	2.8	2.2	4.7	5.9	2.6	4.1
Credit to the non-government sector[2)], adjusted[3)]	2.8	1.2	1.7	2.5	0.6	3.1	3.9	1.5	3.5
Households	5.5	4.9	3.8	4.3	3.8	5.8	8.4	9.4	11.0
Enterprises	1.2	-1.0	0.3	1.3	-1.4	1.4	1.0	-3.3	-1.3
	real y-o-y, in %								
M2[1)]	6.4	5.8	2.6	5.5	7.2	7.3	9.4	8.0	6.4
Credit to the non-government sector[2)], adjusted[3)]	1.6	0.3	1.1	1.8	0.2	2.3	2.8	0.9	2.1
Households	3.9	3.4	2.9	3.4	2.9	4.6	6.6	7.5	8.8
Enterprises	0.3	-1.5	0.0	0.8	-1.5	0.9	0.4	-3.2	-2.3
	in bilions of dinars, end of period								
M2[1)]	1835.4	1876.1	1893.8	1999.7	1979.6	2023.2	2087.0	2196.8	2182.7
M2[1)] dinars	567.8	595.3	632.4	702.6	645.5	685.0	727.1	808.0	772.7
Fx deposits (enterprise and housholds)	1267.7	1280.8	1261.4	1297.0	1334.1	1338.2	1359.9	1388.7	1410.0
	quarterly growth M2[4)] and shares								
M2[1)]	-1.6	2.2	0.9	5.6	-1.0	2.2	3.2	5.3	-0.6
NFA, dinar increase	-2.5	1.5	2.0	3.7	-2.9	2.0	2.1	3.9	-1.6
NDA	0.9	0.7	-1.0	1.9	1.9	0.2	1.1	1.4	1.0

Source: NBS
1) Money mass: components – see Analytical and Notation Conventions *QM*.
2) Loans to non-government sector – loans to enterprises (including local government) and households.
3) Trends corrected by exchange rate differentials. Corrections were done under assumption that 70% of loans to the non-government sector (both households and enterprises) indexed against the Euro.
4) Trends are corrected by exchange rate differentials and inflation. Corrections are done under the assumption that 70% of loans to the non-government sector (both households and enterprises) indexed against the Euro.

Greatest contribution to growth of M2 achieved thanks to growth of M1…

The biggest individual contribution in the structure of the nominal growth of the M2 money mass which stood at 10.26% y-o-y in Q1, as in previous quarters, was from the growth of the narrowest monetary aggregates M1. In Q1 the growth of M1 accounted for 4.49 p.p. of the nominal growth of M2 (in Q4 2016 M1 accounted for 5.17 p.p. of the nominal growth of M2 which stood at 9.86% y-o-y). The remaining element of the M2 money mass also had a positive effect in Q1 with foreign currency deposits contributing 3.84 p.p. while the savings and timed deposits saw their greatest contribution to the growth of M2 over the past five years with 1.93 p.p.

… with increase in participation of time and savings deposits compared to previous quarters

Banking Sector: Lending and Sources of Financing

Overall lending by business banks rose in Q1 …

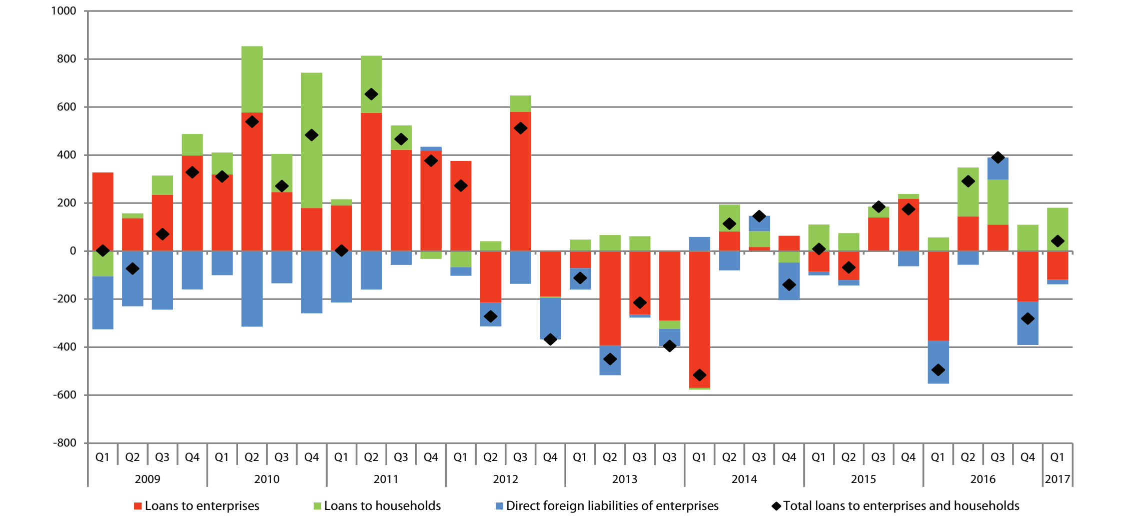
The value of new bank lending, decreased by the amounts repaid to banks on earlier lending, increased in Q1 by 255 million Euro (Table T7-7). The greatest part of that growth was achieved on the basis of lending in REPO whose stock rose in Q1 by 202 million Euro. The remainder of the growth of the net lending is owed to the continuing trend of growth of net lending to the households which increased its debts by another 180 million Euro. On the other hand, the enterprises continued net repayments to domestic banks to the level of 119 million Euro in Q1 (the enterprises net paid off 330 million Euro in debts to domestic banks in 2016) and that continued in April with another 91 million Euro. On the side of decreased net lending there were some positive trends in public finances which caused a drop in the net loans to the government by 8 million Euro (in 2016 the net crediting of the government stood at 784 million Euro).

… thanks to a growth of REPO placements and net loans to the households

Growth of net lending to households managed to compensate for debt repayment by enterprises in Q1

The negative trend of repayments by the enterprises to foreign creditors was reduced in Q1 when 19 million Euro were repaid in cross-border loans (Graph T7-6). The enterprises paid of 138 million Euro of debts to domestic and foreign banks in Q1, including some 70 million Euro which were written off or sold as NPLs while the rest is the drop of credit activity to the enterprises in real terms. The biggest share in the structure of newly approved loans to the enterprises went to loans for current assets (about 52%) while the participation of investment loans (some 24%) remained at a level similar to previous quarters. The continuing growth of repayments by the households caused the overall lending from domestic and foreign sources to be positive in Q1. Data for April suggest that a drop in overall lending to the enterprises and households was recorded once again primarily because the enterprises repaid its debts which the 76 million Euro rise in loans to the households in April could not compensate. The biggest share of the newly approved loans to the households in Q1 (almost 60%) were cash loans while housing loans accounted for 18% when their growth continued because of favorable trends in interest rates.

Graph T7-6. Yield of new loans to enterprises and households, 2009-2017



Source: *QM* calculation
See footnote 1 in Table T7-5

Table T7-7. Bank operations – sources and structure of lending, corrected1) trends, 2015-2017

	2015				2016				2017
	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	
	in millions of euros, cumulative from the beginning of the year								
Funding(-, increase in liabilities)	241	33	-368	-513	377	168	-363	-1,130	354
Domestic deposits	47	-118	-324	-918	223	-235	-708	-1,425	107
Households deposits	-11	-104	-114	-282	-16	-235	-362	-625	-69
dinar deposits	96	19	-57	-196	3	-75	-154	-290	27
fx deposits	-107	-123	-57	-86	-19	-161	-208	-334	-96
Enterprise deposits	58	-14	-211	-635	239	0	-346	-800	175
dinar deposits	168	112	-75	-455	385	222	5	-352	207
fx deposits	-110	-126	-136	-181	-146	-222	-351	-448	-31
Foreign liabilities	36	150	58	225	181	397	427	335	218
Capital and reserves	158	1	-101	179	-27	6	-82	-40	29
Gross foreign reserves(-,decline in assets)	-150	-115	-262	-497	214	337	284	244	-35
Credits and Investment[1)]	-20	149	928	1,252	128	426	1,129	997	255
Credit to the non-government sector, total	24	-21	165	407	-316	32	329	186	61
Enterprises	-86	-207	-67	158	-374	-228	-118	-372	-119
Households	111	186	231	248	57	260	447	559	180
Placements with NBS (Repo transactions and treasury bills)	-66	100	439	192	-7	-14	276	27	202
Government, net[2)]	22	69	324	653	452	408	525	784	-8
MEMORANDUM ITEMS									
Required reserves and deposits	444	605	288	311	-598	-864	-859	-565	-161
Other net claims on NBS[3)]	-182	-309	-209	-100	-107	160	6	201	-324
o/w: Excess reserves	-204	-317	-225	-134	-102	160	3	187	-326
Other items[4)]	-352	-379	-404	-343	0	-204	-175	253	-79
Effective required reserves (in %)[5)]	22	23	20	20	17	16	15	16	16

Source: NBS
1) Calculations of the yield is done with the assumption that 70% of overall lending are indexed in Euro. Yields for original Dinar deposits were calculated using the average exchange rate for the period. For foreign currency deposits as the difference calculated on the basis of the exchange rate at the ends of the period. Capital and reserves calculated using the Euro exchange rate at the ends of the period and do not include the effects of changes to the exchange rate when calculating the remainder of the balance.
2) NBS bonds include government and treasury bonds NBS which are sold at repo rates and at rates set on the market for permanent auction sales with a due date longer than 14 days.
3) Net loans to the government: loans approved to the government are decreased by the government deposits in business banks, the negative prefix designates a rise in deposits over loans. Government includes all levels of government: republic and local level.
4) Other NBS debts (net): the difference between NBS debts to banks on the basis of cash and free reserves and debts to the NBS.
5) Items in bank balances: other assets, deposits by companies in receivership, inter-banking relationships (net) and other assets not including capital and reserves.
6) Effective mandatory reserve is the participation of the mandatory reserve and deposits totaling sum of overall deposits (households and enterprises) and bank debts abroad. The basis for calculation of the mandatory reserves does not include subordinate debt because that is not available.

Sources for new bank investment decreased in Q1…

… due to net repayment of domestic banks to their centrals abroad and drop in domestic deposits

Following record increases in the previous quarter, a drop of 354 million Euro in the sources for new bank investment was recorded in Q1 (Table T7-7). The largest part of the reduction (around 60%) is due to the repayments of loans by domestic banks on funds drawn from their head offices abroad. That repayment trend by domestic banks has been present since 2011 and on that basis along bank sources for new placements have been reduced by 778 million Euro in the past two years alone (2015-2016) along with the repayments in Q1. In the period after the outbreak of the financial crisis, banks in Serbia repaid funds to their head offices abroad due to their need to secure liquidity but the repayment of loans over the past few years suggests that business banks in Serbia are unable to efficiently place funds with domestic companies. There was also a reduction in domestic deposits in Q1 which had an negative effect on the drop in credit potential by the domestic banking sector. Domestic deposits were reduced in Q1 by 107 million Eur which is solely the result of a drop in deposits by the enterprises. In the first three months, the deposits of the enterprises recorded withdrawals of 175 million Euro and another 100 million Euro in April. The reduction of the deposits was achieved in Dinars (207 million Euro) while the FX deposits of the enterprises increased by 31 million Euro. Unlike the enterprises, the total net deposits by the households in Q1 rose by 69 million Euro but that growth was achieved solely on the FX side while the households Dinar deposits dropped by 27 million Euro. In April, the rise in the deposits of the households continued both in Dinars and FX for another 58 million Euro. In Q1, commercial banks reduced their capital and reserves by 29 million Euro which lowered the sources for new lending further along with the drop in deposits and repayments by banks out of the country.

Participation of NPLs slightly drops in Q1 …

… with the companies' segment recording a somewhat higher participation than in the previous quarters

According to Credit Bureau data, there was no great change in the participation of NPLs in overall lending at the end of Q1 but at the end of April a slight drop of 0.08 p.p. was recorded (Graph T7-10). For the first time in a year of constant reductions, the participation of NPLs placed to corporate sector recorded a rise of 0.44 p.p. (at the end of Q4 those loans accounted for 19.48% of the total, Table T7-8). Viewed in absolute terms, the value of NPLs among corporate sector did not record a rise in Q1 but because of the loan repayments by the enterprises to domestic banks in Q1, the amount of loans to corporate sector was reduced and the relative participation of NPLs was increased. The participation of NPLs in the other segments also saw improvement which was sufficient to neutralize the effect of the growth of that participation among corporate sector, and there were no changes compared to the previous quarter at the level of the entire banking system. An improvement of 0.45 p.p. was recorded in NPLs placed to individuals and they now stand at 9.21%. According to data from April the reductions are continuing. This improvement is mainly the consequence of the growth of credit stock of the households due to the increase in new net lending in Q1 while the lesser effect is achieved on the basis of solving NPLs in this segment. The greatest reduction of 0.93 p.p. was achieved in the segment of NPLs placed to entrepreneurs whose participation now stands at 26.49%. Since NPLs to entrepreneurs account for just 3.5% of all NPLs, this change did not have any great effect on the drop in overall participation.

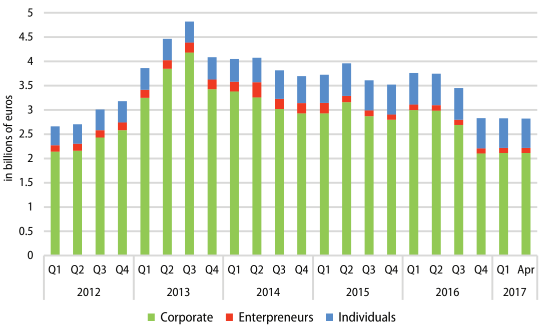
Table T7-8. Participation of NPLs according to type of debtor, 2008-2017

	2009	2010	2011	2012	2013	2014	2015				2016				2017	
	Dec	Dec	Dec	Dec	Dec	Dec	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Apr
	balance at the end of period															
Corporate	12.14	14.02	17.07	19.06	27.76	25.5	25.85	28.63	25.52	24.40	26.89	26.26	23.56	19.48	19.92	19.96
Entrepreneurs	11.21	15.8	17.07	15.92	20.82	43.29	45.19	34.91	32.03	29.92	33.03	30.12	28.44	27.42	26.49	26.23
Individuals	6.69	6.71	7.24	8.32	8.59	9.97	10.16	11.60	10.68	10.53	10.95	10.63	10.36	9.66	9.21	9.03
Ammount of dept by NPL (in bilions of euros)	1.58	1.94	2.63	3.19	4.09	3.70	3.72	3.96	3.61	3.52	3.76	3.75	3.45	2.83	2.83	2.82

Source: *QM* calculation

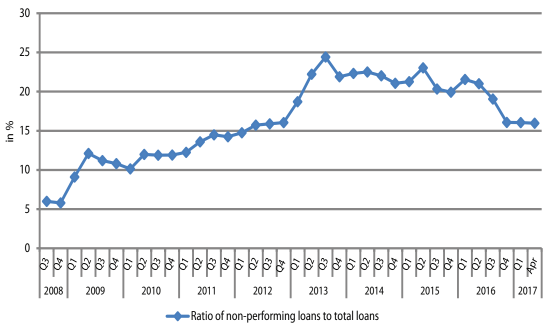
Following a significant drop in the absolute amount of NPLs late in 2016 because they were written off or sold to non-banking entities, the situation with the absolute amount of NPLs did not change at the end of Q1 (Graph T7-9). According to data from April, the overall value of loans whose repayments are late by more than 90 days stands at 2.83 billion Euro which is the same level as in December 2016. This figure suggests that the reduction in Q4 last year is more the consequence of a single writing off of debts rather than the start of a trend of continuous reductions of NPLs. Considering the fact that NPLs have stagnated for several months at the high level of around 16%, it is necessary to consider the introduction of regulatory stimulation to solve this problem.

Graph T7-9. Amount of remaining debt from late repayments, 2012-2017



Source: *QM* calculation

Graph T7-10. Participation of NPLs in overall lending, 2008-2017



Source: *QM* calculation

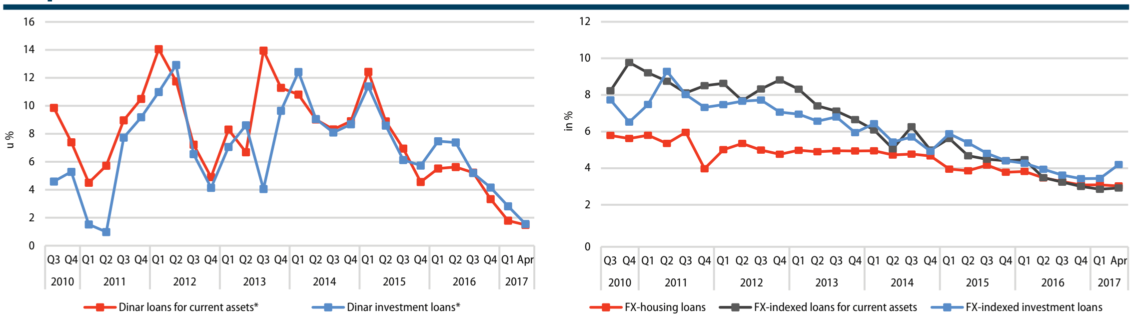
Interest Rates: State and Trends

Interest rates in real terms on Dinar loans continued their drop in Q1…

… because of speedier inflation at the start of the year

The unexpected increase of y-o-y inflation had a significant effect on the dynamics of interest rates on Dinar loans while minimal changes were registered in indexed loans. The only greater change in indexed loans is noted in loans for current assets where the interest rate was reduced by 0.15 p.p. to 2.85% in Q1 while the rates on housing and investment loans in this category remained virtually unchanged compared to the end of 2016 (Graph T7-11a). The rise in inflation in the first three months of 2017 caused commercial banks to correct the nominal interest rates on Dinar loans but the interest rates in real terms continue to drop (Graph T7-11b). That is especially pronounced in real rates on Dinar loans for current assets which stood at 1.79% following corrections for inflation which is a reduction of 1.54 p.p. compared to the previous quarter. A somewhat smaller reduction of 1.34 p.p. was recorded in the real interest rate on investment loans which stood at 2.82% at the end of Q1. The trend in reducing real interest rates on Dinar loans continued in April with an added 0.25-0.3 p.p. but on the other hand there was a significant increase of 0.76 p.p. in interest rates on indexed investment loans. The rise in the interest rates on indexed loans for investments could signalize the end of a period of extremely cheap conditions of financing which could potentially have a negative effect on the already low level of net credit lending to the economy. The effects of the expected rise in interest rates in Europe on interest rates in Serbia could be eased if Serbia would additionally lower the premium on risks. The key steps to do that are the stabilization of the fiscal deficit at a level below 1% of the GDP, further progress in solving the problem of NPLs and a speeding up of the growth of the economy.

Graph T7-11. Interest rates on Dinar and indexed loans, 2010–2017



Source: *QM* calculation
* real interest rates