

## THE IMPACT OF COVID-19 PANDEMIC ON INTEREST RATES IN BULGARIA

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### Abstract

*The current paper aims to track the movement of interest rates and volumes for 2020 in Bulgaria. The observed interest rates include those of deposits and loans. As the pandemic caused by COVID-19 started in the beginning of February, 2020 the data used in this paper includes the period January-November 2020. Because of the short period regression analysis is not prepared but comprehensive analysis of large set of data is done. The main results show that there was a change in deposit and loan market in Bulgaria. The interest rates in the local and euro currency show different volatility as well as the interest rates on households and non-financial corporations deposits. Inflation fell as, did the yield of government debt securities whilst indebtedness in the euro area increases.*

**Key words:** pandemic, COVID-19, interest rates, loans, deposits

**JEL:** G21

### Introduction

The COVID-19 pandemic exposed the world to unprecedented challenges that impact every part of the economy and its participants. In this particular research the accent is focused around the movement of interest rates in 2020 for Bulgaria. All kind of interest rates are reviewed.

Historic research on impacts of pandemics shows that there is generally a long-term impact on real interest rates; they fall during and after these crisis periods. The resulting drop in interest rates may also be amplified by increased savings by pandemic survivors (Jorda et al, 2020). The same research (Jorda et al., 2020) shows that real interest rates tempt to stay low for decades and also wages tempt to rise gradually in the decade following the pandemic.

The information presented here does not include real interest rates due to the unavailability of data for 2020 by the moment of preparing the paper, hence, for 2019 the real interest rate in Bulgaria was negative (-0.66%) according to World Bank Statistics (World Bank, 2021). These imply that real rates will stay on the negative side for 2020 and will most probably fall further. On the other hand, interest rates on deposits and loans are analyzed where the data used is from

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the statistics of Bulgarian National Bank (BNB). The short period puts some restraints on the outcomes however it is important to observe the initial response of interest rates to the pandemic.

In comparison with previous pandemics in the world, it is important to outline the specific features of COVID-19 though secular stagnation is most probable to stay for the next decades, however the current pandemic is different. It affects in terms of death outcome mainly the elderly population which is no longer engaged in the productive economy, also the death rate is supposed to be smaller than the biggest pandemics of the past (eg. The Black Death), and also the responses of the governments triggered massive fiscal measures in term to react to the economic crisis, the social effect of which and the new type of consumption and living could also be essential.

The negative interest rate environment before COVID-19, dates back to 2014 once the European Central Bank (ECB) started imposing negative interest rates. This had a contagion effect which spread throughout the banking sector of the E. Rates have now been, additionally depressed by the outcomes of the pandemic.

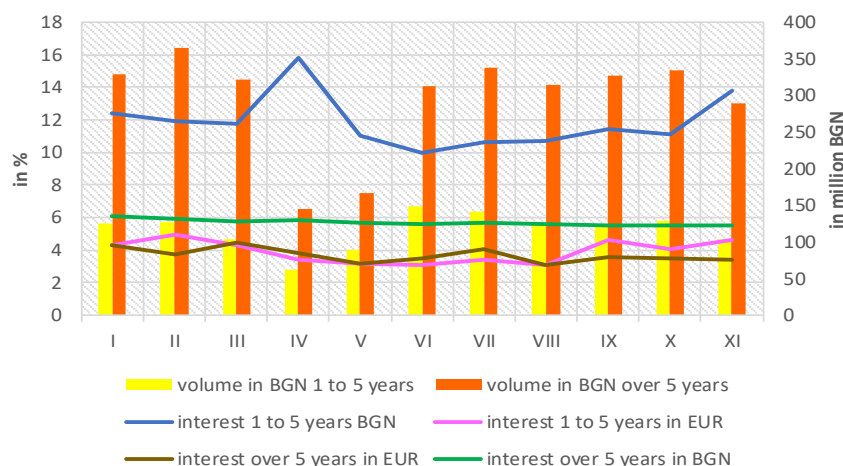
Bulgarian deposit and loan markets are reviewed below for the year 2020 tracing what has happened to interest rates and volumes of new deposits and loans. Bulgaria is in the waiting room for accepting the euro currency and is experiencing extraordinary low interest rates. Once it joins the Eurozone interest rates are expected to go further down (Gechev et al., 2020).

The pandemic obviously impacts all sectors, both in terms of sovereign debt and yields. However, research on the CDS spread and the results of it show that “COVID mortalities and infections are not as important in explaining CDS spreads as are variables capturing fiscal space, economic activity, actions by the FED and the ECB, and the change in oil prices” (Daehler et al, 2020). The reasons suggested in the same research are that investors find no specific pandemic related impact, or perhaps “international investors find that COVID is a pandemic that may ultimately hit all countries to more or less the same degree in terms of its health repercussions and hence do not pay as much focus on infections and mortalities and instead focus more on the performance and the stability of the economy”.

Even though that these findings imply that the pandemic has no direct impact on CDS spreads, the pandemic based actions of policymakers and governments might still have such impact. In the media there are significant number of officials who talk about the huge increase of countries’ debts and how these could be serviced in the future. Moreover, the current unprecedented low and even negative yields on government bonds additionally stimulates governments and facilitate their decisions to offer new debt securities, but suggesting that this debt can be serviced in any future time of higher rates raises doubts.

## Interest rates on loans in Bulgaria

The pandemic in Bulgaria began in March 2020 with a state lockdown on the 13<sup>th</sup>. As everywhere else in the world, this was unexpected and the situation made it difficult to make predictions. Huge uncertainty prevailed. The situation impacted the loan market both in terms of interest rates and volumes. On figure 1 information about consumer loans with two groups of maturity (1 to 5 years and over 5 years) is presented in both euro and BGN for 2020.



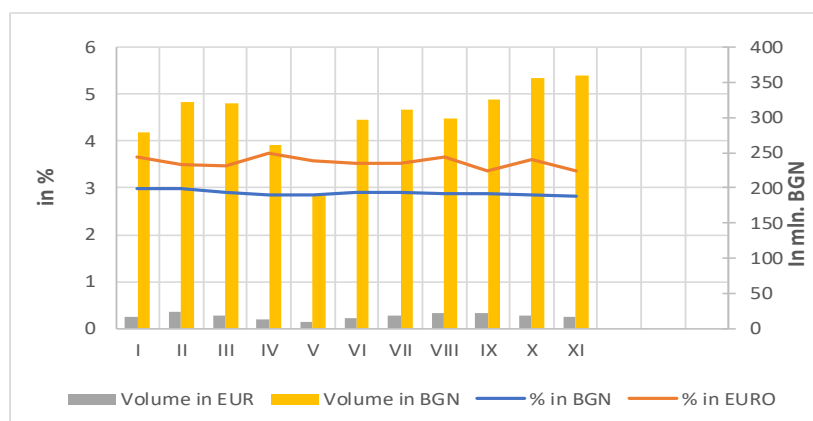
Source: own calculations, Bulgarian National Bank (2020).

**Figure 1:** Interest rates and volumes on consumer loans in Bulgaria for 2020 in BGN and EUR

As a result of the pandemic lockdown an obvious decline in volumes of loans for April and May is observed. March monthly decline was 14%, while April recorded 50% drop in the volume of consumer loans in BGN. Households being locked down and the great uncertainty that was in place in the beginning of pandemic made people freeze their plans for consumption and new purchasing. Actually, the first two months March and April were different from the next ones, as what happened was something extraordinary, the current generations have not seen and did not know what to expect, what kind of measures and restrictions government would introduce, how the economy and prices would react. That signals were so bad that could lead to further drop in loans. Wider social analysis could show a more detailed picture of the reasons for the consumer loans drop and also whether the reasons for borrowing were connected with the COVID implication on the labor market. Typically, higher interest rates in BGN loans

than the EUR ones show an increase in the beginning of the pandemic for the shorter maturities loans while longer ones stayed more stable.<sup>2</sup>

Mortgage loans on the other hand are not driven by short-term incentives and require more time in planning and decision taking. Mortgage loans for households show no big change for the first month of the lockdown (figure 2).



Source: own calculations, Bulgarian National Bank (2020).

**Figure 2:** Interest rates and volumes on mortgage loans in Bulgaria for 2020 in BGN and EUR

A drop in the volume of mortgages is also observed for March, April and May, though for March it is insignificant.<sup>3</sup> In April and May on the other hand the monthly drop was significant – by 28% and 58% respectively.<sup>4</sup>

On table 1 is shown information about the average interest rates on consumer loans and mortgage for households for 2020, where compared for those in BGN and EUR.

<sup>2</sup> Although interest rates on euro loans in Bulgaria are much lower than the ones in BGN currency, the volume of euro loans is 1.12% of the total amount of consumer loans, and approx. 5% of the mortgage loans for households (Appendix 1). This could be explained by the fact that although the Bulgarian lev is fixed to the euro, residents received their salaries in BGN and have preferences to repay their debt in the same currency as their income.

<sup>3</sup> That is understandable, having in mind that mortgage loans take much longer time for planning and gathering all the necessary documentation and most probably loans provided in March have been applied for the previous months or are connected with the purchase of property that also is a long term considered decision. Therefore, March turbulence hardly affected mortgages.

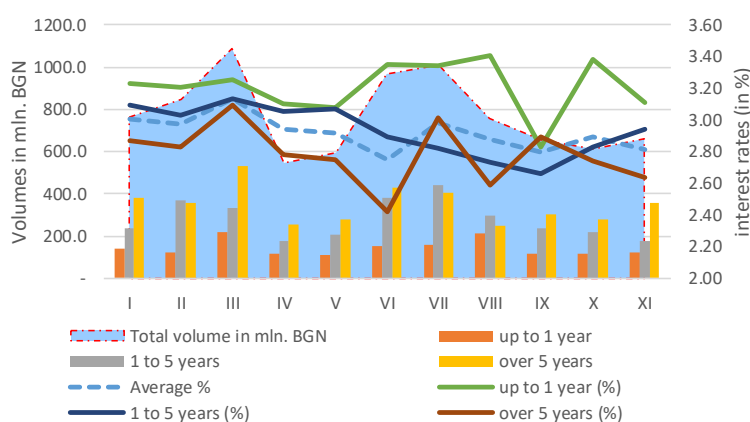
<sup>4</sup> Those data concerns loans in BGN which have the major share. Mortgages in EUR also dropped on average by 25% for March, April and May.

**Table 1:** Average interest rates on consumer loans and mortgage for households for 2020 (in %)

Maturity	BGN	EUR
Consumer loans		
Up to 1 year	23.13	6.14
From 1 to 5 years	11.87	3.91
Over 5 years	5.70	3.70
Mortgages		
From 1 to 5 years	3.22	3.57
From 5 to 10 years	2.97	3.21
Over 10 years	2.88	3.60

Source: own calculations, Bulgarian National Bank (2020).

Interest rates on consumer loans in BGN, as mentioned above, are several times higher than those in EUR, while the volumes of loans in Bulgarian currency are much higher. Given that the Bulgarian lev is fixed to the euro the currency risk is negligible so the statistics in this segment do not make sense. This could imply significant mistrust in the euro currency among the Bulgarian citizens. Mortgage loans interest rates on the other hand are higher for those in euro than those in BGN and again the volumes in BGN are larger.

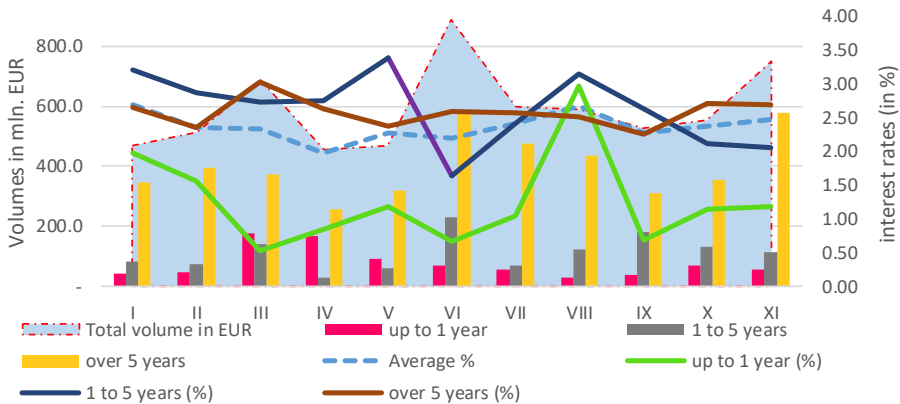


Source: own calculations, Bulgarian National Bank (2020).

**Figure 3:** Interest rates and volumes on consumer loans for non-financial corporations in Bulgaria for 2020 in BGN

Regarding loans to non-financial corporations, interest rates declined throughout 2020 for loans in Bulgarian lev, also the volume of these loans fell. A recovery occurred during June and July but the expectation from the second wave in the autumn pushed volumes down and kept them at levels roughly half than those of the pre-pandemic period (figure 3).

In the next figure loans to non-financial corporations in euro currency are reviewed (figure 4).



Source: own calculations, Bulgarian National Bank (2020).

**Figure 4:** Interest rates and volumes on consumer loans for non-financial corporations in Bulgaria for 2020 in EUR

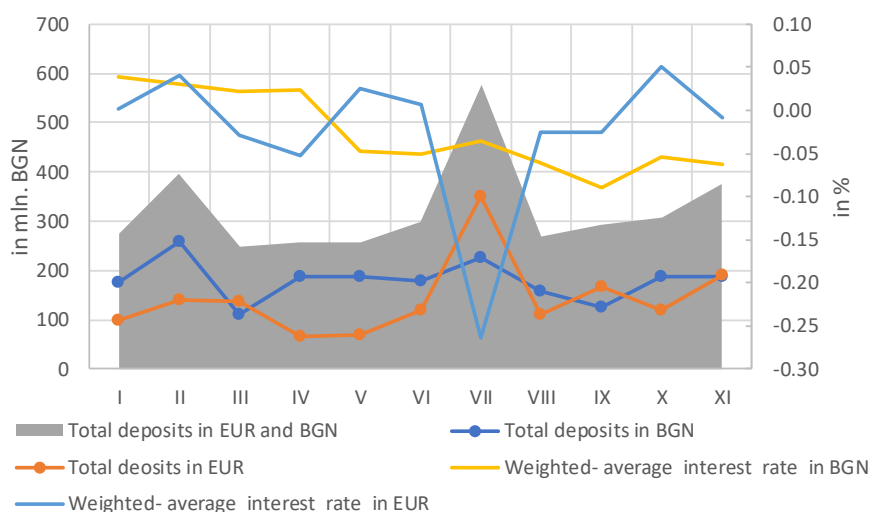
Similar trends in volumes are observed as for loans in BGN, but after June there is a negative trend line. If we compare the two data sets an interesting finding is that interest rates on loans in Bulgarian currency are much more volatile than those in euro, and while those in euro tend to rather slightly increase, the ones in BGN tend to decrease.<sup>5</sup>

In terms of the share of the new euro loans, it shows an increase. In comparison to households, which we observe that are insensitive to the lower interest rates of loans in euro currency, the corporate sector has much higher share of loans in euro (44% on average for 2020). This share was trending higher throughout the year.

<sup>5</sup> The volatility of the interest rates is measured as percentage of the standard deviation of the mean for every single maturity and currency. This share varies from 4 to 7% for interest rates in BGN, while for interest rates on loans in euro it varies from 8 to 54%. In terms of volumes of provided loans, again the one in euro has higher volatility (Appendix 2.).

## Review of deposits in Bulgaria for 2020

Interest rates on new deposits for non-financial corporations in Bulgaria for 2020 tended to decline and became negative after the pandemic started. Not only did the interest rates for deposits in euro currency go negative but also those in BGN. The share of the euro denominated savings tended to increase with respect to those in Bulgarian currency even though interest rates on euro deposits were lower than those in BGN. Euro deposits averaged 43% of the total for the period. The increase in euro deposits towards the end of the period could be explained by the higher interest rates offered than the ones for the deposits in BGN. In general, the total amount of new deposits remained steady, except in July when there was double the normal volume, due to the increase in the euro deposits with super short maturity from 1 day to one month. The same month recorded the lowest average interest rate for deposits in EUR (-0.26%), because the rate for deposits with maturity range of 1 day to 1 month was -0.44%.



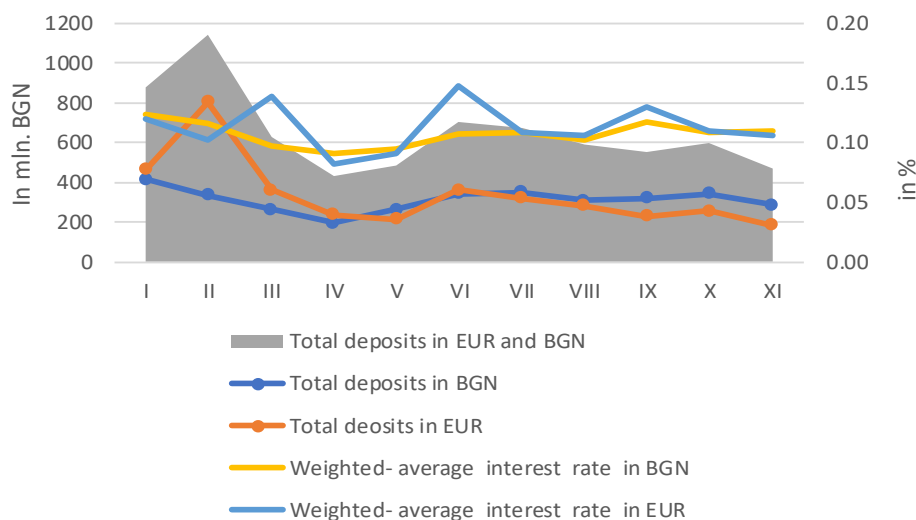
Source: own calculations, Bulgarian National Bank (2020).

**Figure 5:** Interest rates and volumes on new deposits of non-financial corporations in Bulgaria for 2020

These findings are controversial; the theoretical assumption is that lower interest rate on deposits would imply a lower volume of deposits.

Whilst we observed a significant change in interest rates on deposits for non-financial corporations, those for households showed more stability, no negative

values were observed, and the interest rate on euro deposits was higher than that for BGN (figure 6).



Source: own calculations, Bulgarian National Bank (2020).

**Figure 6:** Interest rates and volumes on new deposits of households in Bulgaria for 2020

Although in Bulgaria negative interest rates have existed since 2016, no negative rates on deposits for households have been observed, which could be explained by the psychological zero lower bound to exist in Bulgaria for households' deposits, and, also banks could be afraid to cross that border on a country level not to lose liquidity (Miteva, 2020).

For a long time, deposit volumes did not respond to decreases in interest rates – cash funds are kept with banks as banks are now providing full monetary and payment services and are the main lending party on the market with highest consumer credibility, which inclines people to use banks not so much for savings but as intermediary agents who provide them with all types of financial services that they need (Miteva, 2020). Moreover, since most of the payment and transactions are now being done through electronic transfers or bank transfers this encourages depositors to keep their funds in banks even if they do not receive any interest.

The volatility of the interest rates on deposits for households, calculated as the share of standard deviation to the mean of the monthly values for 2020, is much lower than that for deposits for non-financial corporations. The total amount of new household deposits dropped significantly after the beginning of the pandemic mainly due to a drop in euro deposits volumes.



If we observe the data for the monetary aggregates (BNB, 2020) for 2020 it is noticed that money supply (M3) grows, but this effect is due to M1 which increases steadily the whole 2020 by 0,5 to 1,5 bln. BGN every month where the increase in December in comparison to November is by 3.1 bln. BGN or 3.9%. There is also an increase in the currency outside the monetary and financial institutions but the increase in overnight deposits is much higher.

The data do not show any indications that the decrease in interest rates leads to the expected decrease in the deposit volumes, but in fact the contrary.

### **Inflation, debt and other interest rates in the EU**

The overall inflation rate in the Euro area for 2020 was decreasing constantly; as of December, 2020 it is -0.3% (ECB, 2021). The figures show that ECB did not succeed in reaching its target goal of 2% annual inflation for any one period. This could indicate that monetary policy is failing.

Inflation in Bulgaria follows the common negative trend of Euro Area countries; from 3% in January 2020 fell to 0% in December, 2020 (ECB, 2021). Central and East European countries (Poland, Romania, Hungary, Czech Republic, Slovakia) on the other hand recorded much higher inflation – most with levels between 1.5 and 3%,. Only Poland and Hungary reported inflation rate increases throughout 2020.

The composite cost of borrowing for both households and non-financial corporations on new business in the Euro area shows a constant decrease for the last year. For households borrowing for house purchase the interest rate dropped from 1.47% in November 2019 to 1.35% a year later, respectively for non-financial corporations it dropped from 1.55% to 1.50% for the same period (ECB, 2021).

Households seemed to become further indebted as the debt to income ratio for the Euro Area rose from 93.62% for the first quarter of 2020 to 95.76% for the 3<sup>rd</sup> quarter.

Long term interest rate for convergence purposes in the EU continues to fall, where for highest rated government bonds it was negative for all maturities. Bulgaria also recorded a continual decrease in long term interest rates on government debt for 2020, except for June, 2020 when there is a sharp increase.

### **Conclusions**

This paper's purpose is to review interest rates on new loans and deposits in Bulgaria for 2020 with specific references to the beginning of COVID-19 pandemic. Also a brief review of other interest rates in the EU is provided. Results of this review show that the COVID-19 pandemic did impact interest rates in Bulgaria and EU. Especially, the first three months of the pandemic (March, April and May),

recorded lower loans volumes both for households and non-financial corporations. In Bulgaria, the volatility of interest rates for non-financial corporations was much higher than those for households. Another specific feature is the significant difference between interest rates on local currency consumer loans and loans in euro, where the borrowers chose the local currency although it was more expensive, which is a sign for distrust in the euro among Bulgarian households. The volatility of interest rates in euro for non-financial corporations is much higher than that of BGN rates. Non-financial corporation's deposit interest rates were observed as negative for both euro and BGN currency, while households rates stayed positive.

All interest rates in the EU seemed to decrease, including inflation rate and long-term government debt yields and indebtedness of the EU citizens increased.

The COVID-19 pandemic is a big challenge for policy makers, governments and whole societies, with lots of negative implications for the economy and financial market.

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Appendix 1. Data for loans to households in Bulgaria for 2020

	Consumer loans BGN				EUR				Mortgage loans BGN				EUR			
	up to 1 year	volume in DGN over 5 years	volume in DGN over 5 years	up to 1 year	volume in DGN over 5 years	up to 1 year	volume in DGN over 5 years	Volume in up to 1 year DGN	volume in DGN over 5 years	Volume in up to 1 year DGN	volume in DGN over 5 years	Volume in up to 1 year DGN	volume in DGN over 5 years	Volume in up to 1 year DGN	volume in DGN over 5 years	
2020 I	473.8	19.2	125.6	329.1	3.4	0	0.7	2.7	278.7	-	2	23.3	253.4	17.1	1.5	
2020 II	510	18.3	126.9	361.8	5.2	0	0.8	4.4	321.3	-	3	26.6	291.7	23.4	0.8	
2020 III	438.6	14.2	103.8	320.6	3.3	0	0.7	2.6	219.3	-	1.7	21.8	295.7	18.3	0.3	
2020 IV	219	11.1	62.5	145.3	1.4	-	0	1.4	260.9	0	5.9	16.1	238.9	12.7	1.3	
2020 V	270.8	14.6	89.4	166.8	2.6	-	0.1	2.4	188.8	-	2.1	15	171.6	9.9	0.7	
2020 VI	480.3	19	148.3	313	6	-	1.8	4.2	297.4	0	1.7	15.1	280.6	15.5	0	
2020 VII	500	20.6	141.2	338.1	6.5	0.1	2.1	4.3	311.7	-	1.8	16.8	293.1	19.3	0.3	
2020 VIII	458.8	18.4	125.9	314.5	7.7	0	3	4.7	288.6	-	1.7	14.8	282.2	21.4	0.5	
2020 IX	488.8	18.6	124.1	326.1	6.2	0.1	0.4	5.7	325.2	-	1.5	18.1	305.5	22.1	1.7	
2020 X	482.7	20.2	129	333.5	5.7	0.1	0.5	5	355.4	-	1.5	18.1	335.8	18.7	0.4	
2020 XI	415.7	22.1	103.9	289.7	4.5	0	0.3	4.2	359.2	0.1	1.5	21.7	335.9	16.7	0.2	

	Consumer loans interest rates				Mortgage loans interest rates								
	up to 1 year	Interest 5 years in DGN	up to 1 year	Interest 5 years in EUR	% in DGN	up to 1 year	% in EUR	% in DGN	up to 1 year	% in EUR	% in DGN	up to 1 year	% in EUR
2020 I	8.34	21.13	12.4	6.04	4.32	7.16	4.3	4.31	2.97	3.65	3.18	2.93	2.97
2020 II	7.92	19.88	11.95	5.91	3.91	7.04	4.91	3.73	2.97	3.5	3.05	2.97	2.97
2020 III	7.66	21.08	11.72	5.75	4.43	10.91	4.26	4.47	2.81	3.03	3.03	2.89	3.48
2020 IV	9.72	25.87	15.83	5.85	3.79	-	3.4	3.8	2.85	3.04	3.11	2.95	2.84
2020 V	8.43	24.22	11.01	5.66	3.19	-	3.17	3.19	2.85	-	3.26	2.87	2.85
2020 VI	7.65	23.02	9.84	5.63	3.36	-	3.11	3.17	2.91	1.83	3.25	3.16	2.89
2020 VII	7.79	22.61	10.64	5.7	3.91	6.01	3.12	4.09	2.89	-	3.24	2.95	2.88
2020 VIII	7.71	22.86	10.71	5.62	3.1	2.36	3.09	3.12	2.88	-	3.03	3.02	2.88
2020 IX	7.67	24.9	11.42	5.54	3.66	-	4	3.59	2.87	-	3.15	3.04	2.86
2020 X	7.79	23.09	11.12	5.53	3.55	4.65	4.02	3.47	2.86	-	3.18	3.01	2.85
2020 XI	8.61	24.82	13.78	5.52	3.55	7.02	4.66	3.44	2.83	3.05	3.33	2.92	2.82

\*The latest data by the time of preparing this study was for November, 2020.

## Appendix 2. Data for loans to non-financial corporations in Bulgaria for 2020

New Loans to non-financial corporations in mln. BGN

	BGN				EUR			
Month	Total volume	up to 1 year	1 to 5 years	over 5 years	Total volume	up to 1 year	1 to 5 years	over 5 years
I	760.5	141.6	238.8	380.1	467.1	41.0	81.7	344.4
II	849.4	124.4	365.9	359.0	512.7	46.2	72.9	393.6
III	1085.0	217.6	335.7	531.7	689.3	178.4	139.5	371.4
IV	545.9	118.6	175.2	252.1	454.5	168.4	28.1	258.0
V	594.4	112.8	203.8	277.8	470.8	91.9	61.0	317.9
VI	965.4	151.6	382.5	431.3	888.3	71.5	228.9	587.9
VII	1006.8	159.9	442.3	404.6	598.9	54.3	70.7	473.9
VIII	757.7	215.0	296.9	245.8	590.1	30.4	125.0	434.8
IX	653.7	117.0	235.7	301.0	528.1	38.3	181.3	308.5
X	612.6	115.0	217.9	279.7	555.3	67.9	130.7	356.7
XI	659.9	124.0	178.8	357.1	748.7	57.1	114.5	577.0
St.Dev.	173.58507	36.591	86.4	83.4	129	48.4	55.2	102
Mean	771.9	145.2	279.4	347.3	591.2	76.9	112.2	402.2
Share of St. Dev.	22%	25%	31%	24%	22%	63%	49%	25%
								20%

Interest rater on new loans to non-financial corporations

	Average %	up to 1 year (%)	1 to 5 years (%)	over 5 years (%)	Average %	up to 1 year (%)	1 to 5 years (%)	over 5 years (%)
Month								
I	3.01	3.23	3.10	2.87	2.68	1.97	3.20	2.65
II	2.97	3.20	3.03	2.83	2.36	1.56	2.87	2.36
III	3.14	3.26	3.13	3.09	2.32	0.53	2.72	3.04
IV	2.94	3.10	3.05	2.78	1.98	0.85	2.75	2.63
V	2.92	3.08	3.07	2.75	2.28	1.19	3.39	2.38
VI	2.75	3.35	2.89	2.42	2.20	0.67	1.64	2.60
VII	2.98	3.34	2.82	3.01	2.42	1.05	2.42	2.58
VIII	2.88	3.41	2.73	2.59	2.67	2.98	3.15	2.50
IX	2.80	2.83	2.66	2.89	2.26	0.69	2.62	2.25
X	2.89	3.38	2.83	2.74	2.38	1.13	2.12	2.71
XI	2.81	3.11	2.94	2.64	2.47	1.18	2.06	2.68
St.Dev.	0.1045359	0.1635	0.15	0.18	0.19	0.67	0.51	0.2
Mean	2.9	3.2	2.9	2.8	2.4	1.3	2.6	2.6
Share of St. Dev.	4%	5%	5%	7%	8%	54%	19%	8%

	Total amount of loans	Share of euro loans
I	1227.547	38%
II	1362.085	38%
III	1774.287	39%
IV	1000.407	45%
V	1065.178	44%
VI	1853.661	48%
VII	1605.634	37%
VIII	1347.824	44%
IX	1181.830	45%
X	1167.876	48%
XI	1408.510	53%
Average	136317%	44%