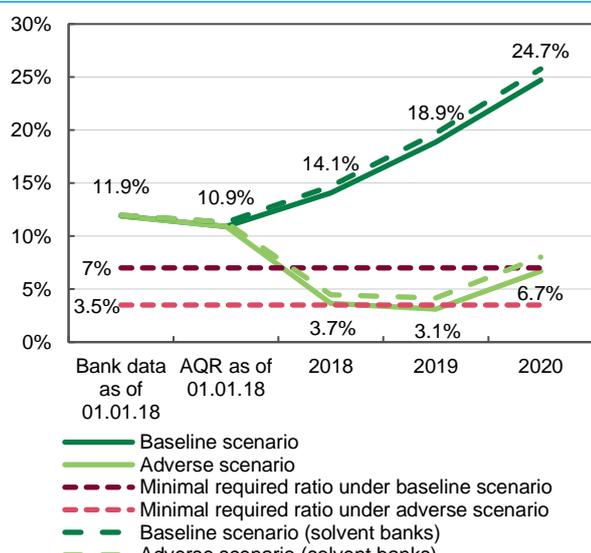


In 2018, the NBU stress tested the largest Ukrainian banks. The test's general principles and findings are outlined in the Special Focus material "Stress Tests of Ukrainian Banks" of the December 2018 [Financial Stability Report](#). This report presents individual stress test results for banks. Most of the banks that were found to be in need of capital had already taken action to cover their needs in part or in full. Capital needs were mainly determined on the basis of an adverse macroeconomic scenario and are to be fully met by the end of 2019. The NBU will continue to review the quality of banks' assets and stress test the largest banks, in order to identify systemic risks to the banks' capital.

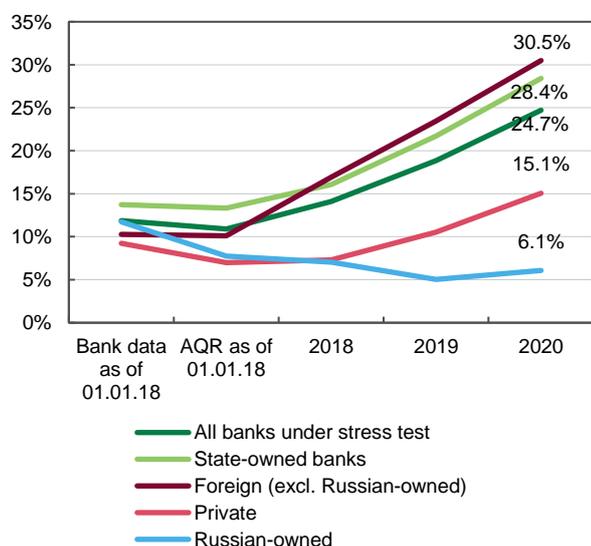
Figure 1. Weighted average estimates of the core capital adequacy ratio under stress test*



* Weighted by risk-weighted assets for each year.

Source: NBU.

Figure 2. Weighted average estimates of the core capital adequacy ratio under baseline scenario (by bank groups)



Source: NBU.

Stress test covered 24 banks that account combined for over 94% of the banking sector's assets. Stress test results under baseline and adverse scenarios are not projections of financial indicators. The scenarios were designed so as to determine how major risks would affect a bank's performance, given its current standing.

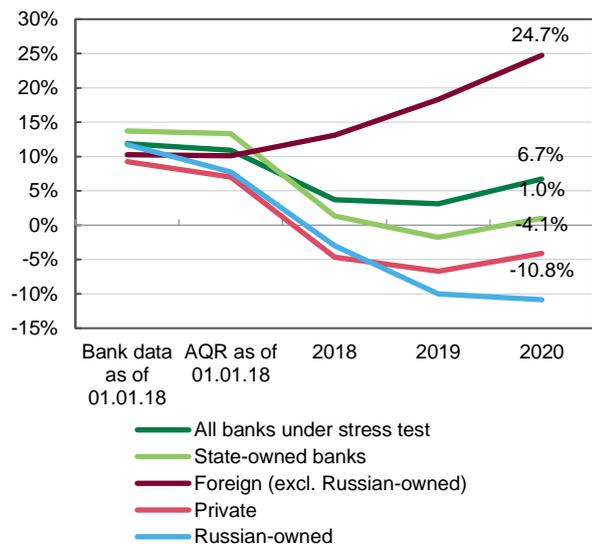
Stress test findings should be interpreted with certain caution, and only within the framework of the key assumptions underlying the stress test model. The first assumption was that the balance sheets of banks were static, and as such were only affected by changes in asset quality and exchange rates. In practice, some banks are growing rather dynamically, thus their balance sheets are already significantly different from those on the stress test date. The second assumption was that current profit was capitalized throughout the entire forecast period. In practice, banks often decide to distribute profit among their shareholders.

On average, under the baseline scenario, core capital adequacy increases during the forecast period by about 13 pp, to 24.7%. Eight banks were found to be in need of capital to meet the minimum capital adequacy ratio in the first year of the baseline scenario. One of these banks – VTB Bank – was declared insolvent in November. Most banks were found able to generate sufficient profit over the forecast period, and their capital was to grow.

Stress test results vary for different bank groups. An asset quality review (AQR) revealed drops in the core capital adequacy ratio only for private and Russian-owned banks. Under the baseline scenario, the core capital adequacy increased for almost all bank groups, although the rates of increase were different. The core capital adequacy of foreign-owned banks increased the most. Only Russian-owned banks saw their core capital adequacy ratios drop below the 7% threshold.

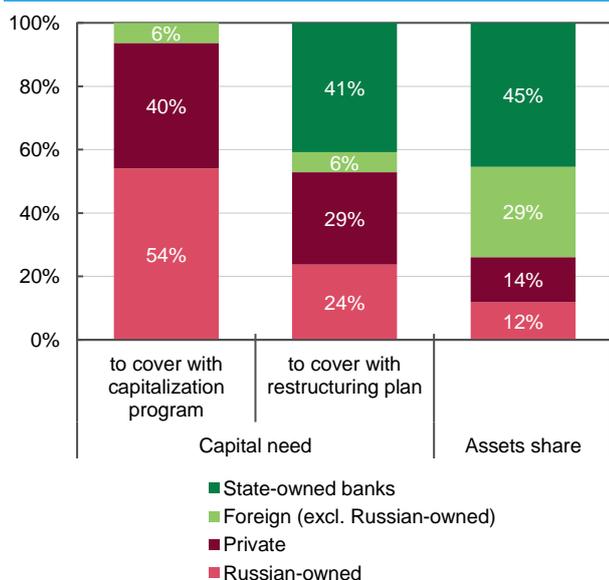
Under the adverse scenario, the capital of almost half of the banks fell below the required minimum. It is estimated that the total cumulative impact of a hypothetical crisis would lead

Figure 3. Weighted average estimates of the core capital adequacy ratio under adverse scenario (by bank groups)



Source: NBU.

Figure 4. Capital need by bank groups



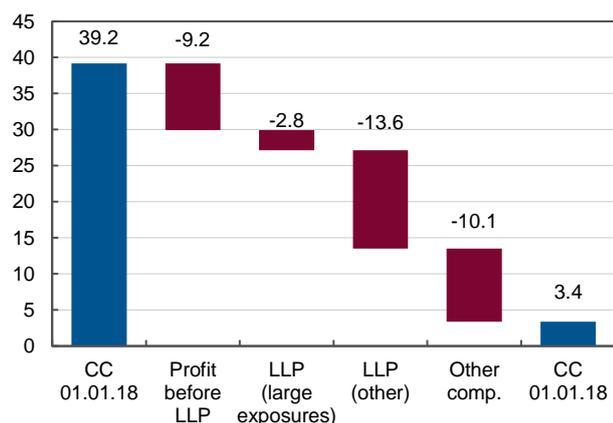
Source: NBU.

to a drop of about 9 pp in the core capital adequacy ratio, to 3.1% over the three-year forecast period.

Under the adverse scenario, core capital decreased for all bank groups, apart from foreign-owned banks. As expected, the sharpest fall in capital occurred during the first year of the stress test forecast period. Capital recovered slightly only during the third year of stress. The extent to which capital falls in a hypothetical crisis is almost identical for state-owned and private banks. State-owned banks retain on average positive capital figures, due to their larger initial capital. Meanwhile, the average adequacy ratio of private banks turns negative (equaling 6% of the core capital adequacy ratio).

Capital needs (shortages) arise when estimated ratios fall below the set thresholds of 7% for the baseline, and 3.5% for the adverse scenario – for at least one year during the forecast horizon. The banks must meet the capital needs that arise during the first year under the baseline scenario by implementing capitalization programs by the end of March 2019. The capital needs that arise under the adverse scenario must be met through the implementation of restructuring plans by the end of 2019. Total capital needs equal UAH 42.1 billion, including UAH 34.7 billion for solvent banks, of which UAH 2.8 billion is to be raised through capitalization programs. The NBU has verified and approved measures by the banks that raise their capital by UAH 15 billion. Some measures taken by the banks in late 2018 will be acknowledged once their impact on capital is verified.

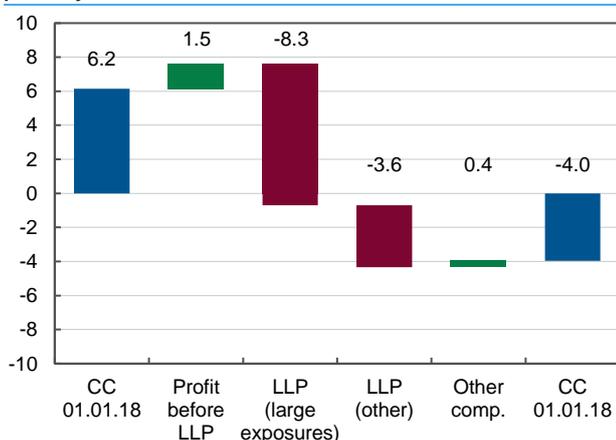
Figure 5. Factors driving change in the core capital (CC) of state-owned banks under adverse scenario, UAH billion



* Other components impact includes reclassification of the core capital items to additional capital.

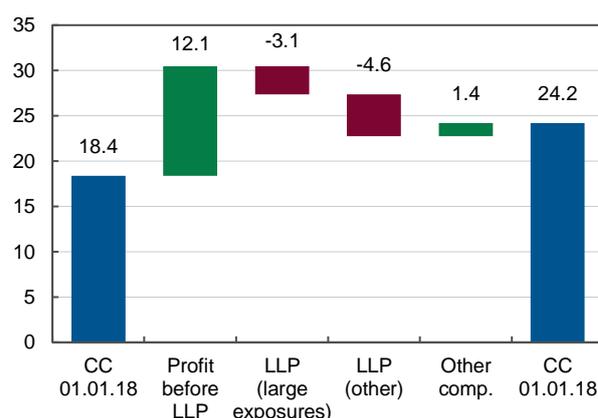
Source: NBU.

Figure 7. Factors driving change in the core capital (CC) of privately owned banks under adverse scenario, UAH billion



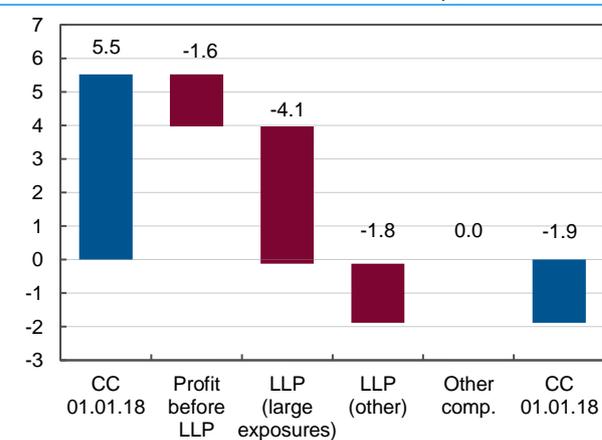
Source: NBU.

Figure 6. Factors driving change in the core capital (CC) of foreign banks under adverse scenario, UAH billion



Source: NBU.

Figure 8. Factors driving change in the core capital (CC) of Russian-owned banks under adverse scenario, UAH billion



Source: NBU.

Table 1. Weighted average estimates of the capital adequacy ratios under stress test

Indicator	Bank data as of 01.01.18	AQR as of 01.01.18	Baseline scenario			Adverse scenario		
			1 st	2 nd	3 rd	1 st	2 nd	3 rd
			forecast year			прогнозний рік		
Regulatory CAR	15.5%	14.4%	17.8%	22.2%	27.9%	5.3%	4.2%	8.7%
Core capital adequacy ratio	11.9%	10.9%	14.1%	18.9%	24.7%	3.7%	3.1%	6.7%
Change in Regulatory CAR comparing to bank data as of 01.01.18, p. p.	0.0	-1.2	2.2	6.7	12.3	-10.2	-11.4	-6.9
Change in core capital adequacy ratio comparing to bank data as of 01.01.18, p. p.	0.0	-1.0	2.2	7.0	12.8	-8.2	-8.7	-5.2

Source: NBU.

Stress test results by banks

Table 2. Core capital of Ukraine's banks under the stress test, UAH million

Bank	Bank data as of 01.01.18	AQR as of 01.01.18	Baseline scenario			Adverse scenario		
			2018	2019	2020	2018	2019	2020
A-Bank	356	308	1 046	1 673	2 295	734	1 097	1 657
Alfa-Bank	2 725	2 439	2 448	3 393	4 918	-881	-1 192	-103
Bank for Investments and Savings	531	-92	-127	-144	-112	-696	-855	-943
Vostok	448	448	496	540	592	161	27	-43
VTB	995	-1 447	-2 533	-3 506	-4 427	-4 243	-5 880	-7 333
Idea Bank	218	218	899	1 468	2 061	814	1 220	1 743
Kredyt Dnipro	802	640	-271	-646	-991	-1 226	-1 978	-2 621
Credit Agricole Bank	1 910	1 910	3 571	4 987	6 477	3 154	4 358	5 723
Kredobank	880	883	1 769	2 306	2 896	1 490	1 957	2 576
Megabank	511	356	-264	-607	-626	-1 206	-2 163	-2 395
OTP Bank	2 444	2 444	4 352	5 567	6 857	3 189	4 032	5 178
Oschadbank	10 344	9 122	12 640	14 411	18 192	1 064	-3 807	-3 663
Pivdennyi	1 742	1 742	1 843	1 983	2 471	-611	-1 319	-1 105
Privatbank	17 889	19 400	17 800	27 420	38 298	4 848	4 445	9 611
Procredit	1 509	1 509	2 810	3 766	4 741	2 401	3 226	4 137
Prominvestbank	3 139	2 236	1 565	1 298	1 314	483	-121	-135
FUIB	2 799	2 256	2 189	4 108	6 447	-1 300	-835	1 092
Raiffeisen Bank Aval	5 139	5 139	9 741	14 838	19 941	9 332	14 368	19 658
Sberbank	4 740	4 735	5 729	5 539	7 162	1 880	65	1 079
Taskombank	735	735	1 382	1 969	2 579	813	1 101	1 568
Ukrgasbank	5 143	5 068	5 620	7 021	8 526	3 046	3 134	4 105
Ukreximbank	6 223	5 590	7 119	9 328	11 673	-5 557	-8 130	-7 567
Ukrsibbank	3 840	3 840	4 870	6 109	7 406	4 691	5 961	7 386
Universal	413	-247	-229	-189	-149	-631	-736	-761

Source: NBU.

Table 3. Regulatory capital of Ukraine's banks under the stress test, UAH million

Bank	Bank data as of 01.01.18	AQR as of 01.01.18	Baseline scenario			Adverse scenario		
			2018	2019	2020	2018	2019	2018
A-Bank	454	349	1 047	1 674	2 297	736	1 099	1 659
Alfa-Bank	4 269	3 935	3 969	4 944	6 189	-881	-1 192	-104
Bank for Investments and Savings	560	-92	-127	-144	-112	-696	-855	-943
Vostok	660	616	562	601	652	244	53	-43
VTB	1 057	-1 447	-2 533	-3 506	-4 427	-4 243	-5 880	-7 333
Idea Bank	436	436	996	1 549	2 125	931	1 320	1 823
Kredyt Dnipro	898	736	-271	-647	-991	-1 226	-1 979	-2 621
Credit Agricole Bank	3 670	3 526	4 545	5 815	7 090	4 421	5 490	6 595
Kredobank	1 411	1 392	1 878	2 415	3 005	1 602	2 069	2 687
Megabank	675	521	-264	-607	-626	-1 206	-2 163	-2 395
OTP Bank	3 234	3 287	4 352	5 567	6 857	3 189	4 032	5 178
Oschadbank	14 055	12 833	16 401	18 232	21 453	2 072	-3 865	-3 720
Pivdennyi	2 102	1 996	1 947	2 066	2 533	-654	-1 361	-1 147
Privatbank	17 569	19 366	26 760	36 379	47 258	9 263	8 456	18 570
Procredit	1 944	1 918	2 810	3 766	4 741	2 401	3 226	4 137
Prominvestbank	3 946	2 997	2 327	2 060	2 076	965	-122	-136
FUIB	3 519	2 977	2 813	4 636	6 878	-1 307	-842	1 523
Raiffeisen Bank Aval	9 488	9 322	10 159	15 255	20 358	9 754	14 790	20 080
Sberbank	5 361	4 852	5 846	5 656	7 279	1 996	129	1 195
Taskombank	1 213	1 179	1 740	2 333	2 946	1 257	1 572	2 060
Ukrgasbank	5 310	5 229	5 767	7 167	8 673	3 198	3 287	4 258
Ukreximbank	10 360	9 434	11 088	12 643	14 282	-5 563	-8 135	-7 573
Ukrsibbank	6 231	6 170	5 303	5 913	7 149	5 333	5 787	7 129
Universal	413	-247	-229	-189	-149	-631	-736	-761

Source: NBU.

Table 4. Core capital adequacy ratio of Ukraine's banks under the stress test, %

Bank	Bank data as of 01.01.18	AQR as of 01.01.18	Baseline scenario			Adverse scenario		
			2018	2019	2020	2018	2019	2018
A-Bank	10.7	9.1	27.9	44.2	60.7	20.5	30.8	44.9
Alfa-Bank	6.7	6.0	6.6	9.1	13.1	-2.2	-3.0	-0.3
Bank for Investments and Savings	18.0	-4.0	-5.8	-6.7	-5.1	-33.5	-41.2	-45.8
Vostok	8.4	8.5	9.5	10.3	11.2	2.8	0.5	-0.7
VTB	7.8	-14.9	-32.7	-46.5	-59.4	-93.4	-163.2	-255.2
Idea Bank	7.7	7.6	31.4	51.2	71.8	28.4	43.0	60.3
Kredyt Dnipro	11.4	9.3	-4.8	-11.5	-17.6	-22.3	-36.1	-47.9
Credit Agricole Bank	10.1	10.1	17.5	24.4	31.6	15.5	21.4	27.9
Kredobank	9.8	9.9	19.7	25.5	32.0	16.2	21.1	27.2
Megabank	6.6	4.7	-3.7	-8.8	-8.9	-16.4	-31.0	-33.7
OTP Bank	11.8	11.7	20.9	26.6	32.7	15.7	19.9	25.5
Oschadbank	13.8	12.3	16.9	19.6	24.3	1.6	-6.1	-6.0
Pivdennyi	8.6	8.6	9.3	10.1	12.5	-2.9	-6.2	-5.1
Privatbank	17.6	18.0	21.4	33.1	46.1	6.7	6.4	13.8
Procredit	11.2	11.2	20.8	27.7	34.7	16.9	22.4	28.3
Prominvestbank	12.5	9.2	6.9	5.7	5.8	2.4	-0.6	-0.7
FUIB	9.4	7.7	8.3	15.7	24.5	-4.9	-3.2	4.2
Raiffeisen Bank Aval	10.6	10.6	20.0	30.2	40.5	18.3	27.9	37.7
Sberbank	12.5	12.6	15.4	15.4	19.7	4.9	0.2	3.0
Taskombank	6.9	6.9	12.9	18.2	23.7	7.1	9.5	13.3
Ukrgasbank	13.5	13.4	15.1	18.8	22.8	7.8	7.9	10.2
Ukreximbank	8.4	7.5	9.6	12.6	15.7	-7.5	-10.9	-10.1
Ukrsibbank	14.0	13.8	17.8	22.2	27.0	17.2	21.8	27.0
Universal	14.6	-11.1	-10.6	-8.8	-7.1	-31.3	-38.5	-41.3

Source: NBU.

Table 5. Regulatory capital adequacy ratio of Ukraine's banks under the stress test, %

Bank	Bank data as of 01.01.18	AQR as of 01.01.18	Baseline scenario			Adverse scenario		
			2018	2019	2020	2018	2019	2018
A-Bank	13.6	10.3	27.9	44.2	60.7	20.5	30.9	44.9
Alfa-Bank	10.6	9.8	10.6	13.3	16.5	-2.2	-3.0	-0.3
Bank for Investments and Savings	19.0	-4.0	-5.8	-6.7	-5.1	-33.5	-41.2	-45.8
Vostok	12.4	11.6	10.8	11.4	12.3	4.2	0.9	-0.7
VTB	8.3	-14.9	-32.7	-46.5	-59.4	-93.4	-163.2	-255.2
Idea Bank	15.4	15.2	34.7	54.0	74.1	32.5	46.5	63.1
Kredyt Dnipro	12.8	10.7	-4.8	-11.5	-17.6	-22.3	-36.1	-48.0
Credit Agricole Bank	19.4	18.6	22.3	28.4	34.5	21.7	26.9	32.2
Kredobank	15.7	15.5	20.9	26.7	33.2	17.4	22.3	28.4
Megabank	8.7	6.9	-3.7	-8.8	-8.9	-16.4	-31.0	-33.7
OTP Bank	15.7	15.8	20.9	26.6	32.7	15.7	19.9	25.5
Oschadbank	18.8	17.3	22.0	24.8	28.6	3.1	-6.1	-6.1
Pivdennyi	10.4	9.9	9.8	10.5	12.8	-3.1	-6.4	-5.3
Privatbank	17.3	18.0	32.2	43.9	56.9	12.8	12.1	26.6
Procredit	14.4	14.2	20.8	27.7	34.7	16.9	22.4	28.3
Prominvestbank	15.8	12.4	10.3	9.1	9.1	4.7	-0.6	-0.7
FUIB	11.8	10.2	10.7	17.7	26.1	-4.9	-3.3	5.8
Raiffeisen Bank Aval	19.5	19.1	20.8	31.1	41.4	19.2	28.8	38.5
Sberbank	14.2	12.9	15.7	15.8	20.0	5.2	0.4	3.3
Taskombank	11.3	11.0	16.2	21.5	27.1	11.0	13.5	17.4
Ukrgasbank	14.0	13.8	15.5	19.2	23.2	8.2	8.3	10.6
Ukreximbank	13.9	12.7	15.0	17.1	19.2	-7.5	-10.9	-10.1
Ukrsibbank	22.7	22.2	19.3	21.5	26.0	19.5	21.2	26.0
Universal	14.6	-11.1	-10.6	-8.8	-7.1	-31.3	-38.5	-41.3

Source: NBU.

Table 6. Capital need under stress test, UAH million

Bank	Total	Capital need to be covered with:			
		capitalization program till 01.04.2019		restructuring plan till 31.12.2019	
		total	after measures taken by bank	total	after measures taken by bank
A-Bank	0	0	0	0	0
Alfa-Bank	2 697	387	0	2 697	1 051
Bank for Investments and Savings	1 046	345	0	1 046	1 046
Vostok	294	0	0	294	0
VTB	7 451	3 283	insolvent	7 451	insolvent
Idea Bank	0	0	0	0	0
Kredyt Dnipro	2 846	739	0	2 846	2 078
Credit Agricole Bank	0	0	0	0	0
Kredobank	0	0	0	0	0
Megabank	2 688	840	611	2 688	2 266
OTP Bank	0	0	0	0	0
Oschadbank	6 209	0	0	6 209	1 558
Pivdennyi	2 281	33	0	2 281	169
Privatbank	0	0	0	0	0
Procredit	0	0	0	0	0
Prominvestbank	946	24	0	946	599
FUIB	2 231	0	0	2 231	0
Raiffeisen Bank Aval	0	0	0	0	0
Sberbank	1 631	0	0	1 631	0
Taskombank	0	0	0	0	0
Ukrgasbank	0	0	0	0	0
Ukreximbank	10 973	0	0	10 973	10 973
Ukrsibbank	0	0	0	0	0
Universal	853	470	0	853	0
Total	42 146	6 120	611	42 146	19 739

Source: NBU.