

Banking Sector Review

August 2020

Since March, the COVID-19 pandemic and related quarantine restrictions have kept the banking sector under strain. Falling loan demand led to both the corporate and retail loan portfolios contracting in Q2, with retail loans registering their first drop since the beginning of 2017. Stability of the deposit base enabled banks to proceed with cutting rates on hryvnia deposits, which was facilitated by two key policy rate cuts during the quarter. Growth in hryvnia retail deposits accelerated compared to last year, in sharp contrast to past crisis episodes. With elevated uncertainty, the bulk of this growth was in demand deposits. Operating efficiency has seen no substantial deterioration thus far, even though net interest income stopped growing and fee and commission income fell. A jump in provisioning compared to last year sharply reduced sector profitability. Monthly data suggest that banks will continue to improve their operating indicators. However, it will be possible to make a reliable estimate of losses stemming from loan portfolio quality deterioration only toward the end of the year.

Sector Structure

During Q2, the sector's all 75 banks operated in the normal course of business. State-owned banks increased their share of net assets and retail deposits by 0.1 pp and 0.3 pp, to 54.3% and 61.0%, respectively. The top 20 banks saw their net asset share dip by 0.2 pp, to 92.0%.

Assets

Total net assets grew by 1.6%¹ in Q2. However, recalculated based on the exchange rate at the start of Q2, net assets were up 3.4%. Domestic² government debt securities as a share of total assets grew by 4.9 pp to 29.8%. State-owned banks, including Privatbank, accounted for three quarters of the increase in nominal terms. Coupled with a drop in lending, this resulted in loans as a share of net assets falling by 3.1 pp, to 34.6%.

The net corporate portfolio fell by 6.3%¹ qoq in hryvnia and 3.6% qoq in foreign currency (USD equivalent). A substantial reduction in loans came from subsidiaries of international groups, which was caused in part by agricultural sector seasonality. Hryvnia loans at foreign banks fell the most, by 10.3% qoq. Private banks were the only group to increase their portfolio of hryvnia corporate loans: up 2.9% in Q2.

For the first time since the start of 2017, net hryvnia retail loans decreased, down 5.0%¹ qoq (incl. -4.4% in April). This decline was primarily driven by banks making provisions while concurrently facing waning demand for loans as consumer sentiment soured. As a result, the year-on-year rate of growth in retail loans decelerated sharply to 12.9% in June from 26.6% yoy in March.

Funding

Banks' total liabilities increased by 2.5%¹ in Q2. However, based on the exchange rate at the beginning of Q2, liabilities grew by 4.9%. Deposits grew the most, to 85.4% of liabilities as of the end of Q2. Banks' liabilities to the NBU inched up by 0.1 pp in Q2, to 0.7% of total liabilities, after state-owned banks took out refinancing loans in April.

Hryvnia corporate deposits increased by $9.0\%^1$ qoq (+24.6% yoy). These deposits grew the most at Privatbank (+27.5%) and other state-owned banks (+13.2%). FX corporate deposits were up by 1%.

Hryvnia retail deposits rose by $10.9\%^1$ (+24.1% yoy) in Q2 across all bank groups, following a dip in March. State-owned banks led the way in this segment of deposits with growth of +14.5% qoq and +25.4% yoy. FX retail deposits, shrinking since April, were back on a recovery path in June, dropping by 2.4% in Q2.

The dollarization rate of retail deposits fell by 3.8 pp (to 40.7%) in Q2 as the hryvnia strengthened.

Interest rates

In Q2, the NBU cut its key policy rate twice, by 2 pp each time, trimming it to 6% per annum. As a result, interest rates on retail and corporate deposits continued to descend, as did those on corporate loans. Interest rates on 12-month hryvnia retail deposits fell by 2.3 pp in Q2, to 9.6% per annum⁴, and

The nonperforming loan ratio decreased in Q2 by 0.4 pp, to 48.5%³. State-owned banks, with the exception of Privatbank, reduced their nonperforming loans through write-offs. The NPL coverage ratio increased by 1.2 pp in Q2 (to 96.8%), reaching a new high.

¹ At banks that were solvent as of end-June 2020.

² Including revaluation.

³ All banks, including insolvent ones; excluding off-balance liabilities.

⁴ According to the Ukrainian Index of Retail Deposit Rates.

lost another 0.7 pp in the first three weeks of July. The spread between interest rates on 3-month and 12-month deposits narrowed to 0.2 pp. Interest on hryvnia corporate deposits fell to 5.2% per annum. Interest rates on hryvnia corporate loans dropped by 3.3 pp in Q2 (to 10.6% per annum), while those on hryvnia retail loans eased less (to 32.8% per annum).

Interest rates on FX deposits and loans stood at all-time lows. Rates on 12-month USD retail deposits hovered at 1.3% per annum. Interest on FX corporate loans stood below 5% per annum.

Financial Results and Capital

In Q2, the banking sector's combined profit more than halved in quarterly and annual terms, to UAH 7.7 billion (including UAH 3.6 billion earned by PrivatBank). In H1 2020, the sector's total profit fell by 23.4% yoy to UAH 23.8 billion, primarily due to provisioning, which in Q2 surged by 2.8 times qoq, to UAH 13.1 billion.Privatbank registered the highest provisioning expenses.

The economic crisis eroded the demand for banking services, with net fee and commission income declining by 1.5% yoy in Q2, its first drop in four years. Net interest income grew by a mere 3.9% yoy.

Total operating income dipped by 0.1% qoq while operating expenses grew by 2.3% qoq in Q2. As a result, net operating income fell by 2.4%, while the operating efficiency indicator worsened somewhat: CIR stood at 48.5%, up from 47.1% in Q2 2019.

The number of loss-making banks rose to 23 in Q2 2020 from 6 in 2019 and 14 in Q1 2020. In H1 2020, there were 16 loss-making banks, while 13 banks reported operating losses.

Prospects and Risks

The main challenge to banks as they struggle to remain profitable is posed by losses from the deteriorating loan portfolio quality. With ongoing uncertainty about the pace of recovery in individual sectors and the duration of loan holidays, loan losses from the crisis still cannot be estimated accurately, meaning that provisioning will remain high in Q3 and Q4.

Against the backdrop of a significant reduction in interest rates on corporate loans and slowdown in consumer lending, banks' interest income will not grow rapidly. However, gradually recovering demand and falling funding costs will enable most banks to maintain a high level of net interest income. It is also expected that fee and commission income, following a temporary drop in Q2, will begin to recover as demand for banking services picks up. Overall, the banking sector should succeed in maintaining profitability for the full year.

To facilitate effective restructurings for debtors affected by quarantine restrictions, the NBU extended its simplified credit risk assessment rules until the end of November. The NBU will continue to promote a comfortable environment to help both banks and their borrowers go through the crisis. At the same time, proper risk assessment will remain the center of attention. The NBU will review the quality of restructurings performed by banks at the beginning of next year as part of its annual bank resilience assessment.

Sector Structure

The number of operating banks remained unchanged at 75 in Q2. Total sector assets dipped by 0.2% due to the hryvnia's appreciation and a reduction in FX assets. Based on the exchange rate at the start of the year, total assets increased by 1.7%.

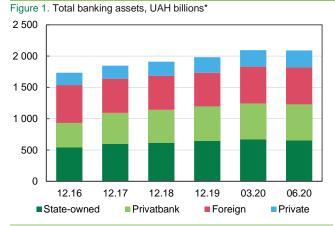
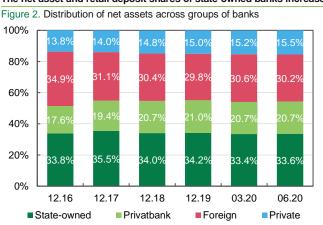


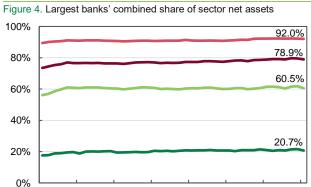
Table 1. Number of banks*					
	2016	2017	2018	2019	06.20
Solvent	96	82	77	75	75
- change	-21	-14	-4	-2	0
State-owned**	6	5	5	5	5
- change	-1	-1	0	0	0
Foreign	25	23	21	20	20
- change	0	-2	-2	-1	0
Private	65	54	51	50	50
- change	-20	-11	-2	-1	0
Insolvent	4	2	1	0	0
- change	1	-2	0	-1	0

* The numbers are provided as of the end of the respective periods. ** Including PrivatBank.

* Solvent banks were grouped in accordance with their classification in the respective reporting period.



The share of the top 20 banks dipped by 0.2 pp to 92.0% in Q2.



06.18

12.18

06.19

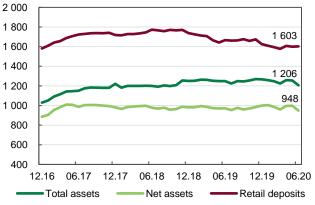
12.19

5 top banks

Top 20 banks

06.20

Figure 5. Sector concentration level based on HHI*

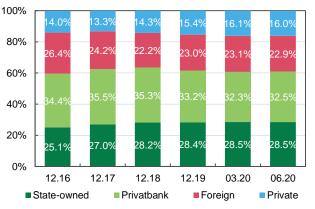


concentration. It is calculated by summing the squared market shares of individual banks. The index ranges from 0 to 10,000, with values below 1,000 indicating low market concentration.



The net asset and retail deposit shares of state-owned banks increased by 0.1 pp (to 54.3%) and 0.3 pp (to 61.0%), respectively.

Figure 3. Distribution of retail deposits across groups of banks



06.17 12.17 The largest bank

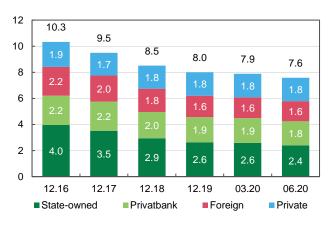
Top 10 banks

12.16

Banking Infrastructure

Banks, mostly state-owned and foreign, continued downsizing their branch networks in Q2, closing a total of 334 branches. At the same time, while private banks were opening new branches, the total number of their outlets has been virtually unchanged over the past five quarters as newly opened branches were offset by about the same number of closed outlets.

Figure 6. Number of bank structural units, thousands*



* Standalone structural units and head offices.

The coronavirus crisis reduced employment in the banking sector. Banks laid off 2,300 employees in Q2, with foreign banks leading the way. The last time banks made so many workers redundant was in 2018.

Figure 8. Bank staffing numbers, thousands of employees

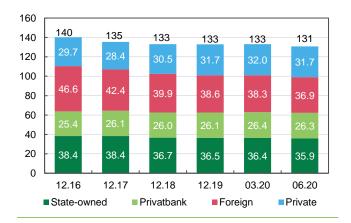
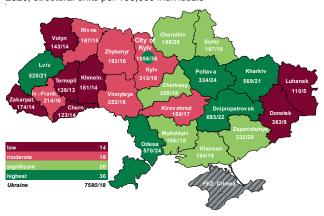
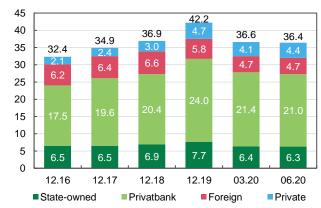


Figure 7. Operating bank structural units in selected regions as of 1 July 2020, structural units per 100,000 individuals



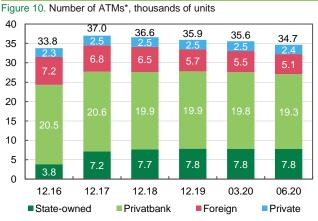
In April-June, the number of active payment cards fell across all groups of banks except private banks.

Figure 9. Number of active payment cards by bank groups, millions of

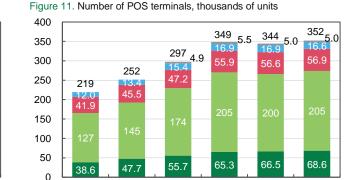


Banks' POS networks continued to expand in Q2 following a small contraction in Q1. Privatbank led with the highest increase (up 5,800 units). The number of ATMs has declined for 18 months running.

units



* Number of self-service bank machines (ATMs, deposit ATMs, selfservice kiosks).



12.18

Privatbank Foreign

12.19

03.20

Private

06.20

Ukrposhta

Figure 11. Number of POS terminals, thousands of units

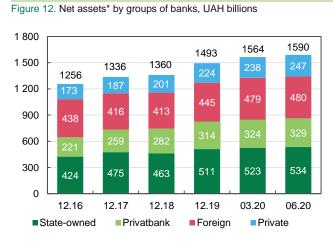
12.16

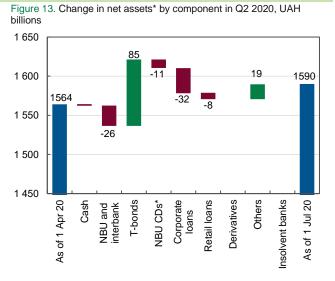
State-owned

12.17

Assets

Sector net assets grew by 1.6% in nominal terms in Q2. Recalculated based on the exchange rate at the start of Q2, net assets were up 3.4%. Investments in domestic government debt securities rose by 21.8%, or UAH 84.6 billion, with state-owned banks accounting for three quarters of this increase.

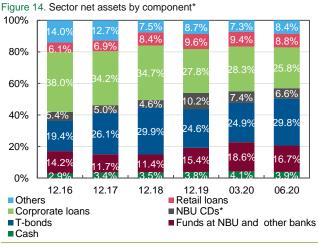




* Adjusted for loan loss allowances.

* Adjusted for loan loss provisions. CDs - certificates of deposits.

Domestic government debt securities as a share of net assets increased by 4.9 pp, to 29.8%, in Q2. The customer loan portfolio as a share of net assets dropped by 3.1 pp, to an all-time low of 34.6%, as demand for loans from businesses and households weakened.



* Adjusted for loan loss provisions. CDs - certificates of deposit.

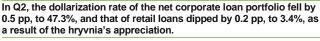


Figure 16. Share of FX loans

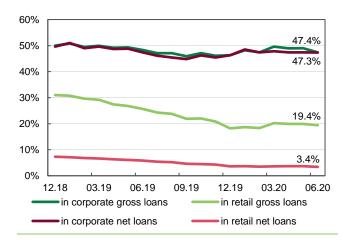
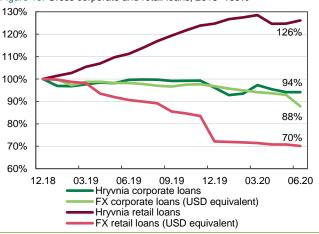


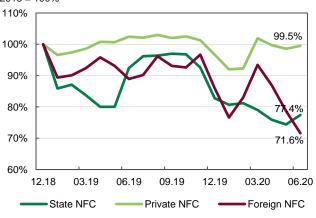
Figure 15. Gross corporate and retail loans, 2018=100%



* Issued by banks solvent as of 1 July 2020.

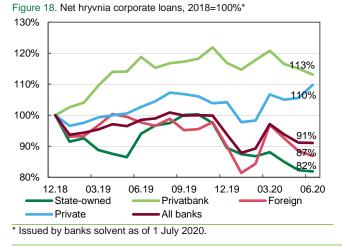
Loans to local subsidiaries of international financial and industrial groups drove the contraction in the hryvnia corporate loan portfolio in Q2.

Figure 17. Net hryvnia loans to non-financial corporations (NFCs), 2018 = 100%

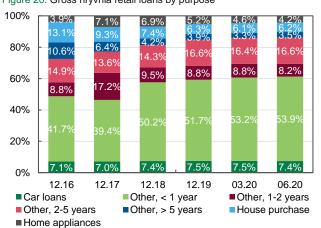


* Issued by banks solvent as of 1 July 2020.

Net hryvnia corporate loans shrank by 6.3% qoq and 7.5% yoy in Q2. Private banks were the only group to increase their portfolio of hryvnia corporate loans: up 2.9% in Q2. Net hryvnia retail loans fell by 5.0% qoq, slowing the rate of year-on-year growth to 12.9%.

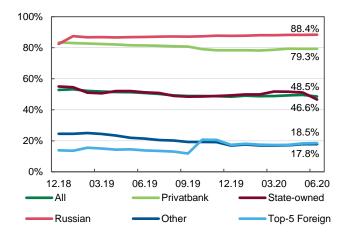


In Q2, loans financing purchases of household appliances and cars fell as a share of gross loans due to quarantine restrictions. Figure 20. Gross hryvnia retail loans by purpose



* For purchase, construction, and reconstruction of real estate (including land plots)

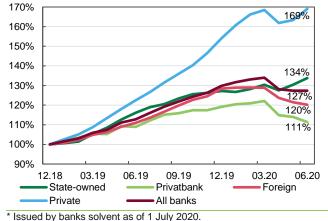
The overall NPL ratio declined by 0.4 pp in Q2, to 48.5%. State-owned banks, excluding PrivatBank, cut their NPL ratio by 5.1 pp, to 46.6%. Figure 22. NPL ratio across groups of banks*



* Including interbank loans; all banks, including insolvent institutions; excluding off-balance sheet liabilities.

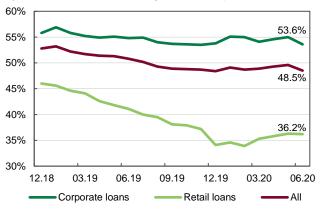
** Top-5 foreign banks by net assets as of 1 July 2020 (except banks with Russian capital).

Figure 19. Net hryvnia retail loans, 2018=100%*



The corporate NPL ratio fell by 0.5 pp, to 53.6%, while the retail NPL ratio rose by 0.9 pp, to 36.2%.

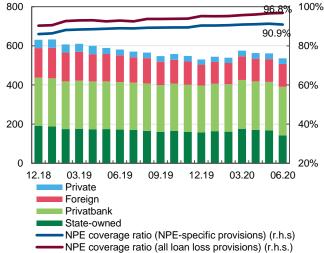
Figure 21. Share of non-performing loans in bank portfolios*



* All banks, including insolvent ones; excluding off-balance sheet liabilities. Individuals, including sole proprietors.

The NPL coverage ratio totaled 96.8% in Q2, up 1.2 pp qoq as stateowned banks wrote off NPLs.

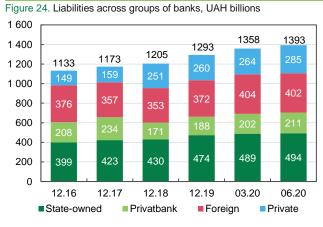
Figure 23. Non-performing exposures (NPE), in UAH billions, and provisioning

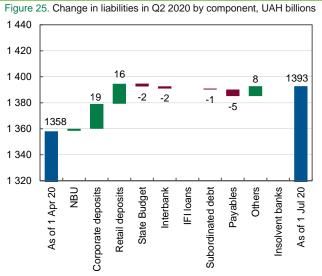


* Including interbank loans; all banks, including insolvent institutions; excluding off-balance sheet liabilities.

Funding

The sector's total liabilities rose by 2.5% in Q2, driven by growth in retail and corporate deposits. PrivatBank registered the highest growth in liabilities (+8.3% qoq).

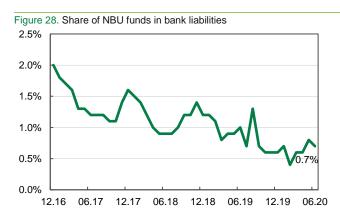




Customer funding as a share of total liabilities increased by 0.4 pp, to 85.4%, over the quarter.

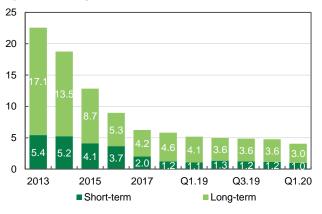
Figure 26. Breakdown of liabilities 5.5% 5.4% 6.8% 100% .6° 5.8 0.7 3.4 7.19 80% 4.99 44.9% 42.7% 60% 40.8% 42.2% 38.6% 40% 20% 0% 12.16 12.17 12.18 12.19 03.20 06.20 NBU Corporate deposits Retail deposits Interbank and IFIs Others Subordinated debt

NBU funds accounted for 0.7% of total liabilities as of the end of Q2.

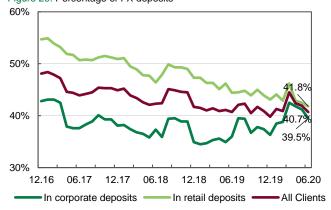


Banks' total gross external debt plunged by 15.5%, or USD 0.7 billion, in Q1, primarily due to Eurobond repayments.

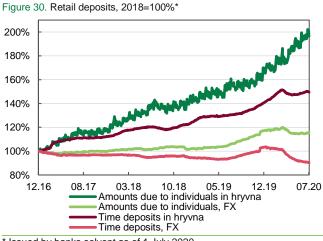
Figure 27. Banks' gross external debt, USD billions



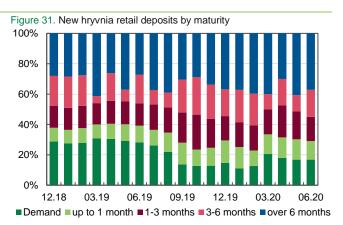
As the hryvnia strengthened, the dollarization rate of deposits declined by 3.8 pp, returning to its prior level of 40.7% in Q2. Figure 29. Percentage of FX deposits



Hryvnia retail deposits rose by 10.9% in Q2 (+24.1% yoy), with FX deposits down 2.4% (+9.3% yoy). Hryvnia time deposits almost recovered to their March pre-outflow levels.



In Q2, the share of new deposits with maturities of up to three months declined to 33.8% of total new hryvnia time deposits, down 3.4 pp.



* Issued by banks solvent as of 1 July 2020.

Hryvnia corporate deposits grew by 9.0% in Q2 (+24.6% yoy), most notably at Privatbank (+27.5% qoq and +46.7% yoy) and state-owned banks (+13.2% gog and +28.9% yoy). FX deposits rose by 1.0% (USD equivalent) in Q2, with Privatbank reporting the highest increase of 9.4%

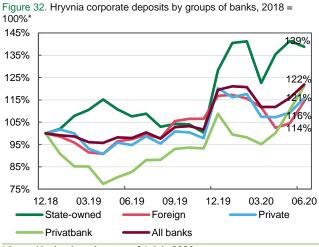
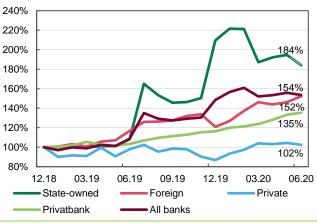


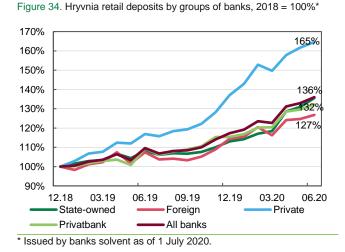
Figure 33. FX corporate deposits (USD equivalent) by groups of banks, 2018 = 100%*

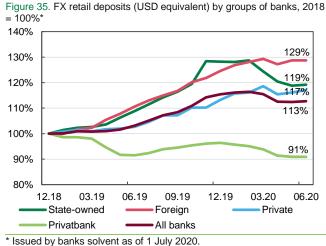




* Issued by banks solvent as of 1 July 2020.

In Q2, hryvnia retail deposits were increasing, most rapidly at state-owned banks: +14.5% over the quarter and +25.4% yoy. Total FX deposits dropped by 2.4% (USD equivalent), with all groups of banks seeing declines.





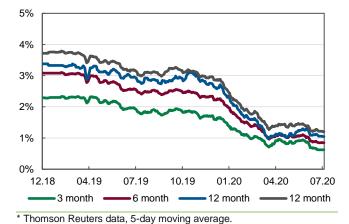
Interest Rates

Following the transition to the adaptive quarantine, interest rates on retail deposits across all terms and currencies resumed their downward slide after it slowed in late March. Interest rates on 12-month hryvnia deposits fell by 2.3 pp, to 9.6% per annum, as of late June. Rates on 12-month USD retail deposits barely changed, hovering at an all-time low of 1.3% per annum.

annum* 18% 16% 14% 12% 10% 8% 07.19 10.19 01.20 04.20 04.19 07.20 12.18 3 month 6 month 9 month 12 month

Figure 36. Ukrainian Index of Hryvnia Retail Deposit Rates*, % per

Figure 37. Ukrainian Index of USD Retail Deposit Rates, % per annum*



* Thomson Reuters data, 5-day moving average.

Responding to the NBU's key policy rate cuts, interest rates on hryvnia corporate loans trended lower in the course of Q2, falling by 3.3 pp, to 10.6% per annum, during the quarter. Interest rates on new retail deposits also dropped, down 1.2 pp, to 32.8% per annum.

Figure 38. Interest rates on new hryvnia loans*, % per annum

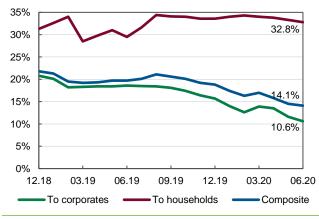
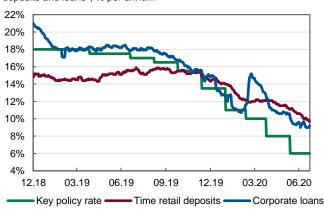


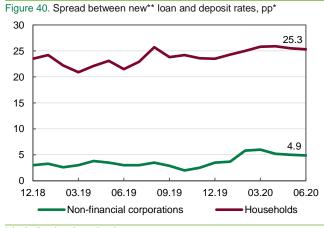
Figure 39. NBU key policy rate and interest rates on new hryvnia deposits and loans*, % per annum

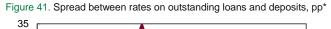


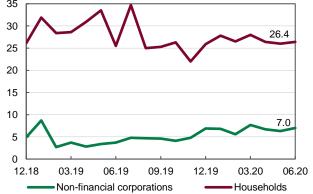
* Without loan extension or any other change in lending terms.

* Daily rates, 5-day moving average

During the quarter, spreads between loan and deposit interest rates narrowed in both the corporate and retail segments, as deposit rates were declining slower than loan rates. However, spreads in the retail segment remained wider than 20 pp.





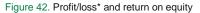


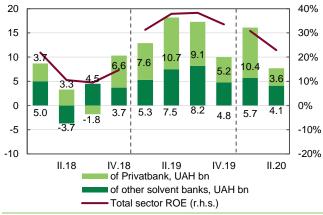
* Including insolvent banks.

** New loans and deposits include amounts under primary agreements that were entered into during the reporting period, as well as those under addendum agreements that changed either the amount or interest rate. * Including insolvent banks.

Financial Results and Capital

In H1, banks' combined profit fell by 23.4% yoy. PrivatBank accounted for 59% of the total profit.

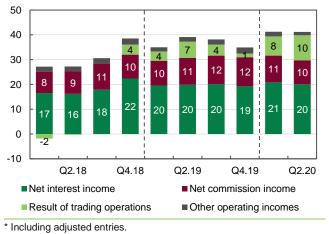




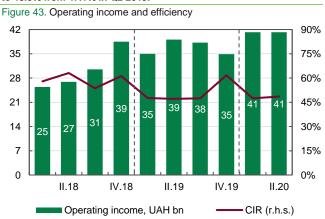
* Quarterly data, including adjusted entries.

Total operating income rose by 11.1% yoy, driven primarily by revaluation gains on domestic government debt securities. The pace of growth in net interest income decelerated while fee and commission income fell in annual terms.

Figure 44. Operating income components for the quarter, UAH billions

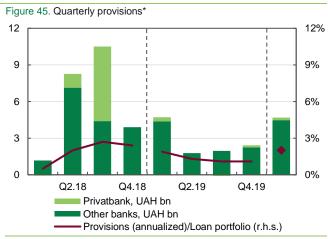


Operating efficiency worsened somewhat in Q2: the CIR* increased to 48.5% from 47.1% in Q2 2019.



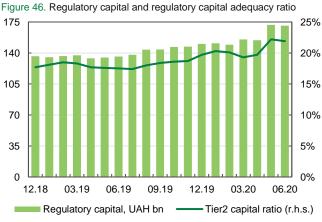
* The CIR (Cost-to-Income Ratio) measures the ratio of operating expenses to operating income.

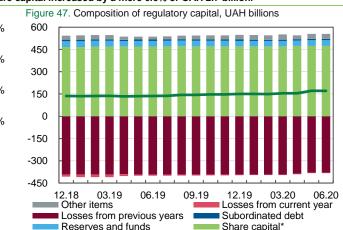
Provisioning in the sector increased by 2.8 times compared to H1 2019, primarily on account of Privatbank.



* Including adjusted entries.

The sector's overall capital adequacy remained significantly higher than the required minimum. Regulatory capital grew by 10.0% or UAH 15.5 billion during Q2 as banks covered previous years' losses, while share capital increased by a mere 0.6% or UAH 2.7 billion.





^{*} Registered and unregistered authorized capital.

Regulatory capital

Table 2. Key indicators of Ukraine's banking sector¹

	2013	2014	2015	2016	2017	2018	2019	1Q 2020	2Q 2020
Number of operating banks	180	145	117	96	82	77	75	75	75
Ge	eneral balance shee	t indicato	ors (UAH b	oillion) ²					
Total assets	1 409	1 477	1 571	1 737	1 840	1 911	1 982	2 095	2 090
of which in foreign currency	513	667	800	788	755	779	718	855	787
Net assets	1 278	1 290	1 254	1 256	1 334	1 360	1 493	1 564	1 590
of which in foreign currency	470	565	582	519	507	495	492	585	551
Gross corporate loans ³	727	820	831	847	864	919	822	885	821
of which in foreign currency	252	400	492	437	423	460	381	439	389
Net corporate loans ³	648	710	614	477	451	472	415	443	411
Gross retail loans	189	208	176	157	171	197	207	218	212
of which in foreign currency	67	101	97	83	68	61	38	44	41
Net retail loans	145	144	96	76	92	114	143	147	140
Corporate deposits ³	258	283	349	413	427	430	525	544	564
of which in foreign currency	81	114	141	177	163	150	191	232	222
Retail deposits4	443	403	402	437	478	508	552	610	626
of which in foreign currency	189	214	215	239	244	241	238	282	262
	Chang	e (yoy, %))						
Total assets	11.4%	4.8%	6.4%	10.6%	5.9%	3.8%	3.7%	11.0%	10.5%
Net assets	13.7%	1.0%	-2.8%	0.2%	6.2%	1.9%	9.8%	16.6%	17.19
Gross corporate loans ³	14.7%	12.8%	1.3%	2.0%	2.0%	6.3%	-10.6%	-1.1%	-7.1%
Gross retail loans	3.0%	10.3%	- 15.7%	- 10.4%	8.5%	15.3%	5.0%	8.2%	4.5%
Corporate deposits ³	16.8%	9.5%	23.5%	18.2%	3.4%	0.8%	22.1%	31.2%	31.7%
Retail deposits ⁴	20.2%	-8.9%	-0.3%	8.7%	9.4%	6.3%	8.6%	18.3%	18.6%
	Penetr	ation ⁵ (%))						
Gross corporate loans ³ / GDP	47.7%	51.7%	41.8%	35.5%	29.0%	25.8%	20.7%	22.1%	20.9%
Net corporate loans ³ / GDP	42.6%	44.7%	30.9%	20.0%	15.1%	13.3%	10.4%	11.1%	10.4%
Gross retail loans/ GDP	12.4%	13.1%	8.8%	6.6%	5.7%	5.5%	5.2%	5.5%	5.4%
Net retail loans/ GDP	9.5%	9.1%	4.8%	3.2%	3.1%	3.2%	3.6%	3.7%	3.5%
Corporate deposits ³ / GDP	17.0%	17.8%	17.6%	17.3%	14.3%	12.1%	13.2%	13.6%	14.3%
Retail deposits/ GDP	29.1%	25.4%	20.2%	18.3%	16.0%	14.3%	13.9%	15.2%	15.9%
	Profit or Los	ss ⁶ (UAH I	oillion)						
Net interest income	49.1	52.2	39.1	44.2	53.0	73.0	78.9	20.9	20.1
Net commission income	21.0	23.1	22.6	24.2	27.5	37.8	44.0	10.8	9.7
Provisions	28.0	84.4	114.5	198.3	49.2	23.8	10.7	4.7	13.1
Net profit/loss	1.4	-33.1	-66.6	-159.4	-26.5	22.3	58.4	16.1	7.7
		o items:				-		-	
UAH/USD (period average)	7.99	11.89	21.84	25.55	26.60	27.20	25.85	25.04	26.92
UAH/USD (end-of-period)	7.99	15.77	24.00	25.55	28.07	27.69	23.69	28.04	26.6
UAH/EUR (period average)	10.61	15.77	24.00	28.29	30.00	32.14	28.95	27.60	29.6
UAH/EUR (end-of-period)	11.04	19.23	24.23	28.42	33.50	31.71	26.95	30.96	29.0

Republic of Crimea and City of Sevastopol and a part of the ATO zone.

Data for Q2 2020 - readings for the last 12 month based on NBU forecast as published in Inflation Report.

⁶ Taking into consideration adjustment entries.

¹ Data for solvent banks for each reporting date.

² Including accrued income/expenses.

³ Including non-banking financial institutions.

⁴ Including certificates of deposits.

⁵ GDP is calculated as defined in the 2008 national accounts system methodology. From 2008 through 2013 it includes data for the temporarily occupied Republic of Crimea and City of Sevastopol; from 2014 through 2019 it excludes data for the temporarily occupied Autonomous

Notes:

Source: NBU (unless otherwise stated).

The sample of banks consists of banks solvent at each reporting date, unless otherwise stated.

The sample of banks that were solvent as of the last reporting date includes banks that merged with other banks under simplified procedure.

Data on groups of banks as of 2017 were prepared pursuant to NBU Board Decision No. 76-D, dated 10 February 2017. In 2018, data were prepared pursuant to Decision No. 444 by the Committee on Banking Regulation and Supervision, dated 29 December 2017.

"State-owned banks" refers to all state-owned banks except PrivatBank, unless otherwise specified.

The data include accrued interest as of the end of the period (month, quarter, year), unless otherwise specified.

"Gross loans" refers to loans not adjusted for provisions against asset-side banking transactions.

"Fixed-exchange-rate-based change" refers to the foreign-currency sum of an instrument being calculated using the exchange rate at the beginning of the period.

Data on corporate loans and deposits include data from nonbank financial institutions.

Retail deposits include savings certificates, unless stated otherwise.

Rounding may cause discrepancies between the sum of components and the total.

Terms and Abbreviations:

Automated teller machine / cash dispenser
Cost-to-Income Ratio
Foreign currency
Gross domestic product
International financial organization
National Bank of Ukraine
Non-financial corporation
Non-performing loan / non-performing exposures
Point of sale
Self-service kiosk
Domestic government debt securities and debt securities refinanced by the NBU, which are carried at (1) fair value through profit or loss, (2) fair value through other comprehensive income, and (3) amortized cost.
Return on equity
Ukrainian Index of Retail Deposit Rates
Return on equity.
euro
Ukrainian Hryvnia
United States dollar
Quarter
Billion
right-hand scale
year-on-year
quarter-on-quarter