The Impact of Hostilities on the Banking System, the Financial Sector, and Prospects for Recovering in a Conflict-Related Context

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Abstract: - Throughout the conflict in Ukraine, a multitude of adverse ramifications stemming from hostilities were observed within the sphere of banking activities and the overarching financial system. Such consequences encompassed disruptions in the operational continuity of banking branches, leading to closures attributable to the destruction of infrastructure and shelling incidents. The primary objective of this article is to undertake a comprehensive analysis of the repercussions of hostilities on the banking system, the financial sector, and the ensuing prospects for recovery within the context of the conflict. The methodology employed in this study is grounded in a structural analysis of key performance indicators of banks and economic standards pertinent to the banking system. The temporal scope of the analysis encompasses the years 2016-2023. The findings underscore the significance of systemic and sustained reforms directed towards upholding financial stability and macroeconomic equilibrium, with a specific focus on the pivotal role played by the financial sector and banks. The pragmatic significance of this study lies in the identification of essential tools pivotal for preserving the financial stability of the financial sector during periods of war.

Key-Words: - Banking system, Financial sector, Financial stability, Bank liquidity, Capital adequacy, Digitalization.

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1 Introduction

Political instability and economic downturns within the framework of military conflicts exert a deleterious influence on the financial sector and the operational dynamics of banks. The authors, [1], note the growing systemic vulnerability of the global financial system, as the negative impact of sanctions has spread to other countries besides Ukraine and Russia. Escalated uncertainty gives rise to heightened volatility in financial markets, diminished demand for financial services, and a decline in both lending activities and deposits by economic entities. The war has led to higher energy prices and a decline in financial markets, [2], [3], capital outflows, higher borrowing costs, and tighter monetary policy, [4]. The linkages between financial institutions and financial systems lead to their vulnerability and systemic risks during wartime, especially in Germany, the UK, Ukraine, France, and the USA, [1]. The authors, [5], argue that Europe has suffered the most from the Ukrainian-Russian war, in particular due to volatility in financial markets caused by higher energy and commodity prices. The authors' team, [6], found that globalized financial markets were more vulnerable to the war in Ukraine. Therefore, the Ukraine-Russia conflict causes an increase in risks in the financial sector among the countries that are active participants and partners that influence hostilities (Germany, France, the UK, and the entire EU).

In the backdrop of the war in Ukraine, a constellation of adverse effects stemming from hostilities on banking activities and the holistic financial system became apparent. The aftermath encompassed disruptions in branch operations, culminating in closures attributable to infrastructure damage and shelling, heightened cyber threats, and a downturn in the demand for banking services, business activity, and loan disbursements. Concurrently, as part of the ongoing financial system reform in Ukraine initiated at the beginning of 2015, the NBU has implemented impactful measures and pursued an efficacious policy to bolster the operations of financial institutions.

Despite several empirical studies on the effects of the war on the banking and financial sectors, there is limited research on the state of these sectors in the context of the ongoing conflict. In particular, it concerns the prospects for recovery and monetary policy measures to ensure the sustainability of the sectors. As noted by the authors, [7], the national financial sector faces many systemic challenges under the influence of military aggression. It requires an analysis of key indicators of the financial sector during the active phase of the war. Against this backdrop, the objective of this article is to scrutinize the repercussions of hostilities on the banking system, the financial sector, and the potential pathways for recovery within the context of the conflict.

Based on this aim, we would like to outline the main goals of the study:

1) to analyze the impact of the NBU's monetary policy measures to maintain the stability of the banking system and financial sector of Ukraine in the context of war and reduction of systemic risk;

2) to evaluate the performance of Ukrainian banks, including income, expenses, return on assets, and capital, to understand the impact of the war on the country's banking system and the existing systemic risks.

2 Literature Review

The scientific literature exhibits a scarcity of research concerning the ramifications of the conflict in Ukraine on the financial sector and banking system, along with their prospective recovery trajectories post-conflict. Scholars have, to some extent, addressed the dynamics of various structural components within the financial sector. Notable examples include investigations into the foreign exchange market, [7], and the stock market, [8], as well as analyses of investor activity and returns, [9], [10]. The stock market shows heightened sensitivity to the military conflict between Ukraine and Russia, as indicated by studies conducted by [10], [11]. [9], have delineated several effects of military conflicts on the financial market, including a negative influence on stock market returns, elevated risks associated with investing in financial assets, detrimental effects on investments, and a noteworthy impact on the Russian-Ukrainian war on global financial intermediation. The World Bank, through the research conducted by [12], delineates several consequences of the war for European financial markets. These include heightened volatility, increased borrowing costs, unprofitability of specific financial institutions, substantial losses of bank capital in the EU, and a decline in European bank stock prices after the imposition of sanctions against Russia, [4]. The authors' team, [13], contend that the war's unpredictable and initially limited impact on the European financial system was unforeseen. Although the financial sector encountered losses at the war's outset due to the initial shock, the vulnerability of European banks is underscored by the fact that 6-7% of their assets originate from Russia. Simultaneously, the robust capitalization of banks is expected to alleviate issues associated with profit loss.

The author [14], discerned the principal adverse effects of the war on the Ukrainian banking system amid the crisis, encompassing a substantial outflow of funds from the banking system, a rise in non-performing loans, an increase in the share of non-performing loans, and a decline in banks' solvency, liquidity, financial stability, and resilience. The authors' team, [15], uncovered that "banks that originated more loans in conflict zones in the period before the war in Ukraine were eventually left with higher levels of NPLs in non-conflict markets after the invasion began." Amid the backdrop of the war, banking institutions have curtailed the volume of credit supply, with a more pronounced impact observed in regional markets situated at a considerable distance from their headquarters. The magnitude of the reduction in bank lending tends to be comparatively lesser for larger banks and those with political connections, [15]. Author [16], contends that the sanctions imposed on Russian assets have inflicted a considerable setback on the international payments system.

Amidst the war, the market principles of the economy and the mechanisms governing price formation are disrupted, leading to a malfunction of monetary transmission mechanisms. Consequently, the role of the state in guaranteeing the regular functioning of commodity-money relations becomes more prominent, [17]. In the context of the conflict in Ukraine, the anticipation of escalating inflation compelled the central bank to alter its monetary policy, transitioning to a fixed exchange rate and expanding the domestic borrowing market, [18].

Delineate the universally acknowledged principles of monetary policy during wartime, entailing the utilization of central bank instruments to augment the money supply, including "purchase of assets on the open market, direct acquisition of government bonds on the primary market, and targeted refinancing of credit institutions." In a military economy, the attainment of macroeconomic stability necessitates the secure operation of the government borrowing market and meticulous control over capital flows, [19].

As a result, there are few studies in the scientific literature on ensuring the resilience and stability of the banking and financial sector during wartime. The existing literature focuses mainly on the adverse effects of military conflicts on certain subsectors of the financial sector. At the same time, there are no comprehensive studies of measures to support the resilience and stability of the banking system as a key part of the financial sector.

3 Methodology

At the first preliminary stage of the study, the authors analyzed the problems of financial sector development in countries affected by military conflicts. Based on the evaluation of the results of existing theoretical and practical studies, the main consequences of the impact of conflicts and growing uncertainty on the state of the financial sector were identified, [7].

The next step in this study was to collect statistical data on the state of Ukraine's banking sector for further evaluation in the context of ensuring stability. All data were contained in the National Bank of Ukraine database, which facilitated a detailed assessment of the effects of the war on the country's financial sector. The content analysis of the National Bank of Ukraine's information was also used to study key measures to support the stability of the banking sector, which is a key part of the country's financial system, [7].

This article employs a structural analysis of the primary performance indicators of Ukrainian banks to evaluate the influence of hostilities on the financial sector, as indicated by [14], [18]. The key metrics for this analysis, as outlined by Polova, encompass the dynamics of economic standards within the banking system from 2016 to 2023, changes in the number of Ukrainian banks and structural units by bank, fluctuations in assets and liabilities, income and expenses of banking institutions, and the return on assets and capital.

4 Results and Discussions

The efficacy of the banking system amid the conflict was safeguarded by the timely responses and interventions of the National Bank of Ukraine (NBU), substantial safety margins, and systematic efforts in reforming the sector as a whole, commencing from the early stages of 2015.

Extraordinary financial measures were introduced to support the economy and reduce pressure on banking institutions, including restrictions on the financial sector, capital controls, and tax deferrals. These measures helped to avoid the collapse of the financial system, [4].

Following the Russian invasion on February 24, 2022, the NBU implemented the subsequent operational measures: ensuring liquidity within the banking system, overseeing the foreign exchange market, managing the electronic payment system, initiating the liquidation or preparation for the nationalization of banks under Russian control in

Ukraine, and providing support for social payments, [18].

Table 1. Dynamics of economic indicators of the banking system in 2016-2023

#	Standard indicators	As of January 01,								2023
		2016	2017	2018	2019	2020	2021	2022	2023	01.11
No1	Regulatory capital (UAH billion)	129,8	109,7	115,8	126,1	150,3	182,3	211,7	211,1	264,5
No2	Regulatory capital adequacy ratio (not less than 10%)	12,31	12,69	16,10	16,18	19,66	21,98	18,01	19,68	25,31
No3	Core capital adequacy ratio (not less than 7%)	-	-	-	-	13,50	15,67	11,99	13,12	14,85

Source: National Bank of Ukraine, [20]

As per the National Bank of Ukraine (NBU), the short-term liquidity ratio stood at 89% in 2021 and 88.68% in 2022 (January-February), surpassing the stipulated standard of at least 60%. The banking sector's resilience was further underpinned by the adequacy of regulatory capital, which amounted to UAH 129.8 billion in 2016 and increased to UAH 264.5 billion in 2023, corresponding to capital adequacy ratios of 12.31% in 2016 and 25.31% in 2023. Although the bank's core capital adequacy ratio experienced a decline from 15.67% in 2021 to 11.99% in 2022, it remained sufficient to ensure the operational stability of the institutions, [20] (Table 1).

At the onset of the full-scale war, the National Bank of Ukraine (NBU) took measures such as fixing the official hryvnia exchange rate to uphold and regulate the expectations of businesses and households. Concurrently, the key policy rate remained unaltered at 10%. Foreign exchange interventions and the NBU's fixed exchange rate emerged as primary instruments for ensuring macro-financial stability. In June, as the economy adapted to martial law and both businesses and citizens reverted to economic decision-making logic, the NBU initiated an active monetary policy, elevating the key policy rate to 25%. This decision aimed to safeguard the savings and hryvnia incomes of citizens and enhance the attractiveness of assets denominated in the national currency, [21]. As a result of an increase in the discount rate, [7] argues that the cost of financial resources for business entities has significantly increased. Besides, the level of business activity of business entities has decreased. Consequently, found, that the growing level of geopolitical risks leads to a reduction in internal lending to the private sector. This happens due to the growing uncertainty of economic policy, which negatively affects the lending decisions of banking institutions.

In the future, Ukraine will need additional external financial support and financing due to the growth of public debt. If the conflict continues and/or is frozen, the public debt will need to be restructured to maintain its reliability and restore fiscal stability, [22].

In the face of Russia's cyberattacks targeting the financial sector, banks demonstrated resilience by ensuring uninterrupted service provision, including remote services, and keeping the integrity of their networks and digital infrastructure. Over the period spanning from February to December 2022, the financial sector experienced 120 cyberattacks, constituting 5% of the total cyberattacks across diverse sectors of the economy, [23].

As of November 1, 2023, the operational count of banks for the year 2022 exhibited a reduction of 4 units, totaling 63, with 28 of them being foreign-owned, [24]. Concurrently, the number of bank branches experienced a significant decline from January 1, 2022, to October 1, 2023, amounting to a total reduction of 1,587. Notably, the banks that closed the largest number of branches during this period were JSC Oschadbank (420 units), JSC CB PrivatBank (366 units), JSB Ukrgasbank (50 units), JSC Ukrsibbank (29 units), JSC Aktsionernyi Bank Pivdennyi (39 units), and Raiffeisen Bank JSC (63 units), [25].

Banks' assets experienced substantial growth as a result of the National Bank of Ukraine's (NBU) systemic reforms, escalating from UAH 1,254 billion in 2016 to UAH 2,352 billion in 2022 and further to UAH 2,679 billion in 2023 (Table 2). Notably, the composition of these assets transformed over the years. In 2016, foreign currency assets represented the largest share at 46%, whereas by 2023, their proportion had decreased to 29%. Meanwhile, the share of cash use remained constant at 3% both in 2016 and 2023. The allocation of banks' assets underwent notable changes during the period from 2016 to 2023. The proportion of funds due from the National Bank of Ukraine (NBU) increased from 2% to 8%, while the share of correspondent accounts opened with other banks saw a modest rise from 10% to 12%. Additionally, the share of term deposits with other banks and loans to other banks increased from 2% to 3% within the specified timeframe. Conversely, the proportion of loans to customers witnessed a substantial decline, decreasing from 80% in 2016 to 38% in 2023. This reduction is attributed to the deceleration in lending to economic entities during the war, with loans amounting to UAH 801 billion in 2022 and UAH 766 billion in 2023, constituting 29% of the overall portfolio. In 2016, foreign currency-denominated loans to business entities accounted for a dominant share of 39% (UAH 492 billion). Conversely, by 2023, the proportion of foreign currency lending had diminished significantly to 10% (UAH 258 billion). Concurrently, lending to economic entities in the national currency surged from UAH 338 billion (29%) in 2016 to UAH 509 billion (19%) in 2023. Regarding loans to individuals, there was a slight deceleration in lending activities during 2022-2023 compared to 2021. Furthermore, the overall share of loans issued to individuals from 2016 to 2023 exhibited a substantial decrease, declining from 14% to 8%, respectively. Despite theoretical assumptions about the reduction in lending to the private sector, the Ukrainian experience indicates a relatively high level of lending to business entities during the war.

Since the commencement of 2016, there has been a substantial escalation in the volume of investments in securities and long-term investments, rising from UAH 202 billion in 2016 to UAH 830 billion in 2021. Notably, in the wake of the conflict, this trend continued, reaching UAH 1,023 billion in 2022 and further expanding to UAH 1,249 billion in 2023. Consequently, the share of investments in securities and long-term investments witnessed a remarkable increase, soaring from 16% in 2016 to 47% in 2023. This dynamic evolution can be attributed to a surge in the volume of domestic government bonds, particularly pronounced in the years 2021-2023.

Table 2. Key performance indicators of Ukrainian banks (assets) in 2016-2023, UAH billion

Name of the indicator	01.01.2016	01.01.2020	01.01.2021	01.01.2022	01.01.2023	01.11.2023	Absolute deviation, 2023-2016	Specific weight, %	
								2016	2023
The number of operating banks	117	75	73	71	67	63	-54	100	100
including foreign capital	41	35	33	33	30	28	-13	35	44
Assets	1 254	1 493	1 823	2 053	2 352	2 679	1 425	100	100
Assets in foreign currency	582	492	585	583	731	786	204	46	29
Physical cash	34	56	73	75	75	74	40	3	3
The National Bank of Ukraine funds	27	76	38	35	82	204	177	2	8
Correspondent accounts opened at other banks	130	118	176	173	315	325	196	10	12
Time deposits and loans from other banks	23	35	50	60	51	73	49	2	3
Loans to clients	1 010	1 033	961	1 065	1 036	1 005	-5	80	38
Loans to public authorities	3	5	12	27	25	19	16	0	1
Loans to business entities	831	822	749	796	801	766	-64	66	29
in foreign currency	492	381	332	292	281	258	-235	39	10
in national currency	338	441	417	504	520	509	170	27	19
Loans to individuals	176	207	200	243	210	220	44	14	8
Investments in marketable securities and long-term financial assets	202	539	791	830	1 023	1 249	1 048	16	47
including non-residents	2	10	14	6	28	86	83	0	3
including domestic government bonds	176	367	588	605	533	669	492	14	25
Allowances for active operations	321	492	388	308	370	360	39	26	13

Source: Calculated by the author based on data from the National Bank of Ukraine, [24] Despite the ongoing conflict, the liabilities of banks witnessed an increase from UAH 2,053,232 million as of January 1, 2022, to UAH 2,351,678 million as of January 1, 2023, and further to UAH 2,679,459 million as of November 1, 2023 (Table 3). Concurrently, the amount of banks' capital also experienced growth, and its proportion within the overall structure of liabilities expanded from 2016 to 2023. The total increase in banks' liabilities amounted to UAH 1,203,144 million, including UAH 148,501 million in foreign currency, leading to a decrease in the share of liabilities from 92% to 88% (from 53% to 30% in foreign currency).

The funds of business entities registered a notable increase of UAH 796,817 million, attributed primarily to the augmentation of term funds by UAH 184,117 million, foreign currency funds by UAH 229,652 million, and national currency funds by UAH 567,165 million. Simultaneously, the volume of funds held by individuals expanded by UAH 607,423 million, primarily fueled by the growth of time funds by UAH 79,276 million, foreign currency funds by UAH 133,638 million, and national currency funds by UAH 473,784 million. This shift in funds distribution was also reflected in the changing composition of deposits. The share of corporate deposits increased from 25% to 42%, while retail deposits experienced a moderate increase from 32% to 38% during the period spanning from 2016 to 2023.

Table 3. Key performance indicators of Ukrainian banks (liabilities) in 2016-2023, UAH million

Indicators	01.01.2016	01.01.2020	01.01.2021	01.01.2022	01.01.2023	01.11.2023	Absolute deviation, 2023-2016	Specific weight, %	
								2016	2023
Liabilities	1254385	1493298	1822841	2053232	2351678	2679459	1425074	100	100
Capital	103 713	199 921	209 460	255 514	215 840	325 643	221 930	8	12
Authorized capital	*222 170*	*470 712*	*479 932*	*481 535*	*407 021*	*404 751*	182 581	18	15
Banks' liabilities	1150672	1293377	1613381	1797718	2135838	2353816	1 203 144	92	88
Foreign currency	*667 246*	*568 621*	*648 020*	*613 334*	*799 056*	*815 747*	148 501	53	30
Time deposits and loans from other banks	122 592	23 912	24 235	24 948	6 457	5 762	-116 830	10	0
non-residents	*115 393*	*20 874*	*20 932*	*20 697*	*2 819*	*1 948*	-113 445	9	0
Funds of business entities:	318 568	498 157	646 491	758 434	889 526	1115385	796 817	25	42
Term funds	*96 679*	*103 191*	*147 871*	*137 417*	*139 196*	*280 796*	184 117	8	10
Foreign currency	*126 651*	*186 208*	*226 721*	*226 594*	*306 944*	*356 303*	229 652	10	13
National currency	*191 917*	*311 949*	*419 771*	*531 840*	*582 582*	*759 082*	567 165	15	28
Funds of individuals:	402 137	552 115	681 892	726 898	933 240	1009560	607 423	32	38
time funds	*294 155*	*336 663*	*344 353*	*314 026*	*326 655*	*373 431*	79 276	23	14
Foreign currency	*214 535*	*237 797*	*285 058*	*269 937*	*340 166*	*348 173*	133 638	17	13
National currency	*187 602*	*314 319*	*396 834*	*456 961*	*593 074*	*661 386*	473 784	15	25
Funds of non-bank financial institutions:	30 474	26 885	34 704	41 410	53 188	52 527	22 053	2	2
Foreign currency	*14 661*	*4 571*	*5 863*	*6 564*	*9 838*	*8 861*	-5 800	1	0
National currency	*15 814*	*22 314*	*28 841*	*34 847*	*43 350*	*43 666*	27 852	1	2

Source: Calculated by the author based on data from the National Bank of Ukraine, [24] Despite the economic setbacks experienced by banks due to the war, banking institutions generated revenues of UAH 357,539 million and UAH 365,268 million in January-October 2023 (Table 4). The profitability of the banking sector was underpinned by a high net interest margin. Banks' interest income represented 71% of total income in 2016 and 68% in 2023, amounting to UAH 135,807 million and UAH 248,589 million, respectively. As interest rates increased, credit margins expanded, positively influencing net interest income, [13]. Income from fees and commissions totaled UAH 31,362 million in 2016 and demonstrated gradual growth, experiencing a slight decline during the war to UAH 85,622 million in 2022 (a decrease of 8% in 2022 and 7% in 2023). Consequently, the specific weight of fees and commissions increased from 16% in 2016 to 22% in 2023.

In comparison to 2021, the revenues of banks in 2022 exhibited a noteworthy increase of 31%, primarily propelled by a surge in interest income and other operating income, highlighting the operational efficiency of banking institutions. This efficiency was underpinned by the effectiveness of classical business models: universal, corporate, and retail. Furthermore, the collaborative efforts of banks and the policies implemented by the National Bank of Ukraine (NBU) to uphold financial stability and ensure cybersecurity played pivotal roles in sustaining the stability of the banking system throughout 2022-2023. The stability exhibited during this period can be attributed to the cumulative impact of financial sector reforms initiated in 2015. These reforms enabled banks, by the year 2022, to amass a substantial liquidity and capital buffer while formulating strategies and contingency plans to navigate unforeseen conditions.

The following barriers need to be overcome to stabilize and develop the financial sector in the face of the consequences caused by the ongoing military aggression in Ukraine:

– strengthening confidence in the banking sector, in particular through regulatory compliance and digitalization;

– development of telecommunications networks;

– stability of the national currency through sound monetary policy;

– structural reforms of the financial sector, including those related to the efficiency of management of systemically important state-owned banks, [7].

Table 4. Revenue Dynamics of Ukrainian Banks in 2016-2023 (January-December, cumulative), UAH mln

Indicators	2016	2017	2018	2019	2020	2021	2022	2023*	Specific weight, %	
Revenues	190 691	178 054	204 554	243 102	250 171	273 863	357 549	365 268	100%	100%
interest revenue	135 807	124 009	140 803	152 954	147 743	168 746	217 053	248 589	71%	68%
commission revenue	31 362	37 138	50 969	62 057	70 640	93 162	85 622	79 211	16%	22%
other operational revenues	9 605	7 264	8 589	8 147	6 813	7 488	8 126	8 432	5%	2%
other revenues	3 946	1 349	1 809	2 809	2 705	3 175	2 413	1 589	2%	0%
written-off assets recovery	1 728	1 070	532	909	763	1 370	853	1 736	1%	0%
Growth rate, %										
Revenues	-	-7%	15%	19%	3%	9%	31%	2%	-	-
interest revenue	-	-9%	14%	9%	-3%	14%	29%	15%	-	-
commission revenue	-	18%	37%	22%	14%	32%	-8%	-7%	-	-
other operational revenues	-	-24%	18%	-5%	-16%	10%	9%	4%	-	-
other revenues	-	-66%	34%	55%	-4%	17%	-24%	-34%	-	-
written-off assets recovery	-	-38%	-50%	71%	-16%	80%	-38%	104%	-	-

Source: Calculated by the author based on data from the National Bank of Ukraine, [24]
** January-October (cumulative.*

Upon the commencement of the war in 2022, the expenses of banks witnessed a substantial rise, reaching UAH 335,628 million. This escalation was primarily attributed to increased interest expenses, general administrative expenses, and significant provisioning, amounting to UAH 121,204 million in 2022. The provisioning during this period aimed to cover potential losses incurred by banks from active operations and lending to economic entities. Despite a decline in profit from UAH 77,376 million in 2021 to UAH 21,921 million in 2022, banks managed to maintain their profitability. Notably, in 2023, profits rebounded to UAH 122,701 million, driven by an increase in operating income (Table 5).

Therefore, despite the range of systemic risks that threaten the financial sector's stability during a conflict, [26], [27], the banking system of Ukraine managed to ensure stability primarily due to the tightening of monetary policy measures.

Amid the war, banks encountered substantial losses attributed to the destruction of real estate, estimated by the National Bank of Ukraine (NBU) at UAH 750 million by the end of 2022. As per the national regulator's projections, these losses could potentially escalate by 20% of the pre-war operating portfolio. In response, banks are utilizing their capital, which, notably, exceeded the minimum required levels before the outbreak of the conflict. The anticipated growth in banks' profitability in 2023 is anticipated to serve as a means to cover potential losses arising from military operations and real estate-related losses. The NBU anticipates a rise in banking losses while concurrently ensuring that they are mitigated through the deployment of available capital and accrued profits (Figure 1).

Table 5. Dynamics of expenses of Ukrainian banks in 2016-2023 (January-December, cumulative), UAH mln

Indicators	2016	2017	2018	2019	2020	2021	2022	2023*	Specific weight, %	
Expenses	350 078	204 545	182 215	184 746	210 445	196 488	335 628	242 567	100%	100%
interest expenses	91 638	70 971	67 760	74 062	62 895	51 097	65 358	84 346	26%	35%
commission expenses	7 182	9 650	13 159	18 096	24 132	35 186	35 449	37 850	2%	16%
other operational expenses	10 920	11 719	16 800	11 790	16 405	18 244	17 875	13 646	3%	6%
general administrative expenses	39 356	44 202	53 670	62 936	69 437	78 293	82 434	73 186	11%	30%
other expenses	3 089	15 116	2 011	2 379	2 728	3 855	5 951	6 587	1%	3%
reserve allocations	198 310	49 206	23 758	10 714	31 037	3 448	121 204	4 908	57%	2%
income tax	-418	3 681	5 057	4 769	3 811	6 364	7 356	22 046	0%	9%
Net profit	-159 388	-26 491	22 339	58 356	39 727	77 376	21 921	122 701	-	-
Growth rate, %										
Expenses	-	-42%	-11%	1%	14%	-7%	71%	-28%	-	-
interest expenses	-	-23%	-5%	9%	-15%	-19%	28%	29%	-	-
commission expenses	-	34%	36%	38%	33%	46%	1%	7%	-	-
other operational expenses	-	7%	43%	-30%	39%	11%	-2%	-24%	-	-
general administrative expenses	-	12%	21%	17%	10%	13%	5%	-11%	-	-
other expenses	-	389%	-87%	18%	15%	41%	54%	11%	-	-
reserve allocations	-	-75%	-52%	-55%	190%	-89%	3415%	-96%	-	-
income tax	-	-981%	37%	-6%	-20%	67%	16%	200%	-	-
Net profit	-	-83%	-184%	161%	-32%	95%	-72%	460%	-	-

Source: Calculated by the author based on data from the National Bank of Ukraine, [24]
** January-October (cumulative)*

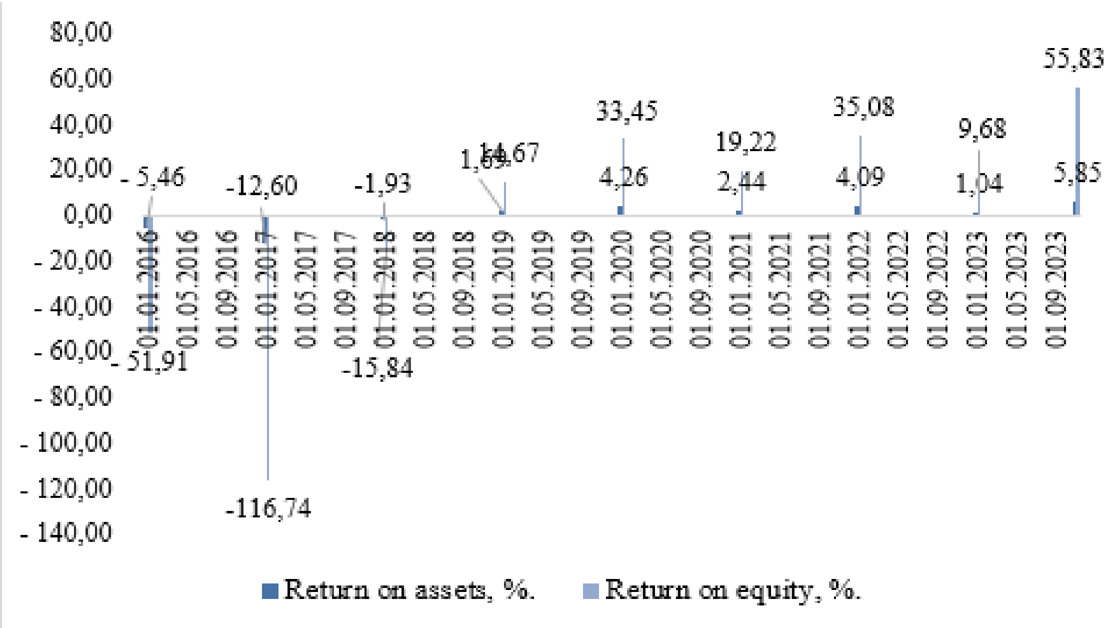

Fig. 1: Dynamics of banks' return on assets and capital in 2016-2023, %
Source: National Bank of Ukraine, [24]

Throughout the war, the significance of state-owned banks, namely JSC Ukreximbank, JSC Oschadbank, JSC CB Privatbank, and JSB Ukrgasbank, escalated. Amidst the prevailing uncertainty and heightened war risks, these systemically important state-owned banks played a pivotal role in maintaining lending activities and managing and initiating new accounts for government payments. Leveraging their extensive branch networks and digital infrastructure, these banks also ensured the continued accessibility of banking services and facilitated remote banking. Consequently, their market share experienced a notable increase. While the dominance of state-owned banks is crucial during a crisis, it introduces potential risks to the fostering of competition within the financial market during the subsequent recovery period, [28].

The NBU's assessment of the banking system's resilience in April 2023 shows that the assessment of credit risks by banking institutions is adequate. According to the results of the asset quality assessment (AQR), it was found that the adjustment of prudential reserves was about 1%.

Amidst the war, both businesses and individuals exhibited weakened credit demand. The diminishing business activity, resulting from the conflict, exerts a negative impact on household and business incomes, thereby reducing the demand for financial services, [29]. The prevalent damage and destruction of infrastructure, coupled with sluggish economic growth, contribute to an elevated credit risk. Notably, in 2022, businesses predominantly accessed loans through the "Affordable Loans 5-7-9%" program, constituting 26% of the corporate portfolio (measured in UAH). A resurgence in the lending market can only be anticipated after the economy undergoes recovery. The war has concomitantly heightened the share of non-performing bank loans, reaching 38.1% as of the fourth quarter of 2022. For comparison, according to the European Bank for Reconstruction and Development, the banking sector in the European Union (EU) and the entire Central, Eastern, and Southeastern Europe (CESEE) region remains stable and resilient. There were no adverse changes in the quality of banking assets despite the challenging macroeconomic environment in 2022. As of December 31, 2022, the average share of non-performing loans in total loans in the CESEE region was 2.3%, while in the EU, it averaged 1.8%, [30].

It is worth noting that, in 2023, due to cooperation between the NBU and the Deposit Guarantee Fund, UAH 938.3 million was received to repay non-performing loans to refinance insolvent banks. The NBU received UAH 480.7 million from the sale of mortgaged property rights under loan agreements.

Banks have effectively preserved and sustained liquidity through uninterrupted payments and transactions, thereby positively influencing the demand for cash. The ongoing digitalization of banks has broadened the scope and magnitude of remote services and cashless transactions, [31]. During the period from May to December 2022, the share of cashless transactions utilizing payment cards reached UAH 3,443.9 billion, with 53.3% attributed to card-to-card transfers, 17.9% to online payments for goods, and 26% to payments through payment terminals. Furthermore, the volume of cashless transactions using payment cards issued by Ukrainian banks amounted to UAH 1,280.3 billion in the first quarter, UAH 1,334.9 billion in the second quarter of 2023, and UAH 1,407.1 billion in the third quarter of 2023.

The full-scale war has presented challenging conditions for the proper functioning of the payment infrastructure. However, the coordinated efforts of the National Bank of Ukraine (NBU), the Deposit Guarantee Fund, banks, and non-bank financial institutions have played a crucial role in maintaining the stability of the payment infrastructure. Despite the adversity, the payment infrastructure continues to operate effectively, ensuring timely payments, settlements, and unimpeded access to payment services, as well as facilitating access to funds and savings, [32]. A noteworthy development in the international landscape in 2022 was the enactment of the Law of Ukraine "On Payment Services," designed to modernize and innovate the payment market. On April 1, 2023, a new generation of the NBU's Electronic Payment System (EPS) was launched. The transition to this new generation is deemed a significant technological prerequisite for the further qualitative development of Ukraine's payment infrastructure. Moreover, in light of Ukraine's EU candidate status, the NBU is actively engaged in efforts towards Ukraine's accession to the Single Euro Payments Area (SEPA).

Technological advancements play a pivotal role in ensuring the accessibility of financial services within both the banking and non-banking segments of the financial market. In April 2022, the Deposit Guarantee Fund (DGF) implemented remote payment options for bank depositors under its management. The NBU is strategically planning measures to advance infrastructure development, with a specific emphasis on digital infrastructure. The objective is to promote more active utilization of electronic payment instruments by customers. Transformations in the preferences and requirements of financial services consumers play a vital role in driving the development of innovative technologies, [33], [34]. Notably, during the war, there was a notable intensification in the operations of virtual banks and digital channels facilitating remote banking services. The deployment of mobile solutions, applications, customer support websites, chatbots, open banking initiatives, and collaborations between traditional banks and financial technology companies have collectively exerted a substantial influence on the provision of financial services in the context of the conflict, [35]. Remote customer service and digitalization, beyond safeguarding the credibility of the banking sector, have also been instrumental in sustaining its operational profitability.

5 Conclusions

The implementation of systematic and consistent reforms holds paramount significance in sustaining financial resilience and macroeconomic stability through the financial sector and banks during periods of conflict. In efforts to alleviate the adverse impacts of the war on the financial sector, the National Bank of Ukraine (NBU) adopted measures such as fixing the official hryvnia exchange rate to bolster and regulate business and household expectations. Initially, at the onset of the war, the key policy rate was maintained at 10%, later being raised to 25% to protect household incomes. The primary instruments employed to uphold macro-financial stability encompassed foreign exchange interventions, the implementation of the NBU's fixed exchange rate, and the issuance of domestic government bonds. Key factors pivotal in ensuring the stability of the banking system during the war comprised the presence of adequate regulatory capital and safety margin, a high level of liquidity in the pre-war period, and sustained banking sector profitability, particularly during the critical period in 2022, driven by elevated operating profitability. Additionally, the expansion of cashless payments attributed to the advancement of remote banking services and the digitalization of banks played a crucial role. Simultaneously, adverse consequences of the war manifested as a reduction in lending and an escalation in the share of non-performing loans, compelling banks to augment provisions for active operations.

We posit that the expansion of digitalization, advancements in the electronic payment system, the proliferation of cashless payments, and the fostering of competition within the banking sector constitute promising avenues for the recovery of the financial sector in the context of the war.

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