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ABSTRACT

This Article explores the important and multifaceted roles of a central bank in extraordinary times of crisis such as war, focusing on the National Bank of Ukraine (NBU) and its responses in the face of the Russian invasion of Ukraine which began on February 24, 2022. During a time of martial law, institutional preservation and legitimacy can be threatened, but preserving these very institutional tenets is important in defending the nation under siege and in securing future restoration and rebuilding. In this light, we examine the NBU's difficult and conflicting choices in three respects: providing war finance, preserving banking and financial systemic stability, and catering for citizens' financial welfare. The navigation of these difficult and conflicting objectives by the NBU reflects the challenges for its institutional preservation and legitimacy. However, we also argue that there is a role for international solidarity with the NBU, in relation to European central banks concerned with the financial needs of

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Ukrainian refugees abroad, and the network of central bankers in the Financial Stability Board.

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I. INTRODUCTION: THE CENTRALITY OF A CENTRAL BANK AS A STATE INSTITUTION

Since February 24, 2022, the sovereign state of Ukraine has been under Russian siege,[1] resulting in massive evacuation, dis-placement

1. The position in international law is discussed in Philippe Sands, *Putin's use of military force is a crime of aggression*, FIN. TIMES (Feb. 28, 2022), https://www.ft.com/content/cbbdd146-4e36-42fb-95e1-50128506652c [https://perma.cc/SRM3-G6B6] (archived July 13, 2022) and is not canvassed in this essay.

of its peoples, and the devastation of major cities.[2] Defence and humanitarian concerns are of foremost importance at the moment, but this Article reflects on an institution that is central in many respects to the protection and preservation of the Ukrainian state, its institutions, and the welfare of its peoples. We focus on the central bank's role at a time of exogenous shock and stress—invasion by a foreign power. Ukraine has declared martial law. This has been implemented by the National Bank of Ukraine (NBU)[3] in its various capacities since February 24, 2022, as the regulator for the banking system, the payment services settlement provider, and the central bank to the state. This Article considers all these aspects in the context of an existential threat.

Commentators have cautioned that martial law, although in response to the urgency of needs, should not be thought of as a state of "lawlessness" in favour of military primacy. Thought should be given to proportionality,[4] especially with regard to longer-term thinking for the restoration of order, governance, and the normal functioning of institutions.[5] This is important since institutions of the state—and of the government it supports—must strive to preserve their legitimacy and that of the state they serve. In this Article, we consider how the NBU as a young central bank[6] has stepped up, during a period of martial law, in a way that helps protect and preserve the independent state. Underlying Putin's invasion is the aim of undermining the legitimacy of the Ukrainian state:

> Ukraine is viewed as belonging to . . . Russia . . . it is] a territory rather than an independent state. Ukraine and Belarus, as former Soviet Union states, are believed to form a single historic 'triune' nation with Russia. Putin started

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2. *See Ukraine conflict: Before and after images reveal Russian destruction*, BBC NEWS (Mar. 4, 2022), https://www.bbc.co.uk/news/world-europe-60610840 [https://perma.cc/CU77-Q8RW] (archived July 13, 2022); *How many refugees have fled Ukraine and where are they going?*, BBC NEWS (Mar. 7, 2022), https://www.bbc.co.uk/news/world-60555472 [https://perma.cc/JB5H-FEKD] (archived July 13, 2022).

3. *NBU Makes Changes to Resolution No. 18 On the Operation of the Banking System Under Martial Law Dated 24 February 2022*, NAT'L BANK OF UKR. (Feb. 24, 2022), https://bank.gov.ua/en/news/all/vneseno-zmini-do-postanovi-vid-24-lyutogo-2022-roku-18-pro-robotu-bankivskoyi-sistemi-v-period-zaprovadjennya-voyennogo-stanu [https://perma.cc/YP8L-J3JP] (archived July 20, 2022).

4. *See generally* Max Radin, *Martial Law and the State of Siege*, 30 CALIF. L. REV. 634 (1942) (discussing France as an example where military officials were given wide latitude but where such latitude has not led to lawlessness).

5. *See generally* Frederick Pollock, *What Is Martial Law*, 18 L.Q. REV. 152 (1902) (discussing martial law and its essential qualities).

6. *See History of the Central Bank of Ukraine*, NAT'L BANK OF UKR. (last visited July 14, 2022), https://bank.gov.ua/en/about/nbu-history [https:// perma.cc/6J6F-9DKY] (archived July 14, 2022).

the war to destroy Ukraine's nation-building project, aiming to restore a 'historical Russia'.[7]

In light of this, the NBU's roles should be viewed as contributing towards the support and reinforcement of the legitimacy of the independent state. The NBU is a pillar of Ukraine's right to exist as an independent, autonomous state. Besides its legal establishment, its legitimacy hinges on it being seen to be trustworthy, competent, transparent, and accountable,[8] ultimately sharing a community of interest with the state's citizens. Edmund Burke used similar words to describe the legitimacy of government: "[W]ithout any mutual relations, the cement is gone—cohesion lost—and everything hastens to decay and dissolution."[9] We argue that martial law should not erode the institutional distinctness of the young central bank. The legitimacy of institutions is key to state-building, and Ukraine's passage of state-building from 1990 has been challenging during the regimes prior to the Zelensky administration.[10] Even the Zelensky government has been criticised as insufficiently robust with reform.[11] Hence, the NBU's roles and exercise of powers during this extraordinary time are not only important for state preservation, but also its own institutional credibility and legitimacy, which in turn are key to such preservation.

Central bank independence has over time become a cherished tenet for central bank legitimacy.[12] This is a form of agency independence based on a clear mandate, usually price stability, administered by technocratic expertise.[13] We have, however, witnessed

7. Orysia Lutsevych & Jon Wallace, *Ukraine-Russia relations*, CHATHAM HOUSE (Mar. 24, 2022), https://www.chathamhouse.org/2021/11/ukraine-russia-relations [https://perma.cc/K3RK-S5FY] (archived July 14, 2022).

8. *See* ANNELISE RILES, FINANCIAL CITIZENSHIP: EXPERTS, PUBLICS AND THE POLITICS OF CENTRAL BANKING 22–34 (2018).

9. EDMUND BURKE, SPEECH ON CONCILIATION WITH AMERICA 79 (Daniel V. Thompson ed., 1901).

10. Katya Gorchinskaya, *A Brief History of Corruption in Ukraine: the Poroshenko Era*, EURASIANET (June 11, 2020), https://eurasianet.org/a-brief-history-of-corruption-in-ukraine-the-poroshenko-era [https://perma.cc/LX2P-BW5A] (archived July 14, 2022).

11. *See* Kenneth Rapoza, *Ukraine 2021: The Crisis Continues*, FORBES (Oct. 14, 2021), https://www.forbes.com/sites/kenrapoza/2021/10/14/ukraine-2021-the-crisis-continues/?sh=3dabe59a4a8a [https://perma.cc/X8X8-SSMV] (archived July 14, 2022). *But see* Daria Kaleniuk, *Why Ukraine's Fight Against Corruption Scares Russia*, FOREIGN POL'Y (Dec. 17, 2021), https://foreignpolicy.com/2021/12/ 17/Ukraine-russia-corruption-putin-democracy-oligarchs/ [https://perma.cc/3DE6-RUWK] (archived July 14, 2022) (providing a more sympathetic view on Ukraine's institutional struggles).

12. Paul Tucker, *On Central Bank Independence*, IMF (May 2020), https://www.imf.org/external/pubs/ft/fandd/2020/05/paul-tucker-unelected-power-on-central-bank-independence.htm [https://perma.cc/T4N8-JL9X] (archived July 14, 2022).

13. *See* ROSA LASTRA & GEOFFREY MILLER, *Central Bank Independence in Ordinary and Extraordinary Times, in* CENTRAL BANK INDEPENDENCE: THE ECONOMIC FOUNDATIONS, THE CONSTITUTIONAL IMPLICATIONS AND DEMOCRATIC ACCOUNTABILITY 31–50 (Jan Kleineman ed., 2001).

expansions in the realms and variety of central bank actions,[14] during crises such as the global financial crisis of 2007-09 and the COVID-19 pandemic, especially in the West where mature central banks embrace clear mandates and technocratic independence.[15] These central bank actions are often justified by "output legitimacy,"[16] providing relief from financial pressures in crises that are both financial and non-financial (such as the COVID-19 pandemic) in nature. However, the expansionary nature of central bank actions raises questions as to its independence,[17] and its actions need to be grounded in legitimacy. The role of the NBU at wartime raises challenges not only for the effective exercise of its powers to preserve the state but also in relation to the preservation of its independence, technocratic credibility, and legitimacy.

We discuss three key roles for the NBU at this time: provisioning war finance that is crucial to defence, preserving the economic institutions of the banking and financial sector, and catering for the financial welfare of citizens. These three priorities present conflicting objectives for the NBU, and balancing these conflicting objectives will be important for the NBU's institutional preservation, legitimacy, and credibility, which ultimately contribute to the state's preservation. Further, we argue that the international support of peer-level central banks and of the International Monetary Fund (IMF) and Bank for International Settlements (BIS) will be important for some of the NBU's objectives and ultimately, state preservation. The NBU's institutional preservation will also be a precondition for mobilizing such

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14. *See* Rosa Lastra, *Central Banks and Financial Stability*, 18 ESTABILDAD FINANCIERA 51, 51–53 (2010) [hereinafter Lastra, *Central Banks and Financial Stability*] (discussing central banks' roles in protecting financial stability after the global financial crisis 2007–2009). On central banks' actions during the Covid-19 pandemic (amongst other agencies), a comparative study of the EU, UK and US can be found in Iris H-Y Chiu, Andreas Kokkinis & Andrea Miglionico, *Debt Expansion as 'Relief and Rescue' at the Time of the Covid-19 Pandemic: Insights from the Legal Theory of Finance*, 28 IND. J. GLOB. LEG. STUD. 29 (2021).

15. *See* Lastra, *Central Banks and Financial Stability*, *supra* note 14, at 51–53.

16. The central bank's legitimacy can be regarded as rooted in "output" legitimacy, that is, what is achieved in relation to primarily economic goals. *See generally* Erik Jones, *Output Legitimacy and the Global Financial Crisis: Perceptions Matter*, 47 J. COMMON MKT. STUD. 1085 (2009). In this way, the independence or the institutional 'sanctity' of the central bank is not an end in itself. *See* James Forder, *Central Bank Independence: Economic Theory, Evidence and Political Legitimacy*, *in* THE RISE OF THE MARKET 145, 145–80 (Philip Arestis & Malcolm Sawyer eds., 2004). Central bank independence has been perceived to enhance the legitimacy of technocratic focus on particular economic goals, but such technocratic 'policy' is never truly divorced from political choices. *See* Rosa Lastra, *The Institutional Path of Central Bank Independence*, *in* RESEARCH HANDBOOK IN CENTRAL BANKING 296–313 (Peter Conti-Brown & Rosa Lastra eds., 2017); Kathleen McNamara, *Rational Fictions: Central Bank Independence and the Social Logic of Delegation*, 25 W. EUR. POL. 47, 47–76 (2002). Indeed, if independent central banks suffer from democratic deficit, then output legitimacy becomes all the more important.

17. *See* Lastra, *Central Banks and Financial Stability*, *supra* note 14, at 18.

peer-level international support. In this manner, despite martial law, we argue that the NBU needs to navigate multiple goals as a distinct and expert institution, towards the purposes of output efficacy and legitimacy.

A. *War Finance*

First, a central bank is often positioned as the government's bank, especially at times of crisis such as war. That was indeed the rationale of some of the early central banks.[18] The Bank of England, for example, was historically formed for the purpose of financing war and managing the government's budget and finances.[19] The NBU is now placed in a similar position of providing for war finance[20] as well as fund-raising war finance for the government.[21] This role is immediately important, but as Part II discusses, there are challenging choices that need to be made in relation to inflation-targeting goals and the mobilisation of state-owned banks.[22] We discuss these through the lens of the need for the NBU to preserve itself as a credible national institution, as such institutional preservation is itself a key condition for the ultimate preservation and restoration of the democratic state, its institutions, and its people's welfare.

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18. *See generally* ROSA M. LASTRA, CENTRAL BANKING AND BANKING REGULATION (1996); ROSA M. LASTRA, INTERNATIONAL FINANCIAL AND MONETARY LAW (2d ed. 2014). On central banks' war finance role, see generally Jocelyn Pixley, *War Finance, Capitalist Banks: Shared Monetary Sovereignty*, *in* CENTRAL BANKS, DEMOCRATIC STATES AND FINANCIAL POWER, 57, 57–108 (2018).

19. *See* Forrest Capie & Geoffrey Wood, *The Development of the Bank of England's Objectives: Evolution, Instruction or Reaction?*, *in* RESEARCH HANDBOOK IN CENTRAL BANKING 34, 34–51 (Peter Conti-Brown & Rosa M. Lastra eds., 2018).

20. The NBU also mobilises Ukrainian banks, the largest of which are state-owned, to finance the government's war effort. *See Crediting Cash to Buy War Bonds Simplified for Banks*, NAT'L BANK OF UKR. (Mar. 11, 2022), https://bank.gov.ua/en/news/all/bankam-sproscheno-zarahuvannya-gotivkovih-koshtiv-dlya-pridbannya-viyskovih-obligatsiy [https://perma.cc/FLA4-LNKT] (archived July 14, 2022). Further, it also coordinates acceptance of donations for army finance and humanitarian aid. *See Support the Armed Forces*, NAT'L BANK OF UKR. (last visited July 19, 2022), https://bank.gov.ua/en/about/support-the-armed-forces [https://perma.cc/V7FW-E5B8] (archived July 19, 2022); *Humanitarian Aid to Ukraine*, NAT'L BANK OF UKR. (last visited July 19, 2022), https://bank.gov.ua/en/about/humanitarian-aid-to-ukraine [https://perma.cc/Q2ZP-EM9N] (archived July 19, 2022).

21. *See generally supra* Part I.A.

22. PrivatBank, nationalised in 2016, as well as the OschadBank and Ukreximbank are state-owned.

B. *Bank Prudential Supervision and Maintaining the System for Inter-bank Payments and Settlement*

Second, the NBU, like many central banks,[23] is the bank regulator and supervisor for banks authorised to operate and provide services in Ukraine.[24] Further, the NBU is also the provider of payment and settlement services that cover 97 percent of the Ukrainian market.[25] This role supplies a public good, complementary to many central banks' role as bank regulators. The central bank acts as the bankers' bank and the settlement asset of central bank reserves is regarded as the "safest" asset for inter-bank settlement for payment transactions.[26] Central banks have evolved to provide bank-to-bank settlement for payment transactions, reinforcing their central role in the economy with the legitimacy this confers.[27] In providing bank regulation and over-sight, as well as the public good of inter-bank settlement for payment services, the NBU is central to protecting the financial stability of the financial system in Ukraine.[28]

The provision of war finance raises potentially conflicting objectives for the NBU in relation to its financial stability roles. Societal demands and the need to meet citizen welfare requirements further exacerbate the conflicts of objectives. These are discussed in

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23. In 1994, it is found that most central banks of developing countries are also bank supervisors but the trend is less pronounced in the developed West. *See* José Touya & Lorena Zamalloa, *Issues on Placing Banking Supervision at the Central Bank, in* FRAMEWORKS FOR MONETARY STABILITY 663, 663–90 (Tomás J.T. Baliño & Carlo Cottarelli eds., 1994). There are however arguments in the UK and US for placing bank supervision under the central bank, and the UK ultimately achieved this in 2013 after experimenting with a separate financial services regulator from 2000-2013. *See generally* Charles Goodhart, *The Changing Role of Central Banks*, FED. RSRV. BANK OF ST. LOUIS (2010), https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.225.4092&rep=rep1&type=pdf [https://perma.cc/5Z5S-62M4] (archived July 30, 2022); Joe Peek, Eric S. Rosengren & Geoffrey M.B. Tootell, *Is Bank Supervision Central to Central Banking?*, 144 QUARTERLY J. ECON. 629 (1999), https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.200.7921&rep=rep1&type=pdf. [https://perma.cc/X8YK-7KSP] (archived July 30, 2002).

24. *Banking Supervision*, NAT'L BANK OF UKR. (last visited July 19, 2022), https://bank.gov.ua/en/supervision/about#:~:text=The%20NBU%20supervises%20and%20regulates,in%20full%20and%20on%20time./ [https://perma.cc/RJ9S-L2UR] (archived July 19, 2022).

25. *System of Electronic Payments*, NAT'L BANK OF UKR. (last visited July 19, 2022), https://bank.gov.ua/en/payments/sep [https://perma.cc/42BR-9Y88] (archived July 19, 2022).

26. *See* Benjamin Geva, *Central Banks and Payment Systems Risks, in* RESEARCH HANDBOOK IN CENTRAL BANKING 445, 445–73 (Peter Conti-Brown & Rosa M Lastra eds., 2018).

27. *See generally* Joseph G. Haubrich & James G. Thomson, *Umbrella Supervision and the Role of the Central Bank*, 10 J. BANKING REG. 17 (2008).

28. Consistent with international standards for bank regulators, see BASEL COMMUNICATION ON BANKING SUPERVISION, CORE PRINCIPLES FOR EFFECTIVE BANK SUPERVISION 9–13 (2012), https://www.bis.org/publ/bcbs230.pdf [https://perma.cc/MDY6-2Q4P] (archived on July 30, 2022).

Parts II and III. We consider the NBU's balancing acts and argue that two important tenets should be preserved. The first is the preservation of payment and settlement certainty, which can be increasingly threatened as a ceasefire continues to be elusive at the time of writing. Unconventional approaches to protect financial stability and maintain the resilience of the payment and settlement infrastructure may need to be considered.[29] The second is the need to ensure an appropriate degree of financial soundness in Ukrainian banks, despite immediate pressures to meet citizens' welfare needs. Martial law should not be regarded as a licence to "throw caution to the wind" in relation to the strength and credibility of the banking sector, which would be important for purposes of restoration and rebuilding in due course. Underpinning these is, however, the NBU's own capacity to respond to stretched mandates, which we flesh out in Parts II and III.

Important support is arguably needed from the international network of central banks, and at this time, European central banks and the European Central Bank (ECB). Part III discusses the limitations of the NBU's solo actions and the challenges posed for regional and international support.

C. *The Central Bank's Role in Preserving and Helping to Rebuild Society and its Democratic Institutions*

Third, we argue that the central bank has a fundamental role to play in institutional preservation and restoration for the broader good of the economy and society in Ukraine in due course. This broader role is explored apart from the more specific discussion on banks' financial stability and robustness covered in Part III.

Across the globe central banks have different mandates. For example, while it is widely accepted that modern central banks need to focus on price and monetary stability,[30] the US Federal Reserve System has an additional mandate to support full economic employment (the so-called twin mandate).[31] The ECB has also been mandated with supporting the European Union's "general economic policies," a broadly-worded mandate but expected to be consistent with price stability.[32] In this manner, whether explicit or implicit, central banks

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29. Drawing from literature regarding critical infrastructure protection and resilience, see *supra* Part I.B.

30. *See generally* Paul Tucker, *How Can Central Banks Deliver Credible Commitment and be Emergency Institutions, in* CENTRAL BANK GOVERNANCE AND OVERSIGHT REFORM 1, 1–53 (John H. Cochrane & John B. Taylor eds., 2016).

31. *See* THAMMARAK MOENJAK, CENTRAL BANKING 37–74 (2014).

32. Consolidated Version of the Treaty on the Functioning of the European Union art. 127(1), Oct. 26, 2012, 2012 O.J. (C 326) 47. *See* ROSA M. LASTRA & KERN ALEXANDER, THE ECB MANDATE 11–13 (2020), https://www.europarl.europa.eu/cmsdata/207720/Lastra-Alexander_FINAL%20online.pdf [https://perma.cc/L5ZH-XSED] (archived July 30, 2022).

worldwide are expected to support economic welfare and broad government policies,[33] especially in the wake of crises.[34]

It is likely that the NBU will have broader roles in due course to support economic restoration and rebuilding. Its institutional preservation and its legitimacy in the eyes of both the government and the public and will be key to its success in these roles. We argue in Part IV that there is a role for the international network of central banks, primarily the Financial Stability Board Regional Consultative Group for Europe,[35] of which the NBU is a member, to support certain aspects of the NBU's institutional preservation. In the face of already-growing international coordination and cooperation amongst central banks and financial regulators,[36] this proposal may not be as unconventional as it seems. Part V provides a brief conclusion.

II. PROVISIONING WAR FINANCE

Authoritarian governments often use their central banks, which have little real independence, to fund the government through monetary financing.[37] Many such regimes have used the central bank as a means of pillaging the banking system.[38] Monetary financing risks runaway inflation, an unstable and tainted currency, investor flight, and, ultimately, adverse economic welfare for a country's citizens.

States can finance war by a mixture of increased taxation, printing more money, and borrowing.[39] In the case of Ukraine, non-repayable international financial support is also part of fund-raising. These measures are usually reinforced by the suppression of public demand for goods and services, thereby posing a three-fold risk to governments, institutional robustness, and citizen welfare. Moreover, the imposition of martial law may jeopardise institutional robustness

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33. *See generally* MOHAMED A. EL-ERIAN, THE ONLY GAME IN TOWN (2016).

34. *See generally* Tucker, *supra* note 30.

35. *Members of the FSB Regional Consultative Group for Europe*, FIN. STABILITY BD., https://www.fsb.org/about/rcgs/list-of-members-of-the-fsb-regional-consultative-group-for-europe/ (last visited July 19, 2022) [https://perma.cc/LZR2-G7YP] (archived July 19, 2022).

36. *See generally infra* Part IV.A.

37. *See generally* ADAIR TURNER, INT'L MONETARY FUND, THE CASE FOR MONETARY FINANCE – AN ESSENTIALLY POLITICAL ISSUE (2015). A critical discussion on the scope for monetary financing in the EU, UK and US can be found in Will Bateman, *The Law of Monetary Finance under Unconventional Monetary Policy*, 41 OXFORD J. LEG. STUD. 929, 929–64 (2021).

38. *See generally* CHARLES CALOMIRIS & STEPHEN HABER, FRAGILE BY DESIGN: THE POLITICAL ORIGINS OF BANKING CRISES AND SCARCE CREDIT (2014).

39. *See* Stephen Broadberry & Peter Howlett, *The United Kingdom During World War One: Business as Usual?*, *in* THE ECONOMICS OF WORLD WAR I 206, 215 (Stephen Broadberry & Mark Harrison eds., 2005). It is interesting to note that Imperial Germany is described in similar terms to Putin's Russia—"[I]t is the story of a half-constitutional yet undemocratic system in denial of defeat, unable to compromise, unable to make peace." *Id.* at 41.

by giving rise to inflation, currency depreciation, and general state hegemony. For example, on the eve of the First World War, Lord Desart's committee received many recommendations to give the Bank of England a very wide-ranging role in the event of a European war. These included declaring a moratorium of the payment of bills of exchange, suspending the Banking Act 1844 to allow the Bank to print more money, and encouraging the Bank to buy up bills of exchange to increase liquidity in the markets.[40] These "extreme" measures of monetary financing are not observed yet in Ukraine. However, the NBU has engaged in monetary financing as discussed below.

In the following we discuss the risks arising from the major means of war finance in Ukraine. These include buying government paper as well as external debt financing by Ukrainian private and state-owned banks, external debt financing by external investors including international organisations, and donation-based financing in fiat currency and in private cryptocurrency. We discuss how each works and the difficult choices or implications for each in relation to the three-way risks mentioned above.

A. *Central Bank Monetary Financing*

The NBU has, at the time of writing and under martial law, purchased three tranches of government "war bonds" totalling 70 billion UAH at the time of writing, in order to provide financially for the government.[41] It also signals willingness to support the government's critical expenses if this is needed, stressing the temporariness of such measures.[42] The direct fiscal financing of the government by the central bank is often described as a hazardous practice,[43] which can result in moral hazard leading to severe

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40. *See* NICHOLAS LAMBERT, PLANNING ARMAGEDDON 173 (2012). Lord Desart chaired a sub-committee of the UK's Committee of Imperial Defence.

41. *See infra* note 42; *see also NBU Buys UAH 20 Billion of War Bonds in Second Such Purchase*, NAT'L BANK OF UKR. (Apr. 13, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-zdiysniv-drugiy-vikup-viyskovih-obligatsiy-na-sumu-20-mlrd-grn [https://perma.cc/TWF2-LUWD] (archived Aug. 5, 2022); *NBU Purchases Higher Volumes of War Bonds in Ukraine in April, Calls for Ramping Up Market Borrowings*, NAT'L BANK OF UKR. (Apr. 27, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-u-kvitni-zbilshiv-obsyagi-vikupu-viyskovih-ovdp-prote-zvertaye-uvagu-na-neobhidnist-aktivizatsiyi-rinkovih-borgovih-zaluchen [https://perma.cc/CNT9-KG99] (archived Aug. 5, 2022).

42. *See NBU Buys Out War Bonds for UAH 20 Billion and May Continue Financing Critical Expenses of Government under Martial Law*, NAT'L BANK OF UKR. (Mar. 8, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-vikupiv-viyskovi-obligatsiyi-na-20-mlrd-grn-i-za-neobhidnosti-prodovjit-finansuvati-kritichni-vida tki-uryadu-v-umovah-voyennogo-stanu [https://perma.cc/Y3VJ-ETGU] (archived Aug. 5, 2022).

43. *See* Lastra, *Central Banks and Financial Stability*, *supra* note 14, at 63. *See generally* TURNER, *supra* note 37 (illustrating the difficulties that may accompany direct fiscal financing of a government by the central bank).

consequences for the central bank's institutional credibility as well as adverse inflationary implications for the economy. This may be traced back to the old practice of seignorage, where the government raises revenue by essentially undermining the "worth" of the money it issues.[44] Seignorage is resorted to when direct raising of revenues, such as raising taxes, is not likely to be feasible.

Where government revenue is raised by monetary financing, the value of the sovereign's currency can be undermined in the eyes of the market as it becomes uncertain to what extent excessive money would be created to meet the fiscal needs of the government. This causes the price of "everything" denominated in the state's currency to move along inflationary trajectories reflecting the lack of confidence in the value of the currency. Inflation undermines the sovereign's currency, and if markets choose to denominate "monetary objects"[45] in alternative currencies,[46] this undermines the legitimacy of the national currency. In this manner, monetary financing can erode the very capacity of the central bank to fund the government if the currency becomes undermined, having adverse knock-on effects for the economic institutions of the country as well.[47] However, despite the dangers of monetary financing, there may be a sober and careful case for using this, such as during crises and war.[48]

A country which fails to pay adequate attention to monetary and fiscal matters stores up problems if the war continues for any length and threatens the stability of post-war society. For example, the German military in World War I paid little regard to financial matters and by 1917 operated a military dictatorship. Focus was placed on production of military supplies to continue the war which adversely affected the real economy. The provision and distribution of food and coal slipped from their grasp as a parallel barter economy developed.[49] In contrast to the rigors of martial law, the NBU has maintained the temporariness of monetary financing and emphasized that monetary financing is not a primary means of war finance. It has also continued

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44. *See* Richard C.K. Burdekin, *Seigniorage*, *in* THE PRINCETON ENCYCLOPEDIA OF THE WORLD ECONOMY 992, 992 (Kenneth A. Reinert et al. eds., 2008).

45. *See* Corinne Zellweger-Gutknecht, Bemjamin Geva & Seraina N. Grünewald, *Digital Euro, Monetary Objects, and Price Stability: A Legal Analysis*, 7 J. FIN. REGUL. 284, 284 (2021) (describing "monetary objects").

46. There is already a risk of this in Ukrainian markets. *See Setting Prices in Foreign Currency in Ukraine Is Illegal and Immoral*, NAT'L BANK OF UKR. (Mar. 3, 2022), https://bank.gov.ua/en/news/all/vstanovlennya-tsin-v-ukrayini-v-inoze mniy-valyuti-ye-nezakonnim-ta-amoralnim [https://perma.cc/D4D7-HLAT] (archived Aug. 5, 2022) (highlighting that the National Bank of Ukraine condemns denomination of foreign currency as monetary objects).

47. *See* Martin Wolf, *Monetary financing demands careful and sober management*, FIN. TIMES (Apr. 9, 2020), https://www.ft.com/content/dc233540-798e-11ea-9840-1b8019d9a987 [https://perma.cc/FZG9-P8GV] (archived July 18, 2022).

48. *Id.*

49. *See* GERALD FELDMAN, ARMY, INDUSTRY AND LABOR IN GERMANY, 1914–1918, 443, 481 (Princeton Univ. Press 1966).

to maintain its distinctness as an expert and independent entity, developing its communication strategy focused on explaining the extraordinary rationales for limited monetary financing while making monetary policy decisions in a manner that aims at mitigating moral hazard.[50] As Thomas Baxter, former general counsel at the Federal Reserve Bank of New York, and others have stated, the central bank needs to be as transparent as possible.[51] It must also continue to be accountable to the legitimate government of Ukraine under Article 99 of the state's constitution and answerable to the Council of the National Bank of Ukraine, which includes members from the Rada and the Office of the President of the state.

The NBU has continued to signal its independence and expertise.[52] Commentators have opined that central bank independence is crucial not only for financial sustainability during wartime, which will help to influence the war's outcome,[53] but also for the prospects of future restoration.[54] Nevertheless, as Rosa Lastra[55] argues, "independence" is a highly nuanced concept and central banks have always been institutions of instrumentality, with more clearly articulated objectives being a recent development. It will be important for the NBU to continue to be able to protect its institutional credibility by maintaining a sound balance amongst its challenging objectives and

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50. *See* DOUGLAS HOLMES, ECONOMY OF WORDS: COMMUNICATIVE IMPERATIVES IN CENTRAL BANKS 12–15 (2013) (explaining that communication in central banking is increasingly important to preserve accountability and legitimacy and discussing the communicative imperatives of central banks in building up economic pictures and policies). *See generally* Rosa Lastra & Sara Dietz, *Communication on Monetary Policy*, MONETARY DIALOGUE PAPERS, (Study requested by the ECON Committee, European Parliament, Feb. 2022), https://www.europarl.europa.eu/RegData/etudes/STUD/2022/703339/IPOL_STU(2022)703339_EN.pdf [https://perma.cc/P2RP-5MG8] (archived July 18, 2022). (arguing that the ECB's communications are not only important to provide guidance to markets, manage market expectations and bring about policy credibility, but also support its legitimacy and accountability).

51. Thomas Baxter, *Ethical Culture and Central Banking*, *in* RESEARCH HANDBOOK ON LAW AND ETHICS IN BANKING AND FINANCE 339, 345–46 (Costanza Russo et al. eds., 2019).

52. *See Official Announcements by the NBU*, NAT'L BANK OF UKR., https://bank.gov.ua/en/news/all/ofitsiyni-povidomlennya-vid-natsionalnogo-banku-onovlyuyetsya (last visited Aug. 15, 2022) [https://perma.cc/YM2J-CRX9] (archived Aug. 15, 2022) (containing the frequent, almost daily communications and updates by the NBU).

53. *See* Patrick Shea, *Financing Victory: Sovereign Credit, Democracy, and War*, 58 J. CONFLICT RESOL. 771, 775 (2013) (stating than an independent central banks lead to better lending conditions). *See generally* Ana Carolina Garriga, *Central Banks and Civil War Termination*, 20 J. PEACE RSCH. (2021) (discussing the importance of central bank credibility in civil conflicts).

54. *See* Paul Poast, *Central Banks at War*, 69 INT'L ORG. 63, 91 (2015) (discussing the role played by central banks in incentivizing peace).

55. *See* Lastra, *Central Banks and Financial Stability*, *supra* note 14, at 18. *See generally* William Bernhard, *A Political Explanation of Variations in Central Bank Independence*, 92 AM. POL. SCI. REV. 311 (1998).

making appropriate communications regarding its actions and rationales.

We are of the view that the NBU's actions to date at the time of writing achieves a delicate balance to meet war finance needs while mitigating the hazard of runaway inflation. The NBU has performed a size of monetary financing that is not excessive, and also raised interest rates to 10 percent,[56] signalling its commitment to maintaining monetary stability as an independent central bank. This allows external borrowing by the government, discussed below, to be offered at an interest rate of 11 percent, an attractive return for investors.[57] Despite this being a high interest rate and relatively punitive for the economy, a balance is struck between high borrowing cost and maintaining stability for economic conditions.[58] Further, the NBU has signalled commitment to maintain an inflation target of 5 percent towards normality, at an opportune time.[59] However, we argue shortly in Part III that inflationary pressures would likely continue as the need to protect the welfare of Ukrainian citizens at this time can result in more demands placed on the NBU to finance and support banking systems. As liquidity is drained from Ukrainian banks, such as by Ukrainian refugees having to exchange their national currency, the hryvnia (UAH), for foreign currency, an unintended "demand deserting" pressure is created on the UAH, causing it to lose market value. This phenomenon would put further pressure on spending more of Ukraine's foreign reserves and constraining the government from excessively high levels of borrowing in relation to external debt, which would likely be denominated in foreign currency such as US dollars or euros. The conflicting objectives for the NBU have implications for the limits of external financing for war.

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56. *See Address by NBU Governor Kyrylo Shevchenko on NBU Board's Monetary Policy Decision*, NAT'L BANK OF UKR. (Mar. 3, 2022), https://bank.gov.ua/en/news/all/zvernennya-golovi-natsionalnogo-banku-kirila-shevchenka-schodo-rishennya-pravlinnya-natsionalnogo-banku-z-monetarnih-pitan [https://perma.cc/PWU8-9XC3] (archived Aug. 5, 2022).

57. *See NBU Depository: Almost 2,000 Individuals and Businesses Purchased Military Domestic Government Debt Securities Last Week*, NAT'L BANK OF UKR. (Apr. 11, 2022), https://bank.gov.ua/en/news/all/za-minuliy-tijden-mayje-2-tisyachi-gromadyan-ta-predstavnikiv-biznesu-stali-vlasnikami-viyskovih-ovdp--depozitariy-nbu [https://perma.cc/GQ4C-KCNV] (archived Aug. 5, 2022) (demonstrating that uptake of war bonds has been increasing steadily and that the NBU's communications also show that monetary financing is at a scale much smaller than external finance).

58. *See European Union Inflation Rate*, TRADING ECON. (last visited July 31, 2022), https://tradingeconomics.com/european-union/inflation-rate [https://perma.cc/KK84-DSJJ] (archived July 19, 2022). Ukraine's high interest rate may, however, not compare too unfavorably to inflation developments in other developed Western economies.

59. *See NBU Commits to Return to Inflation Targeting with Floating Exchange Rate – Monetary Policy Guidelines*, NAT'L BANK OF UKR. (Apr. 18, 2022), https://bank.gov.ua/en/news/all/nbu-zobovyazuyetsya-povernutisya-do-rejimu-inflyatsiynogo-targetuvannya-z-plavayuchim-kursoutvorennyam--osnovni-zasadi-groshovo-kreditnoyi-politiki [https://perma.cc/Y6KD-VSX9] (archived Aug. 5, 2022).

B. *External Debt Financing by Ukrainian Banks*

Next, war finance can be provided by Ukrainian private and state-owned banks to the government. The largest Ukrainian banks in terms of assets are all state-owned, and this gives rise to particular tensions in relation to the NBU's war finance provision objective and its bank regulation objective. At the time of writing, a significant majority of war bonds to finance the military are being held by the Ukrainian banking sector.[60] The PrivatBank, the largest bank in Ukraine, was controlled by oligarchs who almost drove it to insolvency in 2016, resulting in its nationalisation to protect depositors.[61] The OschadBank is the state's savings bank for citizens, and the Ukreximbank (State Export–Import Bank) is also one hundred percent state-owned. In peacetimes, state-owned banks are likely to be symbols of confidence as claims against them are implicitly "put"[62] by the state. In wartime, there is a risk of the state putting pressure on state-owned banks to help finance the war. PrivatBank and OschadBank have published their contributions to war finance,[63] and the crucial question is how the NBU, as bank regulator, navigates the balance of preserving credible bank regulation, which is intended to protect bank and systemic stability, while allowing banks to contribute to war finance. Added to this dilemma is the balance between protecting bank and systemic stability versus protecting citizens' welfare as they attempt to access their financial resources by claiming on deposit liabilities, discussed in Part III.

The NBU, as bank regulator, needs to ensure that banks' asset creation is based on sound financial strength. Under international standards for bank regulation, assets are risk-weighted conser-

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60. *See NBU Depository: Number of Holders of Ukrainian Domestic Government Debt Securities Keeps Rising, First Issue of War Bonds Redeemed to Investors*, NAT'L BANK OF UKR. (May 2, 2022), https://bank.gov.ua/en/news/all/ kilkist-vlasnikiv-ovdp-ukrayini-nadali-zrostaye-vkladniki-otrimali-viplati-vid-pogashennya-pershogo-vipusku-viyskovih-obligatsiy--depozitariy-nbu [https://perma.cc/7RYA-CJFG] (archived Aug. 5, 2022).

61. *See Ukraine's biggest lender PrivatBank nationalized*, BBC NEWS (Dec. 19, 2016), https://www.bbc.co.uk/news/business-38365579 [https://perma.cc/DC23-FPUE] (archived July 19, 2022).

62. A 'put' is defined as a right but not an obligation for the holder of an options contract to sell, and this is often used to describe states being held 'hostage' to important financial institutions who exert a near 'right' to require the state to bail out financially if in trouble, due to the systemic risk implications of certain financial institutions' failure.

63. *See PrivatBank transferred UAH 28 billion in dividends for 2021 to the state budget*, BRAVERY (Mar. 3, 2022), https://en.privatbank.ua/news/2022/3/5/1571 [https://perma.cc/8T5P-MM5T] (archived July 19, 2022); *Public letter to Foreign Ambassadors to Ukraine and International Financial Institutions from Oschadbank's Supervisory Board*, OSCHAD BANK (Feb. 28, 2022), https://www.o schadbank.ua/en/news-category/novini-osadu [https://perma.cc/U6RL-6XDZ] (archived July 19, 2022) (illustrating that, although it is not clear the extent of support, OschadBank has declared financial provision for the government).

vatively against capital provision, and excessive risk-taking or concentrations in assets are controlled under standards in microprudential regulation.[64] In terms of bank purchases of war bonds, these would likely not be constrained as large exposures, as sovereign exposures have been exempt from large exposure controls.[65] Further, the NBU may be incentivized not to require war bonds to be risk-weighted too conservatively so that banks are not hampered by microprudential regulation constraints to buy them. Will relatively favourable risk-weightings for sovereign bonds enjoyed during peacetimes continue to apply, in spite of the downgrading of Ukrainian sovereign bonds by credit rating agencies?[66] State-owned banks can also provide finance to the government through large dividend repayments,[67] and this can be unscrutinised as the state is the sole shareholder and can choose to ignore the profitability position of the bank in declaring dividends in its favour. Dividend outflow can weaken the capital and liquidity strength of banks.

The pressures to act prudently would likely conflict with the need to generously support the war financially, and it is uncertain at this time how the NBU will balance its role as bank regulator, with the institutional purpose is to safeguard bank credibility and financial strength, and its role as bank to the government. There is benefit to maintaining a level of prudence as this likely improves Ukrainian banks' external financing prospects. External financing remains important for Ukrainian banks as separate entities from the state. Otherwise, there is a risk that the NBU may be stretched with meeting banks' needs for liquidity, and even solvency, in the face of withdrawal pressures as we discuss in Part III.

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64. *See generally* IRIS H-Y CHIU & JOANNA WILSON, BANKING LAW AND REGULATION (Oxford Univ. Press 2019).

65. *See* BASEL COMMITTEE ON BANKING SUPERVISION, BANK FOR INTERNATIONAL SETTLEMENTS, THE REGULATORY TREATMENT OF SOVEREIGN EXPOSURES 18 tbl. 3 (2018), https://www.bis.org/bcbs/publ/d425.pdf [https://perma.cc/T9DQ-JPW2] (archived July 19, 2022).

66. *See Fitch Downgrades Ukraine to 'CCC'*, FITCH RATINGS (Feb. 25, 2022), https://www.fitchratings.com/research/sovereigns/fitch-downgrades-ukraine-to-ccc-25-02-2022 [https://perma.cc/Z9YP-9TDF] (archived July 19, 2022).

67. See *PrivatBank transferred UAH 28 billion in dividends for 2021 to the state budget*, *supra* note 63.

The NBU has limited its supervision of banks[68] and suspended bank financial reporting under martial law.[69] These suspensions are able to lift pressure off banks as they face increased servicing demands.[70] However, a looming reality for the NBU as bank regulator is that loan losses are likely to mount in the domestic banking sector, and the largest national banks are also likely to hold most of the country's domestic, residential, and commercial mortgages and business loans. Asset impairment is inevitable during war as borrowers' social and economic displacement will affect the servicing of debts and their eventual repayment. Indeed, banks have voluntarily offered payment holidays for borrowers in view of the disruption and economic slump.[71] The NBU has also relaxed micro-prudential supervision of non-performing loans at credit unions.[72] It is likely that banks' tolerance for asset impairment and the regulator's supervisory forbearance would ease pressures for domestic borrowers. As seen with the COVID-19 pandemic crisis, governments can require that debts are rescheduled with a moratorium on repossessions,[73] therefore post-

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68. *See NBU Takes Further Steps to Sustain Operation of the Banking System Under Martial Law*, NAT'L BANK OF UKR. (Feb. 25, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-vjivaye-chergovih-zahodiv-dlya-pidtrima nnya-stabilnosti-bankivskoyi-sistemi-na-chas-diyi-v-ukrayini-voyennogo-stanu [https://perma.cc/Z32F-TVDH] (archived Aug. 8, 2022); *NBU Continues to Take Measures to Minimize Adverse Impact of Russian Military Aggression on Banking System of Ukraine*, NAT'L BANK OF UKR. (Mar. 7, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-prodovjuye-vjivati-zahodiv-dlya-minimizatsiyi-negativnogo-vplivu-rosiyskoyi-viyskovoyi-agresiyi-na-bankivsku-sistemu-ukrayini [https://perma.cc/ZG22-GGAG] (archived Aug. 8, 2022).

69. *See On Procedure for Submission of Financial Statements by Banks under Martial Law*, NAT'L BANK OF UKR. (Mar. 9, 2022), https://bank.gov.ua/ en/news/all/pro-poryadok-skladannya-ta-podannya-bankami-finansovoyi-zvitnosti-v-umovah-voyennogo-stanu [https://perma.cc/ADC7-ESPF] (archived Aug. 8, 2022).

70. *See Banks Are Open Seven Days a Week*, NAT'L BANK OF UKR. (Mar. 25, 2022), https://bank.gov.ua/en/news/all/chi-ye-vihidni-dni-u-bankivskoyi-sistemi-ukrayini [https://perma.cc/M3EH-YAUX] (archived Aug. 8, 2022) (illustrating measures taken by Ukrainian banks in response to increased demand).

71. *See In Q1 Banks Reported UAH 160 Million in Losses due to Provisioning for Expected Losses from War*, NAT'L BANK OF UKR. (Apr. 29, 2022), https://bank.gov.ua/en/news/all/u-i-kvartali-zbitok-bankivskogo-sektoru-stanoviv-160-mln-grn-cherez-formuvannya-rezerviv-pid-ochikuvani-zbitki-vid-naslidkiv-viyni [https://perma.cc/5HSH-453C] (archived Aug. 8, 2022) (stating that the war has created an economic slump and has negatively impacted bank's profitability).

72. *See Failure to Make Loan Repayments to Credit Unions Due to Martial Law Will Not Be Deemed Overdue Debt*, NAT'L BANK OF UKR. (Mar. 24, 2022), https://bank.gov.ua/en/news/all/nesplata-kreditnih-platejiv-chlenami-kreditnih-spilok-u-zvyazku-z-voyennim-stanom-ne-vvajatimetsya-prostrochennyam [https://perma.cc/755X-57ZE] (archived Aug. 8, 2022) (implementing a grace period for overdue loans).

73. *See Debt Service Suspension Initiative*, WORLD BANK (Mar. 10, 2022), https://www.worldbank.org/en/topic/debt/brief/covid-19-debt-service-suspension-initiative [https://perma.cc/9PF7-7W28] (archived July 19, 2022) (offering an explanation of the debt suspension service promoted by the World Bank and a country-by-county

poning the recognition of non-performing loans. However, bank solvency may still be threatened if losses are ultimately recognized in accordance with market value.[74] Although the same relaxation of micro-prudential compliance is not currently extended to banks, the NBU walks a fine line because supervisory forbearance can damage the credibility of banks. Bank credibility is important for both external financing (which can affect war finance) and the future role of banks in rebuilding and restoration. The NBU has provided transparency on many fronts to assuage markets, such as transparency on transactions and holders for war bonds,[75] and transparency on banks' loan loss provisions.[76] It is however uncertain to what extent micro-prudential compliance is supervised robustly and whether banks' financial strength (or weakness) is obscured.

In sum, the need for war finance and the concern for domestic constituents' welfare, such as borrowers' welfare, would likely conflict with a bank supervision role that promotes bank financial strength and credibility. The NBU as bank regulator is likely to have to take measures that are both "prudentially tough" for banks while being flexible enough to preserve the sector for rebuilding the nation and economy. In due course, it is likely that a mixture of bank resolution and consolidation, which may be carried out under the NBU's leadership, could occur in order to boost the sector's financial strength while a period of flexible prudential regulation application may be needed.[77]

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accounting); *see also* Iris H-Y Chiu, Andreas Kokkinis & Andrea Miglionico, *Debt Expansion as 'Relief and Rescue' at the Time of the Covid-19 Pandemic: Insights from the Legal Theory of Finance*, 28 IND. J. GLOB. LEGAL STUD. 29, 33–60 (2021) (discussing debt moratoria measures compared between the US, EU and UK).

74. *See IFRS 7 Financial Instruments: Disclosures*, INTERNATIONAL FINANCIAL REPORTING STANDARDS, https://www.ifrs.org/issued-standards/list-of-standards/ifrs-7-financial-instruments-disclosures/ (last visited Aug. 15, 2022) [https://perma.cc/5PJB-WEUH] (archived July 20, 2022) (applying IFRS 7 on financial instruments evaluation).

75. *See NBU Depository: Number of Holders of Ukrainian Domestic Government Debt Securities Keeps Rising, First Issue of War Bonds Redeemed to Investors*, NAT'L BANK OF UKR. (May 2, 2022), https://bank.gov.ua/en/news/ all/kilkist-vlasnikiv-ovdp-ukrayini-nadali-zrostaye-vkladniki-otrimali-viplati-vid-pogashennya-pershogo-vipusku-viyskovih-obligatsiy--depozitariy-nbu (naming holders of domestic military debt securities and the number of individuals and businesses holding war bonds).

76. *See In Q1 Banks Reported UAH 160 Million in Losses due to Provisioning for Expected Losses from War*, NAT'L BANK OF UKR. (Apr. 29, 2022), https://bank.gov.ua/en/news/all/u-i-kvartali-zbitok-bankivskogo-sektoru-stanoviv-160-mln-grn-cherez-formuvannya-rezerviv-pid-ochikuvani-zbitki-vid-naslidkiv-viyni [https://perma.cc/6QDW-9KFJ] (archived Aug, 8, 2022) (outlining the bank of Ukraine's losses and expected losses after Russian invasion).

77. *See id*; Katharina Pistor, *A Legal Theory of Finance*, 41 J. COMPAR. ECON. 315, 320–22 (2013) (describing the elasticity of law and explaining that legal commitments may be relaxed to suit future needs). *See generally* Iris H-Y Chiu, Andreas Kokkinis & Andrea Miglionico, *Relief and Rescue: Suspensions and Elasticity in Financial Regulation, and Lessons from the UK's Management of the Covid-19 Pandemic Crisis*, 64 WASH. U. J.L. & POL'Y 63 (2021) (detailing exigencies for prudential regulation suspension and recommended principles for such suspension).

Furthermore, state and municipal property will need to be cleared of mines and other munitions and, in many cases, rebuilt. Hopefully, external financial support can be made available, such as by the creation of a series of state corporations modelled on the Bank of England's post World War II arrangements,[78] or a version of the Marshall Plan, which includes external help from developed and rich nations for restoration purposes.[79] State corporations for restoration would cover business, residential, infrastructure, and farming and act as the conduits for foreign aid to rebuild the country. As part of this process, financiers could buy up existing debt secured on property at pre-war values and in this manner contribute to preventing bank solvency crises. The NBU and its banking sector will also have a key role in seeking external funding to establish the financing corporations mentioned above in due course, for the purposes of rebuilding the nation and its economy.

C. *External Debt Financing by External Investors*

Ukraine's internal avenues of finance are insufficient and the Ukrainian government has sought finance from external investors in relation to its war bonds,[80] as well as a loan under the "Rapid Financing Facility" from the International Monetary Fund (IMF).[81] In parallel, the World Bank has devised an emergency package of support: "Financing of Recovery from Economic Emergency in Ukraine" (FREE Ukraine) of almost $0.5 billion made up of loans and guarantees.[82] This

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78. *See The Bank of England 1939–45 (Unpublished War History)*, BANK OF ENG., vol. 1 pt. 1 ch. X, 252, 252–53 (1943), https://www.bankofengland.co.uk/-/media/boe/files/archive/ww/boe-1939-1945-part1-chapterx.pdf [https://perma.cc/8UAH-8GYQ] (archived July 20, 2022) (discussing England's post war Domestic Finance Committee, created in 1943).

79. *See Marshall Plan, 1948*, U.S. DEP'T OF STATE https://history.state.gov/milestones/1945-1952/marshall-plan [https://perma.cc/9RBU-PQA3] (archived July 20, 2022) (detailing the U.S. plan to invest in war-torn European countries after WWII).

80. *See NBU Depository publications that discuss the nature of war bond holdings, 'NBU Depository: Number of Holders of Ukrainian Domestic Government Debt Securities Keeps Rising, First Issue of War Bonds Redeemed to Investors*, NAT'L BANK OF UKR. (May 2, 2022), https://bank.gov.ua/en/news/all/kilkist-vlasnikiv-ovdp-ukrayini-nadali-zrostaye-vkladniki-otrimali-viplati-vid-pogashennya-pershogo-vipusku-viyskovih-obligatsiy--depozitariy-nbu [https://perma.cc/FE4P-BUHX] (archived Aug, 8, 2022) (stating that the NBU appeals to the international community to strengthen Ukraine's financial situation).

81. *See IMF Grants Ukraine USD 1.4 Billion in Emergency Financing*, NAT'L BANK OF UKR. (Mar. 10, 2022), https://bank.gov.ua/en/news/all/mvf-vidilyaye-ukrayini-14-mlrd-dol-ssha-ekstrenogo-finansuvannya [https://perma.cc/3USH-BWRR] (archived Aug. 8, 2022).

82. *See World Bank Mobilizes an Emergency Financing Package of over $700 million for Ukraine*, WORLD BANK (Mar. 7, 2022) https://www.worldbank.org/en/news/press-release/2022/03/07/world-bank-mobilizes-an-emergency-financing-package-of-over-700-million-for-ukraine [https://perma.cc/7JWB-FYEU] (archived July 20, 2022).

support has been augmented by guarantees from the Netherlands and Sweden. The World Bank has repurposed an existing financial support arrangement, the multi-donor trust fund (MDTF), to funnel support from other countries.[83] This is also linked to a loan package from the Japanese government of $100 million promised to the Ukrainian government just before the invasion.[84]

Both the attractive rate of return (11 percent) and the solidarity offered by many investors are reasons for the uptake of Ukraine's war bonds.[85] But in order to provide confidence to the market and to maintain the sustainability of war finance, the government needs to maintain its commitment to pay the income due on loans and bonds, which can be onerous at this challenging time. This is especially true since Ukraine is already highly indebted to the IMF.[86] The extent to which foreign reserves in dollars will be drawn down for war finance could be particularly concerning.[87] The exigencies of war also disrupt

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83. *See Global Procurement Partnership Multi-Donor Trust Fund*, WORLD BANK (June 15, 2022), https://www.worldbank.org/en/programs/global-public-procurement-multi-donor-trust-fund [https://perma.cc/T7H7-LNAN] (archived July 20, 2022) (outlining the World Bank's Global Procurement Partnership Multi-Donor Trust Fund framework that facilitates countries' ability to procure funds). On the use of the MDTF for Ukraine, see *World Bank Announces Additional $200 Million in Financing for Ukraine*, WORLD BANK (Mar. 14, 2022), https://www. worldbank.org/en/news/press-release/2022/03/14/world-bank-announces-addition al-200-million-in-financing-for-ukraine [https://perma.cc/V5N5-MSKV] (archived Aug. 31, 2022).

84. *See Japan offers Ukraine $100 million in loans in show of support*, REUTERS (Feb. 15, 2022), https://www.reuters.com/markets/europe/japan-offers-ukraine-100-mln-loans-show-support-2022-02-15/ [https://perma.cc/UXC2-T4QG] (archived July 20, 2022).

85. *See* The Marshall Plan, 1948, *supra* note 79; *NBU Depository: Number of Holders of Ukrainian Domestic Government Debt Securities Keeps Rising, First Issue of War Bonds Redeemed to Investors*, NAT'L BANK OF UKR. (May 2, 2022), https://bank.gov.ua/en/news/all/kilkist-vlasnikiv-ovdp-ukrayini-nadali-zrostaye-vkladniki-otrimali-viplati-vid-pogashennya-pershogo-vipusku-viyskovih-obligatsiy--depozitariy-nbu [https://perma.cc/5Q8R-3XWZ] (archived Aug. 8, 2022) (stating that an increasing number of investors have purchased Ukrainian war bonds and debt securities); *Address by NBU Governor Kyrylo Shevchenko on NBU Board's Monetary Policy Decision*, NAT'L BANK OF UKR. (Mar. 3, 2022), https://bank. gov.ua/en/news/all/zvernennya-golovi-natsionalnogo-banku-kirila-shevchenka-schodo-rishennya-pravlinnya-natsionalnogo-banku-z-monetarnih-pitan [https://perma.cc/T8DS-WQJ6] (archived Aug. 8, 2022) (outlining the large amounts of money pledged by international investors to support Ukraine's economy and defense budget).

86. Ilya Timtchenko, *Ukraine's Debt Problem Spells Trouble*, FOREIGN POL'Y (Feb. 26, 2021) https://foreignpolicy.com/2021/02/26/imf-review-ukraine-debt-gdp-linked-warrants-reform/ [https://perma.cc/V2VC-R6RN] (archived July 20, 2022).

87. *See International Reserves at USD 27.5 Billion in February*, NAT'L BANK OF UKR. (Mar. 7, 2022), https://bank.gov.ua/en/news/all/mijnarodni-rezervi-stanovili-275-mlrd-dol-ssha-za-pidsumkami-lyutogo [https://perma.cc/QJG4-QEMS] (archived Aug. 8, 2022).

international trade and dollar revenues for Ukrainian exports,[88] which can ultimately affect the government's solvency.

We argue that the pressure on drawing down foreign reserves is further exacerbated by meeting Ukrainian citizens' needs as refugees in foreign countries, discussed in Part III. These needs present challenging conflicting objectives for the NBU in supporting the government's efforts to borrow from external financiers. External financing may be limited in two ways: (1) the liquidity available for payments in foreign currency and (2) fiscal affordability and government solvency. The former can arguably be helped if foreign central banks agree to provide foreign currency swap lines to the NBU. The latter issue should, however, not be put on the back burner.

Foreign currency swap lines are facilities that allow a central bank, such as the Federal Reserve System in the United States, to provide dollars against the foreign central bank's local currency as collateral.[89] The swap line is usually offered at a service fee but at little credit risk to the swap provider as the dollar loan would have to be repaid at the prevailing exchange rate. The Federal Reserve System's dollar swap lines have been made available unilaterally since the global financial crisis of 2007-09 and helped preserve stability in dollar funding markets.[90] Although rare in practice between central banks prior to the crisis, such facilities of mutual support, in the interest of overall market stabilisation where dollar liquidity has been short, have become much more common during the COVID-19 pandemic.[91] This phenomenon reflects the expansion of international coordination and cooperation among central banks.[92]

The NBU could request swap lines from the Federal Reserve System and European Central Bank. The NBU has fixed its exchange rate for foreign currencies as of February 24, 2022 and has limited

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88. *See* Thomas Beisheuvel, *Food and Metal Shipments Are Left Stranded in Ukraine Chaos*, BLOOMBERG (Feb. 24, 2022), https://www.bnnbloomberg.ca/ukraine-chaos-leaves-food-and-metal-shipments-stranded-1.1728065 [https://perma.cc/NB6C-GURX] (archived July 20, 2022).

89. *See* Emmanuel Carré & Laurent Le Maux, *The Federal Reserve's Dollar Swap Lines and the European Central Bank during the global financial crisis of 2007–09*, 44 CAMBRIDGE J. ECON. 723, 724 (2020).

90. *Id.*

91. *See* Joshua Aizenman, Hiro Ito & Gurnain Kaur Pasricha, *Central Bank Swaps in the Age of Covid-19*, VOX (Apr. 8, 2021), https://voxeu.org/article/central-bank-swaps-age-covid-19 [https://perma.cc/6GB9-EHQY] (archived July 20, 2022).

92. *See Narodowy Bank Polski Decides to Grant PLN 4 billion FX Swap to Ukraine*, NAT'L BANK OF UKR. (Feb. 24, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-polschi-virishiv-nadati-ukrayini-4-mlrd-zlotih-na-umovah-valyutnogo-svopu [https://perma.cc/HKY6-EJVY] (archived Aug. 8, 2022). On the indefatigable expansion of central bank coordination internationally in the interests not only of their domestic constituents and governments but in the interests of global market stability and reciprocal comity, see generally Robert B. Kahn & Ellen E. Meade, *International Aspects of Central Banking: Diplomacy and Coordination*, *in* RESEARCH HANDBOOK ON CENTRAL BANKING, 333 (Peter Conti-Brown & Rosa M. Lastra eds., 2018).

foreign exchange operations in order to protect the value of the UAH against adverse market sentiment.[93] In this manner, foreign currency swap lines, such as in dollars or the euro, could help the NBU in ensuring that the government's bond payment commitments remain credible, at least in the short term. Foreign currency swap lines are nevertheless only temporary liquidity aids,[94] and it is uncertain how far beyond commercial terms central banks can extend these, a point we return to in Part III regarding how swap lines support Ukrainian refugees' financial needs. Part III's discussion also highlights dilemmas in relation to the NBU's priorities, for example, whether foreign swap lines should primarily serve war finance or aid citizens.

Although the NBU fixed its exchange rate at pre-war levels, market sentiment is volatile regarding the valuation of the UAH, and this can adversely affect other central banks' willingness to enter into swap lines with the NBU. The NBU recognises that non-resumption of a floating exchange rate can be unsustainable and damaging to its currency.[95] In the adverse scenario of government surrender or damage to sovereignty, foreign central banks that extend swap lines may also face market losses in respect of the UAH collateral they hold. NBU's most viable course of action may be signalling its commitment to institutional preservation, maintaining the value of the UAH by a credible monetary policy, and contributing to appropriate fiscal choices to ensure government solvency. Accepting foreign aid will continue to increase in importance as excessive external debt financing can be fiscally unsustainable. The affordability of external debt finance is not only a matter of liquidity in foreign currency, as the drawing down of reserves for debt payment would fiscally affect the government and the preservation of the state. The Ukrainian government and NBU walk a tight rope in terms of fiscal balance, and it is likely that the campaign

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93. *See NBU Makes Changes to Resolution No. 18 On the Operation of the Banking System Under Martial Law Dated 24 February 2022*, *supra* note 3. But the NBU looks toward resuming normal foreign exchange operations in order not to further damage the currency markets. *See Interbank FX Market Slowly Resuming Operation*, NAT'L BANK OF UKR. (Mar. 13, 2022), https://bank.gov.ua/ en/news/all/mijbankivskiy-valyutniy-rinok-postupovo-vidnovlyuye-robotu [https://perma.cc/GA6F-4PR3] (archived Aug. 8, 2022); *NBU Commits to Return to Inflation Targeting with Floating Exchange Rate – Monetary Policy Guidelines*, *supra* note 59. In order to prevent illegal market foreign exchange operations from damaging the value of the UAH, the NBU has now permitted legitimate venues for cash conversion at authorised banks, capped at a 10% deviation from the NBU's official exchange rate. *See NBU Allows Banks to Sell FX Cash to People, Clarifies Rules for Loan Repayment by Banks to Nonresidents*, NAT'L BANK OF UKR. (Apr. 14, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-dozvoliv-bankam-proda vati-naselennyu-gotivkovu-inozemnu-valyutu-ta-utochniv-pravila-pogashennya-bankami-pozik-pered-nerezidentami [https://perma.cc/PL9R-KNDP] (archived Aug. 8, 2022).

94. *See generally* Maurice Obstfeld, Jay C. Shambaugh & Alan M. Taylor, *Financial Instability, Reserves, and Central Bank Swap Lines in the Panic of 2008*, 99 AM. ECON. REV.: PAPERS & PROCEEDINGS 480 (2009).

95. *NBU Commits to Return to Inflation Targeting with Floating Exchange Rate – Monetary Policy Guidelines*, *supra* note 59.

for aid and donations would need to increase. The United States has already pledged a significant sum to ease Ukraine's fiscal burden.[96] Further, the IMF is also coordinating a multi-donor facility in favour of Ukraine.[97] The facility allows donors to provide payments in foreign currency to the IMF which would make the funds available to Ukraine in Ukraine's special drawing rights account with the IMF. The NBU's role in coordinating direct donation-based financing becomes important in order to alleviate the pressures of debt finance for the government.

D. *Donations*

Finally, an important way to alleviate the double-edged sword of debt-based war finance, whether from internal or external avenues, is fund-raising through donations. Donations are an excellent source of finance because they are final and do not impose a fiscal burden upon on the government. In this respect, the NBU has, in an unprecedented manner for many central banks, established a direct interface with the global public for the receipt of donations in order to support the government's war efforts as well as humanitarian aid in Ukraine.[98] This role is not ubiquitous or unequivocally well accepted because central banks of authoritarian governments can be used to serve the government's perverse motivations seeking aid and distort the uses of aid.[99] In this respect the NBU demonstrates transparency in its crowdfunding campaign, for example, funding the defence and humanitarian needs separately. Maintaining distinct purposes for aid usage, as well as keeping clear records of expenditures, helps promote accountability to the public.

As financial technology has become accepted in the private sector, the NBU's utilisation of digital fund-raising outreach has been relatively effective. It can be queried whether this compromises central bank independence as the NBU acts as a "crowd-sourced fund-raiser" for the government. However, the objective of such fund-raising

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96. *See Biden Pledges $800m in military aid for Ukraine*, CBS NEWS (Mar. 16, 2022), https://www.cbsnews.com/video/biden-pledges-800-million-in-aid-for-ukraine-as-russia-ramps-up-attacks/ [https://perma.cc/9PE6-W5QS] (archived July 20, 2022).

97. *See IMF Executive Board Approves the Establishment of a Multi-Donor Administered Account for Ukraine*, IMF (Apr. 8, 2022), https://www.imf.org/en/News/Articles/2022/04/08/pr22111-imf-executive-board-approves-establishment-of-a-multi-donor-administered-account-for-ukraine [https://perma.cc/FMJ5-SG4N] (archived Aug. 8, 2022).

98. *See About UAH 12 Billion Raised for Army and Humanitarian Needs*, NAT'L BANK OF UKR. (Mar. 15, 2022), https://bank.gov.ua/en/news/all/na-pidtrimku-armiyi-ta-gumanitarnu-dopomogu-zibrano-blizko-12-mlrd-grn [https://perma.cc/QUX9-N8PS] (archived Aug. 8, 2022).

99. *See* Tessa Fox, *Assad regime 'siphons millions in aid' by manipulating Syria's currency*, GUARDIAN (Oct. 21, 2021), https://www.theguardian.com/global-development/2021/oct/21/assad-regime-siphons-millions-in-aid-by-manipulating-syrias-currency [https://perma.cc/VEV5-QWFG] (archived July 20, 2022).

eminently supports both the sovereign's fiscal position and alleviates pressures that may be put on the central bank's role in war finance. In this manner, proactively fund-raising through donation-based crowdfunding arguably reinforces the institutional preservation of the NBU and not otherwise. The NBU's fundraising role also flows naturally from the NBU's role as payment and settlement services provider in Ukraine. Receiving monetary donations and processing these for government and humanitarian use is consistent with its role.

One issue of interest that has arisen is the receipt of donations in private cryptocurrency. Although the NBU does not overtly accept cryptocurrency, the government's own fund-raising efforts have welcomed private cryptocurrency donations, including bitcoin and ether.[100] It has also been reported that such cryptocurrency has directly been used to fund purchases of military equipment.[101] Cryptocurrency such as bitcoin has gained high asset value over time,[102] and accepting such donations broadens the reach of fund-raising efforts and brings in valuable contributions. Despite sceptical writings regarding the volatility of cryptocurrencies,[103] their spectacular growth in value as assets has been remarkable. The government's receipt of such donations may however undermine its sovereign currency even as the NBU is valiantly managing inflationary pressures and protecting the value of the UAH. On the other hand, it may be argued that the government's, and not the NBU's, receipt of cryptocurrency is akin to accepting donations in kind. This is not inconsistent with the jurisprudence in many jurisdictions treating cryptocurrency as "property".[104] We suggest that, at this sensitive time where there are pressures that undermine institutions such as the sovereign's currency, the government should perhaps clarify its cryptocurrency position as welcoming "donations in kind."

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100. *See* Arjun Kharpal, *Ukraine accepts dogecoin, other cryptocurrencies for donations as funding rises to $35 million*, CNBC NEWS (Mar. 2, 2022), https://www.cnbc.com/2022/03/02/ukraine-dogecoin-other-cryptocurrencies-accepted-for-donations.html#:~:text=On%20Feb.,assets%20such%20as%20fiat%2 0currency [https://perma.cc/VVA5-5XRR] (archived July 20, 2022).

101. *See* Olga Kharif, *Ukraine Buys Military Gear With Donated Cryptocurrencies*, BLOOMBERG (Mar. 4, 2020), https://www.bloomberg.com/ news/articles/2022-03-04/ukraine-spends-15-million-of-crypto-donations-on-military-gear [https://perma.cc/2VJX-K26A] (archived July 20, 2022).

102. To track the value growth and volatility in bitcoin and ether, see *Bitcoin*, COINMARKETCAP (last visited July 20, 2022), https://coinmarketcap.com/ currencies/bitcoin/ [https://perma.cc/5A3D-SL7V] (archived July 20, 2022) and *Ether*, COINMARKETCAP (last visited July 20, 2022), https://coinmarketcap.com/ currencies/ethereum/ [https://perma.cc/9L3C-L7LC] (archived July 20, 2022).

103. *See generally* Paraskevi Katsiampa, *An Empirical Investigation of Volatility Dynamics in The Cryptocurrency Market*, 50 RSCH. IN INT'L FIN. & BUS. 322 (2020). On the shortfalls in cryptocurrency's qualities for money, see Emilios Avgouleas & William Blair, *The Concept of Money in the 4th Industrial Revolution – A Legal and Economic Analysis*, 1 SING. J. LEGAL STUD. 4, 24 (2020).

104. *See* AA v. Persons Unknown & Bitfinex [2019] EWHC (Comm) 3556 (Eng.); *see also Ruscoe v Cryptopia Ltd (in liq)* [2020] NZHC 728.

III. PROTECTING FINANCIAL STABILITY AND CITIZENS' WELFARE

In this Part we discuss the NBU's dilemmas in protecting overall banking and financial system stability while meeting the welfare needs of citizens. Panicked citizens, in a state of insecurity, likely want to withdraw most if not all their cash from the banking system as they seek safe areas of refuge. Faced with the prospect of becoming refugees, many would rationally wish to protect or conserve their resources, and it is arguable that for many Ukrainians, their deposit claims on banks would be a main resource. In this lower-middle income country,[105] many ordinary citizens' principal financial resources are in their bank accounts.[106]

However, such herding behaviour, even if rational for each individual, is collectively destabilising.[107] Bank liquidity runs on the domestic banking system can precipitate financial and institutional collapse, hindering the war finance effort, as well as the collective good of continuity for all citizens. The preservation of the banking system in Ukraine is able to serve a collective good, by maintaining correspondent banking relationships with foreign banks and money transfer institutions so that Ukrainian refugees abroad may be able to continue accessing payment services and even cash.[108] In this manner,

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105. *See World Bank Profile of Ukraine*, WORLD BANK, https://www.worldbank.org/en/country/ukraine/overview#1 (last visited July 20, 2022) [https://perma.cc/25B5-5QQN] (archived July 20, 2022); *see also* Lower middle income, WORLD BANK, https://data.worldbank.org/country/XN (last visited Sept. 2, 2022) [https://perma.cc/L67R-EVLR] (archived Sept. 2, 2022). Retail-level citizens in lower-middle income countries are likely to treat bank accounts as key locations for storage of financial assets. *See infra* note 106.

106. Over 60% of the Ukrainian population is banked. *See Ukraine: Percent people with bank accounts*, GLOBAL ECON., https://www.theglobaleconomy.com /Ukraine/percent_people_bank_accounts/ (last visited July 20, 2022) [https://perma.cc/EXX5-7K6P] (archived July 20, 2022).

107. *See* Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 214 (2008). *See generally* Douglas W. Diamond & Philip H. Dybvig, *Bank Runs, Deposit Insurance and Liquidity*, 91 J. POL. ECON. 401 (1983)

108. *See International Money Transfer Systems Support Ukraine*, NAT'L BANK OF UKR. (Mar. 10, 2022), https://bank.gov.ua/en/news/all/mijnarodni-sistemi-perekazu-koshtiv-pidtrimuyut-ukrayinu-ta-yiyi-gromadyan [https://perma.cc/K2ZT-S834] (archived Aug, 8, 2022). In detail, Ukrainians can withdraw cash in the currency of their host country based on their UAH balances housed in Ukrainian banks, because of agreements struck by the NBU and the central banks of many European countries. Ukrainians can withdraw national currency from (a) the central banks in Malta, *see Ukrainians to Be Able to Exchange Cash Hryvnias for Euros in Central Bank of Malta*, NAT'L BANK OF UKR. (Aug. 1, 2022), https://bank.gov.ua/en/news/all/ukrayintsi-zmojut-obminyati-gotivkovu-grivnyu-na-yevro-v-tsentrobanku-malti [https://perma.cc/FMJ2-QWZF] (archived Sept. 2, 2022), and Germany, *see Ukrainians Can Exchange Cash Hryvnias for Euros in Germany*, NAT'L BANK OF UKR. (May 22, 2022), https://bank.gov.ua/en/ news/all/ukrayintsi-zmojut-obminyati-gotivkovu-grivnyu-v-nimechchini [https://perma.cc/26JK-WPW8] (archived Sept. 2, 2022), and Belgium, *see*

citizens' individual financial welfare can be pitted against the needs of collective good in terms of institutional preservation and maintenance of key continuities.

Nevertheless, the precarious state for refugees is a real prospect, justifying the need for extending increased support to citizens during this time. A study in refugee well-being argues that conservation of resources, which includes personal resources as well as resources of "conditions" such as avenues of protection, rights, and welfare, are important for refugees' mental well-being under already challenging conditions.[109] Individual conservations of resources are particularly important as the UN Protection of Refugees Convention[110] and the EU's temporary decision to admit Ukrainian refugees[111] are framed broadly and refugee welfare can depend very much on how each host state implements their perceived obligations. Refugee access to financial resources in foreign countries is generally chequered and limited.[112] The EU lacks a robust and fair refugee settlement policy for

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Ukrainians to Be Able to Exchange Cash Hryvnias for Euros in Belgian Banks, NAT'L BANK OF UKR. (May 30, 2022), https://bank.gov.ua/en/news/all/ukrayintsi-zmojut-obminyati-gotivkovu-grivnyu-na-yevro-v-belgiyskih-bankah [https://perma.cc/2JBW-MQZE] (archived Sept. 2, 2022); (b) certain specified banks in Poland, *see Ukrainians to Be Able to Exchange Hryvnia Cash in Polish Banks*, NAT'L BANK OF UKR. (Mar. 22, 2022), https://bank.gov.ua/en/news/all/ukrayintsi-zmojut-obminyati-gotivkovu-grivnyu-u-polskih-bankah [https://perma.cc/Q4ZJ-K8VS] (archived Sept. 2, 2022), Italy, *see Ukrainians to Be Able to Exchange Cash Hryvnias for Euros in Italian Banks*, NAT'L BANK OF UKR. (June 17, 2022), https://bank.gov.ua/en/news/all/ukrayintsi-zmojut-obminyati-gotivkovu-grivnyu-na-yevro-v-italiyskih-bankah [https://perma.cc/2AYD-XK5K] (archived Sept. 2, 2022), Switzerland, *see Ukrainians to Be Able to Exchange Cash Hryvnias for Swiss Francs*, NAT'L BANK OF UKR. (June 22, 2022), https://bank.gov.ua/en/news/all/ukrayintsi-zmojut-obminyati-gotivkovu-grivnyu-na-shveytsarski-franki [https://perma.cc/5722-8N47] (archived Sept. 2, 2022), as well as a number of East European countries, *see Ukrainians Can Exchange Cash Hryvnias for Euros in Germany*, *supra* note 108; and (c) specific money transfer institutions in Sweden, *see Ukrainians to Be Able to Exchange Cash Hryvnias for Swedish Krona*, NAT'L BANK OF UKR. (June 9, 2022), https://bank.gov.ua/en/news/all/ukrayintsi-zmojut-obm inyati-gotivkovu-grivnyu-na-shvedski-kroni [https://perma.cc/292F-UYX3] (archived Sept. 2, 2022), and the Netherlands, *see Ukrainians to Be Able to Exchange Cash Hryvnias for Euros in Netherlands*, NAT'L BANK OF UKR. (June 15, 2022), https://bank.gov.ua/en/news/all/ukrayintsi-zmojut-obminyati-gotivkovu-grivnyu-na-yevro-v-niderlandah [https://perma.cc/9A8L-JYMC] (archived Sept. 2, 2022).

109. *See* Theresa S. Betancourt, Saida Abdi, Brandon S. Ito, Grace M. Lilienthal & Naima Agalab, *We Left One War and Came to Another: Resource Loss, Acculturative Stress, and Caregiver–Child Relationships in Somali Refugee Families*, 21 CULTURAL DIVERSITY & ETHNIC MINORITY PSYCHOL. 114, 116 (2015).

110. U.N. Convention Relating to the Status of Refugees, July 28, 1951, 189 U.N.T.S. 137.

111. *See* Council Implementing Decision (EU) No. 2022/382 of 4 March 2022, 2022 O.J. (L 71) 1–6, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022D0382&from=EN [https://perma.cc/TEA2-68AE] (archived July 20, 2022).

112. *See* Nirosha Hewa Wellalage & Stuart Locke, *Remittance and Financial Inclusion in Refugee Migrants: Inverse Probability of Treatment Weighting Using the Propensity Score*, 52 APPLIED ECON. 929, 935 (2020).

previous waves of refugee provision,[113] so dependence on supranational policies for refugee provision can disappoint. The United Nations High Commissioner for Refugees, the foremost agency in coordinating humanitarian assistance for refugees, also has an exit policy targeting refugee self-reliance,[114] and this can be disadvantageous to refugees in a protracted state of displacement.[115] Critics of this strategy observe precarity for refugees in seeking economic opportunities and sustenance [116] and, in this light, maximizing the conservation of resources seems vital for mitigating the potentially adverse plight of refugees.

Under a state of martial law,[117] the NBU is entitled to limit the rights of citizens to enforce their deposit claims on banks. However, the NBU recognizes the need for citizen welfare and has introduced certain balancing acts.

First, the NBU has injected an unprecedented scale of liquidity into Ukrainian banks[118] to continue providing financial and payment services to Ukrainians.[119] However it is restricting daily withdrawals to 100,000 UAH, which is just over $3,000 USD per day.[120] The NBU also supports an expanded scope of providers for cash withdrawal services such as retail stores.[121] The withdrawal of cash abroad is limited to 100,000 UAH a month subject to some exceptions, like

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113. *See* Arne Niemann & Natascha Zaun, *EU Refugee Policies and Politics in Times of Crisis: Theoretical and Empirical Perspectives*, 56 J. COMMON MKT. STUD. 3, 4 (2018).

114. *See* Claudena Skran & Evan Easton-Calabria, *Old Concepts Making New History: Refugee Self-reliance, Livelihoods and the 'Refugee Entrepreneur'*, 33 J. REFUGEE STUD. 1, 2 (2020).

115. *See* Evan Easton-Calabria & Naohiko Omata, *Panacea for the Refugee Crisis? Rethinking the Promotion of 'Self-Reliance' For Refugees*, 39 THIRD WORLD Q. 1458, 1459–61 (2018). *See generally* NAOHIKO OMATA, THE MYTH OF SELF-RELIANCE: ECONOMIC LIVES INSIDE A LIBERIAN REFUGEE CAMP (2d ed. 2020).

116. Easton-Calabria & Omata, *supra* note 115, at 2; *see* Alexandra Embiricos, *From Refugee to Entrepreneur? Challenges to Refugee Self-reliance in Berlin, Germany*, 33 J. REFUGEE STUD. 245, 251 (2020); Georgina Ramsay, *Humanitarian Exploits: Ordinary Displacement and the Political Economy of the Global Refugee Regime*, 40 CRITIQUE ANTHROPOLOGY 3, 10 (2020).

117. *See NBU Makes Changes to Resolution No. 18 On the Operation of the Banking System Under Martial Law Dated 24 February 2022*, *supra* note 3.

118. *State of Ukraine's Financial Sector and NBU's Actions to Support Its Uninterrupted Functioning under Martial Law*, NAT'L BANK OF UKR. (Mar. 3, 2022), https://bank.gov.ua/en/news/all/stan-finansovogo-sektoru-ukrayini-ta-zahodi-nbu-z-pidtrimki-yogo-bezperebiynogo-funktsionuvannya-v-umovah-voyennogo-stanu [https://perma.cc/UF6Z-UZGG] (archived Aug. 8, 2022).

119. *NBU and Banking System Keep Working*, NAT'L BANK OF UKR. (Feb. 25, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-ta-bankivska-sistema-ukrayini-nadali-pratsyuyut [https://perma.cc/VF6Y-V2CZ] (archived Sept. 2, 2022).

120. *See id.*

121. *See Ukrainians Withdrew About UAH 3.8 Billion from Cards at Checkout in Stores in March*, NAT'L BANK OF UKR. (Apr. 4, 2022), https://bank.gov.ua/en/ news/all/za-berezen-na-kasah-magaziniv-ukrayintsi-otrimali-z-platijnih-kartok-blizko-38-mlrd-grn [https://perma.cc/K5YN-N3Z7] (archived Aug. 8, 2022).

paying for college tuition.[122] Further, the NBU requires banks and payment services providers to provide business continuity for consumers' card payments so that access to goods and services can be as undisrupted as possible.[123] The NBU, however, strongly encourages citizens to keep cash in Ukrainian accounts in order to fund credit and debit card payments made abroad.[124] These steps are an attempt to prevent excessive liquidity outflows while maintaining continuity in crucial payment services in order to protect citizens' welfare. In this manner, citizens' welfare is primarily protected by maintaining continuity in payment services, and hence, facilitating their access to goods and services, but not to all of their cash. This reflects the need to mitigate the risk of liquidity outflows and bank runs. This overall balance also comes as the NBU continues as lender of last resort to Ukrainian banks. The NBU has introduced, relaxed, and then reintroduced the requirements for proof of source in large cash transfers, subject to the caps above,[125] in order to control liquidity outflows.

The NBU's limitations for cash withdrawals have been subject to increased pressure as Ukrainian refugees abroad wish to access cash or convert their cash holdings to foreign currency for use where they are. Access to cash potentially protects refugees' welfare, which also eases burdens for host countries. However, serving refugees' financial needs abroad puts pressure on the NBU as it would ultimately be called upon to underwrite the risks of commercial banks dealing in UAH, whose value is volatile during protracted war. Although the NBU has fixed its exchange rate with foreign currencies at pre-war levels, commercial banks in Eastern European countries would likely

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122. *See NBU Lifts Some Bans on FX Transactions*, NAT'L BANK OF UKR. (Mar. 2, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-poslabiv-nizku-zaboron -na-operatsiyi-v-inozemniy-valyuti [https://perma.cc/6D3X-YPWH] (archived Aug. 8, 2022). *But see NBU Raises Limit on Cash Withdrawals from FX Accounts in Ukraine, Clarifies Some Restrictions on Cross-Border Transactions*, NAT'L BANK OF UKR. (Mar. 21, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-zbilshiv-limit-na-znyattya-gotivki-v-ukrayini-z-rahunkiv-u-inozemniy-valyuti-ta-utochniv-nizku-obmejen-na-transkordonni-operatsiyi [https://perma.cc/X64V-ADAP] (archived Aug. 8, 2022).

123. *See Address by the Governor of the National Bank of Ukraine Kyrylo Shevchenko*, NAT'L BANK OF UKR. (Feb. 27, 2022), https://bank.gov.ua/en/news/all/zvernennya-golovi-natsionalnogo-banku-ukrayini-kirila-shevchenka [https://perma.cc/CQQ4-ET2D] (archived Aug. 8, 2022).

124. *See NBU Says Those Leaving Ukraine Should Put Their Hryvnia Cash into Accounts Here, Not Take It Abroad*, NAT'L BANK OF UKR. (Mar. 8, 2022), https://bank.gov.ua/en/news/all/natsionalniy-bank-rekomenduye-ne-vivoziti-gotivkovu-grivnyu-za-kordon-a-vnesti-yiyi-na-rahunki-v-ukrayini [https://perma.cc/CR3E-V32S] (archived Aug. 8, 2022).

125. *See Individuals Must Show Proof of Source as They Move More Than EUR 10,000 in Currency Valuables out of Ukraine*, NAT'L BANK OF UKR. (Mar. 13, 2022), https://bank.gov.ua/en/news/all/gromadyani-mayut-nadavati-pidtverdni-dokumenti-pri-peremischenni-valyutnih-tsinnostey-za-kordon-u-sumi-scho-perevischuye-10-tis-yevro [https://perma.cc/LYY3-JA9C] (archived July 20, 2022).

honour the exchange rate fix within a short term of disruption. With protracted war, markets will likely rationally converge upon significant discounting of the UAH. In this manner, it remains uncertain to what extent the payment networks and partners that process Ukrainian citizens' payment cards in Eastern European countries could continue to bear the risks of foreign exchange losses in transactions.

Ultimately, citizens' welfare needs in refugee contexts require a public sector-led response involving the NBU. In doing so, the NBU juggles the need to prevent excessive liquidity outflows from its banking sector, manage the financing pressures placed on it, maintain a credible value of the UAH, and provide for citizens' needs. We argue that there are two tasks. First, the NBU must ensure the maintenance of payment and settlement continuity. Secondly, the NBU should forge a solution with its Eastern European counterparts and also the ECB, on how commercial banks in the EU can provide for Ukrainian refugees' access to cash, while mitigating hazards for the Ukrainian banking system. In relation to the second task, we also explore how private-led solutions involving cryptocurrency may meet refugees' financial welfare needs, thus comparing public sector-led and private solutions.

A. *Maintaining Resilience in Payment and Settlement Infrastructure in Ukraine and Partnerships Abroad*

The NBU's preferred measure for citizens' welfare is the maintenance of payment and settlement continuity in Ukraine and abroad. Hence, it is important to ensure critical infrastructure is secure. This critical infrastructure refers to the NBU's System of Electronic Payments (SEP system) for domestic payment and settlement, as well as infrastructure maintained by Ukrainian banks for their membership in global payments networks such as Visa, Mastercard, and other payment services providers, as well as with foreign correspondent banks. Banks' critical infrastructure must be resilient regarding their messaging and communications for international transfers as well as effecting payment and settlement with international partners and correspondent banks.

Payment and settlement infrastructure is likely to be regarded as cyber-physical in nature.[126] The processes for clearing and settlement involve tele- and/or digital communications, and ledger changes and reconciliations are done digitally. Transaction ledgers are likely to be digitally stored. However, such digital infrastructure is also supported

126. *See* Mengran Xue, Sandip Roy, Yan Wan & Sajal K. Das, *Security and Vulnerability of Cyber-Physical Infrastructure Networks: A Control-Theoretic Approach*, *in* HANDBOOK ON SECURING CYBER-PHYSICAL CRITICAL INFRASTRUCTURE 5, 5–28 (Elseiver 2012).

by physical infrastructure relating to internet and network access, as well as data centres and servers that store and keep information secure. As war continues at the time of writing, physical devastation in a number of Ukrainian cities has been reported and, hence, it will be imperative for the NBU and Ukrainian banks to ensure that infrastructure for payment and settlement is resilient. Such resilience pertains to functions and the secure maintenance of current states of information. Resilience, in relation to critical infrastructure, is defined as the "ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions."[127] Resilience is, therefore, a quality that goes beyond merely protecting existing systems as such, but encompasses the quality of adaptiveness in responses to crises.[128] We suggest that the preservation of critical infrastructure should involve means of risk dispersion different from peacetime expectations for the maintenance of such infrastructure.

During peacetime, conventional practice regarding critical financial infrastructure such as the SEP system would likely be one of centralisation of control under the NBU's provision and oversight, because it can be trusted to ensure the robust functioning of the service as a public good.[129] It is doubtful whether critical services of a public-good nature, such as the clearing and settlement service for large-value transfers in particular, would be outsourced, as other jurisdictions' precedents have shown that such critical infrastructure is normally housed in central banks.[130] The centralisation or in-housing of important financial service infrastructure in the banking or finance sector is also common in Europe.[131]

W. Kuan Hon and Christopher Millard's survey of European banks' practices suggests that banks in Europe do not normally use third-party cloud computing services for crucial services that implicate sensitive information, such as customer financial information and personal details.[132] Such practices have likely been shaped by data and

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127. Dan Guo, Ming Shan & Emmanuel Kingsford Owusu, *Resilience Assessment Frameworks of Critical Infrastructures: State-of-the-Art Review*, 11 BUILDINGS 464, 465 (2021) (quoting *Resilience*, UNITED NATIONS OFFICE FOR DISASTER RISK REDUCTION (last visited July 31, 2022), https://www.undrr.org/ terminology/resilience [https://perma.cc/Q8EP-5ECZ] (archived Aug. 8, 2022).

128. *See* Jon Coaffee & Jonathan Clarke, *Critical Infrastructure Lifelines and the Politics of Anthropocentric Resilience*, 5 RESILIENCE 161, 161–81 (2017).

129. Payment settlement and clearing are discussed in Iris H-Y Chiu, *A New Era in Fintech Payment Innovations? A Perspective from the Institutions and Regulation of Payment Systems*, 9 L. INNOVATION & TECH. 190 (2017).

130. *See id.*; Geva, *supra* note 26, at 448–53.

131. *See infra* note 133.

132. *See* W. Kuan Hon & Christopher Millard, Use by Banks of Cloud Computing: An Empirical Study 41–42 (2016) (Queen Mary Sch. L., Legal Stud. Rsch. Paper No. 245/2016).

financial regulation, the European versions of which have influenced Ukrainian regulation.[133] Although Ukraine has yet to implement its equivalent, [134] the European General Data Protection Regulation contains strict risk management rules regarding the handling and use of sensitive personal data[135]; therefore, transactions implicating such information are likely to be managed by in-house systems.[136] Financial regulation also provides for risk management rules that require banks to be in control of their organisational and governance structures, maintaining a level of adequate supervision over outsourced providers. Consequently, oversight or supervision obligations become burdensome if any critical infrastructure is outsourced.[137]

This practice of centralizing critical infrastructure may be counterproductive in exigencies such as war if critical infrastructure is exclusively located or controlled in endangered territories. For the purposes of risk dispersion and backup of critical infrastructure, the use of third-party outsourcing could be a sensible option.

The European Commission is increasingly cognizant of both the risks and opportunities of digital services outsourcing and its proposed Digital Operational Resilience Act 2020 (DORA) now provides incentives for effective outsourcing in the financial sector.[138] Cloud-based computing has increasingly penetrated the financial sector worldwide, as service providers are able to offer a range of software, infrastructural, and platform services to businesses, bundled in

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133. *See Data Protection Laws of the World: Ukraine*, DLA PIPER (Feb. 21, 2022), https://www.dlapiperdataprotection.com/index.html?t=law&c=UA [https://perma.cc/9TQD-L6LR] (archived July 20, 2022).

134 *See Ukrainian GDPR: The reality and future of privacy legislation in Ukraine*, INT'L ASS'N OF PRIV. PROS. (Sept. 28, 2020), https://iapp.org/news/ a/ukrainian-gdpr-the-reality-and-future-of-privacy-legislation-in-ukraine/ [https://perma.cc/7YEU-SXQW] (archived July 20, 2022).

135. *See* Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016, General Data Protection Regulation, 2016 O.J. (L 119) 1–88.

136. *See id.* at 60–65.

137. *See* Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on Access to the Activity of Credit Institutions and the Prudential Supervision of Credit Institutions and Investment Firms, art. 74, 2013 O.J. (L 176); Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on Markets in Financial Instruments, art. 16, 2014 O.J. (L 173). The management of digital risks for the financial sector is expected to be intensively regulated under the EU's Digital Operational Resilience Act. *See Commission Proposal for a Regulation of the European Parliament and of the Council on Digital Operational Resilience for the Financial Sector*, COM (2020) 595 final (Sept. 24, 2020). Ukraine is keen to be regarded as an equivalent jurisdiction for the EU Internal Market by assimilating similar regulatory frameworks. *See* VITALIY KRAVCHUK, CIVIC SYNERGY INTEGRATING UKRAINE INTO THE EU FINANCIAL SERVICES MARKET (Jan. 2019), https://www.civic-synergy.org.ua/wp-content/uploads/2018/04/INTEGRAT-ING-UKRAINE-INTO-THE-EU-FINANCIAL-SERVICES-MARKET_en_2019.pdf [https://perma.cc/VSL7-W7ZT] (archived July 20, 2022).

138. *See Commission Proposal for a Regulation of the European Parliament and of the Council on Digital Operational Resilience for the Financial Sector*, COM (2020) 595 final (Sept. 24, 2020).

different ways that suit each business.[139] The levels of penetration seem more intense in the United States than Europe, as there are fewer privacy concerns in the United States. Commentators in the United States have pointed out the use of cloud computing services for holding sensitive customer data, such as in the case of CapitalOne,[140] while the survey on EU practice shows more risk aversion to involving cloud computing for core financial services functions. [141] Cloud computing providers primarily offer selected aspects of software or webhosting services and digital team-working infrastructure, such as Microsoft Office. The DORA envisages that data held by financial institutions should be backed-up remotely for risk dispersion purposes in case storage infrastructure encounters problems. It also provides standards for outsourcing so that legal risks for the outsourcer can be managed with greater certainty. The position under DORA would, in principle, support our proposal. On the other hand, DORA also contains provisions that may inhibit such outsourcing in the EU. The principle of retaining compliance responsibility with the financial institution outsourcers (in terms of having risk management and testing policies) may deter critical forms of outsourcing. Further, third-party service providers for critical infrastructure may directly be subject to the European Banking Authority, European Securities and Markets Authority, or European Insurance and Occupational Pensions Authority's oversight and supervision, making this highly disincentivizing for such outsourcing arrangements in the EU.

We suggest that the remote migration and support for system functioning may be important if cyber-physical infrastructure within Ukraine's territory comes under threat. Although cloud computing providers are not fault-free,[142] finding alternatives to support critical infrastructure can be a sound resilience strategy.[143] Commentators have also opined that it is possible to achieve a high level of data security even in outsourcing to cloud computing service providers through means such as data encryption, data sharing (the splitting and distribution of datasets to be stored in multiple servers), and storing

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139. *See generally* Hon & Millard, *supra* note 132.

140. *See* Colleen Baker, David Fratto & Lee Reiners, *Banking on the Cloud*, 21 TENN. J. BUS. LAW 381, 382, 386 (2020).

141. *See* Hon & Millard, *supra* note 132, at 12–17.

142. *See* Jefferson Graham, *Capital One data breach: Amazon Web Services is backbone for Netflix, NASA and others*, USA TODAY (July 30, 2019), https://eu.usatoday.com/story/tech/talkingtech/2019/07/30/amazon-aws-unit-says-its-not-responsible-capital-one-data-breach/1868862001/ [https://perma.cc/UM4A-KPGN] (ar chived July 20, 2022); Sergio Gorjón, *BigTechs and Financial Services: Some Challenges, Benefits and Regulatory Responses*, BANCO DE ESPAÑA ECONOMIC BULLETIN 7–9 (Nov. 8, 2021) (discussing risks generally of cloud computing for banks).

143. *See* Guo, Shan & Owusu, *supra* note 127, at 8–11; Adel Mottahedi, Farhang Sereshki, Mohammad Ataei, Ali Nouri Qarahasanlou, & Abbas Barabadi, *The Resilience of Critical Infrastructure Systems: A Systematic Literature Review*, 14 ENERGIES 1571, 1582 (2021).

data in non-communicating servers.[144] It is also important that the largest and most commercially successful cloud computing service providers' data centres are located in territories not affected by war and are friendly to Ukraine.[145]

Under the current situation of martial law, it is conceivable that the NBU and private sector banks could coordinate actions to engage one or more suitable and reputable cloud computing service providers to support the banking and payments sector as a whole. The NBU's coordinative action would provide a useful collective good at this time, in terms of standardizing terms and managing legal risk for banks. Such arrangements would be costly for the NBU and private sector banks as they are dealing with war finance as well as liquidity challenges. However, the preservation of critical infrastructure should take some priority as it is a key measure for citizens' financial welfare, and such preservation contributes to institutional preservation and national restoration. As such, we argue that the NBU should provide a guarantee for the expenses of cloud computing services for itself and the banking sector as a whole to ensure that third-party service providers are committed. Further, as many reputable cloud-computing service providers are BigTech firms based in the United States,[146] we call upon these firms not to make opportunistic profits out of this need and to behave in an expedient manner to support continuity of operations. One of the concerns in relation to bank outsourcing of critical services is if a bank becomes financially endangered and needs to be resolved.[147] There is a risk that third-party service providers may terminate services for fear of increasing loss, therefore jeopardizing the endangered bank further. Cloud-computing service providers should provide their services on the basis of non-disruption even if bank resolution may be triggered. They should rely on our proposed central bank's guarantee in these extraordinary times.

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144. *See* Sabrina De Capitani di Vimercati, Sara Foresti & Pierangela Samarati, *Protecting Data in Outsourcing Scenarios, in* HANDBOOK ON SECURING CYBER-PHYSICAL CRITICAL INFRASTRUCTURE 361, 361–388 (Elseiver 2012); Shucheng Yu, Wenjing Lou & Kui Ren, *Data Security in Cloud Computing, in* HANDBOOK ON SECURING CYBER-PHYSICAL CRITICAL INFRASTRUCTURE 289, 289–410 (Elseiver 2012).

145. Amazon Web Services, Google and Microsoft Azure have most of their data centres in the US, and limitedly in parts of the UK and Western Europe.

146. Amazon Web Services, Microsoft Azure and Google control about 61% of the global market share for cloud computing services. Lionel Sujay Vailshery, *Cloud Infrastructure Services Vendor Market Share Worldwide From 4th Quarter 2017 to 3rd Quarter 2021*, STATISTA (Mar. 22, 2022), https://www.statista.com/statistics/967365/worldwide-cloud-infrastructure-services-market-share-vendor/ [https://perma.cc/74KM-WYR2] (archived July 20, 2022).

147. The resolution of financially endangered banks has been standardized. FINANCIAL STABILITY BOARD, KEY ATTRIBUTES OF EFFECTIVE RESOLUTION REGIMES FOR FINANCIAL INSTITUTIONS 38–39 (Oct. 15, 2014), https://www.fsb.org/2014/ 10/key-attributes-of-effective-resolution-regimes-for-financial-institutions-2/ [https://perma.cc/8NM5-GACA] (archived July 20, 2022).

B. *Addressing the Risk of Foreign Exchange Losses by Overseas Entities Servicing Ukrainian Refugees' Financial Needs*

As a matter of solidarity and civic expectations of commercial behaviour, we observe that international payment and settlement partners such as Euronet (which operates a large network of ATMs across Eastern Europe), Visa, or Mastercard remain committed to processing international payments with their Ukrainian counterparts.[148] However, with protracted war, there is an increasing need to address the uncertain/volatile value of the UAH and the extent to which these international partners may be able to bear the risks of potential foreign exchange losses. This matter cannot be left to the market, as the private sector, without adequate support, may withdraw their provision of services. A public sector-led solution is needed ultimately to backstop private sector service providers so that they do not discontinue services.

The private sector payment and banking entities in Eastern European countries (where most Ukrainian refugees are located) would look to their respective central banks and bank regulators. This would apply to other host countries as well, including UK banks looking to the Bank of England and European countries receiving guidance from their national central banks and the ECB. However, foreign central banks and bank regulators are not able to offer unilateral support without engagement with the NBU,[149] as such support pertains not only to the stability and soundness of foreign banks and payment entities but also ultimately to a form of fiscal financing for Ukraine. Nevertheless, the NBU is unable to offer unlimited underwriting of potential foreign exchange losses for foreign banks, as this jeopardises its already-stretched mandates. The NBU has therefore established a limited swap line with Poland's central bank in order to buy back its citizens' UAH exchanged for zlotys in Poland,[150] up to 10 billion UAH and capped at 10,000 UAH per

148. Euronet allows withdrawals in euros for Ukrainian refugees using their bankcards subject to daily caps and without fees. *Euronet Worldwide, Inc. Announces Fee Waivers at the Company's ATMs for Ukrainian Cardholders and on Money Transfers to Ukraine*, EURONET (Mar 2, 2022), https://ir.euronetworld wide.com/news-releases/news-release-details/euronet-worldwide-inc-announces-fee-waivers-companys-atms [https://perma.cc/A4GK-JUBB] (archived Sept. 2, 2022).

149. *See* Will Bateman & Jason Allen, *The Law of Central Bank Reserve Creation*, 85 MOD. L. REV. 401, 404–06 (2021); Sam Fleming, Martin Arnold & James Shotter, *EU and ECB Struggle to Find Way to Ease Ukraine Refugees' Cash Crunch*, FIN. TIMES (Mar. 22, 2022), https://www.ft.com/content/00846794-c1d6-418f-84f6-136d3cd2f061 [https://perma.cc/DG4K-YH4E] (archived July 20, 2022).

150. *See NBU Signs FX Swap Agreement with Narodowy Bank Polski for USD 1 billion*, NAT'L BANK OF UKR. (Mar. 22, 2022), https://bank.gov.ua/en/news/ all/dogovir-iz-natsionalnim-bankom-polschi-pro-valyutniy-svop-na-1-mlrd-dol-ssha -ukladeno [https://perma.cc/8DFT-8NMR] (archived July 20, 2022).

citizen.[151] This measure provides certainty as well as a ceiling to the NBU's liquidity expenditure. This cap is arguably necessary as citizens' "deserting demand" exerts inflationary pressure on the UAH, exacerbating the expense for foreign currency swap lines. This cap also protects excessive liquidity outflows from the Ukrainian banking system, consistent with the measures discussed above.

Although the swap line provides for citizens' needs to some extent, 10,000 UAH is a relatively low amount per citizen for subsistence and welfare. The low cap also signals that host countries are also worried that refugee welfare needs will challenge their own banking sectors. In particular, a number of Eastern European countries are concerned that their roles in helping with the needs of the fallout of war are "punished" by the market, as their national currencies are under selling pressure.[152] In this manner, a public sector-led solution is needed not only to address welfare demands but also the pressure on banks, affected central banks, and governments.

We propose an open-ended, public sector-led solution in the expectation of more welfare demands, uncertain quanta of foreign exchange losses for commercial banks, and pressures upon a number of Eastern European national currencies. The NBU should continue to monitor the limits it sets on citizens' withdrawals, but we agree that a periodic cap is sensible in order to mitigate liquidity outflow stress for the Ukrainian banking system. Our proposed public sector-led solution is twofold: first, relating to bank regulation for UAH holdings by foreign commercial banks, and second, relating to backstop arrangements between the NBU and its Eastern European counterparts with the ECB.

First, if the NBU swap line and cap are exhausted, we still need to address the question of whether commercial banks should cease servicing in UAH. Commercial banks are disincentivised because the financial risk of holding UAH is difficult to measure, therefore affecting banks' compliance with micro-prudential and capital regulations.[153] We argue that the humanitarian concerns should be addressed, and foreign commercial banks should refrain from taking a hard line once the cap is exhausted. There is a need to manage these banks' risks for their expected goodwill, while bearing in mind that the NBU is unlikely to be able to afford massive upfront swap lines or underwrite an unlimited amount of losses. Either of those demands on the NBU

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151. *Ukrainians to Be Able to Exchange Hryvnia Cash in Polish Banks*, *supra* note 108.

152. *See* Macie Jonoszko, *Zloty and Forint Plunge to Record Lows, Shifting Focus to Rates*, BLOOMBERG (Mar. 7, 2022), https://www.bloomberg.com/news/ articles/2022-03-07/zloty-forint-plunge-to-all-time-lows-as-war-in-ukraine-rages-on [https://perma.cc/BBY9-8Z4V] (archived July 20, 2022).

153. *See The Basel Framework*, BANK FOR INT'L SETTLEMENTS, https://www.bis.org/basel_framework/ (last visited Aug. 16, 2022) [https://perma.cc/L5GP-ZSAA] (archived July 20, 2022).

would present difficult conflicting objectives as war continues and financing needs remain open, and would undermine the NBU's attempt to keep inflation under control. In this manner we argue that our two-stepped approach would need to involve other central bank counterparts in achieving the twin objectives of protecting their banks while sustaining an affordable path for the NBU and the Ukrainian government.

Banks continuing to provide for Ukrainian refugees' financial needs should not be penalised by the application of micro-prudential regulation constraints that make them bear their own losses. If banks hold UAH on their trading or banking book, UAH holdings have to be micro-prudentially counted, therefore weakening banks' capital positions during this period of heavy discounting of the UAH's value. Holdings of UAH should not be counted in banks' trading books as the currency is arguably illiquid at this time.[154] This also avoids the risk-weighting of UAH holdings in relation to market value, which is volatile and heavily dis-counted. Banks would, however, need to risk-weight UAH in their banking books as illiquid assets. Such risk-weighting is based on the credit risk of their Ukrainian bank counterparts or ultimately to the sovereign where the state-owned Ukrainian banks are concerned.[155] It is likely that the "normal" application of risk-weighting and micro-prudential regulation would make it commercially sub-optimal for banks to hold UAH assets.

The above proposal should be done as a common policy agreed upon by bank regulators including the NBU, Eastern European central banks, the ECB as the euro-area bank regulator, and other central banks in states that host Ukrainian refugees with cash withdrawal needs.[156] We propose that bank regulators should agree to suspend the risk-weighting of UAH holdings in European banks' books and exempt banks from counting these towards micro-prudential regulatory compliance. Such suspension could allow banks to continue providing services that involve conversion of UAH.

Such suspension would be unprecedented but arguably not inconsistent with the micro-prudential regulatory framework. Micro-prudential supervision seeks conservative but accurate valuations of risk in order to supply transparency to regulators and markets, for them to keep an eye on systemic and market stability. In extraordinary circumstances, systemic or market stability is more optimally

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154. *See Risk-based Capital Requirements 25.3 & 25.4*, BANK FOR INT'L SETTLEMENTS (Dec. 15, 2019), https://www.bis.org/basel_framework/chapter/RBC/25.htm [https://perma.cc/3K4T-LBTM] (archived July 20, 2022).

155. *See* FITCH RATINGS, *supra* note 66 (noting Fitch's downgrading of Ukraine's credit rating).

156. *See* Council Regulation (EU) No. 1024/2013 of 15 October 2013 Conferring Specific Tasks on the European Central Bank Concerning Policies Relating to the Prudential Supervision of Credit Institutions, 2013 O.J. (L 287) 63–89; Treaty on the Functioning of the European Union art. 127(6), *supra* note 32.

maintained by suspension instead of volatile forms of transparency.[157] This position has been illustrated in a range of different "financial stress" situations, such as regulators' bans on short-selling for securities under extraordinary pressure[158] or where suspensions of fund redemptions for illiquid assets are introduced because outflow pressures have become extraordinary.[159] These suspensions all intend to provide breathing room for return to stability of value. However, in order to prevent such suspension from culminating into an "asset" or "market" shock, there is still a need for a public sector backstop.

Secondly, we suggest that the suspension of micro-prudential regulation in the manner proposed above for foreign banks provides time for the NBU and foreign central bank counterparts to discuss a public sector backstop for commercial banks' potential foreign exchange losses. Such a backstop should however be deferred while the NBU's mandates are already stretched. The backstop would ultimately involve burden sharing amongst the NBU and other central banks. Affected central banks may be disincentivised to contribute generously to the backstop in view of the sell-off pressures on their national currencies. In this manner, the involvement of the ECB as a powerful central bank would be important to support the backstop and its credibility. The ECB has now established or extended financing agreements with Poland and four other countries to support their efforts to defend their currencies against sell-off pressures in the market.[160] The ECB has set up a €10 billion precautionary swap line with the Polish central bank to provide it with euros in return for Polish zlotys until January 2023.[161] It also extended repurchase agreements to provide euro financing to the central banks of Hungary, Albania, North Macedonia, and San Marino, which are affected by currency sell-off pressures in light of their roles in hosting Ukrainian refugees.[162] In this manner, access to the euro, an important global reserve currency, would help national central banks in Eastern Europe defend against depreciation pressures on their currencies.

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157. For a general discussion on regulatory suspensions, see Chiu, Kokkinis & Miglionico, *supra* note 77.

158. Regulation (EU) No 236/2012 of the European Parliament and of the Council of 14 March 2012 on Short Selling and Certain Aspects of Credit Default Swaps, arts. 20–25, 2012 O.J. (L 86) 1–24.

159. *See* U.K. FIN. CONDUCT AUTH., ILLIQUID ASSETS AND OPEN-ENDED FUNDS AND FEEDBACK TO CONSULTATION PAPER CP18/27 ¶¶ 3.2–3.7 (Sept. 2019), https://www.fca.org.uk/publication/policy/ps19-24.pdf [https://perma.cc/C5FG-VRMK] (archived July 20, 2022).

160. *See ECB agrees euro liquidity lines with non-euro area central banks until 15 January 2023*, EUR. CENT. BANK (Mar. 28. 2022), https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr220328~986539101a.en.html [https://perma.cc/ 3GZN-D26M] (archived July 14, 2022).

161. *Id.*

162. *Id.*

The arrangements of burden sharing and financing support amongst affected central banks can arguably go further towards absorbing financial losses in relation to UAH. Sole burdens borne by the NBU may threaten the state's solvency and/or generate risks of runaway inflation, which undermines the NBU's ability to credibly provide a backstop. Hence, some extent of burden sharing and loss absorption on the part of central banks in Eastern Europe and the ECB may be inevitable. Further, burden sharing would be part of a broader mosaic for post-war management, envisaged by economists such as Martin Wolf.[163] The ECB and European national central banks continue to signal their solidarity with Ukraine, as reflected in the first ever invited address made by the NBU Governor to the ECB's General Council on May 4, 2022.[164] Such indications of friendship can pave the way for more challenging conversations in the future. Whatever the result of the war, the likelihood that refugee host countries would incur new fiscal burdens is high. The sharing of such burdens not only meets the needs of all affected central banks, but also appeals to democratic states' comity and commitment to shared values protecting the institutions that matter to them. Nevertheless, burden-sharing would ultimately involve political commitment and agreement.

We turn to discuss an alternative, bottom-up solution using private cryptocurrency, or stablecoins, as an option, to provide for refugees' financial welfare.[165] Citizens may want to protect their assets from expropriation or an unreliable fiat currency system.[166] The ease of downloading a non-custodial digital wallet on one's smartphone in order to hold cryptocurrency promotes a form of self-help pending the wait for a public sector-led solution. Ukrainian refugees may purchase cryptocurrencies using Visa or Mastercard with major cryptocurrency exchanges, but as discussed above, such conversion services may not be sustainable without a solution regarding the risks of foreign exchange losses. Hence, access to cryptocurrency could itself be

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163. *See* Martin Wolf, *Putin's war demands a concerted global economic response*, FIN. TIMES (Mar. 23, 2022), https://www.ft.com/content/fc9e7fd7-0476-4e37-a135-538aeecbe5b2 [https://perma.cc/TE7A-P9CJ] (archived July 14, 2022).

164. *See Kyrylo Shevchenko Speaks at Ad-Hoc Meeting of ECB General Council*, NAT'L BANK OF UKR. (May 4, 2022), https://bank.gov.ua/en/news/all/kirilo-shevchenko-vistupiv-na-spetsialnomu-zasidanni-zagalnoyi-radi-yevropeyskogo-tsentralnogo-banku [https://perma.cc/V5S3-6PGJ] (archived Aug. 8, 2022).

165. *See* MacKenzie Sigalos, *Ukrainian refugee flees to Poland with $2,000 in bitcoin on a USB drive*, CNBC NEWS (Mar. 23, 2022), https://www.cnbc.com/2022/03/23/ukrainian-flees-to-poland-with-2000-in-bitcoin-on-usb-drive.html [https://perma.cc/DM5B-CMBA] (archived July 15, 2022).

166. *See* Laura Pitel & Eva Szalay, *Turks flock to cryptocurrencies in search of stability*, FIN. TIMES (Jan. 23, 2022), https://www.ft.com/content/02194361-a5b9-4bf0-9147-f36ba7759cf1 [https://perma.cc/YT8F-8SFS] (archived July 15, 2022); Emily Stewart & Rebecca Heilweil, *War in the time of crypto*, VOX (Mar. 15, 2022), https://www.vox.com/recode/22955381/russia-ukraine-bitcoin-donation-war-crypto [https://perma.cc/HK2Q-N2BZ] (archived July 15, 2022).

dependent on the solution that needs to be forged by public sector-led leadership, the contours for which we propose above.

Policymakers may be of double minds about refugee access to private cryptocurrency to meet financial protection needs. On one hand, private cryptocurrency is a form of self-help, and despite the volatility of major cryptocurrencies such as Bitcoin or Ether,[167] the choice may be stark between volatile cryptocurrencies that have market value and a national currency that faces existential threat. Further, private cryptocurrency provides a haven for refugees whose settlement remains uncertain and who may decide not to convert their stores of value into any territory-based fiat currency. Private cryptocurrency also allows holders to access alternative peer-to-peer services in permissionless blockchains, such as remittance to fellow refugees elsewhere, where conventional channels may be more cumbersome. The receipt of aid by the Ukrainian government in private cryptocurrency also broadly reflects the opportunities in addition to conventional avenues of assistance and finance.[168]

On the other hand, private cryptocurrency provides avenues for pseudonymous transfers to be made that can evade sanctions or protect the wealth of sanctioned entities,[169] and it is already well-documented that money launderers have looked to avenues of transferring private cryptocurrency to evade regulations.[170] During the present time, European nations, the United States, and the United Kingdom would be keener to extend stricter anti-money laundering control over crypto-service providers,[171] and this may result in more obstacles for refugees to access private cryptocurrency.

We propose that, in principle, the anti-money laundering deterrent to refugees' potential access to private cryptocurrency should

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167. *See* Kriti Gupta, *Ether Beats Bitcoin in 2021 as Volatility Suddenly Takes a Bite*, BLOOMBERG (Dec. 29, 2021), https://www.bloomberg.com/news/articles/2021-12-29/ether-beats-bitcoin-in-2021-as-volatility-suddenly-takes-a-bite [https://perma.cc/A4U9-P7W4] (archived July 15, 2022).

168. *See Sanctions-dodgers hoping to use crypto to evade detection are likely to be disappointed*, ECONOMIST (Mar. 19, 2022), https://www.economist.com/finance-and-economics/why-crypto-is-unlikely-to-be-useful-for-sanctions-dodgers/21808188 [https://perma.cc/8RVX-26UT] (archived July 17, 2022).

169. *See Crypto money laundering rises 30%, report finds*, *infra* note 171. *But see Sanctions-dodgers hoping to use crypto to evade detection are likely to be disappointed*, *supra* note 168.

170. *See Crypto money laundering rises 30%, report finds*, BBC NEWS (Jan. 26, 2022), https://www.bbc.co.uk/news/technology-60072195 [https://perma.cc/2GGW-S9AS] (archived July 17, 2022).

171. *See Executive Order on Ensuring Responsible Development of Digital Assets*, THE WHITE HOUSE (Mar. 9, 2022), https://www.whitehouse.gov/briefing-room/presidential-actions/2022/03/09/executive-order-on-ensuring-responsible-development-of-digital-assets/ [https://perma.cc/2K7F-42C7] (archived July 17, 2022) (recognizing that "[d]igital assets may pose significant illicit finance risks, including money laundering . . ."); Economic Crime (Transparency and Enforcement) Act 2022, c. 10 (UK), https://www.legislation.gov.uk/ukpga/2022/10/contents/enacted [https://perma.cc/U6HU-VZXL] (archived July 17, 2022).

not be prohibitive if there is no sustained public sector-led policy for refugees' welfare.[172] Conversely, if there is a public sector-led solution that facilitates sustained mainstream financial inclusion for refugees, the removal of regulatory obstacles to access private cryptocurrency becomes less important. This balance is arguably consistent with the EU's temporary decision regarding Ukrainian refugees[173] and the European Banking Authority's admonition to national financial regulators to assist Ukrainian refugees' inclusion in mainstream financial systems.[174]

Private cryptocurrency service providers should not be unduly penalised in applying flexible measures for identification and management of money laundering risks in relation to refugees, which is ultimately consistent with a risk-based approach envisaged in the EU.[175] However, given the volatility of private cryptocurrencies and the unregulated nature of stablecoin providers such as Tether, the preference is for refugees to be included in the mainstream regulated financial services sector. A public sector-led solution is also likely to address the problems of scale and consistent action, and such a solution alleviates the stresses that refugees would suffer in search for self-help, in an already demanding situation for them.

IV. SUPPORTING INSTITUTIONAL PRESERVATION

Finally, we address the role of the NBU in contributing overall to institutional preservation. This is relevant for itself and the banking and financial sectors as key industries for rebuilding and restoration in due course.

Other than preserving the resilience of critical infrastructure discussed above, we suggest that the NBU and key institutions for finance, such as the National Securities and Stock Market Commission

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172. This could take the form of lack of adequate identification or residential permanency for the purposes of complying with financial institutions' due diligence requirements.

173. *See* Council Implementing Decision (EU) No. 2022/382 of 4 March 2022, *supra* note 111.

174. *See EBA calls on financial institutions to ensure compliance with sanctions against Russia following the invasion of Ukraine and to facilitate access to basic payment accounts for refugees*, EUR. BANKING AUTH. (Mar. 11, 2022), https://www.eba.europa.eu/eba-calls-financial-institutions-ensure-compliance-sanctions-against-russia-following-invasion [https://perma.cc/2UMK-Z5KD] (arch ived July 17, 2022); *EBA calls on financial institutions and supervisors to provide access to the EU's financial system*, EUR. BANKING AUTH. (Apr. 27, 2022), https://www.eba.europa.eu/eba-calls-financial-institutions-and-supervisors-prov ide-access-eu-financial-system [https://perma.cc/4GT5-FJGU] (archived July 17, 2022).

175. *See, e.g.*, EUR. BANKING AUTH., GUIDELINES ON MONEY LAUNDERING AND TERRORIST FINANCING RISK FACTORS 17 (Mar. 1, 2021), https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Guidelines/2021/963637/Final%20Report%20on%20Guidelines%20on%20revised%20ML%20TF%20Risk%20Factors.pdf [https://perma.cc/3R2Y-HNZ5] (archived July 17, 2022).

(NSSMC), the Ukraine Stock Exchange, and the banking and financial sectors in Ukraine, particularly the three largest national banks, should mind the risks of loss or damage to important records or ledgers that can be vital for institutional preservation and restoration. *Inter alia,* important records that the NBU holds would relate to reserves not only of foreign currency but also of gold and strategic metals. Further, supervisory records that the NBU holds in relation to the banking and payment services sector are important. The records held by the NSSMC and the Ukraine Stock Exchange related to supervision and oversight of listed companies and financial sector participants would also be critical to protect. As Chris Berg, Sinclair Davidson, and Jason Potts argue, "[t]he organisations and institutions of an economy that include markets, contracts, law, government, and money are mechanisms to operationalise ledgers . . . . Ledgers exist everywhere in the economy."[176] Hence, the preservation of records and ledgers is fundamental to institutional preservation for both public and private sector (economic) functioning. This issue of record preservation potentially extends to all forms of ledgers and records that are of importance: those holding public sector information, evidencing ownership, social and economic rights, economic organisations and activities, and the provision of public goods.

With digitalization, many important records and ledgers will be in digital form, although older records could be in paper form. Physical records suffer from risk of loss if there is physical damage to the premises where they are held, while digital records also suffer the risk of loss if physical infrastructure supporting digital storage is attacked or if sophisticated cyberattacks manage to tamper with or lock out digital records. It is unclear to what extent these records are exclusively and centrally maintained by public and important private sector entities. In peacetimes the central maintenance of important records by responsible entities makes sense, given that privacy and security risks may increase when working with third-party service providers.[177] The need to maintain adequate oversight of third-party service providers is burden-some, which also supports record-storing functions to be implemented in-house. However, as suggested in Part III, risk dispersion can be part of the strategy to manage the risk of loss under extraordinary conditions, and third-party cloud computing service providers can be part of this unconventional risk management strategy.

We also consider, in conceptual form, whether a not-for-profit option for the protection of important records is possible. Focusing only upon the NBU, we suggest the possibility of not-for-profit assistance by the international network of central banks, of which the NBU is

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176. CHRIS BERG, SINCLAIR DAVIDSON & JASON POTTS, UNDERSTANDING THE BLOCKCHAIN ECONOMY 54 (2019).

177. *See* Hon & Millard, *supra* note 132, at 56–59.

part, in order to see if it may be *institutionally* as well as *technologically* possible for peer-level help to be extended to the NBU. Such help we suggest is in the form of establishing "peer-level information repositories" as back-up for the NBU's storage of important records. The NBU is a member of the European Regional Consultative Group, part of the broader Financial Stability Board (FSB). The FSB is well positioned to act as a "peer-level information repository."[178] This role can be undertaken in such a way as not to compromise the privacy and security of information contained in the records. We argue that our proposal is not radical, as similar actions have been taken, for example, by the Federal Reserve to protect the Afghan central bank's and banking sector's assets in light of the change in regime in Afghanistan.[179] We argue that it is proportional for the FSB to take on protective roles for one of its members facing an existential threat.

There are two considerations that inform this conceptual possibility. One is institutional in nature, in terms of whether the FSB may act in this capacity. The other is technological in nature, in terms of how such records can be shared or backed up and how the privacy and security of such shared records can be ensured.

A. *Institutional Basis for Peer-Level Shared/Back-up Repositories*

The FSB was set up initially as the Financial Stability Forum in 1999 to coordinate information exchange and financial stability actions in the wake of the Asian Financial Crisis.[180] The Board was reconsolidated as having its own membership and mandate after the global financial crisis of 2007-09, as global leaders affirmed the importance of these goals: coordinated policy, information exchange, and actions amongst financial regulators to protect cross-border and global financial stability.[181] We argue that peer central banks to the

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178. *See Members of the FSB Regional Consultative Group for Europe*, FIN. STABILITY BD. (July 12, 2022), https://www.fsb.org/about/rcgs/list-of-members-of-the-fsb-regional-consultative-group-for-europe/ [https://perma.cc/JE7G-YGUK] (archived Aug. 8, 2022).

179. *See FACT SHEET: Executive Order to Preserve Certain Afghanistan Central Bank Assets for the People of Afghanistan*, THE WHITE HOUSE (Feb. 12, 2022), https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/11/fact-sheet-executive-order-to-preserve-certain-afghanistan-central-bank-assets-for-the-people-of-afghanistan/#:~:text=As%20part%20of%20our%20ongoing,to%20benefit%20the%20Afghan%20people [https://perma.cc/JJ3H-GPHW] (archived July 17, 2022).

180. *See History of the FSB*, FIN. STABILITY BD. (Dec. 2, 2021), https://www.fsb.org/about/history-of-the-fsb/ [https://perma.cc/26R5-3QVQ] (archived July 17, 2022).

181. *See* Eva Hupkes, *The International Financial Cooperation – Recent Reform*, 9(2) EUR. CO. & FIN. L. REV. 179, 187 (2012); Daniel E. Nolle, *Who's in Charge of Fixing the World's Financial System? The Un[?]der-Appreciated Lead Role of the G20 and the FSB*, 24 FIN. MKTS., INSTS. & INSTRUMENTS 1, 5 (2015).

NBU, in its Regional Consultative Group, can coordinate supportive action under the FSB's umbrella. Arguments can be made against the FSB being involved to assist the NBU. This is because Ukraine is neither a member of the Bank for International Settlements, the "parent" organisation for the FSB, [182] nor of the FSB's Steering Committee.[183] Russia is a member of the Steering Committee of the FSB and, as the FSB takes executive decisions by consensus, a member's veto would effectively prevent the FSB from acting. However, the Bank for International Settlements has suspended Russia's membership,[184] so this suspension may extend to its membership in the FSB Steering Committee. Even if Russia were suspended from exercising a veto on the FSB's Steering Committee, any action taken on the part of the FSB to proactively assist Ukraine could be seen as beyond its mandates. The FSB's mandates are, *inter alia,* to:

> (a) assess vulnerabilities affecting the global financial system . . . [and] the regulatory, supervisory and related actions needed to address them . . . ;
>
> (b) promote coordination and information exchange among authorities responsible for financial stability;
>
> . . .
>
> (g) support contingency planning for cross-border crisis management, particularly with respect to systemically important firms; . . .
>
> (j) undertake any other tasks agreed by its Members . . . within the framework of this Charter.[185]

Arguably, any action the FSB can take with regard to supporting the NBU could only fall within provision (b) or (g). The increased stresses for cross-border banking and payment services involving European and Ukrainian banks provide the context for "contingency planning," which includes proper preservation of records. However, (g) is meant for cross-border crisis management, such as from the fallout of systemically important global institutions, and none of the largest

182. *See BIS member central banks*, BANK FOR INT'L SETTLEMENTS, https://www.bis.org/about/member_cb.htm [https://perma.cc/T3UL-RGGW] (archived Aug. 8, 2022); Carl Felsenfeld & Genci Bilali, *The Role of the Bank for International Settlements in Shaping the World Financial System*, 25 U. PA. J. INT'L ECON. L. 945, 971 n.101 (2004).

183. *See Members of the Steering Committee,* FIN. STABILITY BD., https://www.fsb.org/about/organisation-and-governance/members-of-the-steering-committee/ (last visited Aug. 16, 2022) [https://perma.cc/YG7A-EL2Z] (archived July 19, 2022).

184. *Bank for International Settlements Suspends Russian central bank's Access to BIS Services*, NAT'L BANK OF UKR. (Mar. 10, 2022), https://bank.gov.ua/en/news/all/bank-mijnarodnih-rozrahunkiv-prizupinyaye-dostup-tsentralnogo-banku-rosiyi-do-svoyih-servisiv [https://perma.cc/9GL5-YB94] (archived Aug. 8, 2022).

185. FIN. STABILITY BD., CHARTER OF THE FINANCIAL STABILITY BOARD (2012), https://www.fsb.org/wp-content/uploads/FSB-Charter-with-revised-Annex-FINAL.pdf [https://perma.cc/3UP9-YYJQ] (archived July 19, 2022).

Ukrainian regulated banks are designated as globally, systemically important by the FSB.[186]

(b) may cover supportive action by the FSB in relation to promoting coordination amongst relevant financial authorities for the purposes of maintaining financial stability. It is not stated that "financial stability" is limited to cross-border or global phenomena, or that only endogenous issues to the financial sector may be considered in relation to "financial stability."[187] Further, the exogenous threat of war to the continued well-functioning of the Ukrainian banking and financial sectors has begun to affect the banking sectors of neighbouring Eastern European countries most affected by the refugee influx, arguably raising issues of financial stability of joint concern to the NBU and the group of authorities most closely related to the NBU (i.e., the central banks in European jurisdictions that are part of the same Regional Consultative Group). The Group could mobilise the FSB to house an emergency/ temporary repository for the NBU's records if perceived to be under threat.

It is arguably preferable for the FSB, rather than individual "friendly" central banks, to take on this role for the NBU. Each individual central bank would have to make a case within its mandate to its domestic constituents. It may be argued that central banks have little difficulty expanding their roles in modern times as commentators have observed crisis-led changes to central bank practices, particularly in relation to expanding facilities for international coordination and cooperation.[188] The moral claim on the FSB to support the NBU, along with the broadly framed objective of protecting institutional and financial stability for the NBU, would be unlikely face objections. In this circumstance, the FSB's mandates should not be read too broadly as it is a highly inter-governmental organisation, reflected in its consensus approach to decision-making in the Steering Committee. Extending its role may result in future mission creep for an organisation that is not democratically accountable.[189] On balance, however, any or multiple bilateral arrangements with friendly central banks may be less convenient or efficient than a coordinated

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186. FIN. STABILITY BD., 2021 LIST OF GLOBAL SYSTEMICALLY IMPORTANT BANKS (G-SIBS) (2021), https://www.fsb.org/wp-content/uploads/P231121.pdf [https://perma.cc/GJZ8-28BL] (archived July 19, 2022).

187. Aerdt Houben, Jan Kakes & Garry Schinasi, *Toward a Framework for Safeguarding Financial Stability* 16 (Int. Monetary Fund, Working Paper No. WP/04/101, 2004), https://www.elibrary.imf.org/view/journals/001/2004/101/article-A001-en.xml [https://perma.cc/84VH-WJTL] (archived July 20, 2022).

188. *See* Kahn & Meade, *supra* note 92, at 334–36.

189. The limited institutional capability of the FSB is discussed in Manuella Moschella, *Designing the Financial Stability Board: A Theoretical Investigation of Mandate, Discretion, and Membership*, 16 J. INT'L RELS. & DEV. 380 (2013). *See also* Tim Clark, *The Teleological Turn in the Law of International Organisations*, 70 INT'L & COMPAR. L.Q. 533 (2021) (discussing restraint on the part of international organisations in extending fields of action).

arrangement with the FSB as a network organisation. We suggest that the temporary nature of such assistance, on an emergency/necessity basis, can be justified under provision (b) above and mitigates the concerns of mandate stretching.

B. Concept of Technological Implementation by Means of Permissioned Blockchain

In terms of the technological implementation of the peer-level shared/back-up repository at the FSB, we moot the deployment of a permissioned blockchain which constructs a peer-to-peer connection between the NBU and FSB. This permissioned block-chain also maintains a ledger in order to record and make trans-parent actions that take place over the blockchain protocol.

The blockchain architecture is a platform for peer-to-peer level computer interactions, based on protocols that facilitate the building out of blocks of timestamped information, usually transactional information, verified by and transparent to participants in the network.[190] The permissionless blockchains, such as for Bitcoin or Ethereum, have drawn global attention due to their core innovation of being able to build out a distributed ledger for transactions carried out on the chains, based on automated consensus protocols where participants do not know or trust each other.[191] For the NBU's purposes, a permissionless blockchain is unsuitable,[192] but a permissioned blockchain may meet its needs. This suggestion is conceptual only, as we do not warrant how the detailed technical implementation can be made. We rely on the suitability of the properties of permissioned blockchains as observed and documented to suggest that this may be a viable technological means for the peer-level repository to be constructed quickly and effectively.

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190. *See* Kumar Bhaskaran, Peter Ilfrich, Dain Liffman, Christian Vecchiola, Praveen Jayachandran, Apurva Kumar, Fabiam Lim, Karthik Nandakumar, Zhengquan Qin, V. Ramakrishna, Ernie GS Teo & Chun Hui Suen, *Double-Blind Consent-Driven Data Sharing on Blockchain* 1 (2018 IEEE Int'l Conference on Cloud Engineering, Conference Paper) [hereinafter Bhaskaran et al.].

191. *See* Jean Bacon, Johan David Michels, Christopher Millard & Jatinder Singh, *Blockchain Demystified: A Technical and Legal Introduction to Distributed and Centralized Ledgers*, 25 RICH. J.L. & TECH. 1, 76–77 (2018). *See generally* REGULATING BLOCKCHAIN: TECHNO-SOCIAL AND LEGAL CHALLENGES (Phillip Hacker et al. eds., Oxford Univ. Press 2019).

192. *See* Karl Wüst & Arthur Gervais, *Do You Need a Blockchain?*, INST. OF ELECTRICAL AND ELECTRONICS ENG'RS (Nov. 8, 2018), https://eprint.iacr.org/2017/375.pdf [https://perma.cc/44DY-KNK8] (archived July 20, 2022).

First, the NBU and FSB can be connected by a permissioned blockchain protocol,[193] such as Hyperledger Fabric[194] or R3 Corda.[195] It has been suggested that the Hyperledger Fabric protocol is able to convey encrypted information and ensure that encrypted information remains private unless unlocked by consensus.[196] Ripple is also a popular permissioned blockchain protocol provider,[197] but the design of Ripple has been geared towards peer-to-peer international financial transactions. Therefore, the former two options may be more appropriate for general information-sharing and coordination purposes. These protocol providers can offer tailor-made smart contracts, in other words, code for automatic deployment of actions upon the fulfilment of pre-determined conditions, for the NBU and FSB to execute actions. For example, the NBU writes to the permissioned blockchain upon the transfer of encrypted information blocks to the FSB, or the FSB automates smart contract notifications to the NBU when the FSB moves transferred information blocks to offline data storage for security. In this manner the permissioned blockchain enables peer-to-peer transfer of important data, which need not be stored on-chain for security reasons. The permissioned blockchain also keeps a transparent and comprehensive trail of actions carried out by either party.[198]

Permissioned blockchain protocol providers are for-profit in nature, but we urge that these services should be provided without opportunism. The success of these services to provide for Ukraine's hour of need can mobilize future commercial interest for permissioned blockchain revolutions for other public and private sector innovations. Further, in view of the imposition of martial law in Ukraine, the public procurement processes, whether by FSB or NBU, should be expedited in light of the emergency. This could raise competition concerns under peacetime conditions, but it may be a necessary trade-off in times of war.

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193. *See* Anna Donovan, *(Shadow) Banking on the Blockchain: Permissioned Ledgers, Interoperability and Common Standards*, *in* RESEARCH HANDBOOK ON SHADOW BANKING 314, 314–36 (Iris H-Y Chiu & Iain G MacNeil eds., 2018).

194. Bhaskaran et al., *supra* note 190, at 1, 3–7.

195. *See* Pablo Garcia Bringas, Iker Pastor-López & Giuseppe Psaila, *BlockChain Platforms in Financial Services: Current Perspective*, 11 BUS. SYS. RSCH. 110, 117 (2020).

196. Bhaskaran et al., *supra* note 190, at 2. *See generally* Tiago Guimarães, Ailton Moreira, Hugo Peixoto & Manuel Santos, *ICU Data Management - A Permissioned Blockchain Approach*, 177 PROCEDIA COMPUT. SCI. 547 (2020) (providing a discussion regarding transfer of sensitive medical information via permissioned blockchain protocols such as Hyperledger Fabric).

197. *See generally* Lissa L. Broome, *Banking on Blockchain*, 21 N.C. J.L. & TECH. 169 (2019); Michael T Rosner & Andrew Kang, *Understanding and Regulating Twenty-First Century Payment Systems: The Ripple Case Study*, 114 MICH. L. REV. 649 (2016).

198. *See* Gengrui Zhang & Chengzhong Xu, *An Efficient Consensus Protocol for Real-Time Permissioned Blockchains Under Non-Byzantine Conditions*, *in* GREEN, PERVASIVE, AND CLOUD COMPUTING 298–311 (Shijian Li ed., 2019).

V. CONCLUSION

This Article explores the important and multifaceted roles of a central bank in extraordinary times of crisis such as war. Although martial law may be imposed, the institutional and legal mandates for central banks remain important for their navigation of multiple objectives and ultimately for institutional credibility and preservation. In particular, war poses existential threats to institutional continuity and legitimacy but preserving these very institutional tenets are important in defending the nation under siege and in securing future restoration and rebuilding. In this light, we argue that the central bank in Ukraine (NBU), at times of war, faces three difficult and conflicting responsibilities: providing war finance, preserving banking and financial systemic stability, and catering for citizens' financial welfare. These difficult choices in priorities in turn raise the need for the central bank to ensure its own institutional preservation and legitimacy in order to provide for the needs above. We examine various measures implemented by the NBU in order to appraise the dilemmas it faces and the balances it needs to strike. However, there is also a role for international solidarity with the NBU, particularly for European central banks intimately concerned with the financial needs of Ukrainian refugees abroad, and the network of central bankers in the Financial Stability Board. Although this Article focuses on the role of the NBU during the war in Ukraine, insights regarding the interaction of central banks' objectives and institutional preservation may be useful for other central banks if faced with similar circumstances in the future.